



Resilient Northridge

A Plan for a Better
Community & Campus



CSUN MASTER OF URBAN PLANNING GRADUATES 2018

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Northridge East Neighborhood Council
Northridge South Neighborhood Council
Northridge West Neighborhood Council
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Resiliency is an Issue

By: Nuccio Patti

This resiliency plan was prepared for Northridge, California State University Northridge (CSUN), and the surrounding region. Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within an area to survive, adapt, and grow regardless of chronic stresses and acute shocks experienced. The purpose of the project was to assess the urban resilience needs of Northridge and CSUN and to work with the community to formulate a plan to recover quickly and well from a crisis, and preferably to prevent the crisis in the first place. The resiliency assessment used various techniques of information gathering and analysis, including statistical data, historical and archival research, expert interviews, geographic information systems mapping, community surveys, and workshops with community members and stakeholders. This analysis was performed by a group of urban planning graduate students in collaboration with Northridge Vision, City of Los Angeles Council District 12, Second Nature, CSUN and CSUN's Institute for Sustainability.

This resiliency plan was developed to help meet CSUN's reporting requirements for Second Nature's The Presidents' Climate Leadership Commitment and was developed with funding provided by the Kresge Foundation to Second Nature through a grant to accelerate resilience progress: Climate Resilience in Urban Campuses + Communities (CRUX). The plan worked to extend the reach of a campus plan to include the surrounding neighborhood, recognizing that resilience for CSUN and Northridge are closely interrelated. Training from The Nature Conservancy on techniques to develop a resiliency plan was provided via the CRUX grant to several Los Angeles area colleges and universities and methods were adopted in the development of this specific plan.

CSUN Master of Urban Planning Students

Source: Dr. Craig Olwert



History of Northridge Planning Efforts

By: Angella Tai

The natural landscape of vast lands framed Northridge's link to agriculture in the region. In the mid-1950s, the farming landscape started developing into small single-family residential lots with the combination of post-war veterans' ability to purchase homes and the increasing number of industrial jobs in the San Fernando Valley. As a result, many people flocked to the region to make Northridge their home. Some Northridge residents have felt disengaged with Los Angeles governmental planning entities that have a jurisdiction of over 35 planning areas. Of those 35 planning areas, 14 of those planning areas are located in the San Fernando Valley where Northridge is located.

In response to what San Fernando Valley residents considered to be neglect, many residents found ways to engage in their communities and formed neighborhood councils that could influence the planning efforts in Northridge in more responsible, productive, and effective ways. Northridge residents have taken direct action to deal with the increasing homelessness and trash problems that have affected their neighborhoods. The success of these small and effective groups addressing the local neighborhood issues gained the attention of Los Angeles politicians and encouraged them to reach out and ask for assistance to gain Northridge community input and support on initiatives. Therefore, the strength of Northridge Vision and community leaders will be the main driver for future success in Northridge.



Reseda Boulevard in Northridge, CA circa 1954.

Source: Water and Power Associates (Valley Times)

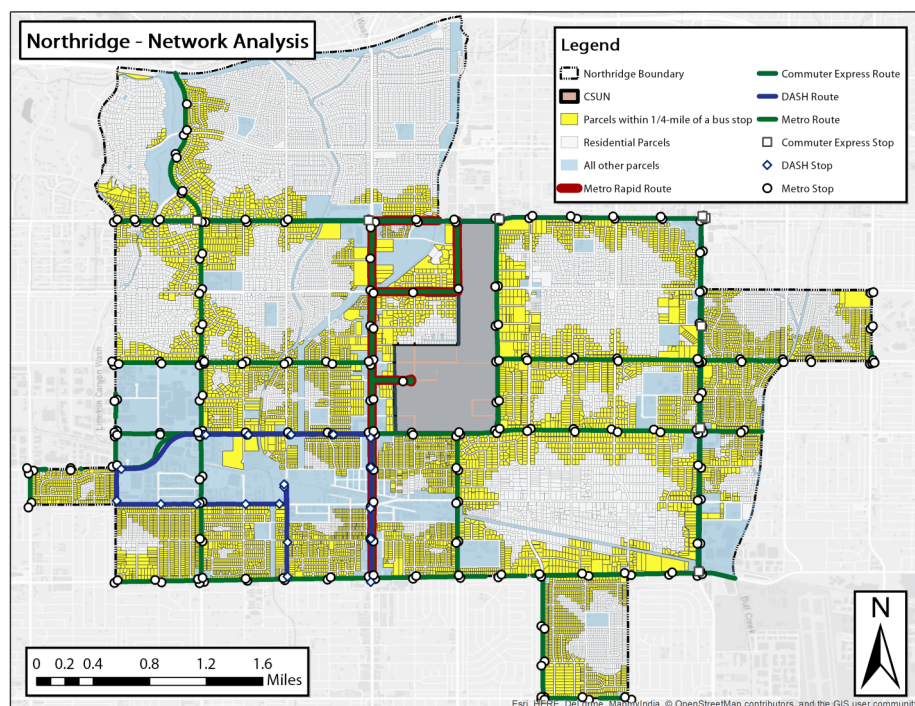
Existing Conditions

Public Transit

By: Jose Quintanilla

A strong and resilient transportation network is diverse, affordable, well-maintained and effective for all. Transportation in Northridge is dominated by two primary modes - buses and cars. There are 15 bus routes serving Northridge - 11 Metro routes, 3 Commuter Express routes, and 1 DASH route (Commuter Express and DASH are operated by the Los Angeles Department of Transportation). Metrolink, a commuter rail service operating in the Los Angeles metropolitan area, provides service through the Northridge Metrolink Station. Bus stops are considered “walkable” if located within a quarter-mile of transit patrons as transit riders will typically only walk a quarter-mile to a bus stop and a half-mile to a train station¹. A network analysis² of Northridge’s 292 bus stops (266 belong to Metro, 18 to DASH, and 8 to Commuter Express) showed that approximately 53.8% of Northridge’s residential parcels, containing about 48,000 of Northridge’s 78,000 residents, are within a quarter-mile of a bus stop.

With 30,000 residents not located at a reasonable distance from a bus stop, it is not surprising that, on average, 76% of residents choose to drive to work alone. In census tracts with the lowest bus coverage, this percentage is as high as 82%, while census tracts with the highest bus coverage have the lowest number of solo drivers. Northridge’s built- and transit-environments are geared toward the car, not pedestrians or transit commuters. Wide streets, long blocks, and a lack of protected crosswalks and bikeways are common, and often the fastest and safest way to travel is in one’s own car. Northridge lacks diverse transit options and is underserved by the transit network as a whole.



Network Analysis map showing residential areas of Northridge within a quarter-mile of a bus stop.

¹Victoria Transport Policy Institute. (n.d.). Transit Oriented Development. Retrieved October 18, 2017, from <http://www.vtpi.org/tdm/tdm45.htm>

²The network analysis performed for Northridge shows which residential properties are within a quarter-mile of a bus stop. The analysis found the shortest route between two points, one point being a residential parcel and the other point being a bus stop. The end result shows which areas are covered by bus service within a quarter-mile, and which are not covered. Using this information, an approximate number of residents covered by bus service was calculated using 2010 U.S. Census population data broken down by street block.

Existing Conditions

Traffic Conditions

By: Joel Rodriguez-Torres

Los Angeles is notorious for having some of the most congested roadways in the United States. Because of this, traffic volume and circulation are have always been on the forefront for Angelinos. Commuters in the San Fernando Valley and Los Angeles have accepted their obligatory relationship with their automobiles. A future disastrous event in the community of Northridge and CSUN may have a profound effect on the circulation of traffic. Amidst the chaos, traffic volume and circulation can have a dangerous impact on pedestrians, bicyclists, and other vehicles.

The San Fernando Valley is characterized by having wide streets in a superblock urban grid. In Northridge, these superblocks tend to have a length of 2 miles. Wide streets are also prevalent throughout the Valley, as the design of the street dictates its purpose to move traffic through the arterial streets as efficiently as possible. Northridge has numerous arterial streets that are connected to the 118, 405, and 101 freeways. Because of the priority given to motor vehicles, some streets can seem unsafe. The arterial street design allows cars to obtain higher speeds on those roadways rather than on narrower streets. Due to higher speeds, traffic collisions involving pedestrians, bicyclists, or other vehicles have a higher chance of being fatal. Studies have shown that Northridge contains the first (Reseda Boulevard at Devonshire Street), third (Balboa Boulevard at Nordhoff Street), and eighth (Reseda Boulevard at Roscoe Boulevard) most dangerous intersections in all of California. Current plans, such as the City of Los Angeles' Great Streets and Vision Zero initiatives, are seeking to make the streets safer. These projects provide a solid foundation in identifying which corridors of Northridge require attention in order to make them safer. Because traffic volume and traffic safety have a close relationship, it is important to note which areas of Northridge are most affected by these issues.

Traffic volume and safety have a profound impact on the community of Northridge and CSUN. Realizing the impact that traffic conditions have on the community can help residents understand how to best be prepared for any disastrous events that are affected by them.



Traffic congestion in Los Angeles.

Source: Eric Demarcq (Flickr)

Existing Conditions

Bicycle Networks

By: Philip Neumann

The bicycle infrastructure within Northridge is in need of improvement. The Bicycle Infrastructure map, using 2015 data, exhibits the bike paths, protected bike lanes, and bike routes in Northridge. Northridge lacks bicycle infrastructure connectivity in the southern part of the neighborhood. With the help of the City of Los Angeles' first parking protected bike lanes, Reseda Boulevard offers some of the safest biking in Los Angeles. Several bike lanes travel northbound and southbound, but the lack of eastbound/westbound bike lanes limits the connectivity, leading to an unconnected bicycle infrastructure in Northridge. Finding a way to build upon and utilize the current bicycle infrastructure to its maximum potential can create a cleaner and increasingly active community.

Walkability

By: Philip Neumann

Walkability Index Scores, as of 2012, do not show Northridge in a favorable light. There is only one census tract that has scores that are above zero. Every other area of Northridge is in the negative.¹ As of September 2017, there are 486 crosswalks in the Northridge community.² A lack of crosswalks is therefore not considered an issue.

There are a couple of other factors that have led to poor walkability. One factor is lack of street connectivity. Good street connectivity is generally considered to be 1.4 and above. It has been found that Northridge West has a street connectivity index of 1.31 and Northridge East a street connectivity index of 1.33. Northridge South, with a street connectivity index of 1.53, is the only section of Northridge that is considered to have good street connectivity. The street connectivity also implies a lack of sidewalk connectivity, thus producing lower walkability. Sidewalk connectivity is often prevented by the numerous cul-de-sacs. The second main factor is the lack of sidewalk and tree maintenance. Sections of sidewalks are being uprooted by trees or are cracking for other reasons. The lack of maintenance makes these sidewalks unfit for some to walk on and can be detrimental to the safety of children or the elderly, among many others. In order to provide better pedestrian infrastructure for residents and promote physical activity within the community, sidewalk repairs need to take priority when civic improvements are being made.

Broken sidewalks are a big concern for Northridge residents.

Source: Philip Neumann



¹City of Los Angeles. (2016). Walkability Index Score 2012. Retrieved October 04, 2017, from <http://geohub.lacity.org/datasets/>

²City of Los Angeles. (2016). Crosswalks. Retrieved October 04, 2017, from <http://geohub.lacity.org/datasets/>

Existing Conditions

Community Networks

By: Allan Sanchez

Community networks can be regarded as the formal and informal networks that support civic cohesion in a modern society. These systems become increasingly important when community members experience undue stress due to physical, economic, or environmental forces. Utilizing trusted sources of information based on relationships, community networks provide a safety system of advice designed to return affected members to normalcy.

Formal networks have a long history in Northridge. Originating from homeowners associations formed during the rapid suburbanization of the area in the 1950s, they have morphed into politically active neighborhood councils that have the ear of local elected officials. Informal networks personified through single-issue advocacy groups or social circles take on renewed importance when communities face stresses from economic and social forces. However, in the minds of many Northridge residents, prominent community networks and nonprofit organizations do not exhibit the pertinence necessary to enact change. This sentiment partly stems from the lack of name recognition of community organizations and local elected officials. Formal governing bodies are not easily identified by the college-aged population leading to decreased community participation of young people. Increasing communication strength of formal and informal community networks can lead to lasting outcomes of increased civic participation and community cohesion.

Civic involvement is important for community cohesion.

Source: David Fine/FEMA

(Wikimedia Commons)



Existing Conditions

Housing

By: Nuccio Patti

Multifamily zoned areas are mostly at and near the university.

