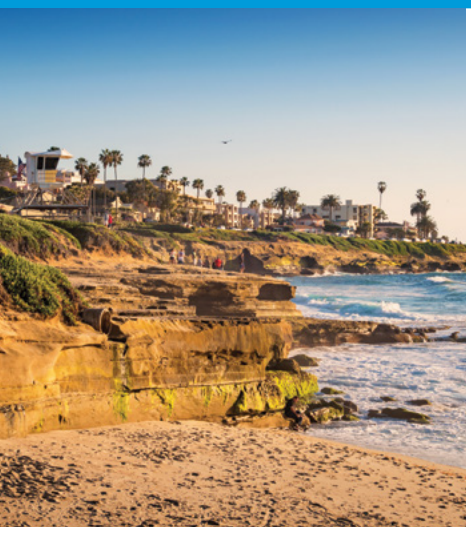
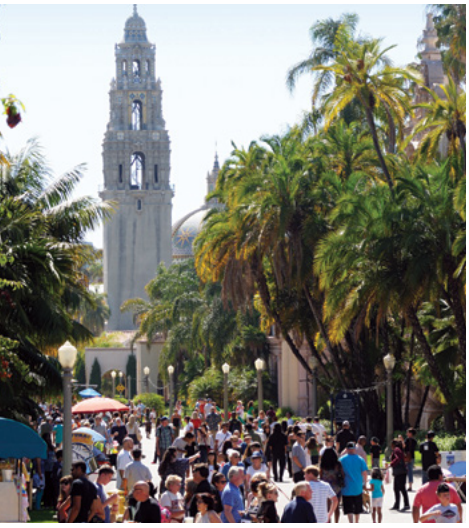
The City of SAN DIEGO

CLIMATE CHANGE VULNERABILITY ASSESSMENT

Working towards a climate resilient San Diego





As the climate changes, the City of San Diego is taking steps to build a resilient future for everyone who visits or calls San Diego home.

In 2015, the City of San Diego (City) adopted a Climate Action Plan (CAP) with strategies to reduce greenhouse gas emissions. Strategy 5 of the CAP called for a standalone climate adaptation plan. The City is now developing *Climate Resilient SD*, a climate adaptation and resiliency plan to identify climate change vulnerabilities.

The Climate Change Vulnerability Assessment is the first step towards completing *Climate Resilient SD*. Backed by the best available science and informed by a diverse Stakeholder Advisory Group, the Vulnerability Assessment identified and evaluated which City assets are vulnerable to climate change and the potential consequences that could occur. This brochure provides a high-level overview of these findings.

Once complete, *Climate Resilient SD* will identify potential opportunities to catalyze a stronger economy and higher quality of life for all communities amidst a changing climate.

Climate Change Hazards

The City of San Diego is exposed to four primary climate change hazards that pose risks to our City, people, economy, and environment.

COASTAL HAZARDS

Increased coastal erosion and flooding due to changes in storms and rising sea levels

WILDFIRE

Increased wildfire risk due to higher temperatures and drier conditions

EXTREME HEAT

Higher average temperatures and more frequent heat waves

PRECIPITATION

Variability in annual rainfall and more intense drought cycles

CLIMATE CHANGE VULNERABILITY ASSESSMENT

Identification and Evaluation of Critical Assets

The Climate Change Vulnerability Assessment identified critical asset types within five key sectors: public safety, water, transportation and storm water, open space and environment, and additional assets. Asset types were analyzed to determine how climate change could affect City infrastructure and resources. Assets were selected based on the following criteria: necessary for important City operations; drives the economy; critical to biological diversity and environmental conservation; and/or contributes to social equity. The formula for analyzing the vulnerability of asset types is shown below:

EXPOSURE

The presence of assets in locations that could be affected by climate change hazards

+

SENSITIVITY

The degree to which assets are affected by climate change hazards

+

ADAPTIVE CAPACITY

The ability of an asset to cope with the consequences of climate change hazards

=

VULNERABILITY SCORES

Low *(not shown in table)*

Medium

High

Potential Consequences and Key Findings

Climate change could cause damage, disturbance, or failure of City assets and impose major disruptions to the health, culture, economy, and environment that is critical to ensuring a prosperous city. Key findings are summarized here with icons that represent the type of hazard to which each sector is most vulnerable.

