

STRATEGIC PLAN | 2017 - 2022

# SUSTAINABILITY



G R E E N F R O M T H E G R O U N D U P

# CONTENTS

- 3 | Executive Summary
- 4 | About the University of California, Merced
- 5 | Introduction
- 6 | Our Story A Decade in the Making
- 9 | UC Merced Sustainability at a Glance
  - Initiatives and Institutes . . . 9
  - Centers . . . . . 10
  - Reserves . . . . . 11
  - Operations . . . . . 12
- 15 | 2020 Project
- 16 | Strategic Planning, Process for the Future
- 18 | Sustainability Goals and Vision Alignment
  - Academic . . . . . 18
  - Research . . . . . 18
  - Engagement . . . . . 19
  - Operations . . . . . 20
- 23 | Implementation Strategy
  - AASHE STARS . . . . . 23
- 24 | Appendices
  - Appendix A . . . . . 24
  - Appendix B . . . . . 25
  - Appendix C . . . . . 26
  - Appendix D . . . . . 27

PLEASE DIRECT COMMENTS OR QUESTIONS TO:

BREEANA SYLVAS  
*Sr. Analyst, Department of Sustainability*  
 EMAIL: bsylvas@ucmerced.edu  
 TEL: 209-228-2412

Portions of this document were reviewed and commented upon by those listed below. The Sustainability Strategic Plan is a living document that reflects input and contributions from the entire UC Merced community.

MICHAEL MCLEOD  
*Associate Vice Chancellor, Physical Operations, Planning, and Development*

COLLEEN MCCORMICK  
*Director, Sustainability*

MARK MAXWELL  
*Assistant Director, Sustainability*

MICHAEL N. DAWSON  
*Associate Professor, School of Natural Sciences*

ZUHAIR MASED  
*Director, Energy & Engineering, Facilities Management*

KAREN MEADE  
*Director, Procurement Services*

TEAMRAT GHEZZEHEI  
*Associate Professor, School of Natural Sciences*

TOM HOTHEM  
*Associate Director, Merritt Writing Program*

SEAN MURRAY  
*Interim Director, Dining Services*

JACOB CROASDALE  
*Yosemite Leadership Program Coordinator, Office of Student Affairs*

JASON MARTIN  
*Organizational Development Consultant, Business and Financial Strategic Initiatives*

MARIO SIFUENTEZ  
*Assistant Professor, School of Social Sciences, Humanities and Arts*

MONICA LURTZ  
*Biosafety Officer, Environmental Health & Safety*

MATT HIROTA  
*Waste Reduction/Recycling Coordinator, Facilities Management*

KARIN GROTH  
*Director, Transportation and Parking Services*

CRUZ FRANCO  
*Project Coordinator, Business and Financial Strategic Initiatives*



## EXECUTIVE SUMMARY

Sustainability is woven into the fabric of this rapidly growing campus. UC Merced demonstrates its commitment to the environment and society from the ground up — from our sustainably designed and operated LEED-certified buildings to our sustainable campus fleet and purchasing practices.

Sustainability is at the heart of the campus community. Our achievements in bridging sustainability research, education and campus life are models of how to build a culture of sustainability that every Bobcat will carry forward in their lives outside the university.

UC Merced is a living laboratory nestled within two others — the San Joaquin Valley and the Sierra Nevada. The campus and its environs showcase the innovative successes of our world-class researchers. They are dedicated to articulating the social, economic and ecological realities of environmental degradation while simultaneously pursuing solutions to such pressing issues as climate change, water, air quality and solar power.

UC Merced’s commitment to sustainability fuels innovation on campus, from identifying water-saving practices in drought years, to reducing waste through sustainable dining practices and providing energy from our 1-megawatt solar array.

I am proud of what the campus has accomplished, but we are not done yet.

This Sustainability Strategic Plan describes UC Merced’s comprehensive approach to ensuring that campus-wide sustainability goals are achieved. Premier among those: UC Merced’s ambitious “triple zero” goals of using zero net energy; generating zero landfill waste; and creating zero net greenhouse gas emissions by 2020.

The opportunities that lie ahead are extensive and push the boundaries of sustainable development while meeting the University’s mission of teaching, research and public service. The campus will continue to encourage our faculty to forge ahead with exploratory research and our students to become environmental stewards.

UC Merced looks forward to its role in advancing sustainability in the San Joaquin Valley and beyond.

Exciting times await.

Sustainably,

DOROTHY LELAND  
 Chancellor



## INTRODUCTION

Since UC Merced's inception, sustainability has been a driving force that has paved the campus landscape. As the first new research university of the 21st Century, UC Merced has prioritized sustainable environmental, economic, and social development "from the ground up."

This commitment to sustainability is evident in all aspects of the university's infrastructure. From academics to research to operations, UC Merced has implemented a range of solutions to pressing environmental and societal challenges. These solutions, which include the integration of sustainability into academic course offerings like the Leadership in Energy and Environmental Design (LEED) Lab course, have provided students with the knowledge necessary to advance sustainable development. At the scholarly level, the Sierra Nevada Research Institute (SNRI) "discovers and disseminates new knowledge that contributes to sustaining natural resources."<sup>1</sup> Operationally, the campus has committed to onsite renewable energy generation and currently has a market-leading energy efficiency building program. These solutions and others underscore UC Merced's contributions to sustainable practice.

Thus far, UC Merced's advancements in sustainability have featured sound stewardship of natural resources and revolutionized new thinking. Further opportunities to integrate sustainable practices into existing efforts are being planned. As climate change has impacted sea levels<sup>2</sup> and concerns of habitat displacement and resource constraints have become collective concerns, UC Merced will continue to model, design, and showcase practical actions that mitigate environmental and societal impacts. The Sustainability Strategic Plan (SSP) highlights campus wide achievements and identifies processes, goals, and opportunities that will further guide the campus sustainability trajectory.

“ This commitment to sustainability is evident in all aspects of the university's infrastructure. From academics to research to operations, UC Merced has implemented a range of solutions to pressing environmental and societal challenges.

## ABOUT UC MERCED

Opening in 2005 as the newest campus of the University of California, UC Merced is building the future in the heart of California by carrying out the university's mission of teaching, research and public service.

- ▶ Located in the heart of the Central Valley, the university strives for excellence in carrying out its mission of teaching, research, and public service.
- ▶ UC Merced sits on a 104 acre parcel of land that encompasses 815 acres. With a population of 6,700 students and more than 1,800 staff and faculty, the University features the School of Engineering, the School of Natural Sciences, and the School of Social Sciences, Humanities and Arts.
- ▶ By 2020, the campus is expected to double its physical size to accommodate more than 10,000 students.





“Over the next five years UC Merced will embark on an historic campus expansion effort (2020 Project) that includes student, staff, faculty, and infrastructure growth.”

