



National Science Foundation

FY 2011 Survey of Science and Engineering Research Facilities

Part 1: Research Space

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Your participation in this survey is voluntary. However, your institution's response is important. The information from this survey on individual institutions can be used by your institution and other institutions for decision- and policy-making. The data also describe science and engineering research facilities at the national, regional, and state levels.

Based on pretests, responding to this survey (Part 1 and Part 2 combined) typically requires 41 hours depending on how data are maintained at your institution. If you wish to comment on the burden of completing this survey, contact Suzanne H. Plimpton, Reports Clearance Officer, NSF, via e-mail at splimpto@nsf.gov or call 1-703-292-7556. Or, you may write to the Office of Management and Budget, Paperwork Reduction Project (OMB Number 3145-0101), Washington, DC 20503.

If you have a question, please contact Lorraine Lewis via e-mail at facilitiesurvey@westat.com or call 1-888-811-1838. The survey director at the National Science Foundation is Mr. John Jankowski.

Please complete and send this survey to NSF on the web (according to the instructions on page 1) or return it by mail to:

ATTN: NSF Facilities Survey
Westat
1600 Research Boulevard
Rockville, MD 20850

Thank you for your participation.

General information

This questionnaire is available electronically. Go to www.facilitiesurvey.org to access the survey. You will need to click on “Part 1” and then enter the Part 1 Coordinator ID and password. These are provided on the label on the front cover of this paper questionnaire.

Please report information for the **institution** named on the label on the front cover.

If you do not have exact figures for any part of this questionnaire, please provide estimates.

Confidentiality

Information provided on research animal space (Questions 1 row i, 3, and 9f) and on the condition of S&E space (Question 6) will not be publicly available for individual institutions. In accordance with the National Science Foundation Act of 1950, as amended, and other applicable federal laws, your responses will not be disclosed in identifiable form to anyone other than agency employees or authorized persons.

Changes from previous survey cycle

- **Fields of science and engineering (S&E)**

Changes have been made to the lists of disciplines included in some fields of S&E to be consistent with the 2010 Classification of Instructional Programs (CIP 2010). For a description of the fields of S&E, see Question 2 on pages 5–7 or the crosswalk of survey fields of S&E to the National Center for Education Statistics (NCES) 2010 Classification of Instructional Programs (CIP) on pages 27–28.

- **Research Animal Space**

Seven questions on research animal space from the last survey cycle have been deleted (question numbers shown below refer to those appearing in the FY 2009 survey):

- Condition of research animal space (Question 7)
- Biosafety level of research animal facilities (Question 8)
- Research animal facilities: repairs and renovations (Question 10)
- Research animal facilities: planned repairs and renovations (Question 15)
- Research animal facilities: planned new construction (Question 18)
- Research animal facilities: deferred repairs and renovations (Question 21)
- Research animal facilities: deferred new construction (Question 24)

Definition of science and engineering (S&E) research and research space

Please use these definitions when answering all questions in this survey.

Research is all sponsored research and development activities of your institution that are separately budgeted and accounted for. Research can be funded by your own institution, the federal government, a state government, foundations, corporations, or other sources. It does not include departmental research that is not separately budgeted.

Research space is the net assignable square feet of space in buildings within which research activities take place. Research facilities are located within buildings. A **building** is a roofed structure for permanent or temporary shelter of persons, animals, plants, materials, or equipment. Structures should be included if they are (1) attached to a foundation, (2) roofed, (3) serviced by a utility, exclusive of lighting, and (4) a source of significant maintenance and repair activities.

Net assignable square feet (NASF) is the sum of all areas on all floors of a building assigned to, or available to be assigned to, an occupant for a specific use, such as research or instruction. NASF is measured from the inside faces of walls.

Science and engineering (S&E) includes the following fields: agricultural sciences and natural resources sciences, biological and biomedical sciences, computer and information sciences, engineering, health and clinical sciences, mathematics and statistics, physical sciences, psychology, social sciences, and other science and engineering fields. See Question 2 on pages 5–7 for a detailed list of the disciplines included in each of these fields.

Definition of science and engineering (S&E) research and research space (continued)

Research space includes:

- controlled-environment space, such as clean, cold, or white rooms
- technical and laboratory support space, such as equipment areas, preparation areas, darkrooms, carpentry and machine shops, storage areas, etc.
- laboratories, including computer labs, behavior observation rooms, etc.
- core laboratories that serve other laboratories
- laboratories and associated support areas used for research animals, including procedure rooms, bench space, animal production colonies, holding rooms, germ-free rooms, surgical facilities, recovery rooms, etc.
- housing facilities for research animals and associated maintenance areas, including cage rooms, stalls, wards, isolation rooms, exercise rooms, feed storage rooms, cage-washing rooms, holding and storage areas, etc.
- space for clinical trial research
- offices, to the extent that they are used for research activities, including administrative activities for a specific research project
- space with fixed (built-in) equipment such as fume hoods
- space with nonfixed equipment costing \$1 million or more each, such as MRIs
- space that is leased by your institution

Research space does not include:

- space for the fields of law, business administration/management, humanities, history, the arts, or education
- libraries, unless they are dedicated to a specific research project
- animal field buildings sheltering animals that do not directly support research or that are not subject to government regulations concerning humane care and use of laboratory animals
- Federally Funded Research and Development Centers (FFRDCs)
- in-kind space used by your faculty, staff, or other persons but administered by other organizations, such as research facilities at non-university hospitals or Veterans Administration hospitals
- space administered by your institution but leased to another organization
- outdoor areas such as fish ponds or planting fields

Question 1: Types of science and engineering (S&E) research space

1. Please indicate whether or not your institution had each type of S&E research space listed below at the end of your FY 2011. See pages 2–3 for the definition of research space and fields of S&E.

Did your institution have this type of S&E research space at end of FY 2011?

(Mark one "X" for each row.)

Types of S&E research space	Yes	No	Uncertain
a. Laboratories, wet or dry, including computer laboratories, behavior observation laboratories, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Laboratory support space, including autoclave rooms, darkrooms, equipment areas, storage areas for research equipment and supplies, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Instructional laboratories that are <i>also</i> used for research.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Core laboratories that serve other laboratories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Leased space that is used for research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Offices, to the extent they are used for research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Space used for research containing nonfixed equipment costing \$1 million or more each, such as MRIs.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Research space in a medical school that awards the M.D. or D.O. degree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Research animal space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reminder: Please see page 1 for confidentiality of this item.			
Laboratories and associated support areas used for research animals that are subject to local, state, and federal government policies and regulations concerning humane care and use of animals. Examples include procedure rooms, holding rooms, recovery rooms, animal production colonies, and storage areas.			
Space for housing research animals and associated maintenance areas that are subject to local, state, and federal government policies and regulations concerning humane care and use of animals. Examples include animal quarters, cage washing rooms, feed storage areas, isolation rooms, and exercise rooms.			
j. Research space that is used for clinical trials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 2: Amount of research space

2. At the end of your FY 2011, how much net assignable square feet was used for research (based on the definition of research space on pages 2–3) for each of the fields of science and engineering (S&E) below? Please include any research animal space in the relevant fields of S&E. You may provide estimates if you do not have exact figures.

Research animal space includes all departmental and central facilities, such as laboratories, housing, and associated support areas, that are subject to local, state, and federal government policies and regulations concerning humane care and use of laboratory animals.

If research space was shared among fields or used for other purposes in addition to research, report the portion of space used for research for each field below. For example, if two fields shared the space equally, report half of the space in one field and half in the other. Or, if an area was used for research one-fourth of the time and for other purposes the rest of the time, report one-fourth of the space as research space.

See pages 27–28 for crosswalk of survey fields of S&E and NCES CIP codes.

