

USC SUSTAINABILITY ANNUAL REPORT

LEVERAGING PARTNERSHIPS TO ADVANCE SUSTAINABILITY 2020
AND ENVIRONMENTAL BEST PRACTICES

2017



USC University of
Southern California



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INTRODUCTION

The University has made considerable strides in sustainability this past fiscal year by implementing several aspects of the Sustainability 2020 Plan, improving its public-facing media, partnering with the Los Angeles Memorial Coliseum, and facilitating a culture of sustainability. By building on the University's cross-disciplinary culture, USC Sustainability has been proactive in leveraging real partnerships with a variety of stakeholders—both on and off campus—in order to expedite the goals outlined in the Sustainability 2020 Plan and achieve a more sustainable future. From the University administration to the student body to the City of Los Angeles, USC Sustainability has worked diligently to build our connections and establish a network of stakeholders that add value to the program and can aid in creating positive momentum and change.

At the forefront of USC Sustainability lies the comprehensive Sustainability 2020 Plan. University senior leadership approved five Sustainability 2020 project proposals for funding this past fiscal year, including water fixture upgrades, advanced water metering, a comprehensive waste diversion plan, and a procurement assessment.

USC has championed an award-winning zero-waste program at the Los Angeles Memorial Coliseum. Even with the added complexity of the Los Angeles Rams games on Sundays, the program has served as the most successful waste diversion initiative in University history. In December 2016, the Coliseum officially met its goal of becoming a zero-waste facility, making it the largest NFL stadium and second largest college stadium in America to achieve this milestone.

In order to bring together the diverse spectrum of stakeholders involved in making an environmentally conscious development a reality, USC Sustainability prioritized communication and outreach programs. These efforts included a comprehensive overhaul of the USC Sustainability website, the first comprehensive student sustainability survey (completed by 1,369 respondents), and the convening of an engagement forum on University sustainability planning.



PLANNING & ADMINISTRATION

As USC rises to meet the formidable challenges of the 21st century, environmental sustainability is a major priority in our teaching, research, operations, and facilities. USC has been called upon to cultivate scientific and policy-relevant scholarly work, build stronger collaborative relationships with city, community, and other University stakeholders, and steer our own operations toward reduced waste and more efficient use of resources. As a world-class university, USC seeks to play a leadership role at the local, regional, and global levels. In order to advance sustainability planning this year, several proposals were put forth and funded to help reach the goals outlined in the Sustainability 2020 Plan:

Water Fixture Upgrade

As part of the University's effort to reduce potable water usage 25% by the year 2020, USC Housing, Facility Management Services, the USC Radisson Hotel, and Auxiliary Services are working to replace over 8,000 existing faucets, showerheads, and toilets with new high-efficiency, low-flow water fixtures. USC Sustainability, in coordination with American Standard, performed a fixture audit for University Park buildings. Analysis of the collected data determined that replacing 8,015 existing fixtures could yield water savings of 42 million gallons per year. Installation is projected to take about a year, and is on schedule to be completed over two phases in FY19 and FY20.

Water Metering

Also advancing USC's effort to reduce potable water usage 25% by 2020, the Sustainability 2020 Water Subcommittee has proposed a project to improve water metering across the University Park Campus. The campus is currently served by three Los Angeles Department of Water and Power (LADWP) water meters. The proposed project would install 19 sub-meters on 17 buildings of various types, including University housing, laboratories, and academic buildings. The proposed sub-metering will allow USC to identify water issues more clearly and address them in real time. It will also allow the University to better track conservation efforts and encourage the community to conserve water. While it does not directly reduce water consumption, installation of these meters will indirectly help USC achieve the water conservation goals laid out in the Sustainability 2020 Plan. These meters will be installed in FY19.

