

2018

EXECUTIVE SUMMARY

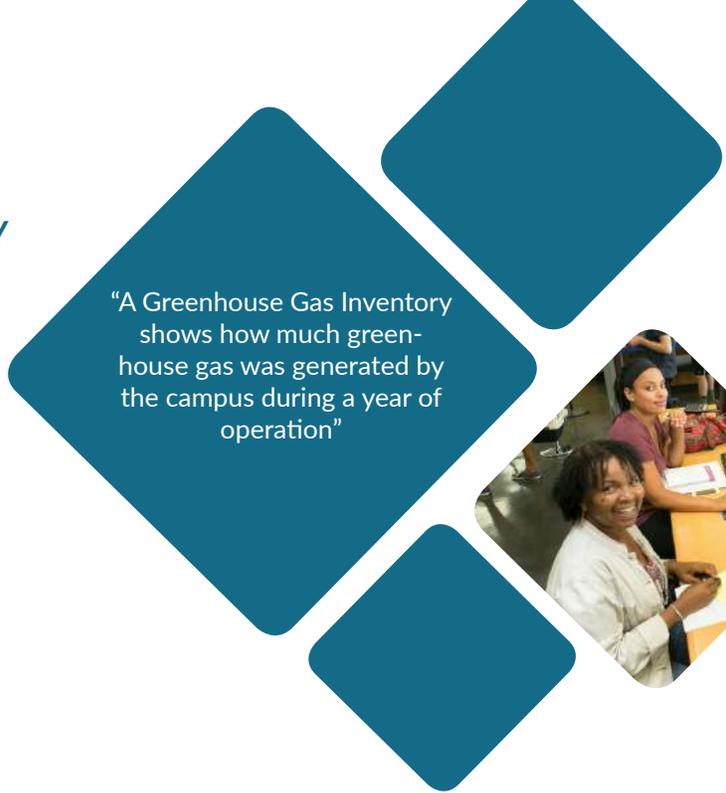
BERKELEY CITY COLLEGE SUSTAINABILITY AND RESILIENCY STRATEGY

A campus-specific guide to implementing the Peralta Community
College District's Sustainability and Resiliency Master Plan

BERKELEY CITY COLLEGE SUSTAINABILITY AND RESILIENCY STRATEGY

In 2018 Peralta Community College District adopted the Sustainability and Resiliency Master Plan (SRMP). As part of that plan, each Peralta Campus has developed individual goals and adopted unique measures to meet those goals. The Berkeley City College (BCC) Sustainability and Resiliency Strategy (SRS) investigates the individual opportunities and challenges present at BCC. The SRS also provides individualized goals for the campus that when achieved, will contribute to goals set at the district level.

This executive summary provides a high level overview of the analysis, goals, and measures developed for BCC as part of the Sustainability and Resiliency Master Plan. For more detail, please refer to the BCC Specific Plan and the Sustainability and Resiliency Master Plan.



SUSTAINABILITY AT BERKELEY CITY COLLEGE

BCC has a long history of sustainability. Below are just a few of the key initiatives which have been implemented on campus in the past.

- ◆ Lowest Greenhouse Gas Emissions per Person of any Campus
- ◆ LEED Certified Building
- ◆ Highest percentage of alternative trips (bike, walk, carpool, and public transportation)



CREATING A SPECIFIC PLAN

The following steps were taken in order to develop the BCC Specific Plan. Each of the following sections of the executive summary provide a brief explanation of the process. For a more detailed description, please see the full BCC Specific Plan.

- 1** - Generate a Greenhouse Gas Inventory and Baseline
- 2** - Define Goals and Metrics for Success
- 3** - Create Measures to Reach Each Goal

Berkeley College Snapshot and Inventory

Berkeley City College: Campus Statistics



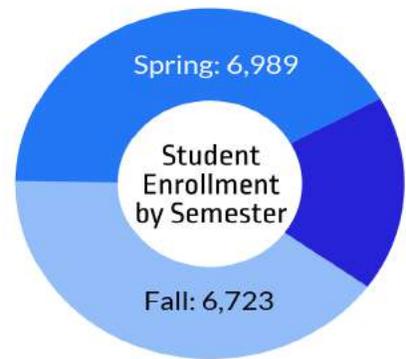
107,491 of Assignable Square footage



Ideal Access to Public Transportation



LEED Silver Building



Berkeley City College: Greenhouse Gas Inventory



122 MT CO₂e
Natural Gas



0.8 MT CO₂e
Water

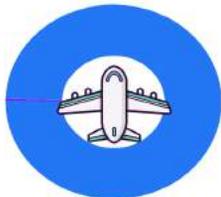


74 MT CO₂e
Waste

4,337 MT CO₂e : 2016 Total Emissions



3,873 MT CO₂e
Commute



12.8 MT CO₂e
Conference Air Travel



253 MT CO₂e
Electricity



Annual emissions per person at BCC in 2016.



