

Sustainability Action Research Final Presentations

Resilience

Developing a Comprehensive Resilience Plan for UCLA

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Stakeholders: Amy Shadkamyian and Nurit Katz

Introduction

Office of Emergency Management Needed:

- A comprehensive overview of resilience at UCLA
- A student's perspective on strengths and weaknesses
- Contacts and resources for future resilience plan

Goals of the Project

- Evaluate
- Research
- Discuss
- Recommend

RESILIENT
LOS ANGELES



Existing applicable programs at UCLA	
Seismic	
Increase participation in city and state programs that promote safer housing by reducing earthquake risk	Natural Hazards Risk and Resiliency Research Center (NHRC) & Campus Emergency Response Team (CERT) training
Advance seismic safety, prioritizing the most vulnerable buildings, infrastructure, and systems	Natural Hazards Risk and Resiliency Research Center (NHRC)
Collaborate with California cities to advance regional seismic safety	Natural Hazards Risk and Resiliency Research Center (NHRC)
Launch an earthquake early warning system	UCLA BruinAlert, Bruin Safe App
Energy/Transportation/Climate Change	
Develop a clean energy and smart grid infrastructure that is reliable in the face of future climate impacts and hazards	Renewable Energy Association, UCLA Smart Grid Energy Research Center
Transition to Zero-Fossil-Fuel Streets to fight air pollution and help tackle the global threat of climate change	Bruin Commander Club, BruinTAP, Bruin Bus, UCLA Bike Share, Carpool/Vanpool
Coordinate among transit agencies to advance regional transportation and transit resilience	BruinTAP, BruinBus, metro expansion
Health	
Fortify public health and healthcare critical infrastructure and leverage partnerships with public health organizations to improve community health and wellness	ASHC Center CalFresh Initiative Lavender Health Alliance Mobile Health Clinic
Housing	
Coordinate a homeless housing service provider preparedness program to fortify systems and services to withstand future challenges	Bruin Shelter (Student for Students) UCLA Economic Crisis Response Team



Significance

“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

“As the world continues to urbanize, sustainable development depends increasingly on the successful management of urban growth...”

- UN World Urbanization Prospects

Resilience in Los Angeles

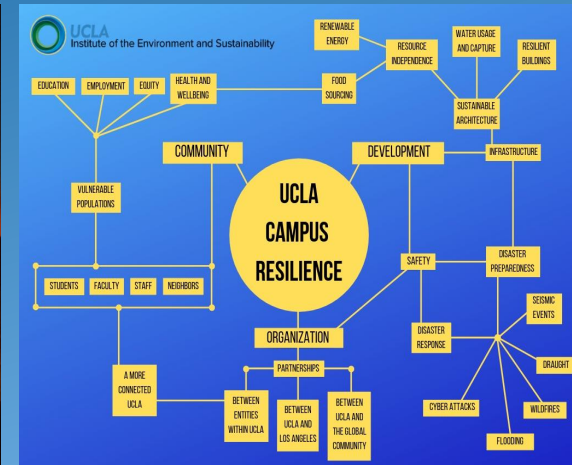
- The Plan: *Resilient Los Angeles*
 - Released in March of 2018 by Mayor Garcetti's office
 - Lays out 15 Goals and 96 Actions ranging in topic from infrastructure to community engagement
- Shocks and Stressors
 - Aimed at making LA more prepared for major shocks such as earthquakes, wildfires, and terrorist attacks.
 - Addresses worsening stressors such as rising temperatures, economic inequality, and chronic homelessness.

