

**SOUTHERN CALIFORNIA
CLIMATE ADAPTATION FRAMEWORK
SB 379 COMPLIANCE
CURRICULUM FOR
LOCAL JURISDICTIONS**
JUNE 2021

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ABOUT SCAG

SCAG is the nation’s largest metropolitan planning organization (MPO), representing six counties, 191 cities and more than 19 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future.

VISION

Southern California’s Catalyst for a Brighter Future

MISSION

To foster innovative regional solutions that improve the lives of Southern Californians through inclusive collaboration, visionary planning, regional advocacy, information sharing, and promoting best practices.

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INTRODUCTION AND BACKGROUND

1.1 | Introduction

Local governments, communities, and individuals across Southern California are already feeling and will continue to experience the impacts of sea-level rise, extreme heat, increasingly frequent and damaging wildfires, abrupt and severe rain events, and other climate-related issues. These impacts are often having acute and disproportionate negative impacts on communities already disadvantaged. As climate change continues to affect communities throughout the SCAG region, local governments need to integrate climate adaptation and resilience into local planning to prepare for and cope with the unavoidable consequences of a changing climate.

Beginning in February 2019, the Southern California Association of Governments (SCAG) initiated the *Southern California Climate Adaptation Framework (SoCal CAF)* - a suite of efforts to provide local jurisdictions and stakeholders with regionally-relevant resources and tools to help the region plan for climate change impacts - supported by funding from a Caltrans' SB 1 Adaptation Planning Grant. The *SoCal CAF* materials are published and publicly available on the *SoCal CAF* project website available through SCAG's webpage.

Local governments play a critical role in adaptation planning and building climate resilience in their communities. In October 2015, Senate Bill 379 (SB 379) was signed into law, amending Government Code Section 65302(g), to require all cities and counties in California to incorporate climate adaptation and resilience into the general plan safety element or by reference to other planning documents (e.g., climate action/adaptation plan, local hazard mitigation plan, or other similar plans).

1.2 | Purpose of this Guidebook

SB 379 requires local governments to address climate change adaptation and resilience in the safety elements of their general plan updates, but there has been limited guidance at the regional or local level on integrating climate adaptation and resilience strategies into safety elements. The purpose of this guidebook is to provide a SB 379 "compliance curriculum" for local jurisdictions that links existing SCAG resources and tools to support local safety element updates, which will ultimately enhance both local and regional climate resilience. Surveys conducted by the Governor's Office of Planning and Research (OPR) indicate that a majority of local jurisdictions intend to comply with SB 379 by updating the safety element of the general plan.¹ This document is meant to help jurisdictions primarily address this requirement utilizing the *SoCal CAF* and additional regional resources to update safety elements pursuant to SB 379. Additionally, the curriculum can be similarly applied to updating other plans (e.g., climate action/adaptation plan or local hazard mitigation plan) to comply with SB 379.

KEY TERMS

Vulnerability Assessment

Vulnerability is the degree to which an asset or population group is susceptible to climate hazards. It is a function of an asset's exposure, sensitivity and capacity to adapt to climate change stressors. A vulnerability assessment is typically a screening level analysis to better understand the potential impacts and vulnerabilities to climate change hazards and to begin defining future adaptation responses. The vulnerability assessment incorporates the quantitative results regarding exposure of assets and facilities and utilizes qualitative data concerning sector or assets' sensitivity and adaptive capacity in order to understand their vulnerability to climate change. The assessment yields a relative ranking of vulnerability, within and across asset categories. Assets found to be vulnerable are candidates for inclusion in the risk assessment and adaptation planning phases, based on their criticality. (Southern California Adaptation Planning Guide, SCAG 2020)

Climate Mitigation

A human intervention to reduce the human impact on the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks. (General Plan Guidelines, OPR 2017)

Climate Adaptation

Adjustment or preparation of natural or human systems to a new or changing environment that moderates harm or exploits beneficial opportunities. (General Plan Guidelines, OPR 2017)

Resilience

The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change. (General Plan Guidelines, OPR 2017)

¹ <https://opr.ca.gov/docs/20200626-SB379-Report.pdf>, <https://opr.ca.gov/planning/general-plan/>

1.3 | Overview of SB 379 Statutory Requirements

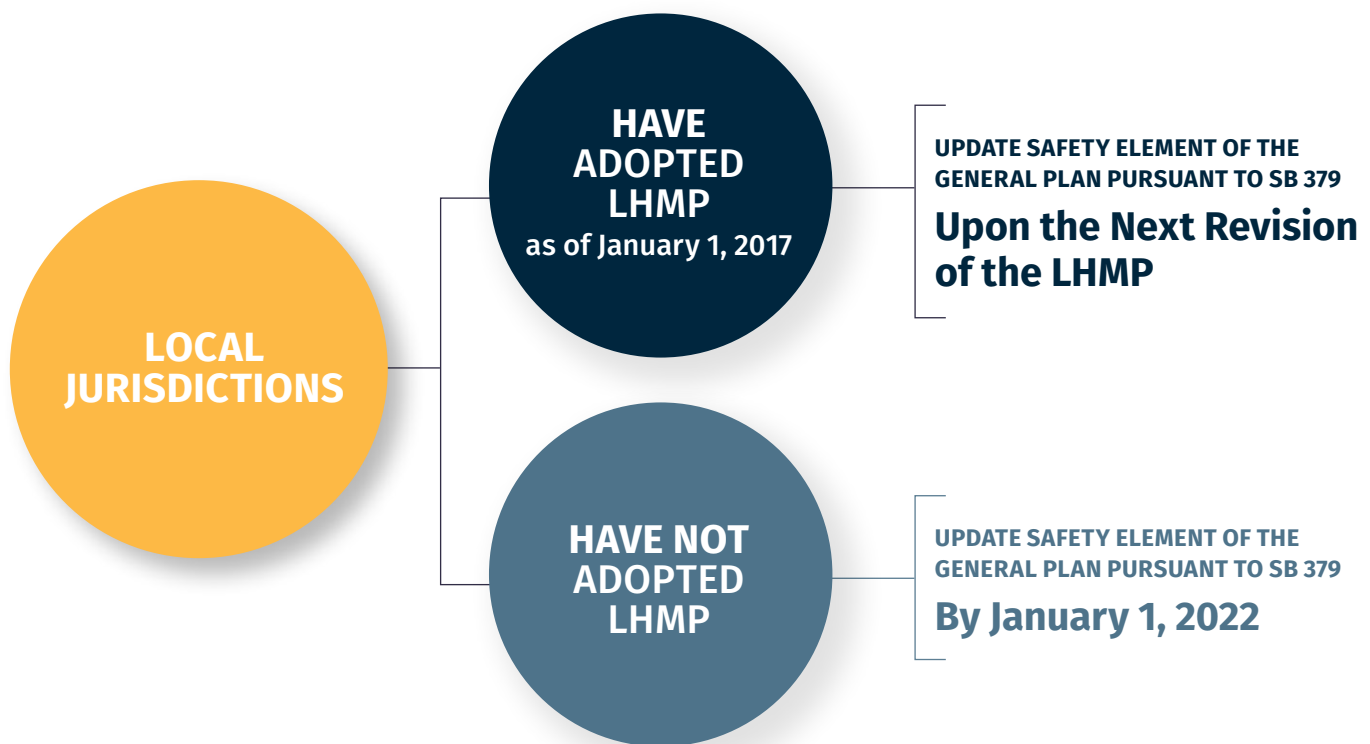
SB 379 is an important implementation component of the State's overall climate adaptation strategy intended to ensure that local governments are planning for climate change. SB 379 requires city and county safety elements of general plans to be reviewed and updated to include climate adaptation and resilience strategies. Specifically, the review and update must include three main components:

- A **VULNERABILITY ASSESSMENT** that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts.
- A **SET OF ADAPTATION AND RESILIENCE GOALS, POLICIES, AND OBJECTIVES** based on the information in the **VULNERABILITY ASSESSMENT** for the protection of the community.
- A **SET OF FEASIBLE IMPLEMENTATION MEASURES** designed to carry out the identified goals, policies, and objectives.

These three components are a high-level summary of the SB 379 statutory requirements. You can reference the statute for what is specifically required under each of these three main components. Please see Section 3 for further guidance on those specific requirements under Step 2.2 and Step 4.1. Local governments across the State are at different stages of adaptation planning, whether they are just beginning or have existing climate change analyses and policies in place. SB 379 allows for cities and counties to comply with the law by either (i) updating the safety element of their general plan OR (ii) using an existing local hazard mitigation plan (LHMP), climate action or adaptation plan (CAAP or CAP) or similar plan that adequately addresses the regulatory requirements of SB 379. If your jurisdiction plans to use a standalone or separate plan, it must satisfy the three main components of the law above and be incorporated by reference into the safety element including a summary that explains how each requirement of the law has been met. See [Section 5](#) for case studies of jurisdictions achieving SB 379 compliance through both methods.

There are two timelines for compliance depending on whether your jurisdiction has a current LHMP. Local jurisdictions that already have an adopted LHMP as of January 1, 2017 will need to update safety element of the general plan pursuant to SB 379 upon the next revision of the LHMP. Local jurisdictions who do not have an adopted LHMP will need to update safety element of the general plan pursuant to SB 379 by January 1, 2022.

The full text of the law can be found online at leginfo.legislature.ca.gov.



1.4 | Other Regulatory Drivers of Adaptation Planning

Assembly Bill 162 (2007) requires that, upon the next revision of the housing element on or after January 1, 2009, cities and counties address flood hazards and safety in the land use, conservation, safety, and housing elements of their general plans.

Senate Bill 1241 (2012) revised the safety element requirements to require all cities and counties whose planning area is within the state responsibility area (SRA) or very high fire hazard severity zones (VHFHSZs), as defined by CAL FIRE, to address and incorporate specific information regarding wildfire hazards and risk, and policies and programs to address and reduce unreasonable risks associated with wildfire. Upon the next revision of the housing element on or after January 1, 2014, the bill requires those cities and counties to review and update the safety element to consider the advice in the Office of Planning and Research's most recent publication of "Fire Hazard Planning, General Plan Technical Advice Series" as well as: information regarding fire hazards, a set of goals, policies, and objectives based on identified fire hazards, and a set of feasible implementation measures designed to carry out those goals, policies, and objectives.

Senate Bill 1000 (2016) stipulates that cities and counties with Disadvantaged Communities², as defined by SB 1000 in Government Code Section 65302(h), incorporate environmental justice policies in their general plans through either a stand-alone element, or by integrating relevant goals, policies, and objectives throughout other elements. The bill requires cities and counties to identify Disadvantaged Communities (as defined in SB 1000), include policies and objectives to reduce unique or compounded health risks in Disadvantaged Communities, promote civic engagement in the public decision-making process, and address the needs of Disadvantaged Communities. Compliance with SB 1000 is triggered when two or more elements in a general plan are revised after January 1, 2018. For example, an update to

the safety and housing elements would trigger the need to comply with SB 1000 if the city or county has Disadvantaged Communities. See [Section 4: Planning for Equitable Climate Adaptation](#) for information on the connection between SB 379 and SB 1000 compliance.

Senate Bill 1035 (2018) requires regular updates to the safety element chapter of the general plan. New information regarding flood and fire hazards must be included and climate change adaptation and resilience must be addressed as part of the update. After 2022, safety elements must be updated upon each revision of the housing element or local hazard mitigation plan, but no less often than once every 8 years. Housing element revisions are typically on 4-8 year cycles and LHMP revisions are on 5-year cycles.

Senate Bill 99 (2019) requires that, upon the next revision of the housing element on or after January 1, 2020, the safety element must be updated to include information identifying residential developments in hazard areas that do not have at least two emergency evacuation routes (i.e., points of ingress and egress).

Senate Bill 747 (2019) requires that, upon the next revision of a LHMP on or after January 1, 2022, or beginning on or before January 1, 2022, if a local jurisdiction has not adopted a LHMP, the safety element must be reviewed and updated as necessary to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. If a LHMP, emergency operations plan, or other document that fulfills commensurate goals and objectives, a local agency may use that information in the safety element to comply with this requirement by summarizing and incorporating by reference such a plan or other document into the safety element.

The full text of these laws may be found online [leginfo.legislature.ca.gov](http://leginfo.ca.gov).

² "Disadvantaged Communities" means an area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area (an area with household incomes at or below 80 percent of the statewide median income or with household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093) that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.

