

Coastal Resilience Compass: A Plan Alignment Guide





California Governor's Office of Planning
and Research

Acknowledgment

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This guide is part of the Climate Resilience Plan Alignment Toolkit on the Adaptation Clearinghouse. The Toolkit and Guide are developed by the Integrated Climate Adaptation and Resiliency Program (ICARP) at the Governor's Office of Planning and Research (OPR).

Learn more at ResilientCA.org/plan-alignment.

If viewing the printed version of this guide, visit ResilientCA.org/plan-alignment/guidelinks to reference the website links within.



Summary

The *Coastal Resilience Compass* is a planning guide that helps communities collaborate to adapt to coastal hazards in the face of climate change. The *Coastal Compass* is part of a toolkit that staff of the Governor’s Office of Planning and Research (OPR) created. The toolkit is designed to assist state and local government agencies, tribes and tribal-serving organizations, community members and non-profits, regional entities, and others coordinate their resilience planning.

The original *Coastal Compass*, which OPR staff and partners released in 2018, helped planners along the California coast align their planning efforts to address climate change and manage future risks. This 2023 edition builds upon the original guide with new ideas for alignment and providing updated information on state planning requirements.

The guide emphasizes the importance of coordination between different planning initiatives, or **plan alignment**, for achieving climate change resilience. It offers ideas and best practices for effective alignment, along with tips for overcoming challenges that may arise during the process. You can find these principles in the “Big Ideas” and “Best Practices” sections and apply them no matter where you live to address a variety of climate change impacts. The 2023 edition also introduces **adaptation pathways**, or phased adaptation planning. The section “Adaptation Pathways and Plan Alignment” describes how this approach can address the unique planning and coordination challenges coastal hazards present.

In “The Plans” section, readers can explore and compare different types of plans local governments commonly use in coastal regions of California. The guide suggests ways each plan in the section could align with other plans and integrate adaptation pathways. The guide also includes links to additional resources and examples. The appendices provide community engagement ideas and resources.

To explore the online version of this guide, other plan alignment guides, case studies from communities across California, and an interactive decision-support tool, visit the Climate Resilience Plan Alignment Toolkit at resilientca.org/plan-alignment.

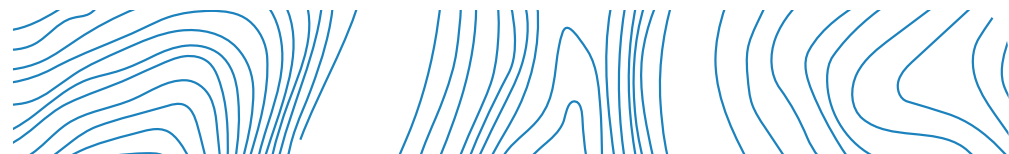
Because communities throughout California are varied and have different needs, the recommendations in this guide are designed for a wide spectrum of uses and applications. This document is meant to be a resource for the public to use at their discretion; it does not alter or direct public agency discretion or decision making in preparing planning documents. This document should not be construed as legal advice, and the Governor’s Office of Planning and Research will not enforce or attempt to enforce any part of the recommendations contained herein. (Gov. Code, § 65035.)

Plans Discussed in this Guide:

- *Local Coastal Programs (LCPs)*
- *Local Hazard Mitigation Plans (LHMPs)*
- *General plans, with a specific focus on safety and Housing Elements*
- *Climate adaptation plans*
- *Implementation plans*

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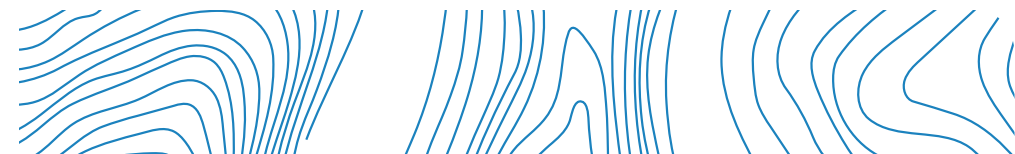
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Intro

Climate change is impacting the communities, economies, and environments of California.

Unified, inclusive, and strategic planning builds resilience to climate impacts. Plan alignment and integration help protect communities from the threat of climate change such as sea level rise, flooding, wildfire, increasing temperatures and extreme heat, drought, and compounding impacts such as flood-after-fire events.

What is Plan Alignment?

Plan alignment is based on collaboration. The **process of plan alignment** leverages connections, information, and resources to build shared language, data foundations, and processes across multiple planning efforts at any scale. The resulting **plan alignment products** are:

- *A suite of plans (with different scopes and purposes) that share the same data, similar underlying assumptions, aligned visions, and complementary goals, strategies, and actions.*
- *A shared understanding, process, and structure for multiple entities in a community or region to continue to collaborate and align efforts over the long term.*

Plan alignment helps communities integrate planning teams, data, and processes to achieve more holistic and effective solutions, and better outcomes for everyone.



Why Plan Alignment for Climate Resilience?

Climate change does not stop at jurisdictional boundaries and continues to impact all aspects of our communities, economies, and environment. **An adaptive response requires a fundamental change in the way that communities plan and evolve over time: a response that utilizes future climate scenarios to guide planning decisions and builds a shared vision of resilience for all through collaboration, equity, and alignment.**

Comprehensive and coordinated planning can pay great dividends and enable communities to integrate holistic climate change considerations and resilience strategies across government decision-making processes and other efforts throughout a community or region. Most importantly, the intended outcome of plan alignment is that communities and regions are more consistent and in a better position to mitigate the impacts of climate change. Other benefits include reduced duplication of effort, lowered potential for policy conflicts, streamlined public outreach, pooled financial resources, and increased eligibility for implementation funding.

“Rising sea level pays no attention to which jurisdictions are being flooded, who owns or manages the assets flooded, who is impacted, what departments need to be involved, or what authorities are responsible for solutions. The broad reaching impacts of climate change requires interdisciplinary, creative and collaborative approaches to solutions...We cannot solve climate change in one plan, process or project.”

– Adaptation Roadmap, San Francisco Bay Conservation and Development Commission



How Can Plan Alignment Build Resilience to Coastal Hazards?

Coastal communities already experience sea level rise impacts, including rising tides, shoreline erosion, and landslides; changes to beaches, waves, and sediment; saltwater intrusion, shallow groundwater rise, and subsidence; and shoreline and riverine flooding. Climate change exacerbates the impacts of storms (which are projected to worsen and occur more frequently) and other hazards, such as tsunamis. While sea level rise is a certainty, models and projections have historically produced a wide range of projections for how much and how quickly sea levels will rise. Updated science and improved models can narrow the range of uncertainty, and sea level rise varies depending on local geography, but in all areas of the coast, it poses significant risks. While many shoreline communities, ports, and harbors are on the frontlines of these impacts, inland communities may also experience impacts to wastewater treatment plants, commuter routes, power, and other systems (See: [Sea Level Rise Policy Guidance](#)).

Some communities, particularly frontline communities, are disproportionately vulnerable to these risks. A history of colonization and racism in California has led to social, economic, and environmental disparities that harm these communities' ability to adapt – including access to resources for basic needs, ability to evacuate, language barriers, and distrust of government and authority figures, especially in times of crises. Potential impacts to landfills and toxic sites or facilities pose risks to water quality and may compound other ongoing environmental justice

issues. Climate migration, or forced migration due to environmental hazards resulting from climate change, is a growing concern and also disproportionately impacts marginalized communities.

To address these challenges, baseline science, goals, policies, and actions need to be established across public plans and processes, spanning all sectors, communities, and levels of government. Aligned planning informed by future climate scenarios can promote greater awareness of climate impacts, inform stronger solutions, and decrease coastal risk both now and long into the future.

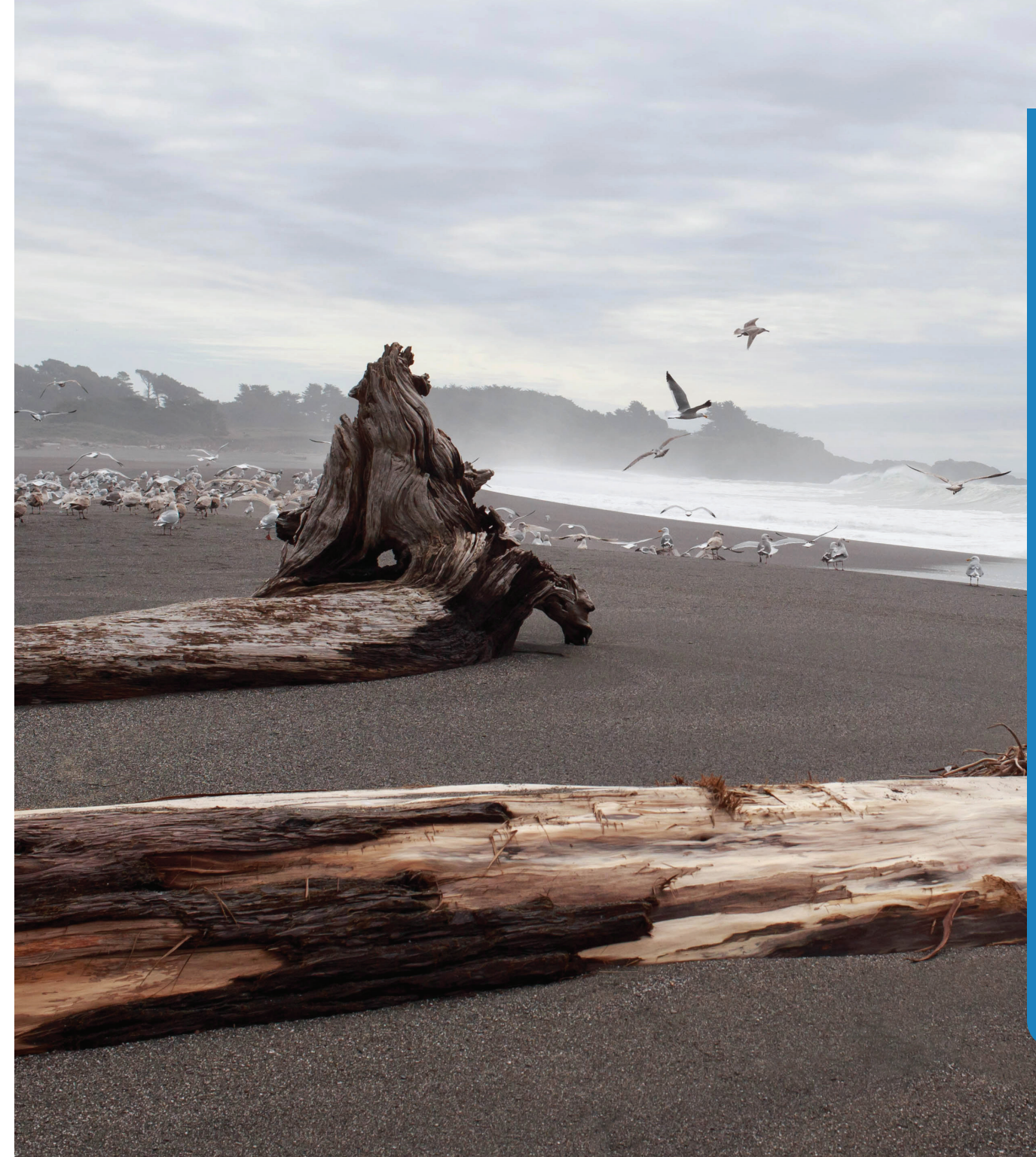
Local plans, and the process of planning itself, play a vital role in building climate resilience. Furthermore, while the primary focus of this guide is coastal hazards, it is critical that communities prioritize a multi-hazard planning approach to adapt to climate change. The following sections provide introductory information to get started on aligned planning. This information is applicable and important to addressing any natural hazard that climate change impacts. For guides that address other specific hazards, explore the Climate Resilience Plan Alignment Toolkit at resilientca.org/plan-alignment. For additional information on sea level rise, coastal hazards, other climate impacts, and solutions, see the [California Climate Adaptation Strategy](#), [State Hazard Mitigation Plan](#), and [State Agency sea level Rise Action Plan for California](#). Additional state guidance documents critical to local coastal resilience planning are included throughout this guide.