Annual emissions per square foot at BCC in 2016

1

Lowest Emissions Per Person of all PCCD Colleges

Berkeley City College Sustainability Goals

A Path To Zero

Peralta Community College District Pillars of Sustainability



Enhance the Learning Environment
to support PCCD's overarching mission of delivering education, professional development, career training, personal enrichment, and lifelong learning



Reduce Waste
to reuse, repurpose, recycle, or compost all items on the campus

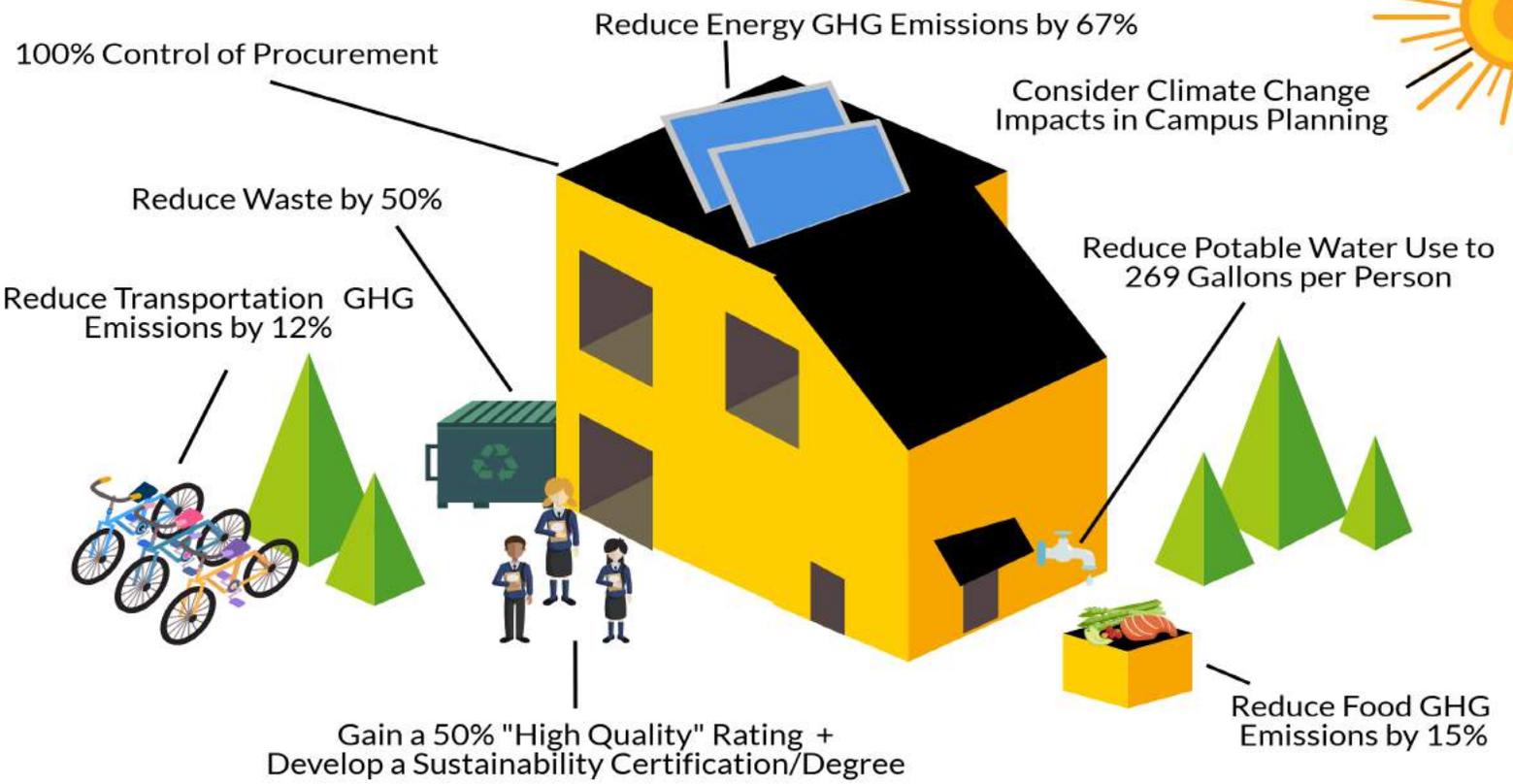


Increase Efficiency
to achieve zero emissions through increased efficiency



Be Resilient
to prepare for changes in climate and prepare students to enter the growing Green Jobs economy