Recycled Water

In May 2010 the City of Los Angeles and Department of Public Health approved USC's master plan to install recycled water mains at the University Park Campus in conjunction with LADWP's Downtown Water Recycling Project, which aims to bring recycled water from Elysian Park to Exposition Park customers, including USC. An Environmental Impact Report (EIR) regarding this project was drafted by LADWP in



March 2015 and certified in June 2016. The EIR identified a goal to bring recycled water to Exposition Park by the end of 2020, which is in line with the University's goal to reduce potable water usage 25% by 2020. Upon completion, this project is expected to reduce campus potable water usage by approximately 42 million gallons per year. Earlier this year LADWP pushed back its timeline for completing the necessary infrastructure to deliver recycled water to the south Los Angeles area, but the water conservation savings should still be delivered before the end of 2020.

Waste Diversion Plan

Funding has been approved for the Sustainability 2020 Waste Diversion Project. This project involves a complete transition from the University's existing contract with the waste disposal company Athens Services to a new contract with Republic Services. This transition includes new sorting practices, such as the introduction of more source separated bins in University buildings, which will increase waste diversion

rates and streamline efficiency. This project will roll out in four phases, each covering a different section of campus. The first phase began July 1, 2017 and includes the new USC Village and the north-west corner of University Park Campus. The fourth and final stage is slated to begin December 30, 2018. Each separate phase includes the implementation of between 75 and 105 new bins, with a grand total of 375 new bins installed upon completion of the project.

Procurement Assessment

The Sustainability 2020 Procurement Subcommittee has proposed that the University employ one Senior Procurement Specialist with a background in sustainability. The Senior Procurement Specialist has been hired and is helping USC Purchasing to develop a procurement sustainability policy, increased awareness of current sustainable purchasing practices, and implementing audience-appropriate educational campaigns designed to modify behavior and increase participation in sustainable practices across schools and departments.

ENGAGEMENT

Fostering ecologically responsible behaviors by engaging stakeholders in sustainable actions is crucial to the success of the ambitious goals set by the City of Los Angeles pLAN and USC's Sustainability 2020 plan. Community and staff engagement initiatives were instrumental in the success of the Zero-Waste Los Angeles Memorial Coliseum, one of our largest projects completed this year. While this is but one of many multi-faceted projects with a significant engagement aspect, many initiatives specifically focused on engagement were completed or introduced this year as well.

