

2021

University of Colorado

Sustainability Report



University of Colorado
Boulder | Colorado Springs | Denver | Anschutz Medical Campus

FOUR CAMPUSES UNITED
ALL FOUR: **ONE**

Letter from President Kennedy

Having grown up amid Minnesota's magnificent lakes and now living with a view of Colorado's majestic mountains, I've had the good fortune to experience some of this nation's most beautiful regions. Anyone who has had similar opportunities understands the importance of paying them forward by preserving the beauty and integrity of our lands. At the University of Colorado, we believe this is our collective responsibility, and it's one we take to heart as this Sustainability Report helps illustrate.



I APPLAUD THE
COLLECTIVE
COMMITMENT OF
THE REGENTS,
CAMPUSES
AND SYSTEM
ADMINISTRATION TO
CONTINUE **WORKING**
TO **REDUCE THE**
UNIVERSITY'S
CARBON
FOOTPRINT

CU has a longstanding commitment to fostering sustainability system-wide as well as leading the state in such efforts. More than a decade ago, the CU Board of Regents passed a Sustainability Resolution directing the university president and chancellors to incorporate Leadership in Energy and Environmental Design (LEED) standards in construction projects wherever possible; develop comprehensive plans to reduce greenhouse gas emissions; and incorporate the mandates of the Governor's Climate Action Plan into each campus' efforts to attain climate neutrality.

As this report outlines, we continue to surpass these goals, but we cannot afford to become complacent. Recognizing this, we doubled down on our commitment to fostering sustainability by making it a significant component of our 2021 strategic plan and creating goals to be achieved by 2026 including further reducing our greenhouse gas emissions by 15 percent from 2019 emission levels as well as energy consumption in campus buildings by up to 10 percent from 2019 levels.

How will we achieve these goals? By taking steps like installing more than 20 solar panel systems across our campuses. Seeking opportunities to incorporate net-zero energy consumption measures in our building designs. Prioritizing renovating and repairing existing buildings versus constructing new ones, and reconfiguring spaces to accommodate growth and increase efficiencies. Limiting water consumption using low-flow appliances, irrigation controls and planting native species that require less water. Diverting waste through recycling, composting and strategic purchasing. Encouraging alternate means of transportation to our campuses and installing charging ports for electric vehicles.

CU's achievements and ongoing work in these areas should be celebrated. I applaud the collective commitment of the regents, campuses and system administration to continue working to reduce the university's carbon footprint. Thanks to efforts like those advancing at CU, my grandchildren and yours will have opportunities to experience America's varied landscapes in all their glory.

A handwritten signature in black ink that reads "Mark Kennedy".

Mark Kennedy, President
University of Colorado System



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Introduction

The University of Colorado is committed to the long-term goal of carbon neutrality. This report focuses on sustainability in the built environment.¹ The four campuses of the University of Colorado are united in their passion to create opportunities to reduce campus energy use and greenhouse gas (GHG) emissions. The University recognizes that it has an important part to play in combating climate change. The University further recognizes that the path to net-zero energy is one of continuous improvement.

Recognizing the importance of reducing their carbon footprint, all four campuses began tracking energy use intensity, greenhouse gas emissions, and water consumption in the mid 2000s. Additionally, the Boulder and Colorado Springs campuses began voluntarily tracking various sustainability measures through the Sustainability Tracking, Assessment & Rating System (STARS) in 2010. STARS is a comprehensive self-reporting tool to measure sustainability in higher education. More than 500 institutions have achieved a STARS rating since the program's inception in 2010. Participating institutions receive bronze, silver, gold or platinum ratings.



The University of Colorado Boulder was the first university in the nation to achieve a STARS gold rating in 2010. Most recently, both the Boulder and Colorado Springs campuses achieved gold ratings in 2018.



¹ Sustainability is typically defined to include – at a minimum – three pillars: environmental, social, and economic sustainability. Although this report focuses on the environmental pillar of sustainability, the University acknowledges that the pillars of sustainability work in concert and it actively seeks to strengthen its communities through social justice and diversity, equity, and inclusion, to foster prosperity, and to improve the environment of the campus and the world.



“
**THE IMPERATIVE
 TO ADDRESS
 CLIMATE CHANGE
 HAS NEVER BEEN
 GREATER.**

Read CU Boulder
 Chancellor Philip
 DiStefano's Earth Day 2021
 "A Call to Climate Action"
 in full [here](#).

2009 Sustainability Resolution

In 2009, the CU Board of Regents passed a resolution encouraging sustainability efforts system-wide. The resolution recognized a number of sustainability efforts that commenced in 2007 at the state and national levels. Specifically, the resolution directed the president and chancellors to:

- Incorporate Leadership in Energy and Environmental Design (LEED) standards in campus construction projects wherever possible (Senate Bill 07-051);
- Develop comprehensive plans to reduce GHG emissions 80 percent below 2005 levels (as outlined in the American College and University Presidents' Climate Commitment, which was signed by each campus chancellor in 2007); and
- Incorporate the Governor's Colorado Climate Action Plan which required an 80 percent reduction in GHG emissions below 2005 levels and the Greening of State Government Executive Orders² into campus comprehensive plans to achieve climate neutrality.

2021 Strategic Plan

System-wide strategic planning efforts focused on sustainability began in 2019 and furthered the University's sustainability goals with near-term 2026 goals that reduce energy consumption and GHG emissions. The University's goals align with various efforts by local governments and the State of Colorado to address climate change.

² Executive Orders D0011 07 and D0012 07 (April 16, 2007).

Local government goals

In 2006, the City of Boulder instituted the nation's first voter-approved tax dedicated to mitigating climate change. In 2018, Boulder County established a goal to reduce community GHG emissions 45 percent below 2005 levels by 2030 and 90 percent below 2005 levels by 2050. The county also established a goal of 100 percent renewable energy by 2030.

In July 2018, the city and county of Denver published its [80 x 50 Climate Action Plan](#), which established a goal of reducing GHG emissions 45 percent by 2030 and 80 percent by 2050. It also set the goal that all new buildings be built to a net-zero energy standard by 2035. Finally, Denver established a goal of 100 percent renewable energy by 2030.

The utilities that serve the four University campuses, Xcel Energy and Colorado Springs Utilities, have committed to resource plans that meet or exceed an 80 percent GHG emission reduction by 2030.

State Goals

In 2007, under Governor Bill Ritter, Colorado published its first Climate Action Plan, which set a goal of reducing GHG emissions by 20 percent below 2005 levels by 2020. In 2019, the Colorado General Assembly passed [House Bill 19-1261](#), Climate Action Plan to Reduce Pollution. The bill established the following mandated GHG emission minimum reduction goals, relative to 2005 levels:

26% by 2025	50% by 2030	90% by 2050
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Governor Jared Polis furthered the goals established in [HB 19-1261 through Executive Order D 2019 016, Concerning the Greening of State Government](#), which amended a prior Executive Order. Among other changes, the executive order refined the State's GHG emission goals, encouraged an increase in the percentage of renewable electricity consumed or purchased by state facilities to 5 percent by the end of FY 2022-23, and required additional analysis of new construction and renovation projects with respect to renewable energy and utilities and the State's High Performance Certification Program. Institutions of higher education are encouraged to comply with certain provisions of the executive order. The sustainability goals adopted through CU's 2021 Strategic Plan comply with the executive order.