SUMMARY OF SCAG'S ADAPTATION PLANNING RESOURCES

2.1 | Southern California Adaptation Planning Framework

The *Southern California Adaptation Planning Framework (SoCal CAF)* provides planning and mapping tools, resources, studies and scientific data to SCAG's local and regional jurisdictions to help plan for and manage the negative impacts of climate change. These tools and resources are available on the SCAG website, where a series of reference guides are included to quickly orient the user of the Framework to the range of available materials. [Section 3](#) of this guidebook will walk you through how to use these materials to comply with SB 379. Available materials include:

- Public engagement workshop templates and materials (*Phase 0*)
- General Plan gap analysis of SCAG member agencies regarding the inclusion of adaptation goals, objectives and policies (*Step 1.2*)
- Gap analysis of county-level climate change vulnerability analyses in the SCAG region (*Step 2.1*)
- Interactive online map identifying climate change hazards in the SCAG region (*Step 2.2*)
- Scenario modeling of transportation and population displacement impacts due to extreme events related to climate change hazards in the SCAG region (*Step 2.2*)
- Public engagement best practices based on a literature review and interviews with community-based organizations (*Step 2.4*)
- Results of jurisdictional interviews on local adaptation planning and regional coordination needs (*Step 2.4*)
- Climate adaptation tracking metrics for cities and counties (*Step 3.2*)
- Climate change indicators and tracking metrics for metropolitan planning agencies (*Step 3.2*)
- Matrix of adaptation strategies and actions for a variety of climate change hazards (*Step 3.3*)
- Model adaptation policy language for inclusion in general plans and local coastal programs (*Step 3.3*)
- Strategies for funding and financing climate-safe infrastructure (*Phase 4*)
- Climate adaptation project prioritization tool (*Step 4.1*)
- Climate change adaptation project tracking tool (*Step 4.1*)
- Project checklist form for incorporating resilience features into the design and siting of new or existing development and infrastructure (*Step 4.1*)

2.2 | Southern California Adaptation Planning Guide

The *Southern California Adaptation Planning Guide (SoCal APG)* was developed as part of the *SoCal CAF* to help local governments in SCAG's 6-county region work together to plan and prepare for the impacts of climate change. The *SoCal APG* describes the range of climate change hazards the SCAG region is likely to face in the coming decades, describes adaptation principles geared to the region, and outlines a general process of adaptation planning that can be applied by any agency, no matter where they fall across the spectrums of funding, available resources, knowledge of vulnerabilities, and planning complexity. It provides member agencies, including towns, cities, counties and subregional organizations with a compendium of tools, resources, and best practices to efficiently advance their adaptation planning using the best resources available. The *SoCal APG* aligns with and leverages the extensive foundation of guidelines developed through other state climate programs. In particular, it aligns closely with the California Adaptation Planning Guide (California APG) developed by the Cal OES in much of its guidance, nomenclature, and its recommended 4-phase process for adaptation planning. The *SoCal APG* differs from the California APG in that it focuses on the local communities of Southern California by identifying case studies and best practice examples from SCAG member jurisdictions to illustrate each phase in the adaptation planning process. It also references and provides guidance on the use of data and tools that have been specifically developed for adaptation planning in the SCAG region.

2.3 | Housing Element Parcel Tool

The *Housing Element Parcel Tool (HELPR)* is a web-mapping tool developed by SCAG to help local jurisdictions and stakeholders understand local land use, site opportunities, and environmental sensitivities for aligning housing planning with the state Department of Housing and Community Development's (HCD) 6th cycle housing element requirements, as well as state laws requiring the update of safety elements upon the next revision of a housing element. The tool is principally based on updated, curated versions of parcel-level land use data and other datasets which have been available through SCAG's open data portal. This tool can be utilized to incorporate climate hazard considerations in housing element planning, consistent with requirements under SB 379 and SB 1035. It also allows for downloads of tabular and spatial parcel data for external use. Additionally, the tool provides visualizations of parcels impacted by wildfire risks, 1 and 2 meters of sea level rise, 100-year flood plains, earthquake fault zones, liquefaction susceptibility zones, landslide hazard zones, California protected areas, wildlife habitat areas, active river and wetland areas, locations of rare plants and animals, and Natural Community Conservation Plans/Habitat Conservation Plans reserve areas. Access to the *HELPR* tool is available on SCAG's website. Documentation on datasets utilized and application functionality is available within the tool.

2.4 | Green Region Initiative

The Green Region Initiative (GRI) serves as a tool for jurisdictions within the SCAG region to measure and track sustainability progress in the region across 12 categories and 29 sustainability indicators. The map aims to foster collaboration through the sharing of best practices across the 191 cities and six counties in the SCAG region. SCAG regularly monitors and reports on plans and programs related to regional resilience, including climate adaptation, through the GRI. Please refer to the GRI on SCAG's website for information on local sustainability policies and practices across the region.

COMPLIANCE CURRICULUM

The following Compliance Curriculum has been developed to assist local governments with meeting the requirements of SB 379 to comprehensively plan for climate adaptation at the local level. The Compliance Curriculum is designed to follow the *SoCal APG* four-phase adaptation planning process. This section will walk you through the four-phase adaptation planning process step-by-step, providing *SoCal CAF* tools and resources to support your jurisdictions with satisfying the statutory requirements of SB 379. This curriculum has been designed to help local governments utilize SCAG's suite of climate planning tools and resources to comply with SB 379, no matter how far along your jurisdiction is in the adaptation planning process.

Phase 0: Outreach & Engagement

Things to Prepare	Resources
<input checked="" type="checkbox"/> Public Outreach Plan <input checked="" type="checkbox"/> Public Outreach Materials <input checked="" type="checkbox"/> Communication Materials on SB 379	<input checked="" type="checkbox"/> SoCal APG <input checked="" type="checkbox"/> SoCal CAF Outreach Toolkit: Community Capacity Building Workshop Templates <input checked="" type="checkbox"/> Governor's Office of Planning and Research Adaptation Clearinghouse

Successful adaptation planning and compliance with SB 379 requires engagement with your jurisdictional community members and stakeholders. Engaging all voices of the community is key to ensuring long-term success and achieving a more prepared and resilient community.

When first preparing for public engagement with your community, we suggest reviewing the International Association for Public Participation (IAP2) *Spectrum of Public Participation* as a model for the public's role in any public participation process. Used internationally, the Spectrum is found in public participation plans around the world. Recognizing that jurisdictions have varying capacities for public participation and engagement, SCAG recommends aiming for *Collaborate* along the *Spectrum* to build continued trust and support before, during, and after achieving SB 379 compliance. Public participation at the *Collaborate* level aligns with the degree of collaboration suggested throughout the *SoCal APG*. More information on the IAP2 Spectrum and its use in climate adaptation outreach and engagement can be found on page 34 of the *SoCal APG*.

To help attune planning staff to the voices of the community, the *SoCal CAF Outreach Toolkit: Community Capacity Building Workshop Templates (Outreach Toolkit)* provides local jurisdictions with suite of templates, worksheets, and discussion materials to initiate and hold ongoing conversations with community members to better understand your jurisdiction's climate-related challenges. Because it can be difficult to engage constituents in a dialogue about climate change due to differing viewpoints and experiences, the *Outreach Toolkit* approaches climate change conversations on a personal level, beginning with conversations about how climate change has affected you directly and expanding conversations to potential climate strategies your community would like to pursue. The *Outreach Toolkit* resources are rooted in best practice research relating to climate change communication and includes conversational questions, such as:

- What words and values resonate with your community?
- What effects of climate change have you felt?
- What communication strategies encourage you to take climate action?

Through interactive community workshops, planning staff can better understand and effectively engage with stakeholders to plan for climate change. The *Outreach Toolkit* features templates for local convenings, including meeting flyers, workshop materials, activities related to climate change, and guidance on tailoring climate change messaging and strategies to reach different audiences.

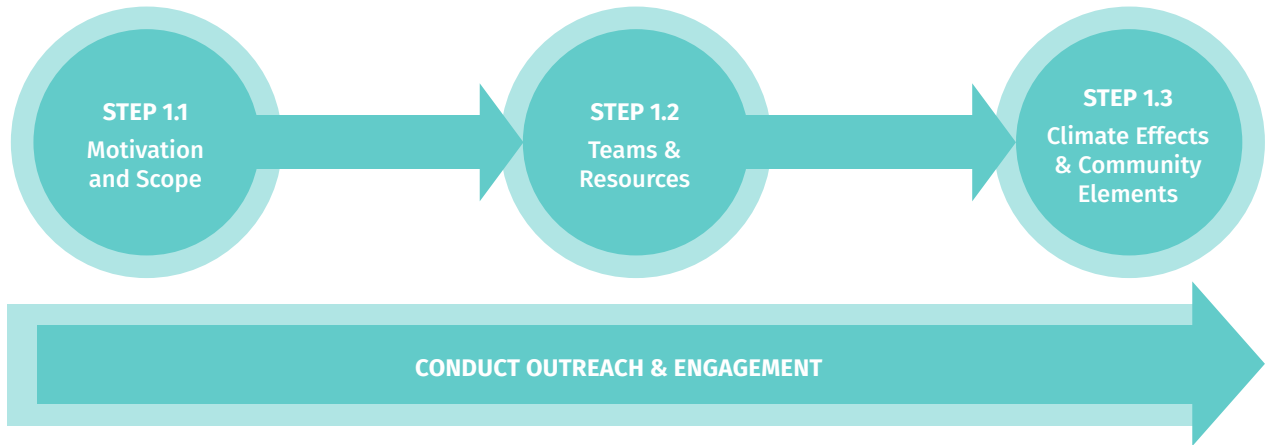
The full collection of the *Outreach Toolkit* resources can be found on SCAG's Regional Climate Adaptation Framework website.

Four Phases of the SoCal APG



Phase 1: Explore, Define, and Initiate

Climate adaptation planning compliance begins with a scoping phase that includes understanding your jurisdiction’s SB 379 compliance status, the necessary resources to achieve compliance, and gaining a preliminary understanding of climate change effects on your jurisdiction and community.



STEP 1.1: DETERMINE MOTIVATION AND SCOPE

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Identify Existing Documents for SB 379 Compliance <input checked="" type="checkbox"/> Identify Intra- and Interdepartmental Stakeholders <input checked="" type="checkbox"/> Timeline to Meet SB 379 Requirements 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SCAG GRI <input checked="" type="checkbox"/> SoCal CAF General Plan and Vulnerability Assessment Gap Analyses <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action or Adaption Plan (CAP/CAAP) if available <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

The first step towards compliance of SB 379 begins with an audit of existing sustainability, adaptation, and resilience efforts by your local government. Local governments have two options to comply with SB 379:

- Updating the general plan safety element to include climate adaptation and resilience strategies if an LHMP has not been adopted; OR
- If an existing LHMP or CAP/CAAP contains climate adaptation and resilience strategies that comply with the requirements of SB 379, the safety element can be updated by summarizing and referencing the adaptation information already incorporated in the LHMP, CAP/CAAP, or similar plan.

Under option (1) of SB 379 compliance, the safety element of the general plan must be updated to address climate adaptation and resilience strategies if your city or county has not adopted an LHMP. If your jurisdiction has not adopted an LHMP, continue to [Step 1.2](#).

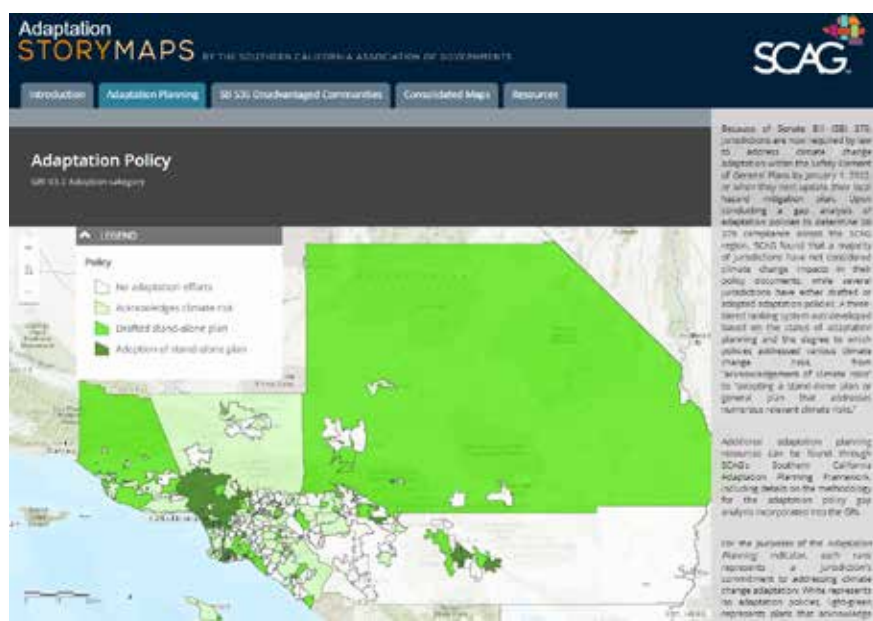
Under option (2), a summary of an existing LHMP, CAP/CAAP, or similar plan may already satisfy the SB 379 regulatory requirements. Begin by reviewing your existing General Plan, LHMP, or CAP/CAAP, if applicable, to see if your existing plans address and contain climate adaptation and resilience strategies.

