

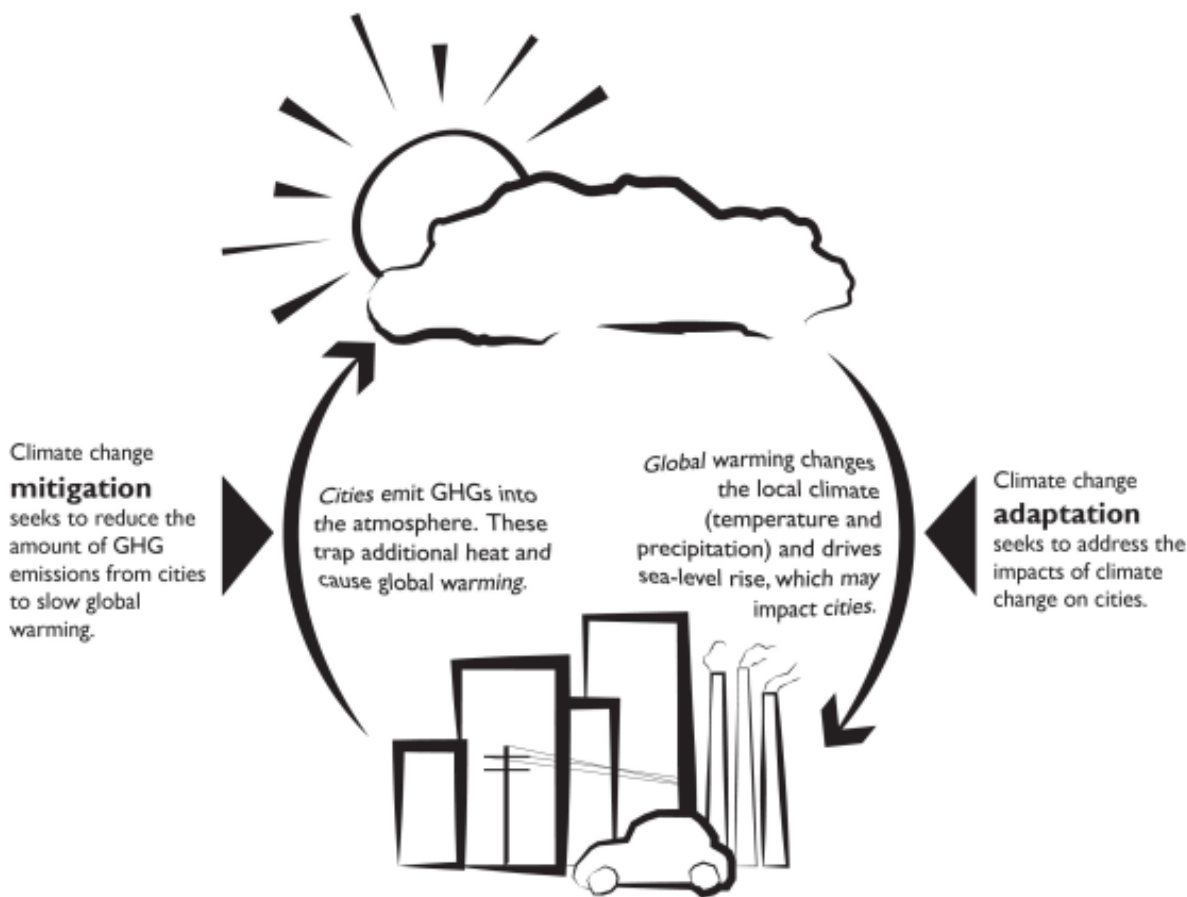
# 6



## CHAPTER 6 ADAPTATION AND RESILIENCY

This chapter describes the role of climate change adaptation and resiliency planning in the context of Cupertino and other Bay Areas communities. Adaptation and resiliency describe the ways in which humans can survive and continue to thrive in spite of climate change-related impacts, such as increasing average annual temperatures, rising sea levels, riverine flooding, and reduced snowpack, among others. This is in contrast to the aims of the CAP to mitigate, or reduce, these potential impacts by reducing the GHG emissions that cause them. Mitigation and adaptation approaches each have a role to play in providing for a safe and healthy future.

The City's Climate Action Plan thus far has focused exclusively upon steps our agency and community can take to reduce the *sources* of greenhouse gasses, termed *mitigation* (see graphic right).<sup>xxii</sup> Acknowledging that climate change is happening, and will continue to happen for the foreseeable future despite efforts to mitigate emissions,<sup>xxiii</sup> our community needs to adapt to a warming planet. We must anticipate and minimize the risks associated with increasing temperatures and extreme weather events, shared in detail below, rather than focusing solely on curbing global warming in the first place.<sup>xxiv</sup> As noted in a 2001 Intergovernmental Panel on Climate Change report, "adaptation is a necessary strategy at all scales to complement mitigation efforts."



Source: CA Office of Planning & Research

Extreme weather events are not unfamiliar to Californians, who have historically combated wildfires, floods, droughts, mudslides, crop failures and other disasters that threatened our communities. Still

*“There are risks and costs to a program of action. But they are far less than the long-range risks and costs of comfortable inaction.”*

– John F. Kennedy

today, these events take lives, destroy land and property, and cost residents and businesses billions of dollars. Informed by strong scientific research and consensus, communities are working to safeguard our collective future, economy, and civil society threatened by climate change-driven extreme weather events. Recognizing that the increasing impacts of climate change are coming requires our community to answer this critical question: “how can we strengthen our planning and preparedness efforts to ensure our City is safe and resilient to these emerging climate-driven vulnerabilities?”<sup>xxv</sup>

This chapter initiates Cupertino’s answer to that question by following the 3L’s framework of the subsequent chapter, detailing approaches the City can take to **Learn**, **Leverage** and **Lead** its efforts to define an inclusive, impactful, and innovative resiliency agenda that safeguards the health of all members of its community and all natural resources upon which they rely. To achieve that objective, the text builds upon the vast work already underway in this space led by regional (i.e., Santa Clara County’s Silicon Valley 2.0 Project, Joint Policy Committee’s Climate and Energy Resilience Project) and state (i.e., California Energy Commission’s Cal-Adapt) agencies. The collective works produced by Cupertino’s network of partner agencies will assist our advancement as a globally replicable model of the way a small, yet smart and agile, city builds a blueprint for its long-term vitality. Read on to learn our approaches and proposed strategies to galvanize personal and citywide involvement in this critical issue.