## OUR STORY

### A Decade in the Making

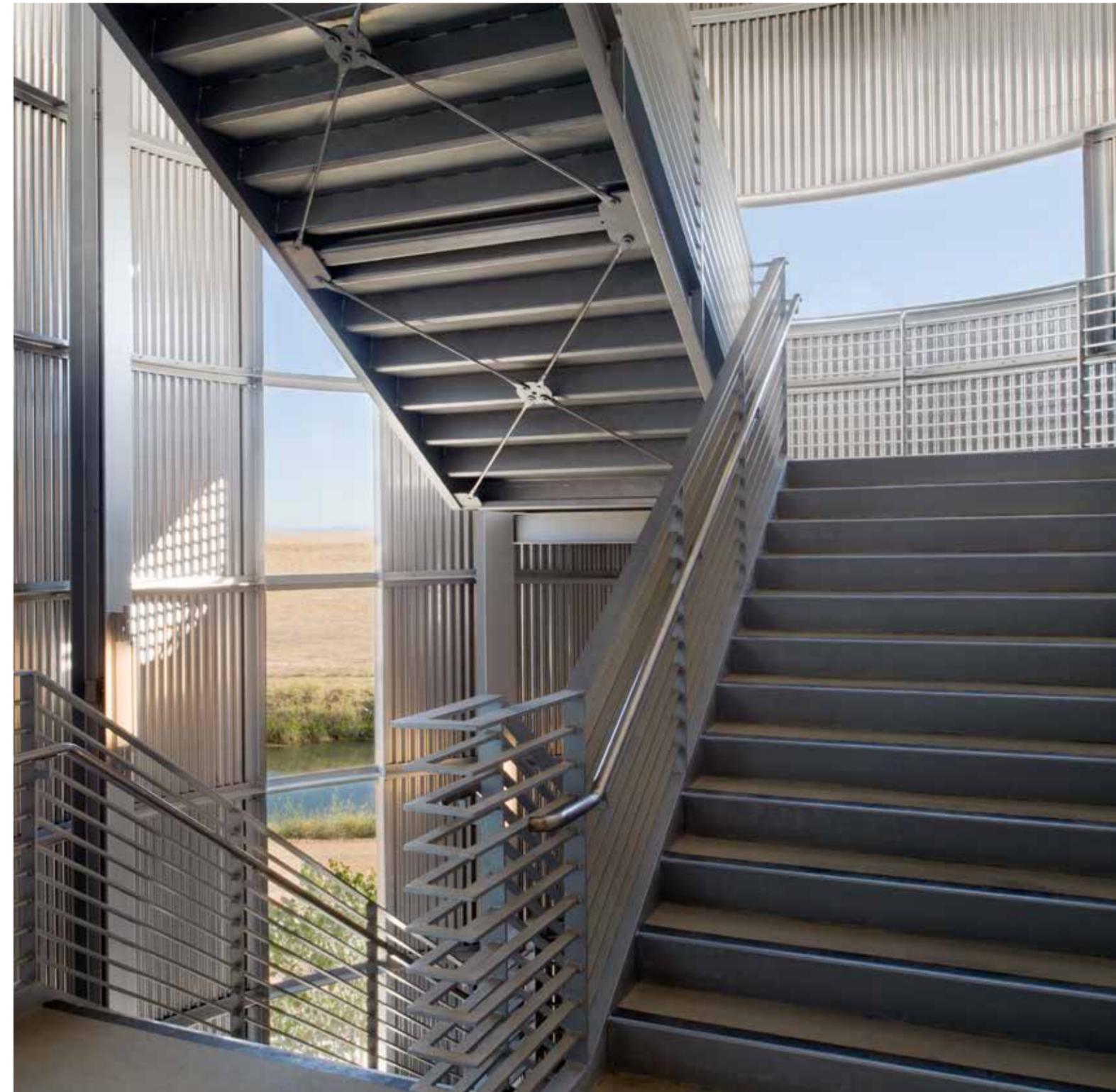
From the beginning, UC Merced was envisioned to model sustainability in the San Joaquin Valley. The incorporation of environmental stewardship into the university's identity included prioritizing sustainability within the teaching, research, design, construction, and operations of the campus, with the intended outcome to demonstrate sustainability from “the ground up.”

The integration of sustainability standards into institutional policies and planning documents have established a framework for sustainable practices. The land use and physical growth plan, referred to as the Long Range Development Plan (LRDP), and the institution's Strategic Academic Vision (SAV) for teaching and research, have both provided direction for UC Merced sustainability.

One guiding principle within the LRDP (2013) is “incorporating environmental, economic, and social sustainability throughout teaching, research, and public service programs, as well as in the development and ongoing operations of the campus.”<sup>3</sup> The SAV (2009) identifies environmental sustainability as one of the central pillars directing campus research and educational pursuits. The SAV environmental sustainability goal is to “build on integrated research and educational programs in ecological systems, energy, water, and other natural resources, climate change, and security threats associated with global change that will help build a sustainable environment.”<sup>4</sup> UC Merced also adheres to the University of California System Sustainable Practices Policy,<sup>5</sup> which establishes operational goals and guidelines for UC campuses.

Chancellor Dorothy Leland has championed sustainability on the UC Merced campus. The re-charter of the Chancellor's Advisory Committee on Sustainability (CACS) in 2014 led to the identification and completion of several sustainability projects among campus stakeholders and CACS members. Additionally, Chancellor Leland supported the integration of sustainability within the “2020 project,” a capital development undertaking that will double the physical size of the campus by 2020. The chancellor is also a member of the Climate Leadership Steering Committee, which is responsible for advising on the policy and direction of Second Nature's Climate Leadership Commitments.<sup>6</sup>

Over the next five years UC Merced will embark on an historic campus expansion effort (2020 Project) that includes student, staff, faculty, and infrastructure growth. Guiding the development is the campus Vision and Change Alignment Map<sup>7</sup> (Vision Map). Developed through extensive staff, faculty, and leadership engagement, this map outlines the vision and change pathways that will direct all campus projects and initiatives. Contained within the Vision Map is a “Sustainable by Design” pillar, of which the SSP embodies, along with the LRDP, SAV, and University of California Sustainable Practices Policy. The SSP also includes campus wide sustainability goals and project priorities, while outlining a strategy toward goal achievement.



“ The university’s commitment to sustainability in academics, research, and operations is demonstrated in a number of initiatives and programs at UC Merced.



## THE PRESENT

### UC Merced Sustainability at a Glance

#### ACADEMICS

UC Merced was founded as a living laboratory in a teachable landscape, a charge that continues to inform academic programs, service learning efforts, and co-curricular activities. Living laboratory projects include, but are not limited to, experimentation in irrigation efficiency, water footprint reduction, and the production of vegetables in the campus garden, all of which utilize the university’s built environment to engage students.

Furthermore, UC Merced currently offers 71 sustainability-focused/related courses, including Environmental Engineering, Sustainable Energy, Global Environmental Change, and Earth Resources and Society. The campus also offers one undergraduate and one graduate degree program focused on sustainability, in addition to an undergraduate sustainability minor. Lastly, five of UC Merced’s academic degree programs include sustainability-oriented learning outcomes.