To help with the review of existing adaptation documents across the region, SCAG conducted a gap analysis of cities, counties, and tribal governments within the SCAG region that have adopted, or are in the process of adopting, climate adaptation policies as part of their general plans, local hazard

OUTREACH & ENGAGEMENT CONSIDERATIONS

The scoping phase presents an opportunity to shape and define how public engagement will be implemented for the remainder of the process. Meaningful engagement – which will likely require time, and resources as well as targeted and accessible outreach – with members from the most impacted communities early on in the planning process is essential to building a coalition of stakeholders who can be consulted throughout the planning process. Please reference pages 71-72 of the *SoCal APG* for best practices, tools, and resources that can assist in creating an equitable engagement strategy for Phase 1 that is inclusive, effective, and enduring.

Green Region Initiative: Adaptation Indicator



mitigation plans, or stand-alone plans (e.g., climate action plans). The gap analysis findings can be found under *Appendix C of the SoCal APG*, “Gap Analysis of Climate Adaptation Policies in the SCAG Region.” Data from the gap analysis are presented in the “Adaptation Indicator” tab of *SCAG’s Green Region Initiative (GRI)*, which can be found on *SCAG’s Green Region Initiative* website.

You can begin an audit of your SB 379 compliance by searching for your jurisdiction under the *GRI Adaptation Indicator* for insight into your jurisdiction’s status of climate adaptation planning and the degree to which the policies addressed various climate change risks.

If your existing planning documents already include a vulnerability assessment, adaptation and resilience goals, policies, objectives, AND feasible implementation measures, you may jump to Phase 4, Step 4.3.

STEP 1.2: ASSEMBLE PROJECT TEAM(S) & RESOURCES

Once you have determined which of the two SB 379 compliance options is appropriate for your jurisdiction, you may begin identifying intra- and interdepartmental project team members and resources and developing a timeline for achieving SB 379 compliance by January 1, 2022.

Although development of a SB 379 compliance project team is not a requirement of achieving SB 379, we strongly recommend including review of project team members and resources prior to initiating development of an SB 379-compliant document. As the purpose of this guidebook is to focus on explicit requirement of SB 379, details on assembling an SB 379 compliance project team have been excluded. More information on Step 1.2 can be found in the *SoCal APG* on the *SCAG Regional Climate Adaptation Framework* website.

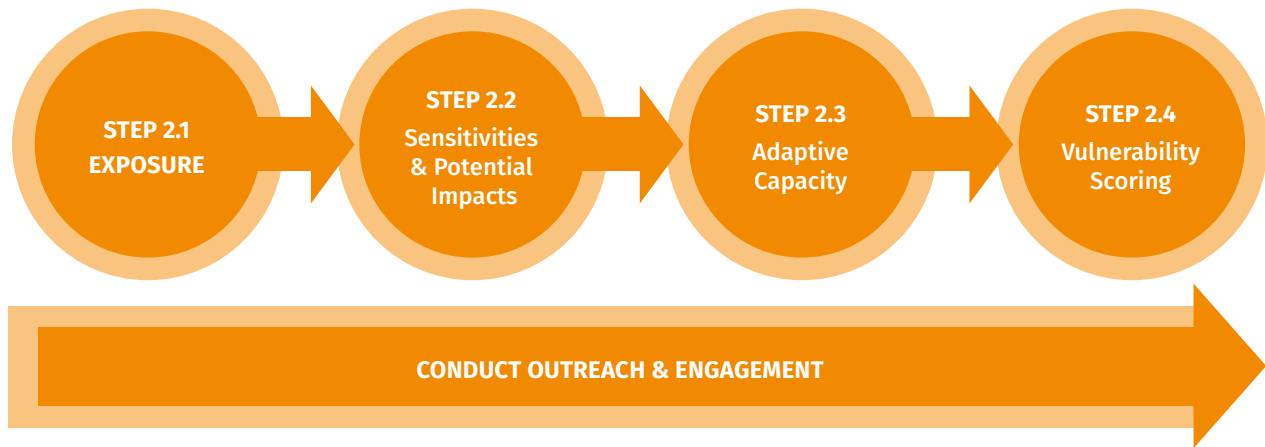
STEP 1.3: IDENTIFY COMMUNITY CLIMATE HAZARDS AND CRITICAL ASSETS AT RISK

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> List of Existing Policies and/or Plans that include Climate Adaptation Goals, Strategies, Policies, etc. 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action or Adaptation Plan (CAP/CAAP) if available <input checked="" type="checkbox"/> SoCal CAF General Plan and Vulnerability Assessment Gap Analyses <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

With an understanding of which option your jurisdiction will take to achieve SB 379 compliance and an understanding of your jurisdiction’s resources to assemble a project team, the next step is to compile existing plans, policies, and technical documents containing climate adaptation, resilience, and sustainability goals and strategies for your jurisdictions. As a preliminary exercise to Phase 2, identify the climate-related hazards expected to impact your jurisdiction and community, as well as the types of community assets potentially at risk from those hazards.

Phase 2 : Assess Vulnerability

With a baseline understanding of your jurisdiction’s needs, the next step is to assess the existing vulnerabilities that impact your jurisdiction by conducting a **VULNERABILITY ASSESSMENT**. For SB 379 compliance, an assessment of your jurisdiction’s vulnerabilities must include identifying the risks climate change poses to your jurisdiction and the surrounding geographic area.



STEP 2.1: IDENTIFY CLIMATE HAZARD EXPOSURE

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> List of Existing Policies and/or Plans that include Climate Adaptation Goals, Strategies, Policies, etc. 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action or Adaptation Plan (CAP/CAAP) if available <input checked="" type="checkbox"/> SoCal CAF General Plan and Vulnerability Assessment Gap Analyses <input checked="" type="checkbox"/> SoCal CAF Adaptation Infrastructure Impacts and Resilience Project Tracker <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Defining Vulnerable Communities Guide <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

Understanding the risks of climate change to your jurisdiction involves studying the impacts of climate hazards to your surrounding geographic area as climate hazards often cross jurisdictional boundaries.

To help jurisdictions understand the current status of climate change vulnerability assessments across the Southern California region, SCAG conducted a county-wide gap analysis of vulnerability assessments. The gap analysis highlights regional progress made in assessing climate vulnerabilities and gaps that may need to be addressed either regionally or by the cities within each county jurisdiction. For the purposes of this gap analysis, the following climate hazards and asset types were assessed:

- **Climate Hazards:** Drought; Severe Storms/Wind; Extreme Heat; Inland Flooding; Landslides; Sea Level Rise/Coastal Flooding; Wildfire; Air Quality, Human Health and Ecological Hazards
- **Assets:** Natural and Managed Resources; Land Use and Community Development; Infrastructure; Public Health, Socioeconomics and Equity

The “Gap Analysis of Existing Countywide Climate Change Vulnerability Assessments in the SCAG Region” report can be found under *Appendix C of the SoCal APG* on the SCAG *Regional Climate Adaptation Framework* website. Findings from the report reflect data as of January 2020. The findings from this report can help provide an overview of the primary climate change vulnerabilities impacting your jurisdiction, as well as secondary impacts requiring further assessment and a unique set of policies, objectives, and strategies to address overlapping impacts.

OUTREACH & ENGAGEMENT CONSIDERATIONS

Community input during the vulnerability assessment phase is critical to develop an on-the-ground understanding of climate vulnerabilities and to ensure that community needs and priorities are centered. A vulnerability assessment is required as part of SB 379, and your communities are your best experts. Please reference page 102 of the *SoCal APG* for best practices for Phase 2 of the planning process.

STEP 2.2: CHARACTERIZE SENSITIVITIES & POTENTIAL IMPACTS

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Identify Community Populations and Assets Sensitive to Climate Change Hazards <input checked="" type="checkbox"/> List of Historic and Potential Future Climate Impacts <input checked="" type="checkbox"/> List of Climate Impacts of Greatest Concern 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action or Adaptation Plan (CAAP) if available <input checked="" type="checkbox"/> SoCal CAF General Plan and Vulnerability Assessment Gap Analyses <input checked="" type="checkbox"/> Housing Element Parcel Tool (HELPR) <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Defining Vulnerable Communities Guide <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

Building off Step 2.1, your jurisdiction’s vulnerability assessment will need to include studying historical and potential impacts of climate change to your jurisdiction and surrounding geographic area.

In the vulnerability assessment, you will need to address specific requirements outlined in the text of the statute under Government Code Section 65302(g)(4)(A) regarding flooding (see Government Code Section 65302(g)(2)) and wildland and urban fires (see Government Code Section 65302(g)(3)). The statute also specifies the following information from federal, state, regional, and local agencies that should be referenced to assist in developing both the vulnerability assessment and the adaptation and resilience goals, policies, and objectives:

- Information from the Internet-based Cal-Adapt tool.
- Information from the most recent version of the California Adaptation Planning Guide.
- Information from local agencies on the types of assets, resources, and populations that will be sensitive to various climate change exposures.
- Information from local agencies on their current ability to deal with the impacts of climate change.
- Historical data on natural events and hazards, including locally prepared maps of areas subject to previous risk, areas that are vulnerable, and sites that have been repeatedly damaged.
- Existing and planned development in identified at-risk areas, including structures, roads, utilities, and essential public facilities.
- Federal, state, regional, and local agencies with responsibility for the protection of public health and safety and the environment, including special districts and local offices of emergency services.

After reviewing the status of climate vulnerability assessment at the county-level, planning staff at the local and regional level can turn to the “managed retreat” strategies developed through the *SoCal CAF*. “Managed retreat” strategies include analyses on transportation zones with limited ingress and egress routes. As part of the *SoCal CAF*, SCAG mapped climate hazards and studied the impacts of climate change on regional transportation networks - including looking at evacuation patterns from cell phone location data before and after major wildfires recently occurring in California. Additionally, SCAG developed and modeled regional

Housing Element Parcel (HELPR) Tool



relocation scenarios in recognition of the need for potential managed retreat strategies in areas most vulnerable to climate hazards. Through this work, SCAG identified “stranded” areas that may lose access to local and regional transportation networks due to climate hazard events, such as a large-scale wildfire or flood. Additionally, SCAG identified travel-time impacts to non-stranded zones anticipated to accommodate significant travel detours in the event of a disruptive climate hazard event. Travel demand modeling of these scenarios allows jurisdictions across the SCAG region to compare the results of the climate hazard scenarios and develop land use and transportation policies that can guide responses to chronic climate hazards, such as wildfire and sea level rise. In the face of a disaster, impacts are felt across jurisdictional lines, impacting both relocations away from disaster areas and access to safer destinations.

Please reach out to SCAG for downloadable files of the climate risk and managed retreat data layer analyses.

Lastly, your SB 379 compliance project team can turn to SCAG’s *Housing Element Parcel Tool (HELPR)* to identify community populations sensitive to climate change hazards. *HELPR* is a web-mapping tool developed by SCAG to help local jurisdictions and stakeholders understand local land use, site opportunities, and environmental sensitivities for aligning housing planning with the state Department of Housing and Community Development’s (HCD) 6th cycle housing element requirements. *HELPR* includes visualizations of parcels impacted by wildfire risks, 1 and 2 meters of sea level rise, 100-year flood plains, earthquake fault zones, liquefaction susceptibility zones, landslide hazard zones, California protected areas, wildlife habitat areas, active river and wetland areas, locations of rare plants and animals, and Natural Community Conservation Plans/Habitat Conservation Plans reserve areas. Select your jurisdiction through the *HELPR* tool and review the highlighted community populations and assets identified as sensitive to climate change hazards. *HELPR* will help identify primary and secondary climate hazard risks relevant to your jurisdiction, providing a baseline of adaptation and resilience objectives your jurisdiction will need to address for SB 379 compliance. See below for an image of the climate hazard filters included within *HELPR*.

Access *HELPR* by visiting SCAG’s website. Documentation on datasets utilized and application functionality is available within the tool, as well as the option to download tabular and spatial parcel data for external use.

STEP 2.3: CHARACTERIZE ADAPTIVE CAPACITY

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> List of Existing Policies and/or Plans that include Climate Adaptation Goals, Strategies, Policies, etc. <input checked="" type="checkbox"/> Matrix Describing Existing and Potential Factors Enhancing Adaptive Capacity of your Jurisdiction 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action and Adaptation Plan (CAAP) if available <input checked="" type="checkbox"/> SoCal CAF General Plan and Vulnerability Assessment Gap Analyses <input checked="" type="checkbox"/> HELPR <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Defining Vulnerable Communities Guide <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

With information on your jurisdiction’s existing policies and/or plans that include climate adaptation and resilience strategies (Step 2.1) and information on climate change sensitive populations and assets (Step 2.2), you can now move onto assessing the adaptive capacity of your jurisdiction. Understanding the factors that impact adaptive capacity of your jurisdiction will influence the set of adaptation and resilience goals, policies, objectives, and implementation measures to ensure your planning document includes climate adaptation and resilience strategies that are SB 379 compliant.

Adaptive capacity refers to the ability of community populations and assets to adjust to climate change stressors and cope with the consequences. Adaptive capacity can be provided through physical design (e.g., back-up generator), or it can take the form of policies, plans, programs, governance, or institutions.

