Dear Trojan Community,

It’s my pleasure to share the results of the 2020 Sustainability Plan for USC. This was phase one of our collective efforts to work toward a healthier campus and a greener planet.

Our plans were ambitious—as they needed to be—but we accomplished a great deal by working together. We significantly reduced the university’s greenhouse gas emissions, and found more sustainable sources for our food and supplies. We are taking the lead on making USC a model for how institutions can encourage communities to participate in public transit.

This is just the beginning, and you played an important part in getting us here. Our students inspired us with their energy, imagination, and vision for change, while our faculty, staff, and community members brought tremendous passion and dedication to our shared goals. You’ve changed your personal behaviors—in ways big and small—and together we’ve reconfigured our large-scale procurement decisions. We’ve worked with purpose and empathy—both of which will be so critical in bringing about meaningful change.

I am deeply grateful to all the people across our campuses who spent countless hours and days making it possible to meet our goals. As we move on to our Sustainability Plan for 2028, we will set our sights even higher. We’ll look for even more creative ways to bring sustainability to our campus operations, enhance our students’ education and experience, and expand our research. The challenges are real and immediate, and I’m confident our collective energy and commitment will exceed them.

Stay healthy and Fight On!

Carol L. Folt
President
Five years ago, the Office of Sustainability developed the USC Sustainability 2020 Plan to guide us in implementing more sustainable practices across the University Park Campus (UPC) and Health Sciences Campus (HSC). The plan established goals for achieving energy conservation and greenhouse gas mitigation, sustainable transportation, waste diversion, water conservation, sustainable procurement and community engagement. As we close this chapter and change our focus to the USC 2028 Sustainability Plan, let’s review our progress.

In the push for a greener USC, change has been the imperative. How we plan, execute, energize and engage our many stakeholders has been critical to our building a solid foundation that will position us for a sustainable future. Over the last several years, visionary executive leadership, innovative thinking, cooperation across USC and grassroots student support have propelled us forward and enabled us to make significant accomplishments.

We have shepherded new academic research initiatives, cultivated strong alliances with local government and utilities, formed the Presidential Working Group on Sustainability and launched communication programs that have captured our attention and elevated sustainability to a priority within our community. We have also built LEED-certified silver and gold buildings, completed a major energy retrofit of Galen Center, achieved zero waste at the Los Angeles Memorial Coliseum, procured over 40% of food from sustainable sources and revised the way we commute. While much has been accomplished, there is still much ahead to champion. Today, though, we acknowledge the foundation laid and envision our greener future.

USC Wrigley Institute researchers are uncovering ways to mass-produce seaweed as a biofuel.

USC Sustainability 2020 Plan Goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Status</th>
<th>Progress Toward Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Conservation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce greenhouse gas emissions per square foot by 20% from 2014 baseline</td>
<td>✓</td>
<td>Achieved 35% reduction</td>
</tr>
<tr>
<td>Capitalize on energy risks and opportunities</td>
<td>✓</td>
<td>Executed renewable energy projects</td>
</tr>
<tr>
<td><strong>Water Conservation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decrease potable water use by 25% from 2014 baseline</td>
<td>×</td>
<td>Achieved 10% decrease</td>
</tr>
<tr>
<td>Increase awareness of conservation practices</td>
<td>✓</td>
<td>Created multiplatform educational campaigns</td>
</tr>
<tr>
<td>Implement audience-appropriate educational campaigns</td>
<td>✓</td>
<td>Developed targeted conservation programming</td>
</tr>
<tr>
<td><strong>Waste Diversion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieve 75% waste diversion rate</td>
<td>×</td>
<td>Achieved 33.7% diversion rate</td>
</tr>
<tr>
<td>Expand diversion and recycling programs and increase awareness</td>
<td>✓</td>
<td>Deployed diversion bins and educational campaigns</td>
</tr>
<tr>
<td><strong>Procurement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase 20% of food from sustainable sources</td>
<td>✓</td>
<td>Achieved 41.4% sustainable food purchases</td>
</tr>
<tr>
<td>Engage 75% of USC departments in responsible purchasing practices</td>
<td>✓</td>
<td>Developed green purchasing educational materials</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce single-occupancy vehicles traveling to/from USC’s campuses</td>
<td>✓</td>
<td>Achieved 2.0 average riders per vehicle</td>
</tr>
<tr>
<td>Expand participation in alternative transportation programs</td>
<td>✓</td>
<td>Incentivized alternative transportation choices</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase awareness of sustainability practices</td>
<td>✓</td>
<td>Established regular sustainability programming</td>
</tr>
<tr>
<td>Establish USC as a living laboratory for sustainability</td>
<td>✓</td>
<td>Connected students with campus data and experts</td>
</tr>
<tr>
<td>Engage the broader community in sustainability</td>
<td>✓</td>
<td>Fostered partnerships with local government</td>
</tr>
</tbody>
</table>

