Developing a Comprehensive Resilience Plan for UCLA

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Team members | Anh-Vy Pham, Sophia Bozone, David Scolari, and Tory Coffin
Stakeholders | Amy Shadkamyan and Nurit Katz
Meet the Team

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Introduction

“Resilience is the ability of a system or community to survive disruption and to anticipate, adapt, and flourish in the face of change.” -Second Nature

Resilience in relation to sustainability is the ability of a system to bounce back from shocks and stressors in order to maintain the environment for future generations to come—but this is not a term often heard at UCLA. That being said there is not a proper program that applies resilience to UCLA either. Therefore, our research team’s goal this year was to give this idea of resilience a running start. In 2018, Mayor Eric Garcetti released a thorough resilience plan for the city of Los Angeles and since then UCLA hopes to apply a similar framework to its own campus. Doing so is no easy task however.

In order to build a resilience program, our first goal was to discover what existing programs and departments at UCLA had the ability to respond to any oncoming shocks and stressors. Meanwhile, we also kept tabs on programs that did not exist, but could be developed for the future. All of this data was kept in a spreadsheet that organized the resilience goals by categories such as equity and fire management. We then took this data and reached out to program directors and department heads to ask for their interest in participating in UCLA’s first Resilience Task Force on May 6, 2019. During this meeting, our team presented our research and recommended areas of improvement. Members of the task force then provided their feedback and advice on what gaps they identified in our current resilience system are and what should take
precedent in terms of refinement. After placing down these first stepping stones, we hope that the authors of UCLA’s first resilience plan will use our research to help tackle a number of topics ranging from natural disasters to natural disasters.

**Background**

In years past, two previous SAR teams have tackled resilience at UCLA. The first team formed in 2016 shortly after Chancellor Gene Block signed Second Nature’s Campus Resilience Commitment. Their research focused on best practices in urban resilience, especially those implemented by other universities and institutions. The team began their research by gathering background information on the field of resilience planning from sources such as the Rockefeller Foundation’s “City Resilience Framework.” They then met with leaders in the field, including Marissa Aho, Chief Resilience Officer for the City of Los Angeles, and Andy Lipkis, founder and president of TreePeople, an environmental non-profit, in order to gain a better understanding of best practices in resilience. The team also took note of some resilience practices by other universities, including the University of Oregon’s implementation of an Incident Management Team, which brings together decision makers from several different departments to make the university more resilient. The background research done by the 2016 resilience team laid the foundation for future work on resilience at UCLA.

In 2017, SAR’s second resilience team worked to plan, acquire funding, and gain approval for the implementation of a stormwater capture cistern. The team began with a few potential locations to implement the cistern, but eventually decided on the first floor of Parking Structure 9. After drafting blueprints and applying for funding from The Green Initiative Fund, the team eventually got approval for a system of cisterns that
would sit in an empty space on the first level of parking structure 9 and collect and filter stormwater runoff. The stormwater capture currently under construction and set to be completed in the spring of 2019.

Both previous resilience teams provided our team with a foundation to build upon. We have continued to research best practices in resilience as we build recommendations for UCLA’s Resilience Task Force. Additionally, as the 2017 team’s cisterns are set to be implemented during the upcoming Spring Quarter, our team had the opportunity to begin the work on an educational display to show all the hard work of the past teams and hopefully turn the interest of the public toward the ongoing work at UCLA to become a more resilient and sustainable environment.

Our Story

Our team’s project was born out of our meetings with our stakeholders. Our stakeholder, Nurit Katz, communicated the need for the resilience spreadsheet created by urban planning graduate student Michelle Tirto to be completed to advance the planning stages of UCLA’s future resilience plan. We were then tasked with filling in the gaps of Tirto’s research by completing her spreadsheet.

When we began our research project in winter quarter, our first step was to familiarize ourselves with the work that had been done on the resilience spreadsheet so far. A graduate student in Urban and Regional Planning at UCLA, Michelle Tirto, had previously written a report assessing UCLA’s current plans, from emergency operations to sustainable transportation, and compared them to the Rockefeller Foundation’s resilience qualities. Part of her report included a master spreadsheet, highlighting 15 goals and 96 strategies outlined in Los Angeles’ Resilience Plan. Our team took on the
task of analyzing existing programs at UCLA that supported the indicated resilience strategies.

To best address the scope of the resilience framework, we decided to divide the goals and pursue research individually. The goals were divided as follows: Safety, Health, Water, Vulnerable Populations, Equity, Energy & Transportation. Our individual research consisted of assessing existing programs at UCLA that apply to each specific goal, finding a department that is responsible for that program, and then selecting an appropriate contact person. If UCLA did not currently have an existing program, we researched other cities/campuses that did and suggested recommendations for improvement along with a relevant resource to contact for more information.