#### RESEARCH

UC Merced’s world-renowned research is at the core of the university’s mission. The research initiatives, institutes, and centers at the university address an array of complex issues that include natural resource conservation, sustainable business, environmental communication, and technological solutions to environmental challenges.<sup>8</sup> The research initiatives, institutes, and centers noted below highlight the campus’s established efforts.

#### INITIATIVES AND INSTITUTES

.....  
**The University of California Water, Security, and Sustainability Research Initiative**, also known as UC Water, is a multi-campus initiative established in 2015 that integrates research and practice with long term water resource management. UC Water addresses issues related to climate change, population growth, and land-cover variations that have radically altered the water cycle, with dramatic impacts on human environmental uses of water.<sup>9</sup>  
 .....

.....  
**The Sierra Nevada Research Institute’s (SNRI)** mission at UC Merced is to discover and disseminate new knowledge that contributes to sustaining natural resources and promoting social well-being in the Sierra Nevada-Central Valley region, and related regions worldwide. SNRI faculty accomplish this mission by fostering interdisciplinary research that focuses on the Sierra Nevada eco-region, including the Central Valley and other adjacent areas, facilitating synergistic links between science, the arts, education and natural resource management, and focusing research on water, soils, forests, and air quality.<sup>10</sup>  
 .....

.....  
**The University of California Advanced Solar Technologies Institute**, also known as UC Solar, is a multi-campus research establishment dedicated to the generation of state-of-the-art solar energy technologies, the examination of solar energy economics and policy, and the development of technologies that make solar energy systems more efficient and affordable.<sup>11</sup>  
 .....

.....  
**The UC Merced Energy Research Institute** conducts cross-disciplinary research that develops new and improved renewable and sustainable energy generation technologies, sets the standard for institutional energy efficiency and sustainable energy futures, educates the energy industry and the next generation of energy scholars and practitioners, and examines domestic and global energy policy.<sup>12</sup>



## Centers

**The Center for Climate Communication:** Affiliated faculty conduct research on how to accurately report and disseminate scientific findings around climate change. One line of research evaluates climate messaging in popular journalism and how it influences the perception of risk. Another line of work analyzes and reports the degree of credibility of new scientific findings. The center also holds community events that aim to educate and open up dialogue with the general public.<sup>13</sup>

**The Blum Center:** Serves to alleviate poverty and social disparities in the San Joaquin Region. Its efforts focus on food security and represent a partnership between the faculty at UC Merced, the UC Global Food Initiative Basic Needs Working Group, and the University of California's Division of Agriculture and Natural Resources.<sup>14</sup>

**The Merced Nanomaterials Center for Energy and Sensing (MACES):** "Promotes innovative and collaborative research in functional nanomaterials for energy and sensing for NASA missions, while simultaneously addressing terrestrial needs for early disease diagnosis and for clean and renewable energy."<sup>15</sup>

**The Resource Center for Community Engaged Scholarship (ReCCES):** Helps UC Merced and the communities it serves to collaborate as peers in research to achieve scholarly and community benefits.<sup>16</sup>

**The Center for Information Technology Research in the Interest of Society (CITRIS):** Was created "to shorten the pipeline" between world-class laboratory research and the creation of start-ups, larger companies, and entire industries. CITRIS works to find solutions for many of the concerns facing society today. Those include monitoring the environment, finding viable, sustainable energy alternatives, and simplifying healthcare delivery."<sup>17</sup>

**The Small Business Development Center:** Provides entrepreneurs and small businesses with high-quality education, consulting, support for innovation, access to information, and tools necessary to build successful sustainable businesses.<sup>18</sup>

**The UC Merced Center for Humanities:** Fosters individual and collaborative research in the humanities and allied fields. Faculty, students, artists and visitors affiliated with the Center study human experiences and human consciousness around the world and throughout time, focusing on topics that range from the search for beauty to the quest for power.<sup>19</sup> From 2015-2017 the Center supported a two year interdisciplinary research theme on water that hosted art exhibits, poetry, workshops, and an environmental film festival.

## RESERVES

**The Sierra Nevada Research Station,** located in the historic village of Wawona inside Yosemite National Park, was established in 2006. Its offices, field lab, and classroom/meeting-room have been hubs for numerous educational programs, including environmental stewardship, leadership, and NSF-funded Research Experiences for Undergraduates. The station supports research and workshops in a variety of disciplines including climate change, snow hydrology, conservation biology, and environmental history and anthropology.<sup>20</sup>

**The Merced Vernal Pools and Grasslands Reserve** protects a 6,500-acre intact landscape. It is comprised of ephemeral wetlands, Mima mounds, and some of the oldest, continuously exposed soils in North America. The reserve is home to numerous rare and endemic plant and animal species, including the fairy shrimp, tiger salamander, hawks, and owls. The reserve attracts numerous research and educational programs from UC Merced as well as surrounding K-12 schools and colleges.<sup>21</sup>





UC Merced Recycling installed a state-of-the-art waste sorting line that has increased the institution's landfill waste diversion rate to 53 percent.

## FACILITIES MANAGEMENT AND OPERATIONS

Resource management has been essential in realizing sustainable practices for day-to-day operational functions at UC Merced, ensuring campus sustainability goals and objectives are achieved.

UC Merced houses a **one megawatt solar array system** that occupies an acre of campus property. The clean renewable energy produced from the solar array accounts for 12 percent of UC Merced's electricity load. The campus also utilizes **building automation and occupancy sensors** that reduce energy consumption through movement and time-specific automated shutdowns. These operational measures have increased the efficiency of the campus and contributed to reductions in energy consumption.

Furthermore, the campus utilizes **evapotranspiration irrigation controllers** to reduce irrigation times for grounds landscape watering. In addition, wide-spray sprinkler heads have been replaced with more directed streams to conserve water.<sup>22</sup> Facilities Management also developed software that allows smartphone users to report water leakages through a quick response (QR) code, which after scanned generates a work order request.<sup>23</sup> Transportation and Parking Services has also taken steps to decrease water usage by reducing the frequency of fleet car washes. These operational measures have contributed to the campus's **52 percent reduction in water usage** per weighted campus user.

**UC Merced Recycling** installed a state-of-the-art waste sorting line that has increased the institution's landfill waste diversion rate to 53 percent.<sup>24</sup> The campus currently has a **Waste Diversion Plan**, a **Climate Action Plan**, and a **Water Action Plan** that guides sustainable development. These actions have contributed to effective operational resource management on the UC Merced campus.



Building the future in the heart of California.

A dynamic, mixed-use expansion integrated with the existing campus. The next great step for the university, the UC Merced 2020 Project is adding new classrooms, labs, housing and amenities to enhance student life, enable academic distinction, and expand access.



