National Aeronautics and Space Administration

Fiscal Year 2012

BUDGET ESTIMATES

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National Aeronautics and Space Administration
President's FY 2012 Budget Request Detail — Full Cost View

Budget Authority, $ in million	Actual FY2010	CR FY 2011	Auth Act FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Science	4,497.6	4,469.0	5,005.6	5,016.8	5,016.8	5,016.8	5,016.8	5,016.8
Earth Science	1,439.3		1,801.8	1,797.4	1,821.7	1,818.5	1,858.2	1,915.4
Planetary Science	1,364.4		1,485.7	1,540.7	1,429.3	1,394.7	1,344.2	1,256.8
Astrophysics	647.3		1,076.3	682.7	758.1	775.5	779.8	810.9
James Webb Space Telescope	438.7			373.7	375.0	375.0	375.0	375.0
Heliophysics	608.0		641.9	622.3	632.7	653.0	659.7	658.7
Aeronautics	497.0	501.0	579.6	569.4	569.4	569.4	569.4	569.4
Space Technology	275.2	327.2	512.0	1,024.2	1,024.2	1,024.2	1,024.2	1,024.2
Exploration	3,625.8	3,594.3	3,706.0	3,948.7	3,948.7	3,948.7	3,948.7	3,948.7
Human Exploration Capabilities	3,287.5		2,751.0	2,810.2	2,810.2	2,810.2	2,810.2	2,810.2
Commercial Spaceflight	39.1		612.0	850.0	850.0	850.0	850.0	850.0
Exploration Research and Development	299.2		343.0	288.5	288.5	288.5	288.5	288.5
Space Operations	6,141.8	6,146.8	5,508.5	4,346.9	4,346.9	4,346.9	4,346.9	4,346.9
Space Shuttle	3,101.4		1,609.7	664.9	79.7	0.8	0.8	0.9
International Space Station	2,312.7		2,779.8	2,841.5	2,960.4	3,005.4	3,098.0	3,174.8
Space and Flight Support (SFS)	727.7		1,119.0	840.6	1,306.8	1,340.7	1,248.1	1,171.2
Education	180.1	182.5	145.8	138.4	138.4	138.4	138.4	138.4
Cross-Agency Support	3,017.6	3,018.8	3,111.4	3,192.0	3,192.0	3,192.0	3,192.0	3,192.0
Center Management and Operations	2,161.2			2,402.9	2,402.9	2,402.9	2,402.9	2,402.9
Agency Management and Operations	766.2			789.1	789.1	789.1	789.1	789.1
Institutional Investments	27.2			0.0	0.0	0.0	0.0	0.0
Congressionally Directed Items	63.0			0.0	0.0	0.0	0.0	0.0
Construction and Environmental Compliance and Restoration	452.8	448.3	394.3	450.4	450.4	450.4	450.4	450.4
Construction of Facilities	389.4			397.9	384.0	359.5	362.9	360.0
Environmental Compliance and Restoration	63.4			52.5	66.4	90.9	87.5	90.4
Inspector General	36.4	36.4	37.0	37.5	37.5	37.5	37.5	37.5
NASA FY 2011	18,724.3	18,724.3	19,000.0	18,724.3	18,724.3	18,724.3	18,724.3	18,724.3

National Aeronautics and Space Administration
President's FY 2012 Budget Request Detail — Separate Labor Allocations

Budget Authority, $ in million	Actual FY2010	CR FY 2011	Auth Act FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Science	4,497.6	4,469.0	5,005.6	5,016.8	5,016.8	5,016.8	5,016.8	5,016.8
Earth Science	1,439.3		1,801.8	1,653.0	1,679.2	1,665.3	1,691.4	1,727.3
Planetary Science	1,364.4		1,485.7	1,488.9	1,365.7	1,326.4	1,271.0	1,188.9
Astrophysics	647.3		1,076.3	637.7	708.3	721.0	713.5	741.9
James Webb Space Telescope	438.7			354.6	359.3	365.3	371.6	371.6
Heliophysics	608.0		641.9	577.9	591.0	612.4	627.2	628.6
SMD Civil Service Labor and Expenses				304.7	313.2	326.5	342.2	358.6
Aeronautics	497.0	501.0	579.6	569.4	569.4	569.4	569.4	569.4
Space Technology	275.2	327.2	512.0	1,024.2	1,024.2	1,024.2	1,024.2	1,024.2
Exploration	3,625.8	3,594.3	3,706.0	3,948.7	3,948.7	3,948.7	3,948.7	3,948.7
Human Exploration Capabilities	3,287.5		2,751.0	2,605.8	2,591.2	2,581.4	2,570.4	2,560.2
Commercial Spaceflight	39.1		612.0	792.8	795.0	792.5	789.9	785.5
Exploration Research and Development	299.2		343.0	211.4	214.3	211.2	207.5	203.7
ESMD Civil Service Labor and Expenses				338.7	348.2	363.6	381.1	399.4
Space Operations	6,141.8	6,146.8	5,508.5	4,346.9	4,346.9	4,346.9	4,346.9	4,346.9
Space Shuttle	3,101.4		1,609.7	636.8	65.8	0.0	0.0	0.0
International Space Station	2,312.7		2,779.8	2,667.0	2,775.8	2,818.0	2,847.3	2,883.8
Space and Flight Support (SFS)	727.7		1,119.0	699.8	1,156.8	1,168.7	1,122.2	1,067.5
SOMD Civil Service Labor and Expenses				343.4	348.5	360.2	377.5	395.6
Education	180.1	182.5	145.8	138.4	138.4	138.4	138.4	138.4
Cross-Agency Support	3,017.6	3,018.8	3,111.4	3,192.0	3,192.0	3,192.0	3,192.0	3,192.0
Center Management and Operations	2,161.2			2,402.9	2,402.9	2,402.9	2,402.9	2,402.9
Agency Management and Operations	766.2			789.1	789.1	789.1	789.1	789.1
Institutional Investments	27.2			0.0	0.0	0.0	0.0	0.0
Congressionally Directed Items	63.0			0.0	0.0	0.0	0.0	0.0
Construction and Environmental Compliance and Restoration	452.8	448.3	394.3	450.4	450.4	450.4	450.4	450.4
Construction of Facilities	389.4			397.9	384.0	359.5	362.9	360.0
Environmental Compliance and Restoration	63.4			52.5	66.4	90.9	87.5	90.4
Inspector General	36.4	36.4	37.0	37.5	37.5	37.5	37.5	37.5
NASA FY 2011	18,724.3	18,724.3	19,000.0	18,724.3	18,724.3	18,724.3	18,724.3	18,724.3

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Science	**$4,497.6**	**$4,469.0**	**$5,016.8**	**$5,016.8**	**$5,016.8**	**$5,016.8**	**$5,016.8**
Earth Science	**$1,439.3**		**$1,797.4**	**$1,821.7**	**$1,818.5**	**$1,858.2**	**$1,915.4**
Earth Science Research	$375.8		$450.4	$464.0	$475.3	$487.4	$499.0
Earth Science Research and Analysis	$275.7		$338.2	$349.3	$357.3	$367.4	$377.4
Computing and Management	$100.1		$112.2	$114.6	$118.0	$120.1	$121.6
Earth Systematic Missions	$705.2		$900.0	$914.6	$844.5	$855.7	$920.3
Global Precipitation Measurement (GPM)	$155.0		$98.4	$83.6	$47.5	$30.6	$21.5
Glory Mission	$31.8		$5.8	$4.3	$6.4	$5.9	$6.0
Landsat Data Continuity Mission (LDCM)	$106.0		$159.3	$67.9	$2.2	$2.2	$2.3
NPOESS Preparatory Project (NPP)	$82.1		$16.1	$7.3	$7.2	$6.9	$6.4
Ice, Cloud, and land Elevation Satellite (ICESat-II)	$38.9		$113.4	$170.8	$138.7	$90.1	$32.6
Soil Moisture Active and Passive (SMAP)	$70.0		$137.3	$172.8	$31.5	$29.7	$14.5
Other Missions and Data Analysis	$221.5		$369.6	$408.0	$611.0	$690.3	$837.1
Earth System Science Pathfinder	$128.4		$190.9	$184.0	$232.8	$241.7	$216.8
Aquarius	$22.3		$5.4	$5.1	$5.2	$5.1	$5.2
OCO-2	$62.0		$91.0	$41.0	$13.0	$4.0	$0.0
Venture Class Missions	$6.3		$62.1	$104.8	$180.6	$197.5	$175.7
Other Missions and Data Analysis	$37.9		$32.4	$33.1	$34.0	$35.1	$35.9
Earth Science Multi-Mission Operations	$149.0		$168.5	$167.5	$168.1	$172.1	$176.4
Earth Science Multi-Mission Operations	$149.0		$168.5	$167.5	$168.1	$172.1	$176.4
Earth Science Technology	$45.6		$51.2	$53.6	$58.4	$60.5	$61.7
Earth Science Technology	$45.6		$51.2	$53.6	$58.4	$60.5	$61.7
Applied Sciences	$35.3		$36.4	$38.0	$39.4	$40.7	$41.1
Pathways	$35.3		$36.4	$38.0	$39.4	$40.7	$41.1
Planetary Science	**$1,364.4**		**$1,540.7**	**$1,429.3**	**$1,394.7**	**$1,344.2**	**$1,256.8**
Planetary Science Research	$161.6		$192.1	$205.1	$218.2	$218.5	$221.3
Planetary Science Research and Analysis	$131.5		$140.9	$142.4	$147.5	$150.7	$158.2
Other Missions and Data Analysis	$21.3		$25.3	$27.2	$33.6	$30.1	$25.2
Education and Directorate Management	$3.0		$5.4	$15.0	$16.6	$17.0	$16.8
Near Earth Object Observations	$5.8		$20.4	$20.5	$20.6	$20.7	$21.1
Lunar Quest Program	$94.5		$129.6	$97.7	$54.8	$34.3	$26.2
Lunar Science	$31.4		$54.4	$50.3	$51.4	$30.7	$22.4
Lunar Atmosphere and Dust Environment Explorer	$48.2		$71.8	$44.2	$0.0	$0.0	$0.0
International Lunar Network	$14.9		$3.4	$3.3	$3.4	$3.6	$3.8
Discovery	$184.5		$179.1	$207.2	$260.4	$284.7	$258.3
Gravity Recovery and Interior Laboratory (GRAIL)	$124.1		$40.8	$4.7	$0.0	$0.0	$0.0
Other Missions and Data Analysis	$60.4		$138.3	$202.5	$260.4	$284.7	$258.3
New Frontiers	$279.6		$181.8	$273.2	$257.2	$305.9	$315.7
Juno	$257.1		$31.4	$17.8	$18.1	$16.8	$29.9
Other Missions and Data Analysis	$22.4		$150.4	$255.4	$239.1	$289.0	$285.8
Mars Exploration	$438.2		$602.2	$441.4	$414.0	$311.9	$247.2
2009 Mars Science Lab	$258.4		$138.0	$42.0	$38.5	$0.0	$0.0
MAVEN	$48.1		$245.7	$146.4	$37.6	$17.3	$5.3