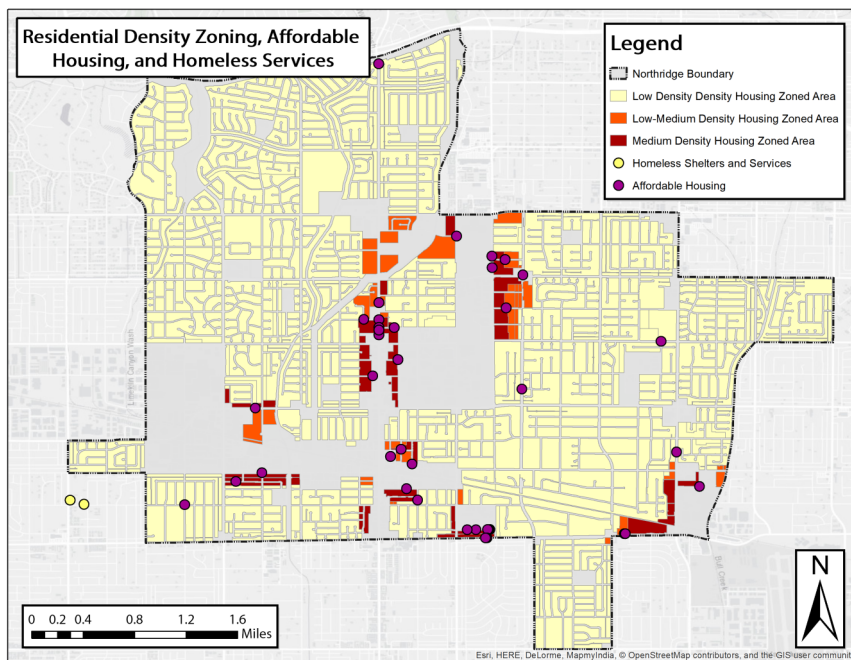
Per the 2015 American Community Survey, there were 30,202 housing units in the examined area of Northridge, while the greater Los Angeles County had 3,504,139 housing units¹. As of 2015, the vacancy rate for the area was 4.6%. 18,376 units in the area were detached single-family residence homes, whereas 1,130 were attached single-family homes. Combined, single-family residences made up 65% of housing units in Northridge. In comparison, 56% of the units in the County were single-family homes. Two to four unit structures were less than 1.5% of the housing stock, with another

2.5% and 3.5% belonging to properties between five to nine units and 10 to 19 units, respectively. 27% of the housing units in the area were located in large buildings of 20 or more units. This is comparable to the percentage of large multifamily housing units in the County. Lastly, less than one percent of the Northridge housing units were classified as mobile homes, RVs, or vans. In 2015, there were 38 affordable housing complexes operating in the neighborhood, while there were a total of 771 low income housing apartment complexes in the County (54,571 affordable apartments units in total).

In terms of income levels, 20% of census tracts would be considered low income for individuals (a family of one) making 80% of area median income or less (\$46,500 per year) compared to 32% for the County. 30% of Northridge Census tracts would be considered low income for families (a family of three, the average family size of the neighborhood), making 80% of area median income or less (\$59,800 per year). In comparison, 40% of family households in the County earned below 80% of area median income.

In regard to homelessness, the Los Angeles Homeless Services Authority (LAHSA) 2017 homeless count showed a total of 216 homeless individuals in the 20 neighborhood census tracts, 119 of whom were unsheltered². In that same count, LAHSA estimated that there were 57,794 persons experiencing homelessness on a single night in the County (34,189 of whom were counted in the City of Los Angeles). When compared to the overall City and greater county area, Northridge had a small portion of the region's homeless population.

Housing is a basic necessity required for a community to be resilient. It is also an indicator that can be predicted, planned, and tracked, which makes it a factor that can be – as much as possible – prevented through effective resiliency planning, as opposed to assessed simply with planning and estimated mitigation measures taken after crises.



¹U.S. Census Bureau (2011). *Selected housing characteristics, 2011-2015 American Community Survey 5-year estimates*. Retrieved from <https://www.census.gov/programs-surveys/acs/news/data-releases/2015/release.html>

²Los Angeles Homeless Services Authority (LAHSA). *Homeless Count Results Los Angeles County and LA Continuum of Care*. Updated September 12, 2017 (2017 LAHSA Homeless Count). Retrieved from <https://www.lahsa.org/documents?id=1495-homeless-count-2017-results-by-census-tract.xlsx>

Existing Conditions

Economic Activity

By: Karen Hwang

As San Fernando Valley's population grew in the 20th Century, so did the region's business opportunities. One of the earliest industries to arrive was filmmaking, and today this "Valley of the Stars" is the center of motion picture and television production in America. Today, Northridge serves as a key neighborhood in the San Fernando Valley, providing rich employment opportunities.

According to the North American Industry Classification System (NAICS), home businesses and retail shops are most dominant businesses in Northridge¹. There are no 'Professional, Scientific & Technical services' and 'Management of Companies' in Northridge. However, one business to note is Medtronic, which is commonly known as a medical technology facility, but is actually classified as a manufacturing business under the NAICS classification system.

Community members feel there are diverse employment opportunities in the area. Research suggests two ideas: (1) Businesses pertain to growth and diversity of cities, and (2) Local residents prefer to work locally to minimize commutes. While not all employees reside in Northridge, the majority of employees live in the surrounding areas, with travel commutes no more than approximately 10 miles on average. Additionally, there is a shift in the labor force that enables employees to work remotely, decreasing the need to commute. San Fernando Valley has become a major employment center in Los Angeles County. CSUN and Northridge Fashion Center are noted as two major employment centers.

In 2016, Northridge had an unemployment rate of 11.5%. Los Angeles provides unemployment benefits to eligible workers who are unemployed through no fault of their own (as determined under State law) for a maximum of 26 weeks. Northridge's economic force is led by its diverse business opportunities available to its community.



Active businesses are the epicenter of economic activity.

Source: Berit Watkin (Flickr)

¹City of Los Angeles. (2016). North American Industry Classification System. Retrieved November 7, 2017 from <http://geohub.lacity.org/datasets/>

Existing Conditions

Public Safety

By: Bardo Osorio

Situated in the west San Fernando Valley, Northridge is considered to be one of the safest communities in the City of Los Angeles. However, according to Los Angeles Police Department personnel, an increase in gang activity and a growing homeless population has led to an increase in violent and property crime in the west San Fernando Valley, including Northridge. Data obtained from the LAPD showed a 60% increase in gang-related crimes for Northridge between 2014 and 2016, along with a 45% increase in gang-related shootings for that same time period. In addition, Northridge experienced 10 homicides between 2012 and 2017, six of which were gang-related, with four of those six occurring in the last two years¹. In response, the LAPD Devonshire Division re-deployed several police officers from specialized units and administrative positions to patrol duties in order to boost the number of officers on the streets. The shift was intended to reduce response times and get more officers into neighborhoods.

As part of the Northridge community, the CSUN campus must also be taken into account in terms of resilience and its vulnerability to crime. According to the CSUN 2017 Annual Security Report, rape and domestic violence increased in 2016². A total of 14 rapes were reported within the University's jurisdiction in 2016, nearly three times the figure reported the previous year, with nearly all of them having occurred in campus residential facilities. In contrast, only five rapes were reported in 2015 and two rapes in 2014. Motor vehicle theft and robbery have also increased in the last few years, with the number of incidents doubling for both categories from 2015 to 2016.

Moving forward, strong relationships between local law enforcement and both the Northridge and CSUN communities are critical to increasing public safety. It is important for police officials to rely on the participation of community members when implementing strategies aimed at reducing crime. Similarly, community members' willingness to actively participate in such strategies depends on whether they believe that law enforcement actions reflect community values.



Strong relationships between local law enforcement the Northridge community are critical to increasing public safety.

Source: Los Angeles Police Department (Flickr)

¹Los Angeles Police Department. (2017). City of Los Angeles Crime Data from 2010 to Present. Retrieved September 13, 2017, from <https://catalog.data.gov/dataset/tags=lapd>.

²California State University, Northridge. (2017). 2017 Annual Security Report. Clery Crime Statistics 2014-2016. Retrieved September 13, 2017, from <https://www.csun.edu/sites/default/files/clery-report.pdf>.

Existing Conditions

Food Security

By: Molivann Phlong

Having access to reliable, fresh, and affordable food is important for Northridge residents to sustain a vibrant and healthy community. During times of shocks and stressors, having available, accessible, and secure local sourcing of food can strengthen neighborhoods. Northridge and surrounding areas can survive, adapt, and grow by critically analyzing available resources and planning land use available for reliable sources of fresh and healthy foods.

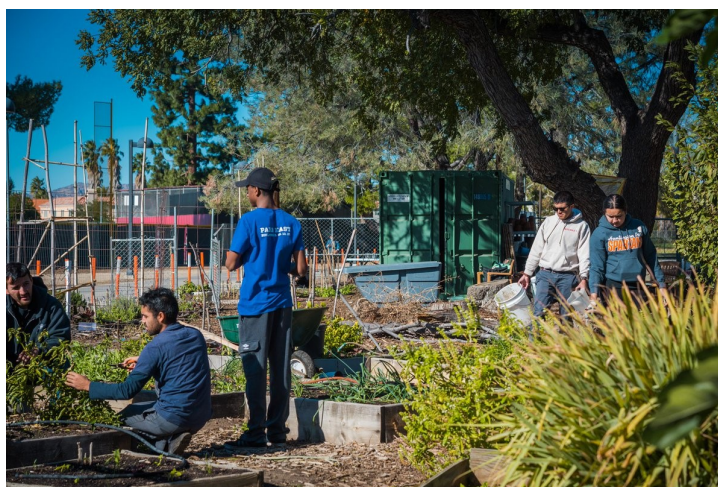
Communities with effective land use regulations and the capacity for urban agriculture can decrease health issues such as obesity and diabetes. Northridge residents can grow and sell food from the benefits of the City of Los Angeles parkway law, Food and Flower Freedom Act, Assembly Bill (AB) 1616 (California Homemade Food Act), and AB 551 (State of California Urban Agriculture Incentive Zones).

Within a five-mile radius of Northridge's boundary, there are a total of 6,748 food establishments. Within Northridge itself, there are a total of 340 businesses, with a mixture of grocery stores, liquor stores, sit-down restaurants, and fast food restaurants. The CSUN campus is also home to a weekly Farmer's Market providing local and fresh produce to its residents. Northridge is not classified as a food swamp or food desert. To strengthen the food resilience of Northridge, residents should have access to local healthy food resources. One way of addressing accessibility issues in terms of equity and affordability for low-income persons and families is the Supplemental Nutrition Assistance Program (SNAP). SNAP vouchers can be used at Farmer's Market and traded for food at acceptable food establishments to help increase accessibility.

The CSUN campus has a food pantry, food garden, fruit trees, and a food system involved with supporting students who may be food insecure. Northridge has large spaces of green space for urban agriculture. The City of Los Angeles' Department of Building and Safety allows green roofs and rooftop gardening provided that all applicable code standards are adhered to with restrictions to successful permit and review. Rooftop garden requirements include a supplemental irrigation system with an adequate drainage system, fueled equipment for maintenance, minimum height guards, waterproof roofs, adequate spacing, debris clearance, and non-flammable plant species. Overall, Northridge residents have access to healthy food establishments, and have the capacity for urban agriculture and food gardens.

Students grow locally sourced food at the CSUN Food Garden.

Source: CSUN Institute for Sustainability (Twitter)



¹City of Los Angeles. (2016). North American Industry Classification System. Retrieved November 7, 2017 from <http://geohub.lacity.org/datasets/>

Existing Conditions

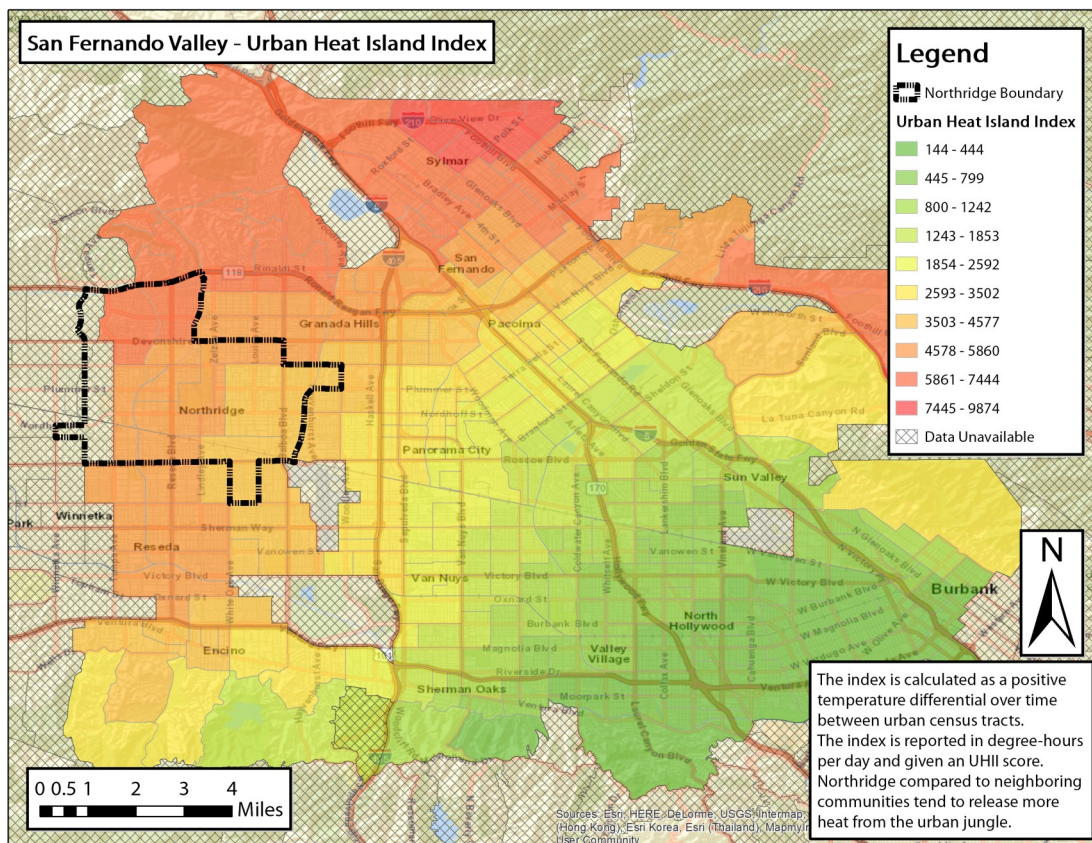
Climate Change

By: Tracy Chu and George Peraza

Climate change includes major changes in temperature, precipitation, wind patterns and a substantial rise in sea level. A 2015 UCLA report predicts that by 2050, parts of the County will experience up to three to four times the annual number of extreme heat days with temperatures at or above 95 degrees, especially in the San Fernando Valley¹. It also found that cool roofs and green roofs had little effect on the thermal comfort of a person walking down the street; planting more trees in unshaded areas was the most effective cooling strategy.