## 2020 PROJECT

The UC Merced 2020 Project is a 1.2 million gross-square-foot construction project that will provide sufficient physical capacity for the university to accommodate 10,000 students by 2020. The project integrates sustainable, LEED certified, mixed-use development facilities that address academic and student life needs, while incorporating measures that complement the existing campus landscape.<sup>25</sup> Buildings delivered as part of the 2020 project will demonstrate a minimum energy performance level of 20 percent better than a baseline building under California's Energy Code Title 24 (2013).<sup>26</sup>

In addition, the project design integrates passive solar and district-level strategies that harness appropriate levels of daylight, while controlling heat gain and reducing glare. The 2020 Project buildings will prioritize daylight access, reducing lighting energy use and internal cooling loads. LED lighting will also be installed throughout the facilities to minimize the buildings' energy demand. Low-flow plumbing fixtures will also be integrated into buildings to achieve a 40 percent domestic water savings over a California baseline building.<sup>26</sup> The landscape will be comprised of native adaptive planting and drought-tolerant species, in combination with subsurface drip irrigation and evapotranspiration controllers. This will result in a 50 percent reduction in irrigation demand. All buildings will also achieve a minimum of LEED Gold certification under the project.<sup>26</sup>

### FALL 2018

- ▶ **"First Delivery"** includes 700 new student beds, a 600-seat multipurpose dining facility, new classrooms and 940 new parking spaces. [Click here for the latest construction updates](#)
- ▶ **Housing 1A/3B:** A student residence hall that includes student life space and classrooms designed by Page Southerland Page.
- ▶ **Housing 1B:** A student residence hall that includes residential community space and classrooms designed by Mahlum Architects.
- ▶ **Dining 1D:** A multipurpose 600-seat dining facility, and two additional private dining rooms (75 seats and 20 seats) designed by SOM.
- ▶ **Loading Dock 1H:** An "underground" shared services loading facility for four buildings designed by SOM.

### FALL 2019

- ▶ **"Second Delivery"** is 150,800 assignable square feet in size and includes a new wet-laboratory, computational laboratory buildings with faculty offices, and an outdoor competition field. [Click here for the latest construction updates](#)
- ▶ **Lab 2A:** A wet laboratory building designed by SOM that also includes a maker space, chemical stockroom and academic machine shop.
- ▶ **Lab 2B:** A dry computational laboratory and faculty office building designed by WRNS Studio, with a 299-seat lecture hall and arts-related performance lab for teaching and research.
- ▶ **Research Server 2D:** A research modular server located adjacent to the Central Plant and designed by Cupertino Electric that will enable electronic storage of research.
- ▶ **Facility 2E:** Competition Outdoor Soccer Field



“ Sustainability is a holistic ethic in social, environmental, and economic action.”



## STRATEGIC PLANNING

### Process for the Future

A systemic and integrated framework was developed that defines the roles of campus stakeholders while providing a high-level overview of campus sustainability goals. The framework identifies action items, metrics, and the implementation strategies that advance sustainability goal achievement. The development of this framework was essential to create a streamlined process that aligns with campus planning documents and policy to include the Long Range Development Plan, Strategic Academic Vision, and UC Sustainable Practices Policy.

### CHANCELLOR’S ADVISORY COMMITTEE ON SUSTAINABILITY

**COMMITTEE CHARGE:** Sustainability refers to meeting the needs of the current generation without compromising the ability of future generations to meet their needs. The Chancellor’s Advisory Committee on Sustainability is charged with advising the chancellor on matters pertaining to sustainability goals, policies, and practices at UC Merced. The committee also advocates for programs and initiatives that continuously improve campus sustainability performance.

**VISION:** The Chancellor’s Advisory Committee on Sustainability promotes a holistic, environmentally-friendly practice and provides a forum to review, advise, and highlight sustainability research, practice and policy, coordinate sustainability opportunities, and enable students to lead a culture of sustainability at UC Merced.

**MISSION:** The Chancellor’s Advisory Committee on Sustainability keeps the campus informed on issues of sustainability and promotes collaborative partnerships with stakeholders and students. The group identifies important, specific sustainability related activities to achieve, and reports campus accomplishments.

### DEPARTMENT OF SUSTAINABILITY

The role of the Department of Sustainability is to facilitate, organize, and coordinate campus sustainability efforts through bridging gaps and identifying stakeholder and project connections. The department also prioritizes efforts to assist the campus in achieving its sustainability goals.

Department of Sustainability Goal is defined as the following:

“Create and institutionalize an ever evolving collection of sustained, supported, and meaningful projects/ actions that develop resiliency and create practical lasting solutions.”

This goal was designed to specifically align to five of the UC Merced Campus Vision<sup>27</sup> goals including:

.....

➤ **Sustainable By Design**

Through the incubation and support of new and emerging sustainability initiatives.

.....

➤ **Enriching the Valley**

By encouraging and supporting collaborative projects and initiative efforts that will impact the Central Valley.

.....

➤ **Partnering with an Emerging California**

Supporting collaborative efforts to partner with broad groups of stakeholders throughout California to support UC Merced’s sustainability efforts.

.....

➤ **Leading Creativity and Innovation**

Demonstrating ingenuity and originality through initiatives that advance campus wide sustainability.

.....

➤ **Culture of Inquiry, Discovery and Learning**

By acquiring new knowledge that advance campus sustainability efforts.

# CAMPUS-WIDE SUSTAINABILITY GOALS

66 The sustainability goals outlined have broken down into four categories: Academic, Research, Engagement and Operations

ACADEMIC	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	To impart the skills and knowledge that advance social, economic, and environmental sustainability, graduating the world's sustainability leaders.				
<b>ACTION 1</b>	<b>Sustainability Curriculum:</b> Support faculty integration of sustainability learning outcomes and modules into existing course offerings. Promote sustainability focused/related courses to students through the development of a sustainability course inventory on the sustainability website.				
<b>ACTION 2</b>	<b>Degree Programs:</b> Promote undergraduate and graduate degree programs that incorporate sustainability learning outcomes through the development of an inventory made accessible to students on the sustainability website.				
<b>ACTION 3</b>	<b>Service-Learning Programs:</b> Support the expansion of sustainability service-learning programs in collaboration with general education, academic departments, and campus stakeholders.				
<b>ACTION 4</b>	<b>Living Laboratory:</b> The development of a clearing house that identifies living laboratory course opportunities and provides resource support for instructional purposes.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the total number of sustainability focused and related course offerings, and the total number of students who completed the courses.				

RESEARCH	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	To promote sustainability research and identify multi-disciplinary living laboratory research opportunities for students.				
<b>ACTION 1</b>	<b>Promote Sustainability Research:</b> Development of an inventory for faculty and student sustainability research that will be highlighted on the sustainability website.				
<b>ACTION 2</b>	<b>Living Laboratory:</b> The development of a clearing house that identifies living laboratory opportunities for research projects.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the living laboratory research opportunities.				

