San Mateo County Community-Led Resilience Pilot Program Report



SAN MATEO COUNTY Sustainability Department

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Executive Summary

The Community-led Resilience Pilot Program in San Mateo County was created by the Sustainability Department in response to the growing impacts of climate change, including the increasing frequency and severity of wildfires, extreme heat, and flooding. The purpose of the program was to partner with Community-Based Organizations to create and implement pilot projects that demonstrate strategies to strengthen the community's resilience to the impacts of climate change. This report covers the program's background, results, impacts of each pilot project, lessons learned, and detailed reports on each of the projects.

Following a competitive grant process, four CBO's were selected to implement pilot projects: <u>Senior Coastsiders</u>, <u>Hope United Methodist Church</u>, <u>Center for Independence of Individuals with</u> <u>Disabilities</u>, and <u>El Concilio of San Mateo County</u>. The projects included transforming community centers into <u>Resilience Hubs</u>, installing cooling and air-purifying equipment, developing personalized disaster plans, and studying heat resilience measures for low-income renters.

The projects were implemented over the course of a year. Immediate results from each of the pilot projects showed positive impacts, including lower indoor temperatures, improved indoor air quality, enhanced ability to weather power outages, and better living conditions for renters.

Throughout the development process, the County and CBO's worked together to improve the administration of the program. Feedback from the CBO's includes insights on streamlining administrative processes to reduce administrative burdens, increasing funding, providing more technical assistance, and offering training on resilience and emergency response.

Overall, this program demonstrates effective strategies for strengthening community resilience to climate change in San Mateo County. The report concludes with a call for continued collaboration between CBOs and local governments to promote long-term sustainability.

Background

In 2020, a series of heatwaves, wildfires, poor air quality, power outages, and the pandemic prompted <u>Climate Ready San Mateo County</u> to bring together leaders and communities across the county to discuss how to address these challenges.

One topic discussed was how the County could provide support to establish Resilience Hubs, which are community-driven sites that support residents during disasters and extreme weather events. Resilience Hubs can also offer resources, including workshops, training, and communication networks with emergency response agencies. Funding and staff capacity are the major barriers to developing Hubs.

Another topic discussed was that accessing a Hub during an emergency or utilizing the Hub's resources is not always possible for everyone. Improving in-home resilience for vulnerable populations with mobility challenges that prevent them from accessing centralized locations became another major focus of this program.

To address the lack of funding and staff capacity for Resilience Hubs and improve in-home resiliency, the San Mateo County Sustainability Department created an equity-focused Request for Qualifications for CBO's to partner with the County to pilot new strategies. Pilot projects were required to serve socially vulnerable populations and at least one climate change-related impact. CBO's were provided funding ranging from \$30,000 to \$50,000 per project along with support from County staff.

In a competitive selection process, four organizations were chosen based on their demonstrated track record of community engagement and their ability to address the intersection of vulnerabilities and climate risks within their communities.

Community Based Organization (CBO)	CBO Background	Resilience Goals
Senior Coastsiders	An established and trusted gathering place and resource provision center for older adults in Half Moon Bay.	Become a Resilience Hub to provide resilience resources and support for its members during and after emergencies.
Hope United Methodist Church (HUMC)	A welcoming and inclusive faith community in South San Francisco.	Become a Resilience Hub to provide resilience resources and support for its community during and after emergencies.
Center for Independence of Individuals Living with Disabilities (CID)	A center operated by and for people with disabilities and older adults in San Mateo County.	Address specific needs and barriers faced by people with disabilities and older adults during heat emergencies.
El Concilio of San Mateo	A bilingual Latinx-led organization providing education and services to underserved communities in San Mateo County.	Study effectiveness of two different heat resilience measures in households with low incomes that are renters.

Participating Organizations

Pilot Project Summaries

Senior Coastsiders, a gathering place and resource center for older adults, transformed their community center into a Resilience Hub, which opened on August 17, 2022. To achieve this, they used County grant funding to purchase and install air coolers, air purifiers, misting fans,

indoor and outdoor air quality monitors, and solar window coverings for temperature control. These measures protect the health of their members during days with extreme heat and poor air quality. The Hub is now available to its over 2,000 members and can accommodate up to 269 visitors at a time.

