



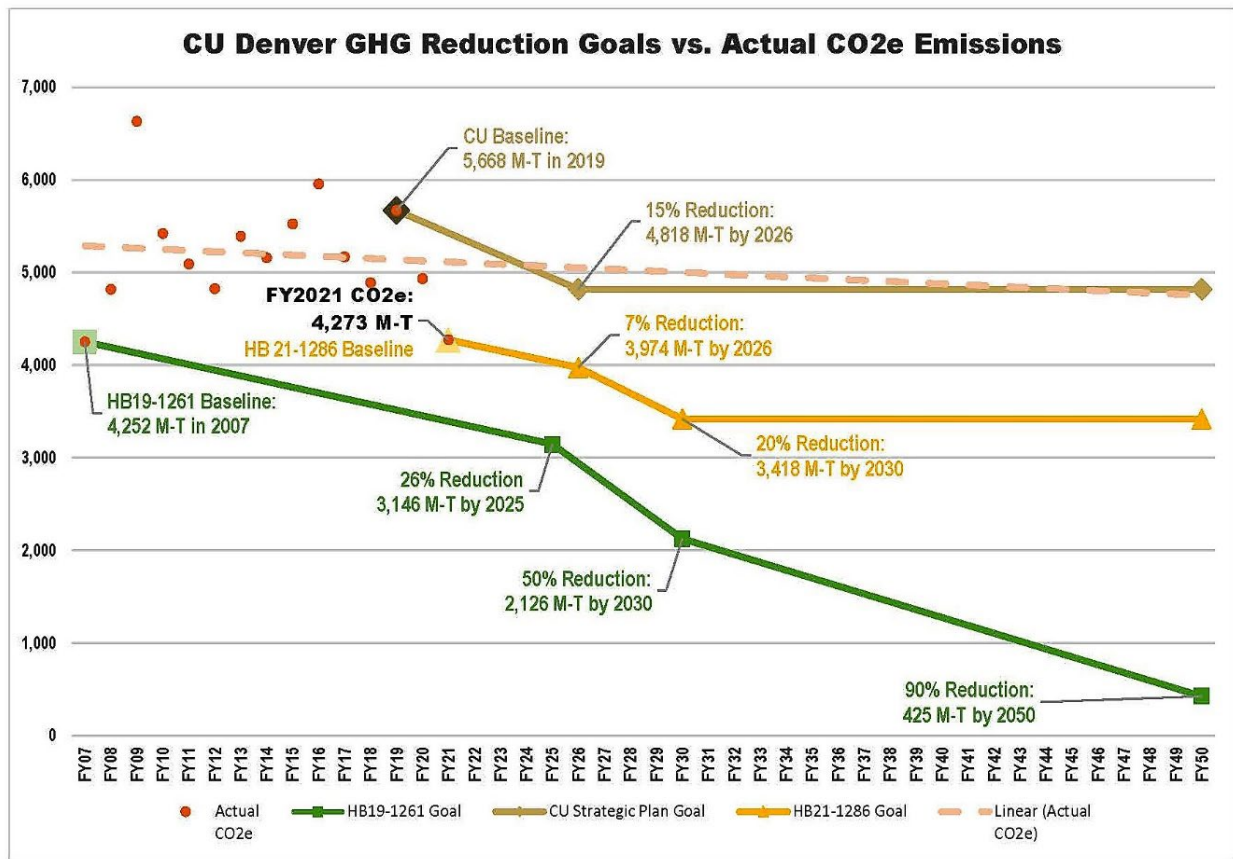
2022 Sustainability Report

INTRODUCTION

Campus Goals

The University of Colorado Denver continues to develop and seek achievement of sustainability goals through several efforts as we continue to grow on the Auraria Campus. We see these as congruous efforts that will aid the campus in developing realistic, long-term goals and specific endeavors to achieve those goals over time. Facility Condition Index Audits are ongoing and are, likewise, informing our planning processes.

The State of Colorado Climate Action Plan (developed from HB19-1261) remains the guiding document for Greenhouse Gas Emissions reduction planning. However, new legislation has created several differing goals and baselines that we are attempting to adhere to as we move forward, and we expect more are forthcoming. We attempt to showcase those data points in the following graph, which illustrates various sustainability metrics.