Field of S&E (Include research animal space.)	Net assignable square feet of research space at end of FY 2011
a. Agricultural sciences and natural resources sciences	
Agricultural economics Animal sciences Fishing and fisheries sciences Food science and technology Forestry	<input type="text"/> NASF <input type="checkbox"/> Check this box if no research space in this field at the end of FY 2011
Natural resources conservation and research (includes environmental science) Natural resources economics Plant sciences Soil sciences Wildlife and wildlands science	
b. Biological and biomedical sciences	
Anatomical sciences Animal biology Biochemistry Bioinformatics Biology Biomathematics Biophysics Biotechnology Botany Cell biology Cellular biology Ecology Evolution Genetics Human nutrition	<input type="text"/> NASF <input type="checkbox"/> Check this box if no research space in this field at the end of FY 2011
Immunology Microbiological sciences Molecular biology Molecular medicine Neurobiology Neurosciences Pathology Pharmacology Physiology Plant biology Population biology Toxicology Zoology Biological and biomedical sciences, other	
c. Computer and information sciences	
Computer science Computer software and media applications Computer systems networking and telecommunications Information science	<input type="text"/> NASF <input type="checkbox"/> Check this box if no research space in this field at the end of FY 2011

Field of S&E*(Include research animal space.)***Net assignable square feet
of research space at end of
FY 2011****d. Engineering**

Aeronautical engineering	Forest engineering
Aerospace engineering	Geological engineering
Agricultural engineering	Geophysical engineering
Architectural engineering	Industrial engineering
Astronautical engineering	Manufacturing engineering
Automation engineering	Marine engineering
Biochemical engineering	Materials engineering
Bioengineering	Mechanical engineering
Biological engineering	Mechatronics
Biomedical engineering	Medical engineering
Biosystems engineering	Metallurgical engineering
Ceramic sciences and engineering	Mining and mineral engineering
Chemical engineering	Naval architecture
Civil engineering	Nuclear engineering
Computer engineering, general	Ocean engineering
Construction engineering	Operations research
Electrical, electronics and communications engineering	Paper science and engineering
Electromechanical engineering	Petroleum engineering
Engineering chemistry	Plastics engineering
Engineering mechanics	Polymer engineering
Engineering physics	Robotics
Engineering science	Surveying engineering
Environmental engineering	Systems engineering
Environmental health engineering	Textile sciences and engineering
	Engineering, other

 NASF

 Check this box if no
research space in this field at
the end of FY 2011
e. Health and clinical sciences

Allied health diagnostic, intervention, and treatment	Optometry
Clinical laboratory science/research	Oral sciences
Clinical nursing	Osteopathic medicine
Communication disorders sciences	Osteopathy
Dentistry	Pharmaceutical sciences
Informatics	Pharmacy
Kinesiology and exercise science	Podiatric medicine
Medical clinical sciences	Podiatry
Medical illustration	Public health
Medical laboratory science/research	Registered nursing
Medicine	Rehabilitation and therapeutic subfields
Nursing research	Veterinary biomedical sciences
	Veterinary medicine

 NASF

 Check this box if no
research space in this field at
the end of FY 2011
f. Mathematics and statistics

Applied mathematics
Mathematics
Statistics
Mathematics and statistics, other

 NASF

 Check this box if no
research space in this field at
the end of FY 2011

Field of S&E
(Include research animal space.)

**Net assignable square feet
of research space at end of
FY 2011**

g. Physical sciences

Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography

_____ NASF

Check this box if no
research space in this field at
the end of FY 2011

Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics

_____ NASF

Check this box if no
research space in this field at
the end of FY 2011

h. Psychology

Applied Psychology
Clinical psychology
Counseling psychology

Research and experimental psychology
Psychology, other

_____ NASF

Check this box if no
research space in this field at
the end of FY 2011

i. Social sciences

Anthropology
Archeology
Criminalistics
Criminal justice
Criminal science
Criminology
Demography
Economics
Forensic science and technology

Geography and cartography
International relations
National security studies
Police science
Political science and government
Population studies
Sociology
Urban affairs
Social sciences, other

_____ NASF

Check this box if no
research space in this field at
the end of FY 2011

j. Other field of S&E

Use this category when multidisciplinary, interdisciplinary, or other aspects make
classification under one primary S&E field impossible. Please see pages 2–3 for the definition
of S&E research and research space.

_____ NASF

(Please describe.) _____

Check this box if no
research space in this field at
the end of FY 2011

Question 3: Research animal space

Reminder: Please see page 1 for confidentiality of this item.

3. At the end of your FY 2011, how much of the research NASF reported in Question 2 was used for research animals?

Research animal space includes all departmental and central facilities, such as laboratories, housing, and associated support areas, that are subject to local, state, and federal government policies and regulations concerning humane care and use of laboratory animals.

Research animal portion of the space
included in Question 2 (*If none, enter "0."*) NASF

Question 4: Clinical trial research space

4. At the end of your FY 2011, how much of the research NASF reported in Question 2 was used for clinical trials?

Clinical trial portion of the space
included in Question 2 (*If none, enter "0."*) NASF

Question 5: Research space in medical school

5. *If your institution had a medical school*, how much of the research NASF reported in Question 2 was located in the medical school at the end of your FY 2011?

Medical school is a school that awards the M.D. or D.O. degree.

If your institution did *not* have a medical school,
check this box and go to Question 6.....

Medical school portion of the space
included in Question 2 (*If none, enter "0."*) NASF

Question 6: Condition of research space

Reminder: Please see page 1 for confidentiality of this item.

6. At the end of your FY 2011, what percentage of the research NASF reported in Question 2 fell into each of the four condition categories below? Include research animal space.

Superior condition	Suitable for the most scientifically competitive research in this field over the next 2 years (your FY 2012 and FY 2013)
Satisfactory condition	Suitable for continued use over the next 2 years (your FY 2012 and FY 2013) for most levels of research in this field, but may require minor repairs or renovation
Requires renovation	Will no longer be suitable for current research without undergoing major renovation within the next 2 years (your FY 2012 and FY 2013)
Requires replacement	Should stop using space for current research within the next 2 years (your FY 2012 and FY 2013)

For Field of S&E definitions, see Question 2 on pages 5–7.

Field of S&E (Include research animal space.)	Mark "X" if no research space in this field	Percent of net assignable square feet				Total
		Superior condition	Satisfactory condition	Requires renovation	Requires replacement	
<i>(The percentages should sum to 100 within each row.)</i>						
a. Agricultural sciences and natural resources sciences.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
b. Biological and biomedical sciences.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
c. Computer and information sciences.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
d. Engineering.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
e. Health and clinical sciences.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
f. Mathematics and statistics.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
g. Physical sciences						
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
h. Psychology.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
i. Social sciences.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%
j. Other field of S&E.....	<input type="checkbox"/>	_____ %	_____ %	_____ %	_____ %	100%

Question 7: Repairs and renovations started in FY 2010 and FY 2011

7. Please provide the completion costs for repair and renovation of S&E research facilities that started during your FY 2010 or FY 2011. Include research animal space in the relevant fields of S&E. Include only projects whose prorated cost was estimated to be \$250,000 or more for at least one field of S&E listed below. For **multi-year projects**, report the entire completion cost even if some work will occur in future years.

Start date is the date on which the physical work of the repairs or renovations actually began.

Repairs and renovations are activities such as fixing up facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, and the building out of shell space. Include any repairs or renovations to existing space that are performed in combination with new construction projects. **Do not** report building additions since they are reported in this survey under new construction.

Completion costs include planning, site preparation, construction, fixed equipment, nonfixed equipment that costs \$1 million or more, and building infrastructure such as plumbing, lighting, air exchange, and safety systems either in the building or within 5 feet of the building foundation.

If research facilities are shared by two or more fields, allocate the appropriate share of the costs to each field in order to determine which fields to report. For example, if a field will have one-fourth of the costs for a \$300,000 project, do **not** report that field's share, which is \$75,000. If a \$400,000 project will have two fields with the same costs, do **not** report either field's portion, which is \$200,000 each.

If research facilities are also used for nonresearch activities, report the S&E research portion of the costs for the fields listed below if the research portion is \$250,000 or more. For example, if a facility is used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

If your institution had no repair or renovation projects, check this box and go to Question 9

For Field of S&E definitions, see Question 2 on pages 5–7.

Field of S&E <i>(Include costs for research animal space.)</i>	Completion costs for projects started in FY 2010 or FY 2011
a. Agricultural sciences and natural resources sciences	\$ <input style="width: 100px;" type="text"/>
b. Biological and biomedical sciences	\$ <input style="width: 100px;" type="text"/>
c. Computer and information sciences	\$ <input style="width: 100px;" type="text"/>
d. Engineering.....	\$ <input style="width: 100px;" type="text"/>
e. Health and clinical sciences.....	\$ <input style="width: 100px;" type="text"/>
f. Mathematics and statistics	\$ <input style="width: 100px;" type="text"/>
g. Physical sciences	
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography	\$ <input style="width: 100px;" type="text"/>
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics	\$ <input style="width: 100px;" type="text"/>
h. Psychology.....	\$ <input style="width: 100px;" type="text"/>
i. Social sciences	\$ <input style="width: 100px;" type="text"/>
j. Other field of S&E <i>(Please describe.)</i>	\$ <input style="width: 100px;" type="text"/>
<input style="width: 150px; height: 15px;" type="text"/>	

Question 8: For medical schools only: repairs and renovations in FY 2010 and FY 2011

8. *If your institution had a medical school*, how much of the completion costs for repair and renovation of research facilities as reported in Question 7 was located in the medical school?

Medical school is a school that awards the M.D. or D.O. degree.

If your institution did *not* have a medical school,
check this box and go to Question 9.....

Medical school portion of the costs
included in Question 7 (*If none, enter "0."*)\$

Question 9: New construction started in FY 2010 and FY 2011

9. Please provide the total number of new construction projects that included S&E research facilities that started during your FY 2010 or FY 2011. Include only projects whose prorated cost was estimated to be \$250,000 or more for at least one field of S&E. Include research animal space in the relevant fields of S&E.

New construction is the construction of a new building or additions to an existing building.

Research facilities are defined on pages 2–3 of the survey questionnaire.

Start date is the date on which the physical work of the construction actually began.