First, each member identified as many existing resources/programs at UCLA that applied to a specific goal. Then, we collected contacts for each specific program. On programs that we thought would be especially relevant to UCLA’s resilience plan, we conducted phone interviews with these contacts. In our individual phone interviews, we started by introducing SAR and our specific research goals. Then, we explained why their particular program/department was relevant to UCLA’s Resilience Plan and gauge whether they were interested in assisting with our needs or being a member on the task force.

Next, we identified resilience goals that do not currently have any support at UCLA. These were the gaps in Tirto’s research that our stakeholders felt would be most beneficial to the UCLA’s future Resilience Plan. Once we had identified a gap, we selected a department that should theoretically be responsible for an applicable program if it existed. One of UCLA’s goals surrounding housing is to “Coordinate a
homeless housing service provider preparedness program to fortify systems and services to withstand future challenges.” Existing applicable programs on campus include: Bruin Shelter, a student run organization that provides housing for up to 10 students based off a competitive application process and the Economic Crisis Response Team, another student lead organization that offers a 14 day stay in a shelter when an student faces an economic crisis. We identified Louis Tse, Executive Director of Bruin Shelter, and Mark Veldkamp, Director of Case Management Services, as relevant contacts. We believe that UCLA currently lacks a robust and centralized infrastructure to provide housing security for a student population as large as ours. We recommend that UCLA establish a university-based program that is devoted to providing services for housing insecure students in order to better address this resilience goal. This is just one pathway of the multiple recommendations we make later in the report.

Early in spring quarter, our team created a survey to better understand who the vulnerable populations our resilience framework aims to serve across our campus. College campuses host a high concentration of vulnerable groups. We wanted to gain a better idea of which shocks and stressors affect which groups disproportionately and which resources these people use on campus to combat those shocks and stressors. With a better understanding of the stressors' frequency and severity, we could also distinguish which resources were either underdeveloped or completely lacking on campus. Initially, we gave out our survey at the Earth Day Fair and eventually distributed it to our personal networks. Our vulnerable population survey helped us brainstorm which resources to recommend expanding at our task force meeting and in our spreadsheet.
With our individual research and survey completed, we finalized recommendations to give to the resilience task force. For the purpose of clear and concise communication, each member was responsible for summarizing a strength and a challenge they found in their research and suggesting a recommendation for improvement. We discussed these suggestions as a group and revised them until they were ready to be presented to our task force meeting in spring quarter.

On May 6th, our group presented our research and recommendations at the resilience task force meeting. With the help of Nurit Katz, our attendee list included Bonny Bentzin, Chidera Izuchukwu, David Eisenman, David Karwaski, Ken Davis, and Mark Gold. We began by individually summarizing our research categories, then opened the meeting for questions and discussions. We were given helpful insight into addressing resilience at UCLA in the future. Strengths and challenges in resources on campus should be measured in response to a certain shock or stressor. Measuring resources in this way will allow for gaps to be filled. In addition, resilience planning should always involve the vulnerable populations being addressed. Instead of planning for vulnerable populations, we should aim to plan with them. Looking forward, the UCLA resilience task force should invite a broad a wide range of stakeholders at the beginning, then break up into smaller, more focused groups. This task force can make progress towards creating a stand alone resilience documents with goals that cross over with climate planning.

Upon applying to SAR, our team was under the impression that our project would be to push forward the efforts of the previous SAR team in addressing water resilience on campus. During our initial meetings with our stakeholders, we were
instead tasked with adopting [Los Angeles' Resilience plan](#) to UCLA. Up for the challenge, our team had to shift our focus on water to instead look at resilience on a much broader scale. This was difficult initially as we had to begin our research by familiarizing ourselves with the broad nature of resilience and how this concept has recently been applied to entire cities involving a number of organizations.

In addition, our team faced difficulty in communicating with siloed faculty and staff while conducting our individual research. This presented an obstacle in understanding the work of a department or organization on campus, especially in understanding how departments/organizations relate to each other. This is significant because developing a resilience plan requires that several related entities work together utilizing their individual strengths.

**Results**

We collected qualitative data of various departments, programs, and contacts that are already addressing specific aspects of resilience on campus (Appendix B). We tailored each one of Resilient LA’s 96 actions or “goals” to UCLA. Then, we identified applicable programs/departments that already exist accompanied by contact information and links to outside resources. For example, under the category of “Vulnerable Populations” we determined that the action to “Expand mobile city services for vulnerable populations” was well addressed through the Mobile Clinic Project and the Ashe Center Flu Fair. There were some actions that were not applicable to a college campus. Additionally, some categories such as “Corporate Structuring” were out of our reach as students. In these cases, we simply marked “N/A.”
After we completed the spreadsheet, we discussed our key takeaways from our independent research and drew conclusions on areas of resilience that were properly addressed and areas that needed improvement. Additionally, we interviewed 75 Bruins with the intention of identifying where resources were of the highest priority for students (Appendix D & E). Our findings below have been thoroughly vetted to be included in UCLA’s first ever Resilience Plan. We have discussed our findings candidly at our weekly team meetings. We have been challenged to dig deeper by our stakeholders. Furthermore, a task force of experts--those who are likely to be co-authors of the plan--attended a presentation of the data and participated in an open discussion.