Communications and Reporting

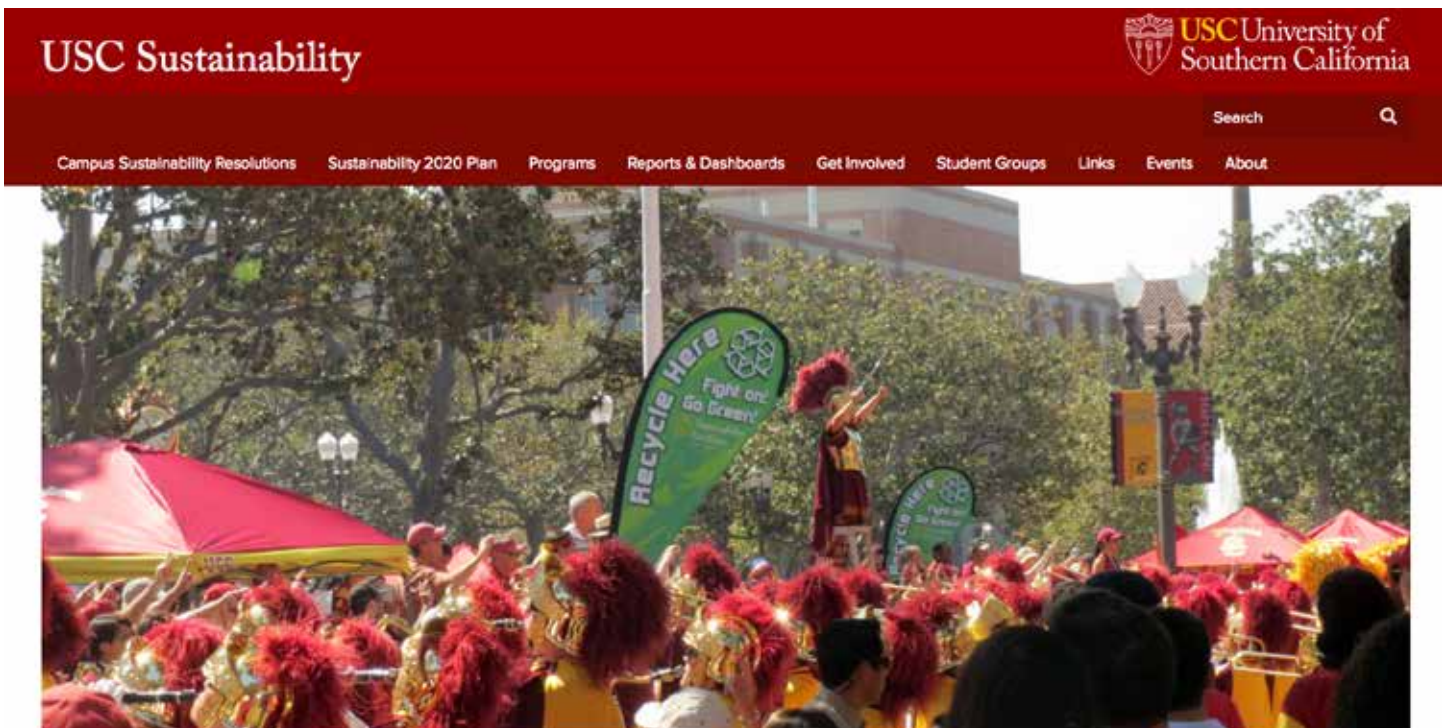
USC Sustainability completely revamped its website this past fiscal year with the goal of building a cohesive and comprehensive point of reference for sustainability at USC. The website improved and expanded its scope of content, including new reports and updated information on projects and initiatives, as well as highlights from sustainability-related activities on campus. This provides students, faculty, and the community easy access to ongoing sustainability projects and information. It also broadens ongoing discussion, deepening the culture of sustainability on campus.

green.usc.edu

In response to the need for a more comprehensive set of tools to educate faculty and staff about sustainable best practices, USC Sustainability has set out to compile a comprehensive catalogue of case studies detailing every sustainability-related initiative at USC. Nine case studies were researched and written during spring 2017. The case studies cover the following projects and initiatives: solar power at USC, Zero-Waste Los Angeles Memorial Coliseum, tailgate waste diversion, alternative transportation, recycled water utilization, lighting upgrade, chiller upgrade, and the Smart Grid program at USC. These case studies will increase engagement and awareness, as well as streamline the onboarding process of new hires and the debriefing of administrators.

Student Engagement

In February 2017 USC administered a Student Sustainability Survey with 1,369 student respondents. The survey evaluated student awareness, involvement, interest, and literacy in sustainability at USC. The survey was open to USC students living in University housing. The majority of participants were freshmen and fewer than 2% were graduate students. The majority of participants were based in USC Dornsife, USC Viterbi, and USC Marshall. The results of the survey suggest



USC is moving toward a vision of a campus where nothing is considered disposable and resources like energy and water are used wisely and without waste. The University's Sustainability Steering Committee has led far-reaching efforts, helping make environmental sustainability a priority in the University's teaching, research, operations, and facilities.

