

CAPITAL DEVELOPMENT COMMITTEE

FY 2016–17

Philip P. DiStefano, Chancellor

 **University of Colorado Boulder**



Pictured on page 3 (top to bottom):

- Aerospace engineering students inspect the tip of a wind turbine at NREL's National Wind Technology Center, located just south of Boulder.
- Professors Eric Cornell, left, and David Wineland are among CU-Boulder's five Nobel Prize winners.
- Aerospace engineering students try on spacesuit models in a bioastronautics lab.
- Professor Valerie Otero teaches in the School of Education and is a leading STEM scholar and strategist.
- An aerospace engineering student pilots satellites at the Laboratory for Atmospheric and Space Physics.

Pictured on page 5 (top to bottom):

- Aerospace engineering students conduct an experiment in a wind tunnel in the Integrative Technology Learning Lab.
- A mechanical engineering alumnus helps engineering students create a working model of the solar system.
- Old Main was the first building on the University of Colorado Boulder campus.

Pictured on page 7:

- An aerospace engineering student tests an autonomous unmanned aircraft.

*Photos by Glenn Asakawa and Casey A. Cass,
University of Colorado*

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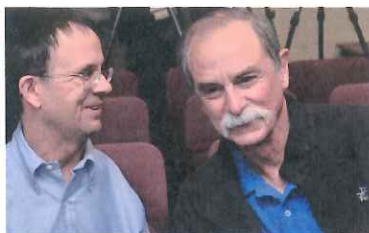
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CU-BOULDER CAMPUS OVERVIEW

CU-Boulder is the only member of the prestigious Association of American Universities in the Rocky Mountain region and leads all Colorado public universities in its four-year graduation rate. It is home to nine schools and colleges, granting more than 7,000 degrees annually. It has 11 research institutes—many that partner with Colorado's federal labs, and 90 research centers. CU-Boulder has nearly 120,000 alumni living in Colorado and nearly 300,000 alumni worldwide.

Enrollment

30,789

degree-seeking students
in fall 2015

Faculty Head Count

2,238 academic faculty in 2015

2,050 research faculty in 2015

5 Nobel Prize winners

8 MacArthur "genius grant" fellows

Operating Revenue

\$1.47 billion

5% state-appropriated funds

Technology Transfer

87 companies formed based on CU-Boulder technologies since 1994; **67** still in operation

Student Diversity

(domestic persons of color)

21% of student enrollment
in 2015—a record

59% increase from 2005

24.3% of freshman students
in 2015

International Students

2,558 in 2015

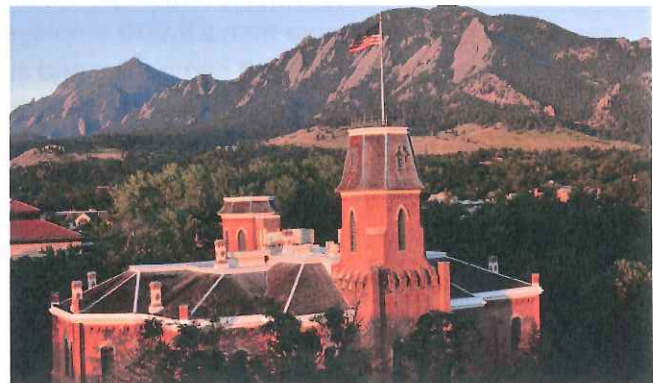
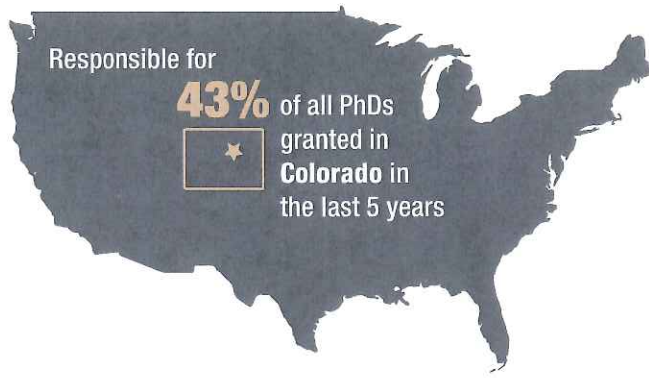
19% increase from
last year

8% of student
enrollment

NASA Awards NIH Awards

#1 among public
universities

#1 among non-medical
universities



Economic Contributions

8,234 employees excluding students

16,329 including students

\$476 million annual payroll*

\$319 million spent annually by students in Colorado*

\$87.9 million spent annually by international students+

\$16 million spent annually by visitors of students*

\$342 million spent by the campus for goods and services*

\$242 million annual capital expenditures*

\$195 million annual construction expenditures*

* Latest available data—Leeds School of Business, Business Research Division, May 2012
+ NAFSA: Association of International Educators, 2014–15 academic year

Education

Top 10 National Rankings

#1 atomic, molecular and optical physics

#2 (in the world) geosciences

#5 environmental law

#8 ceramics

#8 quantum physics

#9 geology

#9 physical chemistry

#10 aerospace engineering

U.S. News & World Report, 2016

Research

(these funds are restricted and may not support general operations)