At UCCS, the Green Action Fund awards grants for sustainability projects. The Fund, which is supported through a \$5 per semester student fee, has awarded grants for more than 100 projects to students, faculty, and staff since 2012. The grant committee, which is run by students, evaluates projects on how they reduce the ecological footprint and increase student involvement, education and outreach. Projects have funded everything from bat houses to high-efficiency showerhead retrofits in student dormitories. [Read more about the projects funded through the Green Action Fund.](#)



UCCS SEEKS TO PLAY A PIVOTAL ROLE IN CREATING A CULTURE OF SUSTAINABILITY, PROVIDING BOTH THE KNOWLEDGE AND PRACTICES THAT STUDENTS WILL CARRY WITH THEM INTO THEIR LIVES AFTER COLLEGE.

Read Chancellor Venkat Reddy's [full sustainability message](#).

Student Sustainability Work

CU students are active partners in reducing GHG emissions and promoting sustainability, whether through learning new behaviors after they come to campus, volunteering, or developing projects that make lasting positive environmental change.

At the CU Denver campus, students participate in the [Auraria Sustainable Campus Program](#), which is a student-driven committee that sponsors sustainability projects, programs, and activities. Student Eco Reps volunteer for activities such as trash clean-up along the Cherry Creek Trail or develop projects that expand on-campus composting. A CU Denver student who participates in the program recently animated a video promoting alternatives to sending trash to the landfill called [The Truth Behind the Trash](#).

PIPs, or Positive Impact Points, are awarded to students for wellness and sustainability-related activities on the UCCS campus as cryptocurrency that can be redeemed for scholarships, food, and gift cards. PIPs are awarded for biking to campus through the Pedal Perks program. The program also awards participants for reaching 8,000 steps and 12,000 steps daily.

The Student Senate at the Anschutz Medical Campus is responsible for planning and overseeing campus-wide events and activities, including sustainability activities such as Bike to Work Day, clothing and food drives, and electronics recycling drives. The Senate also participates in a farm-to-table program run through Children's Hospital Colorado.

The [University of Colorado Environmental Center](#) is housed within the CU Boulder Division of Student Affairs. The Center supports 17 student groups and more than 250 lab, office, and hall student Eco Leaders. The center promotes peer-to-peer education on climate change and climate justice. Students are encouraged to take the Sustainable Buffs Challenge and use various tools to estimate their carbon footprint. Students can also sign up for a free Eco Kit and talk to an EcoBuffs student expert to learn how to live a more zero-waste life style, use water more efficiently, and reduce energy bills.



GREENHOUSE GAS EMISSIONS

The University recognizes greenhouse gas emissions as a major contributor to climate change. Greenhouse gas emissions measure the amount of gas (including carbon dioxide, methane and water vapor) released into the atmosphere. A greenhouse gas is any gaseous compound in the atmosphere that is capable of absorbing infrared radiation. The unit of measurement is metric tons of carbon dioxide equivalent or MTCO₂e.



Greenhouse Gas Emissions

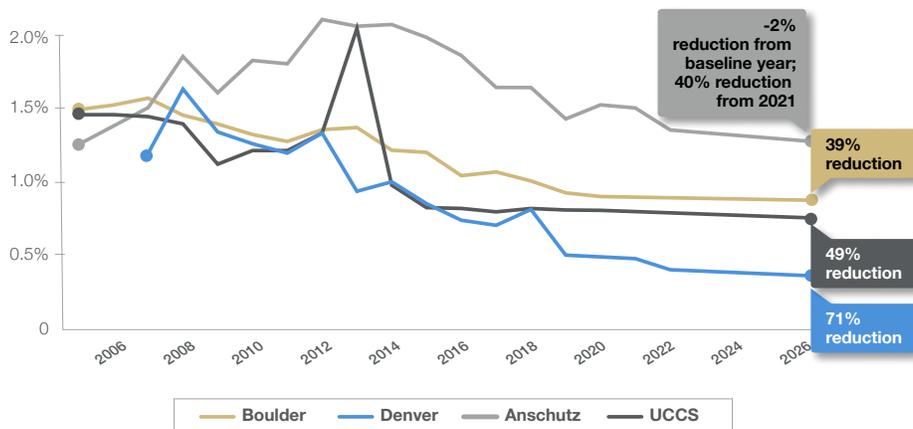
As part of its 2021 strategic plan, CU set a goal of reducing GHG emissions 15 percent from 2019 emission levels by 2026.

The following charts illustrate the change in GHG emissions from each campus' baseline year through 2019. The change is plotted against campus growth during the same period. The charts also illustrate the 2026 GHG reduction goal selected by each campus through 2021 strategic planning. When the data is normalized as shown in these charts, three of the four campuses have already achieved the State's Colorado Climate Action Plan goal of a 26 percent reduction in GHG emissions over the 2005 baseline year by 2025.³

Greenhouse Gas Emissions (MTCO2e)

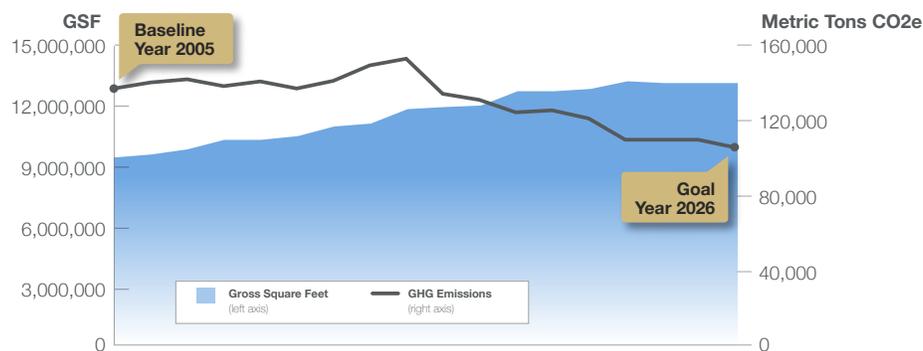
Campus	2019 Actual	2026 Goal
CU Boulder	125,948	107,056
CU Denver	4,835	4,110
CU Anschutz	64,081	54,469
UCCS	23,787	20,219
System Office	1,270	1,079
Total	219,921	186,933

Greenhouse Gas Emissions (MTCO2e) per GSF



The data in the chart above is further refined in the following charts to show a campus-by-campus view of the change in GHG emissions over time.

CU Boulder

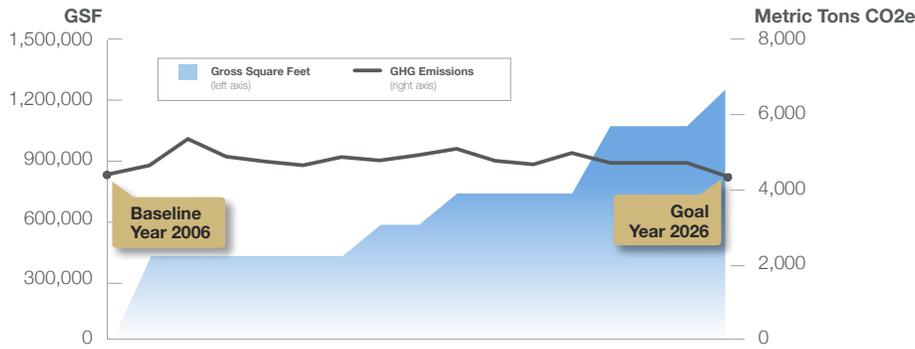


On the horizon: CU Boulder
 Campus staff are working to convert steam to a heating hot water (HHW) system at the Williams Village District energy plant, which serves the Williams Village housing complex. The project replaces approximately \$13 million of equipment and distribution lines that are at the end of useful life while converting the steam production and distribution system to a HHW system. Once complete, the project will save the housing complex approximately 15% annual energy consumption, 17% annual operations and maintenance costs, and reduce the carbon footprint by converting natural gas boilers to electric boilers. The conversion from steam to hot water allows the new system to operate at a lower temperature, which makes electric boilers viable and reduces carbon emissions.

