

National Institute of Standards and Technology

The National Institute of Standards and Technology (NIST) is responsible for promoting U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. NIST carries out this mission through the following programs.

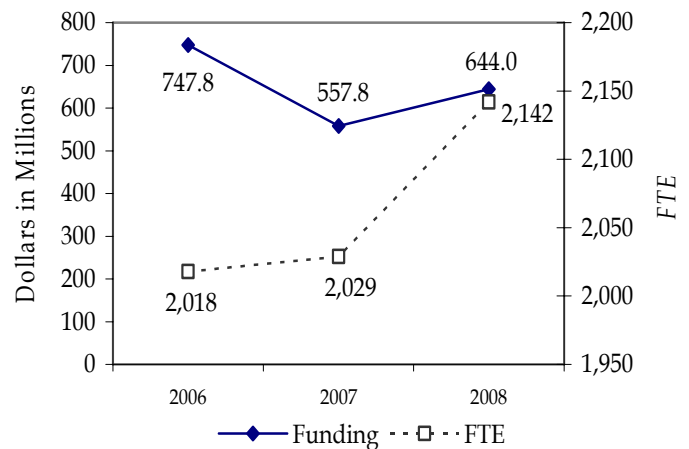
The **NIST Laboratories'** research program focuses on providing the measurements, standards, verified data, and test methods necessary to support the development of new technologies and to promote the competitive standing of the U.S. in the global economy. The world-class scientific and technical staff works closely with private industry, academic researchers, and other government agencies.

The **Hollings Manufacturing Extension Partnership (MEP) Program** assists small manufacturing establishments in assimilating new technologies and manufacturing practices through government-industry partnerships and extension services.

The **Baldrige National Quality Program (BNQP)** is a highly visible quality management program focused on instilling the principles of continuous quality improvement in U.S. businesses and educational, health care, and non-profit organizations.

Funding requested for FY 2008 will implement the President's American Competitiveness initiative (ACI). NIST's programs and research facilities are essential elements of the ACI. NIST has initiated a long-term program to upgrade and maintain its lab facilities in two main campuses in Gaithersburg, Maryland and Boulder, Colorado. Upgrades to these facilities, which are 35 to 45 years old, are required to support NIST research in the 21st century.

Budget Authority and FTE



Summary of Appropriations

Appropriation	2006 <u>Actual</u>	2007 <u>Estimate</u>	2008 <u>Estimate</u>	Increase <u>(Decrease)</u>
Scientific and Technical Research and Services	\$394,762	\$395,056	\$500,517	\$105,461
Industrial Technology Services	183,624	92,000	46,332	(45,668)
Construction of Research Facilities	173,651	67,998	93,865	25,867
Total Appropriation	752,037	555,054	640,714	85,660
Transfers of funds from Election Assistance Commission, STRS	2,772	2,772	3,250	478
Unobligated balance, rescission, ITS	(7,000)	0	0	0
Working Capital Fund, STRS	[1,300]	[750]	[12,500]	[11,750]
Budget Authority				
Scientific and Technical Research and Services	397,534	397,828	503,767	105,939
Industrial Technology Services	176,624	92,000	46,332	(45,668)
Construction of Research Facilities	173,651	67,998	93,865	25,867
TOTAL, BUDGET AUTHORITY	747,809	557,826	643,964	86,138
FTE				
Scientific and Technical Research and Services	1,774	1,854	2,020	166
Industrial Technology Services	201	125	72	(53)
Construction of Research Facilities	43	50	50	0
Working Capital Fund	720	764	764	0
Total	2,738	2,793	2,906	113

Highlights of Budget Changes

Appropriation: Scientific and Technical Research and Services

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2007 Continuing Resolution			1,854	\$395,056
Less 2006/2007 Unrequested projects				(11,888)
Adjustment to support level in 2007 President's Budget			124	83,834
Adjustments to Base				
<u>Adjustments</u>				
Restoration of FY 2007 Deobligation Offset			0	1,000
<u>Other Changes</u>				
2007 Pay raise		1,094		
2008 Pay raise		4,909		
Payment to the Working Capital Fund		75		
Change in compensable days		1,676		
Civil Service Retirement System (CSRS)		(203)		
Federal Employees' Retirement System (FERS)		324		
Thrift Savings Plan		3,958		
Federal Insurance Contributions Act (FICA) - OASDI		258		
Health insurance		830		
Employees' Compensation Fund		(58)		
Travel:				
Mileage		3		
Postage		15		
Rental payments to GSA		(4)		
Printing and reproduction		12		
Other services:				
Working Capital Fund		37		
Commerce Business System		66		
NARA		(15)		
Electricity rate increase		2,166		
Natural gas rate increase		5,355		
Supplies and materials: Scientific journal subscriptions		108		
General pricing level adjustment:				
Transportation of things		25		
Rent payments to others		32		
Communications, utilities, and miscellaneous charges		72		
Other services		1,466		
Supplies and materials		408		
Equipment		686		
Subtotal, other cost changes		23,295	0	23,295
Less Amount absorbed			0	(12,030)
TOTAL, ADJUSTMENTS TO BASE			0	12,265
2008 Base			1,978	479,267
Program Changes			42	22,250
TOTAL REQUIREMENTS			2,020	501,517
Recoveries from Prior Year Obligations				(1,000)
2008 APPROPRIATION			2,020	500,517