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Planetary Science (continued)							
Other Missions and Data Analysis	$131.7		$218.6	$253.0	$337.9	$294.6	$241.9
Outer Planets	$100.6		$122.1	$88.7	$91.8	$91.6	$89.9
Outer Planets	$100.6		$122.1	$88.7	$91.8	$91.6	$89.9
Technology	$105.5		$133.9	$115.9	$98.4	$97.2	$98.3
Technology	$105.5		$133.9	$115.9	$98.4	$97.2	$98.3
Astrophysics	**$647.3**		**$682.7**	**$758.1**	**$775.5**	**$779.8**	**$810.9**
Astrophysics Research	$149.1		$168.7	$208.0	$220.3	$238.3	$248.4
Astrophysics Research and Analysis	$59.6		$67.6	$86.4	$87.8	$89.3	$92.7
Balloon Project	$28.2		$32.1	$35.7	$36.6	$37.3	$38.7
Other Missions and Data Analysis	$61.3		$69.1	$86.0	$95.9	$111.7	$117.0
Cosmic Origins	$225.3		$239.7	$244.5	$233.3	$216.1	$206.3
Hubble Space Telescope (HST)	$100.8		$98.3	$98.0	$98.0	$94.0	$90.0
Stratospheric Observatory for Infrared Astronomy (SOFIA)	$73.6		$84.2	$85.5	$88.0	$88.0	$86.0
Other Missions And Data Analysis	$50.9		$57.2	$61.0	$47.3	$34.1	$30.3
Physics of the Cosmos	$116.0		$106.0	$118.4	$122.0	$115.7	$121.8
Other Missions and Data Analysis	$116.0		$106.0	$118.4	$122.0	$115.7	$121.8
Exoplanet Exploration	$43.4		$50.0	$67.0	$63.8	$62.1	$69.8
Other Missions and Data Analysis	$43.4		$50.0	$67.0	$63.8	$62.1	$69.8
Astrophysics Explorer	$113.5		$118.3	$120.2	$136.1	$147.5	$164.5
Nuclear Spectroscopic Telescope Array (NuStar)	$56.2		$11.9	$4.2	$1.2	$0.0	$0.0
Gravity and Extreme Magnetism	$3.1		$74.1	$44.5	$23.1	$2.0	$0.0
Other Missions and Data Analysis	$54.2		$32.4	$71.5	$111.8	$145.5	$164.5
James Webb Space Telescope	**$438.7**		**$373.7**	**$375.0**	**$375.0**	**$375.0**	**$375.0**
James Webb Space Telescope	$438.7		$373.7	$375.0	$375.0	$375.0	$375.0
James Webb Space Telescope	$438.7		$373.7	$375.0	$375.0	$375.0	$375.0
Heliophysics	**$608.0**		**$622.3**	**$632.7**	**$653.0**	**$659.7**	**$658.7**
Heliophysics Research	$171.8		$159.2	$162.9	$165.7	$167.0	$169.5
Heliophysics Research and Analysis	$30.4		$31.1	$32.9	$33.8	$34.6	$35.0
Sounding Rockets	$48.7		$49.7	$51.0	$52.0	$52.7	$53.5
Research Range	$18.9		$20.3	$20.7	$21.2	$21.5	$21.8
Other Missions and Data Analysis	$73.8		$58.0	$58.3	$58.7	$58.3	$59.2
Living with a Star	$221.9		$211.0	$208.7	$207.5	$342.7	$360.0
Radiation Belt Storm Probes (RBSP)	$121.0		$92.2	$30.2	$22.0	$9.1	$0.0
Solar Probe Plus	$40.0		$52.7	$104.0	$104.1	$147.8	$233.7
Other Missions and Data Analysis	$60.9		$66.2	$74.5	$81.5	$185.8	$126.3
Solar Terrestrial Probes	$148.0		$182.2	$186.5	$185.8	$55.1	$40.7
Magnetospheric Multiscale (MMS)	$130.1		$164.3	$168.3	$166.0	$34.5	$20.4
Other Missions and Data Analysis	$17.9		$18.0	$18.1	$19.7	$20.6	$20.3
Heliophysics Explorer Program	$65.1		$69.8	$74.7	$94.0	$94.8	$88.4
IRIS	$41.1		$39.1	$12.1	$7.3	$1.2	$0.0
Other Missions and Data Analysis	$24.0		$30.7	$62.6	$86.7	$93.6	$88.4
New Millennium	$1.2		$0.0	$0.0	$0.0	$0.0	$0.0
New Millennium	$1.2		$0.0	$0.0	$0.0	$0.0	$0.0

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Aeronautics	**$497.0**	**$501.0**	**$569.4**	**$569.4**	**$569.4**	**$569.4**	**$569.4**
Aeronautics	**$497.0**		**$569.4**	**$569.4**	**$569.4**	**$569.4**	**$569.4**
Aviation Safety	$74.0		$79.6	$79.8	$80.0	$80.3	$80.6
Aviation Safety	$74.0		$79.6	$79.8	$80.0	$80.3	$80.6
Airspace Systems	$79.0		$92.7	$92.3	$91.7	$90.9	$90.1
Airspace Systems	$79.0		$92.7	$92.3	$91.7	$90.9	$90.1
Fundamental Aeronautics	$199.0		$186.3	$187.3	$189.0	$190.9	$193.0
Fundamental Aeronautics	$199.0		$186.3	$187.3	$189.0	$190.9	$193.0
Aeronautics Test	$65.6		$79.4	$79.4	$79.5	$79.6	$79.7
Aeronautics Test	$65.6		$79.4	$79.4	$79.5	$79.6	$79.7
Integrated Systems Research	$56.9		$104.2	$103.7	$102.7	$101.7	$100.6
Environmentally Responsible Aviation	$56.9		$73.6	$72.6	$71.3	$70.2	$68.0
UAS Integration in the NAS	$0.0		$30.6	$31.0	$31.4	$31.5	$32.6
Aeronautics Strategy and Management	$22.6		$27.2	$26.9	$26.5	$26.0	$25.4
Aeronautics Strategy and Management	$22.6		$27.2	$26.9	$26.5	$26.0	$25.4
Space Technology	**$275.2**	**$327.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**
Space Technology	**$275.2**		**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**
SBIR and STTR	$96.0		$184.1	$184.1	$184.1	$184.1	$184.1
SBIR and STTR	$96.0		$184.1	$184.1	$184.1	$184.1	$184.1
Partnerships Dev & Strategic Integration	$20.3		$33.0	$33.0	$33.0	$33.0	$33.0
Partnership Development and Strategic Integration	$20.3		$33.0	$33.0	$33.0	$33.0	$33.0
Crosscutting Space Tech Development	$7.5		$497.1	$497.1	$497.1	$497.1	$497.1
Crosscutting Space Tech Development	$7.5		$497.1	$497.1	$497.1	$497.1	$497.1
Exploration Technology Development	$151.4		$310.0	$310.0	$310.0	$310.0	$310.0
Exploration Technology Development	$151.4		$310.0	$310.0	$310.0	$310.0	$310.0
Exploration	**$3,625.8**	**$3,594.3**	**$3,948.7**	**$3,948.7**	**$3,948.7**	**$3,948.7**	**$3,948.7**
Human Exploration Capabilities	**$3,287.5**		**$2,810.2**	**$2,810.2**	**$2,810.2**	**$2,810.2**	**$2,810.2**
Multi Purpose Crew Vehicle (MPCV)			$1,010.2				
Multi Purpose Crew Vehicle (MPCV)			$1,010.2				
Space Launch Systems (SLS)			$1,800.0				
Space Launch System (SLS)			$1,800.0				
Commercial Spaceflight	**$39.1**		**$850.0**	**$850.0**	**$850.0**	**$850.0**	**$850.0**
Commercial Cargo	$39.1		$0.0	$0.0	$0.0	$0.0	$0.0
Commercial Orbital Transportation Services	$39.1		$0.0	$0.0	$0.0	$0.0	$0.0
Commercial Crew	$0.0		$850.0	$850.0	$850.0	$850.0	$850.0
Commercial Crew	$0.0		$850.0	$850.0	$850.0	$850.0	$850.0
Exploration Research and Development	**$299.2**		**$288.5**	**$288.5**	**$288.5**	**$288.5**	**$288.5**
Human Research Program	$146.3		$164.1	$164.1	$164.1	$164.1	$164.1
Human Research Program	$146.3		$164.1	$164.1	$164.1	$164.1	$164.1
Advanced Explorations Systems	$152.9		$124.4	$124.4	$124.4	$124.4	$124.4
Advanced Explorations Systems	$152.9		$124.4	$124.4	$124.4	$124.4	$124.4