 **Look for this symbol as you go along to distinguish coastal resilience-specific information from information applicable to all types of hazards.**

Big Ideas

Where do I begin? That's a reasonable question that will be answered differently for each community. The following “**Big Ideas**” are guiding principles that describe what it means to align planning efforts, outline implementation tips for making it happen, and emphasize strategies for integrating climate resilience throughout the process. These are designed to be universally applicable for any community or region, at any planning stage. Keeping these in mind as both a starting point and as a central consideration throughout the planning process will set communities up for success regardless of where they begin their plan alignment journey.

↪ *This is a troubleshooting tip. These offer guidance and insights into managing challenges that may arise during the plan alignment process.*



Build & Leverage an Alignment Team

▶ **Local agency champions are needed—become a champion of integrated planning!**

Dedicate a plan alignment captain with strong facilitation skills to coordinate and become knowledgeable about all applicable plans, and to lead collaborations with other planning sectors and jurisdictions.

↪ *Each community's approach to defining local agency champions will be unique. For example, many larger cities have identified Chief Resilience Officers to lead efforts, and some moderate sized cities have broadened sustainability directors' responsibilities to incorporate these topics more fully. Smaller jurisdictions may choose to designate a planning and community development director or leverage other existing positions for this role. For cities with capacity, committing staff resources to an "alignment captain" could reduce effort and maintain staff capacity and knowledge in the long run. Additionally, an alignment captain with strong facilitation skills and experience coordinating with diverse entities, communities, and sectors can help ensure the success of alignment efforts.*

▶ **Develop a standing "alignment team" of diverse representatives from various planning efforts.** Meet regularly to maintain commitment, consistent coordination, and ongoing effort. This helps to build an understanding of each plan, overcome sector silos, gain buy-in from multiple agencies, and transfer knowledge.

↪ *"Alignment team" membership and size will be unique to each community and its goals. Consider incorporating the planning teams and lead departments responsible for the plans and processes ongoing in your community, and key community members or authorities that play a central role in community visioning, planning, and implementation. Objectives of this team include consolidating, aligning, and, when possible, standardizing planning requirements, metrics, funding, goals, and timelines.*

↪ *Consider developing a written formal agreement, such as a charter or Memorandum of Understanding (MoU), across the entities joining the team. This agreement will not only demonstrate commitment and clarify partner roles, but also ensure the support of departmental senior leadership and better allow team members to prioritize the work.*

↪ *Host discussions and set appropriate expectations about time commitment, including how often meetings will occur and how much work will occur between meetings. Adjust timelines to meet these expectations and capacity limitations.*

▶ **Make connections and build relationships with other local departments/divisions.**

Fostering this coordination early in the process allows departments to better identify opportunities for greater synthesis, such as co-designing projects, joining together to apply for funding, aligning budgets, and utilizing the same consultants.

↪ *Collaboration and engagement structures will look different for each community. Consider whether additional working groups or advisory groups may be useful to support multiple planning processes, such as forming or leveraging a regional network, technical/science advisory committee or a community advisory committee. Each group may serve a unique purpose and operate at different timelines and scales in relation to each planning process.*

↪ *Maintaining alignment between departments, plans, and processes can be challenging when institutional knowledge and trusted relationships are lost to staffing changes over time. To address the challenges of staff turnover, consider developing staff continuity and transition strategies to maintain staff knowledge and capacity, such as requiring a transition memo from exiting staff to facilitate transition of knowledge to new staff and to maintain relationships between departments.*

Integrate & Align Public Engagement

- ▶ **Engage creatively and thoughtfully to identify consistent community goals and objectives.** Think of new ways to engage diverse entities, especially from underserved areas. Consider developing a strategic community engagement plan during the early stages of the alignment process, with multiple engagement points throughout the planning process. Meet at places that are meaningful and accessible to those who live, work, and play in the community. If possible, compensate participants for their time and expertise, and provide accessibility, childcare, and translation services/materials. Always ask, “Who is missing? Who should be involved?” (Learn more about [Equitable Community Engagement](#)).
- ↪ *To obtain buy-in across all sectors of government and the community, tell unified stories about the community and climate change, tailor engagement to each unique audience, and invite the public to weigh in on how they can help develop and implement goals both early and throughout the process. Geographic context is important in determining entities and identifying the right messaging. (Learn more about Entity Mapping and Engagement in Appendix A).*
- ↪ *Avoid underfunding the collaboration and facilitation pieces. Budget adequate resources and staff time, and if needed, adequate training for integrated facilitation, coordination, and community engagement activities early on – including adequate financial resources to support community members’ participation, such as stipends or consulting agreements.*
- ▶ **Leverage the engagement opportunities of other departments and planning efforts to streamline public input and priorities across numerous planning initiatives.** Attend other relevant planning-related events for cross-pollination and network building and develop a communications and engagement strategy that accounts for existing public input mechanisms.
- ↪ *Lack of communication and coordination between disparate planning efforts and entity fatigue from too many outreach efforts can significantly bog down the process. Aligning and consolidating disparate community engagement efforts across departments can save resources, help mitigate entity fatigue, and lead to better engagement outcomes over time.*

Prioritize & Advance Equity & Environmental Justice

- ▶ **Climate equity and environmental justice** should always be considered and reflected in the planning process. While some communities are better positioned to adapt to climate risks, others are disproportionately impacted by systemic socioeconomic and environmental inequities in addition to climate impacts. Key components of creating an equitable, climate-resilient community include identifying **vulnerable communities**, building **community adaptive capacity**, equitable **community engagement**, and prioritizing **procedural, distributional, and structural equity throughout** planning and implementation processes. (Learn More About [Climate Equity](#)).
- ↪ *Senate Bill (SB) 1000 (Gov. Code, § 65302(h)) requires that all cities and counties with disadvantaged communities develop an environmental justice element or equivalent for their general plan. OPR’s guidance for the [Environmental Justice Element](#) in the General Plan Guidelines outlines guidance for developing goals, policies, and programs that address the unique and compounded health risks in disadvantaged communities and prioritize improvements and programs that meet the needs of disadvantaged communities. Local agencies can include environmental justice and equity-focused goals, policies, and programs in other plans to align with environmental justice elements in general plans. OPR also encourages communities to incorporate environmental justice and equity into their plans even when SB 1000 may not apply to a general plan in a specific community.*
- ▶ **Leverage the planning process and resources to build social and physical capacity across the community.** If outside expertise or technical assistance is needed to complete one or more plans, consider how to leverage this assistance to build long-term community capabilities to adapt, especially in disproportionately vulnerable communities.

Local Plans & State Regulations

Visual summary of relationships between common local resilience planning documents in California and key resilience planning regulations.

Note: this graphic reflects both plan relationships reflected in statute, such as relationships between Local Hazard Mitigation Plans and General Plan Safety Elements, as well as plan relationships that are topically relevant, but not legally related, such as relationships between Community Wildfire Protection Plans and General Plan Safety Elements. The Figure does not show all possible connections between plans, and is subject to change as new statutes come into effect.

For additional details and the most up-to-date information on local planning requirements, reference the following corresponding statutes:

AB 2140 (2006) (Gov. Code §§ 65302.6 and 8685.9);

SB 379 (2015) and SB 1035 (2018) (Gov. Code, §§ 65302, subd. (g)(4) and (g)(6));

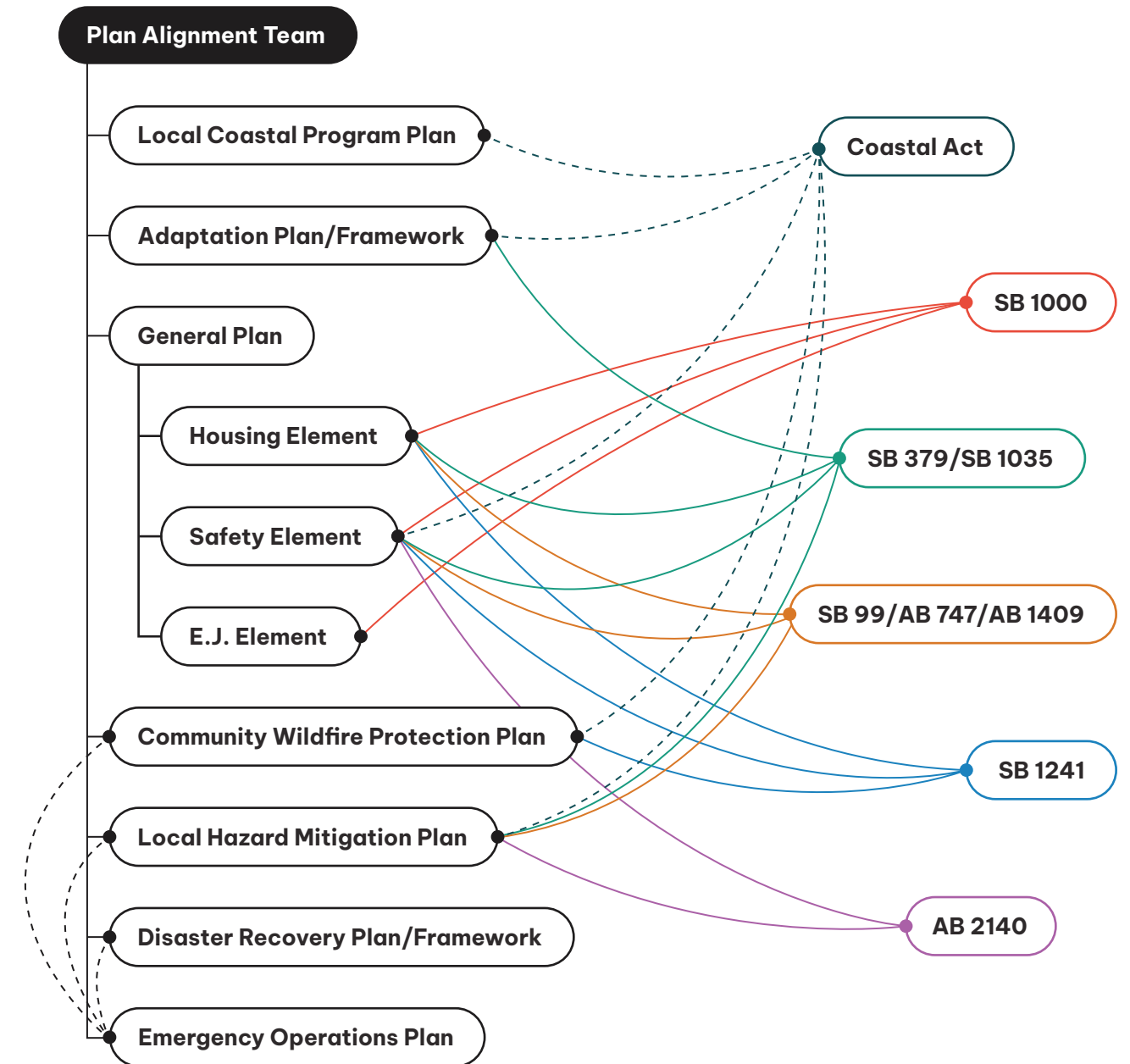
SB 1241 (2012) (Gov. Code, §§ 65302 and 65302.5);

SB 1000 (2016) (Gov. Code, § 65302, subd. (h));

SB 99 (2019) (Gov. Code, § 65302, subd. (g)(5));

AB 747 (2019) and AB 1409 (2021) (Gov. Code, § 65302.15);

California Coastal Act (Pub. Resources Code, § 30000 et seq.)



Build Relationships & Explore Opportunities to Support Alignment

- ▶ **Develop an overarching adaptation vision and a robust multi-hazard vulnerability and risk assessment to guide climate resilience plan alignment efforts.** A climate adaptation vision can exist as a standalone plan or series of agreed upon adaptation priorities, goals, and objectives, or be housed within another planning document. Both this vision and components used to develop it, such as cross-sector advisory groups, vulnerability assessments, and strategies or actions at multiple planning horizons, can be leveraged to support other plan updates.

↪ *Interventions for one climate risk may exacerbate or interfere with responses to other climate risks. To avoid this scenario, a comprehensive adaptation strategy or framework can help ensure that specific interventions support the entire framework.*

- ▶ **Collaborate regionally and across jurisdictional boundaries.** Climate change impacts are not bound by jurisdictional lines and regional coordination helps identify climate change risks that may originate outside of a plan's jurisdictional coverage. Collaborative regional solutions, including shared resources and integrated management, can expedite comprehensive risk mitigation actions.