Source: Nickolay Lamm

Learn

Leverage

Lead



## Learn

As noted above, a multitude of research has already been conducted by scientists seeking to understand the climate-relative impacts currently experienced by our state and region, and those forecasted in the future. Extreme heat days, temperatures and drought are on the rise, placing our community's water supply and residents' health at risk. Fire season has increased by 78 days per year and a 99.7% chance of a 6.7 or greater earthquake within the next 30 years is predicted by the Southern California Earthquake Center - reminding us that the atmosphere, our oceans and geosphere are inexorably intertwined and so equally susceptible to these new climate-induced stresses and strains.<sup>xxvi</sup>

*"Tell me and I forget. Teach me and I remember. Involve me and I learn."*

– Benjamin Franklin

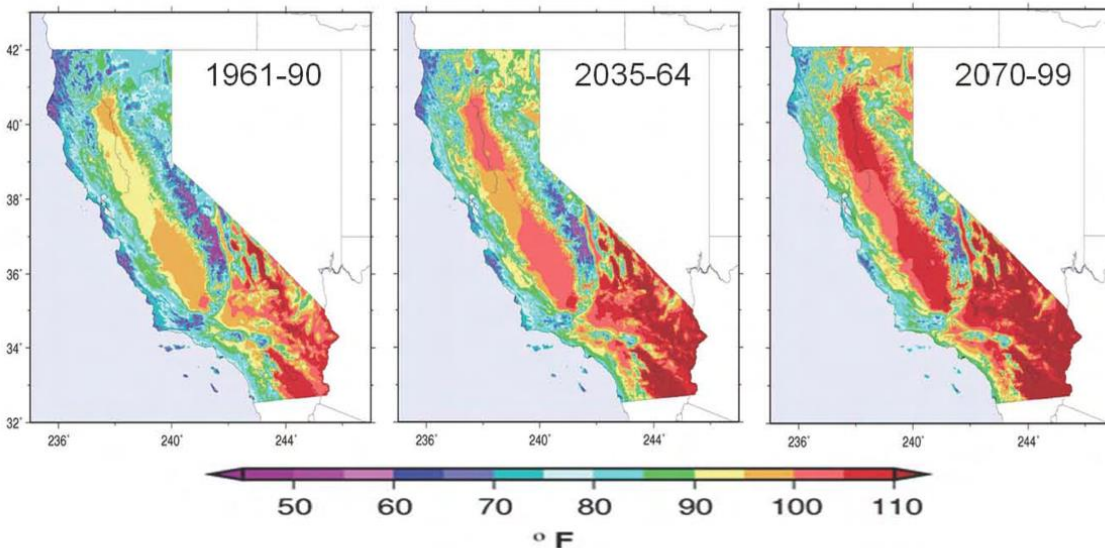
Like many other communities, our backdrop is threatened by the geological and climate instability that has become the new normal. Impacts from climate change currently experienced and forecasted to surge in California are abundant and informed largely by the following recent works:

- United Nation's Intergovernmental Panel on Climate Change (IPCC) 2014 Report: Impacts, Adaptation and Vulnerability
- California Environmental Protection Agency, Office of Environmental Health Hazard Assessment's 2013 Report: Indicators of Climate Change
- California Energy Commission's Climate Change Center's 2012 Report: Our Changing Climate: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California (*note: 2014 update underway*)
- California Emergency Management Agency and California Natural Resources Agency's 2012 Adaptation Planning Guide: Planning for Adaptive Communities.
- California Energy Commission's 2012 Report: Climate Change Impacts, Vulnerabilities and Adaptation in the Bay Area

Note that these resources shared here are not comprehensive, as a large body of California-focused adaptation research exists and can be accessed via the state's [Cal-adapt portal](#), but focus on those that most effectively inform Cupertino's understanding of adaptation impacts to our specific community. Generally, these vulnerability assessments and surveys predict the following direct impacts anticipated for California by 2050:<sup>xxvii</sup>

- Temperature** – In California, temperature increases are expected to be more pronounced in the summer and in inland areas, like Cupertino. Heat waves, defined as five consecutive days where temperatures exceed 90° Fahrenheit (F) are projected to increase not only in frequency (i.e. six to 10 additional heat waves per year) but in spatial extent. The degree of change experienced partially depends on global greenhouse gas (GHG) emissions and atmospheric concentrations; by 2050, however, average temperature increases between 1.8°F to 5.4 °F are projected.

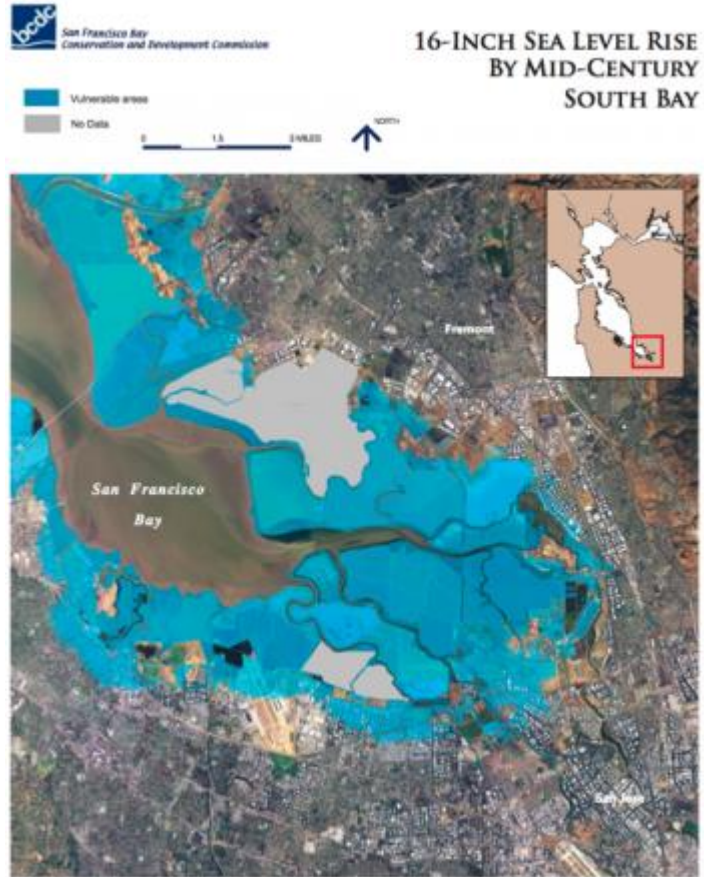
Figure 1. California Historical & Projected July Temperature Increase 1961-2099



Source: Dan Cayan et al. 2009.