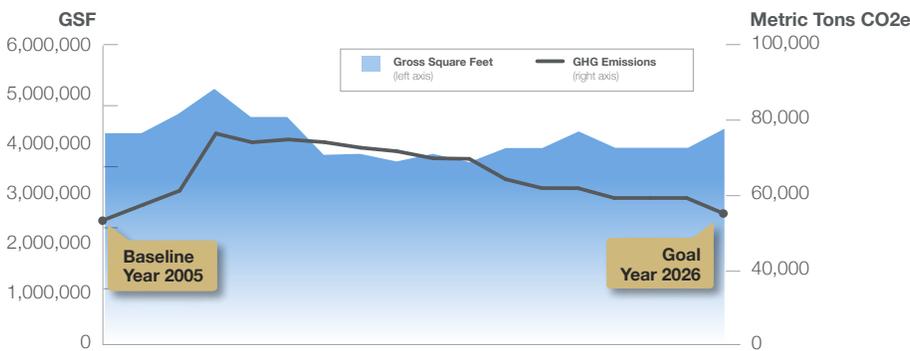
³ Note: The State's goal year (2025) and CU's 2021 Strategic Plan goal year (2026) differ. Also, the Denver campus uses 2006 as its baseline year, rather than 2005. (Data is unavailable for 2005.)



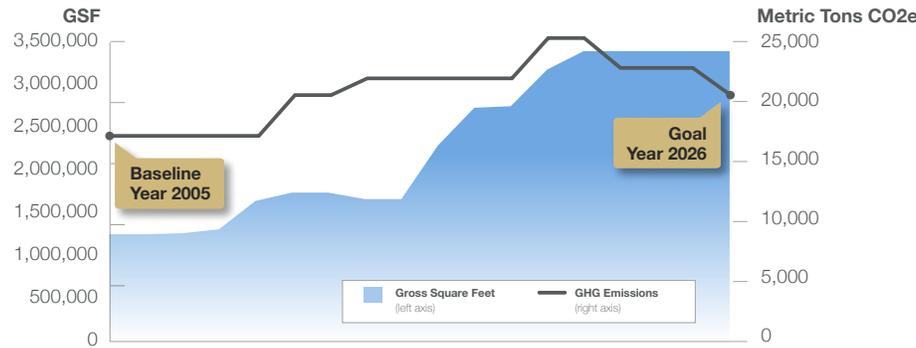
CU Denver



CU Anschutz



UCCS



On the horizon: CU Denver

Several planned improvements in the CU Denver Building will reduce GHG emissions, including converting the building steam to natural gas and making upgrades to the building's HVAC system. The combined impact of the improvements is a reduction of about 710 MTCO2e, or about 15 percent of the campus' current GHG emissions. The project will also reduce the campus EUI by 10 percent and the building operating costs by about \$130,000 a year.



On the horizon: CU Anschutz

The campus is in the preliminary planning phase for a project that will target energy efficiency improvements in seven campus buildings, including installing lighting upgrades and controls, making upgrades to HVAC systems, improving building envelopes, and re-commissioning equipment. The project will reduce GHG emissions by an estimated 7,000 MTCO2e, or about 11 percent of the campus' current GHG emission levels. The project is also estimated to reduce annual operating costs by about \$1.9 million.



In 2015, the UCCS Office of Sustainability relocated into a family-style home on the edge of campus and launched the Sustainability Demonstration House. The house is used to pilot and showcase sustainability strategies, including selecting sustainable building materials, creating energy efficiencies and installing solar panels, and changing occupant habits. The goal is to make the home net zero – a goal the University is working toward with community partnerships and materials donations. [Read more about the Sustainability Demonstration House.](#)

ENERGY CONSUMPTION

The University of Colorado measures its energy consumption by calculating the energy use intensity (EUI) of its buildings. The EUI expresses a building's energy use as a function of its size and is expressed as kBtu per square foot. A building's EUI varies based on the age, condition, and use of a building.



Energy Consumption

Through its 2021 strategic plan, the University set a goal of reducing its energy use consumption (EUI) in campus buildings by up to 10 percent from 2019 levels by 2026.

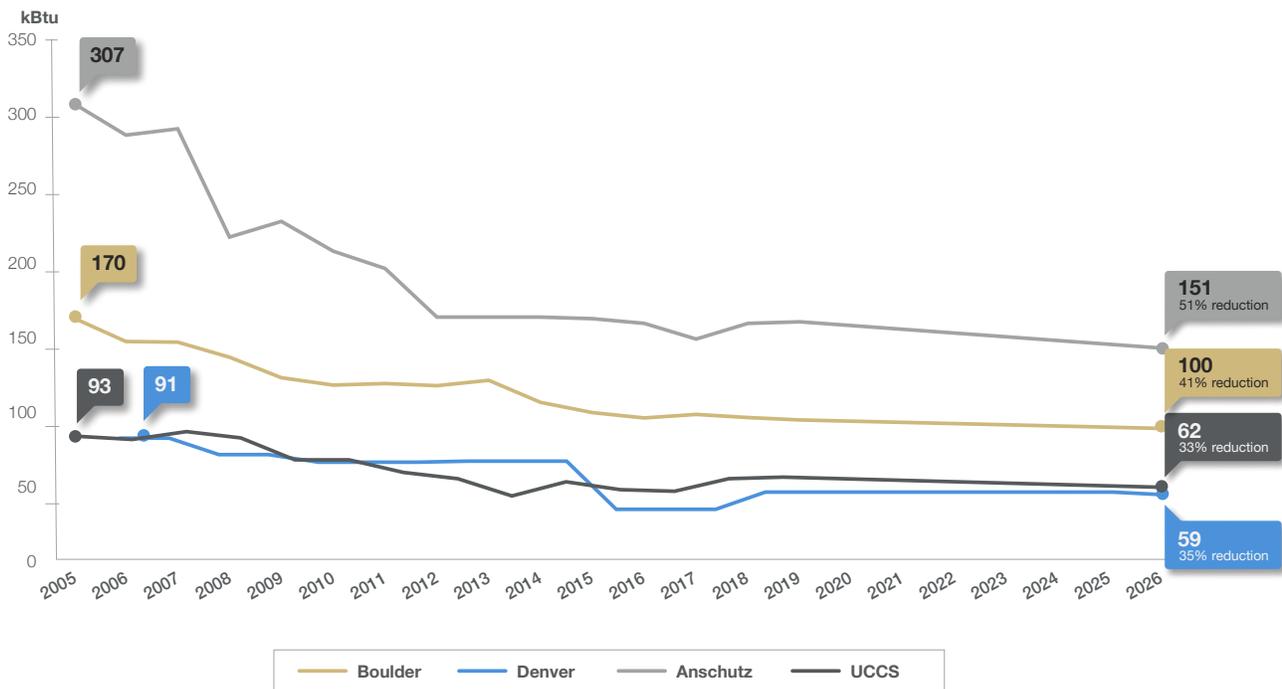
A building's EUI varies based on the age, condition, and use of a building. Older buildings and buildings that are poorly constructed or maintained may have higher EUIs than newer, well-constructed buildings with similar use. Different building use types also have different EUIs. For example, laboratories typically use more energy per square foot than office spaces and office spaces generally use more energy per square foot than residence halls.