ENGAGEMENT	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	Engagement Sustainability: To raise visibility, understanding, and knowledge of sustainability within and beyond the UC Merced community.				
<b>ACTION 1</b>	<b>Student Outreach and Engagement:</b> Expand educational outreach opportunities for students through co-curricular sustainability programming and student led educational events that increase awareness of sustainability. Provide incoming students with the knowledge of sustainability concepts and practices.				
<b>ACTION 2</b>	<b>Co-curricular Program:</b> Peer to peer educational outreach and training on sustainability practices through the EcoRep Program, Energize Colleges Internship, Global Food Initiative and Carbon Neutrality Fellowship, Campus Community Garden, and student organizations to include the ASUCM Sustainability Council.				
<b>ACTION 3</b>	<b>Staff and Faculty Engagement:</b> Expand sustainability content for New Employee Orientation by providing knowledge of sustainability concepts and practices. Develop a certificate program for staff and faculty that provide sustainability educational enrichment.				
<b>ACTION 4</b>	<b>Community Engagement:</b> Work with cooperative extension to develop sustainability course offering for community members. Support sustainability related groups that include Merced Environmental Collective, Merced Bicycle Coalition, Healthy Merced Network, and California Resource Recovery Association (CRRA).				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the number of sustainability engagement initiatives, programs, and events.				
<b>GOAL</b>	Diversity and Social Justice: Promote and support diversity programs and initiatives that build sustainable communities and socially enrich the lives of campus community members through equity, access, affordability, and security.				
<b>ACTION 1</b>	<b>Collaboration:</b> Partnership with the Office of Campus Climate to promote initiatives that encourage diverse and sustainable communities.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the number of diversity and social justice initiatives, programs, and events.				
<b>GOAL</b>	Health and Wellness : Encourage sustainability and healthy living by supporting health and wellness programs.				
<b>ACTION 1</b>	<b>Participation:</b> Healthy Campus Network under the Global Food Initiative provides intercampus network and collaboration with students, staff, and faculty. Support campus's staff wellness committee and encourage healthy living through sustainable practices.				
<b>ACTION 2</b>	<b>Nutrition:</b> Develop informational documents that highlight nutritional benefits of locally sourced produce and organic products. Collaborate with Health Education Representatives for Opportunities to Empower Students (HEROES) to promote healthy living and lifestyle.				
<b>ACTION 3</b>	<b>Campaign:</b> Promote and develop healthy living campaigns that include take the stairs, ride your bicycle, and walking campaigns.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the number of campus programs, events, and initiatives				

ENGAGEMENT	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	<b>Staff Human Resources: Provide educational and professional development opportunities for staff.</b>				
<b>ACTION 1</b>	<b>Certification Program:</b> Develop a certificate training program that provides staff employees with knowledge of stewardship and sustainability.				
<b>ACTION 2</b>	<b>Employee Orientation:</b> Engage new employees on sustainability through participation in New Employee Orientation.				
<b>ACTION 3</b>	<b>Annual Performance Evaluation:</b> Sustainability is measured in staff performance evaluations.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the number of employees who have received information on sustainability				

OPERATIONS	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	<b>Transportation: Increase alternative modes of transportation usage among campus constituency and reduce the carbon footprint of transportation, parking, and fleet services.</b>				
<b>ACTION 1</b>	<b>Promote Sustainable Commuting:</b> Encourage alternative modes of transportation for students, faculty, and staff by promoting ridesharing, car sharing, vanpool, and carpool incentives.				
<b>ACTION 2</b>	<b>Environmentally Friendly Fleet:</b> Sourcing fuel efficient and low emission fleets that reduce environmental impact.				
<b>ACTION 3</b>	<b>Greenhouse Gas (GHG) Reduction:</b> Develop GHG emission reduction goals for campus fleet.				
<b>ACTION 4</b>	<b>Transportation Demand Management (TDM):</b> Expand TDM programs and projects while developing marketing and educational campaigns focused on alternative transportation.				

**KEY PERFORMANCE INDICATOR:** Monitor Transportation Demand Management growth.

<b>GOAL</b>	<b>Green Building Design: Use LEED certification to drive comprehensive, continuous green building in sustainability site development, improvements, building, construction, operation, and maintenance.</b>				
<b>ACTION 1</b>	<b>Leadership Energy Environmental Design New Construction (LEED NC) Gold:</b> Certify new construction buildings under a minimum LEED design rating while monitoring the certification process.				
<b>ACTION 2</b>	<b>Leadership Energy Environmental Design Operations and Maintenance (LEED OM):</b> Certify existing buildings under LEED Operation and Maintenance criteria.				

**KEY PERFORMANCE INDICATOR:** Track the number of campus buildings certified under LEED new construction and existing building operations.

OPERATIONS	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	<b>Climate Protection: Achieve carbon neutrality by 2020.</b>				
<b>ACTION 1</b>	<b>Energy Efficiency:</b> Implement energy efficiency projects throughout the campus to reduce carbon emissions.				
<b>ACTION 2</b>	<b>Renewables:</b> Utilize renewable power options to mitigate and reduce greenhouse gas impact.				
<b>ACTION 3</b>	<b>Climate Action Plan:</b> Update Climate Action Plan to identify approaches and strategies to achieve carbon neutrality by 2020.				
<b>ACTION 4</b>	<b>Transportation Demand Management (TDM):</b> Expand TDM programs and projects while developing marketing and educational campaigns focused on alternative transportation.				

**KEY PERFORMANCE INDICATOR:** Monitor the carbon emissions of the campus.

<b>GOAL</b>	<b>Recycling and Waste Management: Achieve zero waste by 2020.</b>				
<b>ACTION 1</b>	<b>Business Plan:</b> Develop a Zero Waste Business Plan that identifies cost estimates and strategies necessary for the campus to achieve zero waste by 2020.				
<b>ACTION 2</b>	<b>Waste Diversion Plan:</b> Update Waste Diversion Plan to identify approaches and strategies to achieve 90 percent waste diversion rate by 2020.				
<b>ACTION 3</b>	<b>Outreach and Education:</b> Develop marketing materials and implement educational outreach campaigns that inform campus constituency on actions for increasing waste diversion. Promote Green Seal certification.				
<b>ACTION 4</b>	<b>Zero Waste Event Training:</b> Provide Zero Waste Event training bi-annually.				

**KEY PERFORMANCE INDICATOR:** Monitor the campus diversion rate.

<b>GOAL</b>	<b>Dining: Increase educational opportunities on sustainable food, and achieve 20 percent sustainable food purchases by 2020.</b>				
<b>ACTION 1</b>	<b>Local Produce:</b> Source and utilize produce grown in the Central Valley and Elizabeth's Garden in the dining operations.				
<b>ACTION 2</b>	<b>Food Programs:</b> Support food related educational opportunities and programming.				