- Precipitation** - Northern California is projected to have a 12 to 35 percent decrease in precipitation. Mountainous regions are expected to see precipitation fall more frequently as rain instead of snow. These changes, coupled with the increased likelihood of drought have implications for the state’s water supply. Changes in precipitation and temperature interact. Higher temperatures increase evaporation, which can result in a drier climate, and can result in earlier and faster snowmelt, as depicted in the graphic by the UN’s Food & Agriculture Organization below.

- Sea Level Rise** – Due to global melting of land ice and thermal expansion, the sea level has risen seven inches over the last century and is predicted to rise between 43 and 69 inches by 2100 along the California coastline, posing considerable threats to coastal areas and particularly to low-lying areas adjacent to San Francisco Bay. The number of acres vulnerable to flooding is expected to increase 20 to 30 percent in most parts of the Bay Area, with some areas projected for increases over 40 percent. Coastal areas are estimated to experience an increase of approximately 15 percent in the acreage vulnerable to flooding.



SOURCES: inundation data from Knowles, 2009. Additional soil pore inundation data by Siegel and Scharif, 2002. Aerial images is NADIP 2000 data. DISCLAIMER: inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and indemnify the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal threats, insurance requirements, or property values or to assist in loss of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

- Ocean Acidification** – As atmospheric carbon dioxide continues to increase, so does its oceanic concentration, lowering its pH and changing overall ocean chemistry causing detrimental effects on marine life.
- Wind** – Wind impact predictions for California are still forthcoming, but are being carefully studied to determine how circulation patterns, surface energy, and topography will influence the frequency of extreme events (i.e. wind in combination with hot, dry conditions can worsen fire risk).

The [California Adaptation Planning Guide](#) notes that these aforementioned “direct climate impacts affect a wide range of community structures, populations and basic functions” and recommends that agencies orient community climate adaptation assessments around the secondary impacts among the following sectors:



**Public Health, Socioeconomic, and Equity Impacts:** This sector consists of the public health and socioeconomic impacts of heat events, average temperature change, intense rainstorms, reduced air quality, and wildfires on people, focusing on groups who are most sensitive to these impacts because of both intrinsic factors (e.g., age, race/ethnicity, gender) and extrinsic factors (e.g., financial resources, knowledge, language, occupation).



**Ocean and Coastal Resources:** Changes such as sea level rise, intensification of coastal storms, and ocean acidification may affect ocean and coastal resources. Potential environmental impacts of these changes include coastal flooding/inundation, loss of coastal ecosystems, coastal erosion, shifts in ocean conditions (pH, salinity, etc.), and saltwater intrusion.



**Water Management:** This sector includes climate changes such as altered timing and amount of precipitation and increased temperatures that influence the availability of water supply. In addition, the sector includes an evaluation of the role that intense storms and rapid snowmelt can play in flooding.



**Forest and Rangeland:** Climate can have an influence on forest health and wildfire. In forest ecosystems, climate change can alter the species mix, moisture and fuel load, and number of wildfire ignitions. These changes in wildfire character are related to a range of forest health indicators such as growth rate, invasive species, erosion, and nutrient loss.



**Biodiversity and Habitat:** Climate change may affect terrestrial and freshwater aquatic habitats and the species that depend on them. Changes in the seasonal patterns of temperature, precipitation, and fire due to climate change can dramatically alter ecosystems that provide habitats for California’s native species. These impacts can result in species loss, increased invasive species’ ranges, loss of ecosystem functions, and changes in growing ranges for vegetation.



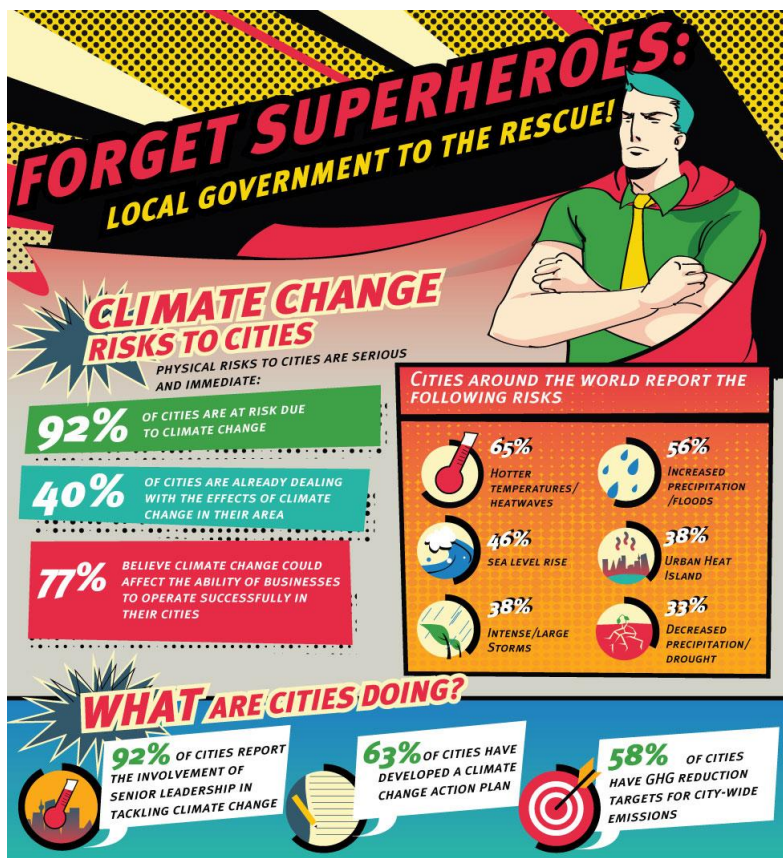
**Agriculture:** The threats posed by climate change have the potential to influence both crop and livestock operations. Climate change can affect agriculture through extreme events (e.g., flooding, fire) that result in large losses over shorter durations, or through more subtle impacts such as changes in annual temperature and precipitation patterns that influence growing seasons or livestock health.