The University began tracking and reporting its EUI in the mid 2000s. Through a concentrated effort to improve the energy efficiency of its existing and newly constructed buildings, all four campuses have seen a measurable decline in EUI since tracking began. The chart below shows the reduction in EUI from each campus' baseline year⁴ through the 2026 EUI reduction goal established through the University's 2021 strategic plan.



A recent project targeted at improving the energy efficiency of the Research 1 laboratory building on the Anschutz Medical Campus cost about \$12 million, and saves more than \$1.3 million a year in energy costs, resulting in a simple payback of the project cost of about 9 years.

Change in EUI from baseline year to 2019 and 2026 CU Goal



⁴ The baseline year is 2005, with the exception of the Denver campus, which began tracking in 2006.



Energy Performance Contracting

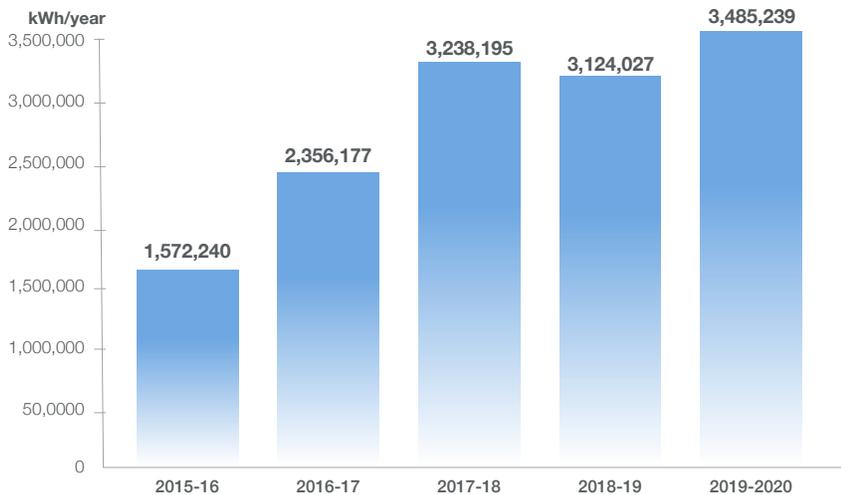
CU Boulder completed three energy performance contracts in the last decade. The annual cost savings/cost avoidance resulting from the upgrades averaged \$1.2 million for the last two fiscal years. The projects targeted improvements in the CU Events Center, the Sustainability, Energy, and Environment Complex, and Wilderness Place. CU Boulder will develop another project in the next few years to implement energy conservation measures in targeted buildings and infrastructure across campus through an energy savings performance contract.

Renewable Energy Production

There are challenges associated with meeting sustainability goals in concert with continued campus growth. One concern with measuring EUI is that some alternatives to new construction, like reconfiguring space in an existing building to increase space utilization, actually result in increased building EUI, but offset the increase in GHG emissions that would result from constructing a new building. Additionally, some efforts to eliminate GHG emissions, such as installing solar panels, do not correspondingly reduce EUI, even though the type of energy consumed is arguably more sustainable. In order to further its sustainability goals, the University also seeks to offset its energy consumption through the production of renewable energy and the purchase of renewable energy credits.

To date, the campuses have installed a total of 21 (3,482 kWh) solar panel systems. In the most recent year data was collected, these systems produced about 3.5 million kWh – enough to power 323 average American homes for a year.

Annual Solar Production



Boulder Athletics

Since 2008, existing athletics buildings at CU Boulder have been retrofitted to be more energy and water efficient. The CU Buffs play at Folsom Field, the nation’s first zero waste collegiate stadium. All football, basketball and volleyball games held at Folsom Field and the CU Events Center are zero waste events. [Learn more about sports sustainability at CU Boulder.](#)



A solar thermal system on the roof of the UCCS Recreation Center provides more than half the energy required to heat the swimming pool and spa. On sunny days it provides 100 percent of the energy, offsetting the use of natural gas.

The University also purchases renewable energy from local public utilities as renewable energy credits (RECS). The chart at right shows how much renewable energy is currently produced or purchased at each campus and the 2026 commitment identified through the 2021 strategic plan.

Campus	Current Percent Renewable	2026 Commitment
CU Boulder	2.0% on-site	2.5% on-site and 14.2% off-site
CU Denver	1.5% on-site	3% on-site
CU Anschutz	0% on-site	5% on-site
UCCS	0.02% on-site and 34% through RECS	2% on-site and 40% through RECS
System	0%	10% through RECs



CU DENVER XCEL ENERGY REBATE AWARD: MOST NATURAL GAS SAVINGS IN ENERGY DESIGN ASSISTANCE PROGRAM (2018) – NORTH CLASSROOM RENOVATION



CONCEPTUAL DRAWING OF A POTENTIAL SOLAR PROJECT FOR CU BOULDER EAST CAMPUS (SOLAR CARPORTS). TOTAL SOLAR POTENTIAL = 2.58 MW

Sustainability Planning

The Boulder Energy Master Plan is currently underway. The plan focuses, in part, on energy modeling and efficiency optimization and identifying energy conservation measures. The Denver campus is participating in the Auraria Higher Education Center (AHEC) Climate Action Plan update. The AHEC is currently soliciting public comment on its plan. UCCS is in the process of updating its Sustainability Master Plan and creating an Energy Master Plan. It is also beginning a full facilities condition assessment, which will be used, in part, to identify opportunities for energy conservation measures and energy performance service contracts. The Denver and Anschutz campuses use savings from the Xcel Energy Rebate program to conduct energy studies and full energy audits, which are in turn used to identify energy conservation projects.

On the Horizon: UCCS

In conjunction with a state-funded project to replace the deteriorated roof of the Kraemer Family Library, UCCS applied for an [EBSCO Solar grant](#) in May 2021. The grant program provides funding for solar installations at libraries world wide. The new roof gives the campus the opportunity to seek funding to install its largest on-site solar installation. The planned solar system has the potential to reduce the building's electric utility bill by half.

BUILT ENVIRONMENT

The construction and operation of buildings is a significant contributor to global GHG emissions. Instead of always building new, the University looks first to renovate and make sustainable improvements to existing buildings. When it determines that a new building is needed, the University follows energy efficient building standards.



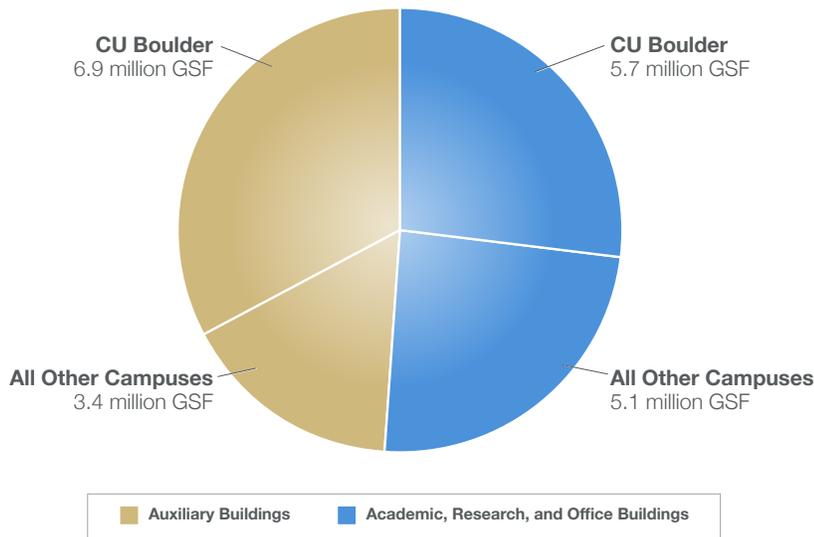
Built Environment

The University adopted a goal of building and renovating buildings to the Leadership in Energy and Environment Design (LEED) Gold standard in 2007. LEED is a set of best practice standards established by the U.S. Green Building Council to promote sustainable building design and construction. The 2021 strategic planning process evaluated and upheld this goal.

