Santa Clara County Public Health Department
Climate Change Planning and Vulnerability Assessment

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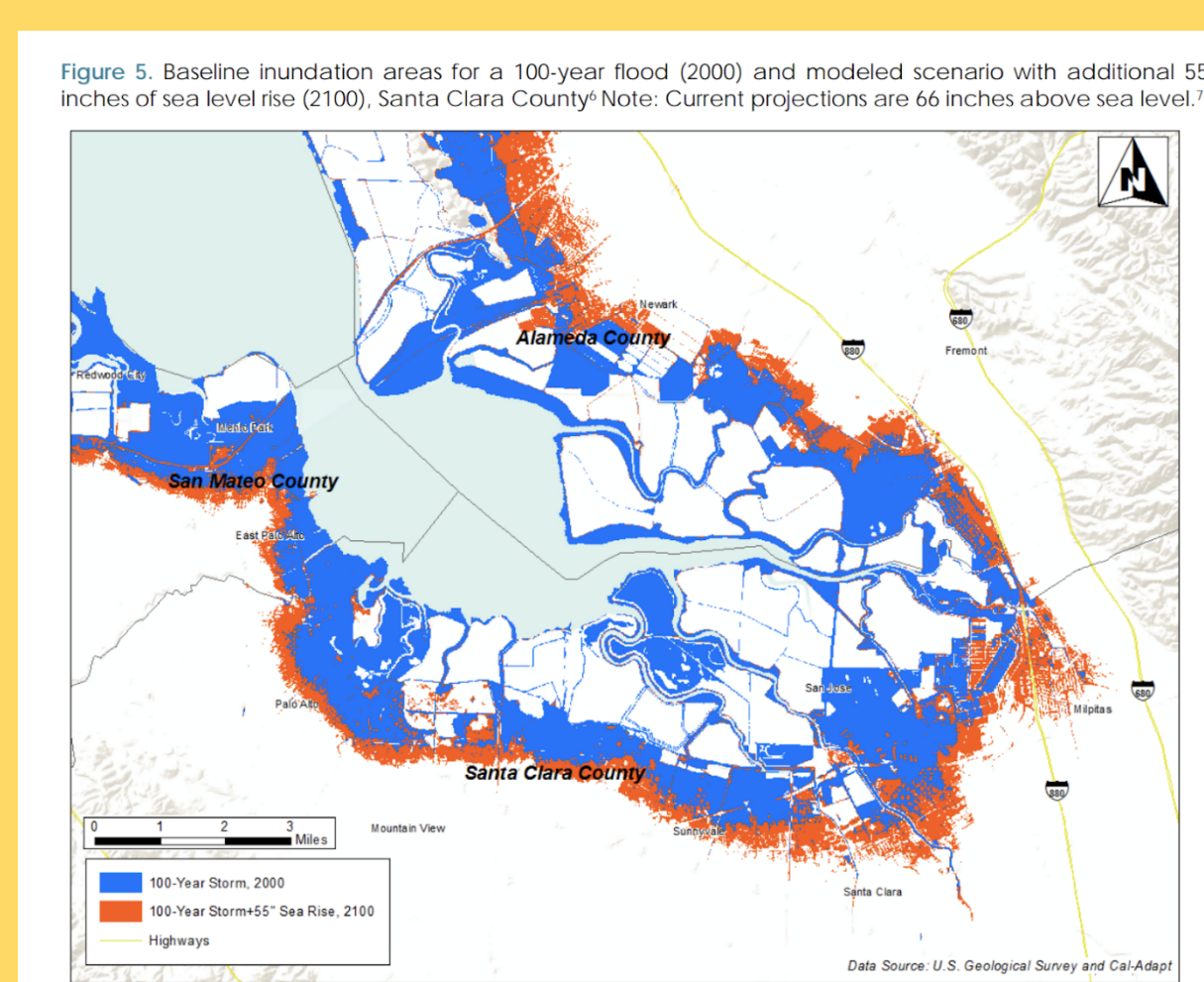**Santa Clara County PUBLIC HEALTH**

Community Partner

"Local Health Departments (LHDs) have a professional and ethical responsibility to address the climate crisis. The role of LHDs is to apply the same foundational public health tools and approaches that are used to address any emergent health crisis, grounded in core public health values such as equity, prevention, and preparedness" - *Climate Health and Equity: A Guide for Local Health Departments*

The Santa Clara County Public Health Department (SCCPHD) is initiating its climate health equity vulnerability assessment (CHEVA) to understand and support differing needs across its cities and many diverse communities. To assist the planning process, this project conducted three literature reviews surrounding indicator selections, community readiness, and climate resilience. From this search best practices were recommended and a new indicator tool structure for surveillance was proposed. A matrix list of funding revenue sources was compiled and finally, this project provided a review and grading of city Climate Action Plans (CAPs).