2030 Sustainability Goals



BERKELEY CITY COLLEGE SUSTAINABILITY METRICS

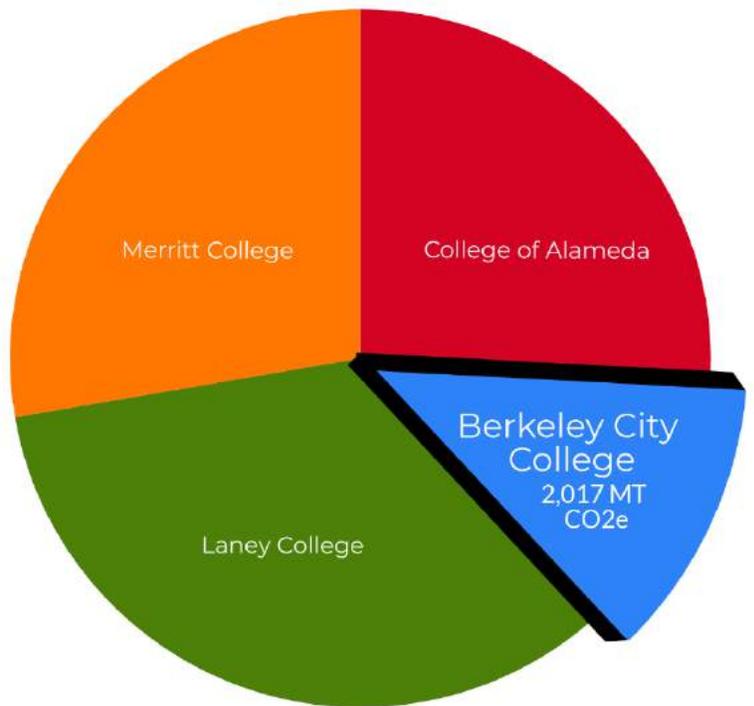
In order to demonstrably achieve sustainability goals, BCC must be able to accurately measure progress. The nexus between greenhouse gases (GHGs) and water, energy, waste, and food, provides an opportunity to develop a common metric to evaluate progress and ensure each action is contributing towards achieving sustainability goals. GHG emissions are the primary metric used in the SRMP and Berkeley City College Sustainability and Resiliency Strategy to track progress. GHG emissions are used to measure emissions reductions, to gage consistency with external sustainability efforts such as the State GHG reduction targets, and to compare progress to other campuses.

There are some aspects of sustainability, such as sustainability leadership, healthy campus, and climate resilience, which do not have direct, quantifiable GHG emissions, associated with them. These areas are considered “supportive” measures of sustainability, as they promote a culture of sustainability though their progress is measured by other metrics like graduation rates and survey responses instead of GHG emissions reductions.



SUSTAINABILITY GOALS

Each sustainability goal has a 2030 benchmark as well as a 2050 vision which corresponds to the goals set at the District level. The District’s overall 2030 goal is to reach a District-wide average 40% reduction in emissions. These goals also meet or exceed the Energy and Sustainability Policy established by the California Community Colleges Board of Governors. The District-wide goal also mirrors the State of California’s SB-32 targets which require the State to reduce emissions to 40% below their 1990 levels. Sustainability goals have been set for each campus in the following areas:

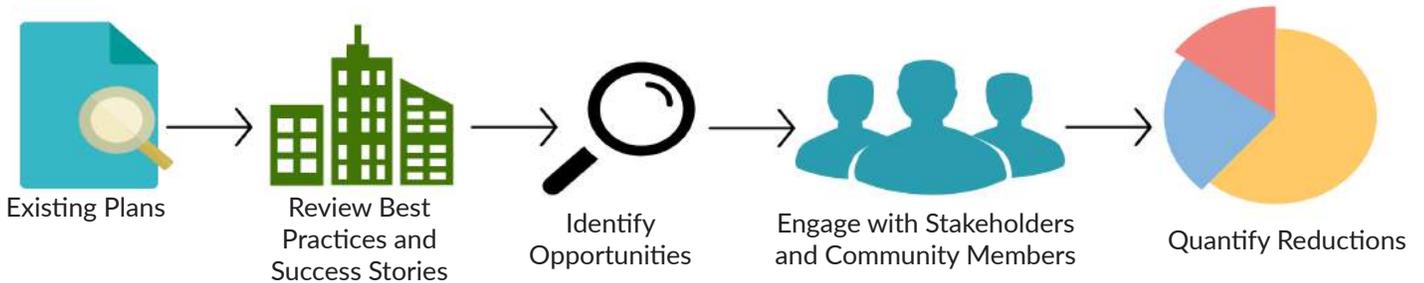


Each of the Peralta College Campus’s have unique challenges and opportunities to reduce GHG emissions and increase sustainability. BCC’s portion of the reduction amounts to 2,017 Metric Tons (MT) of CO₂e.