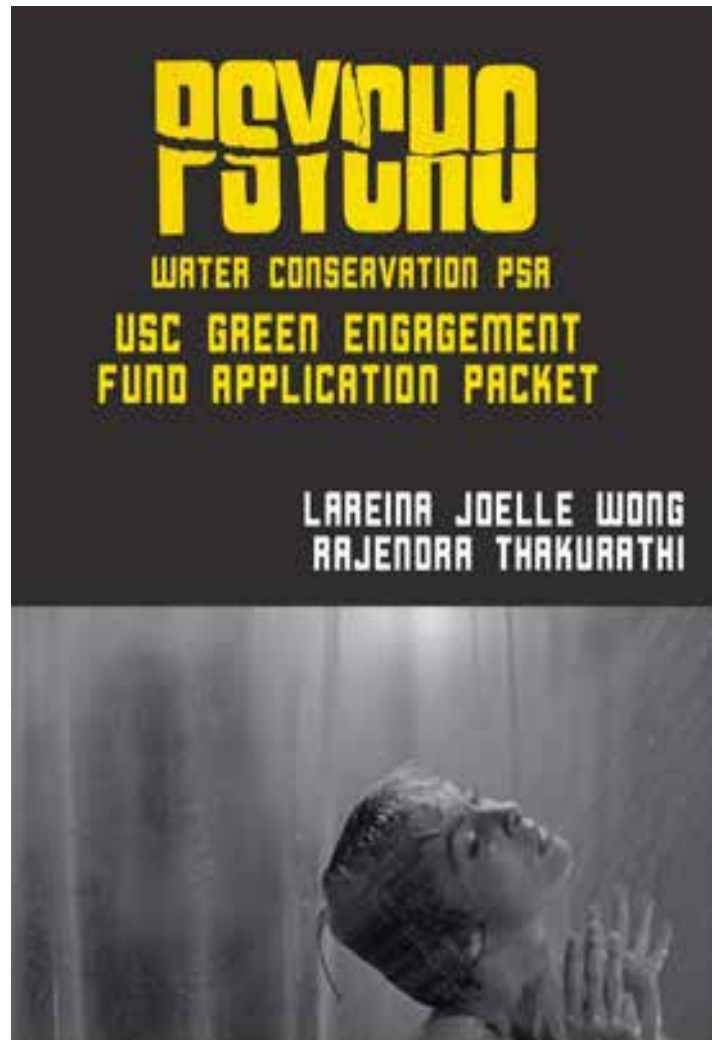


that most USC students support the implementation of sustainable practices at USC, and believe that the University can and should do more to reduce its impact on the environment and fight climate change. While a majority of participants did not support a tuition hike to fund sustainable projects, most believe USC can afford to implement more sustainable practices without raising tuition. Nearly 60% of the students surveyed strongly support USC's installation of energy-generating solar panels on campus rooftops—regardless of building aesthetics—and an additional 25% of students said they would somewhat agree with installation. The need for solar panels was among the most cited topics in the additional comments section, which students had the option to provide at the conclusion of the survey.

USC experienced a robust year in student engagement, raising awareness and participation in sustainability-related initiatives among Trojans. Ongoing projects that were particularly successful this year include USC Housing's dorm energy competitions, the Parkside Garden, and three student projects funded by the USC Green Engagement Fund (GEF). The GEF was created in 2014 to fund innovative, student-driven projects that aim to increase sustainable practices at USC and raise awareness of environmental issues. The GEF received a total of 15 project applications this year, three of which were approved for funding. These three projects shared a common theme: water conservation. The projects approved in fall 2016 — rain collection barrels at USC Wrigley Institute for Marine Science and drought tolerant landscaping in Queens Courtyard — are expected to save a combined 30,000 gallons of water each year, as well as educate thousands of students and guests. If the third project, a PSA spoofing the infamous shower scene from *Psycho*, can reach 20% of the Trojan family with its message to reduce showers by 5 minutes, it could save enough water to fill over 1000 Olympic-size swimming pools. That's enough water to keep 45,000 people hydrated for 75 years.

These student projects also represent steps taken toward meeting several of the University's core Sustainability 2020 goals, including strengthening campus awareness, decreasing potable water use, and increasing awareness of current water conservation practices.