Background

As the global climate crisis is upon us with increasing speed, action is needed at all levels of national, state and local governments to prepare, adapt and mitigate the impacts to come. In the coming decades, Santa Clara County (SCC) can expect temperature increases of up to 6°F, decreased precipitation by 4-5 inches, sea level rises of up to 66 inches, more frequent heat waves, and persistent destructive wildfires. These changes will impact SCC residents through increased heat-related illnesses, vector-borne illnesses, downstream consequences of drought, food insecurity, molding buildings, lower indoor air quality, and socioeconomic disruption. In response, the Santa Clara County Public Health Department (SCCPHD) will conduct a climate health equity vulnerability assessment (CHEVA) to understand differing needs of our local cities and communities.

Figure 5. Baseline inundation areas for a 100-year flood (2000) and modeled scenario with additional 55 inches of sea level rise (2100), Santa Clara County. Note: Current projections are 66 inches above sea level.

Climate Change and Health Profile Report Santa Clara County

Project Description

Overview of Major Activities
This project focused at the planning/preparatory stage of SCCPHD's climate vulnerability assessment. Specifically, a literature review of local research, data sources, and resources was performed to identify and rank climate indicators. A second literature review was conducted to identify best practices for evaluating community readiness and engagement to build community climate resilience. Finally, an evaluative tool was created and used to review thirteen city Climate Action Plans (CAPs) across Santa Clara County.

Climate and Health Indicators
A major component of implementing an equitable and sustained effort towards vulnerability assessment and climate change resilience planning requires intentional data collection and surveillance. Through a literature review of resources from the state, county and nearby Local Health Departments (LHDs), with particular focus on San Francisco Department of Public Health, this project proposes the following set of climate indicator indices, composed of 25 "primary" indicators and 39 general indicators.

Category	Indicator	Flood, Storm, and Sea-Level Rise Risk	Extreme Heat and Drought Risk	Air Quality and Wildfire Risk	Resiliency and Vulnerability Indices
Sociodemographic and Housing	Age: Percent of residents under 18, over 65	•	•	•	•
	Percent of residents identifying as non-white	•	•	•	•
	Percent of residents below 200% of Federal Poverty Rate	•	•	•	•
	Percent of residents over 25 with at least a high school degree				•
	Percent of households with adults who do not speak English	•	•	•	•
	Homeless Population, per 1000 residents	•	•	•	•
	Housing Violations, per 1000 residents	•	•	•	•
	Percent of residents who report living alone	•	•	•	•
	Profession—agriculture and construction work		•	•	•
Environmental Exposure	Population that does not live within 0.5 miles of a regional transit station	•	•	•	•
	Percent of land in 100-year flood plain w/ 36 in of sea level rise	•			
	Percent of land projected to have over 6 in of precipitation in 100 year storm	•			
	Sea-level rise	•			
	Positive test results in County sentinels and reservoirs for waterborne disease	•			
	Annual heat waves (defined as five days over 72°F to 77°F)		•		•
	Percent tree cover		•		•
	Percent impervious surface		•		•
	Access to Cooling Centers		•		•
	Potential area burned in wildfires/Wildfire acreage			•	
	Fire Hazard Severity Zones			•	•
	Air quality—Average annual PM2.5 concentration			•	
	Air quality—Annual average number of unhealthy days of ozone air pollution			•	
	Vehicle Miles Traveled (VMT)			•	
	Park access—Population that lives within ½ mile of a park, beach, open space, or coastline				•
Health	Deaths due to extreme weather events (fires, floods, storms, heat)	•	•	•	•
	Rate of hospitalization for schizophrenia and other psychotic disorders	•	•	•	•
	Lyme disease cases	•			
	West Nile virus cases	•			
	Waterborne disease (e.g. Rate of ED visits for cryptosporidiosis, shigellosis, and giardiasis)	•			
	Rate of hospitalizations for diarrheal and GI illness following extreme storm events	•			
	Asthma—rate of asthma-related ED visits, children 0-17 (rate per 100,000 children)			•	•
	Asthma—percentage of adults ever diagnosed with asthma			•	•
	CVD—age-adjusted hospitalization rate for ischemic heart disease per 100,000 adults		•	•	•
	CVD—age-adjusted rate of deaths from heart disease per 100,000 people		•	•	•
	Low birth weight		•	•	•
	Preterm births		•	•	•
	COPD—rate of COPD related ED visits		•	•	•
	Diabetes—Rate of diabetes-related hospitalizations per 100,000 adults		•		•
	Diabetes—Percentage of population ever diagnosed with diabetes		•		•
	Dehydration - rate of dehydration-related ED visits		•		•
Resiliency*	Transportation - percent engaging in active transit and public transit score				•
	Public Realm - Food Market, proximity to pharmacy				•
	Economy - Percent unemployed				•
	Public Health - Disability, preventable ED visits, proximity to hospitals				•
	Further Breakdowns of Demographic Age, Race and Population Density				•
	Housing - percent with AC, percent w/ rent >50% of income, percent living with 2+ per room				•
	Community - citizenship, percent who moved to SCC, violent crimes and voting rates				•