- | | |
|----------------|----------------|
| Transportation | Education |
| Water | Leadership |
| Waste | Energy |
| Food | Resiliency |
| Procurement | Healthy Campus |

BERKELEY CITY COLLEGE SUSTAINABILITY MEASURES

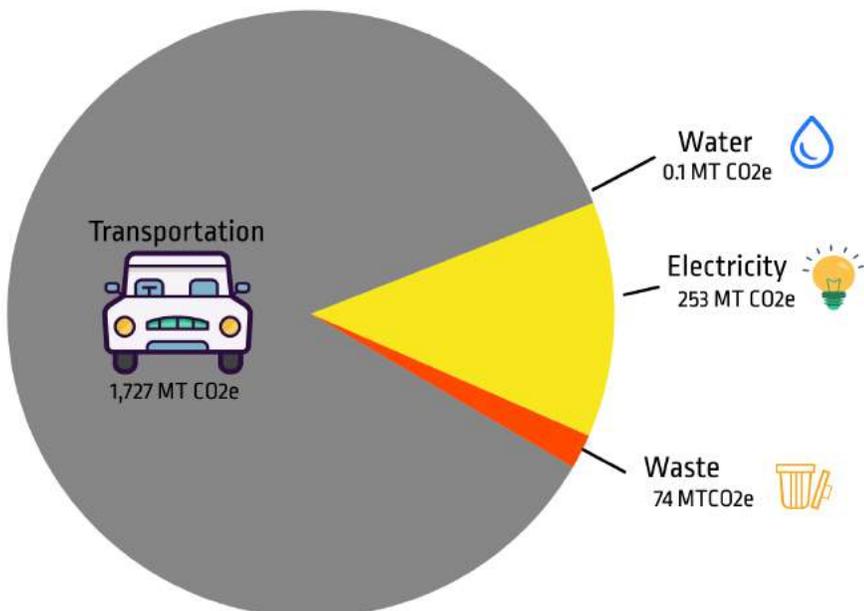
Sustainability Measures for BCC have been developed for each of the sectors outlined in the Goal section. Each of the measure identified contain a series of actions that define the direction that the campus will take to accomplish its goals for 2030. The Sustainability Measures for BCC have been developed based on careful consideration of the current conditions and the changes required to meet the District and Campus Specific sustainability goals. To identify the set of measures that would be most effective at the Campus, the SRMP process reviewed existing sustainability practices, explored the most recent technology and best practices, and solicited feedback from the campus community.



Each Sustainability Measure utilizes hard data including the sources and distribution of emissions revealed in the GHG emissions inventory, existing priorities and resources, the associated co-benefits, and the potential costs and benefits of each measure.

In general, improving energy efficiency, reducing energy demand, and changing transportation mode share patterns offer the most promising means to reduce campus wide GHG emission. The pie chart below shows the magnitude and percentage of GHG emissions reductions attributed to each sector. Not all measures reduce GHG emissions, and not all measures have quantifiable GHG reductions. These measures are referred to as “Supportive Measures” and are no less important for overall emissions reductions than quantified measures. For example, some supportive measures are expected to have major GHG reduction impacts, but accurately quantifying those measures is not feasible. Other supportive measures facilitate the implementation of quantified measures.

GHG REDUCTIONS BY SECTOR



Sustainability is highly connected. Almost all of the measures being implemented by Merritt College have multiple co-benefits that help our students, the community, and the planet.

SUSTAINABILITY MEASURE CO-BENEFITS

Co-benefits are additional benefits to the campus, community, and environment that are gained by completing a sustainability measure. Co-benefits associated with the SRS fall under the following categories.



EDUCATION

The primary goal of the District and each campus is to educate its students. With the sustainability sector and green jobs markets seeing steady growth, the District can improve their students understanding of these principals through exposure to new ideas and providing resume building experiences.



HEALTH

Many of the same activities that cause waste and pollution are also harmful to human health. For example, most automobiles burn fuels and emit harmful air pollutants. Improved air quality is one of the greatest and most important co-benefits of GHG reduction. Another example is that adequate bicycle and pedestrian facilities not only promote more people using them, but they also make the existing users more safe.



RESILIENCY

A resilient campus is one that has the capacity to “spring back” from disasters, as well as adapt to changes in the environment. A resilient campus seeks opportunity in change, rather than attempt to resist it. Furthermore, campus resilience is more than just the durability of physical infrastructure; it requires strong social cohesion and an adaptable economy.



ECOSYSTEMS

Protecting ecosystems and ecosystem services (benefits we get for free from functioning ecosystems like clean water and clean air) are central benefits of increased sustainability. For example, conserving water not only saves energy and GHG emissions, but it also allows more water to stay in lakes and streams, increasing habitat quality. Another example would be planting native species to provide habitat to local insects and animals.