2022 Sustainability Report

Strategic Plan Goals

Progress towards System strategic plan goals

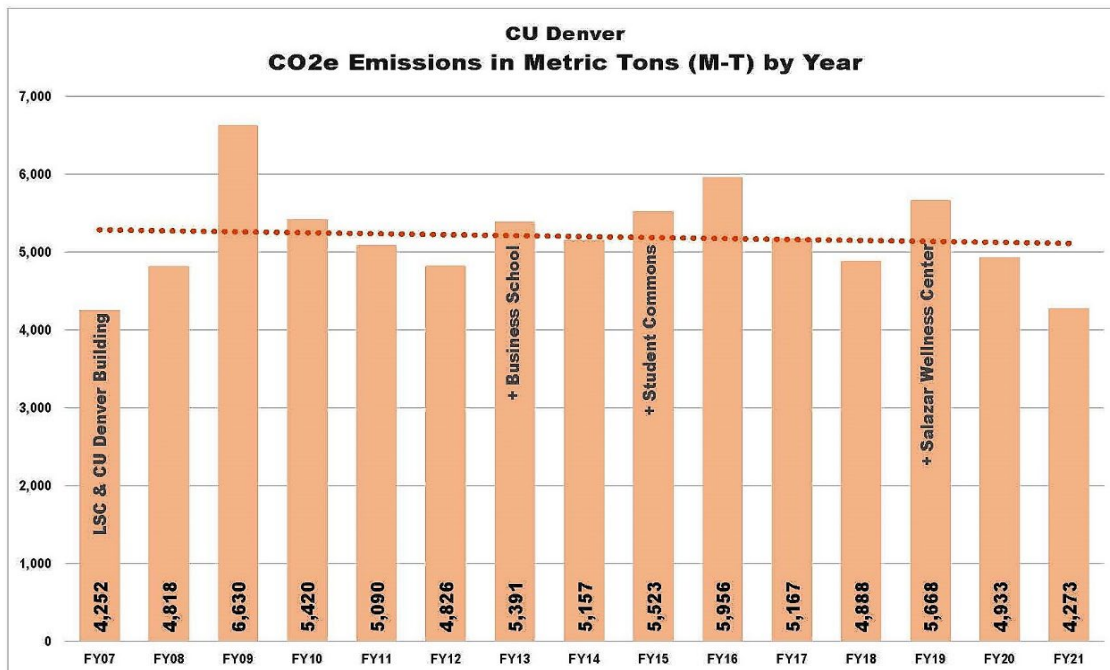
CU Denver has incorporated the CU System Strategic Plan goals and associated metrics into its planning efforts and continues to track and document as needed. Our current understanding of the goals is a 15% reduction of GHG emissions from a 2019 baseline, improvement in the average Energy Use Intensity (EUI) score, the addition of renewable energy on campus, electric vehicle replacement for fleet vehicles, and improvement in the average Facilities Condition Index score.

SUSTAINABILITY METRICS

Greenhouse Gas Emissions

Overall emissions

CU Denver Greenhouse Gas Emissions for FY 21 are 4,273 mt-Co2-e. This represents a slight increase from the baseline year measurement. In this period, we have added a number of facilities, yet have maintained a steady GHG Emissions measure. Newer, LEED construction has resulted in more efficient buildings, and a lighter carbon electrical supply from Xcel Energy has assisted in reductions. The addition of the new City Heights Residence Hall and the College of Engineering, Design and Computing will affect future emissions measures.