**Infrastructure:** Infrastructure provides the resources and services critical to community function. Roads, rail, water (pipes, canals, and dams), waste (sewer, storm, and solid waste), electricity, gas, and communication systems are all needed for community function. Climate change increases the likelihood of both delays and failures of infrastructure.

It is important to note that nearly all adaptation resources cited in this Chapter focus on the benefits of adaptation and resiliency planning at the city scale, as our communities will serve as the keystone of these predicted impacts. The [California Adaptation Planning Guide](#) describes the four primary reasons for this city-level focus:

1. The 2009 California Climate Adaptation Strategy (CAS) recommends that “communities with General Plans and Local Coastal Plans should begin, when possible, to amend their plans to assess climate change impacts, identify areas most vulnerable to these impacts, and develop reasonable and rational risk reduction strategies using the CAS as guidance.”



2. Many of the impacts of climate change will be localized and will vary based on a community’s physical, social, and economic characteristics. Communities are best positioned to assess and address the implications of climate change at the local level.
3. Communities that begin planning now will have the best options for adapting to climate change. Although the impacts of climate change are already being felt in many communities, they are relatively small at this time. The onset of more significant impacts is likely many years away, but this is not a justification for inaction. Instead it calls for effective planning now while good options still exist. The longer communities wait, the greater the costs of the impacts and the costs to react to those impacts.
4. Many of the actions needed to reduce the impacts of climate change will provide additional benefits to the community, including increased public safety, reduced greenhouse gas emissions, and greater economic stability.

Cupertino offers a unique living laboratory to apply these assumptions about the city’s role in fostering community resilience. Our city’s renown far surpasses its moderate size of approximately 61,000 residents and 2,000 businesses. Around the world, Cupertino is famous as the home of high-tech giants, such as Apple Inc., and can serve as a beacon for best



practices with the proper foundation and implementation. Glass and steel corporate headquarters rise above and yet blend with tree-shrouded residential neighborhoods, most of which sit atop an active fault line and were constructed prior to the adoption of more aggressive seismic codes. In addition to seismic vulnerability, neighborhoods are increasingly susceptible to fire and flooding as they climb into the foothills of the Santa Cruz Mountain range, a point of wildland-urban interface and home to Cupertino's uphill dam. Like many other communities, our backdrop is threatened by the geological and climate instability that has become the new normal. Extreme heat days, temperatures, and drought are on the rise, placing our community's water supply and health at risk.



Ground-truthing this rationale and the aforementioned forecasted impacts anticipated among and across these broad sectors, as defined by the [California Adaptation Planning Guide](#), will be just one step in the City's future adaptation work. Understanding Cupertino's climate exposures, sensitivities, risks, and will inform its adaptation, and ultimately resilience goals, as will a suite of efforts currently underway by the City's county, regional, and nonprofit partners, detailed below.



Detailed below are a sampling of the bodies of knowledge compiled and initiatives focused on climate adaptation and resiliency that Cupertino is tracking and/or is already involved. This list is by no means exhaustive, it's meant to surface those resources anticipated to be most relevant to Cupertino's efforts to define its adaptation approach.

*"Alone we can do so little;  
together we can do so much."*  
– Helen Keller

## Non-Governmental Organization Resources & Activities

| Lead                   | Resource  | Description  |
|------------------------|---|--|
| Rockefeller Foundation | <a href="#">100 Resilient Cities Challenge</a>  | Connects cities with resources and one another to support their independent and collaborative efforts to become more resilient to the physical, social and economic challenges of the 21 <sup>st</sup> century and beyond. |
| ICLEI                  | <a href="#">Climate Resilient Communities Program</a> and <a href="#">Climate Impacts by Region</a> | Shares information on how to build resilient communities and distinguishes California-specific impacts arising from global warming.  |
| Georgetown             | <a href="#">State Adaptation Tracker</a>  | Benchmarks all state's, including California, progress in preparing for the impacts of climate change.   |

## Intergovernmental & Federal Agency & Activities

| Lead                                 | Resource   | Description  |
|--------------------------------------|--|--|
| White House                          | <a href="#">Executive Order -- Preparing the United States for the Impacts of Climate Change</a> | Directive to the nation to undertake actions that enhance climate preparedness and resilience.   |
| Federal Emergency Management Agency  | <a href="#">Climate Adaptation at FEMA</a>   | Describes how FEMA will integrate adaptation into its disaster planning and management; serves as a guide for considering adaptation related to emergency preparedness at the local level.           |
| U.S. Environmental Protection Agency | <a href="#">Tools for Public Officials</a>   | Suite of federal agency tools for public officials in specific sectors to begin adaptation planning including EPA's own <a href="#">Climate Resilience Evaluation &amp; Awareness Tool (CREAT)</a> . |

## State Agency Resources & Activities

| Lead                             | Resource  | Description   |
|----------------------------------|---|---|
| CA Office of Planning & Research | <a href="#">Climate Change Assessment for California (4<sup>th</sup>)</a>                             | Offers 3 Climate Change Assessments for California that prioritize actions and investments to safeguard people, economy, natural resources. |
| CA Natural Resources Agency      | <a href="#">Adaptation Planning Guide</a>   | Support tools for regional and local climate impact planning.   |
| CA Energy Commission             | <a href="#">Climate Change Impacts, Vulnerabilities, and Adaptation in the San Francisco Bay Area</a> | Research synthesis detailing potential regional climate risks to assist adaptation planning.  |

## Regional Agency Resources & Activities

| Lead                                      | Resource  | Description  |
|---|---|--|
| Bay Conservation & Development Commission | <a href="#">Resources for Adaptation Planning</a>                 | Collection of regionally-specific background information, adaptation planning templates, and guidance documents.                   |
| Joint Policy Committee                    | <a href="#">Santa Clara County Snapshot</a>                       | Provides a snapshot of Santa Clara County's adaptation efforts and activities to date and recommends future resiliency approaches. |
| Joint Venture Silicon Valley              | <a href="#">JVSV Climate Task Force</a>                           | Serves as the City's conduit to regional climate adaptation and resiliency planning initiatives.                                   |
| Association of Bay Area Governments       | <a href="#">Bay Area Climate Change Adaptation and Resilience</a> | Survey of county-level work to provide examples of projects and identify needs best met through partnerships with other agencies.  |