ECONOMIC

As resource consumption comes with a price tag, measures that increase efficient utilization of resources will also increase cost-savings. Sometimes these cost-savings are immediate, particularly when there are financial incentives involved with the activity. In other cases, cost-savings may not occur immediately and are realized over time. For example, energy efficient infrastructure may have a higher initial cost, but it will reduce the District’s energy costs for years after it is installed. The duration of time it takes for the savings to exceed the costs of an activity is referred to as the “payback period.”

Energy

Berkeley City College Energy Reduction Targets

0.02
MT CO₂e

Berkeley City College will reduce per person emissions related to energy consumption from 0.06 MT CO₂e to 0.02 MT CO₂e by 2030.



253
MT CO₂e

This reduction would result in 253 MT of CO₂e savings per year, the equivalent of 27 homes per year.



122 MT CO₂e
Natural Gas

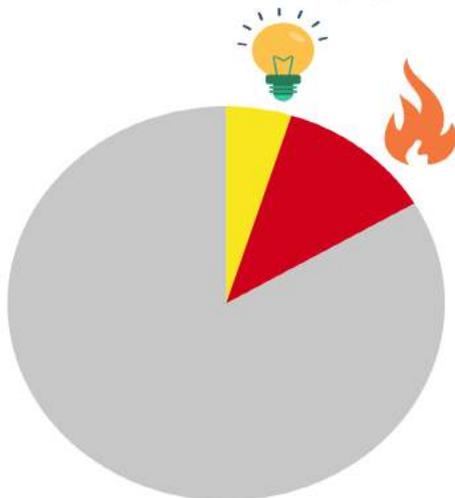


253 MT CO₂e
Electricity

In 2016, 8.6% of BCC's total GHG emissions are attributed to energy consumption.

Energy GHG Reduction Potential: Energy Measures

■ Electricity (4.83%)
 ■ Natural Gas (11.69%)
 ■ Water (0.08%)
■ Municipal Solid Waste (0.82%)
 ■ Commute Emissions (82.58%)
■ Conference Air Travel (0%)



6
Total Energy Measures



12
Total Energy Actions



253 MT CO₂e
Total Energy Measure
Reduction Potential



Energy Measures

0.06 MTCO₂e/person → 0.02 MTCO₂e/person

67% Per Capita Emissions Reduction by 2030

Measure	2030 GHG Reduction (MTCO ₂ e)	SRS Page
E-1 ★ Purchase 100% Renewable Energy	253	30
E-2 ★ Follow the Peralta Green Building Guidelines	Supportive	30
E-3 ★ Hire a Facilities manager	Supportive	30
E-4 Install Additional Solar and Peak Shaving Batteries	Supportive	31
E-5 Pursue LEED Certification for New, Renovated, and Existing Buildings	Supportive	31
E-6 Annual Reports on Technologies Efficiency Opportunities	Supportive	32

Emissions from electricity and natural gas use are the largest source of emissions on campus.

Transportation

Berkeley City College Transportation Reduction Targets

2,147
VMT

Berkeley City College will reduce vehicle miles traveled (VMT) 12% on a per person basis to 2,147 VMT per person per year.

64%

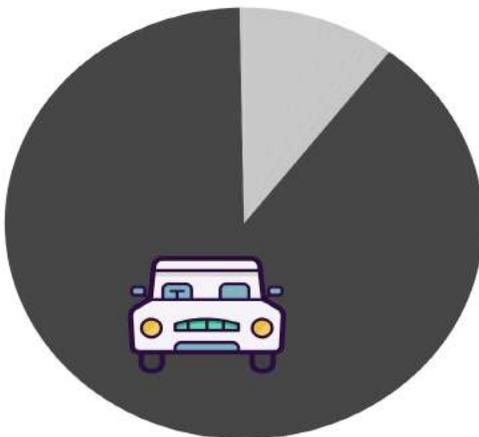
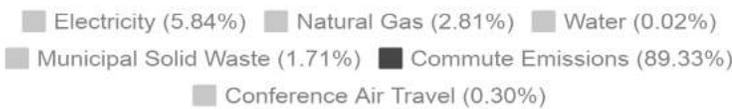
Percentage of students and faculty who take alternative forms of transportation to BCC, the highest of any campus.



3,873 MT CO₂e
Commute

89% of BCC's emissions are from commuting, the single largest source. BCC has the most access to public transportation and cycling options of all campuses.