Open Space and Environment

Conservation areas/open space/source water land is highly vulnerable to all climate hazards, making it the most vulnerable asset type in this sector. Community parks show medium to high vulnerabilities to all climate hazards. Potential consequences include impacts to recreational opportunities, habitat value, built infrastructure, and human and environmental wellbeing, which could impact natural resources, human health, and social equity.

Public Safety

Lifeguard stations show medium to high vulnerability to nearly all hazards, making it the most vulnerable public safety asset type. Wildfire is the largest threat across asset types in this sector. Potential consequences include delayed response times for key emergency services, which could impact human health and safety.

Water

Water and wastewater infrastructure systems show medium or high vulnerability to climate change, primarily due to coastal erosion and precipitation. Low likelihood, but high consequence risks include loss of critical service to wastewater and drinking water treatment, which could impact human health, safety, social equity, and the environment.

Transportation and Storm Water

Bridges, major arterials, drain pump stations, and outfalls are the most vulnerable asset types within this sector. Wildfire and sea level rise are the largest threats. Potential consequences include damage to transportation systems or storm water infrastructure, both of which could impact the economy, mobility, health, and safety.

Additional Assets

Historical, tribal cultural, and archaeological resources show medium to high vulnerability to all climate hazards due to their sensitive nature and low capacity to adapt. Potential consequences include irreversible damage to these important assets, which could impact community identity and unique resources.

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Vulnerability of Critical Assets to Climate Change

The Vulnerability Assessment identified critical City asset types and analyzed their vulnerability to the climate change hazards. Medium and high vulnerability scores are outlined below. Low vulnerability scores were not included as they are considered to be of lesser concern at this time.

Sectors	Asset Types	Medium Vulnerability	High Vulnerability
Public Safety	Fire Stations	Wildfire	
	Police Stations		Wildfire
	Lifeguard Stations	Sea Level Rise, Storm Surge, Precipitation	Sea Level Rise, Coastal Erosion
	Maintenance Facilities	Wildfire, Precipitation	
	Police Patrol and Specialty Vehicles	Wildfire	
	Other Public Safety	Sea Level Rise, Storm Surge	Wildfire
Water	Dams	Wildfire	Precipitation
	Water Pipes	Sea Level Rise, Storm Surge, Precipitation	Coastal Erosion
	Wastewater Pipes	Sea Level Rise, Storm Surge, Precipitation	Coastal Erosion
	Water Pump Stations	Extreme Heat, Precipitation	Wildfire
	Wastewater Pump Stations	Storm Surge	Coastal Erosion, Precipitation
	Distribution Reservoirs	Wildfire, Extreme Heat	
	Water Treatment Plants	Wildfire	
	Wastewater Treatment Plants	Wildfire, Extreme Heat	
Transportation and Storm Water	Airports	Extreme Heat	Wildfire
	Bridges	Storm Surge, Extreme Heat, Precipitation	Sea Level Rise, Coastal Erosion, Wildfire
	Major Arterials	Storm Surge, Coastal Erosion, Extreme Heat, Precipitation	Sea Level Rise, Wildfire
	Drain Pump Stations		Sea Level Rise, Storm Surge, Wildfire, Precipitation
	Outfalls	Wildfire, Extreme Heat	Sea Level Rise, Storm Surge, Coastal Erosion, Precipitation
	Levees	Wildfire, Precipitation	
Open Space and Environment	Conservation Areas/Open Space/Source Water Land		Sea Level Rise, Storm Surge, Coastal Erosion, Wildfire, Extreme Heat, Precipitation
	Community Parks	Storm Surge, Extreme Heat, Precipitation	Sea Level Rise, Coastal Erosion, Wildfire
	Miramar Landfill	Wildfire	
	Beaches	Storm Surge, Wildfire, Precipitation	Sea Level Rise, Coastal Erosion
Additional Assets	Recreation Centers	Wildfire, Extreme Heat, Precipitation	Sea Level Rise
	Libraries	Wildfire	
	City Buildings	Wildfire	
	Historical, Tribal Cultural, and Archaeological Resources	Extreme Heat	Sea Level Rise, Storm Surge, Coastal Erosion, Wildfire, Precipitation