Completion costs include planning, site preparation, construction, fixed equipment, nonfixed equipment that costs \$1 million or more, and building infrastructure such as plumbing, lighting, air exchange, and safety systems either in the building or within 5 feet of the building foundation.

If facilities are shared for research and nonresearch activities, report only projects with completion costs of \$250,000 or more for at least one field of S&E research. For example, if a \$300,000 project involves space used for research only one-fourth of the time, this project of \$75,000 for the research facilities should not be reported.

If facilities are shared by two or more fields of S&E, report the new construction project only if at least one field of S&E research has completion costs of \$250,000 or more. For example, if two fields share the costs equally for a research project costing \$400,000, neither field's share of \$200,000 meets the cost minimum.

If your institution had no new construction projects, check this box and go to Question 10.....

If your institution had one or more new construction projects, enter the number of projects here and fill out a separate Individual Project Form for each one..... projects

Please make additional copies of this form as needed.

Individual Project Form for Question 9

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Please complete this form for **each** new construction project that started during your FY 2010 or FY 2011. Include only projects that will cost \$250,000 or more for at least one of the S&E fields. Consider the start date to be the date on which the physical work of the new construction began.

9A. What is the name of this project? _____

9B. During which of your fiscal years did the physical work of new construction begin for this project?

FY 2010

FY 2011

9C. When this project is completed, what is (a) the entire project's (research and nonresearch) gross square feet; (b) the entire project's net assignable square feet; and (c) the S&E research facilities portion in net assignable square feet?

For multi-year projects, report the space expected when the project is completed.

a. Gross square feet (GSF) for entire project (research and nonresearch)..... GSF

Gross square feet (GSF) is the floor area of a structure within the outside faces of the exterior walls.

b. Net assignable square feet (NASF) for entire project
(research and nonresearch)..... NASF

Net assignable square feet (NASF) is the sum of all areas on all floors of a building assigned to, or available to be assigned to, an occupant for a specific use, such as research or instruction. NASF is measured from the inside faces of walls.

NOTE: If the entire project is S&E research, the answers for row b and row c will be the same.

c. Net assignable square feet for **S&E research facilities** portion
(defined on pages 2–3 of the survey questionnaire)..... NASF

Research facilities are defined on pages 2–3 of the survey questionnaire, including examples of what areas to include and exclude.

If the research facilities are also used for nonresearch activities, adjust the amount of space based on the amount of time the area is used for S&E research. For example, if an area is used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the space as S&E research facilities.

Please make additional copies of this form as needed.

Individual Project Form for Question 9

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9D. When this project is completed, what are the completion costs for (a) the entire project (research and nonresearch), and (b) the S&E research facilities portion of the project? **For multi-year projects**, report the costs expected when the project is completed.

Completion costs include planning, site preparation, construction, fixed equipment, nonfixed equipment that costs \$1 million or more, and building infrastructure such as plumbing, lighting, air exchange, and safety systems either in the building or within 5 feet of the building foundation.

a. Completion costs for the GSF of the entire project (research and nonresearch) \$

b. Completion costs for the **S&E research facilities** portion
(defined on pages 2–3 of the survey questionnaire)..... \$

If the research facilities are also used for nonresearch activities, adjust the completion costs based on the amount of time the facilities are used for S&E research. For example, if a facility is used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

Please make additional copies of this form as needed.

Individual Project Form for Question 9

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9E. For the portion of this project used for **S&E research facilities**, what are (1) the completion costs, and (2) the net assignable square feet, for each field listed below? **For multi-year projects**, report costs and NASF expected when the project is completed.

Report only fields with costs of \$250,000 or more for research facilities.

If research facilities are shared by two or more fields, allocate the appropriate share of the costs to each field in order to determine which fields to report. For example, if a field will have one-fourth of the costs for a \$300,000 project, do not report that field's share, which is \$75,000. If a \$400,000 project will have two fields with the same costs, do not report either field's portion, which is \$200,000 each.

If research facilities are also used for nonresearch activities, report the S&E research portion of the cost and net assignable square feet for the fields listed below if the research portion is \$250,000 or more. For example, if a facility will be used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

For Field of S&E definitions, see Question 2 on pages 5–7.

Field of S&E (Include research animal space.)	Research facilities		NASF
	(1) Completion costs	(2) Net assignable square feet	
a. Agricultural sciences and natural resources sciences	\$ _____	_____	NASF
b. Biological and biomedical sciences	\$ _____	_____	NASF
c. Computer and information sciences	\$ _____	_____	NASF
d. Engineering	\$ _____	_____	NASF
e. Health and clinical sciences	\$ _____	_____	NASF
f. Mathematics and statistics	\$ _____	_____	NASF
g. Physical sciences			
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography	\$ _____	_____	NASF
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics	\$ _____	_____	NASF
h. Psychology	\$ _____	_____	NASF
i. Social sciences	\$ _____	_____	NASF
j. Other field of S&E (Please describe.)	\$ _____	_____	NASF

Please make additional copies of this form as needed.

Individual Project Form for Question 9

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Reminder: Please see page 1 for confidentiality of this item.

- 9F. How much of the completion costs and NASF reported in Question 9E are for **research animal space**?

Research animal space includes all departmental and central facilities, such as laboratories, housing, and associated support areas, that are subject to local, state, and federal government policies and regulations concerning humane care and use of laboratory animals.

	Completion costs	Net assignable square feet
Research animal portion included in Question 9E (If none, enter "0.").....	\$ <input type="text"/>	<input type="text"/> NASF

- 9G. **If your institution has a medical school**, how much of the completion costs and NASF reported in Question 9E are for research facilities located in the medical school?

Medical school is a school that awards the M.D. or D.O. degree.

If your institution does **not** have a medical school, check this box and go to Question 10

	Completion costs	Net assignable square feet
Medical school portion included in Question 9E (If none, enter "0.").....	\$ <input type="text"/>	<input type="text"/> NASF

Question 10: Sources of project funding

10. Please provide the completion costs by source of funding for repair and renovation and new construction of S&E research facilities that started during your FY 2010 or FY 2011 as reported in Question 7 and Question 9E.

Total costs reported in column 1 should match the sum of the costs for repair and renovation of research facilities reported in Question 7 on page 10.

Total costs reported in column 2 should match the sum of the costs for new construction as reported in Question 9E on all Individual Project Form(s).

Source of funding	Completion costs	
	(1) For repairs and renovations reported in Question 7	(2) For new construction reported in Question 9E (all project forms)
a. Federal government	\$ <input type="text"/>	\$ <input type="text"/>
b. State or local government	\$ <input type="text"/>	\$ <input type="text"/>
c. Institutional funds and other sources Examples: operating funds, endowments, tax-exempt bonds and other debt financing, indirect costs recovered from federal grants/contracts, private donations, other sources	\$ <input type="text"/>	\$ <input type="text"/>
Total	\$ <input type="text"/>	\$ <input type="text"/>

Question 11: Planned repairs and renovations to start in FY 2012 and FY 2013

11. Please provide the estimated completion costs planned for repair and renovation of S&E research facilities that are funded **and** scheduled to start in your FY 2012 or FY 2013. Include research animal space in the relevant fields of S&E. Include only projects whose prorated cost was estimated to be \$250,000 or more for at least one field of S&E listed below. For **multi-year projects**, report the entire completion cost even if some work will occur in future years.

Start date is the date on which the physical work of the repairs or renovations is scheduled to begin.

Repairs and renovations are activities such as fixing up facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, and the building out of shell space. Include any repairs or renovations to existing space that are performed in combination with new construction projects. **Do not** report building additions since they are reported in this survey under new construction.

Completion costs include planning, site preparation, construction, fixed equipment, nonfixed equipment that costs \$1 million or more, and building infrastructure such as plumbing, lighting, air exchange, and safety systems either in the building or within 5 feet of the building foundation.

If research facilities are shared by two or more fields, allocate the appropriate share of the costs to each field in order to determine which fields to report. For example, if a field will have one-fourth of the costs for a \$300,000 project, do **not** report that field's share, which is \$75,000. If a \$400,000 project will have two fields with the same costs, do **not** report either field's portion, which is \$200,000 each.

If research facilities will also be used for nonresearch activities, report the S&E research portion of the costs for the fields listed below if the research portion is \$250,000 or more. For example, if a facility will be used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

If your institution does **not** have planned repair or renovation projects, check this box and go to Question 13.....

For Field of S&E definitions, see Question 2 on pages 5–7.