↪ *Leverage existing regional bodies and collaborative efforts like Metropolitan Planning Organizations, Councils of Governments, non-profit networks, multi-sector networks, or regional climate collaboratives.*

- ▶ **Identify funding sources** that support the alignment of multiple plans. For example, the California Governor's Office of Emergency Services (Cal OES) and Federal Emergency Management Agency (FEMA) hazard mitigation planning funds can support the development of a climate vulnerability assessment for a local hazard mitigation plan (LHMP), a related Safety Element update, disaster recovery and resilience planning, wildfire protection planning, and more. Long-term financing and funding opportunities will vary for each community. (Explore resources for [Investing in Adaptation](#)).

↪ *Leverage philanthropic relationships early in the process to help secure grants for planning and fill gaps left by insurance and federal/state recovery resources.*

Best Practices

While plan alignment ideally begins during the scoping phase of a planning process and continues throughout all stages, alignment can begin at any phase. This section provides examples of “**Best Practices**” and tips for avoiding tricky spots for whichever part of the planning process your community is in. It is also aligned with the four-phase approach in the [California Adaptation Planning Guide](#) and [General Plan Guidelines](#) to break the content into manageable steps.

Every community will vary in the approach and sequencing of their planning process; as such, the following phased approach is not meant to be prescriptive, but rather offer a menu of ideas that agencies can select at their discretion for implementing and sequencing plan alignment concepts.



Phase 1: Explore, Define & Initiate

Participating in visioning and engagement activities, identifying goals and resources, and outlining a process builds a plan's foundation. Exploring, defining, and initiating one or more plans simultaneously can allow integration at the outset of each process, and the opportunity to streamline resources, staff, and efforts across involved departments and entities throughout the process.

For more on this phase:

- *General Plan Guidelines: [Vision & Engagement, Formulate Goals](#)*
 - *California Adaptation Planning Guide: [Phase 1: Explore, Define & Initiate](#)*
- ▶ **Develop a shared vision.** Engage entities and the broader community to identify what people most value about their community and what they want their community to become. How will the community be similar or different in the future? All planning initiatives should center this same community vision, goals, and objectives for adaptation and resilience.
- ▶ **Become familiar with planning processes and plan requirements,** both internal to a department/organization and those of other agencies and/or departments. Coordination and mutual learning at the onset may yield bigger returns later.
- ↪ *There are multiple state laws that require the integration of climate resilience in local planning documents, which are included in the Plans sections of this resource. Be sure to check relevant state and federal guidance documents and statutes early and often, as regulations often evolve over time.*
- ▶ **Treat the process as an outcome.** Developing thoughtful process goals to work towards plan alignment, equitable outcomes, and develop transparency can help jurisdictions focus not just on delivering plans, but also transform institutional norms that may be impeding community alignment, cooperation, equity, and resilience.



Summary of State Climate & Hazard Planning Regulations

Regulation	Purpose/Detail
<p>The Coastal Act (Pub. Resources Code, § 30000 et seq.)</p> <p>SB 1 (2021) (Gov. Code, §§ 30270, 30501, and 30421)</p>	<p>Among other things, the Coastal Act requires that new development minimize risk to life and property in areas of high hazards, and that new structures are built to be resilient and avoid adverse impacts to the area.</p> <p>SB 1 requires the Coastal Commission to account for sea level rise in coastal resource planning and management decisions. An LCP update or amendment presented to the Coastal Commission generally needs to address sea level rise.</p>
<p>SB 379 (2015) and SB 1035 (2018) (Gov. Code, §§ 65302, subd. (g)(4) and (g)(6))</p>	<p>Climate adaptation to be integrated into the Safety Element of the general plan.</p>
<p>SB 99 (2019), AB 747 (2019), and AB 1409 (2021) (Gov. Code, §§ 65302, subd. (g)(5) and 65302.15)</p>	<p>Evacuation route planning to be included in the safety element of the general plan.</p> <p>Information identifying residential developments in hazard areas that do not have at least two emergency evacuation routes to be identified in the safety element of the general plan. Update to be done upon the next revision of the housing element.</p>
<p>AB 2140 (2006) (Gov. Code, §§ 65302.6 and 8685.9)</p>	<p>Incorporate the LHMP by reference into the safety element of the general plan to be eligible to apply for state funding to cover the local match of FEMA Public Assistance costs for disaster recovery activities.</p>
<p>SB 1000 (2016) (Gov. Code, § 65302, subd. (h))</p>	<p>Environmental justice to be addressed in general plans as a standalone element or within an existing element if a community contains defined disadvantaged communities.</p>

**Using or updating plans with an asterisk are not required by regulation but may be leveraged to meet the requirement if certain conditions are met (see “The Plans” section of plan alignment guides).*

Plans Involved*	Guidance/Resources
<p>Local Coastal Program</p>	<p>Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise</p> <p>Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California’s Coastal Zone</p> <p>Local Coastal Program Planning Assistance</p> <p>State of California Sea level Rise Guidance</p>
<p>LHMP Safety Element Housing Element Climate Adaptation Plan*</p>	<p>2020 California Adaptation Planning Guide</p> <p>State of California Sea-Level Rise Guidance</p>
<p>Safety Element Housing Element Emergency Operations Plan* Local Hazard Mitigation Plan* Disaster Recovery Plan/Framework*</p>	<p>Evacuation Planning Technical Advisory</p>
<p>Local Hazard Mitigation Plan Safety Element</p>	<p>General Plan Guidelines, Chapter 4: Required Elements (page 142)</p>
<p>2 or more general plan elements</p>	<p>General Plan Guidelines</p>

► **Create an adaptable 5, 10, or 15+ year strategy for updating multiple plans/elements** over time and identify ways that portions of different planning processes can be used sequentially to support each other. Consider aligning the update timelines of different plans by adjusting the frequency of subsequent updates.

- ↪ *Timing for each plan or element’s development, updates, and approvals may differ significantly. Be aware of timeframes so that funding and staff resources for one plan can assist elsewhere as needed.*
- ↪ *Communities may face time-sensitive required updates to certain plans, such as the Housing Element of the General Plan or the 5-year timing of the LHMP update and may need to sequence other plan updates around this update. As a community develops its 10-year strategy, it may be helpful to plan around the time-sensitive plans and align timing of other plans to follow the plans with strict time-sensitive deadlines. Consider leveraging the next required update to develop components that can inform multiple plan updates, such as community engagement efforts or a comprehensive vulnerability and risk assessment. Upon each revision of the Housing Element or local hazard mitigation plan, but no less frequently than every 8 years.*



Aligning Update Timelines

Plan	Update Timeline
Local Coastal Program	Varies- no update requirements
Local Hazard Mitigation Plan	Update <u>every 5 years</u> to remain eligible for certain FEMA funding
General Plan	Varies - Many communities have adopted a <u>20-year time horizon</u>
General Plan Safety Element	No less frequently than every 8 years per Gov. Code, § <u>65302(g)(6)</u>
General Plan Housing Element	Every 4, 5, or 8 years* per Gov. Code, § <u>65588</u>
General Plan Environmental Justice Element	Varies - adopt or review upon next concurrent update of 2 or more general plan elements per Gov. Code, § <u>65302(h)(2)</u>
Climate Adaptation Plan	Varies - if used to meet climate adaptation planning requirements by reference in the Safety Element, no less frequently than every 8 years per Gov. Code, § <u>65302(g)(6)</u>
Disaster Recovery Plan	Varies - no update requirements

Phase 2: Assess Vulnerability

A vulnerability or risk assessment that incorporates climate change impacts is often based on the examination of current and historical conditions, emerging trends, and projections of future climate impacts. This process usually involves identifying populations and assets most vulnerable to hazards and associated impacts, evaluating the risks from each impact, and identifying priorities for effective strategy development. A comprehensive vulnerability assessment can serve as the foundation for aligning climate risk and vulnerability data across multiple plans.

For more on this phase:

- *General Plan Guidelines: [Collect & Analyze Data](#)*
- *California Adaptation Planning Guide: [Phase 2: Assess Vulnerability](#)*



- ▶ **Provide a foundation for developing strategies by conducting a comprehensive and detailed vulnerability or risk assessment that includes future climate projections, and which can be leveraged for multiple plans.**

↪ *Risk and vulnerability assessments vary in scope and level of detail. Determine which plan needs the most specificity and develop an assessment at that level so all plans can benefit. If this is not feasible, design the assessment so other components can be added as needed or as funding becomes available. Integrating vulnerability assessments is both good practice and cost-effective.*

- ▶ **Develop a comprehensive, locally relevant definition of vulnerable communities** with indicators applicable to the community from which all plans can draw from [See the OPR guide [Defining Vulnerable Communities in the Context of Climate Adaptation](#)].
- ▶ **Consider using multiple information sources** from across the community and beyond (if available) for a robust assessment of local hazards, including both quantitative and qualitative sources, such as community member experiences and indigenous and Traditional Ecological Knowledge (TEK).

↪ *Apathy created by “disaster amnesia” or the perception that “nothing ever happens here” when time passes without a significant hazard event can stall public participation. Vulnerability assessment findings conveyed in an accessible and approachable manner can increase awareness and understanding of risk.*

- ▶ **Examine risks at a regional scale beyond jurisdictional boundaries.** Flooding and wildfire events in neighboring jurisdictions, for example, could lead to downstream impacts in a jurisdiction, such as evacuation pressures, debris flows, and wildfire smoke; and environmental pollution from neighboring jurisdictions may contribute to a community’s overall vulnerability. Check neighboring jurisdictions’ plans and assessments and promote regional consistency by coordinating on the use of similar data parameters and measures.

Phase 3: Define an Adaptation Framework & Strategies

The vulnerability assessment created in Phase 2 can be utilized to refine a vision and any goals developed earlier in the process and identify policies, strategies, and actions unique to a community's vulnerabilities, strengths, and objectives. While the terminology, level of detail, and purpose of different plans may differ, this planning phase involves the opportunity to align strategy/action frameworks across multiple plans.

For more on this phase:

- *General Plan Guidelines: [Refine Goals, Alternatives Analysis, Plan Adoption](#)*
- *California Adaptation Planning Guide: [Phase 3: Define Adaptation Framework & Strategies](#)*
- ▶ **Integrate the same actions and risk reduction strategies in multiple plans.** For example, adaptation strategies from the General Plan or a stand-alone climate adaptation plan can also be used as mitigation actions in an LHMP. At a minimum, cross-reference plans.
 - ↻ *Ensure consistency among planning efforts, and, conversely, that no strategy, policy, or action in one plan contradicts another plan. Comparing plan goals both at the outset of the planning process and periodically throughout helps identify potential conflicts.*
 - ↻ *Plan components can inform other plans, but plan sections and entire plans may not be interchangeable due to differing requirements by approval agencies. For example, while parts of an LHMP and a General Plan's Safety Element might overlap, federal requirements for an LHMP differ from state requirements for the Safety Element. At the same time, incorporating other plans by reference into the general plan is permissible by law, and doing so can help to avoid duplication of detailed information or more specific hazard mitigation and climate adaptation strategies contained in other plans. Thus, local agencies should consider what degree of integration and mechanisms for doing so are appropriate.*

- ▶ **Reach out to scientists and academic institutions.** They are often eager to provide insights on how climate information is effectively used. Leverage other existing agency collaborations with academia.
- ▶ **Align with State plans and priorities.** State plans, such as the California [Climate Adaptation Strategy](#), [State Hazard Mitigation Plan](#), [State Fire Plan](#), [State Emergency Plan](#), and [Wildfire and Forest Resilience Action Plan](#) can provide insights into State priorities for funding, local plan approvals, implementation, and coordination; illuminate specific climate risks resulting from hazards particular to different regions; and identify specific state programs, such as technical assistance or grant programs, that can be leveraged to support local planning. [Explore [Adaptation Clearinghouse Topic Pages](#) for featured state plans and other resources].

Phase 4: Implement, Monitor, Evaluate & Adjust

Implementation can leverage the benefits of plan alignment by identifying and prioritizing actions, monitoring programs, evaluation mechanisms, and funding sources that support the goals and strategies of multiple plans. Continued collaboration with entities to identify implementation opportunities and resources can kick-start the process and ensure each strategy and action continues to be effective into the future.