Energy GHG Reduction Potential: Transportation Measures



12
Total Transportation Measures



15
Total Transportation Actions



1,727 MTCO₂e
Total Transportation Measure Reduction Potential



Transportation Measures

0.66 MTCO₂e/person → 0.37 MTCO₂e/person

12% Reduction in Vehicle Miles Traveled by 2030

Measure		2030 GHG Reduction (MTCO ₂ e)	SRS Page
TR-1	★ Hire a TDM Coordinator	5-186	36
TR-2	Parking Cash-Out Incentive Policy for Employees	0.3-2.6	36
TR-4	Carpool Matching and Guaranteed Ride Home for Employees	0.3-2.6	36
TR-5	Vanpooling Program	3-26	37
TR-6	Promotion of Carpool Matching Technology	23-698	37
TR-7	Alternative Scheduling and Hybrid Courses	5-93	38
TR-8	On-Campus Retail and Services	46-233	38
TR-9	Provide Non-Taxable Benefits to Pedestrians and Bicyclists (Faculty and Staff)	NA	39
TR-10	Improve Alternative Transportation Infrastructure	4-93	39
TR-11	Transit Fare Subsidy For Employees	0.3-2.6	39
TR-12	Secure Bike Parking	Supportive	40
TR-13	Electric Vehicle Fleet	Supportive	40

Water

Berkeley City College Water Reduction Targets

269
Gal/Person

BCC has the lowest water use per person of any campus. Through the SRMP water use will be reduced further from 317 to 269 gallons per person per year.



0.8 MT CO₂e
Water

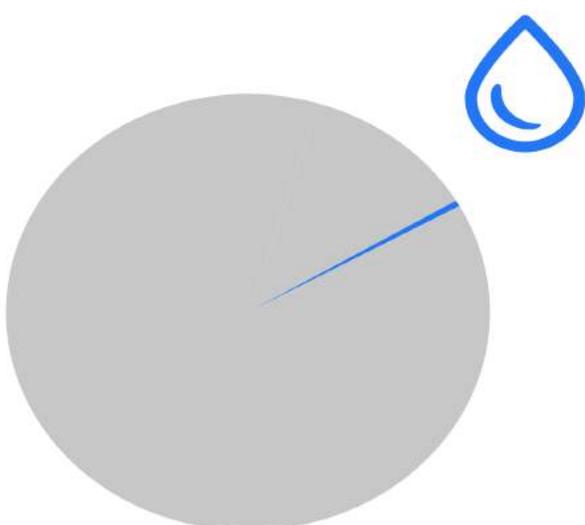
Less than 1% of BCC Emissions come from water use.

278
Thousand Gallons

Water reduction measures will reduce overall water consumption at the Campus by nearly 278 thousand gallons per year.

Energy GHG Reduction Potential: Water Measures

- Electricity (4.81%)
- Natural Gas (11.65%)
- Water (0.45%)
- Municipal Solid Waste (0.81%)
- Commute Emissions (82.28%)
- Conference Air Travel (0%)



3
Total Water Measures



5
Total Water Actions



0.1 MT CO₂e
Total Water Measure Reduction Potential



Water Measures

0.0001 MTCO₂e/person → 0.0001 MTCO₂e/person

317 gallons/person → 269 gallons/person

15% Per Capita Reduction in Potable Water Use and emissions by 2030

Measure	2030 GHG Reduction (MTCO ₂ e)	SRS Page
WR-1 ★ Conduct a Water Audit	<i>Supportive</i>	43
WR-2 Efficient Indoor Water Fixtures	<i>Varies</i>	43
WR-3 Water Conservation Education	<i>Supportive</i>	44

While water use only has a small impact on GHG emissions, water itself is a critical resource that has already felt the negative impacts of Climate Change.



Berkeley City College Waste Reduction Targets

21
lbs.

Berkeley City College will reduce waste sent to the landfill to 21 lbs. per person per year by 2030.



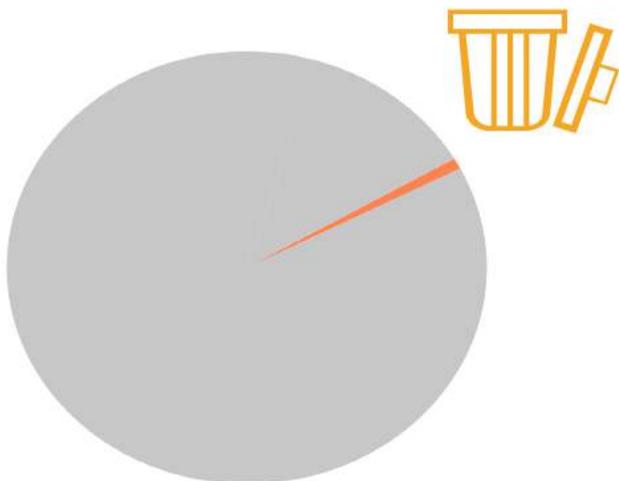
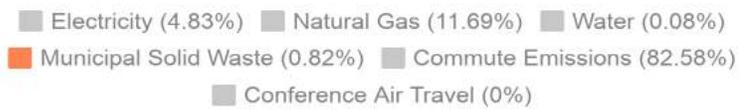
74 MT CO₂e
Waste

59
tons

Waste reduction measures will reduce overall waste generation by an expected 59 tons per year.