Hope United Methodist Church, a welcoming and inclusive faith community in South San Francisco, transformed their space into a Resilience Hub. They partnered with California Interfaith Power and Light (CIPL) and used County grant funding to purchase and install a backup battery system to complement their existing solar panels and upgraded their HVAC system with MERV-13 filters. Additionally, they added HEPA filters to extend the life of their air purifiers. The Church and CIPL also conducted engagement events in South San Francisco to educate the community on climate and disaster preparedness. These efforts are helping the community be prepared for future emergencies.

The Center for Independence of Individuals with Disabilities (CID), a center operated by and for people with disabilities and older adults, used their grant funding to acquire ten portable power stations to loan to at-risk individuals who rely on electricity for critical health equipment. These portable power stations can be deployed during emergencies and Public Safety Power Shutoffs. CID also served a broader audience through educational events and developed personalized disaster preparedness plans for 227 individuals.

El Concilio, a bi-lingual Latinx-led organizations that provides services to underserved communities, conducted a study to compare the effectiveness of two heat resilience measures for renters: portable heat pumps and cellular shades. They began by surveying residents about past and post-heat season heat impacts, and distributed heat resilience information to 40 low-income renters. The study found both measures effective and well-received, with portable heat pumps generally being the preferred option.

СВО	Population Served by the Project	Project Details	Equipment Installed	Cost
Senior Coastsiders	 Older Adults Coastside residents 	 Transformed space into a Resilience Hub with capacity of 269 people. Heat resilience education to 700 adults 	 Air purifiers Evaporative Coolers Solar Shades 	\$39,000

Project Details

HUMC	 Faith community South San Francisco 	•	Transformed space into a Resilience Hub with capacity of 150 people. Resilience Workshops and events served 100 people	•	Battery Inverter Backup units	\$44,000
CID	Individuals with disabilities and medical needs	•	Created 10 portable power stations that can be deployed during heat and flood linked power- outages. Developed personalized disaster plans for 227 individuals	•	10 Yeti 1500x Portable Power Stations 227 emergency kits	\$40,000
El Concilio	People with low- incomes that are renters, who are at risk during extreme heat events.	•	Studied effectiveness of two types of heat mitigation measures for 40 renter households	•	Portable heat pumps with air conditioning Cellular shades	\$30,000

Pilot Project Impacts

The program delivered both short-term and long-term benefits. Participating organizations have significantly increased their knowledge of researching, operating, and maintaining resilience equipment, as well as understanding climate impacts and emergency events. They gained experience in equipment deployment during power outages, floods, and extreme heat events and improved their communication about climate and emergency issues within their communities.

These organizations plan to continue their resilience efforts, making investments in staffing, equipment, fund development, and partnerships with emergency response organizations. The projects rapidly enhanced community-based resilience capacity and provided essential resources for vulnerable populations.

Project Impact

СВО	Immediate Impact
Senior Coastsiders	Temperature was 10°F lower in spaces within the hub on high heat days in addition to improved indoor air quality
HUMC	During a power outage due to a storm on January 4 th , 2023, the solar panels and battery storage system provided emergency power to the neighborhood.
CID	140 Individuals dependent on medical devices who were previously outside a portable power program area were served and able to weather power outages during heat and flood emergencies in 2023.
El Concilio	Study found that portable heat pumps offered more resilience benefits (cooling, heating, dehumidifying) and portability compared to cellular shades

Lessons Learned

During the program's development and implementation, participating CBOs brought up several ideas for improvements for future programs. Some strategies the Department could employ to improve program accessibility and reduce burdens for CBOs include:

- Streamline the application and reporting process to reduce administrative burden.
- Extend time between release of funding opportunities and submission deadline.
- Offer third-party technical assistance.
- Provide flexibility for more scope negotiation to take place after awards are made.
- Offer sample applications showing best practices and level of detail needed.
- Incorporate overhead as a standard percentage.
- Provide greater award amounts.
- Contracts could be structured to enable advance payments to reduce budget strain or acquisition delays.
- Increase contract terms CBOs recommended more time be allocated for the project completion.