2022 Sustainability Report

Transportation

Alternative transportation

CU Denver and the Auraria Higher Education Center are well served by multi-modal transportation options including bus and light rail service from RTD, the availability of ECO passes and a large bicycle commuting infrastructure, including three dedicated bike shelters:

<https://www.sustainableauraria.org/bike>

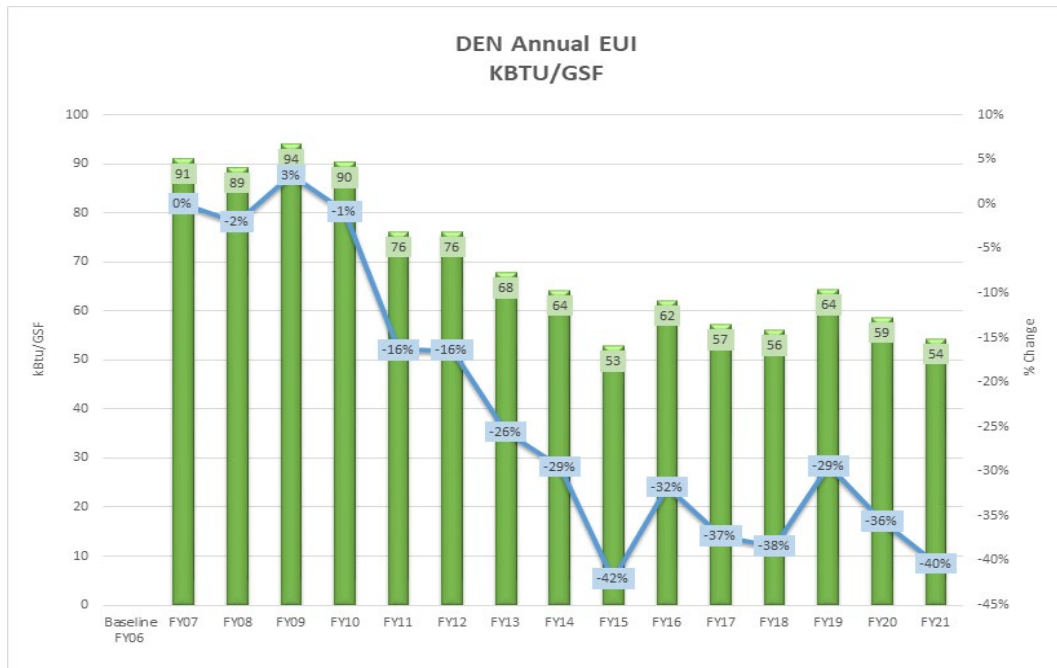
Electric vehicle charging

CU Denver facilities do not currently have electric vehicle charging installed in garage parking that we maintain. The Auraria Campus offers 11 Level-2 EV Charging Stations in the 5th Street Garage and another in the Dogwood parking lot.

Energy Consumption

Energy Use Intensity

Energy Use Intensity (EUI), or the amount of energy used per square foot in campus buildings, continues to decline. This is due to several Energy Conservation Measures and more efficient buildings constructed in recent years under stricter standards to meet LEED certification requirements.





2022 Sustainability Report

Renewables

Currently, there is no installed renewable energy on CU Denver-owned buildings. However, the Auraria Sustainable Campus program funded a 779-kW array on the Auraria Library rooftop and now owns the largest singular rooftop array in downtown Denver. This system offsets about two thirds of the library’s annual electricity needs, which amounts to just over 1,000,000 kWh annually. CU Denver students directly paid for a portion of this project through the Sustainable Campus Program fee.



Auraria Library Solar Array wins award from Downtown Denver Partnership

RECs

The campus does not currently purchase any Renewable Energy Credits (RECs). Trends in GHG emissions reductions have informed that decision as well as the decision to use funds that would be spent on RECs to address Energy Conservation Measures in buildings.

Energy Performance Contracting

CU Denver has pursued an Energy Performance Contract with the Lawrence Street Center. An ASHRAE Level 2 audit was performed, but the work proposed for the project’s payback was not attractive enough to pursue. Many of the Energy Conservation Measures from the audit were performed in-house.



2022 Sustainability Report

Performance Audits

Most of the CU Denver facilities are too new for substantial performance audits. The two oldest facilities, the CU Denver Building and the Lawrence Street Center, have undergone studies to improve building performance. There is a plan for major upgrades in the CU Denver Building, which will result in significant energy efficiency improvements, once funded.

Built Environment

Although most facilities are newer on the CU Denver campus, deferred maintenance concerns are present with the Lawrence Street Center and the CU Denver Building. Immediate priority needs must be considered first to support campus operations. However, this also presents an opportunity to consider building systems upgrades or replacements with more energy efficient solutions. The Facilities Audit (discussed below) will identify equipment and building components in need or repair or replacement, and system useful life. As equipment reaches the end of its useful life, replacement must be considered. Upgrades will always consider more energy efficient equipment, and possibly new technology.