Field of S&E <i>(Include costs for research animal space.)</i>	Completion costs for planned repair/renovation projects to start in FY 2012 or FY 2013
a. Agricultural sciences and natural resources sciences	\$ <input style="width: 100px;" type="text"/>
b. Biological and biomedical sciences.....	\$ <input style="width: 100px;" type="text"/>
c. Computer and information sciences	\$ <input style="width: 100px;" type="text"/>
d. Engineering.....	\$ <input style="width: 100px;" type="text"/>
e. Health and clinical sciences.....	\$ <input style="width: 100px;" type="text"/>
f. Mathematics and statistics	\$ <input style="width: 100px;" type="text"/>
g. Physical sciences	
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography	\$ <input style="width: 100px;" type="text"/>
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics	\$ <input style="width: 100px;" type="text"/>
h. Psychology	\$ <input style="width: 100px;" type="text"/>
i. Social sciences.....	\$ <input style="width: 100px;" type="text"/>
j. Other field of S&E <i>(Please describe.)</i>	\$ <input style="width: 100px;" type="text"/>
<input style="width: 150px; height: 15px;" type="text"/>	

Question 12: For medical schools only: planned repairs and renovations in FY 2012 and FY 2013

12. *If your institution has a medical school*, how much of the completion costs for planned repair and renovation of research facilities as reported in Question 11 will be located in the medical school?

Medical school is a school that awards the M.D. or D.O. degree.

If your institution does *not* have a medical school, check this box and go to Question 13

Medical school portion of the costs included in Question 11 (*If none, enter "0."*) \$

Question 13: Planned new construction to start in FY 2012 and FY 2013

13. Please provide the estimated completion costs and NASF for planned new construction of S&E research facilities that are funded and scheduled to start in your FY 2012 or FY 2013. Include research animal space in the relevant fields of S&E. Include only projects whose prorated cost was estimated to be \$250,000 or more for at least one field of S&E listed below. For **multi-year projects**, report the entire completion cost even if some work will occur in future years.

Start date is the date on which the physical work of the construction is scheduled to begin.

New construction is the construction of a new building or additions to an existing building.

Completion costs include planning, site preparation, construction, fixed equipment, nonfixed equipment that costs \$1 million or more, and building infrastructure such as plumbing, lighting, air exchange, and safety systems either in the building or within 5 feet of the building foundation.

If research facilities are shared by two or more fields, allocate the appropriate share of the costs to each field in order to determine which fields to report. For example, if a field will have one-fourth of the costs for a \$300,000 project, do **not** report that field's share, which is \$75,000. If a \$400,000 project will have two fields with the same costs, do **not** report either field's portion, which is \$200,000 each.

If research facilities are also used for nonresearch activities, report the S&E research portion of the costs and net assignable square feet for the fields listed below if the research portion is \$250,000 or more. For example, if a facility will be used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

If your institution does **not** have any planned new construction projects, check this box and go to Question 15

For Field of S&E definitions, see Question 2 on pages 5–7.

Planned new construction scheduled to start in FY 2012 or FY 2013

Field of S&E (Include costs for research animal space.)	Completion costs	Net assignable square feet	
a. Agricultural sciences and natural resources sciences	\$ <input type="text"/>	<input type="text"/>	NASF
b. Biological and biomedical sciences.....	\$ <input type="text"/>	<input type="text"/>	NASF
c. Computer and information sciences	\$ <input type="text"/>	<input type="text"/>	NASF
d. Engineering	\$ <input type="text"/>	<input type="text"/>	NASF
e. Health and clinical sciences	\$ <input type="text"/>	<input type="text"/>	NASF
f. Mathematics and statistics.....	\$ <input type="text"/>	<input type="text"/>	NASF
g. Physical sciences			
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography	\$ <input type="text"/>	<input type="text"/>	NASF
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics	\$ <input type="text"/>	<input type="text"/>	NASF
h. Psychology	\$ <input type="text"/>	<input type="text"/>	NASF
i. Social sciences.....	\$ <input type="text"/>	<input type="text"/>	NASF
j. Other field of S&E (Please describe.).....	\$ <input type="text"/>	<input type="text"/>	NASF

Question 14: For medical schools only: planned new construction in FY 2012 and FY 2013

14. *If your institution has a medical school*, how much of the completion costs and NASF for the planned new construction of research facilities as reported in Question 13 will be located in the medical school?

Medical school is a school that awards the M.D. or D.O. degree.

If your institution does *not* have a medical school, check this box and go to Question 15.....

	Completion costs	Net assignable square feet
Medical school portion included in Question 13 (<i>If none, enter "0."</i>)	\$ <input type="text"/>	<input type="text"/> NASF

Question 15: Deferred repairs and renovations

15. Please provide the estimated costs for any **deferred repair and renovation** projects of S&E research facilities that are needed for current research program commitments, but are not yet funded **and** not yet scheduled to start in your FY 2012 or FY 2013. Include research animal space in the relevant fields of S&E. Include only projects whose prorated cost was estimated to be \$250,000 or more for at least one field of S&E listed below. Please estimate costs separately for projects included in your approved institutional plan and projects not included in this plan. Institutional plans usually will include goals, strategies, and budgets for fulfilling your institution's mission during a specific time period.

Deferred projects are those that: (1) are not funded, and (2) are not scheduled for FY 2012 or FY 2013. Do not include projects planned for developing new programs or expanding your current programs.

Repairs and renovations are activities such as fixing up facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, and the building out of shell space. Include any repairs or renovations to existing space that are performed in combination with new construction projects. **Do not** report building additions since they are reported in this survey under new construction.

Current research program commitments include current faculty and staff or those to whom offers have been made or grants awarded (whether or not research has actually begun) and programs which have been approved.

If research facilities will be shared by two or more fields, allocate the appropriate share of the costs to each field in order to determine which fields to report. For example, if a field will have one-fourth of the costs for a \$300,000 project, do **not** report that field's share, which is \$75,000. If a \$400,000 project will have two fields with the same costs, do **not** report either field's portion, which is \$200,000 each.

If research facilities will also be used for nonresearch activities, report the S&E research portion of the costs for the fields listed below if the research portion is \$250,000 or more. For example, if a facility will be used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

If your institution does **not** have deferred projects
for repair or renovation, check this box and go to Question 17.....

For Field of S&E definitions, see Question 2 on pages 5–7.

Field of S&E <i>(Include costs for research animal space.)</i>	Estimated costs of deferred repairs and renovations	
	For projects included in your institutional plan	For projects <i>not</i> included in your institutional plan
a. Agricultural sciences and natural resources sciences	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
b. Biological and biomedical sciences.....	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
c. Computer and information sciences	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
d. Engineering	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
e. Health and clinical sciences	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
f. Mathematics and statistics.....	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
g. Physical sciences		
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography.....	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
h. Psychology	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
i. Social sciences.....	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
j. Other field of S&E <i>(Please describe.)</i>	\$ <input style="width: 100px;" type="text"/>	\$ <input style="width: 100px;" type="text"/>
<input style="width: 300px; height: 15px;" type="text"/>		

Question 16: For medical schools only: deferred repairs and renovations

16. *If your institution has a medical school*, how much of the estimated costs for deferred repair and renovation of research facilities as reported in Question 15 would be located in the medical school?

Medical school is a school that awards the M.D. or D.O. degree.

If your institution does *not* have a medical school,
check this box and go to Question 17

	For projects included in your institutional plan	For projects <i>not</i> included in your institutional plan
Medical school portion of the costs included in Question 15 (<i>If none, enter "0."</i>).....	\$ <input type="text"/>	\$ <input type="text"/>

Question 17: Deferred new construction

17. Please provide the estimated costs for any **deferred new construction** projects of S&E research facilities that are needed for current program commitments, but are not yet funded **and** not yet scheduled to start in your FY 2012 or FY 2013. Include research animal space in the relevant fields of S&E. Include only projects whose prorated cost was estimated to be \$250,000 or more for at least one field of S&E listed below. Please estimate costs separately for projects included in your approved institutional plan and projects not included in this plan. Institutional plans usually will include goals, strategies, and budgets for fulfilling your institution's mission during a specific time period.

Deferred projects are those that: (1) are not funded, and (2) are not scheduled for FY 2012 or FY 2013. Do not include projects planned for developing new programs or expanding your current programs.

New construction is the construction of a new building or additions to an existing building.

Current research program commitments include current faculty and staff or those to whom offers have been made or grants awarded (whether or not research has actually begun) and programs which have been approved.

If research facilities will be shared by two or more fields, allocate the appropriate share of the costs to each field in order to determine which fields to report. For example, if a field will have one-fourth of the costs for a \$300,000 project, do **not** report that field's share, which is \$75,000. If a \$400,000 project will have two fields with the same costs, do **not** report either field's portion, which is \$200,000 each.

If research facilities will also be used for nonresearch activities, report the S&E research portion of the costs for the fields listed below if the research portion is \$250,000 or more. For example, if a facility will be used for S&E research one-fourth of the time and for instruction the rest of the time, report one-fourth of the completion costs for S&E research facilities.