“Sustainability has become a significant catalyst for organizational and cultural change at USC.”
- Daniel A. Mazmanian, Chair, Presidential Working Group on Sustainability and Professor of Public Policy
Energy Conservation
Reducing USC’s Greenhouse Gas Emissions

Sustainability 2020 Plan Goals
- Reduce greenhouse gas emissions per square foot by 20% from 2014 baseline
- Capitalize on energy risks and opportunities

35% reduction in greenhouse gas emissions per square foot since 2014.
2020 Plan Goal: 20%

$10M combined savings over the next 25 years from the Galen Center energy retrofit.

237 classrooms now integrate classroom scheduling into their HVAC schedules to improve efficiency of energy usage.

Our 35% reduction in greenhouse gas emissions has been realized by applying a number of wide-ranging solutions that capitalize on energy risks and opportunities. Installing solar arrays, automated HVAC scheduling, LED lighting and variable frequency drives to modify motor speeds, plus implementing energy audits and cultivating vital utility company and city of Los Angeles partnerships have reduced our energy footprint and helped us achieve our Sustainability 2020 Plan goals.

The Galen Center energy retrofit completed in 2020 was by far one of our most extensive projects. Fifteen hundred solar modules were added to the rooftop, arena lights were replaced with LED fixtures and a pony chiller project was initiated to reduce energy usage from cooling when the arena is at low occupancy.

Once completed, the projected combined savings from projects initiated between 2015 and 2020 is $10 million over the next 25 years, including hundreds of thousands of dollars’ worth of rebates that USC has already received from the Los Angeles Department of Water and Power.

Program Highlights

Solar Panel Installations
- Galen Center installation provides up to 15% of energy needs for the arena.
- Wrigley Marine Science Center installation provides up to 20% of energy needs for the dining hall and kitchen.
- Cardinal ‘N Gold apartment installation provides up to 16,000 kWh of energy per year.

Automated HVAC Scheduling Programs
- 237 classrooms now integrate classroom scheduling into their heating, ventilation, air conditioning and cooling schedules to minimize energy usage when occupancy is low.
- Since 2015, recorded cost savings are $220,000 and energy savings are 1.5 million kWh.

Existing Building Retro-Commissioning and Energy Audit Projects
- Projected 200,000 kWh savings per year at Kroc Hall and the USC School of Cinematic Arts from measures implemented as a result of retro-commissioning pilot program findings.

Real-time energy use displays increase awareness of critical resources and motivate conservation.

Breakdown of Greenhouse Gas Reduction
- Cleaner power from the LADWP: 20.5%
- Increased electricity efficiency: 12.5%
- Increased natural gas efficiency: 7%
- Reduced fertilizers/refrigerants: <1%

Solar panels will supply as much as 15% of Galen Center’s electricity and produce 915,000 kilowatt-hours annually — enough to power 88 houses for a year.

LED Lighting Upgrades and installations
- Since 2015, 31 additional buildings and the Wrigley Marine Science Center on Catalina Island are now using LED lighting, which has generated more than 6.7 million kWh in energy savings.
- 40% of USC Housing buildings and nearly 100% of parking structures have been upgraded with LED lighting.