For more on this phase:

- *General Plan Guidelines: [Implementation](#)*
- *California Adaptation Planning Guide: [Phase 4: Implement, Monitor, Evaluate & Adjust](#)*
- ▶ **Develop a timeframe for implementing each action aligned with existing and future funding opportunities.** Seek to identify which strategies can be implemented using existing operations and budgets, may require a specific-line-item request as part of the routine planning and budgeting cycle, may require more unique public financing methods

(e.g., special purpose assessments, impact fees, or tax increment financing), or can share funding sources with other local departments, neighboring jurisdictions, or regional entities. Developing a matrix or tracking mechanism that shows how actions and funding sources support multiple plans and goals can be a helpful tool to inform decision making, transparency, and outreach efforts.

↪ *Ensure that planning and implementation accounts for the useful life of critical infrastructure, not just design life.*

↪ *Funding cycles can affect when decision makers can begin funding and implementing an action. Capital improvement plans are an important tool for identifying both short and long-term financing opportunities for adaptation strategies identified in plans.*

▶ **Collaborate with stakeholders to identify implementation measures and funding sources**, including:

↪ *Other departments to identify funding sources that can be leveraged for multiple plan strategies and measures. For example, stormwater or floodplain management agencies may be able to fund green infrastructure projects, and transportation agencies may be able to support infrastructure projects.*

↪ *Public works departments to gain buy-in for ongoing/long-term operations and maintenance costs – without their support, capital projects may stall.*

↪ *The private sector, including local businesses and private landowners, are critical for achieving widespread implementation of community-wide measures – engage them early on to build relationships and support.*

↪ *Neighboring jurisdictions, including special districts and other agencies with overlapping political boundaries, to see if policy implementation can be coordinated and to avoid any issues arising from jurisdictional inconsistencies.*

↪ *The community to identify creative resources, solutions, and leadership.*

▶ **Develop community-driven, measurable outcomes across all plans to assess their effectiveness.** Develop a monitoring program to track progress, build community trust, and enhance transparency by identifying progress indicators and metrics for each action in partnership with the broader community. The program can identify when and why to monitor, why monitoring is being done, and who is responsible for the evaluation.

▶ **Adjust and modify.** Develop an adaptive process that allows for modification as opportunities to incorporate community knowledge, Indigenous and Traditional Ecological Knowledge, or scientific advancements arise.

↪ *Developing a review timeline for assessing progress can ensure accountability, create a vehicle for transparency, drive continued action, and allow for improvements based on lessons learned.*

↪ *Develop strong messaging to drive implementation forward and dedicate adequate resources for outreach and building public support. Leverage plan alignment successes by showcasing how actions implement the strategies and goals of multiple planning documents and community priorities. Some actions may require greater effort to gain political backing or public support to implement, particularly those that require local financial and/or administrative commitments, or those that generate opposition from competing interests. It is helpful in these cases to make a convincing and long-lasting case for implementation. For each proposed action, explain clearly and succinctly how well the action can meet additional standards or “selling points.” (Learn more about [strong messaging](#) for entities).*

↪ *Leverage existing and established venues for messaging, and when necessary, identify new venues to reach any audiences not engaged through established methods.*

Resources for Funding Adaptation

The California Adaptation Clearinghouse, the State’s virtual library of climate adaptation resources, features a number of resources to help practitioners navigate state and federal funding sources on the [Investing in Adaptation](#) topic page.

<https://resilientca.org/topics/investing-in-adaptation/>

Adaptation Pathways & Plan Alignment

There are many approaches to plan for uncertain futures in a changing climate, including assessing **risk tolerance**, undertaking **scenario planning**, and developing **adaptation pathways**. Each has benefits, challenges, and tradeoffs, and it is wise to consider a range of approaches and choose one or more that work well together and are most appropriate for the planning area. Risk tolerance and scenario planning are commonly used, but adaptation pathways is relatively new to hazard mitigation and climate adaptation planning. Although adaptation pathways represent an alternative to the traditional “predict-and-plan” method described in the [California Adaptation Planning Guide \(APG\)](#), much of the guidance provided in the APG also supports an [adaptation pathways](#) “monitor-then-act” approach. These approaches can, and often should, be combined to support more flexible planning.

What is Adaptation Pathways?


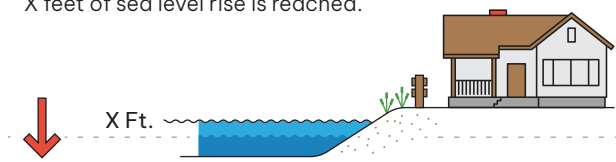
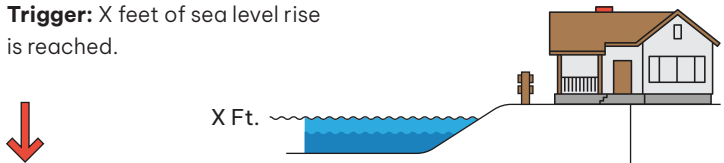



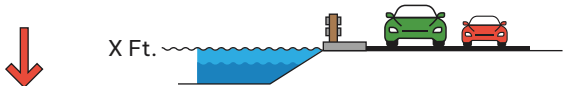


The California Ocean Protection Council (OPC) defines **adaptation pathways** as a planning approach that addresses the uncertainty and challenges of sea level rise and climate change decision-making (such as uncertainty in the regulatory, political, economic, environmental, and sociocultural conditions of the future). This approach, also called phased adaptation, enables consideration of multiple possible futures and more robust analysis of the benefits and downsides of adaptation solutions across those futures ([Adaptation Roadmap](#)).

Adaptation pathways planning facilitates flexible and incremental decision making and investment through discrete, staggered steps over time, early action on **low/no regrets** strategies, and opportunities for continuous review to change approaches as more information becomes available. Phased planning can keep future options open, help avoid a **maladaptive** scenario where a community is “locked in” to an undesirable outcome, and support precautionary approaches when appropriate (planning and building capacity for the higher end of the range of possible sea level rise – see [Critical Infrastructure at Risk](#)).



Timing Thresholds, Triggers, & Actions

Different combinations of thresholds, triggers, and actions can be used to time phases of adaptation action based on the context and needs of the community.

Phases:	Example 1: A trigger is used to indicate how close you are to a future threshold and indicates an action is needed.	Example 2: A trigger is used to indicate how close you are to a future threshold and indicates a decision between potential actions is needed.	Example 3: When a threshold is passed, it triggers a decision point or action.
<p>Short Term Lower Sea Levels</p> 	<p>Trigger: A metric indicating action is needed to avoid passing a critical threshold: X feet of sea level rise is reached.</p> 	<p>Trigger: X feet of sea level rise is reached.</p>  <p>“Proactive” Decision Point and Subsequent Action: Decision triggered in advance of crossing a critical threshold. Community evaluates multiple adaptation pathways options, such as restoring a shoreline marsh, moving the road inland, or building a green levy, and chooses the best fit.</p>	<p>Threshold Trigger: A threshold is passed with acceptable or no consequences, but signals action should be taken to avoid future harm: At x feet of sea level rise, a shoreline road floods 5 or more times a year.</p>
<p>Mid Term</p> 	<p>“Proactive” Action: Actions triggered well before a critical threshold is passed: Shoreline marshes are restored that can absorb future storm surge.</p> 	<p>“Critical” Threshold: At x feet of sea level rise, shoreline neighborhoods will be permanently flooded.</p> 	<p>“Reactive” Action or Decision Point: An action or decision is triggered in reaction to a threshold passing: Road and nearby infrastructure are relocated. Community decides to develop a managed retreat plan for nearby neighborhoods.</p> 
<p>Long Term Higher Sea Levels</p> 	<p>“Critical” Threshold: A threshold, also called a tipping point, that is highly undesirable to cross, after which adaptation is extremely difficult or no longer possible: At 2x feet of sea level rise, shoreline neighborhoods will be permanently flooded.</p> 		

Definitions

Scenario planning: a long-term planning approach in which planners consider a wide range of scenarios under diverse future conditions to inform decision-making.

Risk tolerance: In the context of climate planning, refers to the determination of the level of risk or uncertainty an entity is willing to accept.

Low/no regrets principle: suggests that actions taken would still have value even if future conditions are different from those projected.

Thresholds/Triggers: Used (sometimes interchangeably) to identify one or more measurable values or events representing future changes in conditions. These often reflect critical nodes or decision points where future pathways have flexibility to change. For examples of different ways triggers and thresholds are used, see the graphic “Timing Thresholds, Triggers, and Actions.”

Lead time: the time required to implement a change.

Maladaptation: adaptation choices that do more damage than the hazard itself.

Adapted from the Adaptation Planning Guide, Governor’s Office of Emergency Services and Adaptation Roadmap, San Francisco Bay Conservation and Development Commission

Getting Started

The APG recommends a four-step process for beginning adaptation pathways:

1. Determine the effect being addressed and specifically define a desired outcome or objective.
2. Identify the potential adaptation strategies to address the effect and meet the objective.
3. Evaluate and organize strategies.

4. Assess the compatibility of potential strategies.

For additional details on these steps, explore the [APG Adaptation Pathways chapter](#).

Key Aspects of Adaptation Pathways Planning

For specific examples in practice, see the [Adaptation Roadmap](#).

- ▶ **Start with low/no-regrets, “low hanging fruit” actions.** These are actions you can quickly implement them in the near-term while leaving future options open, and they are often actions with strong benefits and few costs no matter what happens next.
- ▶ **Link near-term adaptation actions with pre-determined threshold events or conditions.** A threshold triggers actions, planning, or decisions, and reflects a community’s vision, risk tolerance, local conditions, and best available information.
- ▶ **Implement a robust, well-resourced monitoring program to track thresholds.** Monitoring changes in the environment and impacts to communities and infrastructure ensures timely decision-making. It is vital to identify and monitor suitable metrics, to facilitate timely and appropriate action when approaching a threshold.
- ▶ **Use adaptation pathways as a communications tool to encourage sustained community dialogue around tough adaptation decisions over time.** The incremental and step-wise nature of adaptation pathways can show community members why and when it works best to employ certain strategies. Discussing adaptation pathways can create a space for collaborative, community-driven decision-making and foster broader community support and benefits.

Note: there are many variations in the ways various communities define thresholds, triggers, and other key terms. For example, the concept of “thresholds” is often used in ecological contexts to mean a critical tipping point, after which conditions may drastically or irreversibly change. These terms should be researched and explicitly defined locally to ensure a common and clear understanding when using adaptation pathways.

Considering Time vs. Risk

Another key element of phased adaptation pathways is balancing time-based planning with actual and expected risk (i.e., the potential timing and severity of anticipated impacts) and how specific actions will accrue short- and long-term benefits. This involves intentionally separating short-, mid-, and long-term adaptation strategies for consideration, and phasing how they are developed and implemented over time.

- ▶ **Solutions implemented in the near term should at minimum avoid compromising future solutions that would address longer term risks, and ideally generate both near- and long-term benefits.** For example, if atmospheric rivers pose present-day and near-term risks, adaptations to these should be prioritized, but balanced with consideration for longer term impacts such as rising shorelines and severe flooding.
- ▶ **Some types of actions ought to be taken as soon as possible to address long-term risk.** For example, projects to develop regional infrastructure may take decades before they begin reducing flood risk, but the long-term benefits may be immense.
- ▶ **Pathways in each phase should respond to a range of risk scenarios and balance time horizon-based actions with observed changes.** While some actions are by necessity time-based, such as incorporating climate risk into a Housing Element 5- or 8-year update, others need to be nimble: If sea levels rise faster than planned, or new information requires a change in approach, these strategies should not be tied to a specific time horizon, to allow flexibility to address updated scenarios. Close monitoring for thresholds can facilitate timely decisions and opportunities to re-evaluate, update, and re-prioritize pathways, and will help solutions be more responsive to real conditions and new information.

Case Study

The City of Santa Barbara developed a [Sea Level Rise Adaptation Plan](#) as part of the city's efforts to update its Local Coastal Program, with funds from the Coastal Commission. The Plan builds on adaptation priorities the City identified in its Coastal Land Use Plan, Safety Element, and Hazard Mitigation Plan. The Adaptation Plan uses a phased approach, presenting a range of adaptation options to consider over time, and provides a framework for the City to monitor sea level rise impacts and reduce vulnerabilities as it reaches specific thresholds for action. The Plan also summarizes the economic and fiscal impacts of future coastal hazard conditions, and potential near-term actions in additional detail, including both immediate next steps and high priority actions that are critical to initiate in the next five years.