An adaptive capacity analysis examines the viability of plans to maintain system performance in the face of climate hazards. If the asset is damaged or destroyed, how quickly can it be repaired or brought back online, or how quickly can functions be restored? Is there system redundancy? For example, if a major highway is shut down, are there other routes that can receive the traffic to avoid a back-up? If a substation goes down, are there other substations on the electricity grid that can pick up the load?

Continue to make use of the recommended Resources under Step 2.2 to determine the existence of policies, programs, and strategies that can help manage the climate impacts unique to your jurisdiction. As noted in Step 2.1, potential climate hazards and assets that can be evaluated for adaptive capacity can include:

- **Climate Hazards:** Drought; Severe Storms/Wind; Extreme Heat; Inland Flooding; Landslides; Sea Level Rise/Coastal Flooding; Wildfire; Air Quality, Human Health and Ecological Hazards
- **Assets:** Natural and Managed Resources; Land Use and Community Development; Infrastructure; Public Health, Socioeconomics and Equity

Details on conducting an adaptive capacity analysis can be found under Phase 2, Step 2.3 of the *SoCal APG*.

STEP 2.4: PRIORITIZE CLIMATE CHANGE VULNERABILITIES

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> List of Existing Policies and/or Plans that include Climate Adaptation Goals, Strategies, Policies, etc. <input checked="" type="checkbox"/> Table Summarizing Vulnerabilities and Consequence 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action or Adaptation Plan (CAP/CAAP) if available <input checked="" type="checkbox"/> SoCal CAF General Plan and Vulnerability Assessment Gap Analyses <input checked="" type="checkbox"/> SoCal CAF Outreach Toolkit: Outreach Strategy <input checked="" type="checkbox"/> SoCal CAF Outreach Toolkit: Regional Coordination Strategy <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Defining Vulnerable Communities Guide <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

Building off Step 2.3 and your matrix of assets that can be evaluated for adaptive capacity, your next step is to prioritize climate change vulnerabilities based on a systematic method of scoring that considers potential impacts and adaptive capacity. Vulnerability scoring helps clarify which climate change impacts pose the greatest threats and should be prioritized when conducting a vulnerability assessment for your jurisdiction and when determining which adaptation and resilience strategies to incorporate into your general plan safety element for SB 379 compliance. Shown below is the recommended scoring rubric for adaptive capacity as developed under the *California Adaptation Planning Guide*. Further details on prioritizing climate change vulnerabilities and conducting a vulnerability scoring rubric can be found under Phase 2, Step 2.4 of the *SoCal APG*. See [Section 5](#) for a case study on climate hazard identification and prioritization from the City of Hermosa Beach.

Score	Potential Impact	Adaptive Capacity
Low	Impact is unlikely based on projected exposure; would result in minor consequences to public health, safety, and/or other metrics of concern.	The population or asset lacks capacity to manage climate impact; major changes would be required.
Medium	Impact is somewhat likely based on projected exposure; would result in some consequences to public health, safety, and/or other metrics of concern.	The population or asset has some capacity to manage climate impact; some changes would be required.
High	Impact is highly likely based on projected exposure; would result in substantial consequences to public health, safety, and/or other metrics of concern.	The population or asset has high capacity to manage climate impact; minimal to no changes are required.

OUTREACH & ENGAGEMENT CONSIDERATIONS

While there are many potential approaches to scoring vulnerability, the best approach should be informed by community priorities. Expanding on the climate conversation resources and templates of the *Outreach Toolkit*, consider developing an on-the-ground understanding of climate vulnerabilities through collaboration with community members both internal and external to your organization. Expanded outreach and engagement efforts include:

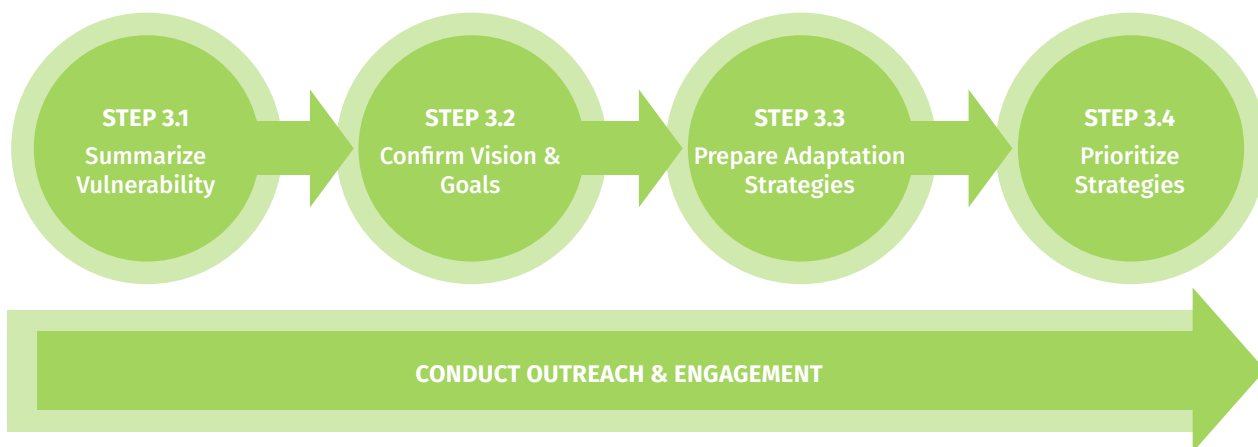
- Target stakeholder interviews or focus groups
- Storytelling timelines of historic climate disasters and SB 379 compliance
- Asset mapping for greater community understanding of climate vulnerability data
- Community-based participatory research with non-profit organizations, universities, etc.

In addition to the community capacity building workshop templates and materials, the *Outreach Toolkit* also includes SCAG’s outreach strategy for developing the *SoCal CAF*. While the *CAF: Regional Coordination Strategy* may not directly align with developing and evaluating your community assets for adaptive capacity, this report can serve as best practice examples on how to engage with communities on-the-ground:

The *CAF: Regional Coordination Strategy* summarizes the outreach and engagement strategies and activities carried throughout development of the *SoCal CAF*. Outreach and engagement activities included three distinct types of outreach that occurred during different phases of the Project with distinct purposes. These activities included: (1) public outreach, (2) jurisdictional outreach, and (3) regional/subregional outreach.

The *CAF: Regional Coordination Strategy* can be found in the *Communication & Outreach Toolkit* posted on the SCAG Climate Adaptation Framework website.

Phase 3: Define Adaptation Framework & Strategies



Once you have completed a vulnerability assessment that identifies the risks that climate change poses to your jurisdiction, the next step in fulfilling the SB 379 requirements is to articulate a **SET OF ADAPTATION AND RESILIENCE GOALS, POLICIES, AND OBJECTIVES** based off the findings of the vulnerability assessment. Determining adaptation goals, policies, and objectives is not only a requirement of SB 379, but an important part of developing a community vision for adaptation and resilience in the face of climate change. A set of initial goals, policies, and objectives can be built upon existing local plans and should reflect what is important to your community.

OUTREACH & ENGAGEMENT CONSIDERATIONS

Continued engagement is key to developing adaptation strategies so that the community can choose the direction to take towards resilience. To comply with SB 379, a set of adaptation and resilience goals, policies, and objectives must be articulated. Stakeholder and community input will aid in “ground-truthing” the appropriate adaptation strategies as well as the feasibility of those strategies. Additionally, input from the community and stakeholders will be critical while prioritizing strategies to meet the greatest vulnerabilities or needs of the community. Please reference page 27 of the *SoCal APG* for best practices, tools, and resources for Phase 3 of the planning process.

STEP 3.1: SUMMARIZE VULNERABILITY

While Step 3.1 is not a requirement of SB 379 compliance, more information on summarizing your jurisdiction’s vulnerabilities can be found in the *SoCal APG*. It may be helpful to follow the *SoCal APG* guidance on summarizing vulnerability to incorporate as part of the narrative of your vulnerability assessment when updating the safety element pursuant to SB 379.

STEP 3.2: CONFIRM VISION AND GOALS

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Vision, Goals, and Objectives Statements <input checked="" type="checkbox"/> A Set of Adaptation and Resilience Goals and Objectives 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SoCal CAF Outreach Toolkit <input checked="" type="checkbox"/> SoCal APG <input checked="" type="checkbox"/> Principles and Metrics for SCAG Jurisdictions <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

SCAG has developed a host of planning resources and tools to help planning staff address vulnerabilities by developing and prioritizing adaptation strategies. Beginning with the *SoCal APG*, you can consult the list of sample goals and objectives described in Phase 1, as well as a matrix of adaptation strategies and actions mentioned in Phase 3 as a starting point. Goals, objectives, and strategies should ultimately be refined to address the specific needs and priorities identified in Phase 0, as well as vulnerabilities identified in Phase 2. The *SoCal APG* offers four sample adaptation goals for the SCAG region:

- Resilient Communities
- Resilient Natural Environment
- Resilient Infrastructure and Built Environment
- Resilient Processes

These four goals can be a useful organizing framework to address climate adaptation and resilience in safety element updates and/or other planning documents. You can also find a list of objectives for each of these four goals outlined in the *SoCal APG* on pages 50-52 and in greater detail in the *Principles and Metrics for SCAG Jurisdictions*. This document also provides a menu of sample climate adaptation objectives associated with each goal and a suite of metrics for each of the goals. The *Principles and Metrics for SCAG Jurisdictions* can be found under *Appendix F of the SoCal APG*. These goals and objectives should be tailored to reflect your community's unique conditions, needs, priorities, and vision.

STEP 3.3: PREPARE ADAPTATION STRATEGIES

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> A List of Adaptation Strategies that Address the Vulnerability Assessment 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SoCal APG <input checked="" type="checkbox"/> Matrix of Adaptation Strategies and Actions <input checked="" type="checkbox"/> Library of Model Policies (General Plans, Local Coastal Programs) <input checked="" type="checkbox"/> Governor's Office of Planning and Research Adaptation Clearinghouse

An adaptation strategy can be a policy, program, project, or action (for actions, see Phase 4) that increases resilience to climate change hazards. Climate adaptation strategies should be crafted in a manner that fits within the framework appropriate to the plan or program being developed (e.g., the general plan safety element, climate action or adaptation plan). Typically, for general plans, the framework includes goal statements with multiple objectives and/or policies associated with each goal. Following this framework is one option to comply with SB 379.

While each jurisdiction will have unique community-driven needs and vulnerabilities, you can identify climate adaptation strategies and actions that are applicable to your context and community by referencing the *Matrix of Adaptation Strategies and Actions*, found under *Appendix B of the SoCal APG*. This matrix provides over 275 climate adaptation strategies and actions organized and which can be filtered by climate hazards (e.g., multiple hazards, inland flood, extreme heat, etc.) and assets (e.g., agriculture, energy infrastructure, public transit, vulnerable populations, etc.). As many strategies and actions are cross-cutting and can apply to multiple hazards or multiple assets, it is recommended to filter by "multiple hazards" first.

Snapshot of Matrix of Adaptation Strategies

	A	B	C	D
T	Climate Change Hazard	Asset	Strategy	Action
143	Multiple Hazards	Vulnerable Populations	Expand public outreach and education to policymakers, businesses, and the general public	Partner with major employers that manage outdoor workers to augment training, including assurance of adequate water, shade, and rest breaks, protection from poor air quality, training on heat risks, and vector-borne disease avoidance.
144	Multiple Hazards	Vulnerable Populations	Expand public outreach and education to policymakers, businesses, and the general public	Partner with agricultural employers to make sure workers have adequate protection from extreme conditions and that healthy and safe working conditions are maintained.
146	Multiple Hazards	Vulnerable Populations	Identify and protect communities vulnerable to climate effects	Facilitate planning and implementation of adaptation measures in communities with unequal burdens from climate risks or insufficient resources to respond to these risks, and incorporate environmental equity into various grants for local adaptation.
147	Multiple Hazards	Vulnerable Populations	Identify and protect communities vulnerable to climate effects	Focus planning and intervention programs on neighborhoods that currently experience social or environmental injustice or bear a disproportionate burden of potential public health impacts.