Variable Frequency Drive Installations
- 40 variable frequency drives have been installed across dozens of buildings, which now benefit from the reduced energy usage provided by variable frequency drives during non-peak times.

Energy Efficient Chiller Installations
- 40% improvement in chiller performance and thousands of kWh savings projected from units installed at Montgomery Ross Fisher Building, the USC Norris Comprehensive Cancer Center and Hospital, and Norman Topping Tower.

Programs and Partnerships
- EPA’s ENERGY STAR Portfolio Manager aligns 150 USC buildings with Los Angeles’ Green New Deal and the Existing Building Energy and Water Efficiency Ordinance.
- Partnerships with the LADWP and Southern California Gas’ Savings by Design program are helping to optimize efficiency in new building construction projects.
- Participation in the LADWP’s annual Demand Response Program since 2016 has reduced energy consumption and kept conservation top of mind.
## Water Conservation

**Reducing USC’s Water Consumption**

### Sustainability 2020 Plan Goals

- **X** Decrease potable water use by 25% from 2014 baseline
- ✔ Increase awareness of conservation practices
- ✔ Implement audience-appropriate educational campaigns

### Program Highlights

| Potable Water Use | 10% decrease in use of potable water since 2014 |
| Water Metering | 17 water submeters have been installed at UPC buildings, providing real-time, detailed water usage data |
| Drought-Tolerant and Native Landscaping | 43% savings in water has been realized from landscapes that incorporated or converted to drought-tolerant foliage |
| Project managers have been trained and advised to incorporate drought-tolerant and native plants in all new landscaping |

### Fixture Requirements, Replacements and Upgrades

- Low-flow fixture requirements for all new construction projects have been established and will help improve water conservation efforts.
- 1,342 low-flow, touchless faucets have been installed in 77 non-housing buildings as part of a universitywide replacement initiative.
- Almost 2,000 water flow restrictors have been installed on hospital sinks, showerheads and dialysis machines as part of the Keck Hospital Water Fixture Program.
- 90% of UPC irrigation is centrally controlled and employs weather-based sensors.

### Stormwater Capture and Infiltration

- Six separate filters and deep dry wells at USC Village treat rain runoff before sending it to recharge the groundwater aquifer.

### Smart Irrigation

- “Smart” units have built-in water-saving features including a sensor to adjust to the optimal sprinkler run time based on weather conditions.

USC has partnered with the Los Angeles Department of Water and Power to bring reclaimed water to UPC for irrigation and industrial use. Thousands of feet of “purple pipe” have been installed underground and we now await the LADWP’s direction on the next phase of the project.

In addition to that initiative, we’ve implemented other changes to get us closer to our potable water goal. Multiple water submeters provide real-time, detailed usage data that helps us make more immediate and better decisions. Low-flow fixture requirements have been established and will standardize and guide new construction planning, and many older faucets have been swapped out for low-flow, touchless models.

On our grounds, drought-tolerant landscaping has been expanded wherever possible, and centrally controlled and “smart” drip irrigation systems are increasing watering efficiency. Our native test gardens are as attractive as they are nurturing, and education and awareness on conservation best practices and campaigns — such as offering shower timers to USC Housing residents — are making a difference.
Waste Diversion
Diverting Campus Waste from Landfills

Our campus waste diversion practices have significantly changed due to the city of Los Angeles’s 2018 RecycLA waste franchise agreement. We now separate landfill and recycling waste on campus, and our construction and demolition waste are now excluded from waste diversion calculations. These changes have reduced our universitywide waste diversion rate from 54% in 2015 to about 34% in 2020.