*Additional resiliency indicators from SFDPH's resiliency index summarized briefly
****Bolded items** indicate highest priority indicators, mentioned in multiple resources and often will help track across climate change impact areas
***Indicators gathered from the following sources:
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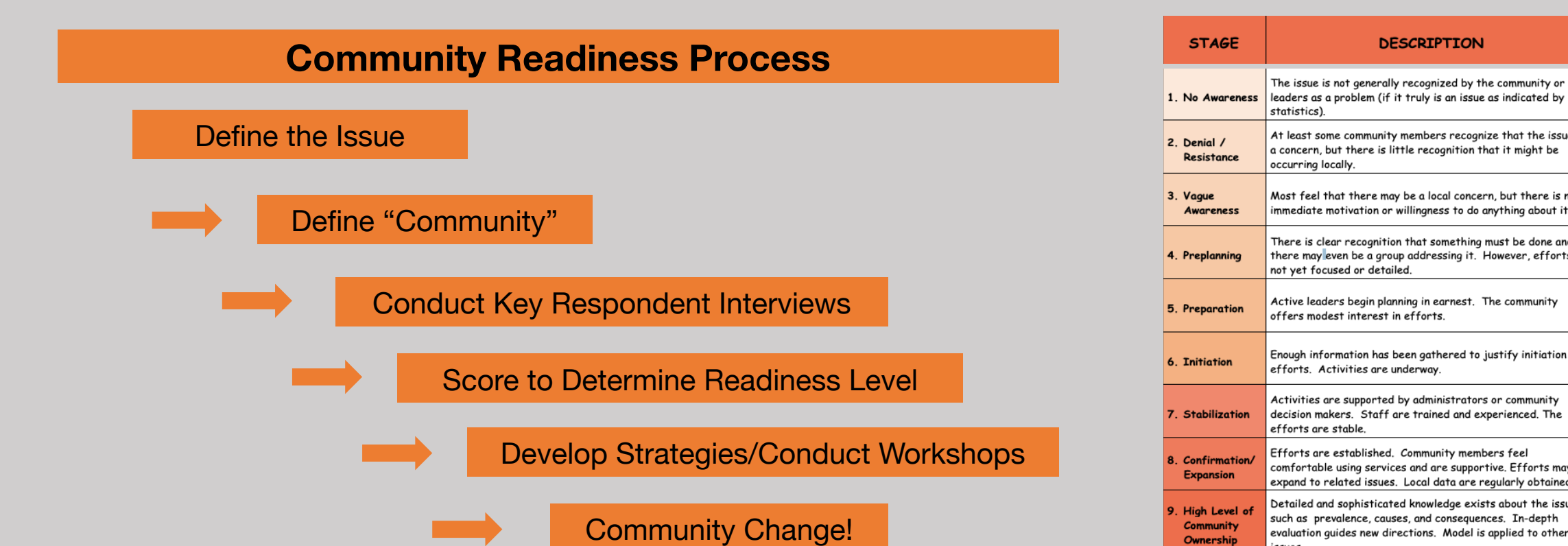SFDPH Climate and Health Adaptation Framework