Integrating Adaptation Pathways into Multiple Plans

The form and detail of adaptation pathways will vary depending on the scope and time horizon of each plan, program and project. BCDC advises in the [Adaptation Roadmap](#) that “The use of adaptation pathways differs depending on the scale... At larger scales, more emphasis can be placed on broad conceptual ideas about the short and long-term options. The smaller the scale, the more detailed the approach can be, including specific actions and strategies.”

Look for adaptation pathways call-out boxes throughout this guide for tips and ideas for how this approach can be integrated across multiple plans and processes, while balancing varied regulatory contexts and diverse community priorities. The guidance related to adaptation pathways is informed by recommendations from the California Coastal Commission, Ocean Protection Council, San Francisco Bay Conservation and Development Commission, Governor's Office of Emergency Services, and Governor's Office of Planning and Research. These tips complement the broader planning and coastal hazard resilience plan alignment information contained throughout, which are informed by a variety of federal, state, and local agencies, and other partners who contributed to this guide.

The Plans

Sections in **“The Plans”** describe key information, requirements, guidance, and best practices for the most common plans used for coastal hazards and climate resilience planning. Each plan has a section that identifies alignment opportunities with other plans. Some plans are required for cities and counties in California, while others are optional but can be useful for driving climate resilience and hazard mitigation goals forward. These plans can also be useful for entities such as tribes, special districts, and others looking to plan for present and future climate risks and can open pathways to funding and project opportunities that can serve multiple community needs.



Coastal Alignment Tips for All Plans

These tips are applicable across all types of plans. For plan-specific information, see the sections below. See the Implementation Tips section for additional ideas and resources.

Embracing an All-Hazards Approach

Aim to holistically assess and address all applicable hazards on the coast, whether or not climate change exacerbates them. Additionally, while sea level rise and other coastal hazards such as tsunamis and coastal storms pose unique and significant challenges, other hazards such as wildfires, extreme heat, and drought also pose significant challenges along the coast. While not all plans should address all hazards, an all-hazards framework is always helpful for managing the timing and tradeoffs in how different hazards are addressed. Determine the right balance according to the unique conditions, best available information, socioeconomic circumstances, and goals of the community. Ideally, this includes coordinating and aligning data choices, risk assessments, monitoring, and strategies when appropriate.

Look for this symbol as you go along to distinguish coastal resilience-specific information from information applicable to all hazards.

Selecting Sea Level Rise Projections

Consider a range of sea level rise projections when evaluating potential risks, as opposed to looking at only one low or high sea level rise scenario. In general, it is useful to consider sea level rise risks over the lifetime of proposed projects and to understand the risks associated with best through worst case scenarios. Different types of developments or coastal resources will have different risk tolerance levels, so assessing a range of projections can provide a more holistic understanding for multiple different community needs and goals. Consider also incorporating monitoring strategies and measures that are consistent with other plans to track the progression of sea levels over time. (See the [State of California sea level Rise Guidance](#) for tips on selecting sea level rise projections).

Information Alignment

Consider aligning the following information across all plans, and with other jurisdictions in your region (adapted from the [Adaptation Roadmap](#)):

- ▶ **Maps of areas at risk to coastal hazards/flooding.**
- ▶ **The conceptual framing underpinning decisions on scenarios, projections, and parameters.**
- ▶ **Adaptation pathways, impacts and thresholds, triggers, and lead times.**
- ▶ **Sea level rise projections, modeling, and flooding scenarios, including:**
 - *Underlying flood models (e.g. CoSmoS, ART, etc.)*
 - *Range of water levels used to represent temporary or permanent flooding, and groundwater levels*
 - *Time horizons (e.g., 2030, 2050, 2100)*
 - *Storm surge (e.g., 100-year flood)*
 - *Metrics (e.g., inches, feet, meters, etc.)*
- ▶ **Time estimates and horizons for plans, phases, climate impacts, action initiation, decision points, and expected benefits over time from actions taken; also, defining what is meant by short, mid, or long term, and the lifespans of critical infrastructure, development, and habitats.**

Sharing and Aligning Data Regionally

The impacts of coastal hazards and adaptation decisions can affect areas outside of any individual jurisdiction or community. Consider coordinating hazard and vulnerability information and developing a shared vocabulary with neighboring jurisdictions to avoid future

conflicts when developing and implementing solutions. For example, comparing shoreline inundation maps and other flood risk information, and developing aligned solutions, can be challenging if different underlying flood models or metrics were used, or if “short term” means “within 5 years” for one city but “within 30 years” for another. The box **Information Alignment** covers information useful to consider aligning with other jurisdictions.

Avoiding Maladaptation with Nature-Based Solutions

i Natural or nature-based solutions should be prioritized wherever feasible, particularly in areas that could be flooded or eroded from tidal or fluvial processes in coastal areas. Nature-based solutions to climate change include approaches that work with and enhance nature to adapt to climate risks and/or contribute to carbon neutrality. Nature-based solutions also provide the opportunity to avoid maladaptation (see Adaptation Pathways section): a maladaptive example might be constructing grey infrastructure in a hazard-prone area that can “lock-in” vulnerabilities and asset exposure, which could be difficult and costly to change and provide a false sense of security ([Sixth Assessment Report Technical Summary](#)).

Sea Level Rise and Public Trust Lands

i As sea level rise moves the high-water mark along shorelines more inland, areas currently located on upland property may become tidelands and submerged lands subject to the [Public Trust Doctrine](#). Lands subject to the Public Trust Doctrine – whether owned by the State or privately – are deemed held in trust for the people of the State.

Adaptation planning needs to account for the protections and limitations that the Public Trust Doctrine imposes when applicable. For example, adaptation strategies proposed to impact sovereign land may require authorization from the State Lands Commission or the appropriate legislative grantee in addition to approval from the Coastal Commission or the San Francisco Bay Conservation and Development Commission (BCDC). (For more guidance on how to address potential encroachment on Public Trust Lands, reference [Critical Infrastructure at Risk](#) and the [Public Trust Guiding Principles and Action Plan](#)).



Local Coastal Programs

Local Coastal Programs (LCPs) implement the requirements of the California Coastal Act by addressing land use, new development, public access and recreation, and the protection and enhancement of coast and ocean resources in the coastal zone (see Pub. Resources Code, §§ 30108.6, 30200 et. seq.). The Coastal Act requires the 61 cities and 15 counties in the coastal zone to develop LCPs to implement the safe development and resource protection policies of the Coastal Act.

An LCP includes a local government's zoning ordinances, zoning district maps, implementing actions within sensitive coastal resources areas, and land use plans that collectively meet these requirements, which must be reviewed and approved by the California Coastal Commission (Pub. Resources Code, §§ 30108.6, 30512). The coastal zone is defined in section 30103, subdivision (a), as a strip along the California coast generally "extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea." LCPs contain the ground rules for future development and protection of coastal resources through the local coastal permitting process, and specify appropriate locations, types, and scale of new or changed uses of land and water. (see Pub. Resources Code, §§ 30108.6, 30108.5, 30600). On tidelands, submerged lands, public trust lands, and where no certified LCP exists, the Coastal Commission retains this role and issues development permits. (Pub. Resources Code, §§ 30519, 30601).

Lead

- ▶ City or county planning department.

Required Consultation, Review & Approval

- ▶ **Consultation:** N/A

▶ **Review:** California Coastal Commission

▶ **Approval:** California Coastal Commission

Key State Contacts

District Offices: coastal.ca.gov/contact/#/

Statewide planning and guidance questions: statewideplanning@coastal.ca.gov


Applicable Statutes and Rules


 [California Coastal Act](#) (Pub. Resources Code, § 30000 et seq.)


 [Federal Coastal Zone Management Act](#)


 [Public Trust Doctrine](#)


Required Components

 CA Senate Bill (SB) 1 (2021) (Pub. Resources Code, §§ 30001.5, 30270, 30421, 30501, 30970–30973) updated the Coastal Act to require the Coastal Commission to adopt recommendations and guidelines for the identification, assessment, minimization, and mitigation of sea level rise within each local coastal program. The bill requires the Coastal Commission to account for sea level rise in coastal resource planning and management decisions. Currently there exists no requirement that formerly approved LCPs must be updated to address sea level rise; however, an LCP update or amendment presented to the Coastal Commission should address sea level rise to be consistent with the Coastal Commission guidelines.

 CA Assembly Bill (AB) 2616 (2016) (Pub. Resources Code, §§ 30013, 30107.3, 30301, subd. (f), 30604, subd. (h)) authorizes local jurisdictions and the Commission to consider environmental justice when reviewing a coastal development permit.

 The Coastal Act (Pub. Resources Code, § 30006 et seq.) asserts that the public has a right to fully participate in decisions impacting coastal planning, conservation, and development; that effective coastal development and conservation is contingent upon public understanding and support; and that the ongoing planning and implementation of programs for coastal resilience should include the most inclusive opportunity for public participation.

 The Coastal Act requires that new development minimize risk to life and property in areas of high hazards, and that new structures are built to be resilient and avoid adverse impacts to the area (Pub. Resources Code, § 30253). It also prohibits development that inhibits the public's right of access to the coast (Pub. Resources Code, § 30211).

 SB 9 (2021) (Gov. Code, §§ 65852.21, 66411.7) streamlines the process for homeowners to create duplexes or subdivide an existing lot. The new housing law contains provisions applicable to development subject to the Coastal Act which state that within the coastal zone, certified LCP provisions continue to take effect in full force, while also complying to SB9 to the greatest extent possible. (Gov. Code, § 65852.21, subd. (k)).

Guidance


 [Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise](#)

 [Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone](#)

 [Local Coastal Program Planning Assistance](#)

 [State of California Sea level Rise Guidance](#)

Best Practices

 LCP updates should address sea level rise consistent with California Coastal Commission guidance. Updates should include a balance of general policies to implement statewide policy recommendations (e.g., using best available science, risk disclosures) and more specific

policies that address unique local issues, vulnerabilities, and goals. Depending on available information, it may be appropriate to include general sea level rise policies in a first update, and to add additional, more specific adaptation strategies in a follow-up update.

- While historically LCPs have been updated only every 20–30 years or on a case-by-case basis, as climate change impacts continue it is increasingly important for LCPs to be more responsive to changing conditions. Consider planning for more frequent, smaller updates to LCPs and incorporating a phased adaptation pathways approach (see the box below, “Adaptation Pathways in the Local Coastal Program,” for ideas and tips on this approach).

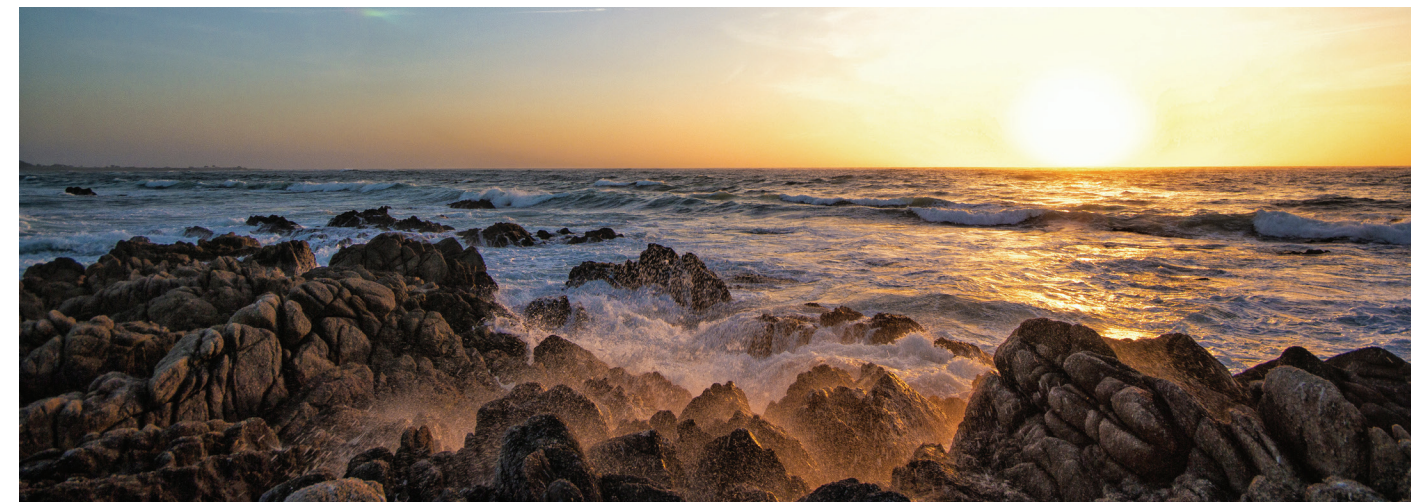
Case Study

Los Angeles County’s 2018 LCP Land Use Plan, the Santa Monica Mountains Land Use Plan, showcases regional collaboration when planning for sea level rise through LCP planning. During the planning process the County established an interagency technical advisory committee to facilitate collaboration and guide the plan’s development. The plan prioritizes collaborative management to balance natural resource preservation and human activity by encouraging interagency communication between the County and National Park service, the CA Department of Parks and Recreation, and other land conservation and recreational agencies.