What follows is an examination of resilience at UCLA in the scope of some of the themes that our team identified in Resilient Los Angeles.

Individual Research Results

Anh-Vy – Equity

One of the themes we looked into was equity; that being UCLA’s ability to be fair and impartial to its community on campus in terms of health, well-being, and social inclusivity. UCLA handles equity well and has many programs and department that target it head on. One of the goals listed in the Resilient LA that also applies to UCLA is to “expand partnerships and programs to reduce food disparities among students, faculty, and staff.” According to an 2016 article from the LA Times, about 40% of students in the UC system have suffered from food insecurity at some point in their lives. Since then, UCLA has made headway in bettering this issue with the formation of the Basic Needs Committee whose mission is to address basic needs issues on
campus. “Their efforts include building and enhancing existing services, conducting comprehensive research, and creating new innovative programs and resources,” according to the Basic Needs Committee website. One of the successful programs they look over is the CPO Food Closet located in the Student Activity Center (SAC). In 2009, the CPO Food Closet started to tackle food insecurity and since then it has become a communal food pantry that helps thousands of students on a day to day basis.

While also looking into the pros of equity at UCLA, we noted the programs and departments relating to social inclusivity that could be further developed to better prepare for oncoming shocks and stressors. The LA Resilience Plan hopes to “support systems and services that are linguistically inclusive and culturally competent”, where the idea is to be more inclusive of the many languages that the various cultures in LA present in the community in order to reduce linguistic isolation. Some applicable programs at UCLA are the Writing Success Program in SAC and UCLA CAE’s provision for sign language interpreters. However, there is room for possible improvement. UCLA does a great job to support diversity and its community, but the goal could be expanded to decrease the barrier by being more linguistically inclusive with its publication, communication, and engagement. This goes beyond support. The CPO touches on this idea of diversity by creating programs where students of similar cultural backgrounds support other students like the Southeast Asian Campus Learning Education and Retention program (along with other clubs on campus), however they are not focused on the communication aspect which touches on the languages of other backgrounds. Diversity on campus is mainly structured by student organizations. Though there is a formalized UCLA group that supports equity, the services they
provide are limited. Therefore, this is a category relating to social inclusivity that can be further developed in the face of shocks and stressors.

Sophia – Transportation/Homeless Students

**Resilient LA** covered three main goals within the area of transportation. This is an incredibly important facet of daily life for all Angelenos, and likewise impacts students and staff alike. The first of these goals addresses both the expansion of access to reliable transportation systems and the advancement of “transit resilience.” The next two goals are concerned with the continuing expansion of sustainable management of transportation infrastructure on behalf of UCLA. Transportation at UCLA has been well maintained, with a pre-existing comprehensive framework for coordination of university operated vehicles as well as the multitude of others that traverse campus daily, so work is already being done to unofficially meet these goals.

UCLA has made extremely beneficial partnerships with transit agencies such as the Metro to provide discounted services to Bruins, and campus shuttles and the Big Blue Bus have greatly increased mobility within the campus and extending into Westwood. In addition to these institutional services, UCLA has partnered with Lyft to offer discounted rides within a radius of the school to offer even more economically feasible options for students. In the next few years, a metro station will extend all the way to our doorstep for cheaper, city-wide access.

With regards to the goals for resilient and environmentally conscious transportation, UCLA Transportation has created a [Sustainable Transportation Plan](#) which outlines plans for 2019 through 2026. Little has been overlooked in this plan that covers air travel carbon offsets, transit advocacy, and promoting active forms of transportation.
Paired with performance measures and milestones, UCLA is moving in a very positive direction in this area.

Less strong is the institutional support for homeless students. UCLA has many resources for struggling students housed under the basic needs committee. The food closet, the good clothes, good people closet, and other services come in to support students that may be struggling financially, but for students that specifically have no place to go every night resources may be slim. Other than the Economic Crisis Response Team (offers up to a two week stay in residence halls), the only temporary housing offered is a student-run and staffed shelter called Bruin Shelter. While the Bruin Shelter offers amazing services for students in terms of housing, its scope is limited with only 10 beds and a long waiting list. Their shelter is run by a group of mostly student volunteers and funded by donations, and it may not be able to support homeless students in the way that a university-based program would be able to. Additionally, there are no established programs that may encourage and advise a homeless student actively looking for housing. The existing programs are an amazing starting place but could be expanded to the great benefit of students that need the most support.