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Space Operations	**$6,141.8**	**$6,146.8**	**$4,346.9**	**$4,346.9**	**$4,346.9**	**$4,346.9**	**$4,346.9**
Space Shuttle	**$3,101.4**		**$664.9**	**$79.7**	**$0.8**	**$0.8**	**$0.9**
Space Shuttle Program	$3,101.4		$664.9	$79.7	$0.8	$0.8	$0.9
SPOC Pension Liability	$0.0		$547.9	$0.0	$0.0	$0.0	$0.0
Program Integration	$627.2		$38.8	$28.3	$0.0	$0.0	$0.0
Flight and Ground Operations	$1,115.4		$40.6	$23.1	$0.0	$0.0	$0.0
Flight Hardware	$1,358.8		$37.6	$28.3	$0.8	$0.8	$0.9
International Space Station	**$2,312.7**		**$2,841.5**	**$2,960.4**	**$3,005.4**	**$3,098.0**	**$3,174.8**
International Space Station Program	$2,312.7		$2,841.5	$2,960.4	$3,005.4	$3,098.0	$3,174.8
ISS Systems Operations and Maintenance	$1,555.2		$1,434.6	$1,576.1	$1,538.1	$1,665.3	$1,782.8
ISS Research	$129.5		$221.1	$210.7	$213.2	$221.1	$223.5
ISS Crew and Cargo Transportation	$628.0		$1,185.7	$1,173.6	$1,254.1	$1,211.6	$1,168.5
Space and Flight Support (SFS)	**$727.7**		**$840.6**	**$1,306.8**	**$1,340.7**	**$1,248.1**	**$1,171.2**
21st Century Space Launch Complex	$0.0		$168.0	$175.3	$168.1	$54.8	$42.9
21st Century Space Launch Complex	$0.0		$168.0	$175.3	$168.1	$54.8	$42.9
Space Communications and Navigation	$482.3		$436.0	$477.5	$484.5	$483.6	$481.9
Space Communications Networks	$363.3		$364.5	$398.2	$417.9	$425.2	$423.2
Space Communications Support	$93.5		$66.3	$65.7	$66.6	$58.4	$58.7
TDRS Replenishment	$25.4		$5.1	$13.7	$0.0	$0.0	$0.0
Human Space Flight Operations	$104.0		$111.4	$112.5	$112.6	$115.8	$116.4
Human Space Flight Operations	$104.0		$111.4	$112.5	$112.6	$115.8	$116.4
Mission Operations Sustainment	$0.0		$0.0	$415.2	$443.8	$459.1	$391.4
Mission Operations Sustainment	$0.0		$0.0	$415.2	$443.8	$459.1	$391.4
Launch Services	$89.4		$81.3	$80.3	$84.6	$87.0	$90.4
Launch Services	$89.4		$81.3	$80.3	$84.6	$87.0	$90.4
Rocket Propulsion Test	$43.3		$43.9	$46.0	$47.1	$47.8	$48.2
Rocket Propulsion Testing	$43.3		$43.9	$46.0	$47.1	$47.8	$48.2
Crew Health & Safety	$8.8		$0.0	$0.0	$0.0	$0.0	$0.0
Crew Health and Safety	$8.8		$0.0	$0.0	$0.0	$0.0	$0.0
Education	**$180.1**	**$182.5**	**$138.4**	**$138.4**	**$138.4**	**$138.4**	**$138.4**
Education	**$180.1**		**$138.4**	**$138.4**	**$138.4**	**$138.4**	**$138.4**
Aerospace Rsch. and Career Development	$70.6		$35.9	$35.6	$35.6	$35.6	$35.6
NASA Space Grant	$45.6		$26.7	$26.5	$26.5	$26.5	$26.5
Experimental Program to Stimulate Competetive Research	$25.0		$9.2	$9.1	$9.1	$9.1	$9.1
STEM Education and Accountability	$0.0		$102.5	$102.8	$102.8	$102.8	$102.8
Minority University Research Education Program	$0.0		$31.4	$28.0	$28.0	$28.0	$28.0
STEM Education and Accountability Projects	$0.0		$71.1	$74.8	$74.8	$74.8	$74.8
Higher Ed. STEM Education	$49.0		$0.0	$0.0	$0.0	$0.0	$0.0
STEM Opportunities (Higher Education)	$8.4		$0.0	$0.0	$0.0	$0.0	$0.0
Minority University Research & Education Program	$30.6		$0.0	$0.0	$0.0	$0.0	$0.0

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Education (continued)							
Global Climate Change Education	$10.0		$0.0	$0.0	$0.0	$0.0	$0.0
K-12 STEM Education	$45.0		$0.0	$0.0	$0.0	$0.0	$0.0
STEM Student Opportunities (K-12)	$15.5		$0.0	$0.0	$0.0	$0.0	$0.0
STEM Teacher Development (K-12)	$16.0		$0.0	$0.0	$0.0	$0.0	$0.0
K-12 Competitive Educational Grant Program	$13.5		$0.0	$0.0	$0.0	$0.0	$0.0
Informal STEM Education	$15.5		$0.0	$0.0	$0.0	$0.0	$0.0
Science Museums and Planetarium Grants	$7.0		$0.0	$0.0	$0.0	$0.0	$0.0
NASA Visitor Centers	$7.0		$0.0	$0.0	$0.0	$0.0	$0.0
NASA Informal Education Opportunities	$1.5		$0.0	$0.0	$0.0	$0.0	$0.0
Cross-Agency Support	**$3,017.6**	**$3,018.8**	**$3,192.0**	**$3,192.0**	**$3,192.0**	**$3,192.0**	**$3,192.0**
Center Management and Operations	**$2,161.2**		**$2,402.9**	**$2,402.9**	**$2,402.9**	**$2,402.9**	**$2,402.9**
Center Management and Operations	$2,161.2		$2,367.7	$2,367.7	$2,367.7	$2,367.7	$2,367.7
Center Institutional Capabilities	$1,678.3		$1,766.3	$1,766.3	$1,766.3	$1,766.3	$1,766.3
Center Programmatic Capabilities	$482.9		$601.4	$601.4	$601.4	$601.4	$601.4
CMO Civil Service Labor and Expenses	$0.0		$35.2	$35.2	$35.2	$35.2	$35.2
Center-wide Training and Other Personnel Cost	$0.0		$35.2	$35.2	$35.2	$35.2	$35.2
Agency Management and Operations	**$766.2**		**$789.1**	**$789.1**	**$789.1**	**$789.1**	**$789.1**
Agency Management	$395.5		$397.5	$397.5	$397.5	$397.5	$397.5
Agency Management	$395.5		$397.5	$397.5	$397.5	$397.5	$397.5
Safety and Mission Success	$196.0		$192.9	$192.9	$192.9	$192.9	$192.9
Safety and Mission Assurance	$51.3		$50.3	$50.3	$50.3	$50.3	$50.3
Chief Engineer	$101.1		$106.5	$106.5	$106.5	$106.5	$106.5
Chief Health and Medical Officer	$3.6		$4.1	$4.1	$4.1	$4.1	$4.1
Independent Verification and Validation	$40.0		$32.0	$32.0	$32.0	$32.0	$32.0
Agency IT Services (AITS)	$145.3		$150.2	$150.2	$150.2	$150.2	$150.2
IT Management	$15.0		$13.6	$13.6	$13.6	$13.6	$13.6
Applications	$75.4		$67.2	$67.2	$67.2	$67.2	$67.2
Infrastructure	$54.9		$69.5	$69.5	$69.5	$69.5	$69.5
Strategic Capabilities Assets Program	$29.4		$29.7	$29.7	$29.7	$29.7	$29.7
Strategic Capabilities Assets Program	$29.4		$29.7	$29.7	$29.7	$29.7	$29.7
AMO Civil Service Labor and Expenses	$0.0		$18.7	$18.7	$18.7	$18.7	$18.7
Agency/HQ Training and Other Personnel Cost	$0.0		$18.7	$18.7	$18.7	$18.7	$18.7
Institutional Investments	**$27.2**		**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Institutional Construction of Facilities	$23.4		$0.0	$0.0	$0.0	$0.0	$0.0
Institutional Construction Of Facilities	$23.4		$0.0	$0.0	$0.0	$0.0	$0.0
Environmental Compliance and Restoration	$3.8		$0.0	$0.0	$0.0	$0.0	$0.0
Environmental Compliance and Restoration	$3.8		$0.0	$0.0	$0.0	$0.0	$0.0
Congressionally Directed Items	**$63.0**		**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Congressionally Directed Items	$63.0		$0.0	$0.0	$0.0	$0.0	$0.0
Congressionally Directed Items	$63.0		$0.0	$0.0	$0.0	$0.0	$0.0