Challenges notwithstanding, we have laid the foundation for increased waste diversion by adding multistream waste bins that enable more recycling and composting. The Coliseum’s zero-waste program we spearheaded ranks among the top in the Pac-12 Conference, and our football season tailgating programs are fast reducing our waste footprint and increasing awareness of the importance of waste diversion. In Residential Dining, single-use, personal consumption items such as individually wrapped condiments have all but been eradicated, and all residential colleges have introduced composting programs. More hydration stations are reducing water bottle trash, and a food recovery partnership program is helping us divert waste and feed local families.

Waste Diversion Rate by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Waste Diversion Rate 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Park</td>
<td>36%</td>
</tr>
<tr>
<td>USC Village</td>
<td>40%</td>
</tr>
<tr>
<td>CAS Building</td>
<td>40%</td>
</tr>
<tr>
<td>USC Housing (off campus)</td>
<td>34%</td>
</tr>
<tr>
<td>Health Sciences Campus</td>
<td>18%</td>
</tr>
</tbody>
</table>

Program Highlights

Zero-Waste Campus Events
- 4,535 pounds of waste were diverted from local landfills at President Carol L. Folt’s 2019 inauguration celebration. This raised awareness about the importance of recycling and composting and encouraged other USC event hosts to strive for zero waste.
- 8,934 pounds of waste were diverted from select zero-waste tailgate parties during the 2019 football season.
- The Office of Sustainability, Cultural Relations and University Events, Auxiliary Services and Facilities Planning and Management have collaborated to create a framework for facilitating campus zero-waste events of all shapes and sizes.

Waste Diversion Infrastructure
- 185 interior multistream waste bins with signage that illustrates proper landfill and recycling sorting instructions have been installed across UPC and HSC.
- All USC Housing residential colleges have introduced composting programs. Lobby bins and compost pails available for in-room use make it easier for students to compost.
- Over 1,000 tons of waste have been diverted from landfills since 2016 under the Coliseum’s zero-waste program.
- 95% of single-use, personal consumption items have been eliminated in USC Residential Dining.
- 85-95% clean streams have resulted from multistream waste bin “proof of concept” pilot programs launched at USC Village and HSC Pappas Quad. According to findings, providing the proper tools and instructions leads to increased recycling and correct composting.
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Waste Reduction in USC Hospitality
- 95% of single-use, personal consumption items such as individually wrapped packets of sugar, butter and condiments have been eliminated in USC Residential Dining.
- Over a one-year period, USC Hospitality diverted 115 tons of food waste into a prepared-food recovery program supporting unhoused and extremely low-income families at St. Francis Center.
- Over 1,000+ tons of waste have been diverted from landfills since 2016 under the Coliseum’s zero-waste program.
- Based on an October 2019 audit of all Residential Dining post-consumer waste and composting practices.

Multistream waste bins were installed at USC Village and HSC’s Pappas Quad as part of a zero-waste pilot.

Hydration Station Installations
- 211 water bottle refill stations installed across UPC and HSC are reducing materials entering USC’s waste streams.

Waste Diversion Infrastructure
- A team of office staff members is dedicated to maintaining multistream waste bins and ensuring proper signage is present.
- Our team has conducted regular audits of all Residential Dining locations to ensure waste diversion goals are being met.
- The Office of Sustainability works with facility managers to ensure that waste diversion practices are being implemented effectively across all campus locations.

Sustainability 2020 Plan Goals

- Achieve 75% waste diversion rate
- Expand diversion and recycling programs and increase awareness
Procurement
Increasing Sustainability through Purchasing Decisions

Our commitment to sourcing sustainable food for USC Hospitality has led us to far exceed our goal of purchasing 20% of food from sustainable sources, and the USC Teaching Garden, which leverages aeroponic farming at scale, enables us to grow food directly on our campus and reduce emissions from transportation.

We have engaged 75% of USC departments in responsible purchasing practices by developing a sustainable purchasing web page and communicating with all authorized purchasers in the USC eMarket about buying green. Our copy paper has gotten greener—30% post-consumer recycled vs. 0%—and we’ve reconfigured how it’s delivered to campus to green that process, as well. Trojan Print, a managed print services program, optimizes our print environment, cuts energy usage through the use of Xerox Energy Star devices, and cuts waste by reducing the need for widespread use of desktop printers. These initiatives have laid the groundwork for ever-improving sustainable purchasing practices across the university.