RESILIENT LOS ANGELES

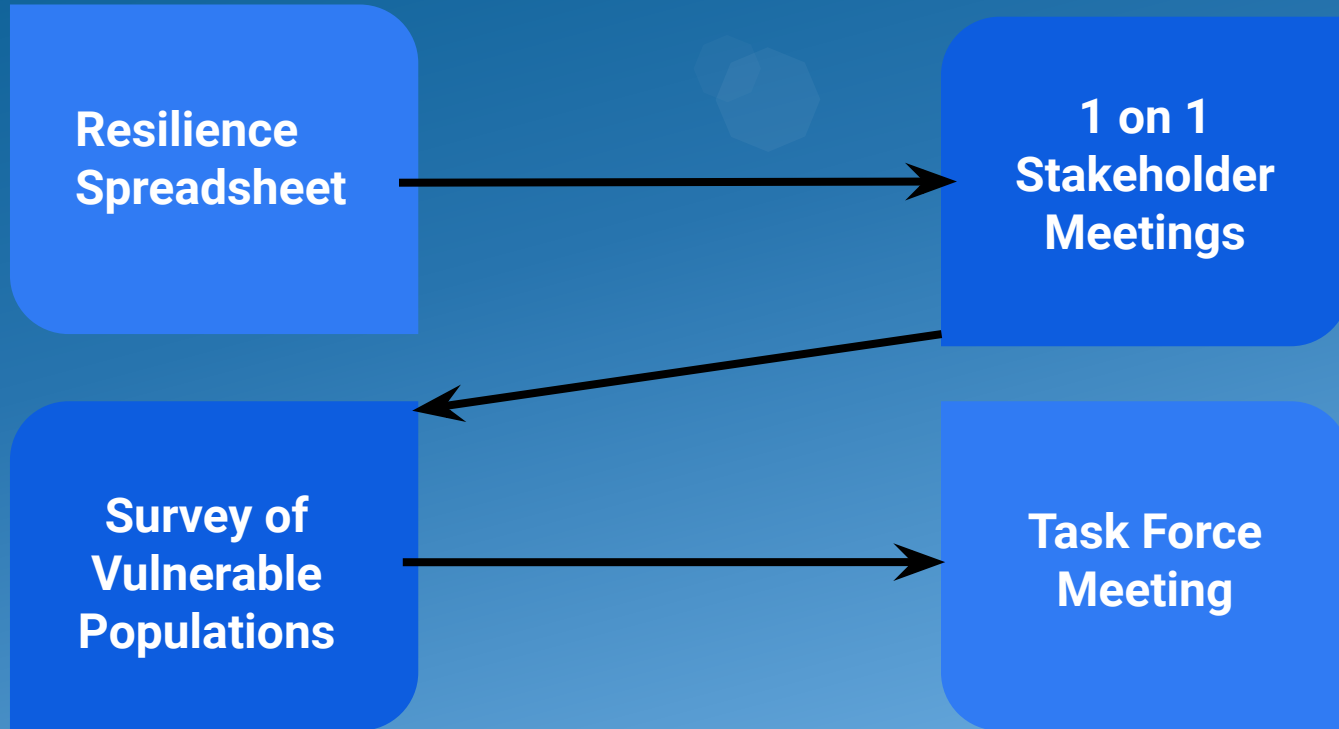


Resilience at UCLA

- Second Nature's Campus Resilience Challenge
 - A commitment among universities in the LA region to foster resilience planning efforts
 - UCLA signed on in 2015
- 2014 water main breakage, Skirball, and Woolsey fires serve as reminders of the shocks that threaten the campus
- A UCLA Resilience Plan:
 - Support LA's goals and actions
 - Address the campus's unique communities, stressors, vulnerabilities



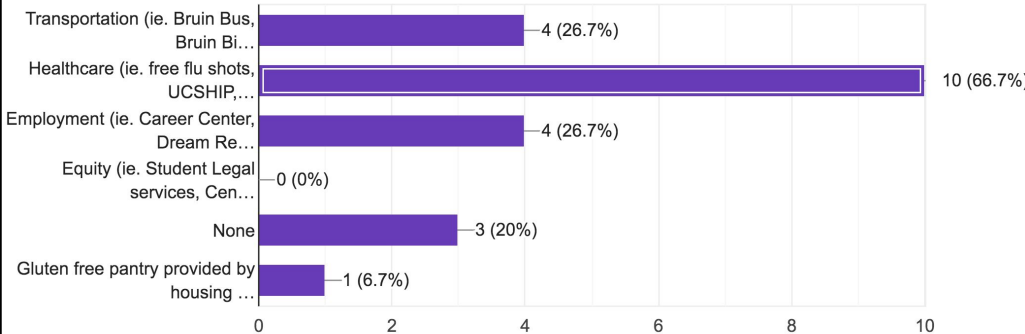
Methods



Methods: *Survey*

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

15 responses



To what degree do economic trends cause you stress?