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Construction and Environmental Compliance	**$452.8**	**$448.3**	**$450.4**	**$450.4**	**$450.4**	**$450.4**	**$450.4**
Construction of Facilities	**$389.4**		**$397.9**	**$384.0**	**$359.5**	**$362.9**	**$360.0**
Institutional CoF	$249.3		$368.0	$384.0	$359.5	$362.9	$360.0
Institutional CoF	$249.3		$368.0	$384.0	$359.5	$362.9	$360.0
Science CoF	$37.8		$1.0	$0.0	$0.0	$0.0	$0.0
Science CoF	$37.8		$1.0	$0.0	$0.0	$0.0	$0.0
Exploration CoF	$72.6		$0.0	$0.0	$0.0	$0.0	$0.0
Exploration CoF	$72.6		$0.0	$0.0	$0.0	$0.0	$0.0
Space Operations CoF	$26.9		$28.9	$0.0	$0.0	$0.0	$0.0
Space Operations CoF	$26.9		$28.9	$0.0	$0.0	$0.0	$0.0
Aeronautics CoF	$2.8		$0.0	$0.0	$0.0	$0.0	$0.0
Aeronautics CoF	$2.8		$0.0	$0.0	$0.0	$0.0	$0.0
Environmental Compliance and Restoration	**$63.4**		**$52.5**	**$66.4**	**$90.9**	**$87.5**	**$90.4**
Environmental Compliance and Restoration	$63.4		$52.5	$66.4	$90.9	$87.5	$90.4
Environmental Compliance and Restoration	$63.4		$52.5	$66.4	$90.9	$87.5	$90.4
Inspector General	**$36.4**	**$36.4**	**$37.5**	**$37.5**	**$37.5**	**$37.5**	**$37.5**
Inspector General	**$36.4**	**$36.4**	**$37.5**	**$37.5**	**$37.5**	**$37.5**	**$37.5**
IG Program	$36.4	$36.4	$37.5	$37.5	$37.5	$37.5	$37.5
Inspector General	$36.4	$36.4	$37.5	$37.5	$37.5	$37.5	$37.5
NASA FY 2012	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Science	**$4,497.6**	**$4,469.0**	**$5,016.8**	**$5,016.8**	**$5,016.8**	**$5,016.8**	**$5,016.8**
Earth Science	**$1,439.3**		**$1,653.0**	**$1,679.2**	**$1,665.3**	**$1,691.4**	**$1,727.3**
Earth Science Research	$375.8		$409.6	$419.0	$427.3	$436.7	$444.6
Earth Science Research and Analysis	$275.7		$304.0	$311.1	$316.6	$324.2	$330.9
Computing and Management	$100.1		$105.7	$107.8	$110.8	$112.5	$113.7
Earth Systematic Missions	$705.2		$816.5	$838.7	$761.6	$763.2	$810.7
Global Precipitation Measurement (GPM)	$155.0		$83.8	$68.7	$41.4	$27.2	$20.1
Glory Mission	$31.8		$5.3	$3.8	$6.1	$5.9	$6.0
Landsat Data Continuity Mission (LDCM)	$106.0		$152.0	$64.1	$1.5	$1.5	$1.6
NPOESS Preparatory Project (NPP)	$82.1		$13.6	$6.4	$6.3	$6.0	$5.5
Ice, Cloud, and land Elevation Satellite (ICESat-II)	$38.9		$102.1	$159.4	$128.8	$83.1	$28.6
Soil Moisture Active and Passive (SMAP)	$70.0		$135.2	$172.3	$31.1	$29.6	$14.5
Other Missions and Data Analysis	$221.5		$324.6	$364.0	$546.4	$609.9	$734.5
Earth System Science Pathfinder	$128.4		$187.8	$180.6	$229.5	$238.4	$214.3
Aquarius	$22.3		$4.9	$4.6	$4.9	$5.1	$5.2
OCO-2	$62.0		$91.0	$41.0	$13.0	$4.0	$0.0
Venture Class Missions	$6.3		$61.5	$103.9	$179.7	$196.6	$175.7
Other Missions and Data Analysis	$37.9		$30.5	$31.1	$31.9	$32.7	$33.4
Earth Science Multi-Mission Operations	$149.0		$159.9	$158.8	$159.4	$162.9	$166.6
Earth Science Multi-Mission Operations	$149.0		$159.9	$158.8	$159.4	$162.9	$166.6
Earth Science Technology	$45.6		$46.1	$47.9	$51.9	$53.6	$54.2
Earth Science Technology	$45.6		$46.1	$47.9	$51.9	$53.6	$54.2
Applied Sciences	$35.3		$33.1	$34.3	$35.5	$36.7	$36.9
Pathways	$35.3		$33.1	$34.3	$35.5	$36.7	$36.9
Planetary Science	**$1,364.4**		**$1,488.9**	**$1,365.7**	**$1,326.4**	**$1,271.0**	**$1,188.9**
Planetary Science Research	$161.6		$183.9	$196.0	$208.6	$208.4	$210.5
Planetary Science Research and Analysis	$131.5		$134.6	$135.3	$140.0	$142.8	$149.8
Other Missions and Data Analysis	$21.3		$23.7	$25.5	$31.7	$28.2	$23.0
Education and Directorate Management	$3.0		$5.1	$14.7	$16.3	$16.7	$16.5
Near Earth Object Observations	$5.8		$20.4	$20.5	$20.6	$20.7	$21.1
Lunar Quest Program	$94.5		$114.5	$81.2	$48.9	$28.1	$19.5
Lunar Science	$31.4		$50.9	$48.1	$48.9	$28.1	$19.5
Lunar Atmosphere and Dust Environment Explorer	$48.2		$63.2	$33.1	$0.0	$0.0	$0.0
International Lunar Network	$14.9		$0.3	$0.0	$0.0	$0.0	$0.0
Discovery	$184.5		$175.6	$205.1	$245.7	$265.5	$242.8
Gravity Recovery and Interior Laboratory (GRAIL)	$124.1		$40.5	$4.4	$0.0	$0.0	$0.0
Other Missions and Data Analysis	$60.4		$135.1	$200.6	$245.7	$265.5	$242.8
New Frontiers	$279.6		$176.9	$265.8	$245.5	$291.1	$296.3
Juno	$257.1		$31.2	$17.6	$17.9	$16.7	$29.6
Other Missions and Data Analysis							

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Planetary Science (continued)							
Mars Exploration	$438.2		$594.4	$433.1	$408.7	$309.0	$245.9
2009 Mars Science Lab	$258.4		$136.4	$40.5	$37.0	$0.0	$0.0
MAVEN	$48.1		$240.3	$140.6	$34.9	$15.4	$4.7
Other Missions and Data Analysis	$131.7		$217.7	$252.0	$336.8	$293.5	$241.1
Outer Planets	$100.6		$120.8	$80.5	$82.2	$84.1	$88.5
Outer Planets	$100.6		$120.8	$80.5	$82.2	$84.1	$88.5
Technology	$105.5		$122.9	$104.1	$86.6	$84.9	$85.4
Technology	$105.5		$122.9	$104.1	$86.6	$84.9	$85.4
Astrophysics	**$647.3**		**$637.7**	**$708.3**	**$721.0**	**$713.5**	**$741.9**
Astrophysics Research	$149.1		$161.6	$200.1	$211.8	$229.3	$238.6
Astrophysics Research and Analysis	$59.6		$64.3	$82.8	$83.9	$85.1	$88.0
Balloon Project	$28.2		$29.3	$32.8	$33.6	$34.1	$35.3
Other Missions and Data Analysis	$61.3		$67.9	$84.5	$94.3	$110.1	$115.4
Cosmic Origins	$225.3		$219.7	$219.4	$209.9	$195.2	$184.5
Hubble Space Telescope (HST)	$100.8		$94.0	$93.4	$93.1	$88.8	$84.5
Stratospheric Observatory for Infrared Astronomy (SOFIA)	$73.6		$71.4	$73.3	$77.2	$77.4	$75.0
Other Missions And Data Analysis	$50.9		$54.4	$52.7	$39.6	$28.9	$25.0
Physics of the Cosmos	$116.0		$100.3	$112.4	$111.9	$98.1	$96.8
Other Missions and Data Analysis	$116.0		$100.3	$112.4	$111.9	$98.1	$96.8
Exoplanet Exploration	$43.4		$48.2	$65.5	$63.6	$62.1	$69.8
Other Missions and Data Analysis	$43.4		$48.2	$65.5	$63.6	$62.1	$69.8
Astrophysics Explorer	$113.5		$107.8	$110.9	$123.7	$128.7	$152.0
Nuclear Spectroscopic Telescope Array (NuStar)	$56.2		$11.4	$4.0	$1.1	$0.0	$0.0
Gravity and Extreme Magnetism	$3.1		$69.4	$41.0	$20.8	$1.4	$0.0
Other Missions and Data Analysis	$54.2		$27.0	$65.9	$101.8	$127.3	$152.0
James Webb Space Telescope	**$438.7**		**$354.6**	**$359.3**	**$365.3**	**$371.6**	**$371.6**
James Webb Space Telescope	$438.7		$354.6	$359.3	$365.3	$371.6	$371.6
James Webb Space Telescope	$438.7		$354.6	$359.3	$365.3	$371.6	$371.6
Heliophysics	**$608.0**		**$577.9**	**$591.0**	**$612.4**	**$627.2**	**$628.6**
Heliophysics Research	$171.8		$144.5	$147.5	$149.3	$149.5	$150.8
Heliophysics Research and Analysis	$30.4		$30.0	$31.6	$32.3	$32.7	$33.0
Sounding Rockets	$48.7		$45.5	$46.5	$47.3	$47.8	$48.2
Research Range	$18.9		$18.7	$18.9	$19.3	$19.6	$19.7
Other Missions and Data Analysis	$73.8		$50.4	$50.4	$50.3	$49.5	$49.8
Living with a Star	$221.9		$204.7	$202.2	$200.9	$336.3	$354.9
Radiation Belt Storm Probes (RBSP)	$121.0		$91.2	$29.7	$21.5	$8.7	$0.0
Solar Probe Plus	$40.0		$51.8	$103.0	$103.0	$146.7	$232.5
Other Missions and Data Analysis	$60.9		$61.6	$69.5	$76.5	$181.0	$122.4
Solar Terrestrial Probes	$148.0		$163.5	$170.4	$171.9	$50.2	$38.0
Magnetospheric Multiscale (MMS)	$130.1		$146.2	$153.0	$153.0	$30.5	$18.6

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Heliophysics (continued)							
Other Missions and Data Analysis	$17.9		$17.3	$17.4	$18.9	$19.7	$19.4
Heliophysics Explorer Program	$65.1		$65.2	$70.8	$90.2	$91.1	$84.9
IRIS	$41.1		$37.5	$11.2	$6.8	$1.1	$0.0
Other Missions and Data Analysis	$24.0		$27.7	$59.7	$83.4	$90.1	$84.9
New Millennium	$1.2		$0.0	$0.0	$0.0	$0.0	$0.0
New Millennium	$1.2		$0.0	$0.0	$0.0	$0.0	$0.0
SCMD Civil Service Labor and Expenses	**$0.0**		**$304.7**	**$313.2**	**$326.5**	**$342.2**	**$358.6**
SCMD Civil Service Labor and Expenses	$0.0		$304.7	$313.2	$326.5	$342.2	$358.6
SCMD Civil Service Labor and Expenses	$0.0		$304.7	$313.2	$326.5	$342.2	$358.6
Aeronautics	**$497.0**	**$501.0**	**$569.4**	**$569.4**	**$569.4**	**$569.4**	**$569.4**
Aeronautics Research	**$497.0**		**$569.4**	**$569.4**	**$569.4**	**$569.4**	**$569.4**
Aviation Safety	$74.0		$48.5	$47.8	$46.7	$45.4	$44.0
Aviation Safety	$74.0		$48.5	$47.8	$46.7	$45.4	$44.0
Airspace Systems	$79.0		$70.3	$69.4	$67.7	$65.8	$63.8
Airspace Systems	$79.0		$70.3	$69.4	$67.7	$65.8	$63.8
Fundamental Aeronautics	$199.0		$97.2	$95.9	$93.6	$90.9	$88.2
Fundamental Aeronautics	$199.0		$97.2	$95.9	$93.6	$90.9	$88.2
Aeronautics Test	$65.6		$50.7	$50.0	$48.8	$47.4	$46.0
Aeronautics Test	$65.6		$50.7	$50.0	$48.8	$47.4	$46.0
Integrated Systems Research	$56.9		$81.7	$80.6	$78.6	$76.4	$74.1
Environmentally Responsible Aviation	$56.9		$58.4	$57.0	$55.1	$53.1	$50.1
UAS Integration in the NAS	$0.0		$23.3	$23.6	$23.6	$23.3	$24.0
Aeronautics Strategy and Management	$22.6		$24.3	$24.0	$23.4	$22.8	$22.1
Aeronautics Strategy and Management	$22.6		$24.3	$24.0	$23.4	$22.8	$22.1
ARMD Civil Service Labor and Expenses	$0.0		$196.7	$201.7	$210.6	$220.7	$231.3
ARMD Civil Service Labor and Expenses	$0.0		$196.7	$201.7	$210.6	$220.7	$231.3
Space Technology	**$275.2**	**$327.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**
Space Technology	**$275.2**		**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**	**$1,024.2**
SBIR and STTR	$96.0		$177.3	$176.8	$175.6	$174.3	$172.8
SBIR and STTR	$96.0		$177.3	$176.8	$175.6	$174.3	$172.8
Partnerships Dev & Strategic Integration	$20.3		$19.5	$19.4	$19.3	$19.1	$19.0
Partnership Development and Strategic Integration	$20.3		$19.5	$19.4	$19.3	$19.1	$19.0
Crosscutting Space Tech Development	$7.5		$433.3	$432.1	$429.2	$425.8	$422.4
Crosscutting Space Tech Development	$7.5		$433.3	$432.1	$429.2	$425.8	$422.4
Exploration Technology Development	$151.4		$261.3	$259.3	$257.5	$255.5	$253.4
Exploration Technology Development	$151.4		$261.3	$259.3	$257.5	$255.5	$253.4
ST Civil Service Labor and Expenses	$0.0		$132.9	$136.6	$142.6	$149.5	$156.6
ST Civil Service Labor and Expenses	$0.0		$132.9	$136.6	$142.6	$149.5	$156.6