Urban Heat Island

Urban areas can experience high temperatures, greater pollution, and increasingly negative health effects during warmer months. The urban heat island effect is created by heat-absorptive surfaces, heat generating activities, and an absence of vegetation. Monitored and quantified by the California Environmental Protection Agency, the Urban Heat Island Index illustrates areas where prioritization, education, and preparedness should be amplified for residents to combat extreme heat. Northridge experiences higher urban heat than the eastern area of the San Fernando Valley. The stagnant urban heat can exacerbate the effects of climate change, such as more intense and frequent heat waves. The effects can also cause secondary impacts, such as energy consumption and the acceleration of pollutants.



Northridge
experiences
high urban
heat.

¹Netburn, D. (2017, Feb 9). L.A.'s mayor wants to lower the city's temperature. These scientists are figuring out how to do it. *Los Angeles Times*.

Existing Conditions

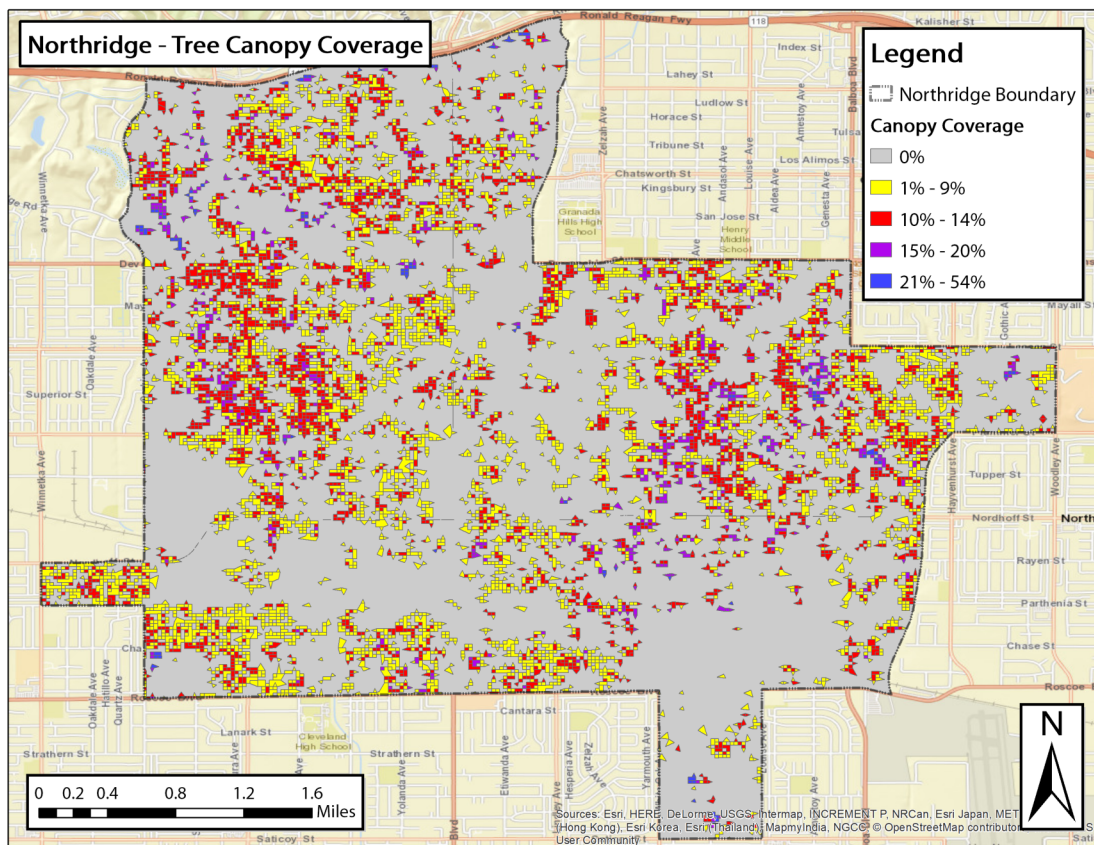
Climate Change Cont.

By: Tracy Chu and George Peraza

Tree Canopy Coverage

In 2008, the City of Los Angeles conducted an assessment on tree canopy coverage for the city and broke down the data by council districts and neighborhood councils². Compared to the tree canopy coverage in Los Angeles, which is 21%, the tree canopy coverage in Council District 12 is 19.8%. However, using data from the 2011 National Land Cover Database, approximately 27.2% of Northridge had some level of tree canopy and, on average, there was about 2.7% of tree canopy coverage in the area³. Overall, most areas in Northridge had zero percent tree canopy coverage, which is represented by grey in the map.

By identifying areas which are susceptible to higher temperatures, Northridge can prioritize areas of investment to mitigate primary and secondary effects of urban heat island. With proper planning and investment, Northridge will reduce the urban heat island effect and become a resilient community.



There is little tree canopy coverage in Northridge.

²McPherson, G. E., Simpson, J. R., Xiao, Q., & Wu, C. (2008). Los Angeles 1-Million Tree Canopy Cover Assessment. *Forest Service of the U.S. Department of Agriculture*.

³ Homer, C.G., Dewitz, J.A., Yang, L., Jin, S., Danielson, P., Xian, G., Coulston, J., Herold, N.D., Wickham, J.D., and Megown, K. (2015). Completion of the 2011 National Land Cover Database for the conterminous United States-Representing a decade of land cover change information. *Photogrammetric Engineering and Remote Sensing*, 81(5), 345-354

Existing Conditions

Water

By: Jon Philip Mijat

The LADWP utilizes several sources of water that flow from the Owens River Valley through the Los Angeles Aqueducts, to the Metropolitan Water District's (MWD) Colorado River Aqueduct and the State Water Project (California Aqueduct). Local groundwater from the San Fernando Water Basin is used as well. LADWP's recycled water travels through its purple pipe network, which irrigates parks, medians, and cemeteries. Water sourced from the Owens River continues to decline, and imported water from the Metropolitan Water District accounts for 70% of the water in the system. However, 79,056 acre-feet of water is taken from the local groundwater basins (California State Water Resources Control Board).¹ In 2016, LADWP had a total of 486,734 acre-feet of water (California State Water Resources Control Board).²

Water quality in Northridge is considered good and treated to high standards for drinkability before the water enters the home. However, the local groundwater basins in the San Fernando Valley are contaminated in several locations from the mishandling of hazardous materials and runoff from the aerospace and manufacturing industries. LADWP is currently cleaning select areas of known contamination, but it is an expensive and time-intensive endeavor that will take years to complete. Regardless of this, the City of Los Angeles is determined to source its water with local groundwater remediation efforts in order to use more of the water that is located underneath Los Angeles. The current groundwater is sufficient to supply Los Angeles with more water and is a sustainable option in comparison to the water delivered through the Los Angeles Aqueduct or MWD's system.



Road Demolition to change a section of a water main.

Source: Senior Airman Benjamin Wiseman (Andersen Air Force)

¹California State Water Resources Control Board. Water Conservation Portal-Conservation Reporting.SWRCB.gov. https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/2018apr/uw_supplier_data040318.xlsx. Accessed January 2018.

²California State Water Resources Control Board. Water Conservation Portal-Conservation Reporting.SWRCB.gov. https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/2018apr/uw_supplier_data040318.xlsx. Accessed January 2018.

Existing Conditions

Energy

By: Kimberly Knabel

Energy disruptions are not uncommon side effects of extreme weather events or equipment failures. While nationally, most major power outages are the result of hurricanes, in Northridge, uncontrolled threats are more commonly earthquakes, wildfires or extreme heat. Access to reliable power can be critical for first responders, hospitals and the public; relying on clean water pumped to their tap and air conditioners. Energy in forms other than grid electricity, including battery backup, diesel, gasoline and natural gas can also be good backup systems in emergencies that disrupt the grid.

Northridge is within the Los Angeles Basin Local Reliability Area. Water and power are both served to Northridge by LADWP.¹ Power substation J, which reduces voltage from transmission lines for local distribution, is maintained by LADWP. It is located within Northridge and is currently under investigation after a mechanical failure, on the evening of July 8, 2017, resulted in an explosion, fire and a blackout for 12 hours.

Los Angeles County has one of the lowest per-capita electricity consumption rates in the nation, comparable to San Francisco and New York City. However, due to continued reliance on coal, its greenhouse gas emissions rate is approximately 30% higher than those cities, while still being significantly lower than other metropolitan regions. Building energy comprises the largest single portion (>39%) of the County's emissions inventory.² Although Los Angeles has experienced dramatic improvements in a wide variety of environmental areas over the last few decades, we still have a long way to go till there are safe, healthy neighborhoods for all residents. At the neighborhood level, Northridge can independently take steps to alleviate impacts of any future power interruptions.



Installation of solar panels.

Source: Creative Common
CCO

¹LADWP. (2017, 09). LADWP Briefing Book 2017-2018. Retrieved October 10, 2017, from <http://www.ladwpnews.com/2017-briefing-UCLA>, Sustainability. (2015). 2015 Environmental Report Card for Los Angeles

²County. Retrieved October 15, 2017, from <https://www.ioes.ucla.edu/project/2015-environmental-report-card-for-los-angeles-county/> book/

Existing Conditions

Earthquakes

By: George Peraza

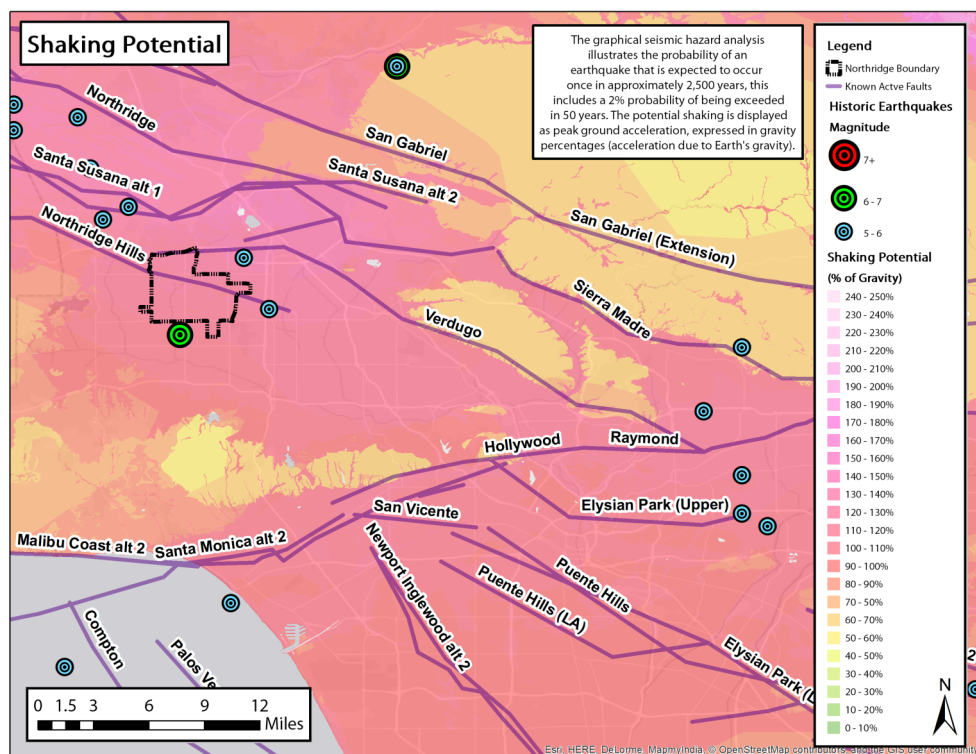
The San Fernando Valley basin is bound by the Santa Susana, Simi Hills, Santa Monica, Verdugo, and San Gabriel mountain ranges. Northridge, along with the surrounding valley and mountain ranges, is part of the Transverse Ranges geomorphic province. The Transverse Ranges are filled with features such as sediment-filled valleys and east-west trending mountain ranges. Northridge is also bound by many active geologic features, such as strike-slip faulting, thrust faulting, and folding, leading to deformation of terrain.

Seismic behavior is dominated by the north-south compression associated with the Pacific Plate and the North American Plate.¹ The movement between the two plates is the driving force of fault ruptures and earthquakes felt in Southern California. The San Andreas Fault Zone separates both the Pacific and North American Plates, and has a north-south trending orientation. However, north of the Transverse Ranges, the fault trends in an east-west direction, creating the “Big Bend.”² The “Big Bend” causes the right-lateral strike-slip movement, producing the north-south compression, which leads to the uplift of several mountain ranges. The San Andreas Fault is the largest and most active fault system in Southern California.