Another tool that can help you develop a set of adaptation and resilience goals, policies, and objectives pursuant to SB 379 is SCAG's *Library of Model Policies*, found under *Appendix F of the SoCal APG*. The library consists of a summary document and spreadsheet compiling a large selection of model policies that address various aspects of climate adaptation. The matrix can be used as an additional starting point to update safety elements pursuant to SB 379 and assist with integrating climate adaptation into other general plan elements. Most of the policies address multiple climate hazards, but there are also model policies for specific climate hazards related to extreme heat, air quality and vector borne disease, drought, severe storm/wind, inland flood, landslide, and wildfire. The general plan model policies are meant to be used as a starting point and should be refined to suit the unique context of your local community. SCAG has also developed a suite of model policies for coastal communities that are vulnerable to sea level rise, also found under *Appendix F of the SoCal APG*. This resource can assist coastal communities with

Snapshot of Library of Model Policies

	A	B	C	D	E	F	G
T	County	City	Element	Policy Category	Topic	Policy	Source
3	Los Angeles	Inglewood	Environmental Justice	Healthy Communities	Access to Healthy Food	EI-4.1 Address whether zoning allows providers of fresh produce (grocery stores, farmers markets, produce stands) to locate within three-quarters of a mile of all residences in the City.	https://www.cityofinglewood.org/DocumentCenter/View/14211/EnvironmentalJustice-Element
4	Los Angeles	Inglewood	Environmental Justice	Healthy Communities	Access to Healthy Food	EI-4.2 Encourage the development of healthy food establishments in areas with a high concentration of fast food establishments, convenience stores, and liquor stores. For example, through updated zoning regulations, tailor use requirements to encourage quality, sit down restaurants, in areas that lack them.	https://www.cityofinglewood.org/DocumentCenter/View/14211/EnvironmentalJustice-Element

incorporating policies into their local coastal programs (LCPs), as well as the safety element, to mitigate and adapt to sea level rise and flooding risks.

STEP 3.4: PRIORITIZE ADAPTATION STRATEGIES

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Stakeholder and community input on greatest vulnerabilities/needs 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SoCal APG
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> A prioritized list of adaptation strategies 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Financing Climate-safe Infrastructure report and resources <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse

Phase 3 of the *SoCal APG* outlines several criteria on pages 125-126 that can assist you with prioritizing adaptation strategies for updating your safety element, LHMP, CAP/CAAP, or other plan in compliance with SB 379. Continual engagement with members of the community and stakeholders should be conducted (you can reference the resources outlined in Phase 0) to prioritize strategies and meet the needs of your community.

When developing and prioritizing adaptation strategies, it is also important to consider funding options and availability. SCAG prepared a report titled *Funding and Financing Climate-safe Infrastructure* that serves as a guide for local agencies on climate adaptation funding and financing, with a focus on infrastructure. The report is available in *Appendix E of the SoCal APG*. The report characterizes the climate adaptation infrastructure funding gap, provides over-arching strategies and policy guidance based on recent state publications, and summarizes challenges that local agencies face. In addition to grant opportunities, local matching funds, tax increment/benefit districts, and special tax measures, the materials also outline impacts from the insurance and bond markets to municipal budgets. It provides an adaptation finance toolkit to assist you prepare (see Step 3.3) and prioritize (see Step 3.4) your adaptation strategies. Consider consulting this report when developing adaptation strategies to increase the likelihood of obtaining funding to carry out the last requirement of SB 379, which is to create a set of feasible implementation measures (see Phase 4).

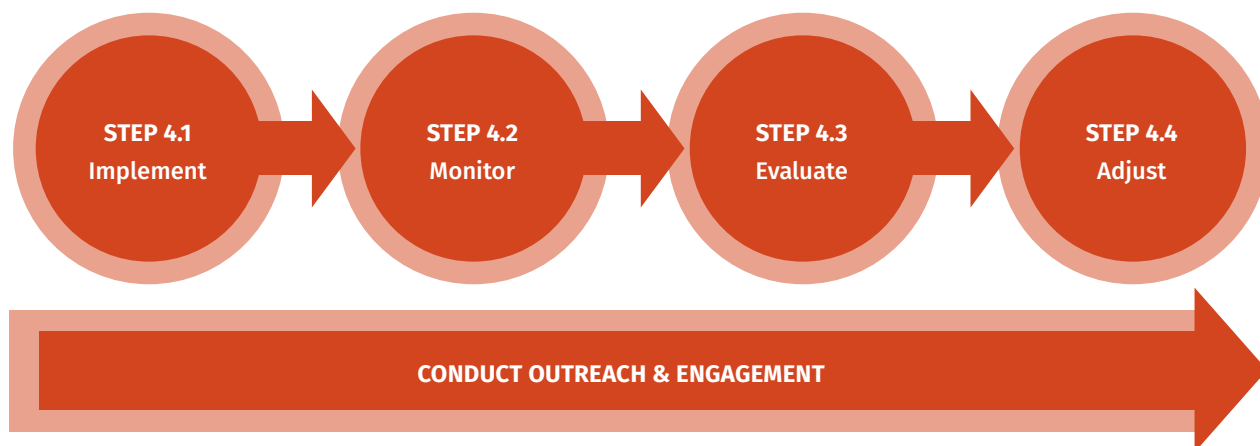
Recognizing the public health and economic crises presented by COVID-19, SCAG also prepared a report titled *COVID-19 Economic Recovery Strategies for Climate Adaptation*. The report includes recommendations on incorporating climate adaptation into a local agency’s long term capital improvement plan, as well as information and trends of potential public funding sources, strategies, and planning opportunities to tie adaptation and resilience into economic recovery efforts. The report is available under *Appendix E of the SoCal APG*. See [Section 5](#) for a case study on a vulnerability assessment.

BEST PRACTICES TO CONSIDER WHEN DEVELOPING ADAPTATION STRATEGIES

- Link strategies directly to problem statements: strategies offer the solutions to the problems identified in the risk assessment.
- Select fewer, more actionable strategies rather than a long laundry list of potential actions.
- Address multiple problems or vulnerabilities or link different sectors together (water, transportation, energy, etc.) with a single strategy to increase funding options.
- Ensure that there is someone who can be the lead on a strategy - someone who has the authority, political will, ability, time, and resources to make it happen.
- Ensure strategies can be integrated into existing programs, actions, and funding streams, such as existing capital improvement plans and projects.
- Develop adaptation strategies that could result in added beneficial results beyond just increasing resilience to climate change hazards. Consideration of co-benefits improves the chances of securing funding from regional, state and federal programs and aligns climate change resilience with a broader set of community goals.

Phase 4: Implement, Monitor, Evaluate, and Adjust

Once you have articulated a set of adaptation and resilience goals, policies, and objectives, the next step in complying with SB 379 is to apply a **SET OF FEASIBLE IMPLEMENTATION MEASURES** meant to carry out the identified goals, policies, and objectives. How you organize these implementation measures may depend on whether you are complying with SB 379 through a safety element, LHMP, or CAAP/CAP. For example, implementing actions can be incorporated into the general plan implementation matrix if you are working on a safety element update.



STEP 4.1: IMPLEMENT

Things to Prepare	Resources
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> A set of feasible implementation measures <input checked="" type="checkbox"/> Considerations of implementation measures for populations and Disadvantaged Communities impacted by climate hazards 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SoCal APG <input checked="" type="checkbox"/> Matrix of Adaptation Strategies and Actions <input checked="" type="checkbox"/> Project Checklists for Climate Adaptation <input checked="" type="checkbox"/> Adaptation Infrastructure Impacts and Resilience Project Tracker <input checked="" type="checkbox"/> Decision Tree Toolkit for Local Governments <input checked="" type="checkbox"/> Financing Climate-safe Infrastructure report and resources <input checked="" type="checkbox"/> Governor’s Office of Planning and Research Adaptation Clearinghouse







Phase 4 of the *SoCal APG* provides step-by-step guidance on establishing feasible implementation actions to support the goals, policies, and objectives developed through Phase 3. To assist with implementation of climate adaptation, you can reference the *SoCal APG* for additional resources, toolkits, and examples as well as the Climate Adaptation Strategy Matrix mentioned above in Step 3.3 to select implementing actions for the goals, policies, and objectives chosen in Phase 3.

In addition, SCAG prepared a set of *Project Checklists for Climate Adaptation* that offer a template for incorporating climate adaptation elements into local project approval processes, such as residential and commercial development and infrastructure projects, and identify appropriate adaptation measures that may be needed to make new development resilient to climate-change. The checklists address several climate hazards (drought, extreme heat, inland flooding, landslide, sea level rise/coastal flooding, and wildfire) and are intended to help project proponents and city planning staff consider climate change hazards and vulnerabilities during the permit review and approval process, and incorporate elements or design changes to ensure projects are resilient to the anticipated impacts of climate change. Specifically, you can use the checklists to screen thresholds for

OUTREACH & ENGAGEMENT CONSIDERATIONS

Implementing all the work done throughout Phases 1-3 is critical to building climate resilience in your community. Similarly, it is critical to maintain partnerships and engagement with community members and stakeholders as you implement, monitor, and improve adaptation action. SB 379 requires applying a set of feasible implementation measures to your adaptation planning. This will require outreach and engagement during the implementation phase to bolster community support and understanding for climate adaptation. Please reference pages 147-148 of the *SoCal APG* for ideas, best practices, and an example for continuing your outreach and engagement during the culminating phase of the adaptation planning process.

Snapshot of Project Checklists for Climate Adaptation

Climate Hazard	Screening Threshold Questions <i>(If the answer to any of the following questions is "Yes", then the checklist for that hazard must be completed)</i>	Links or Sources of Information
 Drought	<ul style="list-style-type: none"> Would project consume water resources in its construction or operation and if so, are the water sources supplying the project at risk from drought? Yes <input type="checkbox"/> No <input type="checkbox"/> 	Urban Water Management Plan applicable to the project's location
 Extreme Heat	<ul style="list-style-type: none"> Is the area where your project is located expected to experience more than 30 heat health days per year over the project lifetime? Yes <input type="checkbox"/> No <input type="checkbox"/> 	Maps based on California Heat Assessment Tool (CHAT): https://www.cal-heat.org/
 Inland Flooding	<ul style="list-style-type: none"> Is the project located in the 100-year or larger FEMA floodplain, otherwise known as the 1% annual chance flood? Yes <input type="checkbox"/> No <input type="checkbox"/> Using Cal-Adapt, will the project watershed be subject to an increase of extreme precipitation events? Yes <input type="checkbox"/> No <input type="checkbox"/> 	FEMA Flood Maps: https://msc.fema.gov/portal/home
 Landslides	<ul style="list-style-type: none"> Is the project located in area of moderate or high susceptibility to landslide hazards? Yes <input type="checkbox"/> No <input type="checkbox"/> 	USGS landslide susceptibility map: https://maps.conservation.ca.gov/cgss/lsi/
 Sea Level Rise/ Coastal Flooding	<ul style="list-style-type: none"> Is the project in a SLR vulnerability zone, or will any infrastructure or resources that the project relies upon be affected by SLR (e.g., beaches, groundwater)? Yes <input type="checkbox"/> No <input type="checkbox"/> 	Use detailed local SLR maps, if available. Alternatively, use <i>Our Coast Our Future</i> tool: http://data.pointblue.org/apps/ocof/cms/index.php?page=flood-map
 Wildfire	<ul style="list-style-type: none"> Is the project located in a high or very high fire hazard zone? Yes <input type="checkbox"/> No <input type="checkbox"/> 	CalFIRE Maps - https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/

Projects answering 'Yes' to any one of questions in Table 1 must complete the checklist for that hazard. If the answer to any question in Table 1 is 'No', the checklist for that climate hazard does not need to be completed. However, it is recommended that the project manager or department reviewing the project retain this document in their project records.

the covered climate hazards, reference the detailed checklists for each hazard, assess a project's vulnerability, assess potential consequences of a project based on several factors, and assess a project's adaptive capacity based on the adaptation measures incorporated into its design. While the checklists were developed to be used on a project-scale, they can also offer ideas for developing feasible implementation measures to minimize the effects of and be resilient to climate change as your community changes and grows. For example, an implementation measure could be "develop project checklists for climate hazards" for the objective "incorporate climate change into local project approval processes".

Along with the project checklists, an *Adaptation Infrastructure Impacts and Resilience Project Tracker Tool* can help you quickly ascertain the extent of risks in your jurisdiction, including populations impacted by hazards and Disadvantaged Communities impacted by hazards. The spreadsheet tracking tool allows you to track where vulnerabilities exist, suggested or planned mitigation efforts and implementation status, as well as a list of planned projects that should undertake a vulnerability assessment. The tool includes fields for relevant data and information important for project tracking and prioritization (e.g., risk category, impacted community category, severity of risk, proposed mitigation strategy, cost of mitigation, impacted population, among others). This tool can assist you with selecting potential projects and offer ideas for implementation measures. You can find the checklists along with the project tracker under *Appendix H of the SoCal APG*.

To help choose and prioritize feasible implementation measures, you can use the *Decision Tree Toolkit for Local Governments* to perform a high-level benefit-cost analysis that is based on generalized inputs, but can also be substituted with locally-relevant inputs, for project categories and land use types. The toolkit is a spreadsheet that first assesses the severity of risk and urgency of timely mitigation to provide an early prioritization score of projects. If a benefit-cost analysis is warranted, you would be required to enter minimal additional project-specific information and local data, if available. The benefit-cost analysis tool will provide a more robust analysis with better local data. The tool includes a step for identifying potential funding mechanisms for

the project. A key aspect of this tool allows you to identify co-benefits, where a given mitigation measure may be able to address multiple risk categories and may be eligible for more funding sources than a mitigation without co-benefits. This tool relies on the data input for each project or risk in the *Adaptation Infrastructure Impacts and Resilience Project Tracker Tool*, which contains information about the risk category, mitigation, cost, funding potential, and other factors. *The Decision Tree Toolkit* can be found in *Appendix D of the SoCal APG*.