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Exploration	**$3,625.8**	**$3,594.3**	**$3,948.7**	**$3,948.7**	**$3,948.7**	**$3,948.7**	**$3,948.7**
Human Exploration Capabilities	**$3,287.5**		**$2,605.8**	**$2,591.2**	**$2,581.4**	**$2,570.4**	**$2,560.2**
Multi Purpose Crew Vehicle (MPCV)			$916.3				
Multi Purpose Crew Vehicle (MPCV)			$916.3				
Space Launch Systems (SLS)			$1,689.5				
Space Launch System (SLS)			$1,689.5				
Commercial Spaceflight	**$39.1**		**$792.8**	**$795.0**	**$792.5**	**$789.7**	**$785.5**
Commercial Cargo	$39.1		$0.0	$0.0	$0.0	$0.0	$0.0
Commercial Orbital Transportation Services	$39.1		$0.0	$0.0	$0.0	$0.0	$0.0
Commercial Crew	$0.0		$792.8	$795.0	$792.5	$789.7	$785.5
Commercial Crew	$0.0		$792.8	$795.0	$792.5	$789.7	$785.5
Exploration Research and Development	**$299.2**		**$211.4**	**$214.3**	**$211.2**	**$207.5**	**$203.7**
Human Research Program	$146.3		$143.3	$143.8	$143.0	$142.0	$140.9
Human Research Program	$146.3		$143.3	$143.8	$143.0	$142.0	$140.9
Advanced Explorations Systems	$152.9		$68.1	$70.5	$68.2	$65.5	$62.8
Advanced Explorations Systems	$152.9		$68.1	$70.5	$68.2	$65.5	$62.8
ESMD Civil Service Labor and Expenses	**$0.0**		**$338.7**	**$348.2**	**$363.6**	**$381.1**	**$399.4**
ESMD Civil Service Labor and Expenses	$0.0		$338.7	$348.2	$363.6	$381.1	$399.4
ESMD Civil Service Labor and Expenses	$0.0		$338.7	$348.2	$363.6	$381.1	$399.4
Space Operations	**$6,141.8**	**$6,146.8**	**$4,346.9**	**$4,346.9**	**$4,346.9**	**$4,346.9**	**$4,346.9**
Space Shuttle	**$3,101.4**		**$636.8**	**$65.8**	**$0.0**	**$0.0**	**$0.0**
Space Shuttle Program	$3,101.4		$636.8	$65.8	$0.0	$0.0	$0.0
SPOC Pension Liability	$0.0		$547.9	$0.0	$0.0	$0.0	$0.0
Program Integration	$627.2		$24.8	$21.3	$0.0	$0.0	$0.0
Flight and Ground Operations	$1,115.4		$27.9	$17.0	$0.0	$0.0	$0.0
Flight Hardware	$1,358.8		$36.1	$27.6	$0.0	$0.0	$0.0
International Space Station	**$2,312.7**		**$2,667.0**	**$2,775.8**	**$2,818.0**	**$2,847.3**	**$2,883.8**
International Space Station Program	$2,312.7		$2,667.0	$2,775.8	$2,818.0	$2,847.3	$2,883.8
ISS Systems Operations and Maintenance	$1,555.2		$1,291.4	$1,425.3	$1,385.1	$1,449.6	$1,526.3
ISS Research	$129.5		$189.8	$176.9	$178.8	$186.1	$189.1
ISS Crew and Cargo Transportation	$628.0		$1,185.7	$1,173.6	$1,254.1	$1,211.6	$1,168.5
Space and Flight Support	**$727.7**		**$699.8**	**$1,156.8**	**$1,168.7**	**$1,122.2**	**$1,067.5**
21st Century Space Launch Complex	$0.0		$128.0	$139.1	$130.2	$31.0	$42.9
21st Century Space Launch Complex	$0.0		$128.0	$139.1	$130.2	$31.0	$42.9
Space Communications and Navigation	$482.3		$404.8	$450.2	$460.9	$460.8	$460.8
Space Communications Networks	$363.3		$348.7	$382.5	$401.8	$408.9	$408.3
Space Communications Support	$93.5		$55.1	$56.3	$59.1	$51.9	$52.4
TDRS Replenishment	$25.4		$1.0	$11.4	$0.0	$0.0	$0.0

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Space and Flight Support (continued)							
Human Space Flight Operations	$104.0		$84.1	$85.5	$85.0	$87.3	$87.4
Human Space Flight Operations	$104.0		$84.1	$85.5	$85.0	$87.3	$87.4
Mission Operations Sustainment	$0.0		$0.0	$400.4	$409.4	$459.1	$391.4
Mission Operations Sustainment	$0.0		$0.0	$400.4	$409.4	$459.1	$391.4
Launch Services	$89.4		$46.0	$43.1	$44.1	$44.6	$45.7
Launch Services	$89.4		$46.0	$43.1	$44.1	$44.6	$45.7
Rocket Propulsion Test	$43.3		$36.8	$38.4	$39.0	$39.4	$39.4
Rocket Propulsion Testing	$43.3		$36.8	$38.4	$39.0	$39.4	$39.4
Crew Health & Safety	$8.8		$0.0	$0.0	$0.0	$0.0	$0.0
Crew Health and Safety	$8.8		$0.0	$0.0	$0.0	$0.0	$0.0
SOMD Civil Service Labor and Expenses	**$0.0**		**$343.4**	**$348.5**	**$360.2**	**$377.5**	**$395.6**
SOMD Civil Service Labor and Expenses	$0.0		$343.4	$348.5	$360.2	$377.5	$395.6
SOMD Civil Service Labor and Expenses	$0.0		$343.4	$348.5	$360.2	$377.5	$395.6
Education	**$180.1**	**$182.5**	**$138.4**	**$138.4**	**$138.4**	**$138.4**	**$138.4**
Education	**$180.1**		**$138.4**	**$138.4**	**$138.4**	**$138.4**	**$138.4**
Aerospace Rsch. and Career Development	$70.6		$35.7	$35.7	$35.7	$35.7	$35.7
NASA Space Grant	$45.6		$26.6	$26.6	$26.6	$26.6	$26.6
Experimental Program to Stimulate Competitive Research	$25.0		$9.1	$9.1	$9.1	$9.1	$9.1
STEM Education and Accountability	$0.0		$94.4	$94.2	$93.8	$93.4	$92.9
Minority University Research Education Program	$0.0		$28.0	$28.0	$28.0	$28.0	$28.0
STEM Education and Accountability Projects	$0.0		$66.4	$66.2	$65.8	$65.4	$64.9
Higher Ed. STEM Education	$49.0		$0.0	$0.0	$0.0	$0.0	$0.0
STEM Opportunities (Higher Education)	$8.4		$0.0	$0.0	$0.0	$0.0	$0.0
Minority University Research & Education Program	$30.6		$0.0	$0.0	$0.0	$0.0	$0.0
Global Climate Change Education	$10.0		$0.0	$0.0	$0.0	$0.0	$0.0
K-12 STEM Education	$45.0		$0.0	$0.0	$0.0	$0.0	$0.0
STEM Student Opportunities (K-12)	$15.5		$0.0	$0.0	$0.0	$0.0	$0.0
STEM Teacher Development (K-12)	$16.0		$0.0	$0.0	$0.0	$0.0	$0.0
K-12 Competitive Educational Grant Program	$13.5		$0.0	$0.0	$0.0	$0.0	$0.0
Informal STEM Education	$15.5		$0.0	$0.0	$0.0	$0.0	$0.0
Science Museums and Planetarium Grants	$7.0		$0.0	$0.0	$0.0	$0.0	$0.0
NASA Visitor Centers	$7.0		$0.0	$0.0	$0.0	$0.0	$0.0
NASA Informal Education Opportunities	$1.5		$0.0	$0.0	$0.0	$0.0	$0.0
ED Civil Service Labor And Expenses	$0.0		$8.3	$8.5	$8.9	$9.3	$9.8
ED Civil Service Labor and Expenses	$0.0		$8.3	$8.5	$8.9	$9.3	$9.8