Additionally, Northridge is bound by several other fault systems. The Northridge Hills Fault Zone is one of the most significant faults in the area, located roughly through central and northern Northridge. Other active or potentially active faults include the Santa Susana Fault Zone located north of Northridge and the Sierra Madre Fault Zone located northeast of Northridge.

Exploiting the seismic risk of Northridge has produced skills, resources, and public awareness, creating a resilient community in times of crisis. Parallel with the City of Los Angeles, with the combination of planning, education on preparedness, and interconnected communities, Northridge will become a resilient community.

Faults and shaking potential in Northridge.



¹Langenheim, V., Wright, T., Okaya, D., Yeats, R., Fuis, G., Thygesen, K., & Thybo, H. (n.d.). Structure of the San Fernando Valley region, California: Implications for seismic hazard and tectonic history. *Geosphere*, 7(2), 528-572.

²Cooke, M., & Dair, L. (2011). Simulating the recent evolution of the southern big bend of the San Andreas fault, Southern California. *Journal of Geophysical Research: Solid Earth*, 116(B4), N/a.

Existing Conditions

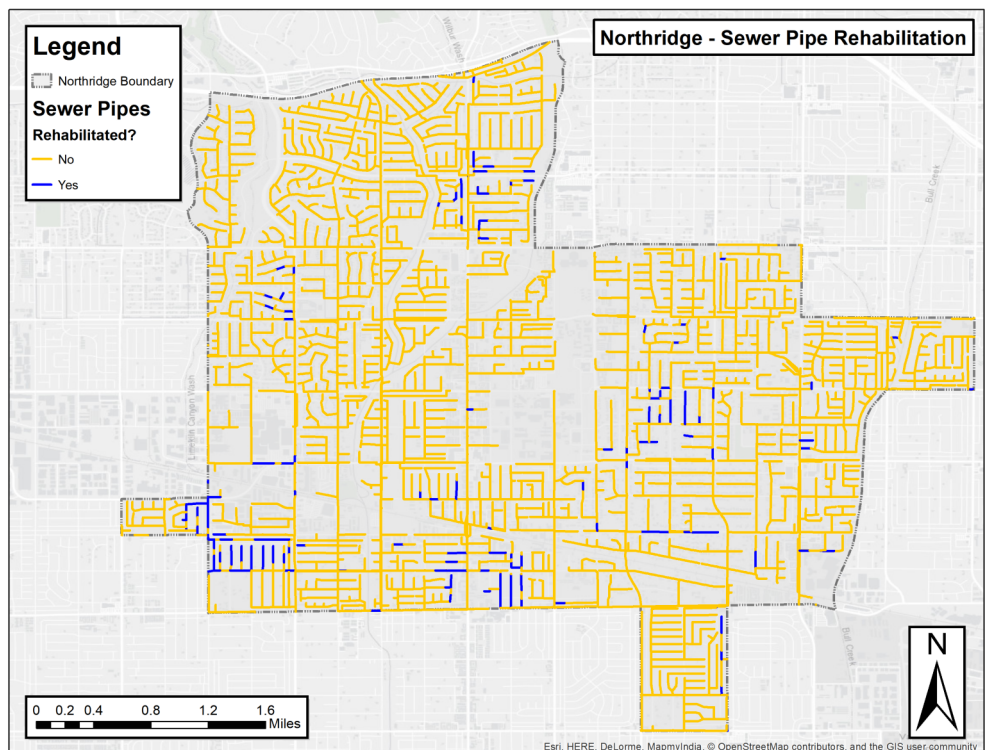
Wastewater

By: Karen Chavez

The sewer infrastructure is a complex system that lies beneath the community, and requires timely rehabilitation. As seen through GIS data analysis, a substantial amount of the sewer infrastructure is poorly maintained and poses a major risk to the Northridge community and its residents. The lifetime of sewer pipe equipment is estimated to be an average of 50 years, and many sewer infrastructure pipes have been installed as early as 1928. Anything installed before 1965 should preferably be rehabilitated in order to prevent any adverse consequences to the community. The Sewer Pipe Rehabilitation map identifies the pipes that have been rehabilitated and pipes that have not.¹ This map reveals that there are many pipes, especially the ones installed prior to 1960, that are in dire need of rehabilitation and are at risk of rupturing during an earthquake.

The Northridge community offers a multitude of opportunities to its residents, and yet it can continue to benefit from improvements to increase the overall health, safety, and welfare of those citizens. After assessing the current conditions of the sewer infrastructure, it is imperative that city departments allocate funds and progressively rehabilitate the intricate sewer system.

Rehabilitation of
wastewater
infrastructure.
Source: City of
Los Angeles (Geohub)



¹City of Los Angeles. (2016). Sewer Structures (Rehabilitated). Retrieved October 10, 2017, from <http://geohub.lacity.org/datasets/>

Public Involvement

By: Jon Philip Mijat, Molivann Phlong, Karen Chavez, Karen Hwang, and Tracy Chu

Introduction

The formation of this plan was the culmination of multiple strategies to receive public input and adapt their feedback into viable plan recommendations. First, the core group of researchers were trained to acquire public input in group settings through a workshop led by The Nature Conservancy and Second Nature. Second, a web-based survey, asking opinions about varying topics from tree canopy to safety, was distributed to residents of the three Northridge Neighborhood Councils. From those responses, a current conditions report was developed to record and determine topics and issues to be addressed. Third, a Northridge Open House was held to further understand Northridge residents' opinions concerning hazards and topics faced by the Northridge community. Fourth, monthly Northridge Vision meetings from February to May 2018 provided ideas and feedback from Northridge neighborhood leaders. The final form of community input was obtained through a Student Open House held on the California State University Northridge (CSUN) campus to identify student resiliency concerns for CSUN and Northridge. These multiple methods of community input helped identify important topics and recommendations that would be supported by the community.

Resiliency Training

A Community Resilience Building Workshop Training workshop training was held on September 9, 2017 at CSUN's University Student Union Altadena Room. This workshop was led by both Adam Whelchel from The Nature Conservancy and Tim Carter from Second Nature. The goal of the workshop was to involve and train CSUN graduate students of the Master of Urban Planning program to conduct their own community resiliency workshops and reinforce the urgency to proactively plan and act in response to community hazards and threats.

At the start of the training, participants were informed about the process of preparing and facilitating conversation at a workshop. They were grouped into small teams for the workshop activity where they role-played to identify top hazards, current challenges, and strengths for a fictional campus and community. For this role-playing activity, each team was provided a printed map, pens, and the Community Resilience Building Workshop Risk matrix. This matrix included predetermined hazards, strengths, and vulnerabilities for the fictional location's infrastructural, societal, and environmental features. Each team received their community background and potential hazards affecting it. Each team member role played a fictional community stakeholder, allowing the students to understand the importance of such feedback and allowing it to affect each team's decision. The teams then developed and prioritized strategic actions to improve their community's resilience from threats like extreme weather and natural and climate-related hazards. Each team then prioritized and categorized these strategic actions into long-term, short-term, or ongoing actions on the resilience matrix. At the end, the teams explained their top three priorities to all the attendees, and a final discussion identified common goals to address current and future hazards and threats.

This workshop's central objectives were to prepare and train participants for a workshop, characterize hazards, identify community vulnerabilities and strengths, identify and prioritize community action, determine the overall priority actions, and generate a resiliency plan. This leadership training was useful to the graduate students in conducting future community resiliency workshops and was adapted in the development of this resiliency plan.

Survey

During the month of November 2017, a web-based survey was sent to the residents of the Northridge community by means of the Northridge Neighborhood Councils. This survey had one question for each of fifteen resiliency indicators of likely importance to Northridge residents and identified through archival, quantitative and qualitative research conducted by the students. The goal of this survey was to identify the level of agreement residents had with the research findings. To each of fifteen statements, a resident could respond that they: strongly agree, agree, neither agree/disagree, disagree, strongly disagree. There were 60 participants, all resided in Northridge and two were CSUN students. The input was assessed and incorporated into the community recommendations.



Northridge Vision Meeting, February 14, 2018

Source: Jon Philip Mijat



Community meeting at Emle's Restaurant, November 15, 2017

Source: Dr. Zeynep Toker

Public Involvement Cont.

By: Jon Philip Mijat, Molivann Phlong, Karen Chavez, Karen Hwang, and Tracy Chu

Northridge Community Workshop

A community workshop was conducted in November 2017 at Emle's, a local restaurant in Northridge. The residents were informed about the Northridge Community Workshop through emails sent by three Neighborhood Councils, postings on Nextdoor.com, private social networks associated with Northridge neighborhoods, and through Council District 12's weekly news bulletin. The goal of the workshop was to have the residents identify the most important hazards and topics related to Northridge's resiliency. The residents were broken into small groups that could choose three of eight predetermined hazards: terrorist attacks; endemic violence; high unemployment; an overtaxed/inefficient public transportation system; earthquake; disease outbreak; chronic food and water shortage; bad air quality; and fire. Each small group then identified which sub-topics were most likely to be affected by the chosen hazards and chose the three most important sub-topic or hazard combinations. Each small group presented their findings to the entire meeting.

The community workshop identified the overtaxed/inefficient public transportation system and earthquake as the two most important hazards. These results are not surprising considering the significant damage caused by the 1994 Northridge Earthquake and considering Los Angeles' famous gridlock which can hinder access to important services such as education, employment, healthcare and food.

Northridge Vision Meetings

A total of four presentations were made to the Northridge Vision Committee, which consists of local leaders and neighbors, during their monthly meetings in order to further understand issues and discuss recommendations regarding Northridge. During the first meeting held on February 14, 2018, participants identified strengths and weaknesses for various community topics and identified them on maps.. Overall, the participants expressed a desire for more on-campus parking by CSUN students, for less crowded neighborhood parks, and for improved bus services.

During the next Northridge Vision meeting, held on March 14, 2018, recommendations developed for the Northridge community were presented to gather feedback and to prioritize the recommendations. Fifteen recommendations were developed based on student research, the Northridge Community Workshop and the February 14, 2018 Northridge Vision meeting, recommendations. The top three recommendations were: build a Bus Rapid Transit line on Nordhoff Street; increase tree and sidewalk maintenance; and plant more trees and implement cool pavements.

During the April 11, 2018 meeting, cost estimates and measures to monitor success for the Northridge recommendations were presented to Northridge Vision. During the final Northridge Vision Meeting presentation held on May 9, 2018, the final resiliency plan was presented.

Student Open House

A CSUN Student Open House was held in February 2018 to gather input from the students, faculty, and staff. The main objective of the Student Open House was to have the CSUN student body identify the most important resiliency hazards. The hazards presented to the student body were those utilized in the Northridge Community Workshop: terrorist attacks, endemic violence, high unemployment, inefficient public transportation systems, earthquake, disease outbreak, chronic food and water shortage, bad air quality and fire. The students were given three stickers for each of the two hazards they considered to be most relevant to CSUN resiliency. They then assigned these stickers to thirty subtopics, identified through the research, to help identify which topic recommendations should cover.

A total of 87 people participated in the Student Open House. The results indicated traffic safety, public transportation, local planning efforts, and crime and safety are amongst the highest ranked subtopics. Tree canopy coverage, businesses, and diversity of housing were the least important subtopics to students. The prioritized subtopics have been further developed into recommendations for CSUN.

Conclusion

Public involvement by CSUN students and Northridge residents was essential in the development of this resiliency plan. They identified the most important hazards and topics that threaten Northridge and CSUN. The recommendations developed for this plan addressed concerns identified by the community. This plan was made for the Northridge residents and CSUN student body.



CSUN Student Open House, February 21, 201

Source: Jon Philip Mijat



CSUN students identify potential hazards to Northridge.

Source: Jon Philip Mijat

Aligning with Resilient Los Angeles

“Resilience is a value that guides everything we do in Los Angeles, because we know that the decisions we make today will shape the future our children and grandchildren will inherit. The Resilient Los Angeles plan will help us strengthen our infrastructure, protect our economy, make our institutions more inclusive, and create safer neighborhoods.”

-Mayor Eric Garcetti

This resiliency plan serves as a more targeted, community-driven supplement to the City of Los Angeles’ plan, Resilient Los Angeles (<https://www.lamayor.org/Resilience>). As an integrated part of the large and complex city system, the design team found it important to properly align the objectives and recommendations of this plan with the goals and actions of the City’s overarching plan. In resilience terms, **Shocks** are sudden or acute events that threaten or impact Los Angeles’ immediate well-being. These can include earthquakes, extreme weather events, infrastructure failures, or civil unrest. **Stresses** are daily or chronic challenges that weaken our natural, built, or human resources. Examples include climate change, aging infrastructure, inequity, and homelessness. Stresses can amplify the effects of shocks when they occur, particularly for vulnerable populations. Each Northridge and CSUN recommendation references the Resilient Los Angeles resiliency shocks or stresses associated with it.

Mapping Shocks and Stresses

● Shock ○ Stress

Disaster Preparedness and Recovery

Multiple hazards and threats could affect Los Angeles with little to no notice, and these disruptions could impact a few or all Angelenos. However, the magnitude of the impact can be reduced through greater awareness of these potential disasters and preparedness measures that can be taken in advance to bounce back quickly when disaster strikes.