Nick – Cyber Security

UCLA’s Information Security Office manages a number of programs intended to protect Bruins from a variety of cyber threats. As society’s dependence on mobile devices, digital networks, and online databases becomes ever more ingrained in our culture, the tools we use to protect ourselves must evolve with us. UCLA is a massive target for cyber threats; however, through a multitude of services available to the
community, we believe they are fully equipped to handle any future shocks and stressors that arise online.

Multi-factor Authentication (MFA) is becoming common place with other online sites such as facebook, email, etc and is UCLA’s way of addressing Los Angeles’ resilience goal: “Modernizing their Infrastructure” and the strategy: “Enhancing protection of critical digital assets from cyberattacks.” After a cyber attack in May 2017, where 32,000 students personal information was breached, UCLA began rolling out Duo Multi-Factor Authentication (MFA). Now, before logging on to any UCLA credentialed site, students must both use their password and give secondary authorization, typically through a push notification on their smartphone. According to Michael Van Norman, Chief Technology Officer of UCLA, “The goal of MFA is to create a multilayered approach that makes it difficult for any unauthorized person to gain access to a system.”

Perhaps as important as protecting the institutional itself, is educating those who represent it. The CyberSafe Bruin Blog is a great way to educate the UCLA community and address the Los Angeles resilience goal of “Educating and engaging Angelenos around risk reduction and preparedness so they can be self-sufficient for at least seven to 14 days after a major shock” and the Strategy: “Teach Bruins how to protect themselves from cyber-attacks.” Students and faculty upload blogs with preventative security tips typically geared towards the lives of students. The Cyber Security Awareness Training Video Modules provide people who are seeking protection with fun educational videos that depict real world solutions with cartoon characters. Furthermore, UCLA Extension offers a certificate program in Cyber Security for those
interested in specializing in information systems security and cybersecurity. Provided free of charge for recent alumnus, UCLA presents community members with a convenient and financially accessible way to learn how to become cyber resilient.

According to Ken Davis, the Lead Information Security Analyst of Security Operations, UCLA does not participate in the Los Angeles Cyber Lab; however, he agrees that future collaboration with the city at large would be beneficial. The LA CyberLab is a non-profit organization that incubates innovation, practices education, and facilitates information sharing between the public and private sectors. As UCLA gathers more than 80,000 Angelenos on its campus daily, we recommend that the Information Security Office delegate a leader to sit on the council with Mayor Garcetti and other cyber security stewards which in turn would lead to more protection and innovation in the Greater Los Angeles area.

Nick – Wildfire Risk Reduction and Preparedness

UCLA’s ability to reduce the risk of and prepare for wildfires was identified as a high priority area that needs significant improvement throughout our research. The state of California has recently been decimated by a trifecta of unnatural weather patterns: drought, wildfires, then heavy rains. In December of 2017, the Skirball fire burned over 400 acres of land.

According to David Schonfield, the Director of USC’s National Center for School Crisis and Bereavement, schools, whether they be K-12 or large universities, are a sanctuary for vulnerable communities. Schonfield urges schools to educate their community on natural disaster risk reduction and prepare a clear communication plan before a wildfire/storm hits.
While UCLA’s emergency management plan is comprehensive and the avenues for communication after the fact are clear, the UCLA Fire Department’s outreach and education programs for wildfire risk reduction are minimal. Luckily, there are many resources out there that can help. According to the report, “Management strategies in the wildland-urban interface of southern California and their effect on fire behavior and environmental impacts,” organizing interactive, informational displays where the vulnerable neighborhoods are likely to be present, such as at a centralized market or city council meetings, is the most effective and efficient way for fire personnel to educate community members. FireWise USA is another resource that UCLA can tap into which provides resources on how to properly manage vegetation near structures, specific plant lists for given geographical areas, construction materials and standards, evacuation planning, etc.

The SAR resilience team recommends that the UCLA Fire Department, Office of Emergency Management, and the Center for Public Health and Disasters collaborate on developing a Wildfire Safety Council. The council must be interdisciplinary to harness different perspectives of the land and how to properly manage it including: fire personnel, wildlife biologists, community gardeners, residents, developers, environmental groups, emergency management specialists, air pollution experts, etc. With this council, UCLA will then achieve the Los Angeles resilience goal and subsequent strategy of “Building social cohesion and increasing preparedness through community collaboration” via “increasing neighborhood outreach and education around wildfire and mudslide risk reduction in UCLA’s most vulnerable neighborhoods.” We suggest posting risk reduction signage at Ralphs, Ackerman Union, environmental
awareness events on campus, Westwood and North Westwood neighborhood council meetings, and other large community gathering places. We also recommend working with USC’s National Center for School Crisis and Bereavement to adopt their way of providing training and workshops to k-12 communities to a broader scale at UCLA. By collaborating with USC we can increase our communication network from UCLA to Los Angeles as a whole and, in the case of a disaster, have another resource/friend that is willing to help.