Total Ownership

The University of Colorado System owns 319 buildings, including 169 academic, research, or office buildings. All owned buildings constitute 21,142,264 gross square feet (GSF). The Boulder campus accounts for more than half of the University's total owned GSF.

Total Owned Gross Square Feet (GSF)



The Future of Work

In March 2020, the University shifted to online and remote operations in response to the COVID-19 pandemic. The pandemic response proved the effectiveness of remote work to support in-person and remote campus operations. Even when the University returns to normal operations, it is anticipated that these lessons learned will permanently reduce the need for certain space types. For example, the System Administration Office reconfigured its space to accommodate a hybrid in-person/at-home work environment. This change eliminated the need for leased space and will result in an annual savings of \$750,000.

What is a Net-Zero Energy Building?

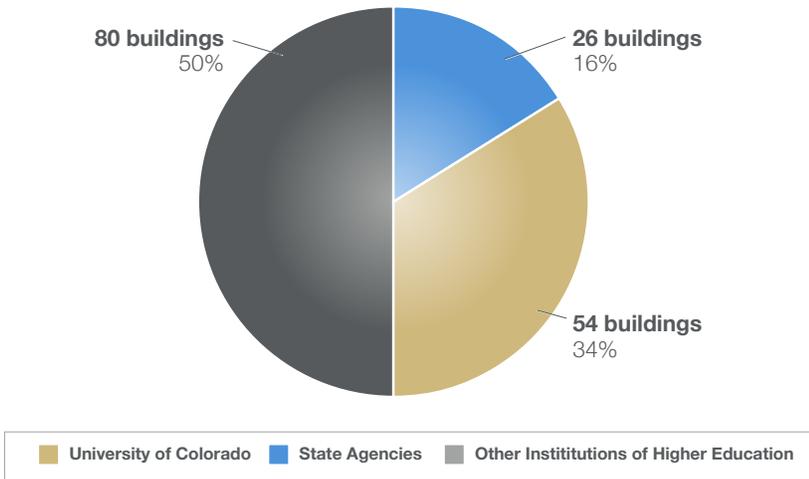
In a net-zero energy building, the total amount of energy used by a building is equal to the amount of renewable energy created onsite annually.



LEED Buildings

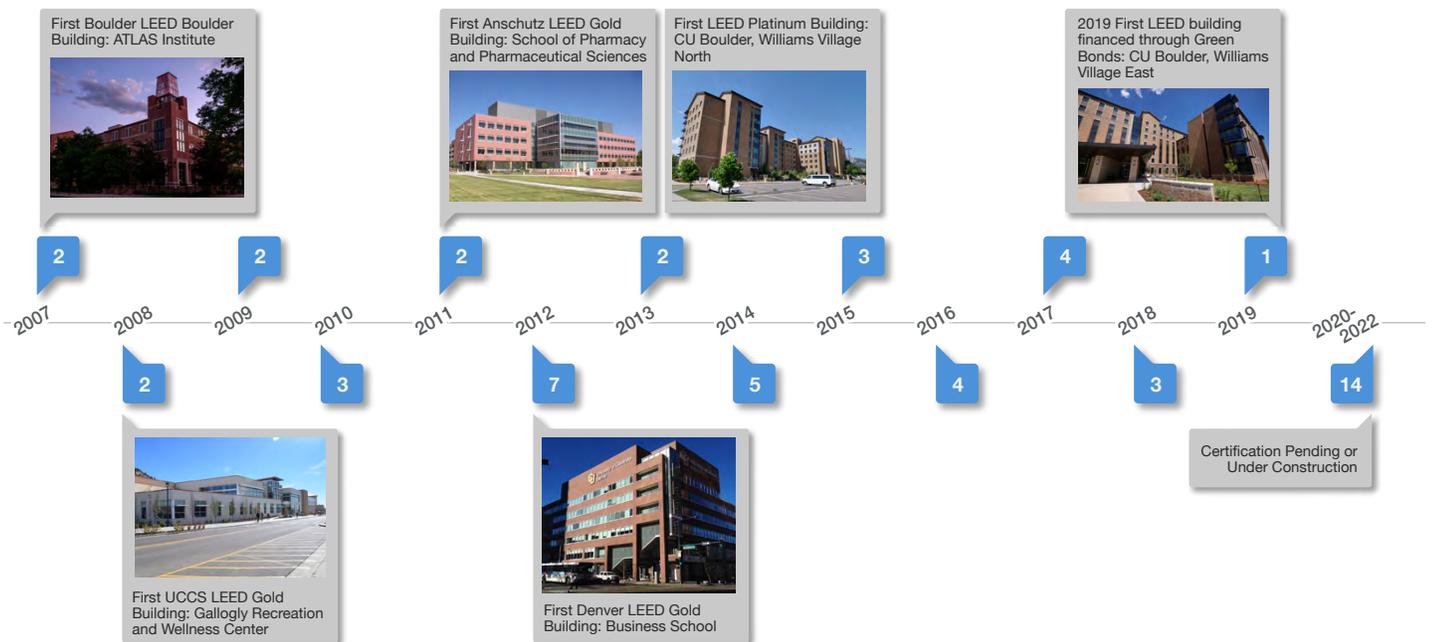
Since 2007, the State has constructed or renovated 160 LEED-certified buildings. More than one-third of these LEED-certified buildings were built by CU, including 10 LEED Platinum certified buildings, the highest of the four certification levels.

Percent of Total LEED Certified Projects



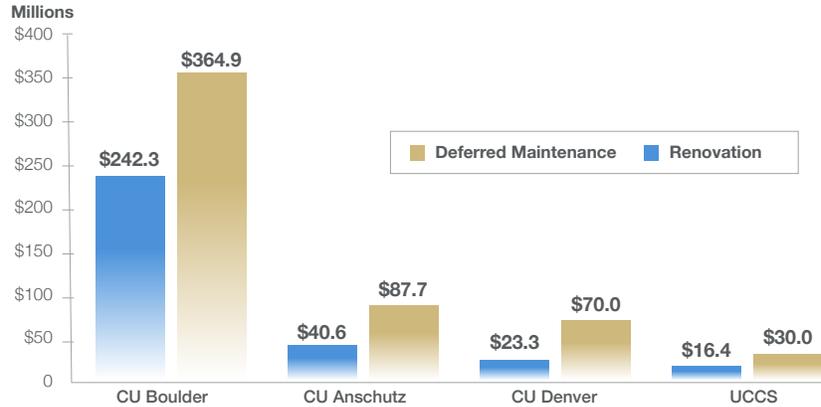
The Campus Safety and Emergency Preparedness Facility on the Anschutz campus is poised to be the University’s first net-zero energy building. The project is expected to commence later this year and will achieve net-zero by reducing resource consumption through the careful selection of building materials and mechanical systems. The net zero project also includes renewable energy, repurposes an existing building, and optimizes natural light in the design

Number of CU LEED-Certified Buildings, by Year



Prioritizing Renovations and Repairs

The university has collectively invested about \$1.2 billion in renovation projects and repairs (deferred maintenance) over the last decade. Prioritizing renovation and repairs over new construction is just one way the University demonstrates its commitment to sustainability.