The USC Office of Sustainability piloted a new sustainability orientation program for students this year. The purpose of this program, launched in the fall, is to bring students up to speed on sustainability projects and programs, keep them informed of new developments, and sustain program continuity and project momentum between graduating classes. The office worked with the Environmental Student Assembly to offer orientation presentations and prepared a portfolio aimed at educating new sustainability "recruits."





As another helpful resource for students, USC Housing compiled a Sustainable Living Guide. The guide includes tips and information on how students can take action to reduce their environmental impact in each of seven areas: energy, water, waste, hospitality, transportation, the LA Memorial Coliseum, and campus. The free pamphlet also provides information on campus sustainability efforts, including initiatives that welcome student involvement.

USC Hospitality and USC Facilities Management Services partnered to plant 52 fruit trees behind the Parkside Residential College as part of President C.L. Max Nikias' University Park Campus tree initiative. The president approved several varieties of trees including 7 Hass avocado, 3 Gala apple, 2 Chinese apricot, 2 Panamint nectarine, 6 Rio Oso peach, 9 Meyer lemon, 3 Eureka lemon 4 lime, 3 orange, 6 blood orange, and 7 tangerine. These trees provide fruit for the Parkside Residential Commons kitchen but also allow residents to pick fruit from their backyard.



Faculty and Staff Engagement

USC Hospitality's Teaching Gardens, located at the USC Radisson Hotel and Everybody's Kitchen, have been so successful, and their produce in such high demand, that a third garden was opened at the University Club. These self-sustaining gardens produce a variety of vegetables, fruits, herbs, and edible flowers for USC's dining venues. The garden's farming techniques support USC Hospitality's commitment to the environment and to the health of our dining guests by growing our own food locally without the use of any harmful chemicals.

USC is the first university in the nation to have a farming effort of this scale using vertical Tower Garden® aeroponics technology. The seeds used in the garden are 100% organic and the plants are fed all-natural, water-based ionic minerals and plant nutrients. The towers are remarkable in the way they sustain plant growth while using 90% less water and 90% less land than traditional gardens. The USC farm is growing thousands of nutrient-dense plants in just three small patio spaces. In addition, giving USC culinarians access to the garden helps them grasp the significance of the environmental impact we have on the earth in farming our own produce. Through the process, USC chefs have strengthened the pride they have in serving guests using farm-to-table methods. It is a cornerstone to empowering chefs, students and guests of USC to consider the food they eat and how it is grown. An herb garden was also planted around the Moreton Fig restaurant to supply fresh and organic herbs.

On April 27, 2017, the Environmental Student Assembly and Academic Senate hosted the Sustainability 2030 forum. The forum gave the broader USC community an opportunity to express their views on the Sustainability 2030 Strategy proposed by the USC Faculty Senate. Approximately 70 faculty and students were in attendance to discuss and hear:

- **A summary of the Academic Senate 2030 Strategy**
- **The background and progress update of USC's Sustainability 2020 Plan**
- **Responses to the Academic Senate's 2030 proposal from:**

Dean Yannis Yortsos (chair of the Provost's Wicked Problems Taskforce on Security and Sustainability)

The Provost's Office

Representatives from the Environmental Student Assembly



ENERGY & GREENHOUSE GAS EMISSIONS

The reduction of greenhouse gasses by capitalizing on energy risks and opportunities is one of the core goals set by USC's Sustainability 2020 Plan. In December 2016, the Los Angeles City Council adopted an existing building energy and water efficiency program. This program aligns with USC's Sustainability 2020 energy efficiency, greenhouse gas mitigation and water efficiency goals and will require the University to audit and retro-commission 140 campus buildings over a five-year period starting in 2019.

USC Housing

Many of the most significant advancements in reducing greenhouse gasses come from USC Housing, a department that holds many opportunities for energy conservation. One notable initiative is the conversion of 1,043 incandescent and fluorescent light fixtures to LED.

USC Capital Construction (CCD)

Capital Construction and the USC Marshall School of Business advanced the University's Sustainability 2020 goals, including the LEED Gold certification of Fertitta Hall.