Program Highlights
Purchasing Food from Sustainable Sources
- 41.4% of food purchases for USC Hospitality are from sustainable sources.
- USC Teaching Garden, an aeroponic tower garden, uses 90% less water and 90% less land than a traditional garden to grow 2,640 edible plants for USC Hospitality, minimizing the need to truck-in produce from as far as 250 miles away. USC is the first university in the nation to have an aeroponics farming effort of this scale.

USC Hospitality Sustainable Purchases by Category as of December 2020
- Sustainable items (% by dollars spent)
- Non-sustainable items (% by dollars spent)

<table>
<thead>
<tr>
<th>Category</th>
<th>Produce and Dairy</th>
<th>Grocery and Paper</th>
<th>Seafood</th>
<th>Meat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable</td>
<td>34%</td>
<td>19%</td>
<td>62%</td>
<td>24%</td>
</tr>
<tr>
<td>Non-sustainable</td>
<td>25%</td>
<td>37%</td>
<td>40%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Procurement of Sustainable Goods and Services
- Trojan Print, a campuswide managed print program, leverages new technology to centralize and eliminate widespread desktop printing, which helps reduce paper waste and energy consumption.
- 30% post-consumer recycled content is now the standard for copy paper.
- USC Hotel has earned Green Seal Silver Certification for leadership in key sustainable categories including environmentally sensitive purchasing.
- A commitment to continuous improvement and website enhancement ensures information such as available products, requirements and suppliers will stay current with purchaser’s needs and the university’s green buying goals.

Sustainability 2020 Plan Goals
- Purchase 20% of food from sustainable sources
- Engage 75% of USC departments in responsible purchasing practices
Transportation
Making Sustainable Transportation a Reality

**Sustainability 2020 Plan Goals**

- **Reduce single-occupancy vehicles traveling to/from USC's campuses**
- **Expand participation in alternative transportation programs**

**Program Highlights**

**Carpooling, Ride-share and Car-share Programs**
- For more than 10 years, USC has exceeded its SCAQMD target of an average of 1.5 riders per vehicle coming to campus and in 2019 achieved an average of 2.0 riders per vehicle.
- Free parking for HSC carpoolers is addressing limited parking spot inventory and helping reduce single-occupancy vehicle use.
- USC Campus Cruiser, the evening/late-night ride share program, maintains a fleet of highly rated green and hybrid vehicles equipped with Uber-like technologies that reduce wait time and optimize shared rides, further supporting USC's greenhouse gas emissions reduction goals.
- A fleet of 25 Zipcar vehicles*, customized for the USC community and available 24/7, helps decrease the need for students to bring their personal vehicles to campus.

**Electric Vehicle Charging Stations**
- 138 EV charging ports are available across UPC and HSC.

**Mobile and Remote Assistance Technologies**
- Through strategic partnerships and integrations with Metro, Metrolink, Zipcar, Ware, Midway and Lyft, the Traveler mobile platform provides multimodal trip planning options and has saved users $20,000 and the environment 27.4 tons of CO2 emissions.
- Parking assistance using vehicle wayfinding systems in Downey Way and McCarthy Way parking structures has guided over 1.1 million vehicles and eliminated over 27 tons of CO2 since 2019.

**Transit Subsidies**
- 50% of employees' public transit costs are subsidized through the USC Transit Subsidy Program. Since the program was launched in October 2019, 174 fewer cars have commuted daily to campus.
- Reduced fares and unlimited rides on Metro rail and bus lines are available to graduate students through the U-Pass Program.

**Biofuel Transportation**
- 28 USC buses run on biodiesel and transport faculty, staff and students in and around UPC and surrounding neighborhoods, Downtown Los Angeles, Marina del Rey and HSC.
- B5 biodiesel fuel is available at the USC gas station.