SCAG’s *Funding and Financing Climate-safe Infrastructure* report, mentioned above in Step 3.4 and found in *Appendix E of the SoCal APG*, provides a detailed list of funding sources for funding climate adaptation infrastructure. The report can be used to identify feasible implementation measures, as required by SB 379, through the lens of available and likely adaptation funding sources.

The implementation actions you choose should be suited to your local circumstances, but you must specifically address the following in your implementation measures to comply with SB 379.

Required by SB379	SCAG Resources
Feasible methods to avoid or minimize climate change impacts associated with new uses of land.	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Matrix of Adaptation Strategies and Actions <input checked="" type="checkbox"/> Project Checklists for Climate Adaptation <input checked="" type="checkbox"/> HELPR
The location, when feasible, of new essential public facilities outside of at-risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in at-risk areas.	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Project Checklists for Climate Adaptation <input checked="" type="checkbox"/> Adaptation Infrastructure Impacts and Resilience Project Tracker <input checked="" type="checkbox"/> Decision Tree Toolkit for Local Governments <input checked="" type="checkbox"/> HELPR
The designation of adequate and feasible infrastructure located in an at-risk area.	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Library of Model Policies (General Plans, Local Coastal Programs) <input checked="" type="checkbox"/> Matrix of Adaptation Strategies and Actions <input checked="" type="checkbox"/> Project Checklists for Climate Adaptation
Guidelines for working cooperatively with relevant local, regional, state, and federal agencies.	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> SoCal APG <input checked="" type="checkbox"/> SoCal CAF Outreach toolkit
The identification of natural infrastructure that may be used in adaptation projects. Where feasible, the plan shall use existing natural features and ecosystem processes, or the restoration of natural features and ecosystem processes, when developing alternatives for consideration.	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Library of Model Policies (General Plans, Local Coastal Programs) <input checked="" type="checkbox"/> Matrix of Adaptation Strategies and Actions <input checked="" type="checkbox"/> Principles and Metrics for SCAG Jurisdictions

STEP 4.2: MONITOR

You can find more information on this step in the *SoCal APG*, but this step is not explicitly required as part of SB 379. It is important to monitor changing conditions and track the effectiveness of adaptation strategies to ensure that they adequately and effectively address community vulnerability. You can reference this step of the *SoCal APG*, the *Principles and Metrics for Local Jurisdictions*, as well as the *Adaptation Infrastructure Impacts and Resilience Project Tracker* when updating the safety element pursuant to SB 379.

STEP 4.3: EVALUATE

You can find more information on this step in the *SoCal APG*, but this step is not explicitly required as part of SB 379. Climate science, conditions, best practices, and communities are constantly evolving. As the adaptation planning process is

BEST PRACTICES TO CONSIDER WHEN PREPARING IMPLEMENTATION MEASURES

- Foster local political buy in
- Seek sustained commitment
- Focus actions where the money is
- Piggyback on successful local projects
- Use existing processes, groups, or sources of funding
- Consider your jurisdiction’s partners
- Do not be afraid to build something new

cyclical, adjustments may be needed to the vulnerability assessment (Phase 2) and strategies you have identified and prioritized (Phase 3). You can reference this step of the *SoCal APG* when making future updates to your safety element, even if you have already achieved SB 379 compliance.

STEP 4.4: ADJUST

Things to Prepare	Resources
<input checked="" type="checkbox"/> SB 379-Compliant Document	<input checked="" type="checkbox"/> SoCal APG <input checked="" type="checkbox"/> Local General Plan, Local Hazard Mitigation Plan (LHMP), Climate Action or Adaption Plan (CAP/CAAP) <i>if available</i>

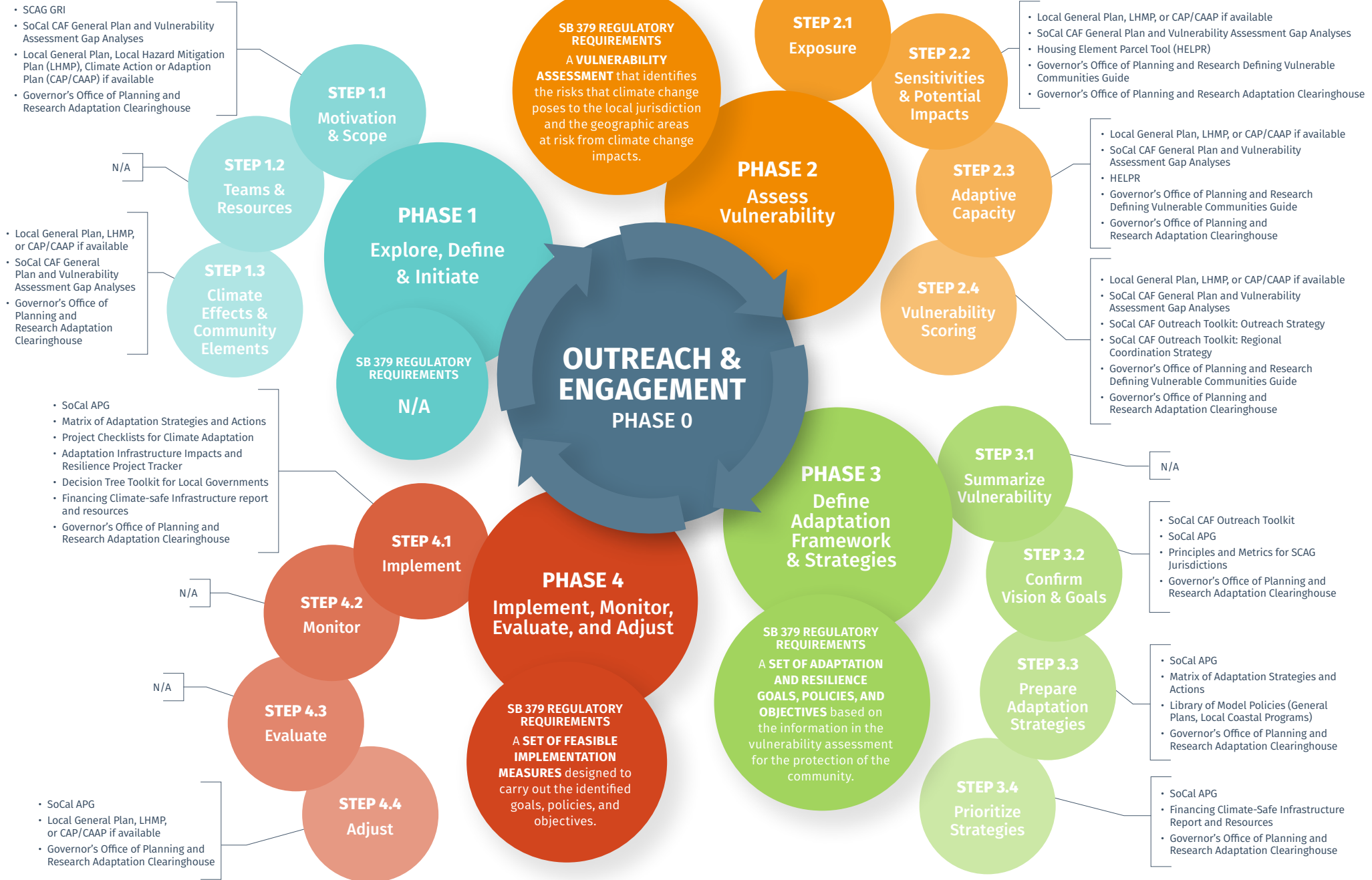
If an existing LHMP, CAP/CAAP, or similar planning document contains climate adaptation and resilience strategies that comply with the requirements of SB 379, the safety element can be amended and updated by summarizing and referencing the adaptation information already incorporated in the LHMP, CAP/CAAP, or similar plan.

To ensure your existing LHMP, CAP/CAAP, or other adaptation document complies with the requirements of SB 379, evaluate your selected adaptation document for the following:

- The strategies were successfully implemented and new priorities are needed.
- Implementation is not achieving the results expected.
- The strategy has an unintended consequence.
- Funding has changed.
- Political and/or public priorities have changed.
- New climate science data is available.
- Other significant changes in the environment or circumstances.

COMPLIANCE CURRICULUM

Resource Summary



PLANNING FOR EQUITABLE CLIMATE ADAPTATION

4.1 | The Importance of Environmental Justice in Climate Adaptation Planning

Environmental Justice (EJ) is about equal and fair access to a healthy environment, with the goal of protecting underrepresented and vulnerable communities from incurring disproportionate environmental impacts. Climate change is not only an issue of the environment, but also an issue of environmental justice and human rights. Disruptions from climate change, whether individual events or worsening cumulative effects, will impact the region's public health, vulnerable populations, economy, natural resources, built environment, transportation system, housing and water supplies, utility infrastructure and emergency services to varying degrees. With the impacts of climate change already being felt, vulnerable communities continue to bear disproportionate burdens and experience the adverse impacts of climate change, even if many contribute little to the underlying causes. The ability to adapt to climate change is critical to prevent further heightened disparities in health outcomes across populations.

4.2 | Overview of SB 1000 Statutory Requirements

SB 1000 aims to encourage local jurisdictions and community stakeholders throughout California to proactively plan for and address environmental justice concerns at the outset when developing all components of a general plan, including the safety element. As mentioned in Section 1.4, the law requires a local jurisdiction with Disadvantaged Communities to prepare an EJ element or integrate EJ policies into other elements when two or more elements in a general plan are revised after January 1, 2018. Local jurisdictions with Disadvantaged Communities can comply with SB 1000 by incorporating EJ policies in their general plans through either a stand-alone element, or by integrating relevant goals, policies, and objectives throughout other elements. As you prepare your updated safety element to include climate adaptation and resilience strategies, we recommend including EJ policies as part of our SB 379-compliant safety element for efficient use of your jurisdiction's resources.

SB 379's statutes relate closely to SB 1000 in that both involve assessing vulnerabilities of local communities and developing general plan goals, policies, and objectives to address those vulnerabilities. Similar to SB 379 (see Section 1.3), there are three major statutory components of SB 1000:

- Identify **objectives and policies to reduce the unique or compounded health risks in disadvantaged communities** by means that include, but are not limited to, the reduction of pollution exposure, including the improvement of air quality, and the promotion of public facilities, food access, safe and sanitary homes, and physical activity.
- Identify **objectives and policies to promote civic engagement** in the public decision-making process.
- Identify objectives and policies that **prioritize improvements and programs that address the needs** of disadvantaged communities.

4.3 | Summary of SB 1000 Resources

CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE'S SB 1000 IMPLEMENTATION TOOLKIT

The California Environmental Justice Alliance (CEJA) is a statewide, community-led alliance working to advance environmental, health, and social justice and co-sponsored the SB 1000 bill. In October 2017, CEJA prepared a SB 1000 Implementation Toolkit that provides guidance on implementing SB 1000. The toolkit describes the EJ planning process, identifying Disadvantaged Communities, strategies for community engagement, considerations for developing goals, objectives, and policies, sample case studies, and potential funding sources.

Section 5 of the toolkit describes the SB 1000 requirement to develop the eight EJ-related goals and objectives (these are listed out in the toolkit as well as #1 in Section 4.2 above).

SB 1000 EJ Goals and Objectives

Table 5-1 SB 1000 Goals, Objectives, and Policies

Goals	Objectives and Policies
5.9 / Reduce Impacts of Climate Change	<ul style="list-style-type: none"> Minimize greenhouse gas emissions Increase renewable energy and access Promote energy efficiency Develop extreme heat adaptation plans Promote flood-resistant development and retrofits Support increased resilience for transportation, particularly for persons with limited mobility Prioritize disproportionately-vulnerable populations Implement measures to reduce risks to fire hazards Develop preventive and protective strategies against climate change impacts

California Environmental Justice Alliance. (October 2017). SB 1000 Implementation Toolkit. Retrieved from: <https://caleja.org/2017/09/sb-1000-toolkit-release/>

Specifically, the toolkit recommends integrating climate-related policies between general plan elements, including the safety element pursuant to SB 379 and possible EJ stand-alone element. Although addressing climate change impacts in Disadvantaged Communities is not explicitly required as one of the eight goals under SB 1000, reducing climate vulnerabilities can help to reduce community health risks and promote EJ, consistent with the intent of SB 1000. The toolkit offers ideas of objectives and policies related to the EJ and climate adaptation goal to “reduce impacts of climate change” in Section 5.9. These objectives and policies can be used and tailored to your local community to comply with aspects of SB 1000 and SB 379.

You can find the toolkit through CEJA’s website.