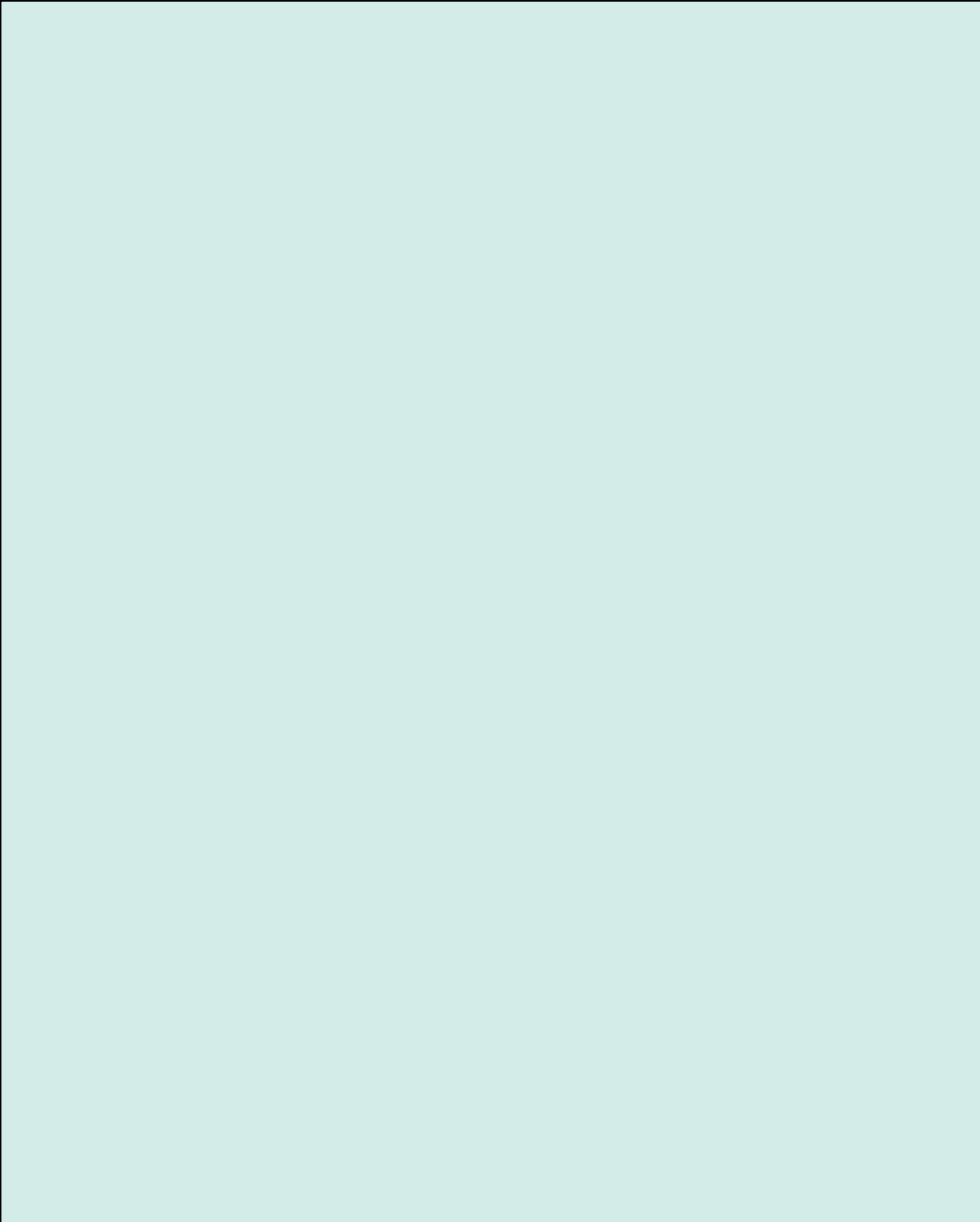
If your institution does **not** have deferred projects for new construction, check this box and go to Question 19.....

For Field of S&E definitions, see Question 2 on pages 5–7.

Estimated costs of deferred new construction

Field of S&E (Include costs for research animal space.)	For projects included in your institutional plan	For projects <i>not</i> included in your institutional plan
a. Agricultural sciences and natural resources sciences.....	\$ <input type="text"/>	\$ <input type="text"/>
b. Biological and biomedical sciences.....	\$ <input type="text"/>	\$ <input type="text"/>
c. Computer and information sciences.....	\$ <input type="text"/>	\$ <input type="text"/>
d. Engineering.....	\$ <input type="text"/>	\$ <input type="text"/>
e. Health and clinical sciences.....	\$ <input type="text"/>	\$ <input type="text"/>
f. Mathematics and statistics.....	\$ <input type="text"/>	\$ <input type="text"/>
g. Physical sciences		
Group 1: Atmospheric, earth, and geological sciences; meteorology; and oceanography.....	\$ <input type="text"/>	\$ <input type="text"/>
Group 2: Astronomy, astrophysics, chemistry, materials sciences, and physics.....	\$ <input type="text"/>	\$ <input type="text"/>
h. Psychology.....	\$ <input type="text"/>	\$ <input type="text"/>
i. Social sciences.....	\$ <input type="text"/>	\$ <input type="text"/>
j. Other field of S&E (Please describe.).....	\$ <input type="text"/>	\$ <input type="text"/>

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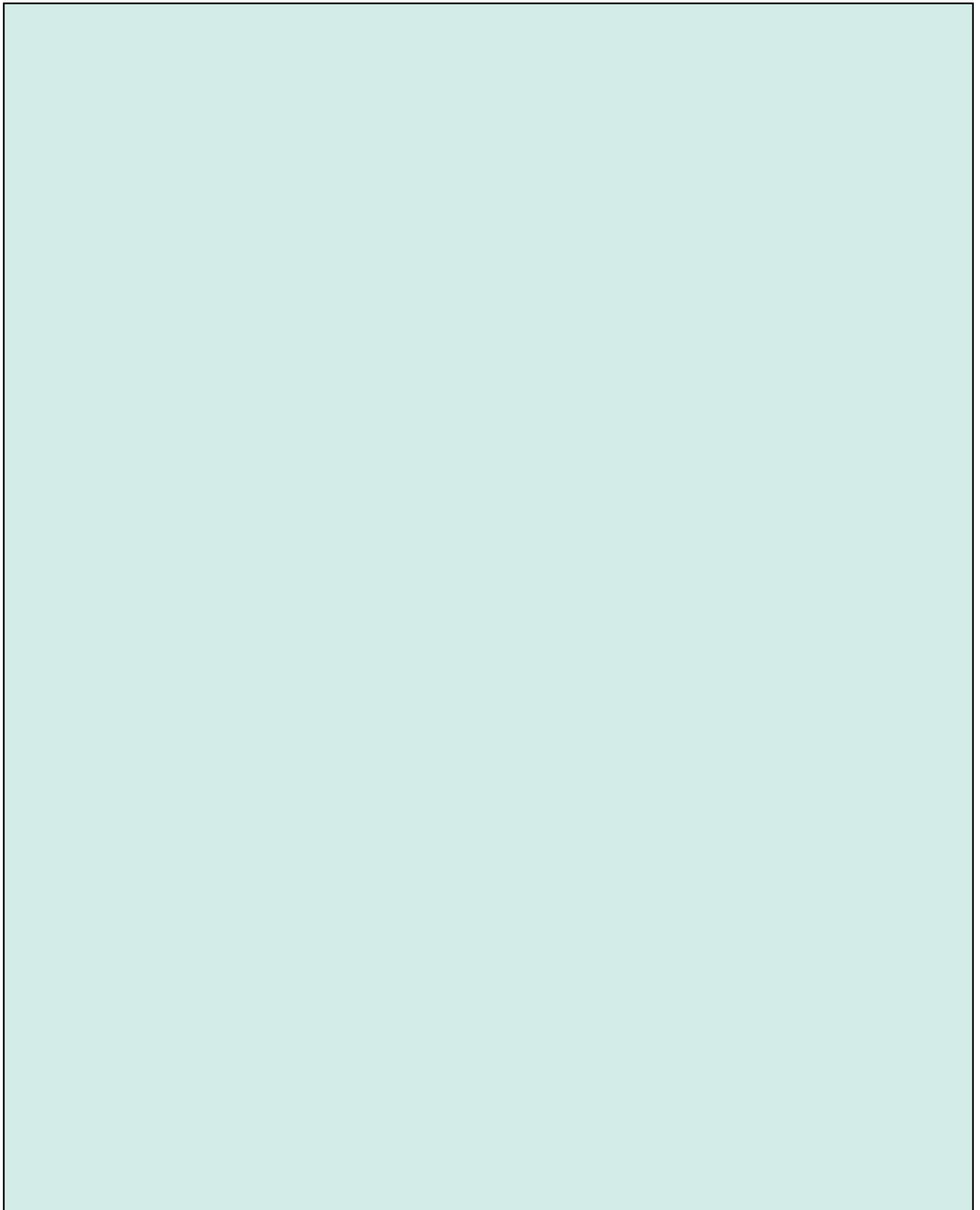
Crosswalk of Survey Fields of S&E to the National Center for Education Statistics (NCES) 2010 Classification of Instructional Programs (CIP)