Comparison by Activity

DIRECT OBLIGATIONS	2007 Continuing Resol.		2008 Base		2008 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
NIST Laboratories								
Laboratories and technical programs								
Electronics & electrical engineering	229	\$51,303	229	\$52,046	229	\$52,046	0	\$0
Manufacturing engineering	109	22,837	113	25,041	113	25,041	0	0
Chemical science & technology	236	46,443	244	50,883	244	50,883	0	0
Physics	175	43,639	217	60,837	242	68,337	25	7,500
Materials science & engineering	170	34,308	175	39,812	175	39,812	0	0
Building & fire research	113	22,514	116	25,018	122	32,268	6	7,250
Computer science & applied math.	327	69,185	339	71,512	339	74,762	0	3,250
Standards & technology services	90	16,991	95	19,011	95	19,011	0	0
Innovations in Measurement Science	75	16,162	77	17,281	77	17,281	0	0
Postdoctoral fellowship program	94	12,065	94	11,368	94	11,368	0	0
Computer support	5	6,813	5	6,793	5	6,793	0	0
Business systems	29	12,262	29	12,427	29	12,427	0	0
Research support external projects	0	0	0	0	0	0	0	0
Subtotal, Labs & technical programs	1,652	354,522	1,733	392,029	1,764	410,029	31	18,000
National research facilities								
NIST center for neutron research	128	28,229	137	38,828	137	38,828	0	0
Center for nanoscale science and technology	22	11,911	56	30,292	67	35,292	11	5,000
Subtotal, National research facilities	150	40,140	193	69,120	204	74,120	11	5,000
Subtotal, NIST laboratories	1,802	394,662	1,926	461,149	1,968	484,149	42	23,000
Baldrige National Quality Program	52	8,314	52	8,118	52	8,118	0	0
TOTAL DIRECT OBLIGATIONS	1,854	402,976	1,978	469,267	2,020	492,267	42	23,000
FINANCING								
Unobligated balance, start of year	0	(4,898)	0	0	0	0	0	0
Recovery of prior year obligations	0	(1,000)	0	(1,000)	0	(1,000)	0	0
Subtotal, financing	0	(5,898)	0	(1,000)	0	(1,000)	0	0
TOTAL BUDGET AUTHORITY	1,854	397,078	1,978	468,267	2,020	491,267	42	23,000
Transfers from EAC		(2,772)		0		(3,250)		(3,250)
Transfers	0	750	0	10,000	0	12,500	0	2,500
TOTAL APPROPRIATION	1,854	395,056	1,978	478,267	2,020	500,517	42	22,250

Highlights of Program Changes

	<u>Base</u>		<u>Increase / Decrease</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>NIST Laboratories</u>	1,733	\$397,747	+31	+\$16,250
<u>National Research Facilities</u>	193	\$72,426	+11	+\$6,000

As a component of the President's 10-year American Competitiveness Initiative, an increase (+42 FTE, +\$22,250) is requested.

Technological innovation drives the Nation's economic growth and sustains our competitiveness in world markets. "Innovation will be the single most important factor in determining America's success through the 21st century," according to the Report of the National Innovation Initiative, Council on Competitiveness, December 2004. A 2005 National Academy of Sciences report, *Rising Above The Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, states, "Economic studies conducted even before the information-technology revolution have shown that as much as 85% of measured growth in U.S. income per capita is due to technological change." New technologies require a sophisticated set of supporting tools to succeed. These tools include knowledgeable people with easy access to key information, measurement science, and production technologies. NIST plays a fundamental role in ensuring access to this innovation toolset.

Of the \$22,250 increase requested, a transfer of \$2,500 will be made to the NIST Working Capital Fund.