- | | |
|----------------------------|-----------------------------|
| ● Earthquake | ● Riot/Civil Unrest |
| ● Fire | ● Public Health Emergencies |
| ● Landslides | ● Chemical Emergencies |
| ● Cybercrime and Terrorism | ● Tsunami |

Climate Adaptation

Los Angeles is taking action to reduce the impact of future climate change, while also preparing for and adapting to the already-changing environment. Over the past few years, Los Angeles has experienced a new normal, with record-breaking drought, heat, and storms; climate projections illustrate the future challenges with urban heat island, unpredictable snowpack, and sea level rise.

- | | |
|-------------------------|-------------------------------|
| ● Climate Change | ● Drought |
| ● Air Quality/Pollution | ● Severe Weather and Flooding |
| ● Urban Heat Island | ● Sea Level Rise |
| ● Extreme Heat | ● Extreme Cold |

Economic Security

Inequities in access and opportunities, both generationally and suddenly, strain the community fabric on a daily basis—worsening disparities and impacting Angelenos’ health, wealth, and quality of life. Understanding and reducing daily stresses will increase the capacity of Angelenos to withstand additional challenges.

- | | |
|------------------------------|---------------------------------------|
| ● Inequity | ● Disparities in Employment |
| ● Education | ● Disparities in Health |
| ● Homelessness | ● Disparities in Access to Open Space |
| ● Lack of Affordable Housing | ● Disparities in Access to Transit |
| ● Crime and Violence | ● Food Insecurity |

Infrastructure Modernization

Los Angeles has a vast, complex, and aging infrastructure. The City is investing billions of dollars to restore, rebuild, and modernize the aging infrastructure to prevent existing infrastructure from failing and to meet the needs of a large and dynamic city.

- | | |
|------------------------|--------------------------------------|
| ● Aging Infrastructure | ● Infrastructure or Building Failure |
|------------------------|--------------------------------------|

How to Read a Recommendation

Resilient Northridge includes 28 recommendations for the Northridge community and CSUN campus to implement in an effort to build resilience. Recommendations are categorized into the groups Better Mobility, Better Community, and Better Environment. Each recommendation has a title and description and identifies associated shocks and stresses, as well as partners for implementation. At the end of *Resilient Northridge*, all of the recommendations are listed in the order they appear and by theme. A graphic representation at the top right corner of every recommendation indicates whether it is a recommendation for CSUN or for the community. The three houses indicate community, while the mortarboard signifies CSUN.

Action Description

Each description presents specific policies or programs to implement to help achieve resilience goals.

Resilience Value

Action descriptions highlight the resilience value of each action, explaining how the action will make Northridge stronger and better able to withstand multiple shocks and stresses.

① SUPPORT MULTI-MODAL TRANSIT OPTIONS



Support the North San Fernando Valley Bus Rapid Transit project connecting CSUN and Northridge to the Orange and Red Lines.

In Northridge, more than 75% of commuters use private transportation as their primary choice of travel. In addition, CSUN generates more than 215,000 car trips per week, leading to high traffic volumes near campus and adjacent Northridge neighborhoods. Unfortunately, Northridge and the San Fernando Valley do not have strong public transportation options such as subways or light rail. Supporting a Bus Rapid Transit (BRT) line that connects CSUN and Northridge to the greater Metro transit network would reduce traffic by providing other transportation options for students and residents. This will help alleviate automobile traffic in the area caused by the high number of commuters using private transportation. The North San Fernando Valley BRT project is currently being studied by Metro and will connect CSUN and Northridge to the Metro Orange and Red Lines. In June 2016, Metro's Board passed a motion directing staff to begin environmental planning work for this project. Work on the final route is planned to begin in 2019-2021 with a planned opening date of 2023-2025.

To monitor implementation success, attendance at public meetings regarding the North San Fernando Valley BRT by CSUN officials, CSUN students and neighborhood councils should be recorded. Recording meetings by university and neighborhood officials with Metro and Council District 12 will further influence a design useful for the students and neighborhood.

To measure resilience increase, travel patterns gathered in U.S. Census surveys can be analyzed, along with Metro ridership data, and CSUN's Transportation Survey to observe campus and community usage.

SHOCKS/STRESSES



Shocks/Stresses

These icons represent the acute shocks and chronic stresses to which Northridge is susceptible.

PARTNERS

Metro / CSUN / NENC / NSNC / NWNC / Northridge Vision

Partners

Implementation partners include key public, private, nonprofit, and civic collaborators that will advance Resilient Northridge actions in the years ahead. Partnership is not exclusive and is meant to be a starting point.

**Better
Mobility**



**Better
Community**



**Better
Environment**



Better Mobility





1 SUPPORT MULTI-MODAL TRANSIT OPTIONS



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SHOCKS/STRESSES



PARTNERS

Metro / CSUN / NENC / NSNC / NWNC / Northridge Vision



Metro Liner on the Orange Bus Rapid Transit Line.

Source: metrolibraryarchive (Flickr)



2 INSTALL A PARKING GUIDANCE SYSTEM



Install a parking guidance system that includes both “available space” sensors and electronic signage indicating spaces available in all new and existing parking lots on the CSUN campus.

CSUN is a commuter campus that generates over 215,000 car trips per week. The movement of about 43,000 cars per day leads to problems such as noise, pollution, pedestrian and car traffic. The campus has 9,323 parking spaces in eleven student and staff, faculty parking lots. With more automobiles entering than available parking spaces, there are time periods at which the parking lots are at full capacity. As a result, cars idle as drivers wait for an available space. Alternatively, cars are driven around campus in the hopes of finding a space before class. This is not only frustrating to students, but also increase the amount of emissions. A parking guidance system would indicate the available spaces in a structure by floor and display this information on LED signs placed around campus and on CSUN’s mobile application. The campus is currently exploring a system for the B3, B5, and G3 parking structures.

To monitor implementation success, follow progress of the project currently under consideration by Parking and Transportation services.

To measure resilience increase, analyze changes in greenhouse gas emissions in the area, student commute patterns via student surveys and the real-time information provided by CSUN’s mobile application.

SHOCKS/STRESSES



PARTNERS

CSUN Dept of Police Services / CSUN AS /
CSUN Institute for Sustainability /
Student Division of Student Affairs

A Parking Guidance System's message signboard showing the number of parking spots available.

Source: Rudy Herman (Wikimedia)





3 ADD PROTECTED BIKE LANES



Add protected bicycle lanes to promote bicycling and increase traffic safety in Northridge.

The installation of additional protected bicycle lanes in Northridge can serve as a traffic calming measure and as a tool to increase bicyclist safety. Arterial streets in Northridge are designed to carry high volumes of traffic, and allow higher vehicle speeds that increase the likelihood of a collision due to a reduced visual field and increased braking distance. The installation of additional protected bicycle lanes in Northridge can help address these safety issues by decreasing automobile speeds through travel lane redesign. Connecting bicyclists to existing bike lanes by strategically creating additional bike lanes will also complete the biking infrastructure and provide connectivity. Current efforts include the City of Los Angeles's Vision Zero Initiative and the Great Streets Initiative.

To monitor implementation success, public meetings can be held to obtain public feedback and identify concerns. It would also be necessary to identify bike lanes and bike routes that need connectivity in Northridge. Lastly, it would be necessary to track the number of bike lane miles installed.

To measure resilience increase, bike ridership commuting patterns can be analyzed before and after the installation of additional bike lanes. The increase of bicycle ridership will signify that the implementation of bike lanes is encouraging bicyclists to utilize these lanes.

SHOCKS/STRESSES



PARTNERS

LADOT / CD 12 / NENC / NSNC / NWNC



Bike paths can serve as a traffic calming measure.

Source: LADOT Bike Blog (Flickr)



4 INCREASE SIDEWALK AND TREE MAINTENANCE



Increase efforts to monitor and report sidewalk and tree maintenance issues.

Northridge residents express their concerns of poor sidewalk conditions, mostly due to uplift by tree roots. Currently, neither the City of Los Angeles nor the Northridge Neighborhood Councils have a comprehensive record of sidewalk maintenance. In response to poor sidewalk conditions city-wide, the City of Los Angeles started a \$1.4 billion 30-year program called Safe Sidewalks LA. There are three parts to the program: 1) Access Request Program – people with a mobility disability who encounter physical barriers due to broken sidewalks or curb ramps, can request repair of a sidewalk or curb ramp. 2) Rebate Program – a limited-time rebate for a property owner to pay for their own sidewalk repair. 3) Report a Sidewalk Problem – report any other sidewalk issues. The improvement of sidewalk conditions will increase walkability and the number of people choosing to walk or use other non-motorized modes of transportation. This, in turn, can improve air quality in Northridge, reduce traffic congestions and lessen the urban heat island effect through the decrease of harmful emissions from vehicles.

To monitor implementation success, inventory, rate, and map all sidewalk and tree locations that require maintenance. In addition, conduct biennial surveys of the sidewalks to determine how quickly and successfully requested repairs are being completed.

To measure resilience increase, monitor sidewalk usage and perform physical counts a few times per year, every three to five years, prior to and after repairs, to determine if increase in pedestrian and non-motorized vehicle usage at selected locations.

SHOCKS/STRESSES



PARTNERS

NENC / NSNC / NWNC / City of LA /
CSUN URBS Dept

Toddler enjoying improved
sidewalks.

Source: sabrinamock
photography (Pixabay)



Better Community





5 EDUCATE STUDENTS AND STAFF ON EMERGENCY PROCEDURES



Require CSUN students and staff to complete a video training of emergency procedures through the MyNorthridge portal.

Currently California State University Northridge guides campus occupants during emergencies using written procedures and multiple in person training efforts. CSUN Department of Police Services and Department of Emergency Management have written procedures and trainings to educate the campus community. With many emergency training procedures in multiple formats, it can overwhelm the average student and or staff member. Creating one video that outlines the procedures the average student or staff member needs to know would enable a safer and more resilient campus. This video should be mandatory on-line training with built-in testing required on an annual basis.

To monitor implementation success, track production of the training video, upload into the MyNorthridge Portal, and measure the number of training video completions.

To measure resilience increase, a survey can determine the preparation of students and staff after completing the video. The survey can be sent out by the Office of President Dianne F. Harrison to broadcast importance and increase responsiveness. Conducting emergency drills and calculating response times before and after the implementation of the video training will reveal the training's effectiveness.

SHOCKS/STRESSES



PARTNERS

CSUN Amin & Finance / CSUN IT / CSUN
Dept of Police Services / CSUN Office of
Emergency Mgmt / CSUN URBS Dept /
MCCAMC / CSU Chancellor / Other CSUs

Educating the CSUN community about emergency procedures will help build resilience.

Source: U.S Department of Defense





6 EXPAND EMERGENCY PREPAREDNESS AND RESPONSE TRAINING



Launch an initiative to increase the number of Northridge residents with Community Emergency and Response Training.

Northridge Neighborhood Councils should incentivize Community Emergency and Response Training (CERT) in their communities. CERT is meant to educate people about disaster preparedness and train them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. In an emergency, CERT Team Leaders and trainees are an essential core group of volunteer responders to assist in the response to a disaster or emergency. CERT increases resilience by having community members who are better prepared to take care of themselves and local residents. During times of crisis, it allows for emergency services and efforts to be focused on critical and life threatening situations.

To monitor implementation success, the Neighborhood Councils can keep track of the number of residents that complete CERT. If gift cards are used to incentivize the training, the number of gift cards awarded can be recorded on an annual basis to assess whether there is an increase in the number of residents with CERT.

To measure resilience increase, a database of CERT Team Leaders and Volunteers should be compiled for the Northridge communities. In times of crises, higher numbers of local leaders and volunteers with CERT reduces the stress on emergency fire, medical, and police services.

SHOCKS/STRESSES



PARTNERS

Emergency Management Department /
LAFD / LAPD / Preparedness Organizations



Participants training for emergency preparedness and response.

Source: Joe Loong (Flickr)

7 HOST GOVERNMENT OFFICIALS ON CAMPUS



Create an on-campus drop-in center for local government officials.

Increasing interaction with local government officials can reveal concerns of college-aged students not usually addressed by elected officials. The Los Angeles City Council District 12 (CD12) community service center is located in an unassuming office park in the adjacent neighborhood of Chatsworth. The location experiences low foot traffic and does not lend itself to broad constituent outreach. One method of increasing government responsiveness is engagement with the public in locations with high foot traffic such as the Matador Bookstore Complex at CSUN. A public counter will be established by the city council member's office to receive input from CSUN students, faculty, and staff on issues affecting them. The drop-in center will be a reception desk staffed by a city council deputy twice a week for three hours from 11am to 2pm.

To monitor implementation success, an increase in interactions between the public and local officials can be determined. Students, staff and faculty will have an opportunity interact with representatives from CD12 to ask questions and voice concerns. At the end of the interaction the CD12 deputy will ask if they have interacted with the city council office in any other manner before their visit. Assessing the programs effectiveness will require an increase in the number of people that indicate they have not previously engaged with the city council's office. A contact list with names and email addresses will be aggregated to increase outreach to counter visitors.

To measure resilience increase, assessments can be made through increased community participation in neighborhood council meetings and increased voter participation.