- Coastal Development Permits (CDPs) are a critical mechanism for implementing sea level rise and other climate resilience management measures and adaptation strategies through individual development decisions. The Coastal Commission provides a step wise process for addressing sea level rise in CDPs in the [Sea Level Rise Policy Guidance](#). CDPs must be consistent with an approved LCP (or the Coastal Act where no LCP exists), so inconsistencies between the general plan and LCP/Coastal Act would result in challenges approving a project. Communities may avoid these problems by reviewing all general plan amendments affecting the coastal zone for consistency with their LCP land use plan ([General Plan Guidelines](#)).

- An LCP Public Works Plan (Pub. Resources Code, § [30605](#)) is a potential alternative to individual project-by-project CDP reviews, as no CDP is required for projects described within it (instead the Coastal Commission will determine if the proposed project is consistent with the Public Works Plan). When planned in collaboration with local and regional partners, it can be useful for planning large-scale, regional public works projects, and are effective and efficient tools for implementing phased sea level rise adaptation projects in an entire corridor, system, or network of critical infrastructure across multiple jurisdictional boundaries ([Critical Infrastructure at Risk](#)).

- A Community Economic Development Strategy (CEDS) can incorporate information from LCP updates, local hazard mitigation plans (LHMPs), and other plans that evaluate the consequences of sea level rise damaging critical infrastructure and coastal access areas and disrupting public services necessary for economic resilience. In addition to direct costs associated with responses, sea level rise could impact local economic drivers such as access to recreation areas along the shoreline. Incorporating this information as part of the CEDS Strengths, Weaknesses, Opportunities, Threads (SWOT) analysis and action plan can help a community plan to diversify coastal economies and help businesses dependent on coastal resources adapt.



Adaptation Pathways In The Local Coastal Program:

- ▶ **When updating an LCP, consider phased, trigger-based adaptation solution pathways to help balance short-, mid-, and long-term community priorities**, in addition to using scenario-based planning and a precautionary approach for hazard evaluation and adaptation planning. This can reduce up-front costs, build in more planning time for bigger investments with longer lead times, and help manage uncertainties surrounding the rate and total rise in sea levels long term. Phased adaptation pathways are ideally regularly revisited and updated.
- ▶ **Prioritize alignment between long-term land use and infrastructure planning and more near- to mid-term actions**, such as phasing out and relocating new development and infrastructure out of hazardous areas and/or identifying nature-based adaptation options that can help protect both development and habitat in the near- to mid-term. The Coastal Commission advises that an adaptation pathways or phased adaptation approach “can be incorporated into LCPs by including policies that support or specifically define near-term phases of adaptation in the coastal zone as well as policies that more generally describe future adaptation phases and the need for periodic LCP updates to implement them over time.”

- ▶ **Use LCPs to define policy direction, allowed land uses, and other legal requirements for implementing adaptation pathways over the next 20-40 years within the coastal zone and complement other jurisdiction-wide planning efforts.** Because of the specific and shoreline-focused requirements of LCPs, LCP land use plans, implementation plans, or public works plans may be less appropriate as an all-encompassing adaptation framework, except for those smaller jurisdictions whose boundaries fall entirely within the coastal zone. Where detailed adaptation planning has been completed, the LCP may identify specific and detailed adaptation pathway thresholds and triggers that tie near-term actions to mid-term decision points and actions. Public works plans or other specific area plans may define specific near- or mid-term strategies and actions that are responsive to specific thresholds identified in the LCP, or detail even more specific measures, triggers, or thresholds regarding pathways in specific areas or projects in the coastal zone.

For additional guidance on incorporating a phased approach in LCPs, reference the [Sea Level Rise Policy Guidance](#) and [Critical Infrastructure at Risk](#) guidance documents.

Tips and Requirements for the Vulnerability Assessment

- ❏ A vulnerability assessment is not specifically required for updating an LCP but can be critical for helping jurisdictions understand the risks of sea level rise and therefore the types of adaptation approaches that will be necessary in the future. To make the most use of a vulnerability assessment for LCP planning purposes, consider impacts to all coastal resources (access, recreation, habitat, coastal development, maritime, etc.) over various time scales.
- ❏ An LCP sea level rise vulnerability assessment can be informed by the LHMP risk and vulnerability assessment and general plan flood risk information and other existing local and regional sources, and can also leverage information used to meet general plan vulnerability assessment requirements.

Alignment Opportunities

- ❏ When updating LHMP mitigation actions, ensure they are consistent with LCP policies (e.g., elevation requirements versus building height limits; shoreline armoring proposals versus armoring restrictions). Including sea level rise hazard avoidance strategies from an LCP certification or update, such as relocation of critical facilities, as mitigation actions in the Mitigation Strategy section of a LHMP can make them eligible for FEMA Hazard Mitigation Assistance (HMA) grant funding.
 - *This information can also be added as an addendum/annex to the LHMP, if the LHMP was recently updated. Formal Cal OES and FEMA approval is not required for amendments made to the LHMP after the initial adoption and approval. However, the jurisdiction does need to provide an updated copy to Cal OES and ensure any mitigation projects they are seeking HMA funding for are aligned with the LHMP.*
- ❏ When updating an LCP or general plan, jurisdictions have an opportunity to integrate and align sea level rise and hazard mitigation policies with other long-term community development and land use planning goals. If a portion of a jurisdiction is in the coastal zone, that area is regulated by the Coastal Act (Pub. Resources Code, § 30000 et seq.) and LCPs. Jurisdictions in the

coastal zone should coordinate closely with the California Coastal Commission to assure that general plan provisions intended to apply in the coastal zone are consistent with the governing LCP and Coastal Act.

Case Study

In 2022, [the City of Imperial Beach developed a Local Coastal Program Land Use Plan that also serves as the city's general plan. Each element contains a section dedicated to highlighting alignment with the Coastal Act and lists specific sections and policies of the Coastal Act relevant to each element. The plan includes unique elements specific to Imperial Beach, including a Conservation and Ecotourism element, and a Parks, Recreation, and Coastal Access element.](#)

- ❏ While developing or updating an LCP to incorporate sea level rise adaptation strategies, link to flood hazard and natural infrastructure actions in the local hazard mitigation plan and general plan.
- ❏ LCPs tend to require more specificity than general plans; when updating either plan, use the opportunity to check for, and align, inconsistent land use policies. For example, the LCP land use plan must be "...sufficiently detailed to indicate the kinds, location, and intensity of land uses, the applicable resource protection and development policies, and where necessary, a listing of implementing actions" (Pub. Resources Code, § 30108.5). To meet the requirements of the Coastal Act, applicable zoning must not only conform with the LCP land use plan and general plan, but be **adequate to carry out** the LCP land use plan (Pub. Resources Code, § 30513). For additional details on how LCP and general plan requirements differ, refer to the California Coastal Act section in Chapter 9 of the [General Plan Guidelines](#).
- ❏ LCPs can guide future updates and alignment of local and regional water system plans. When updating an LCP, jurisdictions can coordinate with regional partners on adaptation of vulnerable components of water collection and/or treatment infrastructure and can develop related adaptation policies in accordance with Integrated Regional Water Plans, stormwater management plans and other plans, as well as relevant state water policies. For water infrastructure that crosses jurisdictional boundaries, coordination between local

governments, utility managers, California Native American tribes, and state and federal agencies with jurisdiction over, or interests in the service network, is critical ([Critical Infrastructure at Risk](#)).

I Because there is no set format for LCPs, jurisdictions have great flexibility and discretion in choosing the plan format and alignment with general plans. Example formats include:

- *Adopt one or more separate coastal elements within their general plans.*
- *Incorporate coastal plan policies, plan proposals, and standards directly into the general plan's land use, open-space, and conservation elements and submit those general plan elements as the LCP for certification.*
- *Adopt a specific plan within the coastal zone.*

However, maintaining the LCP as a separate element of the general plan may result in a clearer understanding of the LCP requirements and fewer issues on appeals. General plan amendments necessary to preparing a certified LCP do not count toward the annual limit of four general plan amendments (Gov. Code, § 65358, subds. (b), (d)(3)).

I Coordinate land use planning documents (e.g., LCPs, Local Hazard Mitigation Plans, General Plans, Public Works Plans, Capital Improvement Plans, Tribal Resiliency Plans) and local and regional transportation and mobility plans, including Caltrans District Corridor Plans, so that they provide a cohesive approach to sea level rise adaptation and ensure consistency with the Coastal Act. General plan circulation elements are sometimes certified as part of a local government's LCP, and are required to be consistent with the land use element, applicable regional transportation plan, and applicable regional sustainable communities strategy ([Critical Infrastructure at Risk](#)).

I Where transportation infrastructure functions as part of emergency evacuation routes, local governments should coordinate with transportation asset managers and emergency response planners to ensure consistency between LCPs, LHMPs, emergency operations plans, transportation and mobility plans, and general plan evacuation planning requirements (Gov. Code, §§ 65302 and 65302.15). This could involve developing contingency plans and alternative routes to utilize when infrastructure is inoperable due to coastal flooding

and/or erosion.

I While LCPs are not required to include housing policies or programs, local governments are responsible for protecting and providing affordable housing stock in the coastal zone. However, potential conflicts may arise between general plan Housing Element policy and LCP sea level rise adaptation strategies (for example, policies for avoiding new construction, or moving existing housing, in high-risk areas). This can be avoided by aligning Housing Element zoning, density policy, and other measures with LCP sea level rise policies and general plan Safety Element information regarding flooding and climate adaptation. If conflicts do arise, the Coastal Act takes precedence within the Coastal Zone.

I Local governments may also consider submitting LCP land use plans with provisions that protect and encourage affordable housing consistent with general plan Housing Element requirements and Chapter 3 policies of the Coastal Act, as the Coastal Commission is required to encourage housing opportunities for persons of low and moderate income (Pub. Resources Code, § 30604, subd. (f)).

Alignment Team and Community Engagement

- ▶ Consider carefully whether your alignment (planning) team or advisory groups should include any of the entities from each of the entity types listed in **Appendix A** as applicable to your jurisdiction, and how and when to engage different entities to achieve the most equitable and accurate results.

Local Hazard Mitigation Plans

Plan Overview

- This plan identifies potential risks that may arise from local natural hazards and vulnerabilities, and long-term strategies for protecting people, property, and the environment. Local Hazard Mitigation Plans (LHMPs) are not required by the State or Federal government, but states, tribes, and local jurisdictions must have a Federal Emergency Management Agency (FEMA)-approved hazard mitigation plan to be eligible for certain non-disaster funding, including grant opportunities under FEMA's Hazard Mitigation Assistance (HMA) program. LHMPs can be conducted as multi-jurisdictional (usually countywide) plans (MJHMPs). MJHMPs must include both countywide and jurisdiction-specific information for each participating jurisdiction within the county, and must be adopted by each of the participating jurisdictions.

Lead

- ▶ **Varies:** typically involves city or county emergency services, fire department/district, or planning/community development department. Any office/agency designated by the local jurisdiction may lead.