BCC has the lowest per person waste generation rate of any Peralta Community College Campus.

Energy GHG Reduction Potential: Waste Measures



11
Total Waste Measures



23
Total Waste Actions



37 MT CO₂e
Total Waste Measure
Reduction Potential



Waste Measures

0.0126 MTCO₂e/person → 0.0063 MTCO₂e/person

50% Reduction in Municipal Solid Waste by 2030

Measure	2030 GHG Reduction (MTCO ₂ e)	SRS Page
SW-1 ★ Conduct a Waste Audit	Supportive	47
SW-2 ★ Convert from Single Stream to Dedicated Recycling	Supportive	47
SW-3 Offer Campus Wide Composting	15	48
SW-4 Eliminate Single-Use Plastic Water Bottles from Cam-pus	Supportive	48
SW-5 Install Water Bottle Filling Stations	Supportive	48
SW-6 Expand E-Book, Textbook Buyback, and Textbook Rental Programs	Supportive	49
SW-7 Digitalize Existing Printed Material and Assignments	Supportive	49
SW-8 Double-Sided Printing	Supportive	50
SW-9 Construction, Demolition, and Renovation Waste Re-cycling	Supportive	51
SW-10 Office Furniture and Equipment Resale	Supportive	51
SW-11 Zero Waste Stations	Supportive	51

Reducing emissions from waste will inherently push Berkeley City College to reduce resource consumption, particularly of single-use and virgin materials.



Food Services

Berkeley City College Food Services Sustainability Targets

15%

Percent reduction in per person food related GHG emissions by 2030 from 2018 levels.



Food Services

During the 2016 inventory, sufficient food data was not available. This data will begin being tracked at Berkeley beginning with the 2018 data year. The campus has decided on a 15% reduction in per person emissions from 2018 levels by 2030.

74%

A pound of beef generates 74% more GHG emissions than a pound of chicken. Food choices can have a major effect on campus wide emissions.

Berkeley City College Food Services Sustainability Measures



5
Total Food Service Measures



7
Total Food Service Actions



TBD MTCO_{2e}
Total Food Services Measure Reduction Potential



Food Service Measures

Reduce Food Related Emissions by 15% by 2030

Measure		2030 GHG Reduction (MTCO ₂ e)	SRS Page
FS-1	Incorporate Food Tracking Into Food Service Provider Contracts	Supportive	56
FS-3	Source at least 20% of Food from Local Sources by 2030	Supportive	56
FS-4	Adhere to the Environmentally Responsible Purchasing Guide	Supportive	57
FS-5	Campus Farmer's Market	Supportive	57
FS-6	On-Site Food Waste Composting	Supportive	57

Life Cycle Emissions from food can contribute a substantial amount to GHG emissions.

Healthy Campus

Berkeley City College Healthy Campus Sustainability Targets

50%

Percent of respondents rating Berkeley City College facilities as "High Quality".



Healthy Campus

16%

Percentage increase in learning outcomes associated with better lighting, colors, and connections to nature.

Providing a healthy learning environment has been proven to increase learning outcomes and overall satisfaction of students and faculty.

Berkeley City College Healthy Campus Sustainability Measures



6
Total Healthy Campus
Measures



15
Total Healthy Campus
Actions



SUPPORTIVE
Healthy
Campus Measures do
not directly reduce
GHG Emissions



Healthy Campus Measures

50% of Campus User give a “High Quality” Rating by 2030

Measure		2030 GHG Reduction (MTCO _{2e})	SRS Page
HE-1	Adopt LEED O+M Operational Principals	<i>Supportive</i>	60
HE-2	Social and Study Space	<i>Supportive</i>	60
HE-3	Indoor and Outdoor Plants	<i>Supportive</i>	61
HE-4	Green Cleaning Protocol	<i>Supportive</i>	61
HE-5	Utilize High Quality Lighting	<i>Supportive</i>	62
HE-6	Conduct Regular Water Quality Testing	<i>Supportive</i>	62

A Healthy Campus environment promotes learning and improves student and staff retention.





Procurement

Berkeley City College Procurement Strategy



The Board Policy 2.40 on Environmental Sustainability mandates environmentally responsible purchasing. The District Wide Procurement Guide provides the framework to evaluate durable and consumable goods to maximize their value and minimize their negative impact.

- 
100% Percent of Purchases Conform to Procurement Policy by 2030
- 
1 Procurement Measure
- 
2 Procurement Actions

Berkeley City College Procurement Measures

Durable Goods Total cost of ownership methodology to purchase the best durable goods with the lowest cost over time.