SHOCKS/STRESSES



PARTNERS

CD 12 / CSUN



Increasing student involvement is important for civic engagement.

Source: Chris Yarzab (Flickr)



8 ENGAGE RESIDENTS THROUGH PARK BOOTHS



Conduct public outreach at parks with an event booth.

Community participation and engagement is underrepresented by renters in Northridge. Renters are more transient than homeowners and are less involved with neighborhood planning efforts. Northridge parks experience high volumes of visitors during holidays. Reaching out to park patrons during holidays will increase the likelihood of engaging with renters and demonstrate the importance of participating in planning efforts.

To monitor implementation success, the number of contacts and hours at event booths should be recorded. An information booth with treats or games will be staffed by volunteers during holidays to attract residents. The information booth will be staffed by Northridge Neighborhood Council volunteers distributing literature on the organizations and simultaneously gathering contact information for visitors. Successful implementation of this program will be evidenced by continually increasing the database of names and email addresses of visitors to the booth.

To measure resilience increase, neighborhood councils can determine if there is an increase in attendance at meetings and community outreach events. Sign in sheets indicating increased attendance at the Northridge Neighborhood Council meetings after the initiation of this program will validate its effectiveness. Increased voter participation is an additional measure of resiliency.

SHOCKS/STRESSES



PARTNERS

NENC / NSNC / NWNC



Attracting input from additional groups increases civic cohesion.

Source: Williamson County Schools



9 ATTRACT DEVELOPERS TO BUILD MULTIFAMILY HOUSING IN AREAS ZONED FOR HIGHER DENSITY



Increasing multifamily housing stock in appropriately-zoned areas of Northridge, through incentives for developers.

The program stimulates the development of multifamily units in medium-density zoned areas by offering incentives to real estate developers in exchange for increased housing production. Additional housing development will be accomplished with Northridge Vision, Neighborhood Council, and City Council support by offering pre-made time and cost saving feasibility analyses to groups considering developing in Northridge. Likely to be led by the Housing and Community Investment Department, the program is estimated to cost the Neighborhood Councils \$30,000 per year, with outcomes monitored by tracking proposed development projects.

To monitor implementation success, a consultant will be hired to complete at least five site analyses. Once the reports are completed, the proposed projects will be presented to Northridge Vision and applicable Neighborhood Councils for approval. Once approved, the successful projects will be shared with the City Council's office for consent and assistance in marketing the sites to developers. Once community support is obtained projects are less likely to receive public opposition, which makes future projects more attractive and marketable to developers.

To measure increased resiliency, an assessment of additional number of housing units developed in the neighborhood will be conducted. Official records will be tracked for multifamily projects submitted to the city for approval. The addresses of the marketed sites will be cross-referenced with those with submitted applications. Success will be estimated at 25% of proposed sites being submitted to the City as viable projects.

SHOCKS/STRESSES



Multifamily housing development can help alleviate the current housing shortage.

Source: Qimono (Pixabay)

PARTNERS

NENC / NWNC / NSNC / CD 12 / Northridge Vision / HCIDLA





10 UPZONE UNDERUTILIZED MULTIFAMILY LOTS



Amend the zoning code to allow higher density development in underutilized lots.

Amending the zoning code to develop underutilized lots is in direct response to the community's concerns about the lack of affordable housing in Northridge. To help alleviate the housing shortage, the municipal code zoning can be changed to allow for increased development of multifamily units. Addressing the lack of affordable housing can be achieved in two ways: (1) upgrading underutilized lots by developing according to the density bonuses granted by the City of Los Angeles and (2) identifying the areas in which a zone change would be feasible and beneficial to housing production. Several current measures to up zone are granted by City of Los Angeles. Additionally, several density bonus policies are in place to incentivize developers to build additional units.

To monitor implementation success, a yearly count of Northridge housing stock will be conducted. Collecting a count of units developed or redeveloped will reveal the percentage increase in housing stock. Approval of plans are available with the City of Los Angeles Zoning Administration and Building Department.

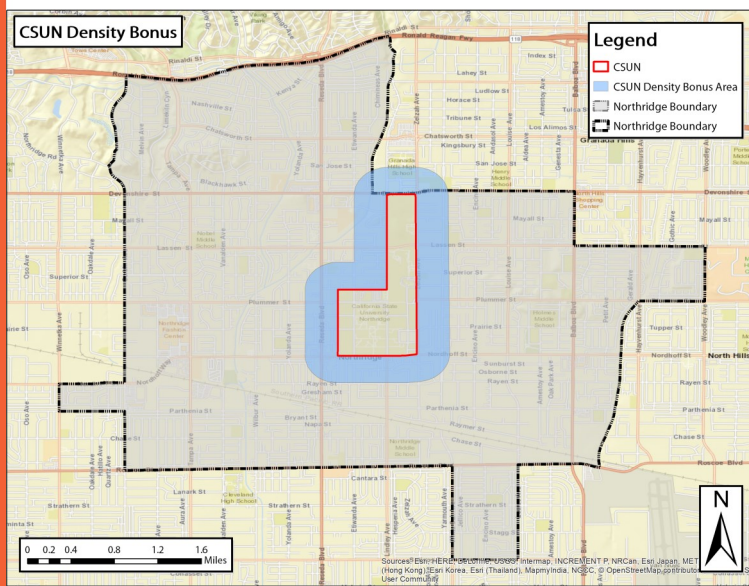
To measure resilience increase, homeless counts should be conducted every three to five years to assess the changes in homeless population. Additionally, census data can be used to identify the changes in the number of market rate and affordable units in Northridge.

SHOCKS/STRESSES



PARTNERS

CD 12 / LADCP



Increasing multifamily housing is important to address the lack of housing.

Source: Polygon Realty Limited (Flickr)



11 HIRE A MATADOR



Implement a program which incentivizes the hiring of students by local businesses.

We propose an incentive program to promote the hiring of CSUN students at local businesses and at campus establishments. In return, the participating businesses will receive promotion on campus through various marketing avenues, and priority consideration for goods and services needed by the campus. Likely to be operated by the CSUN Career Center, the program is estimated to cost the university \$25,000 per year, with outcomes being monitored through data collected by conducting periodic surveys of surrounding businesses.

To monitor implementation success, CSUN can identify businesses currently employing students, identify employers to target, devise the list of program benefits for potential employers, and target said businesses through outreach including site visits, phone calls, and email communication. The program assumes a successful outcome based on the amount of additional students hired and retained for a certain period of time. Success in the first year of operation assumes an additional 100 students employed.

To measure resilience increase, an assessment in decreased student unemployment can be conducted. Student unemployment will be tracked utilizing American Community Survey (United States Census) data. Starting from project commencement, longitudinal data will be gathered periodically and tracked over subsequent years to assess the unemployment of four-year college students in the census block groups located within five miles of the university.

SHOCKS/STRESSES



PARTNERS

CSUN Career Center / Northridge Chamber of Commerce / Large Retail Centers and Local Businesses

The Hire a Matador will help reduce student unemployment and help local businesses.

Source: Victor Freitas (Pexels)





12 SUPPORT GREEN JOBS



Support the creation of, and training for, Green Jobs through campus Career Center events.

The Career Center offers a variety of career exploration, advisement, and job-search services for students and eligible alumni. Career resources and job-search preparation include events such as career fairs, information sessions, and workshops. These events present a unique opportunity for CSUN to increase the awareness of, and recruitment for, Green Jobs on campus. The Career Center should strive to host a Green Jobs Fair every semester, with 60 to 100 employers looking to recruit CSUN students. Additionally, 40% of employers from the Green Jobs Fair should be encouraged to sign-up for on-campus interview and information sessions to increase their visibility on campus.

To monitor implementation success, the Career Center should utilize the SUNlink job board to collect data on green jobs and employers currently recruiting CSUN students and measure the change over time. Implementation will be considered successful if the number of green jobs increases.

To measure resilience increase, the Career Center should measure the number of CSUN students and alumni hired for green jobs. This measure is best obtained through the use of a student and alumni survey. Higher numbers of students and alumni with green jobs would signify that CSUN students are graduating with the knowledge and skills necessary to compete in the 21st century workforce.

SHOCKS/STRESSES



PARTNERS

CSUN Career Center / CSUN Institute for Sustainability



Installation of solar panels as a Green Job.

Source: Vandenberg Air Force Base



13 CREATE A SAFETY PATROL PROGRAM



Create a Safe Campus, Safe Streets program.

To address safety and endemic violence concerns expressed by CSUN students and faculty, the recommendation is creating a "Safe Campus, Safe Streets" program functioning as a neighborhood watch group through a joint collaboration between the campus student body and community members. Establishing a volunteer-basis safety patrol program, utilizing both students and residents, will facilitate the formation of relationships between the two communities.

To monitor implementation success, CSUN Police Services can track the establishment of the program and the number of patrols and volunteers participating in the program. Success can be attributed to the number of local participants and number of hours logged during patrol of the neighborhood.

To measure resilience increase, crime data can be compiled. Resiliency can be identified by analyzing crimes both on-campus and off-campus within a 0.5-mile radius of CSUN. Collecting this data will reveal fluctuation of crime in the surrounding neighborhoods. The data will be collected during multiple 6-month time blocks assessing reduced crime activity in the patrol areas.

SHOCKS/STRESSES



PARTNERS

CSUN Dept of Police Services / CSUN AS / CSUN Student Body / Community Members

"Safe Campus, Safe Streets" can establish a more secure community.

Source: Cody Miller (Tyndall Air Force Base)





14 INCREASE NEIGHBORHOOD WATCH GROUPS



Increase participation for Neighborhood Watch Groups throughout Northridge, ultimately creating three additional groups.

Increasing the number of neighborhood watch groups is an effective way to prevent crime and reduce fear in the community. The program's goal is to increase community participation and create three additional neighborhood watch groups in the next 5 to 7 years. Implementation will require a joint effort among the LAPD Devonshire Division, senior lead officers, and current neighborhood watch participants to aggressively promote and recruit residents to participate in the program.

To monitor implementation success, monitor the number of participants recruited and the number of neighborhood watch groups formed with the long term goal of having three more. This increase will allow for an increased number of block captains and better neighborhood organization and communication.

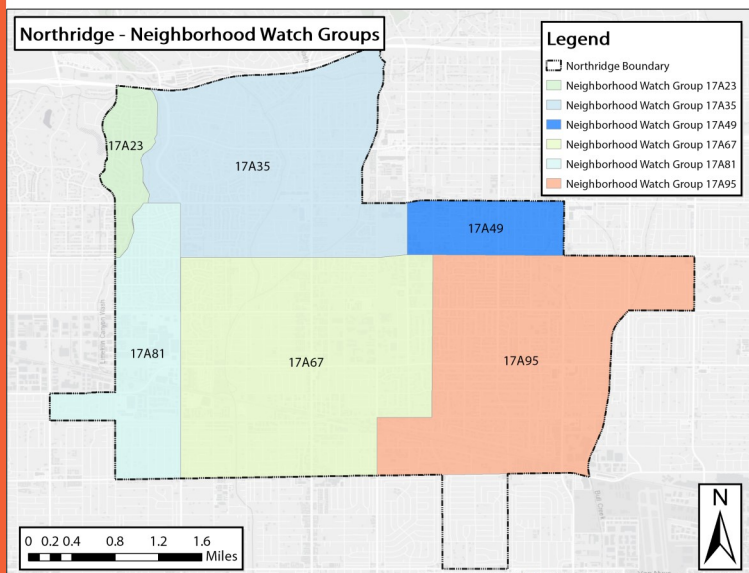
To measure resiliency increase, crime statistics can be analyzed to determine if the increased neighborhood watch participation increased community safety.

SHOCKS/STRESSES



PARTNERS

LAPD / Community Members



Neighborhood Watch Groups help increase safety in Northridge.

Source: Anthony Saude (anapr.com)



15 EXPAND CCTV



Expand CCTV surveillance in public spaces near campus buildings, building labs, parking lots, and the CSUN housing community within the next 5-7 years.

The program will streamline the expansion of the university's Closed Caption Television Surveillance in public spaces near campus buildings, building labs, parking lots, and the campus housing community within the next 7 years. The expansion aims for a 100% increase in the number of surveillance cameras installed throughout campus from 295 to 590 by 2025. The installation and operation of new cameras will be made public through CSUN's annual Campus Safety Plan and Security Report. The effectiveness of additional surveillance cameras will be tracked through reported crimes and statistical analysis. Special consideration will be given to campus crimes that have recently increased such as rape, robbery, motor vehicle theft, and aggravated assault.

To monitor implementation success, tracking the installation and operation of additional cameras is required. Installing an additional 295 units on campus requires a yearly installation and increased operation of 42 cameras.

To measure resilience increase, CSUN Police Services can analyze reductions in campus crime. University Police normally analyze campus crime data and will determine if crime has been impacted by the expansion of surveillance cameras, or if criminal activity has shifted to other parts of campus with less surveillance.

SHOCKS/STRESSES



PARTNERS

CSUN Dept of Police Services

Surveillance cameras can increase campus safety.

Source: Martin Maximino (journalistsresorce.org)





16 ADD SOLAR LIGHTING



Add solar powered lighting in dark areas to create a safer campus community.