USC Facilities Management Services (FMS)

USC FMS has been crucial to advancing the University's Sustainability 2020 Plan goals through a number of initiatives. The replacement of fluorescent and incandescent lighting with LED lighting in seven buildings totaled more than 18,000 lamps, resulting in an electrical use reduction of 1.9 MWh—equivalent to a 980 metric ton reduction in CO₂ emissions. Additional buildings, parking structures, and exterior lighting are to be retrofitted with LED lighting this year. Additionally, the consolidation and upgrading of the campus chilled water system has improved efficiency by 20-30%. Lastly, FMS has engaged in electrical load shedding during high electrical use days and during times when buildings have few occupants.

USC Office of Sustainability

In December 2016, the USC Office of Sustainability formed a LEED Existing Building Operations and Maintenance Advisory Group with the purpose of identifying and certifying existing buildings with potential to be LEED compliant. The Office held a workshop to train the advisory group on LEED existing building certification systems and requirements as well as professional accreditation requirements.



AWARDS

USC received several prizes from LADWP' Sustainability Awards Program for energy load curtailment.

ladwp.com/sap

WASTE DIVERSION

Globally, it is estimated that a 1% increase in recycling rates could provide an annual net savings equivalent to 200,000 metric tons of carbon dioxide. Accordingly, even small adjustments in the processing of campus-generated trash have big impacts in terms of USC's carbon footprint. Since 2001, the average landfill rate has risen from \$34 per ton to nearly \$54 per ton.

Our current campus waste diversion efforts (recycling, food composting, cardboard recycling, etc.) combine to a diversion rate of approximately 52%. The University has achieved this diversion rate through several initiatives. Leading the waste diversion charge is Los Angeles Memorial Coliseum Zero-Waste Program. In December 2016, the Coliseum officially met its goal of becoming a zero-waste facility, making it the largest NFL stadium and second largest college stadium in America to achieve this milestone. The USC Office of Sustainability and Coliseum staff partnered with vendors and operational partners to help divert over 400,000 pounds of waste from the landfill since then, resulting in 501.02 total tons of CO₂ equivalent diverted. This met the industry standard—90% diversion—for zero-waste. Coliseum staff were trained in zero-waste best practices to help them play an instrumental role in the success of the initiative and help better engage fans. The Coliseum is poised to set a shining example among stadiums nationwide as a pioneer in sustainability. In a January 2017 interview with the *Daily Trojan*, the Coliseum's director of operations Brian Grant said, "If other stadiums look at the Coliseum, I hope they see a model that involves a stakeholder theory-driven program that focuses on using resources to make the best decisions possible."

On top of the commendable progress made at the Coliseum, USC has also diverted much of its waste through sponsoring several clothing swaps and vastly reducing its use of printing



paper. Thanks to an educational engagement campaign carried out by USC Housing, the amount of paper used in printing at USC was reduced by over 75%. USC printed 1,126,201 pages this academic year—a huge improvement from last year's count of 4,524,399. In addition to this impressive waste reduction, all student printers now use paper made from 30% recycled content.

Moving Forward

Starting in August 2017, new separate stream recycling and waste containers began rolling out in phases and will continue until they are installed in each building by January 2019. This is coordinated with the University-wide transition to a new contract with the waste management company Republic Services and ending a several-year contract with Athens Services. The new USC Village was the first to see these changes in early July. The remainder of the University Park Campus is transitioning to meet a January 2019 deadline set by the city. The rollout of the new waste management system started on 34th and Trousdale heading west. The second phase commences in December during winter break. Third and fourth phases during July and December 2018 will complete the campus-wide transition.

ARTICLES

Johnston, M. W. (2017, June). Los Angeles Coliseum "Modernizes" with Zero Waste. *BioCycle*, 58(5), 17.