FCI

The Facilities Audit is the process used to numerically grade the condition of building components and systems. The identification of condition and needs is used to estimate replacement cost. Building value and the corresponding replacement/improvement need is expressed as a score. A Facilities Condition Index (FCI) score of 100% is like new condition. Buildings with a low FCI need improvement.

Funding

The Facilities Audit program informs capital renewal plans. As needs are prioritized, funding sources must be considered. This includes department-specific and campus funds, CU System funding for larger capital renewal, and state-funded controlled maintenance.

Prioritizing renovations and repairs

The Facilities Audit program allows for a methodical approach to understanding capital needs. Comparing various building FCI's allows for needs-prioritization. Limited funding is then targeted to the most critical needs. As equipment is upgraded or replaced, the opportunity to replace the old with new more energy efficient equipment is always prioritized. Often, system improvements can be accomplished with new technology that allows for better energy utilization or a completely new way of meeting the building's cooling and heating needs.



2022 Sustainability Report

Facility Condition Audits

CU Denver has an on-going program to use Facilities Condition Audits to inform its deferred maintenance and capital planning efforts. The current program was developed in-house and is now being updated to attain industry best practice. Consulting services have been procured to produce a comprehensive campus-wide facilities audit. This process is on-going and is about 50% complete. The updated facilities audit will not only grade facilities condition and serve as a capital planning tool but will also incorporate “energy impact” grading. As building components are inspected and evaluated for condition and longevity, the energy impact will also be graded.

LEED Buildings

The campus has 4 LEED Gold certified facilities: the Business School, the Rob & Lola Salazar Wellness Center, the Student Commons and the City Heights Residence.

Associated savings

These buildings are typically 25% or more efficient (depending on the building) than a typical facility and therefore more cost-effective to operate. They are also, typically, much more well-designed for users and provide a better environment for work and collaboration.

Net Zero

There are no current net-zero facilities on campus. While still in the early design phase, the new College of Engineering, Design and Computing is looking at all options to address resource use and to positively affect Climate Action Planning efforts.

Space Utilization

Some efficiencies have been realized with ability of faculty/staff/students to work remotely. Some savings and reductions were realized early in the pandemic, but once even limited work resumed on campus, facilities were used as if fully occupied (the exception being in areas with occupation sensors for lighting and HVAC). However, this has informed future planning for space utilization on campus for office and some education space. Hoteling spaces and HUB office settings are being considered to maximize utilization of new and existing spaces. It is certain that remote work has affected Scope 3 GHG Emissions contributed to the university with far less commuting to campus daily.



2022 Sustainability Report

Waste Diversion

Waste diversion rate

Recycling

CU Denver’s current diversion rate for the buildings north of Speer Boulevard is 41% by volume and 22% by tonnage. The goal of the Auraria Sustainable Campus program is to increase diversion rates to 35% of weight (tonnage) by 2024.

Dining/Food Waste/Composting

Utilizing student funds from the Auraria Sustainable Campus Program, food waste composting infrastructure has been added to all CU Denver buildings. An education and outreach campaign is underway to fully realize the potential of composting in our waste diversion efforts. Data is not available on diversion rates yet but will be included in future reports.



Installing Student-funded Waste Diversion Stations



2022 Sustainability Report

Partnering to Fulfill CU Denver Student's Composting Initiative

The goal of the 2020 Auraria Student Compost Referendum was to employ strategies to reduce landfill waste streams and utilize composting to divert food waste from landfills. Composting is a process that works to speed up the natural decay of organic material by providing the ideal conditions for organics-eating organisms to thrive. The end-product of this concentrated decomposition process is nutrient-rich soil that can help crops, garden plants and trees to grow. This article explains our partnering relationships to manage the waste streams from student to compost that fulfill the 2020 Student Compost Referendum goal.