Violence is a growing concern to CSUN students. Adding more lighting will address this concern by illuminating vulnerable areas. CSUN has retrofitted approximately 300 of 607 campus walkway fixtures with more efficient LED lighting which also increases light output. Currently CSUN Department of Police Services patrols campus and regularly reports malfunctioning lights to CSUN Physical Plant Management. CSUN Environmental Health and Safety hosts an annual night safety walk with CSUN students and staff to identify areas of night safety concern. CSUN Physical Plant Management tracks issues identified by the Department of Police Services from the night safety walk and makes recommended repairs and corrections. However, some areas of campus still have inadequate walkway fixtures that can be made brighter by increasing the amount of lighting installed. Solar powered lighting would also be independent of the grid, providing safety during a campus blackout.

To monitor implementation success, inventory and map current lighting infrastructure and illuminance. Conduct biennial survey of lighting infrastructure and illuminance to verify success of implementation.

To measure resilience increase, monitor crime on the CSUN campus. Map to determine if crime locations have shifted away from new light installations. Perform annual survey to determine if there is increased pedestrian usage in areas of increased illuminance.

SHOCKS/STRESSES



PARTNERS

CSUN / CSUN Dept of Police Services /
CSUN PPM / CSUN EH&S



Multiple solar light fixtures create a safer environment.

Source: Cpl Aubry L. Buzek
(Wikipedia Commons)

Better Environment





17 PLANT MORE TREES



Plant more native plants, food trees, and shade trees on the CSUN campus.

Current data gathering indicates CSUN students believe the campus needs more shade trees, food trees, and native plants. The CSUN Plant Atlas can be utilized to assess the most viable locations to plant trees. The university's water infrastructure needs to be considered when determining tree locations to ensure successful growth of new trees. CSUN's utility infrastructure must also be considered so that additional trees do not conflict with existing utilities.

To monitor implementation success, a count of additional trees planted should be conducted annually. Once the conditions of the campus have been assessed, additional trees can be planted adding to the 4,000 currently on campus. The CSUN Plant Atlas will be updated with the number of shade trees, native plants, and food trees planted and removed. The information will be utilized in analyzing changes in the volume of tree canopy on campus over a seven year period.

To measure resilience increase, the number of trees planted can be counted. It is estimated that for every tree planted, approximately 4 tons of carbon are offset from the atmosphere. The number of trees planted will be used to determine the volume of carbon offset, and in return the environmental benefits realized. Moreover, increasing the number of food trees on campus will benefit students should food shortages occur.

SHOCKS/STRESSES



PARTNERS

CSUN Dept of Geog and Env Studies /
CSUN Institute for Sustainability/ CSUN
Food Garden and Compost Program



The CSUN campus can benefit from more trees.

Source: Karen Chavez



18 PLANT TREES AND INSTALL COOL PAVEMENT



Plant more trees and install cool pavement to reduce the urban heat island effect.

Trees help cool urban climates through shading and evapotranspiration. However, in already shaded areas, the most significant cooling is achieved using cool pavements. Cool pavements store less heat and have lower surface temperatures than conventional concrete and asphalt pavement. Currently, the City of Los Angeles administers a program called City Plants, where residents, businesses and schools can receive free shade trees. As for cool pavement, the City piloted a coating material called CoolSeal, a gray coating designed to reflect solar rays, on a San Fernando Valley parking lot in 2015. On average, the area covered by CoolSeal was 10 degrees cooler than asphalt.

To monitor implementation success, an annual report of the number of tree planting and removal requests by businesses and residents should be performed. For cool pavement, the Bureau of Street Services can annually report the number of cool pavement projects and the number of miles paved in Northridge.

To measure resilience increase, tree canopy coverage can be measured using GIS and National Land Cover Database which is released every five years. As for CoolSeal, assessing reduction in pavement temperature and endurance of the material should be recorded annually. Also, a measure of the urban heat island effect should be conducted every five years to analyze the overall effect of both methods.

SHOCKS/STRESSES

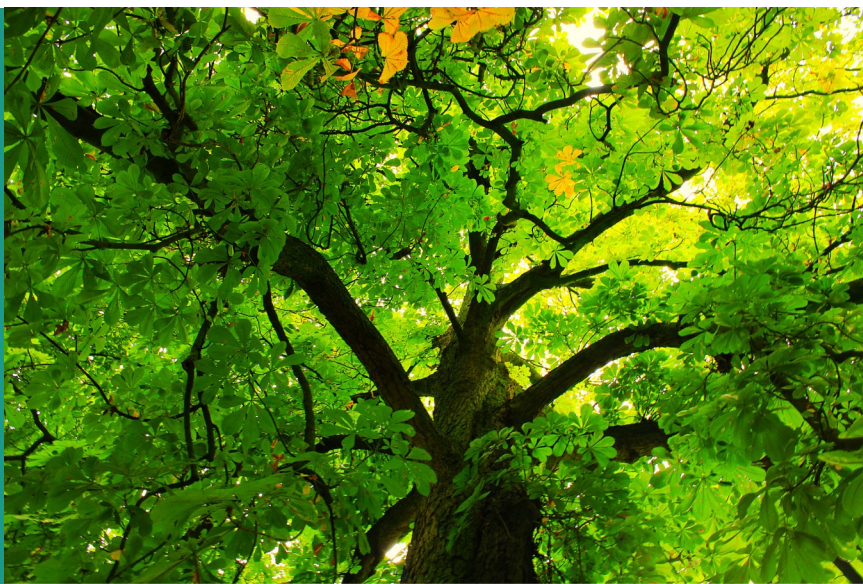


PARTNERS

City Plants / LABSS / CD 12

Trees can provide shade to help reduce the urban heat island effect.

Source: Merjin (Flickr)





19 OBTAIN ACCESS TO SCHOOL GROUNDS



Partner with local schools to create community school parks, increasing access to green and open space.

Parks and open space improve the quality of life for Northridge residents. However, due to limited space, green and open space can be challenging to access. The City of Los Angeles is working with the Los Angeles Unified School District in underserved communities to increase access to open space. Additionally, the passage and adoption of Measure A will fund the creation and maintenance of parks in Los Angeles County. However, due to the median household income in Northridge, the area may not be a priority for the City and County of Los Angeles to provide such funding and efforts.

To monitor implementation success, outreach can be conducted with local schools to determine the number who are willing to participate. Calculating the space local schools can provide access to and their proximity to existing parks will prioritize the school open spaces. Measuring the additional open space granted by schools will dictate the program's effectiveness.

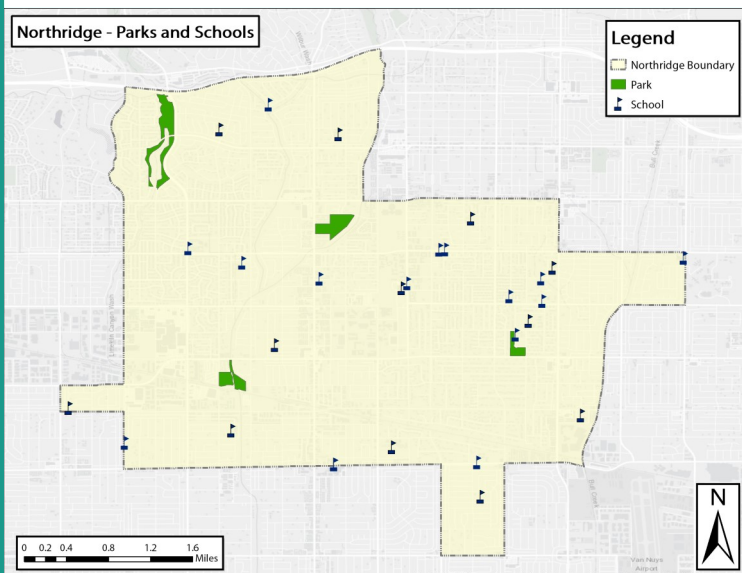
To measure resilience increase, the population located within ½ mile of a Northridge park can be measured. This data can be collected through the U.S Census and city Parks and Recreation Department. Measuring childhood and adult obesity can act as a proxy for access to parks and open space. The data can be obtained through U.S Census, CAL EPA, and/or Health databases. Trip counters will be implemented to measure the number trips to schools before and after the implementation of the recommendation.

SHOCKS/STRESSES



PARTNERS

LAUSD / Private Schools / Charter Schools / LADRP / LACDRP



Map Existing Parks and Potential School Partnerships



20 INSTALL COOL ROOFS



Install cool roofs to reduce the urban heat island effect.

Cool roofs reduce the urban heat island effect by reflecting sunlight and heat from buildings. Generally, cool roofing products are made of highly reflective and emissive materials that can remain approximately 50°F to 60°F cooler than traditional roofing materials during peak summer weather. Therefore, in built-up areas such as CSUN, cool roofs are very effective in reducing the urban heat island effect. Currently, the Valley Performing Art Center and Student Recreation Center at CSUN have cool roof systems. CSUN currently installs cool roofs during new building construction or roof renovations.

To monitor implementation success, the total square footage of cool roofs and the amount without, but eligible for, cool roofs should be reported annually. The percentage of cool roofs on campus buildings should be reported to track implementation success.

To measure resilience increase, the urban heat island effect can be measured every seven years using the data from California Environmental Protection Agency to understand the overall effectiveness at reducing the urban heat island effect.

SHOCKS/STRESSES



PARTNERS

CSUN FDPC

Cool roofs reflect sunlight and heat from buildings to reduce the urban heat island effect.

Source: Samantha Modell / NYC DOB (Flickr)





21 CREATE GREEN ROOFTOPS AND WALLS



Encourage new single-family and multi-family housing developments to incorporate green rooftops and walls to increase access and supply of healthy foods.

Residents of single-family homes currently have the option to grow crops on parkway spaces, backyards, and on front lawns, with some limitations. The types of crops, and edible plants grown on rooftops are dependent on the zoning, weight, and flammability of the plant species as required by the Los Angeles Department of Building and Safety. Residents may be encouraged to grow crops as the Food and Flowers Freedom Act allows for them to sell, distribute, and consume limited locally grown crops. To develop this recommendation, the City of Los Angeles Department of Planning, the Los Angeles County Department of Public Health, Northridge Neighborhood Councils, and California State University of Northridge should work together to implement wall and rooftop gardening to increase access of healthy food.

To monitor implementation success, volunteers and non-profit organizations can manually track increases in green rooftops and walls in new developments. Local grant organizations, like the California Community Foundation, can match Northridge residents with donors to fund the creation of non-profit organizations to help monitor the implementation process. Support and involvement from Northridge Neighborhood Councils will be key in implementing the recommendation.

To measure resilience increase, obesity rates in Northridge can be tracked to measure the potential effects from the increase in green rooftop and walls in newer developments.

SHOCKS/STRESSES



PARTNERS

LADBS / NENC / NSNC / NWNC /
LADCP / PACDPH / CSUN / Non-Profit
Organizations



Green rooftops increase access to locally sourced food.

Source: Antranias
(Pixabay)



22 EXPAND CAMPUS FOOD GARDEN



Expand the CSUN Food Garden to North Campus green spaces to increase the access and supply of healthy foods on campus.

The University Corporation owns six acres of gated land located in the northeast and northernmost boundary of campus called North Campus, which can be the future expansion site of the CSUN Food Garden. The current food garden has 17 compost beds, and is operated by the students, volunteers, and CSUN Food Garden staff. To develop this recommendation, the University Corporation, the Institute of Sustainability, CSUN Food Garden, Department of Urban Studies and Planning should collaborate together. The Department of Urban Studies and Planning may assist with geographical data while the Institute of Sustainability may advise on sustainable techniques to grow food. An annual stipend is currently needed to fund costs associated with hand tools and electric carts to maintain the gardens.

To monitor implementation success, annual increases in harvested fruits and vegetables can be weighed by student volunteers and staff, while the Institute for Sustainability can collect data and track progress of developing garden beds. As of 2017, 300 pounds of fruit and vegetables were harvested at the CSUN Food Garden.

To measure resilience increase, obesity rates of the CSUN population can be monitored to analyze the potential effects of the expanded CSUN Food Garden and the increase in weight of crops donated to the CSUN Food Pantry. Volunteers, students, and staff at the Institute for Sustainability can collect annual data based on the amount of labor, crops grown, and food donated from the CSUN Food Garden.

SHOCKS/STRESSES



Expanding food gardens increase food accessibility to healthy food.

Source: Vicki Moore
(Wikipedia Commons)

PARTNERS

CSUN University Corporation / CSUN Institute for Sustainability / CSUN URBS Dept / CSUN Food Garden and Compost Program





23 RAISE AWARENESS OF FOOD PANTRIES



Ensure access to healthy foods through food pantries in low and moderate-income areas.

A major concern for low and moderate income families is sufficient access to healthy foods as a result of underemployment and rising costs of living. This recommendation seeks to increase access to nutritious foods, alleviate hunger for children and seniors, and reduce children's struggle in school as a result of hunger.

To monitor implementation success, marketing efforts should be monitored on an annual basis. Individual food pantries will promote awareness of their location and hours of operation through social media platforms, local newspapers, local libraries, grocery stores, neighborhood councils, neighborhood watch programs, and City Council Districts. In order to track implementation success, all food pantries will measure the number of users, changes in number of visitors, and the category each user falls under such as low- or moderate-income household.