## County Resources & Activities

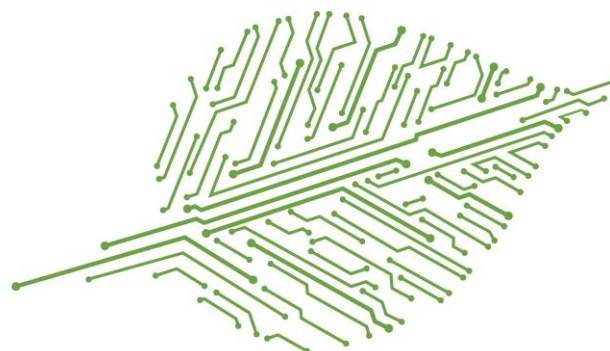
| Lead                              | Resource   | Description   |
|-----------------------------------|--|---|
| Santa Clara County                | <a href="#">Silicon Valley 2.0 Project</a>                                   | County-specific outcomes expected from Silicon Valley 2.0 will instruct Cupertino's work to define its communitywide resilience agenda. |
| San Mateo County                  | <a href="#">Regionally Integrated Climate Action Planning Suite (RICAPS)</a> | Offers a city CAP template and access point for the City to participate in a regional dialog on adaptation and resilience planning.     |
| Marin                             | <a href="#">County Climate &amp; Adaptation Resources</a>                    | Surveys the landscape of North Bay-relevant climate and adaptation resources.   |
| Santa Clara Valley Water District | <a href="#">Climate Change Portal</a>  | Summarizes Water District climate and adaptation initiatives.   |

Of these inventoried projects, most relevant to Cupertino's own efforts is the ongoing Strategic Growth Council-funded Silicon Valley 2.0 Project, led by Santa Clara County and noted above. Cupertino is currently serving on the effort's Technical Advisory Committee, which is applying a risk management framework to:

- A. Evaluate the exposure of community assets (i.e., infrastructure, populations, and landscapes) to likely climate impacts,
- B. Examine the potential consequences to the economy, society, and environment of this exposure, and
- C. Develop preemptive adaptation strategies that improve community resiliency.

The outcomes proposed for Silicon Valley 2.0 include:

- Prepare a strategic climate change adaptation plan that aims to facilitate and coordinate regional planning and implementation efforts for Silicon Valley
- Identify assets within the region that are threatened by the anticipated climate change conditions and the magnitude of the potential economic, social, and environmental impacts that could result if no action is taken.
- Identify potential strategies to minimize these impacts.
- Develop a decision-support tool that will allow jurisdictions and other organizations to evaluate potential climate change impacts and strategies within their communities
- Ultimately, the plan will identify the region's top priorities, and the near-term actions needed to implement an effective regional scale adaptation response.



## SILICON VALLEY 2.0

Source: [Santa Clara County](#)

Beyond involvement in Silicon Valley 2.0, the City will continue to track all listed agencies' progress to support local adaptation planning, and carefully consider tools developed by other civil service organizations to ensure ongoing community-scale progress. In addition, many of these agency's efforts that are listed above are now further supported by private and nonprofit sector allies, in many cases giving rise to additional funding opportunities to pursue this work. Pursuing these funding opportunities will also be prioritized.

Lead

It is our hope that this network of agencies can inform the City's decision making<sup>xxviii</sup> and increase our application of systemic strategies to expand our capacity to plan for and rebound from the social and physical uncertainties our future holds.

The information collected here will inform the City's forthcoming design of a long-term adaptation and resilience program that integrates these

*"The only person who is educated is the one who has learned how to learn and change."*

– Carl Rogers

innovative federal, state, regional and county-level efforts to benefit and effectively serve our community.<sup>xxix</sup> In addition, City will follow the following [California Adaptation Planning Guide](#) steps, paired with others<sup>xxx</sup> newly developed, to conduct its first community-specific vulnerability assessment and populate its first Adaptation Plan:

### Steps in Climate Adaptation Strategy Development

The process of developing climate change adaptation strategies can vary from a short, initial qualitative process to a much more detailed, lengthy, comprehensive approach. Regardless of where a community falls in this spectrum, the basic steps are the same (Figure 1).

#### Vulnerability Assessment

1. **Exposure:** Identify the climate change effects a community will experience.
2. **Sensitivity:** Identify the key community structures, functions, and populations that are potentially susceptible to each climate change exposure.
3. **Potential Impacts:** Analyze how the climate change exposure will affect the community structures, functions, and populations (impacts).
4. **Adaptive Capacity:** Evaluate the community's current ability to address the projected impacts.
5. **Risk and Onset:** Adjust the impact assessment to account for uncertainty, timing, and adaptive capacity.

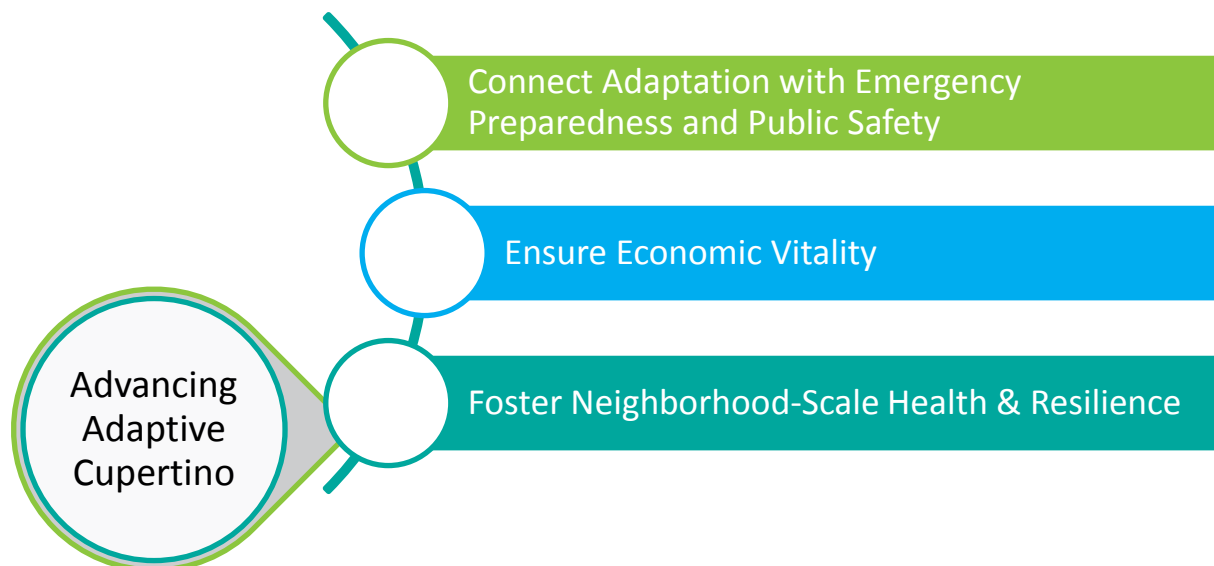


Figure ES-1. The nine steps in adaptation planning development. The gray steps are part of vulnerability assessment (steps 1-5) and the blue steps are adaptation strategy development (steps 6-9).