David – Vulnerable Populations and Services

One of the goals laid out by Resilient LA is to connect vulnerable populations to mobile services. This is an important goal because in a city as large as Los Angeles, certain populations may be located in areas where necessary services are not easily accessible. UCLA’s campus is small geographically, but its large, diverse population gives it the potential to have far reaching impacts. While their mobility is not as critical, it is still important for the services that UCLA offers to be well targeted at various groups within the campus community in order to ensure that every individual is able to fulfill their needs.

UCLA already offers a variety of services to members of its campus. For example, during flu season, the Ashe center sets up tents and tables and administers flu shots in Bruin Plaza. The CPO Food Closet, UCLA Farmers Market, and the Westwood grocery shuttle are some examples of food related services that UCLA offers. Some other services that UCLA offers include legal services, financial services, and mental health services, to name a few. In order to plan a more resilient campus,
UCLA should continue to streamline and expand the services it offers to its campus community.

But planning and implementing services is only half of the equation. In order to connect groups of people to services, UCLA must first identify the populations that are most vulnerable on its campus and determine which services they need. There are some obvious candidates, such as food insecure and homeless students, low wage workers, and ethnic minority groups, but a UCLA resilience plan should involve a robust study of its population to both identify the most vulnerable groups within it and determine the services they need. This study, whatever form it may take, should include should be done in partnership with groups that represent vulnerable populations to avoid planning for populations and instead plan with them.

Tory – Water

UCLA is committed to reducing its water footprint. Along with all UC campuses, UCLA is working to achieve a 20% reduction of potable water by 2020. Its Water Action Plan identifies key areas in which the campus can reduce its water consumption, such as the conversion of grass to turf on the IM field, dewatering at the Ronald Reagan Medical Center, and the use of the cogeneration recovery system. In addition, UCLA Grand Challenges has set the goal of 100% locally sourced water by 2050.

Other water conservation measures include the expansion of the water reclamation building which results in annual savings exceeding $300k (after payback), and the conversion of grass areas to sustainable, drought resistant landscaping.

UCLA can improve upon its flood mitigation infrastructure. UCLA has experienced costly floods in the past such as the 2014 flood that resulted in $13 million
worth of repairs due to a pipe break. More recently, Murphy Hall experienced flooding from heavy rainfall. To implement stronger mitigation infrastructure, UCLA can draw upon the example of the University of Iowa.

Through funding from the Federal Emergency Management Agency (FEMA) and the state of Iowa, the University of Iowa has addressed flood risk mitigation on its campus as a result of a costly flood in 2008. To prevent future damage from flooding, the university has requiring all buildings to be protected against a 2008 level flood, relocated damaged buildings outside of the floodplain, and development of a campus-wide flood mitigation strategy. FEMA’s plan states that: “mitigation planning can result in lower insurance premiums, including flood insurance through the National Flood Insurance Program.” The Agency recommends: the elevation or floodproofing of buildings; drainage improvements and structural works; moving critical uses (communications, library and other collections, offices) to higher locations; elevation of vulnerable equipment and research subjects, book collections, art, and more. Drawing upon UI’s work, UCLA should also develop its own resilience framework using the guidance of FEMA’s “Building a Disaster-Resistant University” plan. UCLA’s Hydrology and Water Resources team can work alongside the UCLA Water Taskforce to conduct research to develop and implement flood mitigation infrastructure at UCLA. This could include adapting buildings to be flood resistant as 31% of UCLA’s buildings are at least 60 years old, and the implementation of more permeable pavements.

Lea – Food and Education

One of the goals in the Los Angeles resilience framework focuses on education and employment, especially in cultivating leadership, stewardship, and equity with
young Angelenos. As a renowned research-based institution, UCLA has an advantage in educating the proximate community. UCLA has already identified the strengths of the Career Center and the Alumni Association. Having a better understanding of how these programs advance leadership, stewardship, and equity among students may be an asset to the framework. The Career Center serves as the strongest resource on campus for this education goal, linking academic strength at UCLA to careers in our communities.

Many student organizations on campus take on similar goals as the Career Center, in more specialized niches. For example, ASCE helps students develop resumes, lead work groups, attend networking events, and hear from private companies at information sessions. Various departments across campus benefit from similar student organizations, which should be added to the plan to show the depth of commitment to strengthening the Education-to-Career Pipeline.

The graduate school at UCLA also offers similar but more specialized services as the Career Center. As the number of students attending graduate programs increases, this service will continue to have an increasing impact on the same goal. UCLA programs that aim to use employment and partnership to specifically prevent homelessness are limited. Though diversity programs exist, no programs seem tailored to housing insecure students specifically, especially as they fail to address other circumstances housing insecure students may be subject to (clothing, mental health, sexuality). Economic Crisis Response Team is an important resource on campus but does not maintain a significant relationship to allow housing insecure students to create employment partnerships.
UCLA also has noteworthy and constantly growing resources for food insecure students to find consistent meals. Between the Community Programs Office and student-run organizations, movement to reduce food insecurity on campus has increased tremendously over the past decade. The following tools should be added to the resilience framework under a subgoal addressing food security for students on campus. Food security among students allows for other more obvious resilience efforts to be prioritized and builds a more resilient student population.