Field of S&E	NCES CIP 2010 classification			
Agricultural sciences and natural resources sciences	01.09	Animal sciences	03.05	Forestry
	01.10	Food science and technology	03.06	Wildlife and wildlands science and management
	01.11	Plant sciences		
	01.12	Soil sciences		Also include:
	03.01	Natural resources conservation and research (includes environmental science)	01.0103	Agricultural economics
	03.03	Fishing and fisheries sciences and management	03.0204	Natural resources economics
Biological and biomedical sciences	26.01	Biology, general	26.11	Biomathematics and bioinformatics
	26.02	Biochemistry, biophysics and molecular biology	26.12	Biotechnology
	26.03	Botany/plant biology	26.13	Ecology, evolution and population biology
	26.04	Cell/cellular biology and anatomical sciences	26.14	Molecular medicine
	26.05	Microbiological sciences and immunology	26.15	Neurobiology and neurosciences
	26.07	Zoology/animal biology	26.99	Biological and biomedical sciences, other
	26.08	Genetics		
	26.09	Physiology, pathology, and related sciences		Also include:
	26.10	Pharmacology and toxicology	19.0504	Human nutrition
	Computer and information sciences	11.01	Computer and information sciences, general	11.08
11.04		Information science/studies	11.09	Computer systems networking and telecommunications
11.07		Computer science		
Engineering	14.01	Engineering, general	14.23	Nuclear engineering
	14.02	Aerospace, aeronautical and astronautical engineering	14.24	Ocean engineering
	14.03	Agricultural engineering	14.25	Petroleum engineering
	14.04	Architectural engineering	14.27	Systems engineering
	14.05	Biomedical/medical engineering	14.28	Textile sciences and engineering
	14.06	Ceramic sciences and engineering	14.32	Polymer/plastics engineering
	14.07	Chemical engineering	14.33	Construction engineering
	14.08	Civil engineering	14.34	Forest engineering
	14.09	Computer engineering, general	14.35	Industrial engineering
	14.10	Electrical, electronics and communications engineering	14.36	Manufacturing engineering
	14.11	Engineering mechanics	14.37	Operations research
	14.12	Engineering physics	14.38	Surveying engineering
	14.13	Engineering science	14.39	Geological/geophysical engineering
	14.14	Environmental/environmental health engineering	14.40	Paper science and engineering
	14.18	Materials engineering	14.41	Electromechanical engineering
	14.19	Mechanical engineering	14.42	Mechatronics, robotics, and automation engineering
	14.20	Metallurgical engineering	14.43	Biochemical engineering
	14.21	Mining and mineral engineering	14.44	Engineering chemistry
	14.22	Naval architecture and marine engineering	14.45	Biological/biosystems engineering
			14.99	Engineering, other

Field of S&E	NCES CIP 2010 classification			
Health and clinical sciences	51.02	Communication disorders sciences and services	51.20	Pharmacy, pharmaceutical sciences, and administration
	51.04	Dentistry	51.21	Podiatric medicine/podiatry
	51.05	Advanced/graduate dentistry and oral sciences	51.22	Public health
	51.09	Allied health diagnostic, intervention, and treatment professions	51.23	Rehabilitation and therapeutic professions
	51.10	Clinical/medical laboratory science/research and allied professions	51.24	Veterinary medicine
	51.12	Medicine	51.25	Veterinary biomedical and clinical sciences
	51.14	Medical clinical sciences/graduate medical studies	51.27	Medical illustration and informatics
	51.16	Nursing	51.38	Registered nursing, nursing administration, nursing research, and clinical nursing
	51.17	Optometry		
	51.19	Osteopathic medicine/osteopathy	Also include: 31.0505	Kinesiology and exercise science
Mathematics and statistics	27.01	Mathematics	27.05	Statistics
	27.03	Applied mathematics	27.99	Mathematics and statistics, other
Physical sciences	Group 1			
	40.04	Atmospheric sciences and meteorology		
	40.06	Geological and earth sciences/geosciences (includes oceanography)		

	Group 2			
	40.01	Physical sciences, general		
	40.02	Astronomy and astrophysics		
	40.05	Chemistry		
	40.08	Physics		
	40.10	Materials sciences		
40.99	Physical sciences, other			
Psychology	42.01	Psychology, general	42.28	Clinical, counseling and applied psychology
	42.27	Research and experimental psychology	42.99	Psychology, other
Social sciences	45.01	Social sciences, general	45.11	Sociology
	45.02	Anthropology	45.12	Urban studies/affairs
	45.03	Archeology	45.13	Sociology and anthropology
	45.04	Criminology	45.14	Rural sociology
	45.05	Demography and population studies	45.99	Social sciences, other
	45.06	Economics		
	45.07	Geography and cartography	Also include:	
	45.09	International relations and national security studies	43.0106	Forensic science and technology
	45.10	Political science and government	43.0107	Criminal justice/police science
			43.0111	Criminalistics and criminal science
Other field of S&E	Use this category when multidisciplinary, interdisciplinary, or other aspects make classification under one primary S&E field impossible.			

Thank you. This is the end of Part 1. Part 2, which is bound separately, covers your institution's computing and networking capacity.





National Science Foundation

Part 2: Computing and Networking Capacity (for research and instructional activities)

FY 2011 Survey of Science and Engineering Research Facilities

Who should be contacted if clarification of Part 2 networking or computing answers is necessary?

Contact 1

Contact 2

Name:	<input type="text"/>	<input type="text"/>
Title/position:	<input type="text"/>	<input type="text"/>
Telephone:	<input type="text"/>	<input type="text"/>
Email address:	<input type="text"/>	<input type="text"/>

Please complete the questionnaire and send it to your institutional coordinator according to the arrangements you made with your institutional coordinator named in the label above. You may complete this questionnaire online at www.facilitiesurvey.org. You will need to click on "Part 2" and then enter the survey ID and password printed on the label above.

If you have a question, please contact Lorraine Lewis via e-mail at facilitiesurvey@westat.com or call 1-888-811-1838. The survey director at the National Science Foundation is Mr. John Jankowski. If you do not have exact figures for any part of this questionnaire, please provide estimates.

Thank you for your participation.

OMB #3145-0101

Changes from previous survey cycle

- **Question 4 on federal government research networks** has been added.
- **Question 11 on centrally administered high-performance computing (HPC) architectures of 1 teraflop or faster** has been modified to include an instruction on reporting systems with accelerators and contains updated definitions for the HPC architectures.
- **Question 12 on centrally administered HPC with accelerators** has been added.
- Many questions have been updated for increased speeds.
- **Four questions from the last survey cycle have been deleted** (question numbers shown below refer to those appearing in the FY 2009 survey):
 - Commodity internet bandwidth (Question 4)
 - High performance network connections (Question 6)
 - HPC centrally administered resources (Question 13)
 - Conditioned machine room space for centrally administered HPC (Question 23)

Question 1: Total bandwidth

1. At the end of your FY 2011, what was your institution's total bandwidth including the commodity internet (Internet1), Internet2, and the National LambdaRail? What is your estimate of this total for your institution at the end of your FY 2012?

Bandwidth is the amount of data that can be transmitted in a given amount of time, measured in bits per second.

Commodity internet (Internet1) is the general public, multiuse network often called "the Internet."

Internet2 is a high-performance hybrid optical packet network. The network was designed to provide next-generation production services as well as a platform for the development of new networking ideas and protocols.

National LambdaRail is an advanced optical network infrastructure for research and education. National LambdaRail enables cutting-edge exploration in the sciences and network research.

Please do not include:

- Redundant connections, which are not normally active but available if a failure occurs with the active connection; or
- Burstable bandwidth.

Please include networking capacity for research, instruction, and residence halls.

Total bandwidth

(Mark one "X" for each column.)

Speed	At end of FY 2011	Estimated at end of FY 2012
a. 10 megabits/second or less	<input type="checkbox"/>	<input type="checkbox"/>
b. 11 to 45 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
c. 46 to 99 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
d. 100 megabits/second.....	<input type="checkbox"/>	<input type="checkbox"/>
e. 101 to 155 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
f. 156 to 622 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
g. 623 to 999 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
h. 1 to 2.4 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
i. 2.5 to 9 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
j. 10 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
k. 10.1 to 20 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
l. More than 20 gigabits/second.....	<input type="checkbox"/>	<input type="checkbox"/>
m. Other (Please specify).....	<input type="checkbox"/>	<input type="checkbox"/>

Question 2: Internet2 bandwidth

Questions 2–10 include networking capacity for: research, instruction, and residence halls.

2. At the end of your FY 2011, what was your institution’s bandwidth to Internet2? What is your estimate of the bandwidth to Internet2 at the end of your FY 2012?

Bandwidth is the amount of data that can be transmitted in a given amount of time, measured in bits per second.

Internet2 is a high-performance hybrid optical packet network. The network was designed to provide next-generation production services as well as a platform for the development of new networking ideas and protocols.

*Please do **not** include redundant connections.* A redundant connection is not normally active but is available if a failure occurs with the active connection.

Bandwidth for Internet2

(Mark one “X” for each column.)