American Competitiveness Initiative Components

Enabling Nanotechnology from Discovery to Manufacture (+11 FTE, +\$6,000)

The United States faces dramatic changes in manufacturing, with nanoscale manufacturing expected to be a dominant contributor to our Gross Domestic Product in the 21st century. The global impact of nanotechnology-related products is predicted to exceed \$1 trillion by 2015. The commercial development of new nanotechnologies depends on the rapid development of innovative nanoscale manufacturing and measurement methods. Through the new NIST Center for Nanoscale Science and Technology (CNST) and the NIST Laboratory programs, NIST will enable science and industry by providing essential measurement methods, instrumentation, and standards to support all phases of nanotechnology development, from discovery to production.

Enabling Innovation through Quantum Science (+10 FTE, +\$4,000)

Quantum information science seeks to use the fundamental properties of nature at very small scales to build technologies with capabilities that are superior to what is currently available. By exploring and harnessing the "special" properties of the quantum realm, NIST will open the gateway to a new and powerful technological frontier of greater computing power and secure communications for national security as well as financial and market transactions.

Measurements and Standards for the Climate Change Science Program (+15 FTE, +\$5,000)

For more than a decade, the United States has invested significantly in scientific activities related to climate change. In February 2002, the U.S. Climate Change Science Program (CCSP) was launched as a collaborative interagency program, designed to improve the government-wide management of climate science and climate-related technology development. Among the top priorities in the 10-year strategic plan produced by the CCSP were the development of better methods for understanding the impact of aerosols on global warming and the calibration of satellites used to observe of the Earth's atmosphere. NIST will develop the necessary measurement science and standards to improve the accuracy of climate predictions.

Disaster Resilient Structures and Communities (+4 FTE, +\$4,000)

Each year the U.S. suffers an estimated \$52 billion in property damage, disruption of commerce, and lost lives due to natural disasters such as hurricanes, wildland fires, and earthquakes. A single event such as a major earthquake or hurricane has a loss potential of as much as \$80 billion to \$200 billion. This initiative will enable a reduction in the risk of losses from extreme natural events by developing the capability to predict the effects of hazards on the performance of structural systems within the community.

National Earthquake Hazard Reduction Program (+2 FTE, +\$3,250)

There are close to \$8.6 trillion of structures and 75 million people located in urban areas of moderate to high earthquake risk. National Research Council studies estimate that a single large earthquake in the U.S. like the one that struck Kobe, Japan in 1995, could cause damage of \$100 to \$200 billion. This initiative will fund research for advanced mitigation technologies and create guidelines for the rehabilitation of existing structures.

STRS Initiative Name	Physics	Building & Fire Research	National Research Facilities	Working Capital Fund
Enabling Nanotechnology from Discovery to Manufacture			5,000	1,000
Enabling Innovation through Quantum Science	3,500			500
Measurements and Standards for the Climate Change Science Program	4,000			1,000
Disaster Resilient Structures and Communities		4,000		
National Earthquake Hazards Reduction Program		3,250		
STRS TOTAL	7,500	7,250	5,000	2,500

Appropriation: Industrial Technology Services

Summary of Requirements

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2007 Continuing Resolution			125	\$92,000
Adjustment to support level in 2007 President's Budget			(22)	(45,668)
Adjustments to Base				
<u>Adjustments</u>				
Restoration of FY 2007 Deobligation Offset		\$2,500		
Next phase of ATP reduction	(11)	0		
Subtotal, adjustments			(11)	2,500
<u>Other Changes</u>				
2007 Pay raise		42		
2008 Pay raise		125		
Payment to the Working Capital Fund		16		
Full year cost in FY 2008 of positions financed for part year in FY 2007	(20)	0		
Change in compensable days		42		
Civil Service Retirement System (CSRS)		(5)		
Federal Employees' Retirement System (FERS)		8		
Thrift Savings Plan		101		
Federal Insurance Contributions Act (FICA) - OASDI		7		
Health insurance		19		
Employees' Compensation Fund		(2)		
MEP Center salaries		692		
Other services:				
Working Capital Fund		8		
Electricity rate increase		22		
Washington Gas rate increase		99		
General pricing level adjustment:				
Rent payments to others		1		
Communications, utilities, and miscellaneous charges		2		
Other services		73		
Supplies and materials		0		
Equipment		3		
Subtotal, other cost changes		1,253	(20)	1,253
Less Amount absorbed			0	(1,253)
TOTAL, ADJUSTMENTS TO BASE			(31)	2,500
2008 Base			72	48,832
Program Changes			0	0
TOTAL REQUIREMENTS			72	48,832
Recoveries from Prior Year Obligations			0	(2,500)
2008 APPROPRIATION			72	46,332