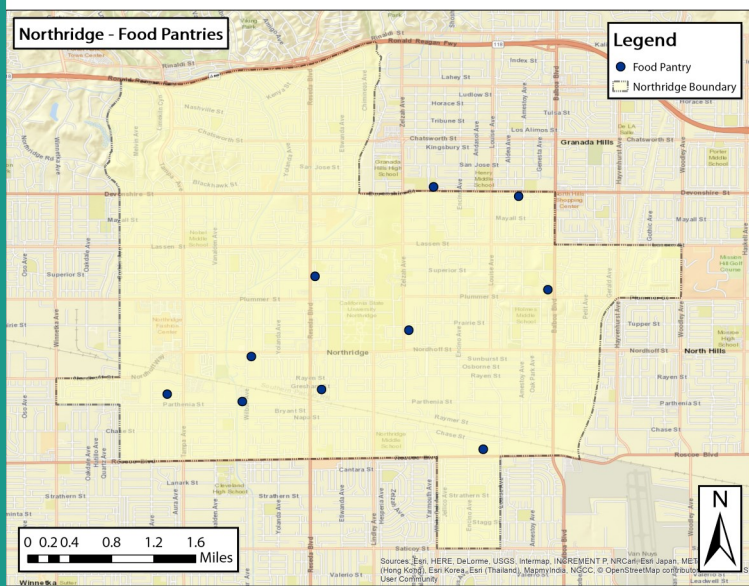
To measure resilience increase, decreasing hunger can be observed by analyzing the collective food pantry data, including the annual amount of food distributed and the number of individuals receiving assistance.

SHOCKS/STRESSES



PARTNERS

Northridge Vision / All Neighborhood Food Pantries



Map of food pantries in Northridge.



24 FILTER WATER THROUGH REVERSE OSMOSIS



Purchase a reverse osmosis system.

Implementing a pilot program using a mobile reverse osmosis system to filter water during an emergency will increase potable water access. The system's mobile design allows access to campus water sources not currently potable enabling their filtration and producing clean drinkable water. Sources of non-potable water include the swimming pool, air conditioning cooling units, and a water storage tanks in facilities management. The reverse osmosis system can process one gallon of water per person for the campus daytime population of 7,220. For extended water outages, the water produced may assist students on campus and may also be shared with the Northridge neighbors.

To monitor implementation success, procurement of the machine, its respective parts, and successful filtration of a non-potable water source should be reported. Periodic testing of the equipment should also be performed.

To measure resilience increase, annually test the equipment to ensure water processed through reverse osmosis meets current potable water standards.

SHOCKS/STRESSES



PARTNERS

CSUN / City of LA / CD 12

Industrial grade reverse osmosis system.

Source: Stepan Popov
(Dreamstime)





25 BUILD A WATER TOWER



Develop and manage and emergency potable water supply.

The California Governor's Office of Emergency Services provides a 2014 Emergency Drinking Water, Procurement & Distribution Planning Guidance manual. The manual includes the Los Angeles County clean water distribution plan implemented by Los Angeles County Fire Department in response to the Northridge earthquake on January 17, 1994. While the water distribution program was successful during the Northridge Earthquake, further preparation is needed for Northridge residents to secure access to their emergency potable water. This recommendation aims to develop and manage an emergency potable water supply for Northridge residents in times of crises. A two-pronged approach is recommended to address emergency potable water supply: 1) To create a Northridge Resiliency Center and build a water storage tower at the site, and 2) To incentivize Northridge residents to prepare their own emergency potable water supply in their homes and properties.

To monitor implementation success, the creation of Northridge Resiliency Center will ensure that an emergency potable water supply will be available to service the Northridge community during times of crises. By installing a 300,000 gallon steel tank of emergency potable water supply, Northridge will be ready to tackle any emergency and possibly serve as a source of disaster resilience for neighboring areas. The residential emergency potable water storage tanks will serve as a short-term solution for Northridge during the construction of the Northridge Water Tower.

To measure resilience increase, comparisons can be made between Northridge and other cities that may experience disasters and compare water shortage data. Resiliency will be increased in Northridge with the availability of a three day supply of water if a disaster were to occur in Northridge.

SHOCKS/STRESSES



PARTNERS

CD 12 / NENC / NWNC / NSNC / LAFD
Operation Valley Bureau / LADWP /
LAPD Devonshire PALS / CAL OES /
LDPW / My Safe: LA



Beautiful Historic Hunt's Cannery
Water Tower in Hayward, CA

Source: Mercury Woodrose
(Wikimedia Commons)



26 FIX WATER INFRASTRUCTURE



Require LADWP to increase annual piping replacement.

The Los Angeles Department of Water of Power currently replaces water pipes at a rate of 32 miles per year. Sections of Northridge water infrastructure have reached the end their serviceable life and need to be replaced. Increasing the rate at which LADWP replaces infrastructure across Los Angeles will also increase replacement rates in Northridge. LADWP is already replacing water pipes and lines within Northridge as they break, leak, or reach the end of their useful life. However, LADWP is in the process of reducing their pipe replacement program time frame from an estimated 300 years to change all pipes in the city in 118 years. Coordinating piping replacing to occur when the Department of Street Services is resurfacing roads can reduce pipe replacement costs by about half.

To monitor implementation success, tracking the lengths of water main replacement projects coordinated between LADWP and the Los Angeles Department of Street Services to avoid duplication road resurfacing, should be compared with overall lengths of water main replacements. Additional measures of success include LADWPs replaced of 35 miles of water infrastructure pipes.

To measure resilience increase, reducing the pipe replacement time frame to under 100 years should be achieved

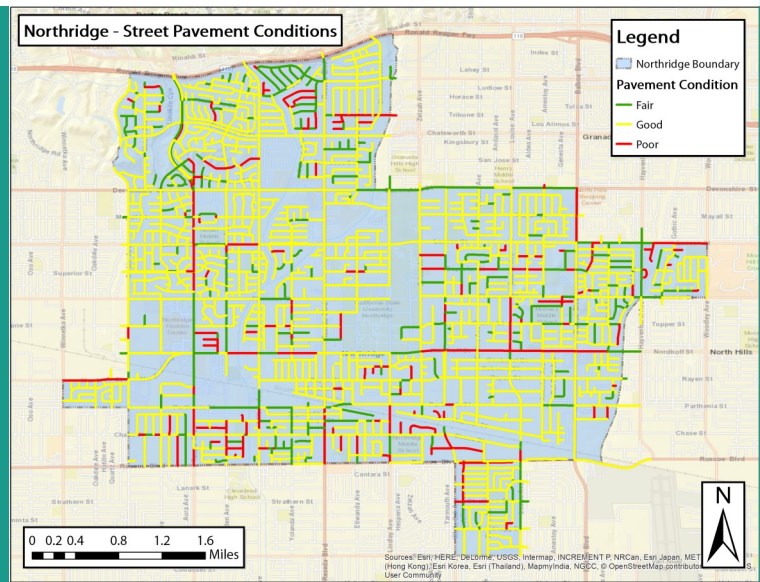
SHOCKS/STRESSES



PARTNERS

LADWP / LABSS

Street pavement conditions
in Northridge.





27 PRODUCE MORE SOLAR POWER



Increase solar generation to meet 20% of the University's electricity needs by 2025.

Locally produced solar energy reduces greenhouse gas emissions and reduces demand on the local electrical grid. CSUN currently generates 3% of its energy via photovoltaic solar panels. The university is currently planning to install solar panels on three existing parking structures that will generate another 14% of campus energy requirements. One additional installation can supply the remaining 3% to meet the 20% solar generation goal.

To monitor implementation success, the solar panel installation and energy produced by the photovoltaic solar panels (measured in kilowatt hours) and percent of campus energy that is produced by on-campus solar panels will be annually reported.

To measure resilience increase, an annual report indicating the amount of energy purchased from the grid and the peak load purchased from the grid can indicate if pressures on the electrical grid have been reduced.

SHOCKS/STRESSES



PARTNERS

CSUN FDPC



Solar panels over parking lot.

Source: Hanjin
(Wikimedia Commons)



28 SUPPLY EMERGENCY POWER VIA SOLAR



Provide emergency relief stations powered by solar arrays at public facilities.

Communication is essential to regaining normalcy. Installing solar powered emergency relief stations at public facilities will improve outcomes during a natural emergency. Installing solar electricity generating stations on 10 strategic community buildings is a cost effective method to provide phone charging and climate controlled areas in the event of an extended power failure.

To monitor implementation success, the number of solar generating stations will be tracked. Project success can also be measured in reduced utility costs.

To measure resilience increase, the reduction of urban heat island effect, as measured by a combination of heat retention temperature data and surface temperatures, should be analyzed every five years.

SHOCKS/STRESSES



PARTNERS

CD 12 / NENC / NWNC / NSNC / City of LA

Solar charging stations as an alternative renewable power.

Source: Jordan Behan (Flickr)



Recommendations Table

		Recommendation for:	
Better Mobility		CSUN	Northridge
1	Support Multimodal Transit Options	X	X
2	Install a Parking Guidance System	X	
3	Add Protected Bike Lanes		X
4	Increase Sidewalk and Tree Maintenance		X
Better Community			
5	Educate Students and Staff on Emergency Procedures	X	
6	Expand Emergency Preparedness and Response Training		X
7	Host Government Officials On Campus	X	
8	Engage Residents Through Park Booths		X
9	Attract Developers to Build Multifamily Housing Units in Areas Zoned for Higher Density		X
10	Upzone Underutilized Multifamily Lots		X
11	Hire a Matador	X	
12	Support Green Jobs	X	
13	Create a Safety Patrol Program	X	
14	Increase Neighborhood Watch Groups		X
15	Expand CCTV	X	
16	Add Solar Lighting	X	
Better Environment			
17	Plant More Trees	X	
18	Plant Trees and Install Cool Pavement	X	
19	Obtain Access to School Grounds		X
20	Install Cool Roofs	X	
21	Create Green Rooftops and Walls		X
22	Expand Campus Food Garden	X	
23	Raise Awareness of Food Pantries		X
24	Build a Water Tower		X
25	Filter Water Through Reverse Osmosis	X	X
26	Fix Water Infrastructure		X
27	Produce More Solar Power	X	
28	Supply Emergency Power via Solar		X

List of Partners

CAL OES-California Governor's Office of
Emergency Services

CD 12-Council District 12

City Plants

City of LA-City of Los Angeles

HCIDLA-Los Angeles Housing +
Community Investment Department

LABSS-City of Los Angeles Bureau of
Street Service

LACDRP-Los Angeles County Department
of Parks and Recreation

LACDPH-Los Angeles County Department
of Public Health

LADBS-City of Los Angeles Department of
of Building and Safety

LADCP-City of Los Angeles Department of
City Planning

LADPW-City of Los Angeles Department of
Public Works

LADRP-City of Los Angeles Department of
Recreation and Parks

LAFD-Los Angeles Fire Department

LAFD Operation Valley Bureau-Los
Angeles Fire Department Operation
Valley Bureau

LADOT-Los Angeles Department of
Transportation (Vision Zero and
Great Streets)

LAPD-Los Angeles Police Department

LAPD Devonshire PALS-LAPD
Devonshire Police Activities League
Supporters

LADWP-Los Angeles Department of Water
and Power

LAUSD-Los Angeles Unified School
District

Metro

Northridge Vision

NWNC-Northridge West Neighborhood
Council

NENC-Northridge East Neighborhood
Council

NSNC-Northridge South Neighborhood
Council

Northridge Chamber of Commerce

Safe Sidewalks LA

My Safe: LA

CSU-California State University

CSUN-California State University,
Northridge

California State University Chancellor

CSUN Career Center

**CSUN Division of Administration and
Finance**

CSUN AS-CSUN Associated Students

CSUN EH&S-CSUN Environmental,
Health and Safety

**CSUN Department of Geography and
Environmental Studies**

CSUN Department of Police Services

CSUN URBS Dept-CSUN Department of
Urban Studies and Planning

CSUN Division of Student Affairs

CSUN FDPC-Facilities Planning Design
and Construction

CSUN Food Garden and Compost Program

CSUN Institute for Sustainability

CSUN PPM-CSUN Physical Plant
Management

CSUN Office of Emergency Management

CSUN Office of Information Technology

CSUN University Corporation

**Mike Curb College of Arts, Media, and
Communication**

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CSUN Demonstration Projects

During the development of *Resilient Northridge: A Plan for a Better Community & Campus*, the Institute of Sustainability and CSUN Physical Plant Management coordinated three demonstration projects as part of the Kresge Foundation CRUX grant provided by Second Nature.

First, 26 trees were planted during the Earth Fair on April 26th by students and community members. These future shade trees will increase the campus canopy coverage. One student commented about their participation in the tree planting: "It made me feel more connected to the campus. It's kind of like leaving a legacy behind."

Second, a water cistern able to capture 4,000 gallons of rainwater will be installed in the summer of 2018. The cistern will reduce local street flooding during large rain events and provide water during drought periods to water landscaping and lawns.

Third, to increase food security of students, a CalFresh table was hosted during the Earth Fair to enable students to receive an Electronic Benefit Transfer (EBT) card for access to food. To enable access to healthy food, the CSUN farmers market now accepts EBT cards and this change has been promoted during the Earth Fair.



New shade trees planted on the CSUN campus will increase local resiliency by reducing the urban heat island effect and air pollution.

Source: Unknown

**Better
Mobility**



**Better
Community**



**Better
Environment**