#### Adaptation Strategy Development

6. **Prioritize Adaptive Needs:** Based on the vulnerability assessment, prioritize the adaptive needs.
7. **Identify Strategies:** Identify strategies to address the highest priority adaptation needs.
8. **Evaluate and Prioritize:** Prioritize strategies based on the projected onset of the impact, projected cost, co-benefits, and other feasibility factors.
9. **Phase and Implement:** Develop an implementation plan that includes phasing of strategies and a monitoring system to assess effectiveness.

In conducting a vulnerability assessment, the City, like other communities, anticipates to find risks to our citizenry, infrastructure, local economy, and local natural resources. To address these risks, the adaptation strategies put forth for our specific community will serve **three overarching goals**, described below. The City believes that by developing an adaptation plan with these Cupertino-specific goals in mind, our community can best prepare for and adapt to a future of changing weather patterns and rise of extreme weather events.



### *Goal 1: Connect Adaptation Plan with Emergency Preparedness and Public Safety Programs*

The Rockefeller Foundation’s “100 Resilient Cities” defines resilience as “the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience. Simply put, resilience enables people to bounce back stronger after tough times, and live better in good times,” thereby creating a critical connector to our emergency preparedness and public safety leaders and volunteers, who already have this risk management and mitigation approach engrained in their operational DNA.<sup>xxxii</sup>

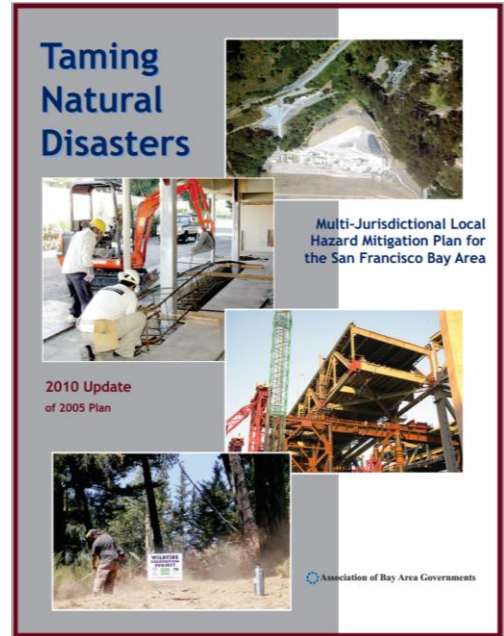
The Federal Emergency Management Agency (FEMA) estimates that \$1 in pre-disaster preparedness could save society \$4 on post-disaster recovery. The City has institutionalized the goal of building intentional intersections between emergency preparedness and disaster planning and climate change in its current General Plan: Strategy 5- Climate Adaptation and Resiliency, which defines the following steps to achieve these objectives:

“Implement the General Plan Health & Safety Policy HS-35, Strategy 3 to conduct a climate vulnerability assessment and set preparedness goals and

strategies to safeguard human health and community assets. Build these climate preparedness and resiliency findings and efforts into relevant plans including the future General Plan, Disaster Plan, Local Hazard Mitigation Plan, Dam Plan, Climate Action Plan, and Energy Assuredness Plan.”

To implement this policy, staff will connect with the City’s Emergency Preparedness Program, Police and Fire staff, as well as Public Safety Commissioners to identify relevant policy and programmatic nodes for prospective adaptation work. One mutually beneficial project already identified is interdepartmental collaboration to develop a Local Energy Assuredness Plan, leveraging existing California Energy Commission tools to identify and “ensure key assets within the community are able to function, protecting the public and minimizing economic loss, after all types of events.”<sup>xxxii</sup>

Following a Joint Policy Committee Bay Area Climate Energy Resilience Project (BACERP) recommendation, staff will also consider holding climate change-focused simulations or emergency drills to raise awareness about these imminent risks across participating agencies, volunteers and the community more broadly. Cupertino’s team will also revisit regional emergency and disaster planning tools to find the connections with Cupertino’s plan, including, but not limited to [ABAG’s Disaster Resilience Initiative](#), including the [Local Government Recovery Toolkit](#), and its [Bay Area Regional Hazard Mitigation Plan](#).