Future Resilience Projects

The program successfully enabled community-based organizations to enhance resilience among vulnerable populations against climate change. The recent escalation of extreme weather events, including heatwaves, wildfires, intense storms, and flooding, underscores the urgent need to address climate change and its disproportionate impact on vulnerable communities. By collaborating with CBOs, local governments can play a crucial role in bolstering community resilience.

With growing community engagement and increased funding, there is an opportunity to strengthen partnerships. Investing in resilience not only fortifies San Mateo County's communities but also creates a framework for navigating future crises and promoting long-term sustainability.

Pilot Project Reports

Senior Coastsiders

Highlights

The pilot project transformed Senior Coastsiders into a Resilience Hub, equipped with air purifiers, coolers, and solar window coverings funded by the San Mateo County Sustainability Department. With a focus on addressing heat and air quality concerns, the Hub serves as a safe space for diverse older adults



during emergencies, offering clean air and cooling facilities. Collaborating with local authorities, they've proactively opened the hub during heatwaves, and plan to further enhance their preparedness training and energy resilience efforts with continued support from community partners.

Overview

The Coastside communities in San Mateo County occupy a unique geographical position, between the coastal mountain range to the east and the Pacific Ocean to the west. Vulnerable older adults in these communities often face challenges during disasters due to their relative isolation from emergency services. Many residents also lack items like air purifiers or air conditioners to mitigate the effects of wildfire smoke and extreme heat at home. With its reputation as a trusted gathering place and resource center for older adults, Senior Coastsiders stands as an ideal place to offer shelter and resources during disasters.

Senior Coastsiders is conveniently situated on Main Street in downtown Half Moon Bay. Serving approximately 2,000 diverse older adults annually, their services extend to a wide range of individuals, including residents of affordable housing, people with low incomes, people with disabilities, people with limited internet access, Veterans, people experiencing homelessness, and individuals reliant on public transit. The community center has a total capacity of 269

visitors and features amenities such as a dining room, two classrooms, a computer room, and outdoor patios, all easily accessible to people with disabilities. To ensure inclusivity, the organization employs staff fluent in Spanish, Mandarin, and Cantonese, providing cultural and language services to Latinx and Chinese community members.

Resiliency Measures

To turn their community center into a Resilience Hub for their members, Senior Coastsiders identified their equipment needs based on guidance from emergency services organizations and community feedback from past smoke, power loss, and heat emergencies. Their initial plan focused on ensuring refrigeration for their food distribution program in the event of a power outage through a generator backup system. However, the estimated cost to power its refrigerators was prohibitive. Senior Coastsiders developed a new strategy focused on using the County's funding to purchase and install resiliency equipment in these three areas:

- **Heat mitigation:** Energy efficient thermal window shades to address heat concerns without sacrificing natural light during power outages.
- **Air quality:** Air quality monitors to obtain accurate, localized air quality data and air purifiers to use when air quality is poor.
- **Portable power:** Portable power stations provided by Peninsula Clean Energy to use for device charging.

Wildfire Smoke Resilience Equipment Funded			
Item	Description	Total Cost	
Air Quality Sensor	Classic PA-II (indoor)	\$328	
Air Quality Sensor	Classic PA-II (outdoor)	\$249	
Air Purifier (large sized)	Alan Breathe Smart 75i (1)	\$643	
3 Air Purifiers (Medium sized)	Alan Breathe Smart 45i (x3)	\$1269	
Air Purifier Extra Large	Medify MA 112 HEPA Filter	\$595	
Air Purifier Large	Levoit	\$109	

Extreme Heat Resilience Equipment Funded			
Item	Description	Total Cost	
Evaporative Cooler	Hessaire (indoor)	\$328	
2 Evaporative Coolers	Hessaire (outdoor)	\$318	
19 Solar Shades (energy efficient insulated window shades)	The Shade Store 5% Solid Chilewich	\$25,269	

Impact

The Senior Coastsiders Resilience Hub is now a resource center with clean air, air conditioning, and charging ports for up to 269 visitors at any given time between 8 a.m. and 4 p.m. During a 2022 heatwave, Senior Coastsiders collaborated closely with the County of San Mateo and City of Half Moon Bay, proactively offering their Resilience Hub as a cooling center to address forecasted high temperatures.