Space Utilization

The University seeks a sustainable approach to growth. Rather than defaulting to new construction, it first considers opportunities to enhance the space utilization of existing buildings. It does so while creating attractive and healthy classrooms and workspaces for its students and employees. Reconfiguring and reusing existing space presents opportunities to create efficiencies, improve the user experience, and increase collaboration.

The Boulder and Anschutz campuses have both adopted space guidelines to more effectively and consistently utilize physical space resources. The Boulder campus established a Space Optimization Office as part of its Planning, Design & Construction unit in 2017. The Office assists campus occupants by providing accurate space assignment and use data and reporting. The Office collaborates with other units to optimize space utilization and predict future space needs. Several recent projects have increased space utilization in existing buildings instead of building new. For example, a recent space optimization project converted 46 offices to 82 work spaces in the Fleming Building and the Engineering Center Administrative Wing, with \$1.8 million cost avoidance through a more efficient use of space.



FLEMING BEFORE



FLEMING AFTER

The Anschutz campus has initiated a number of space optimization projects on campus, including several in the old Fitzsimons Army Hospital. The ten-story building houses many campus offices and has undergone a series of small improvements in the last decade. These improvements have increased the number of building occupants by a third, but have also addressed deferred maintenance and occupant comfort. The improvements have resulted in a 33 percent decrease in the building EUI score and a corresponding annual savings in utility costs of about \$150,000.



THE MOST EFFICIENT BUILDING IS THE BUILDING YOU DON'T BUILD.

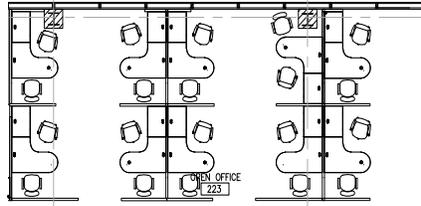
David Kang, Vice Chancellor for Infrastructure and Sustainability, CU Boulder



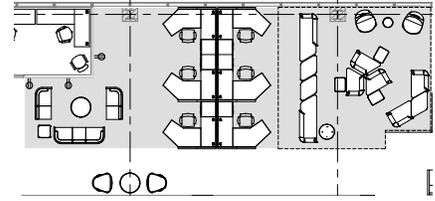
The Hub, which opened in July 2019, was constructed to resolve a deficit of clinical faculty offices on the Anschutz campus. The Hub constructed 40 enclosed work spaces, a dedicated conference room, and open lounge areas with soft seating. Members of The Hub are not assigned an office elsewhere on campus. When The Hub opened in 2019, it was anticipated that it would accommodate 150 faculty members. In Fall 2020, there were 390 members. The annual operating savings is \$143,560. The total cost avoidance is \$19.2 million. The concept has proven so successful that the campus plans to construct a second hub space in 2022.



LAWRENCE STREET CENTER



DRAWING OF TYPICAL CU SYSTEM ADMINISTRATION OFFICE SPACE BEFORE BUILDING WAS RESTRUCTURED IN 2021 TO INCREASE OCCUPANCY BY 25 PERCENT (THROUGH A HYBRID IN-PERSON/REMOTE WORK MODEL).



DRAWING OF REDESIGNED SPACE WITH MIX OF DESKS AND OPEN SEATING LIKE CHAIRS SHOWN BELOW.



The Denver campus has completed initial planning for a project in the Lawrence Street Center to renovate three floors of the building to increase occupancy of these floors by a combined total of 71 percent, or 104 individuals.

Green Labs

The University has realized significant energy and other resource efficiencies in the operation of its campus laboratories. The Boulder campus started a Green Labs program in 2009. The program resulted in significant cumulative savings in electricity consumption (8 GWh) and water use (54.4 million gallons) in the first 11 years of operation. Additionally, the Boulder program has fostered the creation and implementation of ongoing campus efforts that have diverted 260,000 pounds of laboratory-specific waste from the landfill, reused 2,730 gallons of solvent, and avoided \$900,000 in research equipment purchases through equipment sharing efforts.

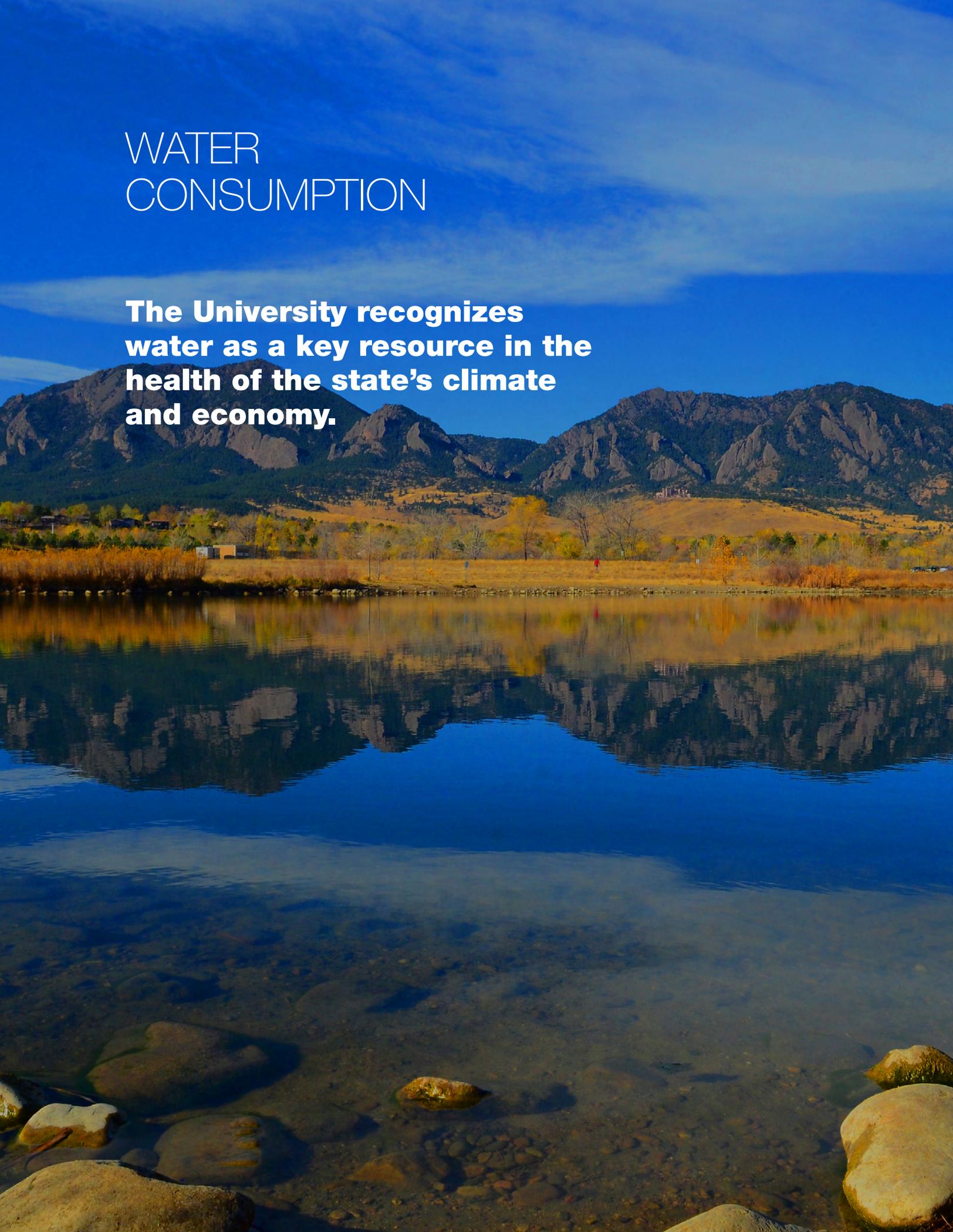
Both the Anschutz and UCCS campuses are also focused on reducing consumption in campus laboratories. Their current efforts target increasing the temperature of laboratory freezers, which correspondingly decreases energy consumption. UCCS has also adopted an Energy Star appliance policy and is making retrofits to lighting and adding occupancy and vacancy sensors. The Anschutz campus has expanded lab recycling by identifying a number of products used in daily lab functions that can be recycled through the single-stream recycling program.