**KEY PERFORMANCE INDICATOR:** Monitor the campus sustainable food purchases.

OPERATIONS	ANNUAL PROGRESS INDICATOR	2017	2018	2019	2020
<b>GOAL</b>	<b>Procurement: Drive the market for best practices in sustainable procurement by maximizing the procurement of environmentally preferable products and services.</b>				
<b>ACTION 1</b>	<b>Purchasing Power:</b> Target and strategically source environmentally preferable products to include Energy Star and EPEAT registered equipment, Green Seal and/or Environment (Eco Logo) certified cleaning and janitorial products, as well as 30 percent post-consumer waste recycled content paper.				
<b>ACTION 2</b>	<b>Sustainability Requirements:</b> The University will integrate sustainability requirements into its practices for competitive bidding in material and services procurement, allowing for suppliers that meet these requirements to earn additional evaluation points.				
<b>ACTION 3</b>	<b>Environmental Packaging:</b> Packaging for all products sourced by the university should be designed, produced, and managed in an environmentally sustainable manner. This includes encouraging minimization of excessive packaging.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the total number of EPEAT registered equipment, Green Seal, and certified cleaning janitorial products.				
<b>GOAL</b>	<b>Water Goal: Increase non-potable water usage while achieving a 36 percent water consumption reduction by 2025, when compared to a three-year average.</b>				
<b>ACTION 1</b>	<b>Water Action Plan:</b> Update Water Action Plan and identify strategies and opportunities to reduce campus water consumption to include identifying water efficiency projects.				
<b>ACTION 2</b>	<b>Water Campaigns:</b> Implement campaigns in residence halls to encourage water conservation.				
<b>ACTION 3</b>	<b>Reducing Water Loss:</b> Being vigilant about repairs that can mitigate leaks, reducing and eliminating runoff.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the per capita water consumption when compared to campus three-year average baseline.				
<b>GOAL</b>	<b>Water Goal: Increase non-potable water usage while achieving a 36 percent water consumption reduction by 2025, when compared to a three-year average.</b>				
<b>ACTION 1</b>	<b>Energy Consumption:</b> Reduce campus energy consumption through efficiency measures and best practices.				
<b>ACTION 2</b>	<b>Renewable Energy:</b> Source and generate renewable power for campus electricity and natural gas load.				
<b>KEY PERFORMANCE INDICATOR:</b>	Monitor the renewable energy portfolio of the campus.				



## STRATEGIC PLAN

### Implementation Strategy

#### THE BROAD PHASES OF THE STRATEGIC PLAN ARE AS FOLLOWS:

**BUILDING BUY-IN:** Create a culture of sustainability by empowering the campus to take ownership of sustainable values and principles. This will be achieved through engagement, relationship building, advocacy, and operational support for projects and initiatives. The Department of Sustainability will provide backbone support, facilitation, and strategic planning for campus stakeholders. This phase will create a campus community that is educated, informed, and motivated to provide ideas and recommendations, inspiring collaboration around sustainability efforts.

**DEVELOP MEANINGFUL ACTION:** With the support of the Department of Sustainability, an ever-evolving collection of sustained, supported, and meaningful projects/actions that develop resiliency and create practical lasting solutions will be created and maintained. The Department of Sustainability will provide planning and implementation support for these projects, and will align and prioritize them according to the campus vision and change alignment map.

**IMPLEMENT ACTION:** Prioritize sustainability projects and initiatives that will be implemented by campus stakeholders and supported by the Department of Sustainability.

**ASSESSMENT AND SUSTAINING MOMENTUM:** Campus stakeholders and the Department of Sustainability will provide ongoing evaluation and assessment of projects. The Department of Sustainability will also provide guidance and support in determining ongoing staffing, financial, and resource needs.

**CONTINUOUS IMPROVEMENT:** The Department of Sustainability will work with campus stakeholders to refine and enhance initiatives and projects.

**ASSESSMENT THROUGH AASHE STARS:** The Association for the Advancement of Sustainability in Higher Education (AASHE) developed a sustainability tracking, assessment, and rating instrument known as STARS. This instrument has become the leading benchmark for higher education institutions to assess their sustainability initiatives. The instrument “provides a self-reporting framework for colleges and universities to measure their sustainability performance” in four categories: Academics, Engagement, Operations, Planning & Administration.<sup>28</sup> UC Merced is using STARS as a critical benchmarking tool to assess sustainability efforts. The campus sustainability initiatives in 2016 earned the university a 66.07 score to achieve a Gold STARS rating. The minimum threshold to achieve Platinum, the leading rating measure for STARS, is 85 points.

**ONWARD:** UC Merced is dedicated to continuing its ambitious sustainability undertakings and achieving the goals outlined within this strategic plan. The campus efforts to demonstrate sustainability within the San Joaquin Valley will showcase a campus that is “Sustainable by Design,” and highlight practices and features that can be used in the Central Valley. The key performance indicators identified within the plan will inform an annual progress report that outlines accomplishments. By means of collaboration and support, the university’s sustainability commitments will continue to be realized.

## APPENDIX A | FOOTNOTES

### INTRODUCTION PAGE 4

- <sup>1</sup> The Sierra Nevada Research Institute conducts research in the San Joaquin Valley and the Sierra Nevada that examines natural resources, air, water, soil pollution, and climate change that answer questions that lead to improved environmental sustainability. "Mission." Mission | Sierra Nevada Research Institute. N.p., n.d. Web. 23 Oct. 2016. <<http://snri.ucmerced.edu/home/mission>>.
- <sup>2</sup> Society, National Geographic. "Sea Level Rise -- National Geographic." National Geographic. N.p., n.d. Web. 23 Oct. 2016 <<http://ocean.nationalgeographic.com/ocean/critical-issues-sea-level-rise/>>

### OUR STORY PAGE 6

- <sup>3</sup> UC Merced's Long Range Development Plan is a comprehensive and sustainable land-use plan that guide's future physical growth of the UC Merced Campus. "Long Range Development Plan." Physical and Environmental Planning | Division of Planning and Budget. University of California, Merced, n.d. Web. 15 Nov. 2016.
- <sup>4</sup> The Strategic Academic Vision serves as a beacon that guides the university maturation and facilitates continued growth and distinction. "Beginnings: A Legacy Renewed for the 21st Century Strategic Academic Vision." (2009): 26. University of California, Merced. Web. 21 Nov. 2016.
- <sup>5</sup> The Sustainable Practices Policy establishes sustainability goals in nine operational areas for sustainable practices. "Sustainable Practices." University of California Office of the President, n.d. Web. 11 Nov. 2016. <<http://policy.ucop.edu/doc/3100155/Sustainable%20Practices>>.
- <sup>6</sup> "The Presidents' Climate Leadership Commitments." Second Nature. N.p., n.d. Web. 03 May 2017. <<http://secondnature.org/climate-guidance/the-commitments/>>.
- <sup>7</sup> The UC Merced Vision and Change Alignment Map serves as a strategic tool designed to inform, inspire, and guide campus initiatives.