Emergency preparedness through local food system, however, is limited. As the student body is large and compacted in a small area on campus, in case of an emergency, feeding the student population would pose a significant challenge. Finding more ways to grow food on campus, like the vertical towers and community garden would allow less dependence on outside food providers. Looking to other campuses with similar urban settings and their local food practices could help campus become less dependent on other food resources.

Recommendations

The 2019 SAR Resilience Team is excited to see our findings and recommendations implemented in UCLA’s official plan. Moving forward, however, we think that future SAR teams should focus their efforts on specific areas of resilience, like the 2016 and 2017 SAR Water Resilience teams. We believe that fire, a literal hot topic in California right now, has the opportunity to birth many types of projects.

David Eisenman, the director of UCLA’s Center for Public Health and Disasters, noted during our task force meeting that UCLA does not have a protocol to defend against particulate matter inhalation during and after the event of a fire. We believe a
potential project for next year’s SAR team could be to research the best management practices for dealing with smoke and Particulate Matter 2.5 & 10, especially for those affected by asthma. This project could include researching which face masks, if any, or best in the event of a fire. Furthermore, they could work with Residential Life and ASUCLA to make the face masks readily available in public locations. We suggest conducting an attitude survey to see if the general public would even want to wear the mask. Then tackle any socio-cultural assumptions through strategic outreach and education on campus.

The project above focuses on responses to a wildfire; however, risk reduction is just as important. We urge future SAR teams to work with the UCLA Fire Department to identify and physically remove vegetation surrounding UCLA that could incite or fuel a pre-existing wildfire. Christopher Dicus, from the USFS, recommends that areas on the wildland-urban interface follow these Management Strategies to mitigate fire risk. Using GIS and physical observations, the SAR team could work on identifying vulnerable areas and then conduct field work to improve our campuses’ barrier from wildfires.

