Healthy and Resilient Communities

Developing Indicators of Urban Climate Resilience

San Francisco is Preparing for the Public Health Challenges of Climate Change

Many people perceive climate change as an environmental issue, but climate change is a major threat to human health. Climate change is expected to increase temperatures, change precipitation patterns, increase the frequency and severity of extreme weather events, and increase sea-level rise - all of which will significantly affect both San Francisco's natural and built environment, and the health of its residents.

The San Francisco Department of Public Health (SFDPH) has engaged in several initiatives to better understand the potential health impacts of climate change at the local level. In 2010, SFDPH created its Climate and Health Program. To read more about climate change as a public health issue, visit our Climate and Health website at www.sfhealthequity.org/elements/climate.

Global Problem, Local Health Impacts

While climate change is a global problem, its impacts will be local. Increased temperatures will exacerbate heat-related illnesses, severe storms and flooding can cause fatal and non-fatal injuries, and all extreme weather events have socioeconomic and other indirect impacts. Together with local and state agencies, and non-profit partners, the San Francisco Department of Public Health is identifying its most vulnerable populations and developing strategies that build community resilience across the city.

Urban Health and Climate Resilience Data

As part of our Climate and Health program, we have created a Community Resiliency Indicator System. The purpose of the indicator system is to assess resilience to climate change stressors in San Francisco's neighborhoods to advance interventions that increase the city's collective adaptive capacity. We assessed community resiliency through a holistic framework which includes objectives for the environment, transportation, civic engagement, public facilities, education, housing, socioeconomic and health systems.

What does Community Resilience Indicator Project do?

Community resiliency indicators were determined through review of national best practices, careful analysis by working groups, and interaction with community stakeholders. The outcome was the identification of indicators and a public dialogue on actions to build community resilience. The deliverable will be the development of a web-based indicator system on a neighborhood scale. This data is currently publically available on the San Francisco open data portal www.data.sfgov.org.

By centralizing and formalizing the collection of neighborhood-level community resiliency data, SFDPH has provided neighborhood organizations, other city departments and direct-service providers a simple, streamlined way to access resiliency data for their own projects.

Leveraging Public Health Indicators to Make Plans and Decisions on a Local Level

The project works with the San Francisco Indicator Project (SFIP) - and benefits from SFIP's increased capacity to work interdepartmentally to gather and analyze data. Because of the overlap between climate change resiliency and other preparedness efforts, SFDPH hopes that resiliency data will be used by departments focused on the related fields of earthquake preparedness, fire safety, and other city endeavors. More information on the SFIP can be found at www.sfindicatorproject.org.

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List of Community Resiliency Indicators

ENVIRONMENT

- Area in 100-year storm flood plain
- Area in 'high' or 'very high' heat vulnerability risk zones
- Area in liquefaction or landslide zones.
- Impervious surface
- Tree coverage
- Average Annual PM 2.5 Concentration from All Sources
- Area within .25 miles of a contaminiation risk.

TRANSPORTATION

- Average daily minutes of active transportation (bike + walk)
- Public transit score

COMMUNITY

- Violent crime rate
- Voting rate
- Population that moved to San Francisco within the last year
- United States citzenship
- Population living in households without English spoken 'very well'

PUBLIC REALM

- Proximity to healthy food (Food Market Score)
- Area within a .25 mile of at least 1 pharmacy
- Population over 25 with a high school degree

HOUSING

- Households with a person living alone.
- Households with a person over 65 and living alone.
- Overcrowded households
- Housing violations rate
- Buildings with air conditioning
- Household rent burden

ECONOMY

- Employment Rate

HEALTH

- Shelter and cooling centers within .25 miles, per 100 residents
- Population within 30 minutes commute of a hospital or clinic
- Population reporting a disability
- Preventable hospitalizations

DEMOGRAPHICS

- Population over 65-years-old
- Population under 18-years-old
- Ethnicity and race
- Households below 200% of the poverty rate
- Population density
- Daytime density

SF Resiliency Map

Treasure Island/YBI
Presidio
North Beach
Marina
Russian Hill
Pacific Heights
Nob Hill
Chinatown
Financial District
Seacliff
Presidio Heights
Downtown/Civic Center
Inner Richmond
Western Addition
South of Market
Outer Richmond
Golden Gate Park
Haight Ashbury
Mission Bay
Outer Sunset
Castro/Upper Market
Inner Sunset
Mission
Potrero Hill
Twin Peaks
Noe Valley
Bernal Heights
Parkside
Diamond Heights/Glen Park
West of Twin Peaks
Bayview
Lakeshore
Outer Mission
Excelsior
Ocean View
Visitacion Valley
Crocker Amazon

Map Legend

Resilient Communities   **Vulnerable** Communities