### THE PRESENT PAGES 9 – 15

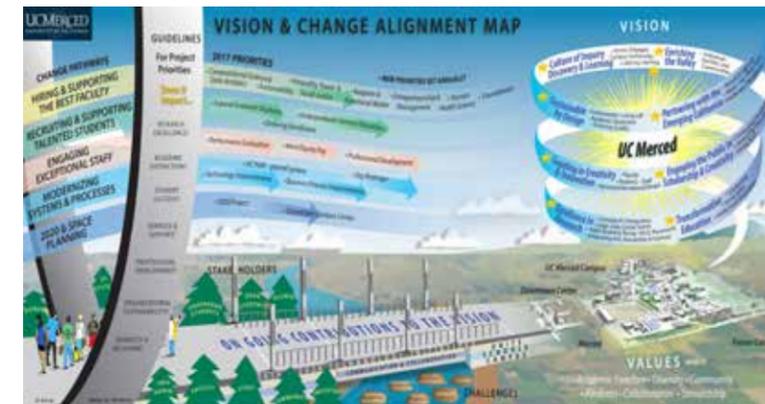
- <sup>8</sup> "Research." University of California, Merced. N.p., n.d. Web. 11 Nov. 2016. <<http://www.ucmerced.edu/research>>.
- <sup>9</sup> "University of California Water." UC Water Security and Sustainability Research Initiative. N.p., n.d. Web. 11 Nov. 2016. <<http://ucwater.org/>>.
- <sup>10</sup> "Sierra Nevada Research Institute." Sierra Nevada Research Institute | Sierra Nevada Research Institute. University of California, Merced, n.d. Web. 11 Nov. 2016. <<http://snri.ucmerced.edu/>>.
- <sup>11</sup> "University of California Solar." University of California, Merced, n.d. Web. 11 Nov. 2016. <http://www.ucmerced.edu/uc-solar>
- <sup>12</sup> "UC Merced Energy Research Institute." University of California, Merced. N.p., n.d. Web. 11 Nov. 2016. <<https://ucmeri.ucmerced.edu/>>.
- <sup>13</sup> "Center for Climate Communication." University of California, Merced, n.d. Web. 11 Nov. 2016. <<http://ccc.ucmerced.edu/>>.
- <sup>14</sup> "Blum Center at UC Merced." University of California, Merced, n.d. Web. 11 Nov. 2016. <<http://blumcenter.ucmerced.edu/initiatives>>.
- <sup>15</sup> "Merced Nanomaterials Center for Energy and Sensing." University of California, Merced, n.d. Web. 11 Nov. 2016. <<http://maces.ucmerced.edu/about/>>.
- <sup>16</sup> "Resource Center for Community Engaged Scholarship." University of California, Merced, n.d. Web. 18 Nov. 2016. <<http://recces.ucmerced.edu/>>.
- <sup>17</sup> "CITRIS UC Merced." CITRIS UC Merced. N.p., n.d. Web. 18 Nov. 2016. <<http://citriss.ucmerced.edu/>>.
- <sup>18</sup> "Small Business Development Center." University of California, Merced, n.d. Web. 18 Nov. 2016. <<http://sbdc.ucmerced.edu/>>.
- <sup>19</sup> "Center for the Humanities." University of California Merced, 31 Oct. 2017. <<https://centerforhumanities.ucmerced.edu/>>.
- <sup>20</sup> "Yosemite Field Station." Natural Reserve System. N.p., n.d. Web. 18 Nov. 2016. <<http://www.ucnrs.org/reserves/yosemite-field-station.html>>.
- <sup>21</sup> "Merced Vernal Pools and Grasslands Reserve." University of California, Merced, n.d. Web. 18 Nov. 2016. <<http://www.ucmerced.edu/vernal-pools-and-grasslands-reserve>>.
- <sup>22</sup> Campus on Track to Meet State's Water Conservation Demands | UC Merced. University of California, Merced, 22 Oct. 2015. Web. 14 Mar. 2017. <<http://www.ucmerced.edu/news/2015/campus-track-meet-state%E2%80%99s-water-conservation-demands>>.
- <sup>23</sup> "New System Can Help Save Water with a Couple of Clicks." New System Can Help Save Water with a Couple of Clicks | UC Merced. University of California, Merced, 03 Apr. 2015. Web. 14 Mar. 2017. <<http://www.ucmerced.edu/news/2015/new-system-can-help-save-water-couple-clicks>>.
- <sup>24</sup> "Live Waste Tracking." Live Waste Tracking | UC Merced Recycling. University of California, Merced, n.d. Web. 14 Mar. 2017. <<http://recycle.ucmerced.edu/node/131>>.

### 2020 PROJECT PAGE 15

- <sup>25</sup> About the 2020 Project | Merced 2020 Project. University of California, Merced, n.d. Web. 14 Mar. 2017. <<http://merced2020.ucmerced.edu/about>>.
- <sup>26</sup> "Sustainability." Sustainability | Merced 2020 Project. University of California, Merced, n.d. Web. 14 Mar. 2017. <<http://merced2020.ucmerced.edu/design/sustainability>>.

### STRATEGIC PLANNING PAGES 16-17

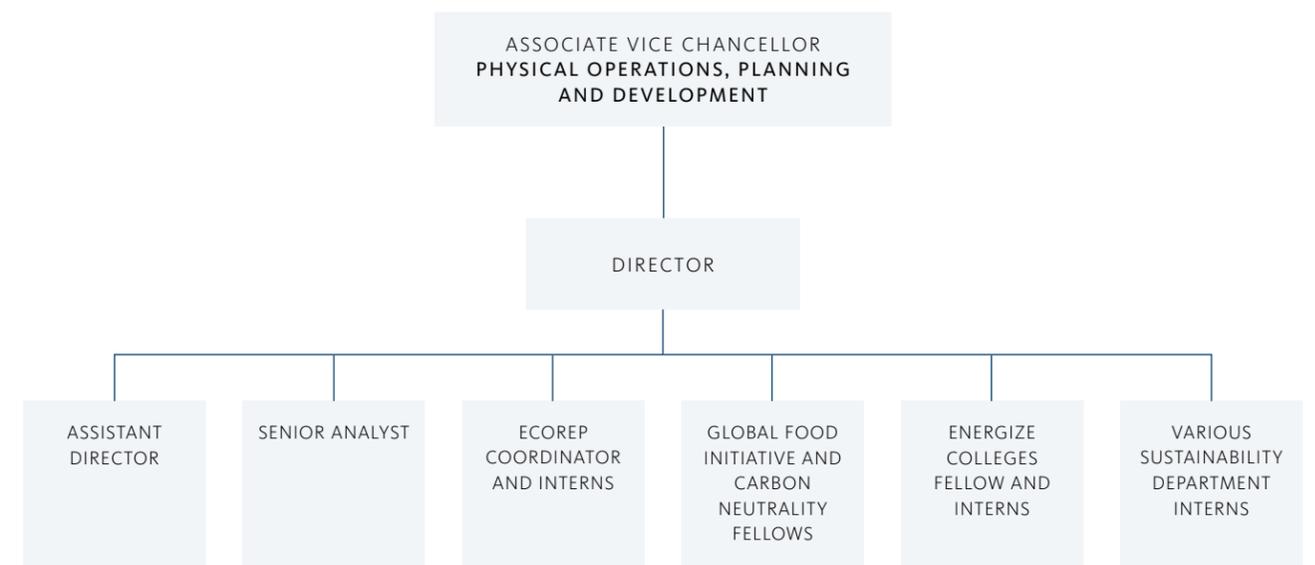
- <sup>27</sup> Visioning & Change Alignment Map. Digital image. University of California, Merced, n.d. Web. 3 Mar. 2017. <<http://bfsi.ucmerced.edu/uc-merced-2020-visioning-and-change-alignment-process/visioning-change-alignment-map>>.