Required Consultation, Review & Approval

- ▶ **Consultation:** N/A
- ▶ **Review:** Cal OES (Cities and Counties and special districts)
- ▶ **Approval:** FEMA

Key State Contacts

State Hazard Mitigation Officer: [fema.gov/grants/mitigation/state-contacts](https://www.fema.gov/grants/mitigation/state-contacts)

LHMP questions: mitigationplanning@caloes.ca.gov

Funding questions: HMA@caloes.ca.gov

Applicable Statutes & Rules

- ▶ *Stafford Act: Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. §§ 5121–5208)*
- ▶ *Code of Federal Regulations (CFR) Title 44, Sections 201.6 and 206*
- ▶ *Federal Disaster Mitigation Act of 2000 (amended the Stafford Act)*
- ▶ *Gov. Code, §§ 65302.6 and 8685.9*

Guidance

- ▶ *Local Mitigation Planning Policy Guide*
- ▶ *Local Mitigation Planning Handbook*
- ▶ *Local Hazard Mitigation Plans and CEQA Review Technical Advisory*

Required Components

- ▶ The Stafford Act and FEMA Regulations at CFR Title 44, Section 201.6 specify requirements for LHMPs (See the [Local Mitigation Planning Policy Guide](#) for FEMA’s interpretation of these statutes and minimum requirements).
- ▶ The LHMP must be updated every five years to continue FEMA funding eligibility, and communities must identify a schedule for reviewing the plan and incorporating updates in between five-year updates. (44 C.F.R. § 201.6 (c)(4).)
- ▶ Required LHMP components with opportunities for alignment with other plans include:
 - *Documentation of the plan preparation and process*
 - *Natural hazard risk and vulnerability assessments*
 - *Mitigation strategies with prioritized projects*
 - *Community outreach and engagement*
 - *Incorporation of existing plans, studies, and reports*
 - *An assessment of the community’s existing mitigation capabilities*
 - *A plan maintenance and updating process*
 - *Revisions that reflect changes in local development*

Best Practices

- ▶ When developing and prioritizing mitigation strategies and measures, include climate adaptation strategies and actions that complement other hazard mitigation strategies. The mitigation strategy section can consider all coastal hazards impacting the community. For example, coastal flood strategies can be designed to mitigate sea level rise as well as severe storm flooding and tsunamis. Mitigation could also include installation of tide gauges or other data collection measures to monitor sea level rise long term.

“While climate adaptation efforts may be undertaken separately or in addition to the all-hazards mitigation planning process, hazard mitigation and climate adaptation are complementary efforts that have the same goal: long-term risk reduction for people and increased safety for communities...As natural disasters cross geographic boundaries and increase in frequency and intensity, the need to support intersecting plans is greater than ever.”

–Local Mitigation Planning Policy Guide (2022),
Federal Emergency Management Agency



Case Study

The City and County of San Francisco developed a [Hazards and Climate Resilience Plan in 2020](#) that serves as a combined LHMP and adaptation plan for the jurisdiction, and serves as the implementation roadmap for the hazard mitigation and climate adaptation policies of the General Plan [Safety & Resilience Element](#). The strategy section covers short-, mid-, and long-term strategies, but provides deeper detail for near-term strategies the City aims to make progress on over the plan’s 5-year period. Appendix H of the plan also lists potential funding sources and the estimated implementation timeline. More area and sector-specific implementation plans are in development, such as the [Port of San Francisco’s adaptation strategy](#).

- ▶ Communicate with the State Hazard Mitigation Officer or Cal OES Hazard Mitigation Section early and often and stay up to date on State and Federal hazard mitigation resources. FEMA and Cal OES regularly provide funding, guidance, technical assistance, new resources, and training.
- ▶ Allow sufficient time for plan review by Cal OES and FEMA Region 9, and approval and adoption by your local government body. FEMA and Cal OES both recommend at least six months of lead-time to account for necessary review and approvals.
- ▶ Conduct community engagement throughout the entire process of developing, implementing, or updating an LHMP.
- ▶ The adoption of an LHMP could constitute a California Environmental Quality Act (CEQA) ([Pub. Resources Code, § 21000 et seq.](#)) project if the document’s approval is determined to be a discretionary action that could result in a direct or reasonably foreseeable indirect physical change on the environment. Lead agencies may have to perform environmental review of subsequent revisions or updates to the LHMP as well. ([See the State’s Technical Advisory on Local Hazard Mitigation Plans and CEQA Review](#)).

- ▶ Consider reviewing the LHMP annually and after each disaster event to ensure the LHMP still reflects the needs of the community.
- ▶ Consider aligning the LHMP and other resilience planning efforts with a Community Economic Development Strategy (CEDS). This could involve clarifying the geographies each plan covers; aligning planning activities, goals, and update cycles; combining planning teams, partnerships and public engagement when addressing shared topics; and aligning the LHMP risk and vulnerability information with the CEDS Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. For more guidance on aligning LHMPs and CEDS, see the [Comprehensive Economic Development Strategy and Hazard Mitigation Plan Alignment Resource Guide](#).

Benefits of Aligning a CEDS and LHMP:

- ▶ **Businesses, new buildings and infrastructure, and economic investments are directed to safer, lower risk areas and are developed to be resilient to hazards,**
- ▶ **Businesses and critical infrastructure and facilities are resilient to hazards and function throughout an emergency or are able to quickly continue operation afterward,**
- ▶ **Economies and local and regional partners collectively diversify economic activities based on shared goals and actions, and are therefore more resilient.**
- ▶ **Investment in the region improves due to overall reduction in area risks, and**
- ▶ **Natural resources are managed to bolster resilience and support economic activity.**

[Comprehensive Economic Development Strategy and Hazard Mitigation Plan Alignment Resource Guide, Federal Emergency Management Agency and Economic Development Agency](#)

- ▶ Consider applying for a FEMA Hazard Mitigation Grant Program under the category “[Planning Related Activities](#)” or Building Resilient Infrastructure and Communities Grant Program under the category “[Capability and Capacity Building Activities](#),” which includes [hazard mitigation planning and planning related activities](#). Proposals to integrate other plans into an LHMP or the LHMP into other plans may be eligible under either program; FEMA usually does not fund proposals for other plans unless there is an LHMP integration component.



Adaptation Pathways In The Hazard Mitigation Plan:

- ▶ **An LHMP may be more appropriate for describing near-term strategies in detail than other local planning documents like the general plan or LCP.** In their LHMP, jurisdictions should identify criteria for prioritizing actions, expected costs of each action, who is responsible for administering each action, and potential funding sources and expected time frames for completion of each action. LHMPs used to meet the Safety Element requirements of SB 379 (2015) must include feasible implementation measures (Gov. Code, § 65302, subd. (g)(4) (C)). LHMP's may also be considered nimbler and more responsive to changing conditions than some plans due to FEMA requirements for annual reviews and regular updates (See the [Local Mitigation Planning Policy Guide](#) and [Planning Handbook](#)).
- ▶ **LHMP's can identify low/no regrets actions that set the groundwork for future actions and build capacity.** These could include conducting climate adaptation-related studies and information gathering, developing funding strategies, updating and integrating multiple plans, and other actions that the jurisdiction aims to make progress on by the next 5-year LHMP update. Findings from these tasks could inform future updates to the LHMP and other plans, as well as mid-term and long-term strategies. That said, LHMPs do not need to be completely overhauled every 5-years. Jurisdictions can choose to only address key areas that may have changed based on their circumstances.

- ▶ **A detailed approach to near-term strategies should always be balanced with longer term strategies and future climate risk, whether directly in the LHMP itself, or in alignment with other plans with long-term planning horizons.** The LHMP mitigation strategy can identify a range of actions both near and long term. While they typically have a 5 or 10-year planning horizon, there is nothing precluding an LHMP from identifying longer-term needs and actions; jurisdictions should consider this approach. Regardless, near-term climate-adaptive mitigation strategies and measures that have long-term consequences, such as capital improvement projects, should be carefully considered and aligned with longer-term climate risks and adaptation goals.
- ▶ **A responsive pathways approach in an LHMP could involve planning thresholds and ongoing monitoring strategies.** When evaluating alternatives in the mitigation strategy section, consider linking near-term climate adaptation measures in the LHMP with pre-determined threshold events or conditions, such as an established level, frequency or intensity of storms or coastal flooding over a given time period. When thresholds are passed, they could trigger subsequent actions or the initiation, implementation, or update of other plans. Future updates to the LHMP and other plans can also serve as a key threshold, where every time a plan is updated, the various strategy pathways are re-evaluated, compared against current conditions and new information, and more closely integrated with other plans.

Tips and Requirements for the Vulnerability Assessment

- ▶ Review FEMA LHMP guidance to understand the risk assessment process. Risk assessments must include the following, among other things:
 1. Information on previous occurrences of hazard events and on the probability of future hazard events, and an overall summary of each hazard and its impact on the community (44 C.F.R. § 201.6(c)(1)-(2)).
 2. A review of FEMA National Flood Insurance Program insured structures that have been repetitively damaged by floods (44 C.F.R. § 201.6(c)(2)(ii)).
 3. The risk assessment section should assess each jurisdiction's risks where they vary from the risks facing the entire planning area, and include a description of the type, location and extent of all natural hazards that can affect each jurisdiction (44 C.F.R. § 201.6(c)(2)(i)).
- ▶ Combine hazard mitigation capability assessments and climate change adaptive capacity assessments when appropriate. Both capability assessments and adaptive capacity assessments evaluate authorities, policies, programs, staff, funding, and other resources available to accomplish mitigation both within the lead agency and across the community.
- ▶ Address climate risk and resilience in each hazard profile and/or as a standalone section or appendix in the LHMP risk assessment. The LHMP risk assessment must include the probability of future events, including the effects of climate change and other future conditions on the type, location and range of anticipated intensities of identified hazards. Jurisdictions must also describe how climate change will affect impacts from hazards facing the community ([Local Mitigation Planning Policy Guide](#)).
- ▶ The risk, vulnerability, and capability assessments of an LHMP describe weaknesses, threats, strengths, and opportunities of a community or region that can also be addressed in the SWOT analysis required of CEDs and inform the development trajectories outlined in local area plans. Moreover, identifying high-risk areas can help inform where to prioritize future economic development and avoid conflicts between local economic development and hazard mitigation

goals, priorities, and policies. For additional tips on aligning LHMP assessments with CEDS SWOT analyses, see [Comprehensive Economic Development Strategy and Hazard Mitigation Plan Alignment Resource Guide](#).

- ▶ Align the LHMP risk assessment and the climate change vulnerability assessment requirements of the Safety Element (Gov. Code, § 65302), which require similar types of information. When assessing sea level rise risk and other coastal hazards, complement historic data and current FEMA flood data with those listed in the [State of California sea level Rise Guidance](#) to evaluate storm-related coastal flooding, sea level rise and shoreline change, and both current and future impacts. FEMA flood maps do not include forward-looking projections of sea level rise or other climate change impacts, so complementing these data with sources recommended by OPC will provide more accurate risk assessment results for future conditions.

Alignment Opportunities

- ▶ Incorporate the most recently updated LHMP into the Safety Element. Assembly Bill (AB) 2140 (2006) (Gov. Code, §§ 65302.6 and 8685.9) allows jurisdictions to be eligible to apply for state funding to cover the local match (6.25%) of FEMA Public Assistance (PA) costs for recovery activities after hazard events, if the local jurisdiction incorporates their LHMP into the Safety Element of their General Plan.
- ▶ Synchronize LHMP and Housing Element updates with Safety Element updates, when possible, to leverage the process and reduce redundancy across all three efforts, especially when communities have an LHMP update due proximal to their next Housing Element update. Recently updated LHMPs can be used as a resource for a subsequent Safety Element review or update.
- ▶ Look for inconsistencies between LCP policies and local hazard mitigation plan actions (e.g., building height limits versus elevation requirements; armoring restrictions versus shoreline armoring). Including sea level rise hazard avoidance strategies from an LCP certification or update, such as relocation of critical facilities, in the LHMP narrative can make them

eligible for FEMA project implementation funding. This information can also be added as an addendum/annex to the LHMP, if the LHMP was recently updated.

- ▶ While developing or updating an LHMP to incorporate sea level rise adaptation strategies, link to flood and natural infrastructure resilience strategies in the LCP and general plan.
- ▶ Where transportation infrastructure functions as part of emergency evacuation routes, local governments can coordinate with transportation asset managers and emergency response planners to ensure consistency between LHMPs, LCPs, emergency operations plans, transportation and mobility plans, and general plan evacuation planning requirements (Gov. Code, §§ 65302 and 65302.15). This could involve developing contingency plans and alternative routes to utilize when infrastructure is inoperable due to coastal flooding and/or erosion.