With the new Resilience Hub established, Senior Coastsiders continue to partner with local government and other emergency response organizations. Senior Coastsiders will continue regular preparedness training such as first aid, CPR, Mental Health First Aid and CERT for all staff. They plan to It's important for older adults to have a place where they feel safe, welcome, and not isolated and shut off from what is taking place around them. In prior PSPS events it was the ability to have a cup of tea and be greeted by someone with a smile that helped calm their jittered nerves.

Sandra Winter

build on the community awareness of the hub generated by the opening event and related outreach. As a next step, they plan to determine policies, processes, and partners for operating during and after times of crises. They hope that a partner organization will be interested in keeping the hub open outside of normal operating hours and provide additional personnel support. Energy resilience continues to be a top priority for Senior Coastsiders, including installation of a backup power system that would enable continued operation of their kitchen, care management, classes, and activities.

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Hope United Methodist Church

Highlights

The pilot project, a collaboration between Hope United Methodist Church (HUMC) and California Interfaith Power & Light (CIPL) using grant funding from the San Mateo County Sustainability Department, resulted in the creation of the Hope United Resilience Center. The Center is now equipped with a backup battery system that enables independent operation for roughly eight hours during power outages. This project not only addressed the immediate needs of the community for electricity and clean air during emergencies but also fosters community engagement through outreach, education, and events, with approximately 100 individuals participating in workshops and activities.





Overview

Residents of San Mateo County face growing challenges from frequent power outages and wildfire smoke. During these events, residents need a local site to access electricity and clean air. Hope United Methodist Church is an ideal site for a Resilience Center as a long-established spiritual gathering place in the Sierra Highlands, Buri Buri, and Winston Manor neighborhoods of South San Francisco. The Church serves a diverse lower-income community, with a median income significantly below the county median.

HUMC was motivated to act but lacked the technical expertise and capacity to make the necessary changes to turn the Church into a Resilience Hub. This led them to identify a partner, California Interfaith Power & Light, which has supported communities of faith and conscience to finance and install over 100 sustainability-related infrastructure projects.

Resiliency Measures

The collaboration between HUMC and CIPL began with the installation of solar panels at the Church. However, during power outages, the Church would still lose electricity. Recognizing this, HUMC and CIPL envisioned incorporating a backup battery system, which would offer critical refuge to its congregation and community members. SunWork, a commercial solar energy provider, evaluated power needs, recommended a system, secured the required permits, and installed the system, which included an automatic transfer switch connected to HUMC's solar PV system outside the Church. This enables the system to automatically turn on

during power loss and provides backup power for lights, refrigerators, and other equipment for approximately eight hours.

Power Resilience Equipment Funded		
ltem	Description	Cost
SunWork Solar & backup storage system	Evaluation, battery, inverter, storage (SMC Sunny Boy Storage 6.0), automatic backup unit, and installation	\$24,375

Smoke Resilience Equipment Funded			
ltem	Description	Cost	
Air filters for air purifiers	Filtrete Premium F1 HEPA filter	\$88	
Air filters for HVAC system	AirX Health Air Filter 12-Pack MERV-13	\$137	

The Hope Resilience Center was dedicated on Sunday, December 11, 2022, during HUMC's Advent service. The service featured a sermon and presentations, a bell choir, spiritual dance, and a Samoan chorus. Echoing Pastor Current's message of being a "light to the world," the congregation and visitors sang "This Little Light of Mine," and proceeded to the courtyard, where the solar panels and battery stack were visible, and a green ribbon stretched across the entrance to the fellowship hall. The Pastor offered a dedication prayer, and the most senior congregation member cut the ribbon and christened the hall the "Hope Resilience Center."