The CU Boulder Green Labs Program serves as a source of inspiration and advice for other institutions that want to implement green labs programs and initiatives. An example of the program's positive impact beyond the Boulder campus is the Laboratory Freezer Challenge, which was co-created by CU Green Labs and UC-Davis. The challenge is now an international competition led by My Green Lab and the International Institute for Sustainable Laboratories, with worldwide participation from research and medical institutions, government laboratories, and scientific companies.

WATER CONSUMPTION

**The University recognizes
water as a key resource in the
health of the state's climate
and economy.**



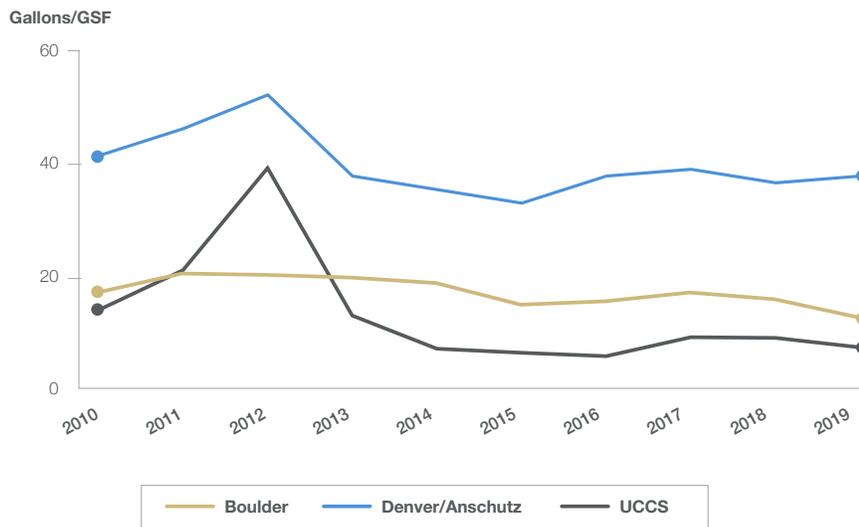
Water Consumption

Although Colorado only averages 17 inches of total precipitation annually, the state relies almost entirely on precipitation to supply its fresh water resources. While the 2021 strategic plan does not set water consumption goals, the four campuses recognize water as a finite resource and track and report on water use annually, with a common goal of limiting overall water consumption.

The campuses limit potable water consumption through conservation measures such as the installation of low-flow toilets and replacing autoclaves and glass washers in labs. At UCCS, the Science Engineering Building was designed to use 42 percent less water than a comparable baseline building. On the Boulder campus, the Green Labs program has saved 54.4 million gallons of water over the last decade. The campuses also limit water use for landscaping by planting native plant species and installing irrigation controls and rain sensors. As a result, water consumption has declined both overall and at each campus during the last decade.

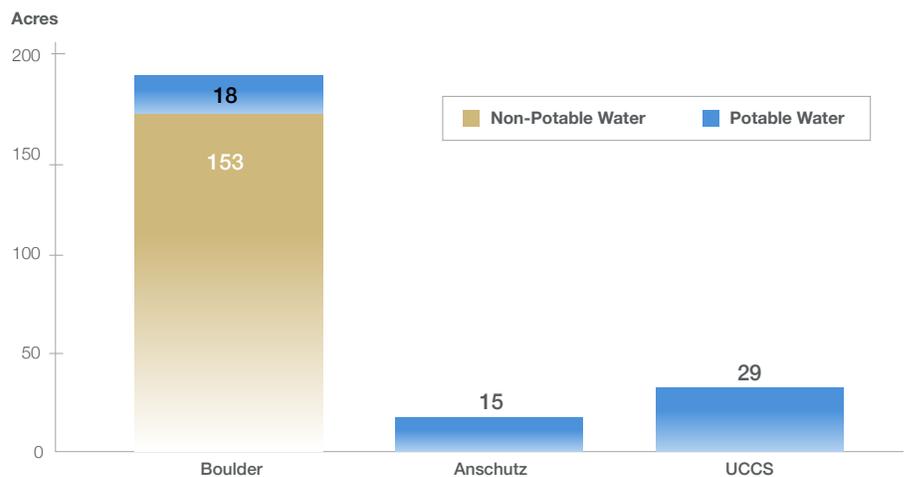
The chart below shows the average amount of potable water used in gallons per total GSF by campus.

Ten-Year History of Potable Water Consumption



In order to limit water usage, the campuses limit the amount of turf planted in open areas and focus on the inclusion of native plant materials. On the Boulder campus, almost 75% of all the landscaping is sustainable — native plant materials are used in 70% of the landscaped area. Additionally, the main campus is watered entirely with non-potable ditch water. At the UCCS Sustainability Demonstration House, the grounds are planted with waterwise and native plants.

Acres of Irrigated Landscape



WASTE DIVERSION

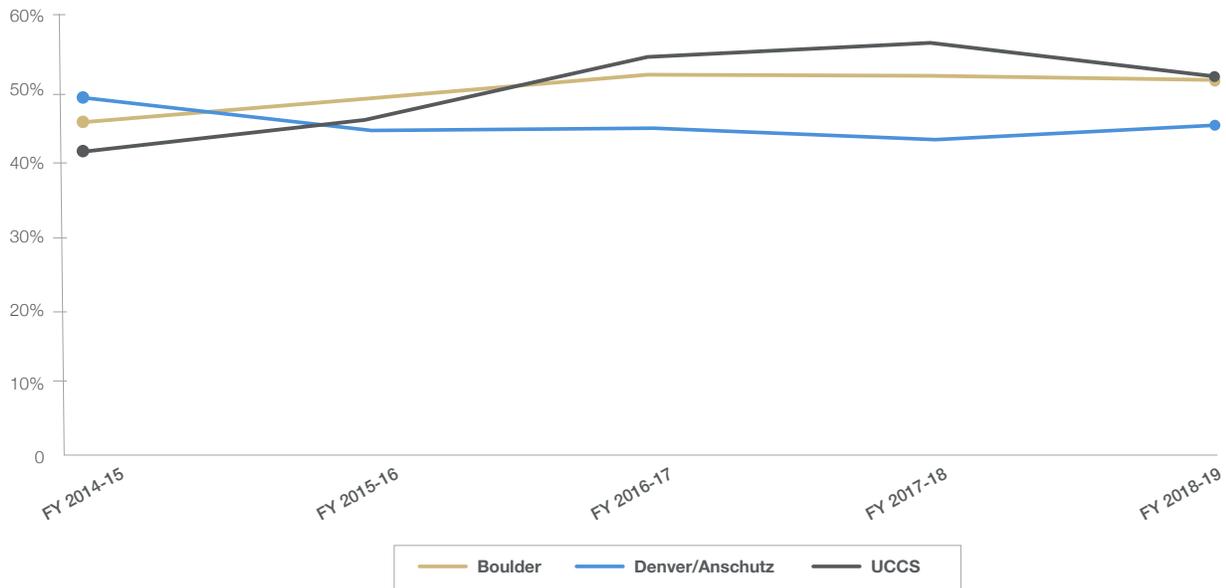
The University of Colorado promotes sustainability through waste diversion, thoughtful purchasing decisions, and creating an infrastructure that supports reuse, recycling, and composting.