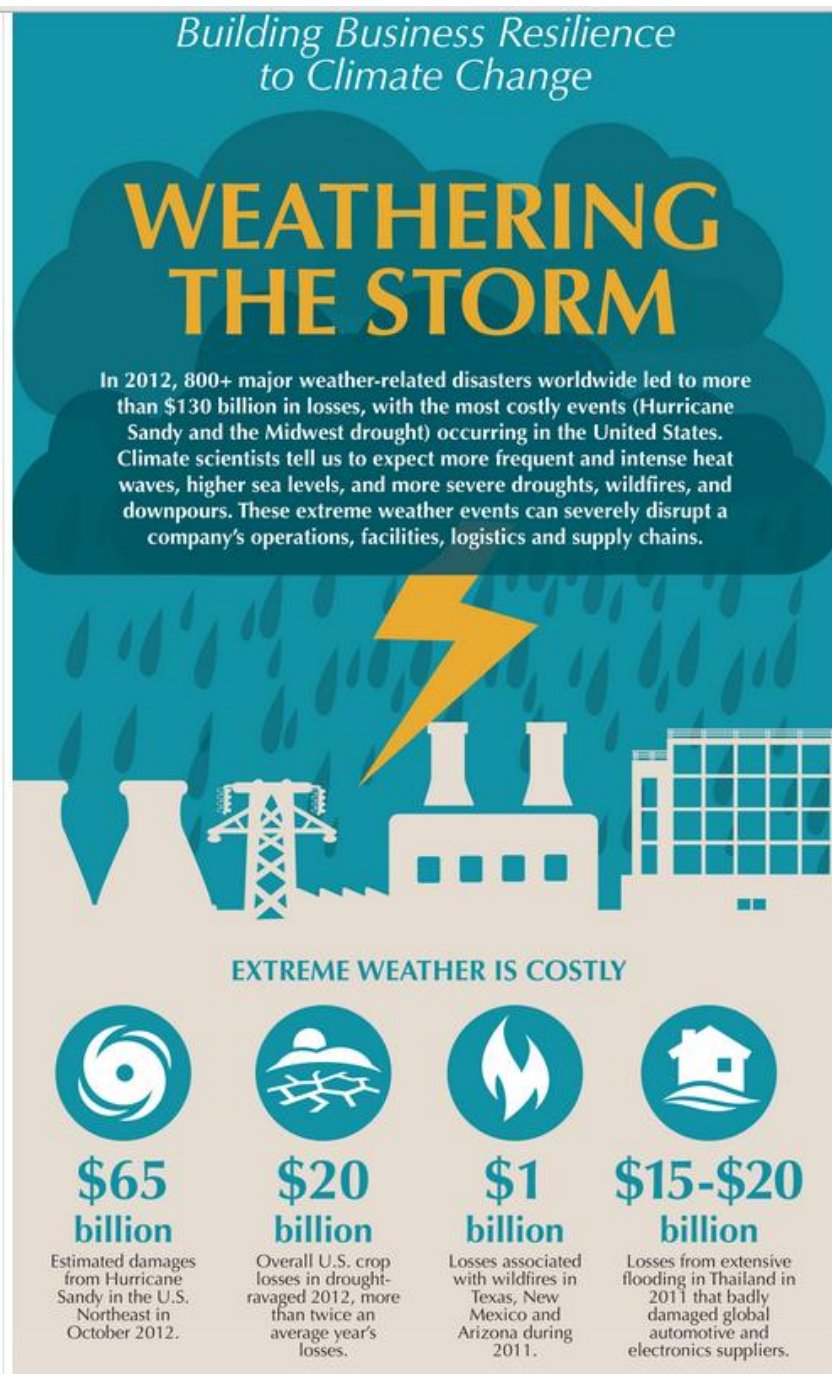
### Goal 2: Ensure Economic Vitality

Just as ensuring community health is a core component of an adaptation plan, in order for Cupertino to stay resilient to the impacts of climate change, business health and resiliency is vital. Cupertino’s portfolio includes 2,000 businesses from corporate giants to small independent restaurants, shops, and other businesses. About half of our businesses are home-based. These businesses both contribute to and will be impacted by future climate-related challenges, and Cupertino is working toward ensuring their ability to continue to provide goods, services, and employment in our community.

Because many larger corporations are undergoing their own risk assessment and planning activities, Cupertino will give special attention to our business community. The primary way Cupertino is looking at building resiliency among this population of businesses is to embed adaptation strategies into existing programs and services for businesses. One way we can do this is to integrate adaptation measures into our green business certification program ([GreenBiz Cupertino](#)), so that businesses currently working toward meeting a suite of voluntary sustainability measures will also be introduced to new resiliency objectives.

Because our existing green business program already acts as a way for the City to educate businesses on environmentally preferable practices, it can double as an adaptation education tool in the future. The City can also infuse adaptation planning into its forthcoming Economic Development Plan. Because that plan seeks to guide new business development, enhance services for businesses, and foster Business to Business (B2B) as well as public/private partnerships, including a conversation about adaptation

will steer our local economy toward practices and partnerships that promote long term resiliency. The City plans to connect with the Cupertino Chamber of Commerce and Economic Development Committee to engage businesses in shaping our shared adaptation-focused priorities.

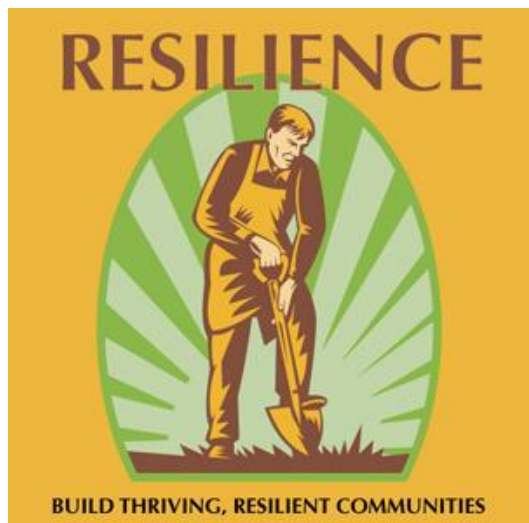


Source: [Center for Climate and Energy Solutions](#)



As for community-facing adaptation planning, Cupertino will also seek to bring in resources from regional business-oriented partners already promoting sustainable economic development locally. For example, the Silicon Valley Leadership Group's [Bay Area Climate Compact](#), of which Cupertino is a signatory, is driving efforts to convene joint procurement of energy efficient technologies and renewable energy sources as a means of fostering stronger Business to Government (B2G) climate-tied partnerships. It also calls for all signatories to develop and adopt municipal adaptation plans.

### Goal 3: Foster Neighborhood Health & Resilience



Source: [resilience.org](https://resilience.org)

Beyond being home to the globally influential companies, Cupertino is also home to a diverse populous, absent an ethnic majority with nearly three-quarters of its residents identifying as non-white. Our cultural diversity is part of our community's identity, and Cupertino has programmed robust community engagement networks including Neighborhood Block and Watch Leaders, Community Emergency Response Teams, Medical Reserve Corps and more to connect to find strength in our varied backgrounds and source commonalities among our perceived differences. Record community service and program participation rates and high-scored communitywide surveys attest, our City is not culturally complacent and our members feel connected to one another, their

community, and their government. To continue Cupertino's history of success in bringing its residents, businesses and schools together to develop solutions to issues challenging the future vitality of our community, the City will aspire to construct its adaptation plan through an inclusive and culturally-literate approach, which will continue to be refined through this effort.