Impact

The Hope Resilience Center is equipped with a backup battery, which means the fellowship hall and kitchen can now operate independently for roughly eight hours during power outages. The battery system allows for expansion and can be adapted or enhanced as needs require and resources allow. The fellowship hall is an ADA-accessible space that boasts a capacity of 150 individuals, offering crucial amenities like bathrooms, a fully functional kitchen, clean air filtration, and now, reliable backup power. It became clear that we should do what we do best, care for our neighbors. In times of crisis that may mean providing a safe and friendly place to breathe clean air, charge electronics, or serve coffee, water, and tea. We are neighbors, serving neighbors, through the Hope Resilience Center.

– Rev. John D. Current, HUMC

The project went beyond infrastructure, actively engaging both the community and congregation through outreach and education. Door-to-door visits connected neighboring residents to the center, while press releases, social media campaigns, and even a mention in the City Mayor's letter amplified awareness across South San Francisco. HUMC and CIPL also organized events such as themed sermons, guest speaker expertise, partner resource tables, and a celebratory ribbon-cutting ceremony with center dedication. This collaborative effort yielded impressive participation, with approximately 100 individuals joining the workshops and events.

Now that the Hope Resilience Center has been opened, HUMC and CIPL are directing their efforts towards recruiting volunteers to manage the center during emergencies. An essential aspect of this is the implementation of a communications strategy aimed at creating community awareness in advance of an emergency, ensuring that the center's availability is widely known both before and during an emergency. To bolster their preparedness efforts, staff at HUMC recently completed a workshop in collaboration with San Francisco Community Agencies Responding to Disaster (SF CARD). This workshop equipped congregational leadership with the necessary skills to efficiently operate the Resilience Center both prior to and during emergencies.

Project Contacts:

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Center for Independence of Individuals with Disabilities

Highlights

The pilot project, funded by the San Mateo County Sustainability Department, facilitated the purchase and deployment of portable power stations by the Center for Independence of Individuals with Disabilities (CID). This initiative not only provided essential backup power to vulnerable individuals during power outages but also expanded outreach and educational efforts, ensuring comprehensive support for those with disabilities and medical equipment dependence. By serving 227 individuals



across diverse communities, the project showcased a model for enhancing community resilience and underscored the ongoing need for such initiatives in the face of increasing climate-related challenges.

Overview

San Mateo County communities are grappling with increasingly frequent and prolonged power outages, posing significant challenges to residents. Among the most vulnerable are individuals with disabilities and those reliant on

medical equipment such as oxygen concentrators and feeding machines that need electricity or backup power to function. Disruption to medical equipment poses a significant health risk so it is critical that equipment has backup power and that people with disabilities and medical needs receive support and are prepared prior to outages.

The Center for Independence of Individuals with Disabilities (CID), a local Independent Living Center in the city of San Mateo, is uniquely positioned to address this critical need. CID's existing Disability Disaster Access and Resources (DDAR) program, established through partnerships with Pacific Gas & Electric (PG&E) and the California Foundation of Independent Living Centers (CFILC), has helped individuals during Public Safety Power Shutoffs (PSPS) and storm-related outages. However, the program's scope was limited to specific events, leaving a gap for individuals experiencing outages outside of these situations, such as outages caused by extreme heat. Recognizing this limitation and the broader community need, CID with support from the San Mateo County Sustainability Department, sought to expand its program's reach to ensure comprehensive and inclusive support for all individuals with disabilities and medical equipment dependence during power outages.



Resiliency Measures

CID aimed to broaden its programs beyond specific events like PSPS and storm outages, reaching individuals facing power disruptions from other causes, with a particular focus on extreme heat. To do so, they used grant funding from the Sustainability Department to purchase ten YETI 1500x portable batteries and ten roll carts. These batteries are effective for smaller devices up to 500Wh and are easy to set up and charge, with an estimated run time of 3 months and smart features that show time to empty.