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Cross-Agency Support	**$3,017.6**	**$3,018.8**	**$3,192.0**	**$3,192.0**	**$3,192.0**	**$3,192.0**	**$3,192.0**
Center Management and Operations	**$2,161.2**		**$2,402.9**	**$2,402.9**	**$2,402.9**	**$2,402.9**	**$2,402.9**
Center Management and Operations	$2,161.2		$1,319.6	$1,305.7	$1,257.6	$1,204.3	$1,148.5
Center Institutional Capabilities	$1,678.3		$1,162.1	$1,149.2	$1,106.7	$1,059.6	$1,010.2
Center Programmatic Capabilities	$482.9		$157.5	$156.5	$151.0	$144.8	$138.3
CMO Civil Service Labor and Expenses	$0.0		$1,083.3	$1,097.2	$1,145.3	$1,198.6	$1,254.4
Civil Service Labor and Expenses	$0.0		$1,083.3	$1,097.2	$1,145.3	$1,198.6	$1,254.4
Agency Management and Operations	**$766.2**		**$789.1**	**$789.1**	**$789.1**	**$789.1**	**$789.1**
Agency Management	$395.5		$182.9	$179.7	$170.4	$159.9	$148.9
Agency Management	$395.5		$182.9	$179.7	$170.4	$159.9	$148.9
Safety and Mission Success	$196.0		$144.5	$143.7	$141.3	$138.5	$135.6
Safety and Mission Assurance	$51.3		$38.9	$38.7	$38.1	$37.5	$36.8
Chief Engineer	$101.1		$76.4	$75.9	$74.4	$72.7	$70.9
Chief Health and Medical Officer	$3.6		$4.1	$4.1	$4.1	$4.1	$4.1
Independent Verification and Validation	$40.0		$25.1	$25.0	$24.6	$24.3	$23.9
Agency IT Services (AITS)	$145.3		$136.4	$136.2	$135.5	$134.7	$133.8
IT Management	$15.0		$13.1	$13.1	$13.1	$13.1	$13.0
Applications	$75.4		$57.6	$57.5	$57.0	$56.4	$55.8
Infrastructure	$54.9		$65.7	$65.6	$65.4	$65.2	$65.0
Strategic Capabilities Assets Program	$29.4		$20.4	$20.2	$19.8	$19.3	$18.7
Strategic Capabilities Assets Program	$29.4		$20.4	$20.2	$19.8	$19.3	$18.7
AMO Civil Service Labor and Expenses	$0.0		$304.9	$309.3	$322.2	$336.8	$352.0
AMO Civil Service Labor and Expenses	$0.0		$304.9	$309.3	$322.2	$336.8	$352.0
Institutional Investments	**$27.2**		**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Institutional Construction of Facilities	$23.4		$0.0	$0.0	$0.0	$0.0	$0.0
Institutional Construction Of Facilities	$23.4		$0.0	$0.0	$0.0	$0.0	$0.0
Environmental Compliance and Restoration	$3.8		$0.0	$0.0	$0.0	$0.0	$0.0
Environmental Compliance and Restoration	$3.8		$0.0	$0.0	$0.0	$0.0	$0.0
Congressionally Directed Items	**$63.0**		**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Congressionally Directed Items	$63.0		$0.0	$0.0	$0.0	$0.0	$0.0
Congressionally Directed Items	$63.0		$0.0	$0.0	$0.0	$0.0	$0.0
Construction and Environmental Compliance	**$452.8**	**$448.3**	**$450.4**	**$450.4**	**$450.4**	**$450.4**	**$450.4**
Construction of Facilities	**$389.4**		**$397.9**	**$384.0**	**$359.5**	**$362.9**	**$360.0**
Institutional CoF	$249.3		$368.0	$384.0	$359.5	$362.9	$360.0
Institutional CoF	$249.3		$368.0	$384.0	$359.5	$362.9	$360.0
Science CoF	$37.8		$1.0	$0.0	$0.0	$0.0	$0.0
Science CoF	$37.8		$1.0	$0.0	$0.0	$0.0	$0.0
Exploration CoF	$72.6		$0.0	$0.0	$0.0	$0.0	$0.0
Exploration CoF	$72.6		$0.0	$0.0	$0.0	$0.0	$0.0

Budget Authority, $ in millions	Actual FY2010	Ann. CR FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Construction of Facilities (continued)							
Space Operations CoF	$26.9		$28.9	$0.0	$0.0	$0.0	$0.0
Space Operations CoF	$26.9		$28.9	$0.0	$0.0	$0.0	$0.0
Aeronautics CoF	$2.8		$0.0	$0.0	$0.0	$0.0	$0.0
Aeronautics CoF	$2.8		$0.0	$0.0	$0.0	$0.0	$0.0
Environmental Compliance and Restoration	**$63.4**		**$52.5**	**$66.4**	**$90.9**	**$87.5**	**$90.4**
Environmental Compliance and Restoration	$63.4		$52.5	$66.4	$90.9	$87.5	$90.4
Environmental Compliance and Restoration	$63.4		$52.5	$66.4	$90.9	$87.5	$90.4
Inspector General	**$36.4**	**$36.4**	**$37.5**	**$37.5**	**$37.5**	**$37.5**	**$37.5**
Inspector General	**$36.4**	**$36.4**	**$37.5**	**$37.5**	**$37.5**	**$37.5**	**$37.5**
IG Program	$36.4	$36.4	$37.5	$37.5	$37.5	$37.5	$37.5
Inspector General	$36.4	$36.4	$37.5	$37.5	$37.5	$37.5	$37.5
NASA FY 2012	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**	**$18,724.3**

Message from the Administrator

It is my privilege to submit President Obama's Fiscal Year (FY) 2012 budget request of $18.7 billion for NASA. Even in these difficult fiscal times, this budget supports all elements of the bipartisan NASA Authorization Act of 2010, along with the President's agenda of *innovation, education, and infrastructure*. However, tough choices had to be made. That is why this budget prioritizes urgent needs, while continuing the Agency's focus on a reinvigorated path of exploration, innovation, and technological development leading to an array of challenging destinations and missions. Today, we begin to win the future.

The dedicated NASA workforce across the Nation is energized to continue our missions throughout the cosmos and here on Earth. The Agency continues to develop a capability-driven framework for affordable, sustainable, and realistic exploration, and this budget aligns our plans with the Authorization Act in a long-term, affordable, and sustainable manner.

Our priorities are to: safely fly out the Space Shuttle this year and maintain safe access for humans to low Earth orbit as we fully utilize the International Space Station; facilitate safe, reliable, and cost effective U.S.-provided commercial access to low Earth orbit for crew and cargo as soon as possible; begin to lay the ground work for expanding human presence into deep space through development of a powerful rocket and modern crew capsule; and pursue technology development to carry humans farther into the solar system even as we extend our reach with robots and observatories and make the most of technological breakthroughs to improve life here at home.

Building on President Obama's charge to all Federal agencies, we will carry out programs of innovation to support long-term job growth and a dynamic economy by increasing investment in research and technology. We will educate the next generation of technology leaders through vital programs in science, technology, engineering, and mathematics education. We will build the future through those investments in American industry to create a new job-producing engine for the U.S. economy while we remain committed to Federal goals to be stewards of our communities and make progress in our use of clean energy at our facilities.

The FY 2012 budget sets ambitious but achievable goals that foster America's continued leadership in space and forges deeper and more effective partnerships with the growing number of nations that are taking part in the space exploration enterprise. The space program remains a great value for the American taxpayer. The Agency's FY 2012 budget helps NASA to be more nimble and responsive to opportunity and encourages us to embrace a crosscutting approach to our thinking and planning that builds on the connections between our diverse missions.

NASA is at the forefront of a bright future for America—a future in which we challenge ourselves to create a global space enterprise with positive ramifications across the world. The FY 2012 budget provides the resources for NASA to innovate and discover on many fronts, and we look forward to implementing it.

Charles F. Bolden Jr.
NASA Administrator

Agency Summary

For more than 50 years, NASA has envisioned the future, making the impossible possible. Since 1958, the Agency has made giant leaps in exploring the cosmos and Earth, designed and built some of the greatest machines ever made, enabled people to walk on the Moon, and imaged the vastness of deep space, providing clues to the origin of the universe. NASA's Earth observing satellites and remote sensing systems have helped to identify natural and human-induced environmental changes that may impact climate, weather, and the health of the planet. The aeronautics research done by NASA has advanced air travel, making it possible for millions of people to fly the skies each day, moving quickly and safely across the globe. NASA also engineered the development, construction, and international cooperation efforts necessary to make a permanently crewed outpost in space, the International Space Station (ISS), a reality. The ISS provides scientists the opportunity to conduct cutting-edge research in a microgravity environment and also serves as an unprecedented model for international cooperation and human goodwill. What NASA does enables people to reach new heights and reveal the unknown for the benefit all humankind.

In FY 2012, NASA will strengthen the Nation's human space flight activities by transitioning from an engineering focus on building the ISS to an emphasis on scientific research and technology development—essential building blocks for a long-term human space exploration program. The ISS is the centerpiece of NASA's planning for extended space missions, as it serves as a research laboratory and technology test bed for basic and advanced studies in life sciences, human health, material sciences, Earth science, and fundamental physics. A new independent non-profit organization is being established to coordinate and oversee all of these research and technology efforts.

Technologies conceived by the world's greatest innovators will be tested in the space environment, proving their potential value in advancing exploration, and sparking ideas for products and services that benefit society here on Earth. These technologies will spur economic growth as new markets are developed, creating new jobs, and expanding international trade. Advances in scientific research, successful solutions to engineering challenges, and new technologies will help ignite student interest in science, technology, engineering, and mathematics (STEM) academic disciplines and careers. Industry and government employers will increase demand for skilled workers as the U.S. repositions itself for technological leadership on a global scale.

NASA actively seeks the engagement of industry in this achievable strategy for exploration. NASA plans to stimulate a competitive commercial market in which academia, non-profit research organizations, and corporations develop and mature aerospace-related technologies, processes, and services. Economic principles of supply, demand, and competition will drive this commercial market and ultimately result in reliable, low cost options for access to, and operations in, space. Public and private partnerships, collaborations with Federal agencies and other nations, and Federal grant awards to innovators at U.S. universities and research centers will initially help to strengthen competition and drive innovation in the aerospace industry. As part of this strategy, NASA will continue architecture planning for a Multi-Purpose Crew Vehicle (MPCV) capable of taking human explorers to distant locations throughout the inner solar system. The Space Launch System (SLS) Program will develop the heavy lift vehicle that will launch the MPCV, other modules, and cargo for these missions.