Not Affected

16.2%

Slightly Affected

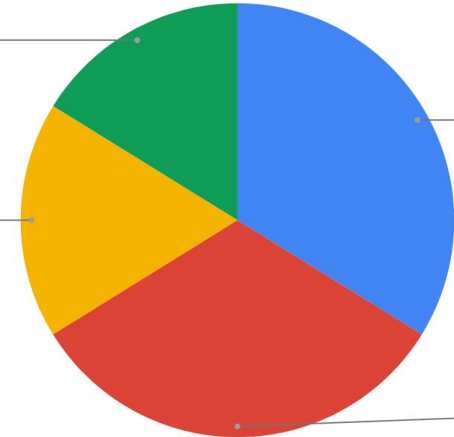
33.8%

Strongly Affected

17.6%

Somewhat Affected

32.4%



Methods: *Education and Outreach*

UCLA Stormwater Capture System

Resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience. This student-led research project saves approximately 240,000 gallons of water per year by capturing rainwater in on-site storage tanks and reusing it for campus irrigation, thus increasing UCLA's local water supply and its ability to adapt both to long-term drought and immediate emergencies.

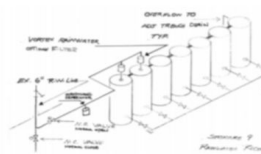


Figure 6: Draft of final design by Tom Lukas.

System: 7 - 4,100 gallon tanks
Water Savings: 240,000 gallons per year
Cost Savings: \$70,000 over 25-year lifespan of system

UCLA Transportation

This project was assisted greatly by Tom Lukas, the assistant director of Facilities Management. UCLA Transportation intends to apply for Green Garage Certification with the help of this project.



UCLA's Water Action Plan: 36% potable water reduction per capita by 2025.



Sustainability Action Research (SAR) is a student-initiated, student-designed, and student-facilitated research program offered through the Institute of the Environment & Sustainability (IoES). Students on SAR Teams are partnered with a campus stakeholder to research, rethink, investigate, and tackle UCLA's greatest sustainability issues. Three teams over the course of four years have focused on enhancing resilience strategies at UCLA via designing, implementing, and educating the community of a new stormwater capture system.



2016: Kathleen Knight, George Yang, William Chen, Adam Gushansky, and Austin Park



2017: Manali McCarthy, Gayla Whiteside, Kathleen Knight, Ricardo Patlan, Lillian Wherry



2019: Nick Caton, Léa Le Rouzo, Anh-Vy Pham, Sophia Bozone, Tory Coffin, and David Scolari