*During the COVID-19 pandemic, the fleet has been reduced to four vehicles.

We achieved our overall transportation goals in 2018 but didn’t stop there. In the last five years, we’ve accelerated the adoption of innovative programs, and for over a decade have exceeded our South Coast Air Quality Management District target of an average 1.5 riders per vehicle.

We have expanded participation in alternative transportation programs, through generous transit subsidies, more electric vehicle charging stations, a platform offering multimodal options, free parking for HSC carpoolers, parking wayfinding systems, Campus Cruiser hybrids and a green bus fleet. These initiatives have put us on the map as a model for other city and state transportation organizations to follow.
Program Highlights

Multimedia Marketing
- Multiplatform marketing and engagement campaigns educate the USC community and help keep sustainability practices top of mind.
- The Office of Sustainability’s newsletter and website feature campus sustainability news, events and progress toward plan goals.

Program Support and Development
- The Office of Sustainability supports the Coliseum’s zero-waste program by ensuring vendors comply with the venue’s sustainability standards.
- The Office of Sustainability oversees the “Trojan Trash Talkers” outreach program, through which students educate campus tailgaters on sustainability efforts and how to sort compostables and recyclables.

Sustainability Programming
- The inaugural Green Game at Galen Center diverted 91.6% of waste from landfills through upstream waste reduction, multistream sorting bins and fan education.
- The “Team Up to Clean Up Expo Park” partnership event with Republic Services and the California Science Center brought neighbors together to tidy the shared community green space.
- USC’s Green Engagement Fund awards student-driven projects that support sustainable practices and education at USC. More than $37,000 has been awarded since 2014.

Data Tracking and Reporting
- The Office of Sustainability has begun USC’s first Sustainability Tracking, Assessment and Rating System (STARS) report and has spearheaded development of the next long-range sustainability plan, both of which are critical to advancing sustainability at USC.
- The Office of Sustainability also convenes students, faculty and staff periodically throughout the year to discuss sustainability strategies through USC’s Sustainability Steering Committee.

Since 2015, the Office of Sustainability has grown from one to four full-time staffers, enabling increased campuswide sustainability reporting, outreach and programming which has elevated awareness of USC sustainability practices.

The Office of Sustainability and staff subject matter experts piloted ad hoc experiential learning projects by conducting presentations to classes, connecting students with campus operational data and facilitating projects that used our campuses as living labs for sustainability. These efforts laid the groundwork for an experiential learning program to be launched in phases beginning fall 2021. Annual progress reports have kept the community apprised of projects and achievements, and twice-yearly public sustainability forums provide opportunities to engage with staff executing this work. The Office of Sustainability has also begun USC’s first Sustainability Tracking, Assessment and Rating System (STARS) report and has spearheaded development of the next long-range sustainability plan, both of which are critical to advancing sustainability at USC.

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Subject matter experts provide students with data and resources necessary to execute experiential learning projects that use our campuses as living labs for sustainability.
Looking Ahead

Sustainability at USC is an institutional priority. As a top private educational research institution and the largest private employer in Los Angeles, we are in a singular position to meaningfully influence and impact our region and our planet.

As we close out the Sustainability 2020 Plan, we are encouraged by our foundational accomplishments and look forward to the next step in our journey—the launch of the 2028 Sustainability Plan.

The 2028 Sustainability Plan is our future envisioned. It will integrate operational, research, academic and branding initiatives into a comprehensive program that will cement our stature as a sustainability leader and ready us for the 2028 Summer Olympics, when the eyes of the world will be on Los Angeles and on USC.
Thank you to these partners, whose hard work has been instrumental in advancing sustainability at USC:

Presidential Working Group on Sustainability, Provost, Sustainability Steering Committee, Office of Sustainability, Academic Senate, Staff Assembly, Facilities Planning and Management, Auxiliary Services, Procurement, Athletics, USC Dornsife Environmental Studies Program, Undergraduate Student Government, Graduate Student Government, Environmental Student Assembly and other student groups.