NASA will continue to expand the scientific understanding of Earth and the universe by pursuing the answers to humankind's most profound science questions. NASA uses the priorities set by the Nation's best scientific minds through the National Academies' decadal surveys in Earth science, heliophysics, planetary science, and astronomy and astrophysics to develop, operate, and mine data from science missions that will have a global impact on humanity's understanding of the universe. NASA's portfolio of space missions and mission-enabling programs includes suborbital missions, technology development, research and analysis, and data archival and distribution to sustain progress toward the Agency's

science goals. We will make investment choices based on scientific merit through open competition and peer review for both space mission development and research tasks.

NASA's aeronautics research focuses on the most appropriate cutting-edge research and technologies to overcome aeronautics challenges that affect the Nation's current and future air transportation system. The Agency addresses these challenges by exploring early-stage concepts and ideas, developing new technologies and operational procedures through foundational research, and demonstrating the potential of promising new vehicles, operations, and safety technology for air transportation. The advances made through aeronautics research will expand airspace capacity, enable fuel-efficient flight planning, reduce the overall environmental footprint of aviation, diminish delays on the ground and in the sky, and improve the ability of aircraft to operate safely in all weather conditions.

NASA strives for sound budgeting and scheduling for all missions and programs since realistic planning is the foundation on which success is built. Schedules and budgets must include a complete cost analysis from concept design to the end of the life cycle. To the greatest extent possible, development risks must be identified, planning impacts assessed, and resources to mitigate the risks and impacts must be available when they are needed. Aggressive management controls and oversight, a full understanding of costs and benefits, and improved coordination and communication at all support levels will lessen risks and improve the likelihood of mission success within cost and funding allowances. Increasing the Agency's accountability and transparency will help reassure the public that NASA remains a good steward of taxpayer dollars.

FY 2012 Budget Highlights

NASA works to solve the questions and challenges of global science and engineering communities. These organizations envision and make real the otherwise unimaginable scientific missions and engineering feats for which the Agency is known. They actively engage with research communities, develop plans of action, build essential instruments and equipment, implement flight missions, and complete the cycle by communicating results back to researchers. The workforce, facilities, and missions of the organizations in the following descriptions represent NASA doing what it does best—exploring, discovering, enhancing the technological leadership of the United States, safeguarding the future for the Earth and generations to come, and, as always, pursuing excellence in all that the Agency does.

Answers to enduring questions about space

NASA's Science Mission Directorate works to expand human scientific understanding of Earth, the Sun, the solar system, and the universe. This knowledge helps identify and predict global climate change, space weather, the origins of the universe, and the likelihood of life elsewhere. The FY 2012 budget request for the Science Mission Directorate is $5,016.8 million.

Using a fleet of spacecraft equipped with radar and lasers, spectrophotometers, radiometers, magnetometers, telescopes, and other sophisticated instruments, NASA's science missions gather information to help researchers understand and respond to national and international disasters, develop innovative technologies that energize the national economy, and inspire the next generation of scientists and engineers.

In FY 2012, NASA will launch the NPOESS Preparatory Project (NPP), the Mars Science Laboratory (MSL), the Nuclear Spectroscopic Telescope Array (NuSTAR), and the Radiation Belt Storm Probes (RBSP). NuSTAR and Swift will continue the search for black holes, and the Great Observatories (Hubble, Chandra, and Spitzer), along with Fermi, will map out the earliest and most interesting structures of the universe. NASA will begin new studies of the Martian surface with the MSL rover, a mobile suite of sophisticated scientific instruments designed to collect data on the environment and geologic history of Earth's nearest neighbor. Radiation Belt Storm Probes (RBSP) will examine Earth's radiation belts to help understand how the Sun affects life on Earth. NASA will add to its fleet of climate-monitoring spacecraft by beginning operations of Glory, Aquarius, and NPP. The Glory mission will provide scientists with data to enable better weather and climate predictions. Data from these missions will inform strategies and policy discussions on global climate change and possibly help to identify ways to mitigate human impacts on the environment that may affect climate. Under the restructured civilian portion of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) now called the Joint Polar Satellite System, NASA will be working as NOAA's acquisition agent to develop and launch the satellite system necessary for civil weather and climate measurements. Similarly, NASA will support the Landsat program at USGS, to help ensure the continuity of this historic and valuable national resource.

Air transportation for today and tomorrow

Aeronautics research advances the safety, capacity, and efficiency of air travel. The FY 2012 budget request for the Aeronautics Research Mission Directorate is $569.4 million.

Through fundamental and applied research, NASA continues to lead improvements in aviation, including safety, air traffic capacity, optimized flight procedures, and aircraft design. Research includes strategies and designs that reduce fuel consumption, air pollution, and noise, making aviation more environmentally responsible. A major initiative is re-envisioning a next generation air transportation

system, or NextGen, which will enable more capacity than the current system. Lost capacity equals fewer flights and less revenue, increased operating costs, impaired consumer confidence, and lack of job growth. NASA and its partners in the interagency Joint Planning and Development Office will continue to work together on the next generation air transportation system.

Technology enabling exploration and discovery

Space Technology creates new space technologies that enable exploration, scientific discovery, and a stronger economic future. The FY 2012 budget request for Space Technology is $1,024.2 million.

Technology improves our lives every day, and yet, U.S. leadership in technology development is under attack, a fact that has serious implications for the Nation's global competiveness and economy. Recognizing that a technology-based economy is a robust one, the President has challenged Federal agencies to strengthen their investments in new technology development and innovation. NASA's Space Technology develops critical space technologies through multi-phased technology development efforts, demonstrations, competitive opportunities, and partnerships. These strategies engage the creativity and problem-solving nature of the Nation's brightest minds, whether they work in Government, industry, academia, or a backyard workshop. Space Technology provides the technological advances required for NASA's future missions in science and exploration while also creating advances that can lower costs and improve capabilities of other government agency and commercial space activities. These investments will stimulate the economy and build the Nation's global economic competitiveness through the creation of new products and services, new business and industries, and high-quality, sustainable jobs.

NASA history of technology transfer proves that that space-derived technologies, tools, and processes have applications for commercial markets. NASA's Small Business Innovation Research and Small Business Technology Transfer programs encourage small businesses to participate in the Agency's technology research and development work. In FY 2012, NASA will increase maximum award levels to $150,000 for Phase 1 research, and to $1 million for Phase 2 activities. This increased Agency commitment to engaging small business in research and development will encourage creativity and innovation in companies that might not otherwise be drawn to NASA and space exploration. Increased engagement by U.S. industry will improve the technological position of the U.S. and help to build a robust space commercial market.

Humanity's destiny in space

Space Operations and Exploration lead the Nation's current and future human space exploration efforts while encouraging development and growth of a commercial launch capability. The FY 2012 budget request for the Space Operations Mission Directorate is $4,346.9 million and the request for the Exploration Systems Mission Directorate is $3,948.7 million.

Supporting basic and applied research by government, private, and academic organizations, the ISS is set to take center stage in NASA's plans for long-duration human space flight beyond low Earth orbit. NASA will use the unique environment and research equipment of the ISS to advance knowledge of human health risks in space and appropriate countermeasures, materials science, fundamental physics, and other disciplines essential for space travel. The ISS will also provide a test bed for testing exploration-enabling technologies as they mature. As an orbiting, fully crewed National Laboratory, NASA's portion of the ISS will support the research interests of other Federal agencies, private, and academic organizations.

To oversee and coordinate this research, NASA is pursuing a plan for managing ISS research through an independent non-profit organization, or NPO. In FY 2011, NASA will award a cooperative agreement

for the NPO to further develop national uses of the ISS and oversee all research involving organizations other than NASA. Transfer of current NASA research to the NPO will occur in future years, as Space Operations oversight of existing research projects is phased out. Specifically, the NPO will co-select and manage new peer-reviewed projects. As NASA research project offices complete ongoing work in future years, extension/renewal decisions will be made exclusively by the NPO. In this way, the NPO will create opportunities and facilitate planning for organizations that successfully propose to conduct experiments using the resources on the ISS.

NASA is reaching out to industry for support of a human space flight program that meets both near- and far-term objectives and provides flexibility in missions that expand the human presence across the solar system. This strategy for human space flight capitalizes on the ability of industry to be "nimble," leveraging it with the steady methodical development approaches used by NASA. Research, development, and operational activities are balanced, in terms of work done by NASA and the commercial sector, to be responsive to priorities outlined in the NASA Authorization Act of 2010. In FY 2012, NASA will continue architecture planning for a Multi-Purpose Crew Vehicle (MPCV) capable of taking human explorers to distant locations throughout the inner solar system. The Space Launch System (SLS) Program will develop the heavy lift vehicle that will launch the MPCV, other modules, and cargo for these missions. NASA will invest nearly $3 billion in FY 2012 on MPCV and SLS, combined. NASA will also continue to stimulate the development of commercial crew and cargo transportation systems to the ISS and other future destinations. The Administration supports enabling this new industrial market, as it will provide a realistic solution to the challenges of acquiring affordable and reliable access to space.

After nearly forty years of service, the Space Shuttle will complete its mission and the program will retire. Space Shuttle transition and retirement activities will accelerate in FY 2012, as the Agency continues transitioning key workforce, technology, facilities, and operational experience to a new generation of human space flight and exploration activities. The disposition of most of the Space Shuttle assets will be completed in FY 2012.

Education essential to a strong future workforce and economy

Education programs capitalize on NASA's missions to inspire students, educators, and the public. The FY 2012 budget request for Education is $138.4 million.

NASA has a long history of supporting STEM education. The Agency provides materials and resources that help teachers improve their STEM knowledge and inspire their students. Hands-on experiences enable students, throughout the pipeline from elementary school to graduate school, to question, reason, test, analyze, and communicate their findings. Educational investments in higher education, such as the National Space Grant College and Fellowship Program, the Experimental Program to Stimulate Competitive Research, and the Minority University Research and Education Program, support the preparation of a highly skilled and well-trained STEM workforce for the Agency and the Nation. Projects like the Summer of Innovation support Administrative initiatives, like "Educate to Innovate," and "Race to the Top." In FY 2012, NASA will respond to the recommendations of the Agency's Education Design Team, by strengthening partnerships with national, state, and local education providers, to better meet the needs of schools, teachers, students, and communities. Organizational changes within the Agency's Education Theme will enhance the Agency's ability to make programmatic adjustments based on needs analysis, changing customer demand, and assessments of program effectiveness.