Consumable Goods Selection criteria for 18 consumable goods categories from appliances to toilet paper.





Procurement

Adhere to the Sustainable Purchasing Guide 100% by 2030

Measure	2030 GHG Reduction (MTCO ₂ e)	SRS Page
PR-1 ★ Adopt District's Purchasing Guide	Supportive	65

The District has adopted a Purchasing Guide to help maximize value and minimize negative impact throughout the lifecycle of the product.

Leadership in Sustainability

Berkeley City College Leadership in Sustainability Targets

100%

Percent adoption of the SRMP by 2030.

4

Number of key measures found in the Leadership and Sustainability Sector.



Leadership in Sustainability

Being a leader in sustainability means taking the steps to go beyond planning and adoption of the SRMP. Leadership means implementing the measures in the document and providing guidance to other Community College Districts throughout California.

Berkeley City College Leadership in Sustainability Measures



Support the District in Divesting from Fossil Fuels.



Hire or appoint a sustainability coordinator at each campus with a designated task of implementing the SRMP.



Develop a Sustainability Fund through student fees. Utilize the fund to support student / district projects.



5

Total Leadership in Sustainability Measures



11

Total Leadership in Sustainability Actions



SUPPORTIVE

Leadership in Sustainability Measures do not directly reduce GHG Emissions



Leadership Measures

Finalize a Sustainability Degree by 2030

Measure			2030 GHG Reduction (MTCO _{2e})	SRS Page
LEAD-1	★	Participate in the Sustainability Steering Committee	Supportive	68
LEAD-2	★	Hire a Sustainability Coordinator	Supportive	68
LEAD-3	★	Establish a Student Sustainability Fund	Supportive	68
LEAD-4	★	Sustainability Certificate Program	Supportive	69
LEAD-5		Sustainability Curriculum Requirement	Supportive	69

Being a leader in sustainability is one of the most important sectors to establish a long lasting culture of sustainability at Berkeley City College.

Adaptation and Resilience

Berkeley City College Adaptation and Resilience Targets

2020

Year by which Peralta will include Climate Change criteria in project and policy reviews.

24
Days

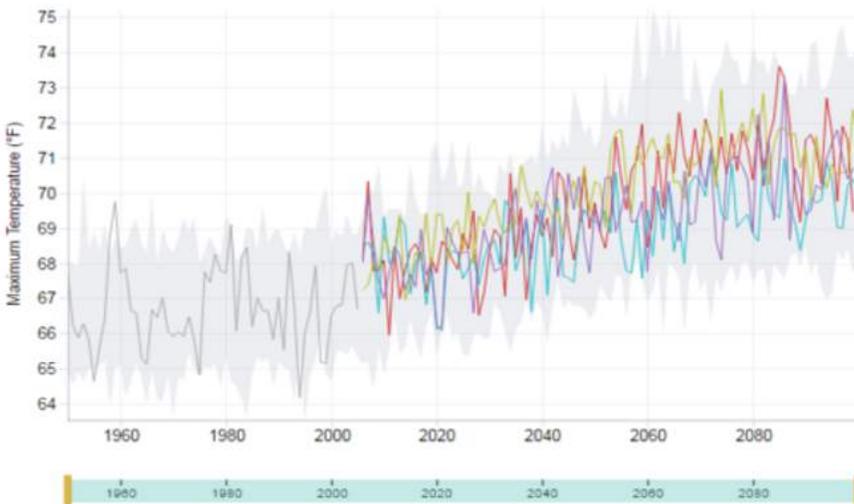
Number of extreme heat days (temperature above 104°F) per year by 2070. Increased temperatures is a key adaptation concern for Berkeley College.



Adaptation and Resilience

The most current climate models show California and the Bay Area will see more extreme heat days, higher average temperatures, more intense storms, and more fires due to climate change. It is the goal of the District to prepare for these changes now to reduce their impacts in the future.

Berkeley City College Adaptation and Resilience Measures



Temperatures are projected to continue rising the the Bay Area through 2090 and beyond. Preparation for this and other changes should begin today.



3
Total Adaptation and Resilience Measures



5
Total Adaptation and Resilience Actions



SUPPORTIVE
Adaptation and Resilience Measures do not directly reduce GHG Emissions



Resiliency Measures

Adhere to the Sustainable Purchasing Guide 100% by 2030

Measure		2030 GHG Reduction (MTCO ₂ e)	SRS Page
RES-1	Climate Resilience Criteria for Buildings	Supportive	76
RES-2	Incorporate Climate Change into the Emergency Operations Plan	Supportive	76
RES-3	Develop Onsite Renewable Energy and Storage	Supportive	76

Climate change poses unprecedented extremes of environmental hazards, including flooding, drought, extreme heat, wildfires, and storm events .