Why it is important: According to the Environmental Protection Agency (EPA), over 35 million tons of food waste enters landfills every year. A lack of oxygen in landfills impedes organic materials from biodegrading. So organic matter like paper, wood, and food scraps are stuck in a limbo state, releasing methane. That methane is a big problem: It contributes to climate change and pollutes air quality.

CU Denver's food waste diversion program starts at our TriStream waste



containers. Here compostable materials are separated from recycle and landfill. Student participation is the vital beginning of the compostable-material stream. Careful adherence to waste separation ensures a non-contaminated waste stream. Maricela Talavera, supervisor for Kleen Tech Environmental Services reports that, "In early rollout the students are being careful to segregate compostable materials. We see only a few contaminated bags."



This is significant since compost bags contaminated with landfill or recycle must be discarded to landfill, the very thing the referendum seeks to prevent.

Conscience participation from our students and Kleen Tech results in a compostable waste stream free of contamination.

Compostable waste streams from education buildings are combine with streams from the resident buildings and food service providers. CU Denver teams with Sodexo to operate the Dining Hall and Einstein Bagels at City Heights, Eat Foods Market at Lynx Crossing, and Qdoba at Student Commons. Ultimately the streams from CU are combined with AHEC's. The multi-institutional nature of the Auraria Campus has resulted in a challenge obtaining accurate reporting from the multiple composting contractors. CU Denver Facilities is determined to fulfill the student's composting initiative. To augment the roll-out the University spent an additional \$10,000 in TriStream containers, placing them in City Heights and Student Commons. Additionally we obtained portable scales to track waste container actual weight. This will allow us to develop an independent accurate trend on our composting effort. We are excited to collaborate with our students, faculty, staff, and institutional partners to realize the composing goal set by the CU Denver Campus students. |



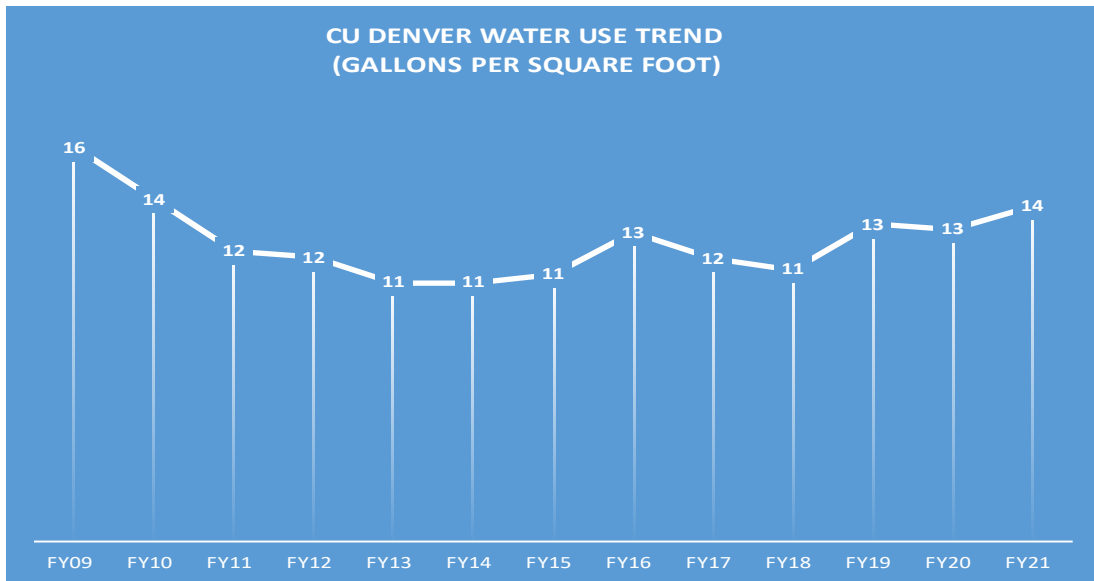


2022 Sustainability Report

Water Consumption

Potable water consumption (gallons/GSF)

Campus potable water use in our owned facilities remains consistent with a slight decrease overall, from 2009. See chart on the following page.



Acres of Irrigated Landscape

Xeriscape/ water management strategies

CU Denver has very little irrigated outdoor areas around its owned facilities. The Auraria Sustainable Campus program has enacted fixes and updated policies to save over 8 million gallons of water since 2017 and has a goal of saving 70 million more gallons by 2024 through updated landscape policies and technology applications.