GOVERNOR’S OFFICE OF PLANNING AND RESEARCH’S GENERAL PLAN GUIDELINES, CHAPTER 4, SECTION 8

In June 2020, the Governor’s Office of Planning and Research (OPR) released an updated *Environmental Justice Element (EJ) of the General Plan Guidelines*. The guidelines serve as a “how to” resource for drafting general plan elements in compliance with SB 1000. Specifically, the updated Section 8 of Chapter 4 guidelines include:

- A brief history of EJ in California
- A summary of SB 1000, and the regulatory and policy context related to EJ
- Guidance for determining whether an EJ element or equivalent is required in your local jurisdiction, including identifying the location of Disadvantaged Communities
- Guidance for community engagement when addressing EJ and Disadvantaged Communities
- Guidance for developing EJ goals, policies, and programs pursuant to SB 1000

You can find the EJ element guidelines, as well as general plan guidelines for all elements, on OPR’s website.

SOCAL CASE STUDIES

As outlined in this guidebook, local governments have several methods of achieving SB 379 compliance:

- Updating the general plan safety element to include climate adaptation and resilience strategies if an LHMP has not been adopted; OR
- If an existing LHMP or CAP/CAAP contains (i) a **VULNERABILITY ASSESSMENT**, (ii) a **SET OF ADAPTATION AND RESILIENCE GOALS, POLICIES, AND OBJECTIVES**, and (iii) **SET OF FEASIBLE IMPLEMENTATION MEASURES** that comply with the requirements of SB 379, the safety element can be updated by summarizing and referencing the adaptation information already incorporated in the LHMP, CAP/CAAP, or similar plan.

This section consists of case studies of jurisdictions achieving SB 379 compliance through the following methods:

- General Plan Safety Element Update
- Local Hazard Mitigation Plan
- Climate Action/Adaptation Plan
- Other approaches
- Vulnerability Assessment
- SB 1000 Environmental Justice Element

5.1 General Plan Safety Element: City of South Gate, General Plan 2035 (March 2018)



In July 2015, the City of South Gate kicked off the development of a Local Hazard Mitigation Plan (LHMP) and an update to the General Plan Safety Element. Together, the two documents provide the City's framework to mitigate local risks to natural hazards and plan for a resilient future.

In March 2018, the South Gate City Council adopted an updated Safety Element which addresses geologic, seismic, flood, and fire hazards, as well as hazards created by human activity such as hazardous materials and incidents that call for emergency protection. The Local Hazard Mitigation Plan prepared in support of their Safety Element complies with SB 379, requiring the Safety Element to address climate adaptation and resiliency strategies applicable to the City. The City achieved SB 379 compliance under Option 1.

Shown to the right is a sample of the LHMP mitigation measures included within the updated Safety Element.

Visit the *City of South Gate: Safety Element* website to view the approved General Plan Safety Element and Local Hazard Mitigation Plan.

Climate Adaptation Goals, Objectives, and Policies

Goal 5: Educated and empowered community members prepare for, mitigate, respond to, and recover from hazards that affect their family and property.

Objective 5.1: Foster a high level of public understanding of local hazards.

Policy

5.1.1 Provide access to information on natural hazards to all cultural and language groups in the City.

5.1.2 Provide coordinated public information on disaster and emergency preparedness.

5.1.3 Consult with Los Angeles County and utility providers to disseminate up-to-date information on natural disaster preparation.

5.1.4 Require new developers of industrial uses or hazardous material-related facilities to provide adequate community noticing and processes for community notifications and complaints.

5.1.5 Maintain and disseminate up-to-date resources on hazards information, including areas within FEMA flood hazard zones.

5.1.6 Collaborate with responsible agencies to disseminate information on flood hazards to building owners and residents in dam inundation areas, or those in areas of other localized flooding risk.

5.1.7 Consult with Los Angeles County to improve emergency flood alert systems.

5.1.8 Coordinate with the South Coast Air Quality Management District and local service providers to provide coordinated community messaging and notification of extreme heat days or days with poor air quality.

Objective 5.2: Empower the community to access hazard mitigation resources and support optimal levels of safety.

Policy

5.2.1 Continue participation in the National Flood Insurance Protection Program.

5.2.2 Publicize the availability of flood insurance to South Gate residents and business owners.

5.2.3 Require developments in the 100- and 500-year floodplain and other high-risk inundation areas to disclose flood risks and identify appropriate flood mitigation actions, for incorporation into project design.

5.2.4 Promote neighborhood disaster preparedness through Community Emergency Response Team (CERT) training, in conjunction with Los Angeles County.

5.2.5 Address the needs of individuals with limited mobility or limited access to transportation for access to safe and comfortable shelter during extreme heat events or other severe weather events.

5.2: Local Hazard Mitigation Plan: City of Hermosa Beach, PLAN Hermosa (March 2018)



In March 2018, the City of Hermosa Beach adopted the updated Local Hazard Mitigation Plan (LHMP). The LHMP represents the City's commitment to creating a more resilient community and taking actions to reduce risk and lessen the effects of climate hazards on the people and property of the City. Development of the LHMP included formation of a hazard mitigation planning team (Step 1.2), outreach to neighboring jurisdictions (Step 2.4), and conducting a vulnerability assessment (Phase 2).

The City achieved SB 379 compliance under Option 2 by including LHMP implementation plans, background studies, and references of the LHMP throughout PLAN Hermosa, the City's 2017 Integrate General Plan and Coastal Land Use Plan

Shown to the right are the summary tables of climate hazards identified and prioritized by the City during development of the LHMP (Step 2.4). Prioritization of climate hazards helped to inform and develop the City's hazard mitigation goals and actions.

Visit the *City of Hermosa Beach: Hazard Mitigation Plan* website to view the approved 2017 City of Hermosa Beach Local Hazard Mitigation Plan. The City's list of mitigation strategies and goals can be found under Chapter 7 of the LHMP.

Climate Hazard Prioritization Index

Category: Probability		Assigned Weight: 45%	Score
Unlikely	Extremely rare with no documented history of occurrences or events. Annual probability of less than 0.001.		1
Possible	Rare occurrences with at least one documented or anecdotal historic event. Annual probability of between 0.01 and 0.001.		2
Likely	Occasional occurrence with at least two or more documented historic events. Annual probability of between 0.1 and 0.01.		3
Highly Likely	Frequent events with a well-documented history of occurrence. Annual probability of greater than 0.1.		4

Category: Magnitude		Assigned Weight: 30%	Score
Negligible	Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). Injuries or illnesses are treatable with first aid and there are no deaths. Negligible quality of life lost. Shut down of critical facilities for less than 24 hours.		1
Limited	Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure). Injuries and illnesses do not result in permanent disability and there are no deaths. Moderate quality of life lost. Shut down of critical facilities for more than 1 day and less than 1 week.		2
Critical	Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructures). Injuries or illnesses result in permanent disability and at least one death. Shut down of critical facilities for more than 1 week and less than 1 month.		3
Catastrophic	Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). Injuries or illnesses result in permanent disability and multiple deaths. Shut down of critical facilities for more than 1 month.		4

Summary of Climate Hazard Identification and Prioritization

Hazard	Probability (45%)	Magnitude/Severity (30%)	Warning Time (15%)	Duration (10%)	Weighted Score	Risk Level
Climate Change	4	3	3	4	3.55	High
Earthquake	3	4	4	4	3.55	High
Severe Weather	4	3	2	3	3.30	High
Flooding + Sea Level Rise	4	3	2	2	3.20	High
Hazardous Material Release	4	2	4	1	3.10	High
Drought	4	2	1	4	2.95	Moderate
Extreme Heat	3	2	2	3	2.55	Moderate
Tsunami	2	3	4	1	2.50	Moderate
Terrorism	2	3	4	1	2.50	Moderate
Wildfire	1	1	3	1	1.30	Low

Risk Level	Severe	High	Moderate	Low
Rank Score	4	3-3.9	2-2.9	1-1.9

5.3: Climate Action/Adaptation Plan: City of Long Beach, Proposed Climate Action and Adaptation Plan (November 2020)



The City of Long Beach proposed Climate Action and Adaptation Plan (CAAP) includes an assessment of the City's climate vulnerabilities and objectives and strategies, titled "actions," to reduce city-wide GHG emissions and adapt and increase resilience to climate risks, such as sea level rise, flooding, extreme heat, poor air quality, and drought. Each climate action and adaptation "action" description includes a list of implementation actions, co-benefits, and an equity strategy.

These components comply with SB 379 under Option 2, which requires an existing CAP/CAAP to include (i) a vulnerability assessment, (ii) a set of adaptation and resilience goals, policies, and objectives, and (iii) set of feasible implementation measures. The City Council confirmed the plan in January 2021 and it is anticipated to be adopted by Fall 2021.

Shown to the right is a sample of Sea Level Rise and Flooding adaptation objectives and actions from the "Adaptation Actions" chapter of the proposed CAAP.

Visit the *City of Long Beach: Climate Action And Adaptation Plan (CAAP)* website to view the complete proposed CAAP.

Sea Level Rise and Flooding Adaptation Objectives and Actions

FLD Sea Level Rise + Flooding

Goal: Long Beach understands and is prepared for its future flood risk

OBJECTIVES	NO.	ACTIONS
Short-Term Actions (to 2020) City plans and policies are forward-looking and ensure projects and investments account for projected sea level and flooding impacts	FLD-1	Update and augment floodplain regulations as necessary
	FLD-2	Incorporate sea level rise language into citywide plans, policies, and regulations
	FLD-3	Establish a flood impacts monitoring program
	FLD-4	Incorporate adaptation into City lease negotiations
	FLD-5	Update the City's existing Stormwater Management Plan
Clear and sufficient information is on hand to identify and prioritize near-term adaptation needs and best practices	FLD-6	Conduct citywide beach stabilization study
	FLD-7	Review and conduct studies of combined riverine/coastal flooding and increased severity of rainfall events on watershed flooding
Adaptation strategies are implemented to protect vulnerable shoreline areas and wastewater infrastructure	FLD-8	Enhance dunes
	FLD-9	Inventory and flood-proof vulnerable sewer pump stations
Medium-Term Actions (2020-2050) Vulnerable infrastructure is elevated or relocated	FLD-10	Relocate/elevate critical infrastructure
	FLD-11	Elevate riverine levees
Long-Term Actions (2050-2100) Long term physical adaptation strategies are selected and implemented based on additional research and community adaptation priorities and prioritize natural solutions whenever possible.	FLD-12	Expand beach nourishment
	FLD-13	Construct living shoreline/berms
	FLD-14	Elevate street hardscapes
	FLD-15	Elevate streets/pathways
	FLD-16	Retrofit/extend sea wall
	FLD-17	Retrofit/widen parking lots
	FLD-18	Extend/upgrade existing seawalls
	FLD-19	Investigate feasibility of managed retreat
FLD-20	Evaluate feasibility of storm surge barrier at Alamitos Bay	
Additional long-term adaptation options are evaluated using the best available science.		

FLD-1 Update and Augment Floodplain Regulations as Necessary

Update and augment floodplain regulations as necessary to limit, elevate, or provide floodproofing standards for development in areas designated as vulnerable to flooding in order to minimize physical damage to development.

Implementation Lead: Planning and Building
Partners: Federal Emergency Management Agency (FEMA); California Coastal Commission
Timeline: Short
Potential Cost Level: Low

Description
 The City will update and augment, as necessary, floodplain regulations that address the fact that sea level rise will increase the height of floodwaters and the inland extent of floodplains in Long Beach. Regulations will include new base flood elevation requirements informed by current science. Future updates to the ordinance will be informed by the latest projections and local impact monitoring. Longer-term updates may consider managed retreat if projections and observed local impacts warrant it. Regulations will include incentives for building owners to invest in resiliency improvements by either meeting or exceeding flood-resistant construction standards, even when they are not required by FEMA or a City building code.

Floodplain regulations will encourage building owners living and/or working in the floodplain to design or retrofit buildings to reduce damage from existing and future floods and potentially reduce long-term flood insurance costs. Overall, implementation of the action would improve the ability of the city's flood-prone neighborhoods to withstand and recover quickly from coastal flooding.

The Local Coastal Program will also be amended as needed.

Equity Strategy
 Evaluate risk and design assistance programs for building or retrofitting to a higher flood protection standard, with an emphasis on areas with social vulnerability to climate change, as defined by the Long Beach Vulnerability Assessment and other relevant information.

Co-benefits:

- ✓ Coordinated regulations with energy building retrofit improvements
- ✓ Reduced flood insurance rates, potentially of 5 to 45 percent

Implementing Actions

FLD-1.1: Update Chapter 18.40 (Building Code) of the Long Beach Municipal Code and/or create new regulations, if necessary, to respond to future sea level rise conditions, referencing FEMA standards and other relevant guidelines as appropriate.

FLD-1.2: Develop minimum design standards to be considered for long-term flood protection, based on CAAP flooding maps and the most up-to-date projections as they become available.

FLD-1.3: Ensure other building code regulations (e.g., setbacks, building heights) are consistent with the updated standards developed for the Floodplain Ordinance.

FLD-1.4: Pursue FEMA grant program opportunities for adapting public facilities to flood impacts and other resiliency investments.

FLD-1.5: Educate the public about resources available to individual property owners seeking to elevate and flood-proof their properties, including FEMA grant programs and potential insurance premium benefits.