Indicator Revision Advantages
- *Simplicity* - the proposed indicator format allows for both enhanced accessibility for public-facing materials and simpler surveillance and data compilation (reduction of 8 climate areas to 4 climate areas)
- *Resiliency* - by adding a resiliency index measure, the SCCPHD can institutionalize consistent tracking of racial and health inequities, vulnerability, and community resilience
- *Regional continuity* - reformatting of the climate surveillance system to this format will standardize SCCPHD's tracking system with other LHDs in the Bay Area, allowing for geographic trends to be followed more continuously and more coordinated local responses

Climate Resilience Readiness and Partnership
Assessing Community Readiness
A literature review was performed to determine the best method for assessing community readiness and the **Community Readiness Assessment** tool developed by Jumper Thurman et al., was identified to support this process (outlined below).

Community Readiness Process
- Define the Issue
- Define "Community"
- Conduct Key Respondent Interviews
- Score to Determine Readiness Level
- Develop Strategies/Conduct Workshops
- Community Change!

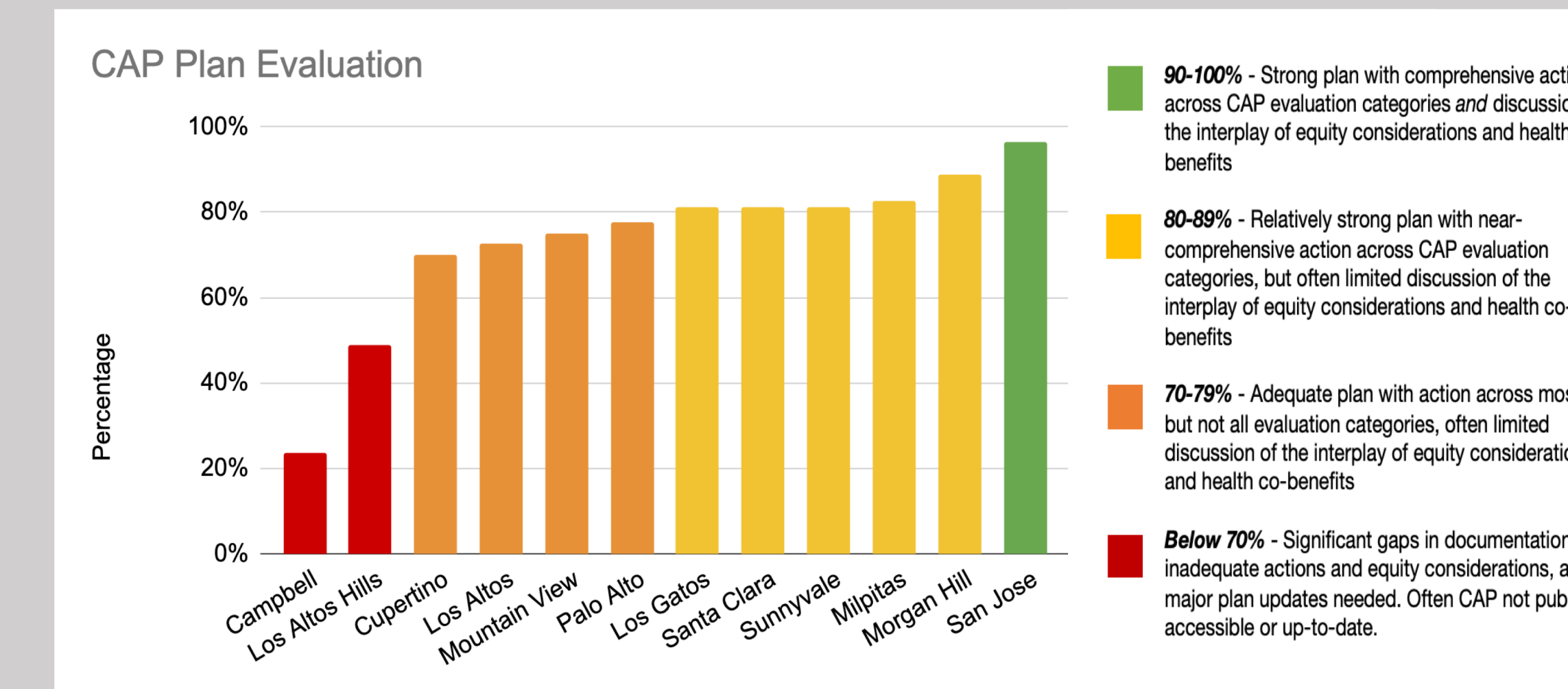| STAGE	DESCRIPTION
1. No Awareness	The issue is not generally recognized by the community or the leaders as a problem (if it truly is an issue as indicated by statistics).
2. Denial / Resistance	At least some community members recognize that the issue is a concern, but there is little recognition that it might be occurring locally.
3. Vague Awareness	Most feel that there may be a local concern, but there is no immediate motivation or willingness to do anything about it.
4. Preplanning	There is clear recognition that something must be done and there may even be a group addressing it. However, efforts are not yet focused or detailed.
5. Preparation	Active leaders begin planning in earnest. The community offers modest interest in efforts.
6. Initiation	Enough information has been gathered to justify initiation of efforts. Activities are underway.
7. Stabilization	Activities are supported by administrators or community decision-makers. Staff are trained and experienced. The efforts are stable.
8. Confirmation/ Expansion	Efforts are established. Community members feel comfortable using services and are supportive. Efforts may expand to related issues. Local data are regularly obtained.
9. High Level of Community Ownership	Detailed and sophisticated knowledge exists about the issue, such as prevalence, causes, and consequences. On-going evaluation guides new directions. Model is applied to other issues.