COMMUNITY ENGAGEMENT

Campus Communication

The Auraria Sustainable Campus Program has many outreach programs to the three schools that it serves, and CU Denver benefits greatly through their efforts. Some of these efforts include:

- **Green Grants:** In this challenge, students will present well-thought-out proposals to fund on-campus sustainability projects that support the ASCP’s mission.



2022 Sustainability Report

- **Green Office Certification Program:** A certification program for interdepartmental offices on Auraria Campus. Ranked on points, departmental offices and their green “office leaders” initiate sustainable and eco-friendly alternatives into campus office environments. The goal is to inspire behavior changes and reduce campus-wide waste and carbon emissions through ecologically minded sourcing practices, compost & recycling efforts, and reducing electricity usage. The program was launch just before the pandemic, so there are no office stats to report, but the office finalized a checklist, brochure, resource guide and program structure and it’s poised to restart once staff return to campus and a program coordinator is hired.
- **Sustainability Workshop Series:** The AHEC campus launched and hosted a seven-course Sustainability Workshop Series. In the first year, there were more than 30 student participants. The workshops are free to all students and designed to introduce sustainability or expand current knowledge with several workshops throughout the semester. Each workshop is tailored to a specific concept within sustainability parallel with our seven pillars.

Academic Efforts

There are currently 144 sustainability-related courses offered at CU Denver across the colleges. Information on these programs is listed below:

- **College of Liberal Arts & Sciences** – Offers a Sustainability Minor in which students must complete 18 hours of coursework chosen from a myriad of departments throughout the College.
- **College of Architecture and Planning** – Offers a Bachelor of Science in Architecture and six graduate degree programs that place a great deal of focus on sustainability in Architecture, Landscape Architecture, Urban & Regional Planning, Urban Design and Historic Preservation.
- **Business School** – Offers a Managing for Sustainability track for MBA, MS in Management and MS in Marketing students that focuses on sustainable business practices and emerging trends.
- **College of Engineering and Applied Sciences** – Offers a graduate specialty in Environmental and Sustainability Engineering. This is a unique, broad-based program that links theory with engineering design for environmental protection and sustainable infrastructure systems.
- **The School of Public Affairs** - Offers a certificate in sustainable urban infrastructure. The certificate is for students and working professionals who seek an interdisciplinary focus in the broad field of sustainable infrastructure to address complex water, energy, built environment and transportation challenges using engineering and social science strategies.



2022 Sustainability Report

Student Involvement

The Auraria Sustainable Campus Program (ASCP) is a campus-wide program with an explicit mission of reducing the Auraria Campus' ecological impact and dependence on fossil fuels. Fully student funded, the program works to accomplish its mission through projects, events, and programs addressing the seven pillars below:

- Alternative Transportation
- Education & Outreach
- Energy Efficiency
- Food & Gardens
- Renewable Energy
- Water Conservation
- Waste Diversion

Partnerships with local governments, local utilities, businesses

Rebate programs

We participate in the Xcel Energy Design Assistance Program for new construction and major projects. Rebates are utilized to fund additional energy efficiency opportunities.

Participation in taskforces, committees

CU Denver has partnered with Energize Denver for five years. While at first voluntary, this is now a required program for commercial and institutional buildings in Denver. Over time, Energize Denver will provide more than \$1 billion in benefits to the city through the avoided social cost of carbon, or the cost of damages created by carbon dioxide emissions. It will also provide benefits such as improved local and indoor air quality and reduced energy bills. As buildings reduce energy use and lower the cost of operations, Denver will become a more competitive and attractive city.

CONCLUSION

The University of Colorado Denver continues to lead on the sustainability front as a large, urban research institution. Continued growth mixed with the desire by the entire campus community to address issues contributing to climate change create challenges and new opportunities for sustainable growth. This growth will hamper efforts at absolute reductions of greenhouse gas emissions but new technologies, better facility design, space utilization and remote work, and partnerships with local stakeholders will help us plan for a future where we remain trustworthy stewards of the resources we must use to fulfill the campus mission.