Speed	At end of FY 2011	Estimated at end of FY 2012
a. <i>No bandwidth to Internet2</i>	<input type="checkbox"/>	<input type="checkbox"/>
b. 10 megabits/second or less	<input type="checkbox"/>	<input type="checkbox"/>
c. 11 to 45 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
d. 46 to 99 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
e. 100 megabits/second.....	<input type="checkbox"/>	<input type="checkbox"/>
f. 101 to 155 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
g. 156 to 622 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
h. 623 to 999 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
i. 1 to 2.4 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
j. 2.5 to 9 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
k. 10 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
l. 10.1 to 20 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
m. More than 20 gigabits/second.....	<input type="checkbox"/>	<input type="checkbox"/>
n. Other (<i>Please specify</i> .).....	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>		
<input type="text"/>		

Question 3: National LambdaRail bandwidth

3. At the end of your FY 2011, what was your institution's bandwidth to National LambdaRail? What is your estimate of the bandwidth to National LambdaRail at the end of your FY 2012?

Bandwidth is the amount of data that can be transmitted in a given amount of time, measured in bits per second.

National LambdaRail is an advanced optical network infrastructure for research and education. National LambdaRail enables cutting-edge exploration in the sciences and network research.

Please do not include redundant connections. A redundant connection is not normally active but is available if a failure occurs with the active connection.

Bandwidth for National LambdaRail

(Mark one "X" for each column.)

Speed	At end of FY 2011	Estimated at end of FY 2012
a. <i>No bandwidth to National LambdaRail</i>	<input type="checkbox"/>	<input type="checkbox"/>
b. 10 megabits/second or less	<input type="checkbox"/>	<input type="checkbox"/>
c. 11 to 45 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
d. 46 to 99 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
e. 100 megabits/second.....	<input type="checkbox"/>	<input type="checkbox"/>
f. 101 to 155 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
g. 156 to 622 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
h. 623 to 999 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
i. 1 to 2.4 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
j. 2.5 to 9 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
k. 10 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
l. 10.1 to 20 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
m. More than 20 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
n. Other (<i>Please specify.</i>).....	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>		
<input type="text"/>		

Question 4: Federal government research network connections

4. At the end of your FY 2011, did your institution have connections to any federal government research networks? Do you expect to have connections to any of these networks at the end of your FY 2012?

Federal government research networks are high performance networks which provide access to federal research resources (e.g., Department of Energy's ESnet, NASA's NREN).

(Mark one "X" for each row.)

Fiscal year	Yes	No
a. Connections at the end of FY 2011	<input type="checkbox"/>	<input type="checkbox"/>
b. Connections at the end of FY 2012	<input type="checkbox"/>	<input type="checkbox"/>

Question 5: Bandwidth through consortia

5. At the end of your FY 2011, did your institution obtain any of its bandwidth through a consortium? Do you expect to obtain bandwidth through a consortium at the end of your FY 2012?

A **consortium** is a collaboration of any combination of educational institutions (e.g., university system, regional collaboration), state and local agencies, network infrastructure operators (e.g., Internet2), vendors, health care organizations, or non-profit organizations with the purpose of coordinating and facilitating networking activities.

Bandwidth is the amount of data that can be transmitted in a given amount of time, measured in bits per second.

(Mark one "X" for each row.)

Fiscal year	Yes	No
a. Bandwidth through consortia at the end of FY 2011.....	<input type="checkbox"/>	<input type="checkbox"/>
b. Bandwidth through consortia at the end of FY 2012.....	<input type="checkbox"/>	<input type="checkbox"/>

Please provide the names of all consortia through which you expect to obtain bandwidth at the end of your FY 2012.

Question 6: Desktop port connections

6. At the end of your FY 2011, what percentage of your institution's desktop ports had hardwire connections at each of the speeds listed below? What percentage do you estimate will be at these speeds at the end of your FY 2012? If your answer is between 0 and 1 percent, please round to 1 percent.

Please report on the *capacity of the ports themselves* and not the speed of the workstations connected to them. Also, **do not include servers** when determining your responses.

Speed of connection	Percentage of desktop ports	
	At end of FY 2011	Estimated at end of FY 2012
a. 10 megabits/second or less	<input type="text"/> %	<input type="text"/> %
b. 100 megabits/second.....	<input type="text"/> %	<input type="text"/> %
c. 1 gigabit/second.....	<input type="text"/> %	<input type="text"/> %
d. 10 gigabits/second or more.....	<input type="text"/> %	<input type="text"/> %
e. Other (<i>Please specify</i>).....	<input type="text"/> %	<input type="text"/> %
<input type="text"/>		
Total	100%	100%

Question 7: Dark fiber

7. At the end of your FY 2011, did your institution own any dark fiber to your institution's internet service provider (ISP) or between your institution's buildings? Do you plan to acquire any dark fiber to your ISP or between your institution's buildings during your FY 2012?

Dark fiber is fiber-optic cable that has already been laid but is not being used. Include only fiber that was dark (i.e., unlit) when it was purchased by your institution.

(Mark one "X" for each row.)

Owned at the end of FY 2011	Yes	No
a. To your institution's ISP.....	<input type="checkbox"/>	<input type="checkbox"/>
b. Between your institution's buildings.....	<input type="checkbox"/>	<input type="checkbox"/>
To be acquired during FY 2012	Yes	No
c. To your institution's ISP.....	<input type="checkbox"/>	<input type="checkbox"/>
d. Between your institution's buildings.....	<input type="checkbox"/>	<input type="checkbox"/>

Question 8: Speed on your network

8. At the end of your FY 2011, what was the *distribution speed* (or backbone speed) that a desktop computer on your network could connect to another computer *on your institution's* network? What distribution speed will your institution have at the end of your FY 2012?

(Mark one "X" for each column.)

Speed	At end of FY 2011	Estimated at end of FY 2012
a. 10 megabits/second or less	<input type="checkbox"/>	<input type="checkbox"/>
b. 11 to 45 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
c. 46 to 99 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
d. 100 megabits/second.....	<input type="checkbox"/>	<input type="checkbox"/>
e. 101 to 155 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
f. 156 to 622 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
g. 623 to 999 megabits/second	<input type="checkbox"/>	<input type="checkbox"/>
h. 1 to 2.4 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
i. 2.5 to 9 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
j. 10 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
k. 10.1 to 20 gigabits/second	<input type="checkbox"/>	<input type="checkbox"/>
l. More than 20 gigabits/second (<i>Please specify.</i>)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>		
<input type="text"/>		
m. Other (<i>Please specify.</i>).....	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text"/>		
<input type="text"/>		

Question 9: Wireless connections

9. At the end of your FY 2011, what percentage, if any, of your institution's building area was covered by wireless capabilities for network access? What percentage do you estimate will have wireless access at the end of your FY 2012?

Building area refers to the sum of floor by floor calculations of square footage.

Please ***do not include rogue*** wireless access points.

Wireless coverage for network access

(Mark one "X" for each column.)

Percent of building area	At end of FY 2011	Estimated at end of FY 2012
a. None	<input type="checkbox"/>	<input type="checkbox"/>
b. 1 to 10 percent	<input type="checkbox"/>	<input type="checkbox"/>
c. 11 to 20 percent	<input type="checkbox"/>	<input type="checkbox"/>
d. 21 to 30 percent	<input type="checkbox"/>	<input type="checkbox"/>
e. 31 to 40 percent	<input type="checkbox"/>	<input type="checkbox"/>
f. 41 to 50 percent	<input type="checkbox"/>	<input type="checkbox"/>
g. 51 to 60 percent	<input type="checkbox"/>	<input type="checkbox"/>
h. 61 to 70 percent	<input type="checkbox"/>	<input type="checkbox"/>
i. 71 to 80 percent	<input type="checkbox"/>	<input type="checkbox"/>
j. 81 to 90 percent	<input type="checkbox"/>	<input type="checkbox"/>
k. 91 to 100 percent	<input type="checkbox"/>	<input type="checkbox"/>

Question 10: Comments on networking

10. Please add any comments that you wish to make on your institution's networking below.

Question 11: Architectures for centrally administered high-performance computing (HPC) of 1 teraflop or faster

11. At the end of your FY 2011, did your institution provide centrally administered high-performance computing (HPC) of 1 teraflop or faster at peak performance for each type of architecture listed below? If you had a high-performance computing system (1 teraflop or faster) with an accelerator component (e.g., GPU, Intel MIC), please report that system under the one most appropriate architecture below.

Centrally administered HPC is located within a distinct organizational unit with a staff and a budget and is generally available to the campus community. The unit has a stated mission that includes supporting HPC needs of faculty and researchers.

If some of your high-performance computing systems are slower than 1 teraflop and some are faster, please report only the systems that are 1 teraflop or faster.

Had at end of FY 2011

(Mark one "X" for each row.)