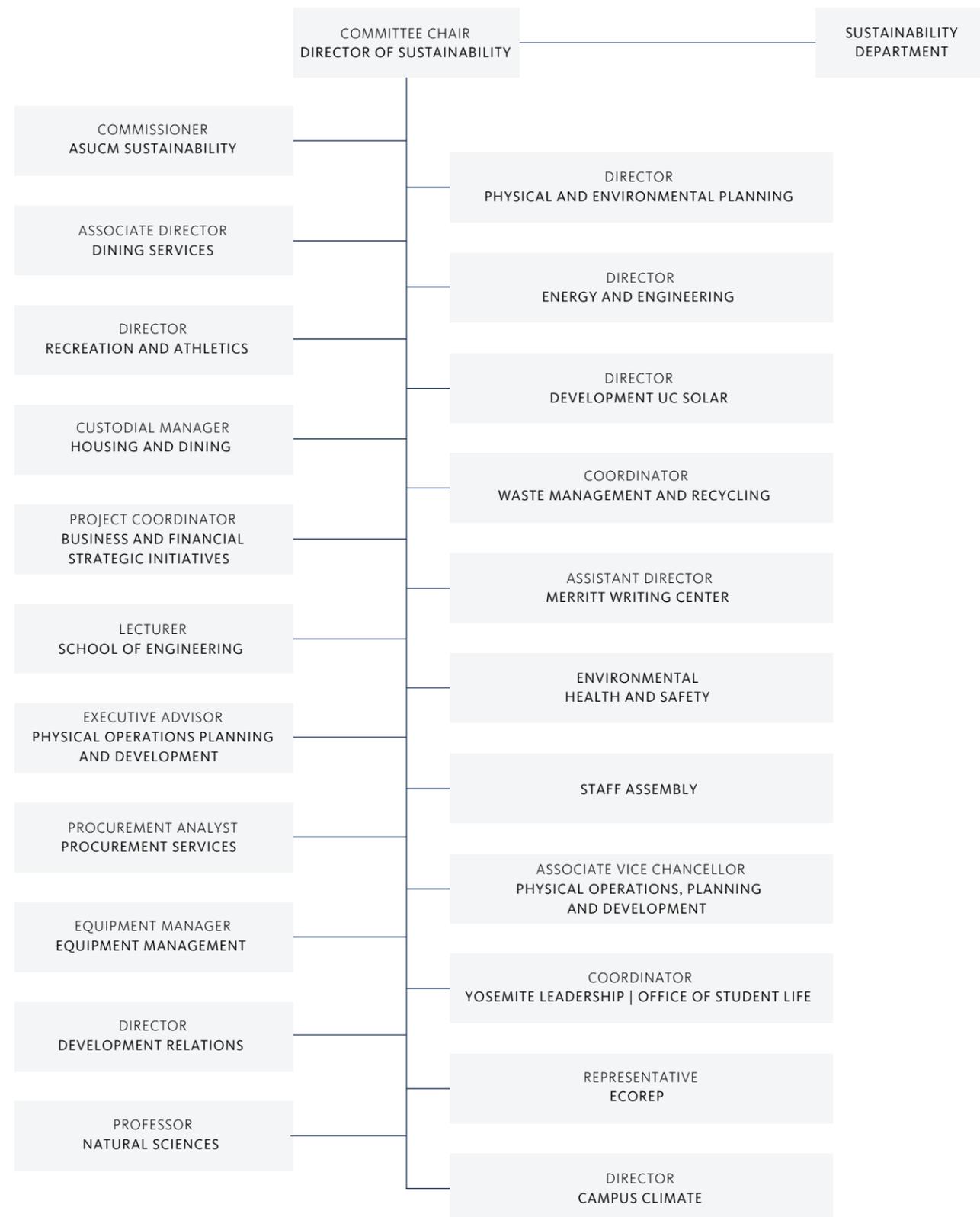
### ASSESSMENT THROUGH AASHE STARS PAGE 23

- <sup>28</sup> "STARS Overview." AASHE-STARS. N.p., n.d. Web. 10 Mar. 2017. <<https://stars.aashe.org/pages/about/stars-overview.html>>.

## APPENDIX B | DEPARTMENT OF SUSTAINABILITY ORGANIZATIONAL CHART



## APPENDIX C | CHANCELLOR'S ADVISORY COMMITTEE



## APPENDIX D | RELATED DOCUMENTS

**UC Merced Climate Action Plan:** Lays out an ambitious vision for the campus achieving its carbon neutrality goal through actions to include energy efficiency and renewable energy generation.  
<http://sustainability.ucmerced.edu>

**UC Merced Water Action Plan:** Provides water efficiency and conservation actions to reduce water usage.  
[http://ucop.edu/sustainability/\\_files/water/ucm-water-action-plan-2014.pdf](http://ucop.edu/sustainability/_files/water/ucm-water-action-plan-2014.pdf)

**UC Merced Waste Diversion Plan:** Provides an overview of strategies the campus will take to achieve zero waste by 2020.  
[http://recycle.ucmerced.edu/sites/recycle.ucmerced.edu/files/documents/waste\\_diversion\\_plan\\_2015.pdf](http://recycle.ucmerced.edu/sites/recycle.ucmerced.edu/files/documents/waste_diversion_plan_2015.pdf)

**UC Merced Strategic Academic Vision:** Provides interdisciplinary themes that advance campus academic and research pursuits.  
[www.ucmerced.edu](http://www.ucmerced.edu)

**UC Merced Tomorrow:** Long Range Development Plan (2013): Is a comprehensive and sustainable land use plan that guides future physical growth of the UC Merced campus. The plan and its policies were amended in May 2013 to facilitate implementation of the 2020 Project.  
<http://lrpd.ucmerced.edu>

**UC Merced Physical Design Framework:** Is a companion document to the 2009 Long Range Development Plan. It provides guidance to design professionals on how to develop a coherent yet distinctive character for each part of the campus.  
<http://dc.ucmerced.edu/design-vision/physical-design-framework>

**University of California Office of the President Sustainable Practices Policy:** Establishes goals in nine areas of sustainable practices: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems.  
<http://ucop.edu/sustainability/>



The Sustainability Strategic Plan is the University of California, Merced roadmap that incorporates sustainability practices throughout the campus.

>> [sustainability.ucmerced.edu](https://sustainability.ucmerced.edu)