Climate Resilience Building
A literature review was also conducted for best practices in building community resilience and incorporating equity principles into their CHEVA. The main recommended areas of intervention:
- *Surveillance*
- *Interdepartmental Collaboration*
- *Community Engagement and Education*

For successful collaboration at each of these stages SCCPHD needs to acknowledge power structures and historical harms, provide community compensation for input, ensure shared-decision making structures exist, share resources, and remain transparent.

Climate Action Plans
State policy and legislation such as AB 32, SB 32, SB 379 require jurisdictions to adopt greenhouse gas emission reduction, climate adaptation and resiliency strategies through a Climate Action Plan and/or a General Plan. An evaluation tool was developed to evaluate SCC city plans to enhance health and equity co-benefits when implementing current or future strategies. The tool closely follows models from the SCC Healthy Cities 2020 medal criteria and the San Diego Region Climate Action Plan Report Card. Of 15 cities, 13 had publicly-accessible CAP materials.

CAP Plan Evaluation

- **90-100%** - Strong plan with comprehensive action across CAP evaluation categories and discussion of the interplay of equity considerations and health co-benefits
- **80-89%** - Relatively strong plan with near-comprehensive action across CAP evaluation categories, but often limited discussion of the interplay of equity considerations and health co-benefits
- **70-79%** - Adequate plan with action across most but not all evaluation categories, often limited discussion of the interplay of equity considerations and health co-benefits
- **Below 70%** - Significant gaps in documentation, inadequate actions and equity considerations, and major plan updates needed. Often CAP not publicly accessible or up-to-date.

(Cities: Campbell, Los Altos Hills, Cupertino, Los Altos, Mountain View, Palo Alto, Los Gatos, Santa Clara, Sunnyvale, Milpitas, Morgan Hill, San Jose)

CAP Takeaways
- Vast majority approach climate action plans through the lens of mitigation
- Limited prioritization of vulnerable populations and adaptation/resilience measures
- Generalized understanding of health co-benefits, though often not contextualized within existing health disparities
- Limited community input & lack of transparency in which community members gave input/recruitment strategy
- Semi-standardized: Emissions, Energy, Transportation, Waste, Land Use/Conservation
- Standardization of equity measures might increase uptake across plans

Key Resources
Climate Health and Equity: A Guide for Local Health Departments
SFDPH Climate and Health Adaptation Framework
Climate Change and Health Profile Report Santa Clara County