<https://www.biocycle.net/2017/06/07/los-angeles-coliseum-modernizes-zero-waste/>

...we
diverted over
400,000 lbs
of waste from
the landfill
resulting in
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diverted





WATER CONSERVATION

Last winter, for the first time in a decade, and after five years of a crippling statewide drought, California officially came out of its state-of-emergency drought status. However, while California’s drought may have abated, its water problems are far from over. Serving as an anchor institution in Los Angeles and a leader in its sustainable practices, USC responded on this issue. With Sustainability 2020 Plan at the forefront, USC has made significant strides in tackling water conservation by implementing the necessary technological and cultural mechanisms to do so. Through a handful of initiatives, USC has helped alleviate the stress on the city’s water system and acted as a model for other universities.

USC was recently recognized by the Urban Land Institute’s Center for Sustainability and Economic Performance for the rainwater capture design of its USC Village. The center’s new report, *Harvesting the Value of Water*, highlights the USC development as a model case study. The USC Village stormwater capture system includes six 26,000 cubic-foot dry wells, roughly 6 feet in diameter and 60 feet deep. The wells run captured water through a filtration system before sending the water into the groundwater aquifer. This type of system is an important part of resilience planning in an era of extreme weather events.

USC continues to pursue water conservation through the “one water” paradigm, which calls for integrated water management and the engagement of projects with multiple benefits. This includes recognizing the value of our campus as an urban forest and the multiple health, energy, biodiversity, water, and community benefits it provides.



AWARDS

USC received several prizes from LADWP’s Sustainability Awards Program for water conservation.

REPORT

Burgess, Katharine, et al. *Harvesting the Value of Water: Stormwater, Green Infrastructure, and Real Estate*. Washington, D.C.: Urban Land Institute, 2017.



WOMEN'S 100M			
RANK	NAME	TIME	HEAT
1	W. BOLT	11.92	1
2	Y. SINGH	12.05	2
3	Y. SINGH	12.05	2
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THE FUTURE

2017 has been a banner year for sustainability at USC and a turning point in our sustainability journey. One of the major accomplishments was the funding of Sustainability 2020 initiatives. The year was marked by direct, open and transparent dialogue between all members of the Trojan family, including students and senior administrators. Moving into the next fiscal year, we will see exciting sustainability progress as projects planned and underway come to fruition:

Sustainability 2020 will continue to gain momentum as several more proposals are submitted next year particularly to help meet energy, greenhouse gas emission, and engagement goals. Some phases of the already-approved and funded proposals will begin implementation next fiscal year (waste diversion phases I & 2).

Sustainable Cities Initiative Pilot Program

With the generous help of a Trojan family donor, USC Sustainability is launching a program that will model a system designed to create partnerships between universities and local municipalities so that cities can apply university resources — coursework, students and faculty — to a client’s sustainability-related projects. The program is mutually beneficial in that it can expand a university’s sustainability curriculum and give its students the opportunity to learn in practice. At the same time, it provides the client with fresh, innovative student intellects focused on specific, tangible, and mutually-beneficial outcomes. While the pilot program works with the University’s own Wrigley Institute on Catalina Island, a full-scale program would partner through an RFP process with local municipalities.



Student Sustainability Orientation

USC Sustainability is launching a program that will enable students to get involved with sustainability projects as soon as they arrive on campus. It begins with an orientation hosted by relevant sustainability partners on campus, including the USC Sustainability Office, the Environmental Student Assembly, the Wrigley Institute, Environmental Core, and others. Attendees will learn the history of sustainability on USC's campus, specifically through the lens of student involvement. Participants in the program will be better equipped for success throughout their USC experience.

LA 28 Olympics Committee

USC Sustainability was invited to become an official advisors for the LA 2028's sustainability and legacy plan. Building on the LA24 collaboration, the partnership is expected to continue and expand, starting with visitors from the LA 28 team observing Zero-Waste operations at the Los Angeles Memorial Coliseum during the 2017 football season.



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