Conclusion

The Office of Emergency Management and Facilities Management have made great strides in gathering support and resources to help in the creation of the institution's first comprehensive resilience plan. By engaging key stakeholders in a task force meeting, identifying gaps in resources, and making recommendations for the content of the plan, it has become apparent that a plan of this magnitude requires a
focused team of diverse experts. We believe that UCLA has a unique opportunity to be a leading higher education institution in the relatively new field of resilience.
Appendix A: A mind-map of resilience at UCLA that describes the linkages between seemingly distant areas of interest on campus.
<table>
<thead>
<tr>
<th>Goals</th>
<th>Existing applicable programs at UCLA</th>
<th>Contacts (name, position, email/number)</th>
<th>Links/Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience: enhance robust and sustainable buildings by advancing building frameworks.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Establish post-disaster recovery targets for critical infrastructure</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Achieve infrastructure investments leading up to the Olympic and Paralympic Games to enhance resilience post-disasters and improve health and well-being for all through improved accessibility in neighborhoods.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Equity: (Anh-Vy)</td>
<td>Increase the health and well-being of Angolans through 2028 Olympic and Paralympic partnerships.</td>
<td>BHP, Drake Stadium, M, 212, John W. Mendonca Center, Paul Shaffer, etc.</td>
<td>UCLA: Rec. 1119 (310) 825-5715, Sunset Rec. 1131 (310) 828-6011, MCB 122, 1755 (310) 828-6041, Marina Aquatic Complex 1119 (310) 828-6006, Pacoima UCLA Center 92212 (310) 828-6125.</td>
</tr>
<tr>
<td>Broad partnerships and programs to reduce food disparities among students, faculty, and staff.</td>
<td>Frankfurter &amp; Murphy Landscape Garden, Millwood M. Mathis Botanical Garden, Sunset Sunset Recreation Center, Soquea Park.</td>
<td>Facilities Management: (310) 206-2217</td>
<td><a href="https://www.facilities.ucla.edu/service/premises/engagementworkshops">https://www.facilities.ucla.edu/service/premises/engagementworkshops</a></td>
</tr>
<tr>
<td>Improve the health and well-being for all through increased accessibility in neighborhoods.</td>
<td>Accessibility Services for Students at UCLA, Transportation, Office for Students with Disabilities, UCLA Center for Accessibility Education</td>
<td>UCLA: Transportation Information (310) 825-5715</td>
<td><a href="https://www.transportation.ucla.edu/">https://www.transportation.ucla.edu/</a></td>
</tr>
<tr>
<td>Develop new UCLA-wide indicators and tools to measure and enhance investments in growth and job creation.</td>
<td>Student Affairs Information &amp; Research Office (SAERO), Undergraduate Experience Survey (UES), Graduate and Professional Student Survey (GPSS), UCLA Office of Equity, Diversity and Inclusion, SIE, MHA Career Services, MHS, managing student life and retention.</td>
<td>Student Affairs Information &amp; Research Office (SAERO), Undergraduate Experience Survey (UES), Graduate and Professional Student Survey (GPSS), UCLA Office of Equity, Diversity and Inclusion, SIE, MHA Career Services, MHS, managing student life and retention.</td>
<td><a href="https://www.saERO.ucla.edu/">https://www.saERO.ucla.edu/</a></td>
</tr>
<tr>
<td>Water (Tarai)</td>
<td>Integrates additional resilience measures in the implementation of Los Angeles River new river revitalization efforts.</td>
<td>SEA, NDEMA California, RAMM, Sunshine Water Education and Retention.</td>
<td><a href="https://www.uclamapo.org/">https://www.uclamapo.org/</a></td>
</tr>
<tr>
<td>Expand and printed water courses to reduce dependence on imported water and strengthen the city’s local water supplies.</td>
<td>California Water Plan (CWP) Sustainability Committee. ARW Water Resources Group and UCLA Grad Challenges research team, special thanks to UCLA’s working/songwriting project on renewable water.</td>
<td><a href="https://www.cwp-sustainability.org/">https://www.cwp-sustainability.org/</a></td>
<td></td>
</tr>
<tr>
<td>Increase the health and well-being of Angolans through 2028 Olympic and Paralympic partnerships.</td>
<td>BHP, Drake Stadium, M, 212, John W. Mendonca Center, Paul Shaffer, etc.</td>
<td>UCLA: Rec. 1119 (310) 825-5715, Sunset Rec. 1131 (310) 828-6011, MCB 122, 1755 (310) 828-6041, Marina Aquatic Complex 1119 (310) 828-6006, Pacoima UCLA Center 92212 (310) 828-6125.</td>
<td><a href="https://www.mendoncacenter.ucla.edu">https://www.mendoncacenter.ucla.edu</a></td>
</tr>
<tr>
<td>Expand and printed water courses to reduce dependence on imported water and strengthen the city’s local water supplies.</td>
<td>California Water Plan (CWP) Sustainability Committee. ARW Water Resources Group and UCLA Grad Challenges research team, special thanks to UCLA’s working/songwriting project on renewable water.</td>
<td><a href="https://www.cwp-sustainability.org/">https://www.cwp-sustainability.org/</a></td>
<td></td>
</tr>
<tr>
<td>Vulnerable Populations (David)</td>
<td>Incorporate the human right to clean and affordable drinking water.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Increase the number of students, staff, and faculty with preparedness resources and training in the areas of resilience</td>
<td>Bruce Saito: App office of emergency management, UCLA Urban Disaster Program: disaster management workers contact list at UCLAWireless Health Workers, UCLA Healthy Campus Connections.</td>
<td><a href="https://www.stringsand%E9%A7%90%E5%B8%B8%E4%BA%8B%E5%8B%99%E5%A4%89%E6%9B%B4.com/">https://www.stringsand駐常事務変更.com/</a></td>
<td></td>
</tr>
<tr>
<td>Supporting L.A. neighborhood communities at the neighborhood level by developing and coordinating support modules in community services in neighborhoods that would meet their needs.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6b. Appendix B: Spreadsheet of our research, resources, and contacts broken down
into categories of resilience.

<table>
<thead>
<tr>
<th>Mobile City Services for Vulnerable Populations</th>
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<td>Mobile City, Project Save, Medical, Public Health, USA.gov.</td>
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<td><a href="mailto:mobilecity@usagov.com">mobilecity@usagov.com</a></td>
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<th>Promoted and expanded options for vulnerable populations such as economically vulnerable and homeless people, and systems of economic inclusion and human trafficking</th>
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<td>Economic Crisis Response Team (ECRT) Coordinator (ECRT) Coordinator (ECRT) Coordinator</td>
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<th>Supporting people with trauma</th>
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<td>CAPS, Facilitating Connection (CAPS)</td>
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<td>UCLA Information Security Office (USI)</td>
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**Housing**

- Double the pace of affordable housing production and preservation and triple production of new permanent supportive housing for low-income regulation, adopting new financing mechanisms, and employing adaptive reuse of publicly owned sites.

**Employment (Sophia)**

- Expand access to financial literacy and security resources for UCLA students, staff, and faculty.
- Establish a student project pipeline that creates living-wage jobs for Los Angeles’ most disadvantaged.

**Education (Lea)**

- Build partnerships to strengthen the Education-to-Green Pipeline.

**Health (Lea)**

- Fortify public health and healthcare critical infrastructure and leverage partnerships with public health organizations to improve community health and wellness.

**Food (Lea)**

- Expand climate and emergency preparedness throughout our local food system.