FLD-1.6: Design flood protection assistance programs for low-income communities affected by flooding impacts, as feasible.

5.4: Other Approaches: San Bernardino County Transportation Authority/Western Riverside Council of Governments, Resilient IE (February 2020)

Shown to the right are samples of adaptation and resilience strategies from the *San Bernardino County Resilience Strategy (2019)* and *Western Riverside Adaptation and Resiliency Strategy (2019)* – two resources part of the joint San Bernardino County Transportation Authority (SBCTA)/Western Riverside Council of Governments (WRCOG) *Resilient IE* project.

Resilient IE works to support regional and local efforts to prepare for and mitigate risks associated with climate adaptation on the region's transportation infrastructure. While the adaptation and resilience strategies within *Resilient IE* were developed following vulnerability assessments and findings unique to SBCTA and WRCOG jurisdictions, the strategies and policies can provide a template for climate adaptation, resiliency, and hazard planning strategies for SB 379 compliance.

Visit the Western Riverside Council of Governments Resilient IE website to access the *Resilient IE Toolkit* containing adaptation and resilience strategies and analyses that cities can use to meet SB 379 requirements.

Adaptation and Resilience Strategies

ADAPTATION STRATEGY SUMMARY TABLES

Implementation of the following strategies promotes regional resilience in San Bernardino County.

Strategy #	San Bernardino Strategy	Priority Sector
1.1	Identify funding programs and other support services For Local Agencies to Pursue that help provide resources for economically disadvantaged communities to adapt.	Disadvantaged Communities
1.2	Encourage local agencies to identify and map cooling centers in locations accessible to vulnerable populations and established standardized temperature triggers for when they will be opened.	Disadvantaged Communities
1.3	Identify ways for individuals with restricted mobility to reach cooling centers.	Disadvantaged Communities
1.4	Encourage and coordinate emergency and cooling centers to establish backup power and water resources in case of power outages and emergencies.	Disadvantaged Communities

WRCOG

WRCOG should implement the following strategies to increase subregional resilience.

	WRCOG Strategy	Key Issue
1.2	Incorporate extreme heat and air quality annexes into emergency operations plans.	Planning and Emergency Response Framework
1.3	Establish resiliency hub locations in communities throughout the WRCOG subregion.	Planning and Emergency Response Framework
1.4	Collaborate with jurisdictions in the WRCOG subregion to protect existing critical facilities from extreme heat, flooding, landslides, severe weather, and wildfire.	Planning and Emergency Response Framework
1.5	Increase hazard monitoring to facilitate rapid response and recovery.	Planning and Emergency Response Framework

LOCAL GOVERNMENTS

Local governments should implement the following strategies to increase local and subregional resilience.

	Local Government Strategy	Key Issue
1.1	Integrate climate change adaptation considerations into general plans, Local Hazard Mitigation Plans, emergency operations plans, and other public safety documents.	Planning and Emergency Response Frameworks
1.2	Incorporate extreme heat and air quality annexes into emergency operations plans.	Planning and Emergency Response Frameworks
1.3	Establish resiliency hub locations in communities throughout the WRCOG subregion.	Planning and Emergency Response Frameworks
1.4	Collaborate with jurisdictions in the WRCOG subregion to protect existing critical facilities from extreme heat, flooding, landslides, severe weather, and wildfire.	Planning and Emergency Response Frameworks
1.5	Increase hazard monitoring to facilitate rapid response and recovery.	Planning and Emergency Response Frameworks

5.5: Vulnerability Assessment: City of Rancho Palos Verdes, Vulnerability Assessment (September 2019)



In September 2019, the South Bay Cities Council of Governments on behalf of the City of Rancho Palos Verdes completed a vulnerability assessment on the potential impacts of climate change on critical facilities and residents' well-being.

The vulnerability assessment followed state guidelines from OPR and the California APG framework to develop climate projects for the City based on the Cal-Adapt tool, obtain information on the types of structures and populations exposed/sensitive to climate hazards, and consult maps identifying areas with high risks. Part 1 of the vulnerability assessment outlines the climate projections for the City, broken out by climate hazard. Part 2 offers a risk assessment for both physical vulnerabilities (e.g., flood and sea level rise) as well as social vulnerabilities (e.g., people with disabilities and children).

Shown to the right are examples of maps from the City's risk assessment, showing the exposure of critical facilities to flood risk (top) and the percentage of people with disabilities – who are disproportionately affected by climate hazards – by census tract in the City.

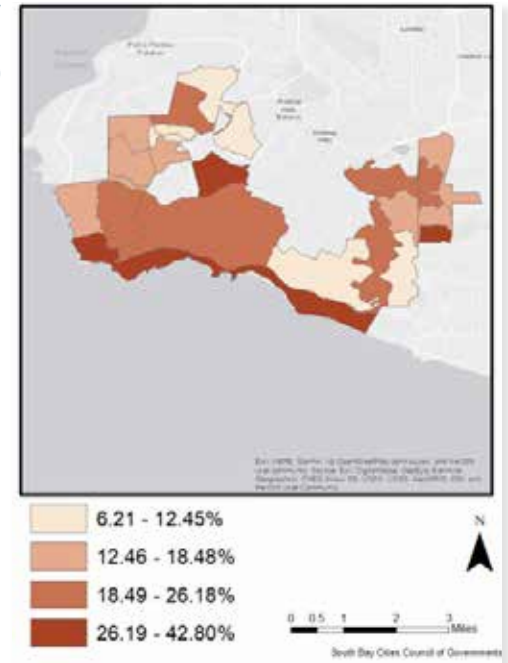
The vulnerability assessment is just one piece of complying with SB 379 but will lay the foundation for developing the required strategies and implementing actions.

Visit the City of Rancho Palos Verdes' website to access their vulnerability assessment as well as updated safety element.

Analysis of Critical Facilities Vulnerable to Flooding



Analysis of Social Vulnerability (percentage of population with disability)



5.6: Vulnerability Assessment: County of Ventura, Vulnerability Assessment (December 2018)



In December 2018, the County of Ventura published the *Ventura County (VC) Resilient Coastal Adaptation Vulnerability Assessment* report to evaluate the variety of resources and infrastructure in the unincorporated coastal areas of the county and associated risks of future damage due to coastal hazards.

The vulnerability assessment consisted of both a spatial analysis on the intersection of various coastal hazard types, as well as a social vulnerability assessment to study the economic impacts to populations, infrastructure, and ecological goods and services along the County coast. The findings from the economic analysis shows the estimated the value of damage to property, key infrastructure, and the potential losses of spending and tax revenue due to impacts to the County's beaches and beach parks.

Shown to the right is the map analysis of coastal erosion along the Ventura County coast, one of the coastal hazards reviewed, as well as the results of the economic analysis.

Visit the County of Ventura website for more information on the County's Vulnerability Assessment and 2040 Ventura County General Plan which incorporates findings from the assessment.5.7: SB 1000 Environmental Justice Element: City of Port Hueneme, Proposed 2045 General Plan Social Equity Chapter (April 2021)

Analysis of Coastal Erosion Hazards



Economic Analysis of Coastal Erosion Hazards

Item	Cost/Value	Cost Basis	Source
LUSTs – not exposed	\$125,000	Per tank	EPA
LUSTs – exposed	\$1,500,000	Per tank	EPA
2005 Goleta flood costs	\$500,000	Goleta	City of Goleta
1998 Goleta flood costs in 2015 dollars	\$4-5,000,000	1998 flood adjusted	City of Goleta
Capping Oil well on land	\$100,000	Per well	City of Goleta
Capping Oil Well – in water	\$800,000	Per well	City of Goleta
Oil spill costs	\$257,000,000	Total cost	LA Times
Trails	\$170	Per linear foot	Ellwood Trails Project
Road Replacement	\$280	Per linear foot	Nichols Consulting Engineers
Manhole Cover Retrofits	\$150	Per manhole	GSW
Wastewater Lift Station	\$150,000	Per lift	GSW
Property Tax Parcel	Updated using HPI	Sale Price	County Assessor
Buildings/ Structures	Size of building	\$/sq. ft.	FEMA
Flood Damage to Buildings	Current Market Value	Depth damage curve	USACE
Above Ground Power Lines	\$10	Per linear foot	SCE
Below Ground Power Lines	\$30	Per linear foot	SCE

5.7: SB 1000 Environmental Justice Element: City of Port Hueneme, Proposed 2045 General Plan Social Equity Chapter (April 2021)



In April 2021, the City of Port Hueneme released a Notice of Preparation for a comprehensive update of all elements of the existing Port Hueneme General Plan, as well the inclusion of a Social Equity and Climate Action Plan (CAP) as new elements under the General Plan. The Social Equity component of the plan will meet SB 1000 requirements such as identification of disadvantaged communities within the City and engagement with communities to promote equitable access to environmental benefits.

In conjunction with the General Plan update, the CAP will include development of a community-wide greenhouse gas (GHG) inventory, GHG reduction targets, and GHG mitigation strategies to also achieve SB 379 compliance.

The City of Port Hueneme provides one example of SB 1000 compliance triggered by updates to two or more general plan elements, as noted under Section 4.2.

Shown to the right are findings from the *Port Hueneme General Plan Background Report: Social Equity* which include data on the City's CalEnviroScreen environmental indicator scores and preparation schedule for the General Plan update.

Visit the City of Port Hueneme website for more information on the City's General Plan update.

CalEnviroScreen Scores and Indicators

Table 12-2 Port Hueneme CalEnviroScreen Overall Scores

Census Tract	Overall Score	Overall Score Percentile Range	Pollution Burden Percentile	Population Characteristics Percentile
6111004200	25	50-55%	45	49
6111004304	29	55-60%	37	66
6111004305	16	25-30%	77	13
6111004400	36	70-75%	84	52

Source: OEHHA 2018

Table 12-3 CalEnviroScreen Scores for Exposure Indicators

Census Tract	Percentiles						
	Drone	PM 2.5	Diesel PM	Pesticide Use	Traffic	Drinking Water Contaminants	Toxic Release
6111004200	40	41	75	0	13	65	66
6111004304	40	41	34	70	17	65	47
6111004305	40	41	68	61	20	70	61
6111004400	40	41	87	0	11	65	99

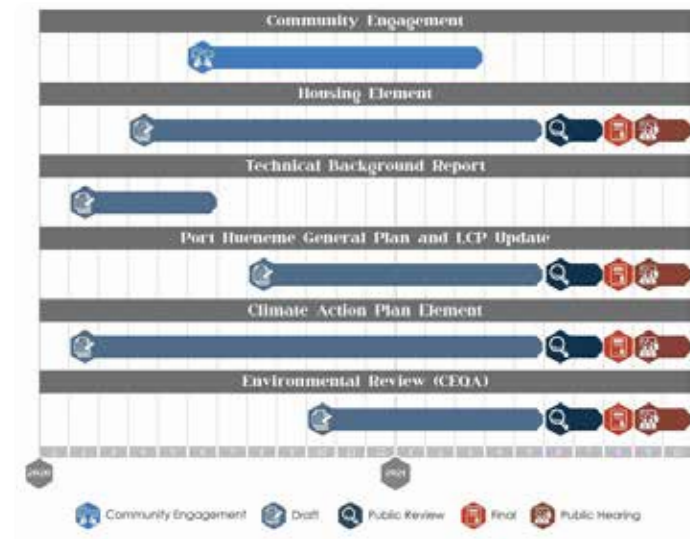
Source: OEHHA 2018

Table 12-4 CalEnviroScreen Scores for Environmental Effect Indicators

Census Tract	Percentile				
	Solid Waste Sites	Cleanup Sites	Groundwater Threats	Impacted Water Bodies	Hazards Waste
6111004200	0	75	89	0	9
6111004304	20	0	84	0	0
6111004305	0	92	99	41	26
6111004400	39	87	99	49	66

Source: OEHHA 2018

General Plan Update Schedule



SOUTHERN CALIFORNIA
CLIMATE ADAPTATION FRAMEWORK
**SB 379 COMPLIANCE CURRICULUM
FOR LOCAL JURISDICTIONS**

JUNE 2021



MAIN OFFICE

900 Wilshire Blvd., Ste. 1700,
Los Angeles, CA 90017
Tel: (213) 236-1800

REGIONAL OFFICES

IMPERIAL COUNTY

1503 North Imperial Ave., Ste. 104
El Centro, CA 92243
Tel: (213) 236-1967

ORANGE COUNTY

OCTA Building
600 South Main St., Ste. 741
Orange, CA 92868
Tel: (213) 236-1997

RIVERSIDE COUNTY

3403 10th St., Ste. 805
Riverside, CA 92501
Tel: (951) 784-1513

SAN BERNARDINO COUNTY

1170 West 3rd St., Ste. 140
San Bernardino, CA 92410
Tel: (213) 236-1925

VENTURA COUNTY

4001 Mission Oaks Blvd., Ste. L
Camarillo, CA 93012
Tel: (213) 236-1960

visit us at scag.ca.gov