\$425.6 million total awards in FY 2014–15

3.3% increase over previous year

\$2.4 billion current research portfolio

2,000+ undergraduate students participate in research

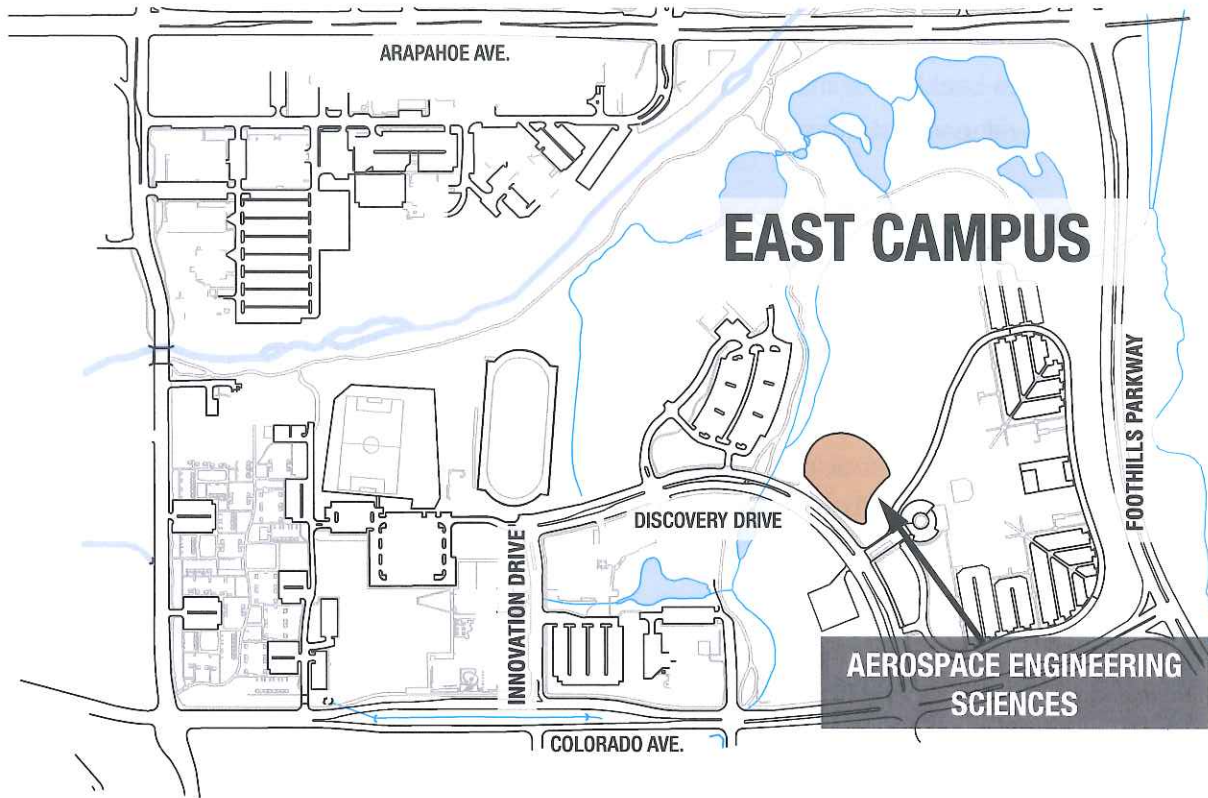
Existing Program Space

Total buildings: **368**

Total assignable square footage: **6,493,133**

Aerospace Engineering Sciences Building

- Constructs new **138,500 GSF** building for **\$80.4 million**.
- Total cost—**\$28,290,716** state + **\$52,109,284** cash.
- Funding through partnership between the state, university and private sector, building on the existing and growing relationships between the university and industry in the state.
- Transformational facility and equipment will engage students, scientists, engineers, federal partners and computational experts in interdisciplinary collaboration for the advancement of aerospace sciences.
- The Facilities Condition Index (FCI) for the existing Aerospace Engineering Sciences wing is **53 percent**.
- Colorado has the nation's **third**-largest aerospace economy and the highest concentration of private aerospace jobs, with more than **25,000** employees at private aerospace companies and a **\$3.2** billion annual payroll. More than **400** companies and suppliers provide space-related products and services in the state. The industry is heavily dependent on a steady flow of highly skilled and highly educated new hires.
- Aerospace education is in high demand and enrollment is limited by current facility capacity. The Department of Aerospace Engineering Sciences received **1,075** applications for enrollment in fall 2015—a **21%** increase over last year—and only **117** were admitted.
- Fall 2015 enrollment was **813** students—**559** undergraduate and **254** graduate—and is projected to be **1,027** by 2020.
- Aerospace engineering ranks **#10** in *U.S. News & World Report's* 2016 list of the nation's **top graduate programs**.
- Aerospace engineering ranks **#6** among public institutions and **#10** overall in *U.S. News & World Report's* 2016 list of the nation's **top undergraduate programs**.
- The plan closely aligns with CU-Boulder's strategic planning to increase **retention** and **student success**, develop alternative sources of **revenue**, increase **contracts with industry** and promote and sustain CU-Boulder's **reputation**.
- The plan is consistent with **state goals**—aerospace is listed as a key industry by the Colorado Office of Economic Development and International Trade and supports CCHE Higher Education Master Plan goals to support Science, Technology, Engineering and Mathematics (**STEM**) related disciplines essential to the **economic vitality** of the state.
- Occupancy—spring 2018.