**Diversity (Lea)**

- Promote diversity in community leadership by pursuing policies and programs that develop more leaders reflecting the communities they represent.
6c. Appendix C: A rendering of a sign intended to inform the general public on resilience and sustainable water practices at UCLA. A campus architect approved sign will be placed next to the 2017 SAR Resilience team’s cistern project and serves as the education and outreach component of our project.
6d. Appendix D: Vulnerable Populations Survey Questions used to inform the authors of UCLA’s resilience plan.

Section 1: Demographic Information

1. What is your ethnic background?
   a. Black or African American
   b. White (European)
   c. White (Middle Eastern or North African)
   d. Latinx or Hispanic
   e. American Indian or Alaska Native
   f. Asian
   g. Native Hawaiian or Other Pacific Islander
   h. Prefer not to answer
   i. Other

2. Which of the following best describes your gender identity?
   a. Female
   b. Male
   c. Genderqueer
   d. Nonbinary
   e. Prefer not to answer
   f. Other

3. What is your age?
   a. 18-23
b. 24-30

c. 31-40

d. 41-50

e. 50+

4. What is your university status?
   a. Undergraduate student
   b. Graduate student
   c. Doctoral student
   d. Faculty
   e. Staff
   f. Other

5. Do any of the following categories best describe you?
   a. Undocumented student
   b. Out of state student
   c. First generation student
   d. None of the above

6. Do you have any ongoing health challenges?

7. What is your current living situation?
   a. On campus housing
   b. Off campus UCLA housing
   c. Non-UCLA apartment within 2 miles of campus
   d. Commuter
   e. Housing insecure
Section 2: UCLA Services

1. Which of the following types of services offered by UCLA do you utilize?
   a. Transportation (ie. Bruin Bus, Bruin Bike, etc.)
   b. Healthcare (ie. free flu shots, UCSHIP, etc.)
   c. Employment (ie. Career Center, Dream Resources Center, etc.)
   d. Equity (ie. Student Legal services, Center for Accessible Education)
   e. None
   f. Other

2. For which of the following documents have you felt you needed additional support in filling out?
   a. Tax forms
   b. FAFSA
   c. Apartment applications/lease forms
   d. Credit card applications
   e. None

3. Are there any services NOT offered at UCLA that you wish were offered?
Section 3: Vulnerable populations

1. Do any of the following factors make you feel vulnerable?
   a. Financial insecurity
   b. Housing insecurity
   c. Food insecurity
   d. Minority ethnic identity (non-white)
   e. Living alone
   f. No air conditioning
   g. Lack of green space
   h. Age
   i. None
   j. Other

2. On a scale from not at all to strongly affected, to what degree do the following shocks cause you stress?
   a. Earthquakes
   b. Wildfires
   c. Extreme Heat
   d. Debris flow/mudslides
   e. Economic trends
   f. News that impacts my racial or ethnic background
   g. Political unrest in my or my family’s country of origin
3. On a scale from never to very often, how often have you felt affected by the following shocks?
   
   a. Earthquakes
   b. Wildfires
   c. Extreme Heat
   d. Debris flow/mudslides
   e. Economic trends
   f. News that impacts my racial or ethnic background
   g. Political unrest in my or my family's country of origin

4. Are there any other shocks, including natural disasters, political uncertainty, and financial hardship, that cause you significant amounts of stress?
6e. Appendix E: Survey Results (75 Responses) that reveal many things about UCLA’s student body including the frequent use of healthcare services, desire for help with taxes, and vulnerability because of financial insecurity.

Which of the following types of services offered by UCLA do you utilize?

15 responses

- Transportation (i.e. Bruin Bus, Bruin Bi...) 4 (26.7%)
- Healthcare (i.e. free flu shots, UCCHIP,...) 10 (66.7%)
- Employment (i.e. Career Center, Dream Re...) 4 (26.7%)
- Equity (i.e. Student Legal Services, Cen...) 0 (0%)
- None 3 (20%)
- Gluten free pantry provided by housing ... 1 (6.7%)

For which of the following documents have you felt you needed additional support in filling out?

60 responses

- Tax forms 34 (56.7%)
- FAFSA 22 (36.7%)
- Apartment applications/lease forms 20 (33.3%)
- Credit card applications 12 (20%)
- None 8 (13.3%)
- does not apply 2 (3.3%)
- no 2 (3.3%)
Do any of the following factors make you feel vulnerable?
62 responses

- Financial insecurity: 33 (53.2%)
- Housing insecurity: 7 (11.3%)
- Food insecurity: 8 (12.9%)
- Living alone: 17 (27.4%)
- No air conditioning: 11 (17.7%)
- Lack of green space: 23 (37.1%)
- Age: 6 (9.7%)
- None: 3 (4.8%)
- Gender: 2 (3.2%)

To what degree do the following shocks cause you stress?

- Earthquakes
- Wildfires
- Extreme Heat
- Debris flow/mudslides
- Economic trends
- News that impacts my racial or ethnic background
- Political unrest in my or my family’s country of origin
Works Cited