Waste Diversion

The University tracks and reports on the amount of waste that is diverted from the landfill through recycling and composting. It sponsors on-site recycling and composting programs and works with student groups to promote and increase compliance. The Boulder campus has a waste diversion goal of 90% by 2025 and the UCCS campus has a waste diversion goal of 70% by 2030.

Waste Diversion Rate



Composting

Boulder and UCCS actively compost food waste from on-campus dining services. Boulder began composting in 2004, and by 2016 composting was in place in all dining and conference facilities, as well as major sports venues. The Anschutz campus is evaluating compost programs with its food service vendors and the Denver campus is expanding the AHEC program into its facilities on the east side of Speer Boulevard. In 2019, the System Administration Office installed food and restroom compost collection bins building wide and provided training for individuals overseeing food waste collection points.

CU Boulder

Since 2016, annual campus wide food waste (and restroom compost) collections have averaged over 800 tons a years.

UCCS

The UCCS Farm partners with Dining and Hospitality Services to collect and compost coffee grounds and pre-consumer fruit and vegetable waste from dining halls. It also partners with Outdoor Services to collect and compost leaves that are not mulched back into the landscape.



TRANSPORTATION

The University of Colorado promotes the use of alternative modes of transportation and the use of alternative fuel vehicles to reduce GHG emissions from travel to and through its campuses.



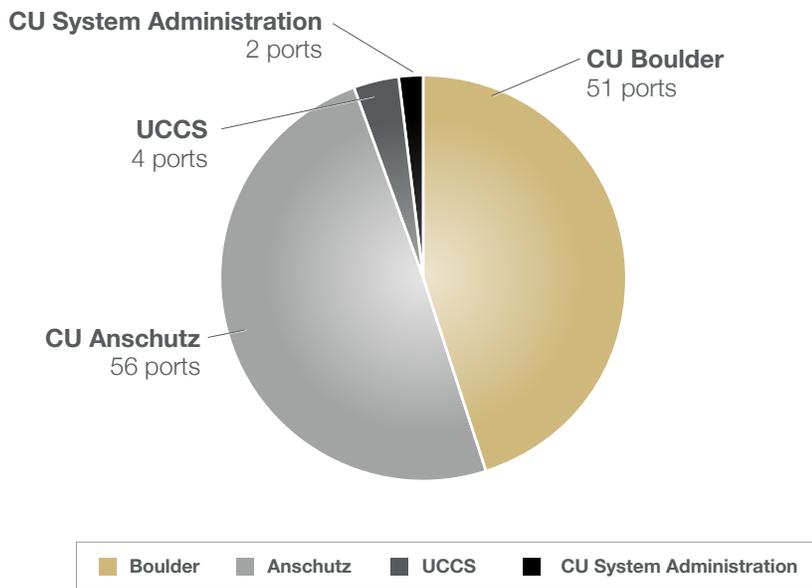
Transportation

The transportation sector is a major contributor to GHG emissions. In 2019, 29 percent of all GHG emissions in the United States were generated from burning fossil fuels for transportation vehicles, according to the Environmental Protection Agency. The University promotes sustainable practices in transportation in the commute to and travel on its campuses. It is continuously developing infrastructure that supports alternative fuel vehicles and multi-modal transportation. It also participates in community programs that support public transportation.

As part of CU's 2021 strategic plan, the campuses have committed to transitioning traditional fleet vehicles to alternative fuel vehicles. The chart at right illustrates the campus goals.

Campus	2026 Commitment
CU Boulder	Convert 17% of bus fleet to battery electric buses by 2026 (4 of 24 buses).
CU Denver	Transition all vehicles to electric at next replacement cycle or by 2026.
CU Anschutz	Transition 20% of fleet vehicles to electric by 2026. Doesn't include bus.
UCCS	Replace one diesel bus with an electric bus every 5 years.

Electric Vehicle Charging Ports



The campuses and the System Administration Office all have electrical vehicle (EV) charging ports on site and study opportunities to add additional stations when planning for renovation or new construction. In February 2021, the Boulder campus added 16 new ports, including its first two EV ports limited to ADA users. The total number of EV ports, by location, is shown at left.



THE SYSTEM ADMINISTRATION OFFICE INSTALLED ITS FIRST EV CHARGING PORTS IN 2021

The shift to prioritizing multi-modal transportation on University campuses can be seen in changes like the decision by UCCS to redesign its Parking & Transportation Services website to integrate parking information with information about alternative means of travel to and around campus. The University supports multi-modal transportation through campus shuttle operations, bike share programs, and bicycle and pedestrian infrastructure like dedicated paths and parking. The Boulder campus has more than 14,000 bike parking spaces. The city and campus also partner to build underpasses to support safer access between the campus and the surrounding neighborhoods.

The Anschutz campus is connected by light rail and commuter bus service to the greater Denver Metro area. The Boulder, Denver, and Anschutz campuses, as well as the System Administration Office, provide discounted or free access to the RTD EcoPass. The EcoPass can be used for city and regional transit. Campus bus and shuttles are free to students, faculty, and staff at all four campuses. And for those who commute to campus by car, the University offers parking preferences for carpoolers and low emission fuel efficient vehicles and encourages participation in ride-share programs.



IN 2018, ABOUT 13,000 STUDENTS, FACULTY, AND STAFF REGULARLY COMMUTED TO THE BOULDER CAMPUS BY BUS



TAVA TRAIL. UCCS PROMOTES INTER-CAMPUS TRAVEL WITH ITS UNIQUE, ON-CAMPUS TRAIL SYSTEM



WHAT'S NEXT?

What's Next?

The 2021 Strategic Plan afforded a unique opportunity for the four campuses of the University of Colorado to discuss and collaborate on sustainability goals. The individual campus efforts in the last decade are remarkable and should be celebrated. To continue as leaders in the fight against climate change, more work is needed to define a clear path to carbon neutrality. The University will revise and revisit its sustainability goals in 2026. In the interim, it will also work to do the following:

- finalize energy master plans, audits, and assessments and identify opportunities for energy performance service contracts;
- conduct thorough life-cycle cost analyses of potential capital projects to identify first costs, environmental costs, and energy savings opportunities and to reduce operations and maintenance costs;
- go beyond LEED Gold and look for opportunities to incorporate net-zero energy consumption measures in its building design;
- maintain a strong emphasis on funding deferred maintenance projects, with particular attention to making improvements that increase efficiency and reduce GHG emissions; and
- integrate environmental sustainability goals with social and economic sustainability goals.

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**HIGHER EDUCATION
SHOULD LEAD BY
EXAMPLE IN OUR
NATION'S EFFORTS
TO REDUCE
ITS CARBON
FOOTPRINT.**

Kent Marsh, Associate Vice
Chancellor Campus Planning &
Facilities Management, UCCS





FOUR CAMPUSES UNITED
ALL FOUR:**ONE**



University of Colorado

Boulder | Colorado Springs | Denver | Anschutz Medical Campus

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