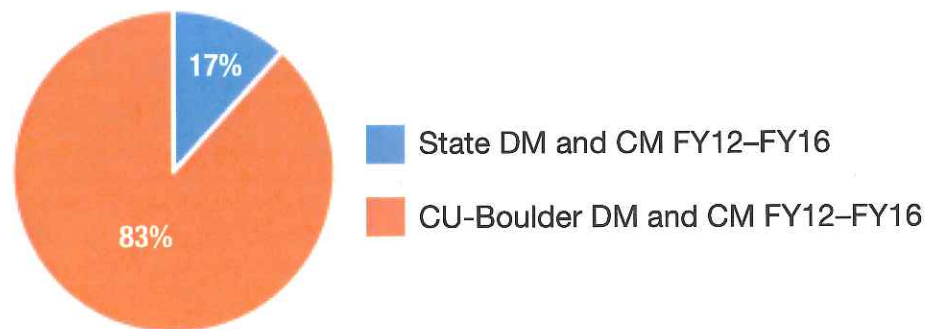
CAMPUS COMMITMENT TO ADDRESS DEFERRED MAINTENANCE BACKLOG

- More than 60 percent of campus general fund buildings are over 50 years old.
- Many buildings need significant reinvestment for repairs and to better support campus goals for instruction and research.
- Deferred maintenance backlog estimates for general fund buildings totals \$439 million.
- The campus has developed a strategy for significantly reducing the deferred maintenance backlog through:
 - o Campus funding for preventive and predictive maintenance.
 - o Campus spending to replace and repair building infrastructure.
 - o Implementation of Capital Asset Management Plan (CAMP) using campus funds designed to address comprehensive building system and space utilization improvements.
 - o Requests for state funding through the State Controlled Maintenance Program for major deferred maintenance projects.
 - o Requests for state funding for capital renewal projects designed to address significant life–safety, accessibility and building system replacements for academic buildings.

Examples of Recent Successes

- Partnering with the state for renovation of the Ketchum and Ekeley academic buildings using a combination of state (\$11.8 million) and campus (\$25.5 million) funding.
- Allocation of \$44.9 million in campus funds during the past five years for projects targeted toward reducing overall deferred maintenance backlog.
- Allocation of \$55.8 million in campus funds for CAMP projects (Engineering Complex and Carlson Gymnasium).
- State allocations of \$13.4 million for controlled maintenance projects during the past five years.

State and CU-Boulder Deferred Maintenance and Controlled Maintenance Partnership FY12–FY16



FY16-17 CONTROLLED MAINTENANCE PROJECT SUMMARIES

Campus Civil Flood Mitigation, Phase 2 of 2

This project provides flood mitigation work in 23 locations across campus to accommodate significant rainfall or floodwaters. It includes placement of inlets, flood doors, sump pumps and surface re-grading.

FY17 Request: \$677,019

Campus Fire Sprinkler Upgrades, Phase 3 of 5

This project provides fire sprinklers in the Science Learning Lab and Sommers Bausch Observatory buildings to minimize the risk of life, health and property and to optimize continuity of operations.

FY17 Request: \$754,965

SLHS Fire Sprinkler and HVAC Renovation, Phase 2 of 2

This project provides fire sprinklers in the Speech, Language and Hearing Services building to minimize the risk to life, health and property and to optimize continuity of operations. The project also provides renovation to the HVAC system by supplying chiller water from the central plant for cooling, replacement of the air handler and modifying the heating system. Currently only portions of the building have chilled air supply.

FY17 Request: \$793,198

EDUC Fire Sprinkler and HVAC Renovation, Phase 1 of 3

This project provides fire sprinklers in the Education building to minimize the risk to life, health and property and to optimize continuity of operations. The project also provides renovation to the HVAC system by supplying chiller water from the central plant for cooling, replacement of the air handler and modifying the heating system. Currently the system does not provide adequate ventilation and cooling for the building and the return air is routed through hallways and stairwells, which does not meet current building codes.

FY17 Request: \$1,277,234

Engineering Center Exterior Concrete Repairs, Phase 1 of 1

This project provides the repair of cracking and spalling on the building exterior concrete, which is creating life safety concerns and could shorten the Engineering Center's useful life. Multiple repairs are needed to prevent further deterioration of the structural integrity and to prolong the useful life of the structure.

FY17 Request: \$619,330

Electrical Engineering Upgrade HVAC & Controls, Phase 1 of 4

This project provides for the complete renovation of the building HVAC system including air handlers, heating and cooling coils and most of the ductwork. The current air handling system capacities are not sufficient to meet the cooling and make-up air loads of the building. The project will also provide conversion of the building controls to a digital system.

FY17 Request: \$1,448,121