Lessons Learned

The literature review identified several best practices for conducting an equitable CHEVA including intentional data surveillance, broad intersectional collaboration across government departments, and intentional community engagement and education. In order to evaluate community readiness for climate action collaboration with SCCPHD, a peer-reviewed and widely implemented *Community Readiness Manual* was recommended moving forward. A new data surveillance system was proposed for SCCPHD to use in longitudinal monitoring of climate and health changes. Finally, an evaluation tool was developed and used to evaluate CAPs from cities across SCC. Consistently, CAPs are in general compliance with state regulations and propose broad sweeping greenhouse gas reducing interventions. However, plans rarely incorporate explicit measures to prioritize vulnerable populations and frontline communities.
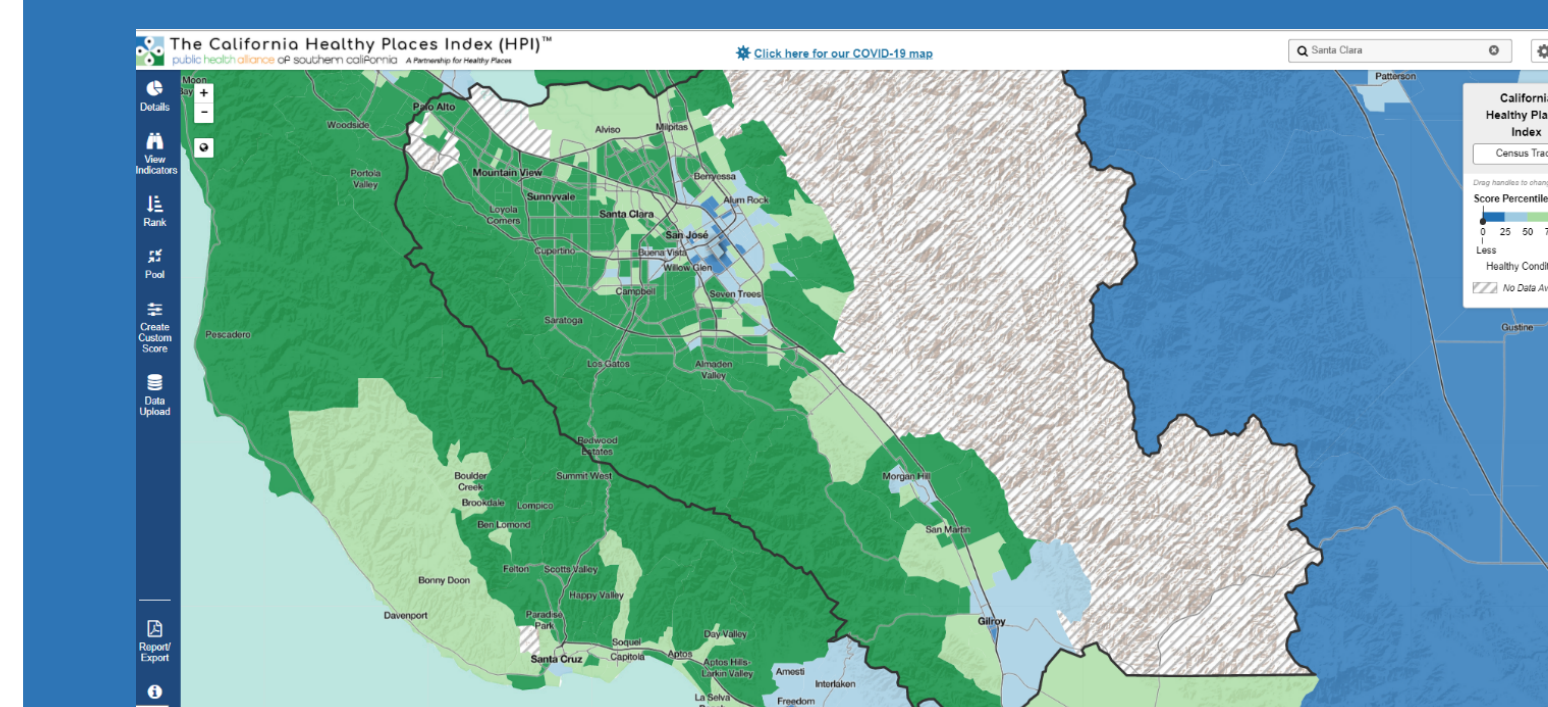
Recommendations

The findings of this project support the need for community engagement at every level of planning from assessing and prioritizing community needs, reviewing appropriate indicators, and constructing interventions. Recommendations to the current proposed data surveillance, include reorganizing indicators by climate change impact category (relevant to our local region) and constructing indices across broader categories to simplify the presentation of results. Finally, regulatory standardization of community-specific vulnerability and resilience measures in CAPs is necessary to standardize considerations of equity across plans.

Acknowledgements

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