According to the Joint Policy Committee, adaptive capacity is the "degree to which a country, region, community or individual is able to adapt to changing conditions. The ability to understand the risks, the faculty to develop an effective plan, and access to financial and technical resources to implement that plan all help to define an entity's adaptive capacity." Through this working definition, the City realizes the need to expand previously described organizational adaptive capacity to the



Source: [rand.org](https://rand.org)

individual. This goal extends beyond the essential need to engage citizens in participatory adaptation-focused decision making to target ways our agency can support local residents to achieve their own vision for healthy neighborhoods. The best place to start is our existing network of civic leaders as a means of expanding our block-by-block reach, which will serve as an access point to fully engage all community members, including our most vulnerable.

A community cannot remain resilient to environmental change if its individual members are not. As pursued for crime prevention (i.e. Neighborhood Watch) and emergency preparedness, Cupertino's adaptation planning will promote human health and wellbeing, as well as foster connections among community members, to build social cohesion and strong support networks into and across our neighborhoods. To that end, Cupertino will strive to embed the following [Resilient Cities](#) characteristics to build personal, neighborhood and agency capacity to enhance our ability to weather all types of storms – natural, economic, political, or social:

- Pillar 1: Constant Learning – The ability to internalize past experience linked with robust feedback loops that sense, provide foresight and allow new solutions
- Pillar 2: Rapid Rebound – The capacity to re-establish function, re-organize and avoid long-term disruptions.
- Pillar 3: Limited or “Safe” Failure – Prevents failures from rippling across systems.
- Pillar 4: Flexibility – The ability to change, evolve, and adapt to alternative strategies in the face of disaster.
- Pillar 5: Spare Capacity – Ensures that there is a back-up or alternative available when a vital component of a system fails.

In seeking individual and neighborhood-level enrichment from our climate work, the City will also identify the nexus of education, food and nutrition, public health, and the effects of climate change upon our most vulnerable communities, using the [Bay Localize Resilience Toolkit](#) pathway below. The health effects of climate change disproportionately impact low-income communities and people of color, acting as a stress multiplier in communities with already high burdens of disease and food insecurity. Our most vulnerable populations, including lower income, recent immigrant, and older residents, are at greater risk from the impacts of climate change and they often have the fewest resources to respond to changing conditions. Fostering resilience of these more vulnerable residents and supporting their recovery after extreme events is especially critical. To enhance equity in both climate mitigation and adaptation, our strategies should:

- Prioritize actions that help vulnerable populations to moderate potential impacts and to cope with the consequences of climate change.
- Incorporate input and perspectives from members of vulnerable populations.

| Bay Localize Resilience Toolkit      |  |   |  |  |
|--------------------------------------|--|---|--|--|
|                                      | Equity   | Quality   | Sustainability   | Ownership  |
| Food                                 | Residents have enough to eat   | Healthy, organic food is convenient & affordable  | Local & regional food is grown sustainably   | Our community has a strategy to ensure food supply   |
| Water                                | Residents have enough water to meet basic needs  | Our water is clean & safe   | Our water comes from a local watershed & we conserve it  | Our community owns our water rights & can guarantee access   |
| Energy                               | Residents have enough energy to meet basic needs   | Our energy supply is stable & consistent & can withstand disasters  | Our community conserves energy & gets the rest from local renewable sources                        | Our community controls where our energy comes from & how it is distributed                                     |
| Transportation & Housing             | Those who wish to live in our community can find quality affordable housing near jobs & schools. | Neighborhoods have access to jobs, schools, open space, fresh produce, & key services via walking, biking, and public transit | Our transportation is powered by renewable energy sources  | Our community has adequate political control over our transportation & housing systems to keep them affordable |
| Local jobs & Economy                 | Residents of our community have access to sufficient income to sustain a household               | Our schools and training programs prepare students to secure or create work locally.  | Our community's economy is based on sustainable use and re-use of our region's resources.          | Our community has effective public strategies to secure local employment opportunities.                        |
| Social Services & Civic Preparedness | Neighbors in our community are well organized to help each other in times of need.               | Our local government is adequately prepared for climate change, rising costs, and natural disasters.                          | Our local government services are funded from sources that are sustainable (as energy prices rise) | Our local government responds effectively to community needs   |

By focusing on quality-of-life improvements for all members of our community, Cupertino will demonstrate that all have a powerful role to play in a common vision for change in good times and in times of stress. To achieve these aims, staff should tap into the work led by the [Bay Area Resilient Communities Initiative](#) to assess resilience vulnerability and assets and conduct effective multilingual community engagement. Members of this coalition include the Asian Pacific Environmental Network (APEN), Bay Localize, Communities for a Better Environment, Youth United for Community Action and more. City adaptation team members will also need to engage with Teen Commissioners, Senior Center staff, Cupertino Chamber Asian American Business Council, Sister City leaders, and organizers of the City's Leveraging Ethnic Diversity (LED) Workshop to build cultural competency and engagement into forward-thinking climate conversations.

This aligns with the Joint Policy Committee's guidance to develop a common, powerful advocacy message and vision to represent our region's adaptation goals. According to a social equity study conducted by the JPC, Bay area residents are concerned with the following climate change impacts: flooding, local wild plant and animal species dying off or loss of biodiversity, poor air quality just to name a few. The study also indicates that "evaluating existing community resilience" was rated in the top two choices of how Bay Area residents would like to get involved in climate adaptation planning. To ensure that our community members have a voice in forthcoming climate mitigation and adaptation work, Cupertino will follow JPC's recommendation to access and learn from our most powerful assets- our people, community groups and

institutions -when reviewing the vulnerabilities of our shared natural resources (e.g., creeks, trees) and infrastructure to map a true resilience agenda to address local climate impacts.

In closing, as Robert Jordan noted, “The oak fought the wind and was broken, the willow bent when it must and survived.” Our agency realizes that it cannot simply build a fortress to safeguard our community from these stresses and shocks; strategic action is required before the next impending disaster reveals the cracks, as we saw recently in Napa, just 70 miles to our north. To protect our shared future, the City must fully assess our vulnerabilities to ensure that our current stresses do not become catastrophes. This Chapter outlines the City’s goals and strategies to team up with regional agencies and partner cities that will enable our agency to function as the willow does by germinating the seeds of our resiliency agenda.

Cupertino has decades of experience in building civic capacity and empowering civic leaders as policy knowledge experts, media gurus and technologists, public safety volunteers, disaster service workers, and more. Our participatory approach to community design and planning efforts have gained our agency awards and more importantly a community where voices are heard, priorities are pursued, issues addressed, and visions realized. Let’s work together to build an adaptation plan that will help all members of our community live resiliently despite our changing climate.