To deploy these batteries, CID created portable power stations including the roll carts, which could be relocated to different areas as needed. They identified high-need individuals through risk assessments and considered seasonal and geographical factors. Previously only individuals in the PSPS impacted area on the Coastside part of the county were served through CID's collaboration with PG&E. CID was determined to expand its service area to include individuals throughout the county. The Pilot Program served individuals living in the following cities of the county: Belmont, Brisbane, Burlingame, Daly City, East Palo Alto, Foster City, Menlo Park, Millbrae, parts of Pacifica, Redwood City, San Bruno, San Carlos, San Mateo, South San Francisco, parts of Woodside, and unincorporated areas in northern, eastern, and central parts

of San Mateo County such as North Fair Oaks.

CID also recognized that equipment is only one part of the solution. Outreach and education are also needed for preparedness. They developed a new program to provide emergency preparedness templates and guidance for how to individualize them as well as Partnering with the County of County of San Mateo Office of Sustainability proved to be the breakthrough moment for the Disability Disaster Access and Resources (DDAR) Program. The program can now serve consumers throughout San Mateo County.

– Paul Cruz

Equipment Funded		
Item	Details	Total Cost
10 YETI 1500X Portable Battery	Ideal use for Continuous Positive Airway Pressure (CPAP) Machines, Nebulizers, and smaller medical devices. Can be transported easily with the roll cart. Accommodates common power plugs including AC, USB-A, USB-C, and 12V. Weight: 54.54 lbs. with roll cart (45.64 lbs. without) Dimensions: L: 15.25" x W:10.23" x H: 10.37	\$19,999.95

starter emergency kits and demonstrations on how to use them.

10 YETI Roll	Roll carts increase portability for staff and end users	\$999.50
Carts		

Impact

The portable power stations immediately demonstrated their usefulness during the 2023 winter storms, CID served individuals living in bayside communities for the first time through this program. Nearly 140 new individuals accessed portable power during developing and implementing this pilot project.

Beyond the impact of the equipment, the outreach CID conducted also helped increase the resilience of the community. They hosted events on preparedness for older adults and individuals with disabilities where they shared emergency plan templates, guidance, starter kits, and demonstrations. Partnerships with diverse organizations like Puente de la Costa Sur and Menlo Park Senior Center expanded their reach. Additionally, CID helped individuals develop personalized emergency plans, emphasizing the stations as part of a larger resilience strategy. Participants found the preparedness events valuable and the plan template helpful and they also appreciated learning about emergency kits.

In total, including people making use of the equipment and outreach,

Power Station Location	Need
San Mateo	Backup power for hospital bed
Half Moon Bay	Backup power for CPAP
Pacifica	Backup power for CPAP
East Palo Alto	Backup power for in home dialysis machine
Redwood City	Backup power for in home dialysis machine
San Bruno	Power supply for ventilation in home
Menlo Park	Backup power for CPAP
Redwood City	Backup power for CPAP
South San Francisco	Backup power for hospital bed
Woodside	Backup power for CPAP

this program served 227 individuals: 41% between 65-91 years old, 37% between 30-64 years old, and 18 youth/children. Participants were diverse: 44% Hispanic, 22% White (non-Hispanic), and 18% Asian. Most came from Menlo Park (45), with clusters in Pescadero (28) and San Mateo (24). Individuals from 21 communities participated, including 18 from East Palo Alto and 16 from South San Francisco.

There remain many obstacles to supporting people with disabilities and medical device dependency. For example, the YETI 1500x cannot meet the power needs for larger medical

equipment such as lifts and bariatric hospital beds. As a temporary solution, CID refers these consumers to Peninsula Clean Energy and PG&E rebate programs to begin the process of finding long-term back-up power solutions like solar wall chargers and/or generators. Under emergency conditions, CID recommends alternative housing options with power such as a hotel stay or sheltering with family or friends.

This project established a model for CID to collaborate with partners and experts to enhance resilience for people with disabilities, medical needs, and older adults. CID recognizes equipment installations as one piece, not a full solution. They will continue offering education and outreach, and hosting events to provide more hands-on support for individual preparedness. Recent disasters highlight growing demands for resiliency work and the need to sustain and expand these types of programs to meet these challenges.