Excellence in operations for mission success

NASA's investments in Cross-Agency Support, and Construction and Environmental Compliance and Restoration provide essential institutional operations and facilities necessary for conducting aeronautics and space activities. The FY 2012 budget request for Cross-Agency Support is $3,192.0 million, and the request for Construction and Environmental Compliance and Restoration is $450.4 million.

Cross-Agency Support delivers a diverse range of services, including business operations, technical and safety oversight, facilities, and tools and resources that allow NASA to share with the public the challenges, results, and successes of the Agency's missions. In FY 2012, NASA will continue aligning the skill mix of the Agency's workforce with changing mission requirements. Further, planned operating system upgrades will improve the utility of information technology services, electronic business applications, the NASA Web portal, and improve NASA's participation in E-Government and transparency initiatives.

Construction and Environmental Compliance and Restoration ensures that mission essential facilities are built, revitalized, or decommissioned; and manages environmental compliance and restoration activities. In FY 2012, NASA will install a new 34-meter antenna at the Canberra Communications Complex of the Deep Space Network, improving communications with data sensing satellites. Three major environmental cleanups will continue, including soil and water remediation at the Santa Susana Field Laboratory so that the property can be dispositioned responsibly.

Operational efficiencies

NASA facilities cover 124,494 acres and the Agency directly employs approximately 18,500 civil servants. In keeping with broader Administration themes, the NASA's budget request supports a number of efforts to make NASA operate more efficiently. Today, over 80 percent of NASA's buildings are beyond their design life. The FY 2012 budget request strengthens the Agency's recapitalization fund, enabling NASA to replace or modernize inefficient buildings, and to eliminate or demolish others, providing jobs to local communities, and leading to increasingly efficient use of taxpayer dollars. In FY 2012, NASA will continue to implement energy savings initiatives, consolidate activities, and streamline or defer some Center Management Operations activities.

The Agency's FY 2012 budget request proposes new authority for NASA to enter into innovative partnerships with utility companies to provide clean energy to NASA Centers and the communities that surround them. NASA is working to meet energy intensity reduction requirements of three percent per year and 30 percent by 2015, from the FY 2003 baseline. To assist Centers with administering their energy management programs, NASA Headquarters annually conducts Energy and Water Management Functional Reviews at a third of NASA Centers to help Centers improve their management systems and identify and implement energy conservation measures.

In addition to facilities-related savings, the FY 2012 budget request proposes to save over $100 million in administrative costs by streamlining Agency operations. Streamlining efforts will focus on areas such as travel and printing costs.

Moreover, the Agency is improving the skills base in its workforce through certain hiring limitations and an increased focus on attracting new talent in the early stages of their careers.

Notes on NASA's Budget Request

With the direction provided in the bipartisan 2010 NASA Authorization Act (P.L. 111-267), NASA has begun to implement the key elements of this important law, as is reflected in the NASA FY 2012 budget request. Additionally, the FY 2012 budget proposes several structural adjustments and workload balance measures to improve the management of Agency resources, better align the Agency's work, and provide increased efficiencies and instruments. These items are discussed in greater detail below.

Budget Implications Related to NASA's 2010 Authorization Act

Congress passed the 2010 NASA Authorization Act in September 2010, after the submission of the FY 2011 President's Budget. In addition, at the time of printing of NASA's FY 2012 budget, there is no final appropriation for FY 2011. Therefore, NASA's budget request provides implementation of the key elements of the Authorization Act, while accounting for the uncertainties surrounding the FY2011 appropriation. All tables in the FY 2012 NASA budget request include a column for FY 2011 reflecting the annualized level provided by the current Continuing Resolution (P.L. 111-242) and an additional column reflecting the FY 2011 column of the 2010 NASA Authorization Act. In addition, In accordance with the President's proposal to implement a five-year non-security discretionary spending freeze, budget figures shown for years after FY 2012 are notional and do not represent policy. Funding decisions will be made on a year-by-year basis.

The 2010 NASA Authorization Act calls for robust programs in science, exploration, aeronautics, technology development, commercial launch capabilities development, and education. NASA has embraced the guidance set forth in the Act and has moved forward with plans to carry out its direction. With respect to human space flight and exploration, the Agency will fly the STS-135 Shuttle flight if funding is available and is developing plans and processes to ensure use of the ISS through 2020, including allocating research capability as part of a new National Laboratory. NASA is developing heavy lift capabilities and a Multi-Purpose Crew Vehicle capable of supporting exploration beyond low Earth orbit to a variety of destinations. Planning and support for development of commercial providers for crew and cargo transportation services to the ISS is underway, as the Act specifies that the "United States must develop, as rapidly as possible, replacement vehicles capable of providing both human and cargo launch capability to low-Earth orbit and to destinations beyond low-Earth orbit."

Merger of Space Operations and Exploration Systems Mission Directorates

To promote more effective and efficient development and operation of NASA's human space flight goal to extend and sustain human activities across the solar system, planning is underway to merge the Space Operations and Exploration Systems Mission Directorates. The new, integrated organization will be able to more effectively implement NASA's human space flight goals to achieve a safe, reliable, and affordable program that will sustain human space exploration efforts over the long term. By combining the efforts of these two human space flight organizations, NASA will ensure that knowledge and lessons learned from current Space Shuttle and ISS activities and contracted services (Space Operations) are leveraged with the Agency's forward-looking engineering design and capabilities development (Exploration Systems). Benefits of the merger will include integrated commercial transportation programs for the ISS; simplified external relationships with industry and international partners, including integrated global cooperation in human space exploration; and streamlined internal efforts between NASA Centers for more efficient operations. The new organization will realize improved human capital and infrastructure management as NASA transitions from the Space Shuttle and Constellation Systems to new human space flight programs. Restructuring the current budget will be evaluated and proposed, if appropriate, in a future NASA budget request.

Exploration's Technology Development Program Moved to Space Technology

NASA's FY 2012 budget for Space Technology reflects a $310 million transfer from the Exploration Systems Mission Directorate budget. This realignment of funds is due to the movement of a significant portion of the Exploration Technology Development (ETD) Program to Space Technology. Exploration Systems will focus on the development of the Space Launch System, Multi-Purpose Crew Vehicle, and commercial crew and cargo capabilities. The technology objectives of ETD will be largely incorporated into the overall Agency technology development portfolio, better leveraging the practices, readiness assessments, integration, and acquisition strategies established within Space Technology. For traceability, the transferred activities have been consolidated into a specific budgetary element within Space Technology. Some elements of exploration technology efforts, such as life support, extravehicular activity, and habitation development, will remain in Exploration Systems due to their engineering development nature and strong coupling to exploration crew vehicle systems.

In addition, in the FY 2012 budget request, NASA has proposed a distinct account for Space Technology as specified under the 2010 NASA Authorization Act. Previously, Space Technology was included in the Aeronautics Research account.

Separate Allocations for Civil Service Labor and Expenses

The FY 2012 NASA budget is presented both using the full-cost method of allocating all costs and with labor funding for the Agency's civil service workforce consolidated within eight theme- or program-level labor allocations titled "Civil Service Labor and Expenses (CSLE)." At present, with the exception of employees performing administrative or institutional functions, NASA allocates funds for its civil service workforce to the projects that use that labor (the "full-cost" method). Going forward, however, NASA intends to administer labor funding in a new manner, consolidating those funds within a labor allocation in each of the appropriations. With this change, employees working on (for example) aeronautics projects would be funded by the consolidated Aeronautics CSLE theme in the Aeronautics account.

NASA has initiated this change in administration of labor funding because NASA's current approach can be difficult to administer during the year of execution, especially as employees move from project to project. Consolidated accounts also provide some Center flexibility to redeploy workforce across projects within an appropriation account in response to new or changing requirements. Moreover, as NASA now transitions from its current portfolio of programs to the new direction authorized in the NASA Authorization Act of 2010, it may become especially difficult to ensure that all workforce and labor funding is properly allocated to individual projects as the project portfolio changes over time. By contrast, a consolidated labor account structure ensures that sufficient labor funding is accessible to fund the workforce and allows managers greater flexibility to assign workforce, allocate labor, and match skills with project work.

At the same time, NASA remains committed to tracking utilization of workforce and CSLE funding at the project level. The Agency will collect information on actual CSLE project funding through NASA's employee time and attendance system, and formulate all project plans both with, and without, CSLE expenditures. NASA also remains committed to tracking the full cost of all major projects.

Explanation of Budget Tables

NASA works to achieve the best display of the information in this budget request to enhance reader understanding. For most of the tables in this budget and where authorized levels were specific, an additional column for FY 2011 is included to provide comparability. The following assumptions have been made:

- The FY 2011 appropriation for NASA was not enacted at the time the FY 2012 Request was prepared; therefore, NASA is operating under a Continuing Resolution (P.L. 111–242, as amended). The amounts in all tables included for FY 2011 reflect the annualized level provided by the Continuing Resolution.

- The "Auth. Act FY 2011" column in all tables represents FY 2011 authorized funding from the NASA Authorization Act of 2010 (P.L. 111-267).

- In accordance with the President's proposal to implement a five-year non-security discretionary spending freeze, budget figures shown for years after FY 2012 are notional and do not represent policy. Funding decisions will be made on a year-by-year basis.

- The FY 2010 actual column reflects NASA's last FY 2010 Operating Plan, submitted July 21, 2010.

- Adjustments were made in all years to reflect the movement of the Innovative Partnerships Program and most Exploration Technology Development activities into Space Technology.

Within the body of NASA's budget submission, budget tables are presented in tiers, aligned to NASA's programmatic management, from the top-level Mission Directorate, to increasingly detailed levels of Theme, Program, Projects in Development, and Projects in Formulation. Within NASA's budget submission, column contents may take on slightly different meanings depending on the management tier. Table footnotes applied at one level (e.g., Mission Directorate) are consistent throughout the document. However, footnotes may vary between management levels within the same Mission Directorate. Readers are advised to review footnotes when reviewing tables.