Centrally administered HPC architectures

	Yes	No
a. Cluster This architecture uses multiple commodity systems each running its own operating system with an Ethernet based (e.g., 10Mb/100Mb/GigE) or high-performance interconnect network (e.g., InfiniBand or Myrinet) to perform as a single system.	<input type="checkbox"/>	<input type="checkbox"/>
b. Massively parallel processors (MPP) This architecture uses multiple processors within a single system with a specialized high-performance interconnect network. Each processor uses its own memory and operating system (e.g., IBM Blue Gene, Cray XT5 and XE6).	<input type="checkbox"/>	<input type="checkbox"/>
c. Symmetric multiprocessors (SMP) This architecture uses multiple processors sharing the same memory and operating system to simultaneously work on individual pieces of a program (e.g., SGI Altix UV, HP Superdome, IBM Power 775).	<input type="checkbox"/>	<input type="checkbox"/>
d. Parallel vector processors (PVP) This architecture uses multiple vector processors sharing the same memory and operating system to simultaneously work on individual pieces of a program.	<input type="checkbox"/>	<input type="checkbox"/>
e. Experimental/Emerging architecture <i>(Please describe.)</i> This architecture uses technologies not currently in common use for HPC systems. <div style="border: 1px solid black; height: 15px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/>	<input type="checkbox"/>
f. Special purpose architecture <i>(Please describe.)</i> This custom-designed architecture uses established technology that supports a special purpose system that is dedicated to a single type of problem. <div style="border: 1px solid black; height: 15px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/>	<input type="checkbox"/>
g. Other architecture <i>(Please describe.)</i> <div style="border: 1px solid black; height: 15px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/>	<input type="checkbox"/>

Question 12: Centrally administered HPC with accelerators

12. How many of the centrally administered high-performance computing systems you reported in Question 11 (a-g) have accelerators (e.g., GPU, Intel MIC)?

If your institution did not report any centrally administered HPC, check this box and go to Question 22

Number of systems with accelerators (*If none, enter "0."*) systems

Question 13: Centrally administered clusters of 1 teraflop or faster

13. At the end of your FY 2011, what was the peak theoretical performance of (a) your *fastest* computing cluster of 1 teraflop or faster, and (b) *all* your computing clusters of 1 teraflop or faster (including the fastest one)? Include only clusters that are centrally administered.

A computing cluster uses multiple commodity systems each running its own operating system with an Ethernet based (e.g., 10Mb/100Mb/GigE) or high-performance interconnect network (e.g., InfiniBand or Myrinet) to perform as a single system.

If some of your cluster systems for high-performance computing are slower than 1 teraflop and some are faster, please report only the systems that are 1 teraflop or faster.

If you have only one cluster that is 1 teraflop or faster, report the same number for rows a and b.

If your institution did not administer any such clusters, check this box and go to Question 14

Number of teraflops

- a. Fastest cluster of 1 teraflop or faster
- b. All computing clusters of 1 teraflop or more (including the fastest cluster).....

Question 14: Centrally administered MPP of 1 teraflop or faster

14. At the end of your FY 2011, what was the peak theoretical performance of (a) your *fastest* MPP system of 1 teraflop or faster, and (b) *all* your MPP systems of 1 teraflop or faster (including the fastest one)? Include only MPP systems that are centrally administered.

Massively parallel processing (MPP) systems use multiple processors within a single system with a specialized high-performance interconnect network. Each processor uses its own memory and operating system (e.g., IBM Blue Gene, Cray XT5 and XE6).

If some of your MPP systems for high-performance computing are slower than 1 teraflop and some are faster, please report only the systems that are 1 teraflop or faster.

If you have only one system that is 1 teraflop or faster, report the same number for rows a and b.

If your institution did not administer any such MPP systems, check this box and go to Question 15.....

Number of
teraflops

- a. Fastest MPP system of 1 teraflop or faster
- b. All MPP systems of 1 teraflop or more
(including the fastest system)

Question 15: Centrally administered SMP of 1 teraflop or faster

15. At the end of your FY 2011, what was the peak theoretical performance of (a) your *fastest* SMP system of 1 teraflop or faster, and (b) *all* your SMP systems of 1 teraflop or faster (including the fastest one)? Include only SMP systems that are centrally administered.

Symmetric multiprocessing (SMP) systems use multiple processors sharing the same memory and operating system to simultaneously work on individual pieces of a program (e.g., SGI Altix UV, HP Superdome, IBM Power 775).

If some of your SMP systems for high-performance computing are slower than 1 teraflop and some are faster, please report only the systems that are 1 teraflop or faster.

If you have only one system that is 1 teraflop or faster, report the same number for rows a and b.

If your institution did not administer any such SMP systems, check this box and go to Question 16.....

Number of
teraflops

- a. Fastest SMP system of 1 teraflop or faster
- b. All SMP systems of 1 teraflop or more
(including the fastest system)

Question 16: Centrally administered experimental/emerging computing systems of 1 teraflop or faster

16. At the end of your FY 2011, how many experimental/emerging computing systems of 1 teraflop or faster did your institution administer? Include only systems that are centrally administered.

Experimental/Emerging computing systems use technologies not currently in common use for HPC systems.

If your institution did not administer any such systems,
check this box and go to Question 17

Number of **systems** of 1 teraflop or faster systems

Question 17: Centrally administered special purpose computing systems of 1 teraflop or faster

17. At the end of your FY 2011, how many special purpose computing systems of 1 teraflop or faster did your institution administer? Include only systems that are centrally administered.

Special purpose computing systems use a custom-designed architecture using established technology that supports a special purpose system that is dedicated to a single type of problem.

If your institution did not administer any such systems,
check this box and go to Question 18

Number of **systems** of 1 teraflop or faster systems

Question 18: External users of centrally administered HPC of 1 teraflop or faster

18. During your FY 2011, which types of external users listed below used any of your institution's centrally administered HPC of 1 teraflop or faster?

**Used your HPC during
FY 2011**

(Mark one "X" for each row.)

Type of external user	Yes	No	Uncertain
a. Colleges and universities Include public and private academic institutions and systems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Governments Include local, state, and regional jurisdictions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Non-profit organizations Include legal entities chartered to serve the public interest and that are exempt from most federal taxation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Industry Include for-profit companies, either publicly or privately held.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Other <i>(Please describe.)</i> <div style="border: 1px solid black; height: 15px; width: 100%; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 100%;"></div>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 19: Usable online storage for centrally administered HPC of 1 teraflop or faster

19. At the end of your FY 2011, what was the total **usable** online storage available for centrally administered HPC of 1 teraflop or faster?

Usable storage is the amount of space for data storage that is available for use after the space overhead required by file systems and applicable RAID (redundant array of independent disks) configurations is removed.

Online storage includes all storage providing immediate access for files and data from your HPC systems (of at least 1 teraflop). Storage can be either locally available to specific HPC systems or made available via the network. For example, storage may be available via SAN (storage area network) or NAS (network attached storage) environments.

(Mark one "X")

- a. None
- b. Less than 1 terabyte
- c. 1 to 5 terabytes.....
- d. 6 to 10 terabytes.....
- e. 11 to 25 terabytes.....
- f. 26 to 50 terabytes.....
- g. 51 to 100 terabytes.....
- h. 101 to 250 terabytes.....
- i. 251 to 500 terabytes.....
- j. 501 to 1,000 terabytes.....
- k. 1,001 or more terabytes (*Please specify.*)

Question 20: Usable shared storage for centrally administered HPC of 1 teraflop or faster

20. At the end of your FY 2011, how much of the usable online storage reported in Question 19 was shared storage?

Usable storage is the amount of space for data storage that is available for use after the space overhead required by file systems and applicable RAID (redundant array of independent disks) configurations is removed.

Online storage includes all storage providing immediate access for files and data from your HPC systems (of at least 1 teraflop). Storage can be either locally available to specific HPC systems or made available via the network. For example, storage may be available via SAN (storage area network) or NAS (network attached storage) environments.

Shared storage includes the portion of online storage that is available simultaneously to multiple HPC systems (of at least 1 teraflop) via a network making use of SAN, NAS, file system mounting, or similar technologies.

(Mark one "X")

- a. None
- b. Less than 1 terabyte
- c. 1 to 5 terabytes
- d. 6 to 10 terabytes
- e. 11 to 25 terabytes
- f. 26 to 50 terabytes
- g. 51 to 100 terabytes
- h. 101 to 250 terabytes
- i. 251 to 500 terabytes
- j. 501 to 1,000 terabytes
- k. 1,001 or more terabytes (*Please specify.*)

Question 21: Archival storage for centrally administered HPC of 1 teraflop or faster

21. At the end of your FY 2011, what was the total archival storage available specifically for centrally administered HPC of 1 teraflop or faster? **Do not** include backup storage.

Archival storage can be either on-line or off-line. It is typically long-term storage for files and data and does not support immediate access from your HPC resources.

(Mark one "X")

- a. None
- b. Less than 100 terabytes.....
- c. 101 to 250 terabytes.....
- d. 251 to 500 terabytes.....
- e. 501 to 750 terabytes.....
- f. 751 to 1,000 terabytes.....
- g. 1,001 to 5,000 terabytes.....
- h. 5,001 to 10,000 terabytes.....
- i. 10,001 or more terabytes *(Please specify.)*

Question 22: Comments on HPC

22. Please add any comments you may wish on your institution's HPC below.

Thank you. This is the end of Part 2. Please send this part of the survey to your institutional coordinator according to the arrangements you made with your institutional coordinator (named on the label on the front cover of the survey questionnaire).