Project Contacts:

Center for Independence for Individuals with Disabilities Webpage: <u>www.cidsanmateo.org/cidprepared</u>

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El Concilio

Highlights

El Concilio of San Mateo County (El Concilio) conducted a San Mateo County Sustainability Department supported study comparing heat reduction solutions for 40 low-income renter households in vulnerable communities. This study evaluated two no-cost heat reduction measures that directly benefited 40 low-income households. By



engaging underserved communities and demonstrating a model for inclusive climate resilience efforts, this project highlights the importance of programs to address the increasing risks of extreme heat in San Mateo County.

Overview

Renters across San Mateo County are vulnerable to the impacts of climate change, yet they often have limited options to enhance their resiliency compared to homeowners. Existing home resiliency programs typically serve homeowners or landlords, which potentially exacerbates renter vulnerabilities by increasing property values and ultimately displacing long-time community residents. Low-income renters in particular face challenges like unfair evictions, rent increases, and limited resources.

Through their experience working with low-income communities, El Concilio is an ideal organization to promote resiliency programs in renter communities. Founded in 1980, El Concilio is a bilingual Latinx-led resource with offices in the unincorporated North Fair Oaks and the City of East Palo Alto. El Concilio has previously observed that close to 95% of households in their low-income service population lack cooling equipment, underscoring a critical resiliency gap.

One explanation for why renters often lack cooling equipment is that they have difficulty in obtaining landlord approval for equipment installation, which restricts their heat reduction options. Two pieces of equipment that typically do not need landlord approval are cellular shades and portable heat pumps. However, few studies exist which compare the effectiveness of the two. In selecting a project, El Concilio chose to conduct a study comparing these two heat reduction methods to determine the best and most efficient cooling solutions for low-income renters in San Mateo County.

Study

The study participants included 40 people with low-incomes that rent their residences who did not already have an air-cooling device and live in one of the socially vulnerable communities at greater risk for climate-linked heat impacts: unincorporated North Fair Oaks, Redwood City, the Belle Haven area of Menlo Park, and East Palo Alto. Homes with older adults or young children, people with health conditions affected by heat, and homes with high occupancy were prioritized. The pilot also included qualitative surveys for residents to share past and current heat impacts, home audits to assess resident needs, safe use documentation for the installed equipment, and distribution of information on how to prepare for heat and reduce heat impacts during a heat event. Residents were also provided information about and/or referred to energy rebate programs.



Location of Households in the Study

Shades Installation



Heat Pump Installation

Before



Source: El Concilio of San Mateo County Final Study

Item

Danby 13000 cooling,

Details

•

heating, dehumidifier, and window venting kit. Total deployed: 33 Homes	•	Home must have windows that open to accommodate vent and access to three-prong outlet.	(Average)
	•	Installation time: 1 hour Weighs over 90 pounds. Energy cost to run them	
	•		

Heat Resilience Equipment Studied

Designed to cool up 500 sq ft.





Cost

\$577.30

Blinds Avenue Interior Cellular Shades	•	Sizes and number of shades customized to each household.	Up to \$92.86 for each shade
Total deployed: 7 Homes	•	Shades provided for every window in household.	
	•	White cellular shade, UV protection	
	•	Up to 71" wide and 72" long	
	•	Installation time: 1.5-2 hours	
	•	Drill, ladders, and two people needed for installation.	
	•	Not available for sliding doors	

Results

As a result of this program, El Concilio was able to provide no cost heat resilience measures for 40 rental households in San Mateo County. Post-survey results revealed that participants derived significant benefits from both interventions. Almost all survey respondents reported a decrease in household temperature. Program satisfaction among all study participants averaged 4.95 out of 5.

While both methods effectively reduced temperatures, participants observed that portable heat pumps appeared to be more versatile and offered greater benefits compared to shades. Participants appreciated how portable heat pumps can be moved within a household and to a different house (renters frequently move), can both heat and cool, and improves indoor air quality. The primary concern regarding portable heat pumps among participants was the potential for increased electricity cost. To mitigate this, households were referred to low-cost energy programs.

The success of the project in reducing the impacts of extreme heat for the program participants and the lack of landlord barriers in installing the equipment indicates that these heat reduction measures are an effective and potentially replicable model to fill a significant resilience gap in renter communities.

Project Contacts

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