Coastal Hazards:

Sea Level Rise · Storm Surge · Coastal Erosion · **Wildfire** · **Extreme Heat** · **Precipitation**

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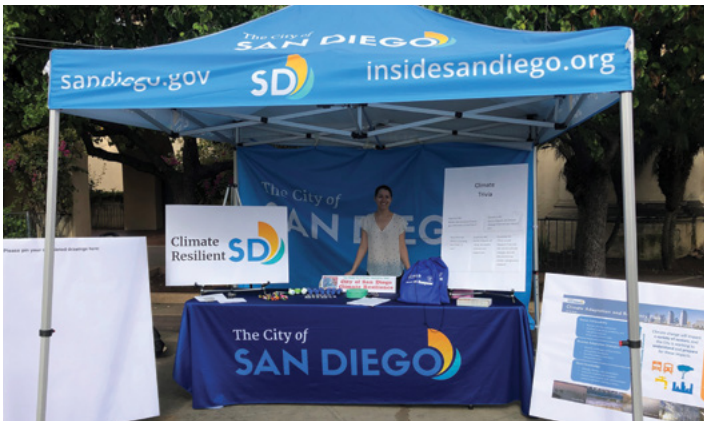
Public Involvement

The City pulled together a diverse group of technical experts for its Stakeholder Advisory Group and met with them at key points in the development of the Vulnerability Assessment for feedback and insight to the process. The City also shared its work with the public at outreach events like Earth Fair 2019. As the City develops *Climate Resilient SD*, the public will have opportunities to stay informed of the progress and engage in the process. Together, we can prepare for a changing climate while improving social equity, health, safety, and the environment for all.



City of San Diego resilience booth at Earth Fair 2019 (left and right)

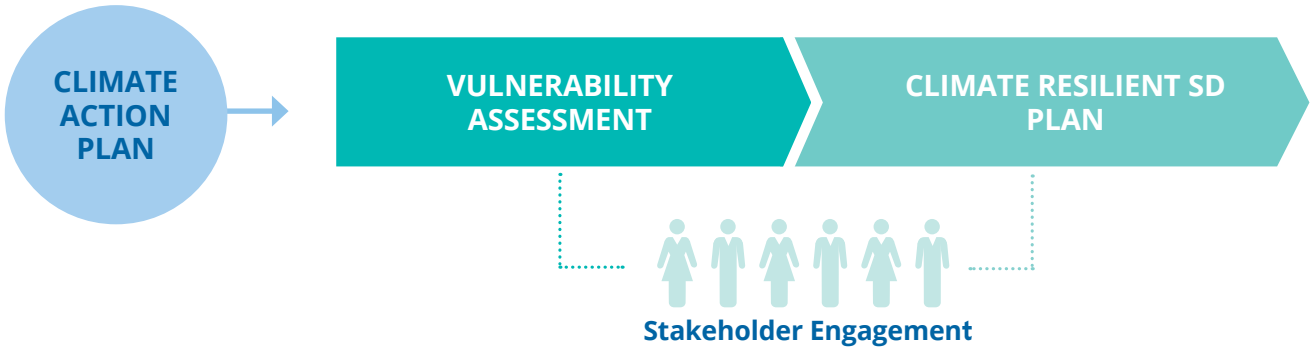
Next Steps

The findings of the Vulnerability Assessment will inform the development of a suite of adaptation strategies, aimed at minimizing risk to the City and increasing resilience. These strategies, along with robust stakeholder engagement, will inform the development of *Climate Resilient SD.*

Throughout each of the planning steps shown below, the City seeks to:

- Prioritize and empower communities of concern
- Raise awareness of where the City is vulnerable
- Identify and build capacity for prevention and response

Climate Resilient SD plans for a future where our city continues to thrive and prosper despite climate change.



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For more information visit: www.sandiego.gov/sustainability/resilience

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