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Key Findings

Corporate Structuring	Equity	Development	
Launch a coordinated preparedness campaign that encourages people at UCLA to take actions that improve their resilience.	Increase the health and wellness of Angelenos through 2028 Olympic Games	Infrastructure	Education
Expand workforce preparedness training opportunities and programs to quickly restore essential UCLA services after a major shock	Expand partnerships and programs to reduce food disparities among students, faculty, and staff	Innovate more resilient and sustainable buildings by advancing Building Forward L.A.	Build partnerships that strengthen the Education-to-Career Pipeline
Integrate Resilience into Community Plan updates including risk and vulnerability analysis and policies and implementation measures that address them	Invest in healthy and safe housing to improve public health and increase equity	Establish post-disaster restoration targets for critical infrastructure	Strengthen opportunities for young Angelenos to connect with civic leadership programs
Supporting LA: Connect community organizations with experts and resources to guide and efficiently support the development of Neighborhood Resilience Hubs	Increase access to open space in underserved neighborhoods	Leverage infrastructure investments leading up to the Olympics and Paralympics to advance resilience goals	Deploy employment development programs and partnerships to prevent and reduce student homelessness
Launch the Campus Resilience Challenge	Improve the health and well-being for all ages through improvements in mobility	Fortify critical lifeline infrastructure and supply chains through continued assessments, coordination, and investment	Develop the next generation of student stewards to be leaders in climate and disaster resilience
Promote neighborhood planning programs to support all Los Angeles neighborhoods in developing preparedness plans	Develop new UCLA-wide equity indicators to inform and measure inclusive investments and policy-making	Water	Energy
Make resilience-building a permanent part of the City of Los Angeles' systems and services	Support systems and services that are linguistically inclusive and culturally competent	Integrate additional resilience measures in the implementation of Los Angeles River waterway revitalization efforts	Develop a clean energy and smart grid infrastructure that is reliable in the face of future climate impacts and hazards
Require resilience as a guiding principle for land use decisions in the Los Angeles General Plan and Zoning Code updates	Expand education and capacity-building to promote pluralistic values and social inclusion	Expand and protect water sources to reduce dependence on imported water and strengthen the City's local water supply	Expand combined solar and energy storage pilots
Integrate resilience and sustainability principles into City capital planning	Vulnerable Populations	Prioritize key neighborhoods for stormwater capture, urban greening, and other community benefits	Expand electric fleets, charging infrastructure, and energy backup to reduce emissions and support emergency and response services
Integrate new and emerging science into policy through partnerships with academic, local, state, and federal scientists	Increase the number of students, staff, and faculty with preparedness resources and training in the most vulnerable areas	Leverage flood mitigation infrastructure to enhance local water availability	Transition to zero-emissions technology at the Port of L.A. to reduce emissions, improve air quality, and build disaster resilience
Collaborate with Cities to Build Resilience Around the Globe	Supporting LA: help map key community services at the neighborhood level, possibly commit to creating/supporting mobile community services in neighborhoods without them	Proactively address flood risk through policy, communication, and infrastructure planning	Transition to Fossil-Fuel-Free Streets to fight air pollution and help tackle the global threat of climate change

Key findings

Strengths:

- Cyber security
- Public health network
- Mobile clinic services
- Transportation
- Supporting food insecure students

Challenges:

- Wildfire preparedness
- Mental health
- Flood risk management
- Identifying vulnerable populations
- Homeless student support

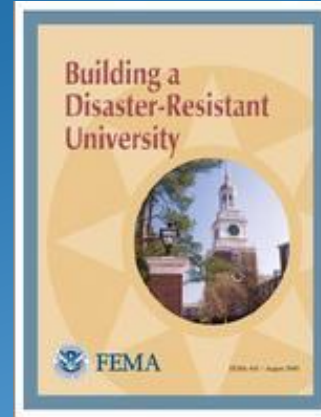


Content Recommendations

- Keep vulnerability in mind at every stage of the resilience planning
- Develop proactive strategies for wildfire safety and educate the community on risk-reduction and disaster preparedness
- Establish flood resistant and mitigation infrastructure on campus

USC
Suzanne
Dworak-Peck
School of Social Work

National Center for
School Crisis and Bereavement



FIREWISE USA®
RESIDENTS REDUCING WILDFIRE RISKS

Structural Recommendations

- Craft quantifiable goals with specific dates for these various challenged areas
- Avoid “reinventing the wheel” and work with existing programs
- Separate sustainability and resilience documents and reference when needed to prioritize the distinct goals



Challenges

- Familiarizing ourselves with a broad topic
- Shifting away from water resilience
- Communicating with siloed faculty and staff for individual research



Conclusions

- Furthered the development of a comprehensive resilience plan for UCLA
 - Engaged key stakeholders across campus
- Future SAR projects
 - Wildfire planning for public health
 - Resilience involves vulnerable populations
 - Plan with them, not for them



Acknowledgements

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