Comparison by Activity

	2007 Continuing Resol.		2008 Base		2008 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS								
Advanced Technology Program	61	\$25,783	30	\$6,155	30	\$6,155	0	\$0
Hollings Manufacturing Extension Partnership Program	64	93,977	42	46,332	42	46,332	0	0
TOTAL DIRECT OBLIGATIONS	125	119,760	72	52,487	72	52,487	0	0
FINANCING								
Unobligated balance, start of year		(30,080)		(6,120)		(6,120)	0	0
Recovery of prior obligations		(3,800)		(2,500)		(2,500)	0	0
Unobligated balance, end of year		6,120		2,465		2,465	0	0
Subtotal, financing		(27,760)		(6,155)		(6,155)	0	0
TOTAL BUDGET AUTHORITY/ APPROPRIATION	125	92,000	72	46,332	72	46,332	0	0

The Administration proposes to fund the Hollings Manufacturing Extension Partnership Program at \$46.3 million, as proposed in the FY 2007 President's Budget request.

Appropriation: Construction of Research Facilities

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2007 Continuing Resolution			50	\$67,998
Adjustments to Base				
<u>Adjustments</u>				
Adjustment for FY 2006 Boulder construction			0	(22,100)
<u>Other Changes</u>				
2007 Pay raise		\$23		
2008 Pay raise		98		
Change in compensable days		34		
Civil Service Retirement System (CSRS)		(4)		
Federal Employees' Retirement System (FERS)		6		
Thrift Savings Plan		79		
Federal Insurance Contributions Act (FICA) - OASDI		5		
Health insurance		18		
Employees' Compensation Fund		(3)		
General pricing level adjustment:				
Transportation of things		1		
Communications, utilities, and miscellaneous charges		1		
Other services		699		
Supplies and materials		32		
Equipment		2		
Subtotal, other cost changes			0	991
				(24)
TOTAL, ADJUSTMENTS TO BASE			0	(21,133)
2008 Base			50	46,865
Program Changes			0	47,000
2008 APPROPRIATION			50	93,865

Comparison by Activity

	2007 Continuing Resol.		2008 Base		2008 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS								
Construction & Major Renovations	50	\$77,013	50	\$46,865	50	\$93,865	0	\$47,000
TOTAL DIRECT OBLIGATIONS	50	77,013	50	46,865	50	93,865	0	47,000
FINANCING								
Unobligated balance, start of year		(9,015)				0		
Unobligated balance, end of year		0				0		
Subtotal, financing		(9,015)				0		
TOTAL BUDGET AUTHORITY/ APPROPRIATION	50	67,998			50	93,865		

Highlights of Program Changes

	<u>Base</u>		<u>Increase / Decrease</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Construction and major renovations</u>	50	\$46,865	0	\$47,000

As part of the President’s 10-year American Competitiveness Initiative, an increase (0 FTE, +\$47,000) is requested in support of the NIST facilities improvements for critical construction projects at the NIST sites in Boulder, Colorado, and Gaithersburg, Maryland. NIST proposes an extension to Boulder’s Building 1 to meet the needs for the most demanding research and measurements conducted at the NIST Boulder laboratories. The total cost of constructing the Building 1 extension (B1E) is estimated at \$76.2 million, with \$28.0 million needed in FY 2008. \$10.1 million in FY 2007 funds requested for Boulder would be reprogrammed for this project. An increase (0 FTE, +\$19,000) is also requested to complete the construction and major renovations for Gaithersburg’s NIST Center for Neutron Research (NCNR) Expansion and Reliability Improvements that are proposed to begin in FY 2007.

Appropriation: Working Capital Fund

Comparison by Activity

	2007 Continuing Resol.		2008 Base		2008 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS								
Direct Obligations	0	\$750	0	\$10,000	0	\$12,500	0	\$2,500
Reimbursable Obligations	764	166,334	764	140,846	764	140,846	0	0
WCF Investments	0	1,998	0	0	0	0	0	0
TOTAL OBLIGATIONS	764	169,082	764	150,846	764	153,346	0	2,500
FINANCING								
Unobligated balance, start of year		(131,598)		(131,598)		(131,598)		0
Unobligated balance, end of year		131,598		131,598		131,598		0
Offsetting collections from:								
Federal funds		(124,469)		(99,164)		(99,164)		0
Non-Federal sources		(43,863)		(41,682)		(41,682)		0
Subtotal, financing	0	(168,332)	0	(140,846)	0	(140,846)	0	0
TOTAL BUDGET AUTHORITY	764	750	764	10,000	764	12,500	0	2,500
TRANSFERS								
From other accounts		(750)		(10,000)		(12,500)		(2,500)
TOTAL, APPROPRIATION	764	0	764	0	764	0	0	0