Case Study

The City of Santa Cruz first aligned its hazard mitigation plan with its climate adaptation plan during a 2018 update. The City included the adaptation plan as an appendix to the LHMP, explicitly identified linkages between the two plans, and compared the City’s progress on adaptation strategies to Santa Cruz County’s. These documents informed the subsequent City LCP amendment and ongoing coastal resilience projects. During the next update to these documents beginning in 2023, the City intends to improve alignment between the actions identified in each plan and build on lessons learned from the previous 5 years of planning and implementation.

Alignment Team & Community Engagement

- ▶ Meet FEMA eligibility requirements by identifying all jurisdictions and entities involved in the planning process. To meet minimum eligibility requirements, LHMPs must outline each jurisdiction’s representative, and additional entities must include local and regional agencies involved in hazard mitigation, agencies that have the authority to regulate development, neighboring communities, representatives of business, academia, and other private organizations, and representatives of nonprofit organizations, including community-based organizations, that work directly with and/or provide support to underserved communities and socially vulnerable populations, among others.
- ▶ To foster ongoing alignment and support implementation for economic and hazard resilience, include community economic developers in the alignment team or local/regional task forces developed for the purpose of resilience planning.
- ▶ Consider carefully whether your alignment (planning) team or advisory groups should include any of the entities from each of the entity types listed in **Appendix A**, as applicable to your jurisdiction. Develop a plan to determine how and when to engage different entities to achieve the most equitable and accurate results.

General Plans

Plan Overview

- All cities and counties in California are required by state law to adopt and periodically update a General Plan, which sets forth a long-term vision of a community's future. The format and content of General Plans can vary, and while certain topics ("elements") are mandatory, there is no mandatory structure or maximum number of elements that a General Plan can include. Mandatory elements required by law include: land use, circulation, housing, conservation, open space, noise, and safety (Gov. Code, § 65302). Additional elements may also be required; for example, cities and counties that have identified disadvantaged communities are required to address environmental justice in their General Plans.

Lead

- ▶ County or city planning department

Required Consultation, Review & Approval

- ▶ **Consultation:** California Native American Tribes
- ▶ **Review:** N/A
- ▶ **Approval:** County board of supervisors or city council

Key State Contacts

General Plan Guidelines and Technical Advisories: planning@opr.ca.gov

Statewide adaptation planning questions and assistance: icarp@opr.ca.gov

Applicable Statutes and Rules

- ▶ Gov. Code, §§ [65300](#) – [65303.4](#)

Required Components

Note: for Safety Element and Housing Element specific information, see the General Plan Safety Elements section and General Plan Housing Elements section of The Plans in this document.

- ▶ Adoption of new General Plans, plan updates, and plan amendments must adhere to environmental review requirements under CEQA (Pub. Resources Code, §§ [21000](#) et. seq.).
- ▶ General Plans are required to be internally (“horizontally”) consistent (e.g., all general plan elements are required to be consistent with each other) and “vertically” consistent (e.g., the jurisdiction’s other plans, zoning ordinances, programs, and policies must be consistent with the General Plan) (Gov. Code, §§ [65300.5](#), [65860](#), subd. (a)).
- ▶ State law requires that local planning agencies provide opportunities for community involvement when updating General Plans (Gov. Code, § [65351](#)).
- ▶ Local governments are required to consult with tribal governments prior to updating or amending their general plan and to provide notice to and consult with tribes at identified points in the planning process, including adoption and amendment of both general plans and specific plans (Gov. Code, § [65352.3](#)). For more information about this consultation





requirement, see OPR’s Supplement to the General Plan Guidelines, the [Tribal Consultation Guidelines](#).

- ▶ SB 1000 (2016) (Gov. Code, § [65302, subd. \(h\)](#)) requires that communities containing defined disadvantage communities address environmental justice (EJ) as a standalone element or as a topic that is integrated throughout the General Plan elements. For detailed information and guidance on EJ Elements, review the [General Plan Guidelines Chapter 4, Section 8](#). This update is triggered when:
 - *two or more elements (often the housing and Safety Elements) are updated concurrently on or after January 1, 2018, and*
 - *a jurisdiction has disadvantaged communities as defined in the statute. OPR recommends that each jurisdiction complete its own disadvantaged community screening to make this determination. (Learn more about identifying disadvantaged communities in the [General Plan Guidelines Chapter 4, Section 8](#).)*

Within the EJ element, jurisdictions must identify objectives and policies to:

- *reduce the unique or compounded health risks in disadvantaged communities;*
 - *promote civic engagement in the public decision-making process; and*
 - *prioritize improvements and programs that address the needs of disadvantaged communities.*
- ▶ SB 1425 (2022) (Gov. Code, § [65565.5](#)) requires every city and county to review and update the general plan open-space element (also known as a local open-space plan) by January 1, 2026. The update must include plans and an action program to address equity, climate resilience and other open space co-benefits, and rewilding opportunities. This update must be correlated with the environmental justice element (as applicable), the Safety Element, and the land use element.
- 📌 Land use and conservation elements must address specific flood risk requirements, such as coastal flooding, by identifying high-risk areas and land and water bodies that may accommodate floodwater for groundwater recharge and stormwater management (Gov. Code, § [65302, subds. \(a\), \(d\)](#)). The land use element should also consider how flooding and other environmental concerns impact development, designate greenway and landscaping land

uses for flood resilience, reflect flood-resilient design standards, and lastly, when analyzing disadvantaged unincorporated communities, assess stormwater drainage and other area needs and deficiencies. ([General Plan Guidelines, Chapter 4.](#))

I The conservation element may cover related land and water resilience topics, such as water pollution; erosion of soils, beaches, and shores; watershed protection; habitat connectivity; and the location, quantity, and quality of rock, sand, and gravel resources ([General Plan Guidelines, Chapter 4](#)).

Note: For Safety Element flood and climate adaptation requirements, see the Safety Elements section of *The Plans*. For a complete description of mandates, refer to the [General Plan Guidelines, Chapter 4 and applicable statutes](#).

Guidance

- ▶ [OPR General Plan Guidelines and 2020 Updated Environmental Justice Element](#)
- ▶ [Rising Seas in California: An Update on sea level Rise Science](#)
- ▶ [State of California Sea Level Rise Guidance](#)
- ▶ [Adaptation Roadmap](#)

Best Practices

- ▶ Follow the [General Plan Guidelines](#), and align elements where appropriate to minimize redundancies and enhance internal consistency.
- ▶ While some climate change impacts are already happening, others may gradually appear or only appear once certain ecosystem thresholds are met at uncertain time frames in the future. The typical General Plan 10 to 20-year planning horizon is not long enough to fully address the long-term impacts of climate change. As such, the General Plan should include a balance of

both short-term and longer-term planning horizons – and leverage other plans with shorter term planning timelines, such as the LHMP, to fill in where appropriate.

- ▶ Other elements of the General Plan, particularly the Land Use, Conservation, and Open Space Elements, should work in coordination to guide conservation and development, balancing community needs with environmental preservation and the effects of climate change. Upon the next comprehensive General Plan update, consider integrating climate risk considerations and climate adaptation goals, policies, and measures consistent with the Safety Element, LHMP, and any other relevant plans into these elements. Communities can use:
 - *The Land Use Element to more comprehensively address climate change and natural hazards in land use planning and decision making, particularly by directing development away from areas with high hazard exposure, and/or by identifying risk reduction strategies when directing development away from areas of high hazard exposure may not be possible. Land use policies should adequately incorporate adaptation priorities that ensure the provision of adequate infrastructure, services, and ecosystem services to the community.*
 - *The Conservation Element to analyze the sustainability of local ecosystems and resource uses under changing climate conditions. For example, when evaluating the feasibility of possible land use patterns as part of a jurisdiction’s analysis of water resources for this element, cities and counties should work with water agencies to consider projected available water resources under a changing climate, water conservation measures to ensure a sustainable water supply, and planning for the protection of impacted water bodies.*
 - *The Open Space Element to identify lands or waters useful to preserve for current and projected future climate adaptation benefits, hazard mitigation and public safety, tribal resources and other cultural resources, and other resource uses and ecosystem services.*
- I** Consider the effects of sea level rise-driven fluvial/riverine flooding, shallow groundwater rise, and shoreline erosion as well as subsidence and storm surge potential in the land use, conservation, open space, and other elements.
- I** Incorporate applicable sea level rise information and management practices into the land use element, which can reduce vulnerability through land use practices such as non-structural flood protection measures, low impact development, and improved stormwater management practices.

I Contents of LCP land use plans overlap with some of the required provisions of general plans, but not all are duplicative. It is ideal for the general plan to be consistent with the LCP.

Example Plan Integration Policies

GOAL: Assess climate risks and plan and implement adaptation in an integrated, holistic fashion across all areas of government.

POLICY: Regularly update, align, and/or integrate plans to ensure alignment across planning efforts while incorporating best available climate change adaptation information.

ACTION: Update and align the general plan Safety Element, Housing Element, and LHMP every 5 years to incorporate and align adaptation efforts throughout these documents.

Tips and Requirements for the Vulnerability Assessment

- ▶ Use a variety of sources to inform General Plan updates and associated risk assessments, including the climate vulnerability assessment required by SB 379 (2015) (Gov. Code, § [65302, subd. \(g\)\(4\) and \(g\)\(6\)](#)); the LHMP risk assessment; wildfire risk assessments; and any others available.
 - *To adequately understand how climate change may affect the location and type of future growth, land use planning (particularly in the land use, conservation, and open space elements) should be informed by the best available information on local hazards, climate vulnerabilities, and associated risks.*
 - *Communities can use climate projection data, climate vulnerability assessments, and risk assessments from other planning efforts to more accurately project future land uses; identify high-risk areas; inform climate-adaptive land use, conservation, and preservation policies; and make land use decisions that consider both avoidance and reducing future risk to the community.*

Hazard Mitigation Policies That Can Be Embedded In The General Plan

These policies can be implemented through zoning and building codes, capital improvements programs, and permitting processes:

Protect life and property in high hazard areas by limiting densities of new development

Limit the extension of public infrastructure in high hazard areas

Reduce the vulnerability of future development in high hazard areas by reviewing development regulations

[Local Mitigation Planning Handbook \(2013\)](#), Federal Emergency Management Agency

Alignment Opportunities

- ▶ Incorporate the LHMP into the Safety Element when updating the general plan. AB 2140 (2006) (Gov. Code, §§ [65302.6](#) and [8685.9](#)) enables jurisdictions to be eligible for consideration for state funding to cover the local match (6.25%) of FEMA PA costs for recovery activities after hazard events. Incorporation of the LHMP is also one option of compliance for meeting SB 379 (2015) and SB 1035 (2018) (Gov. Code, §§ [65302, subd. \(g\)\(4\) and \(g\)\(6\)](#)) adaptation requirements.
- ▶ Use the same climate projections and consistent parameters across all plans.
- ▶ Synchronize LHMP and Housing Element updates with Safety Element updates, when possible, to leverage the process and reduce redundancy across all three efforts, especially when communities have an LHMP update due proximal to their next Housing Element update. Recently updated LHMPs can be used as a resource for a subsequent Safety Element review or update.

- ▶ Inform the disaster recovery plan with climate information (greenhouse gas mitigation, adaptation, and resiliency strategies and actions) included in the general plan Safety Element or local climate adaptation plan. The Safety Element also includes residential vulnerability and evacuation route information that should be evaluated during recovery planning (See AB 747 (2019) and SB 99 (2019), codified at Gov. Code, §§ 65302, subd. (g)(5), 65302.15).
- ▶ Use existing goals and projects in the General Plan, Housing Element, and Land Use Element as the foundation for disaster recovery planning, including expanding housing access for residents of all income levels and focusing new development in the existing development footprint to protect natural and working lands, reduce the fiscal costs of sprawl, and limit future disaster vulnerability. This approach, also known as infill development, can help align recovery planning efforts with policies and building codes already in place, while helping to identify where changes might need to be made to support the building back of safer communities that are more resilient to future disasters.

Coastal Resilience Land Use Policies That Can Be Embedded Within The General Plan

Maintain structural and operational integrity of essential public facilities in the event of a flooding hazard, and locate new essential public facilities outside of flood hazard zones.

Site critical public facilities – including hospital and healthcare facilities, emergency shelters, police and fire stations, and emergency communications facilities – outside of the tsunami evacuation zone and 100-year flood plains.

For new development in the tsunami evacuation zone, require use of low-impact engineering techniques, such as elevating structures above projected water levels, to mitigate impacts to people and structures.

[General Plan Guidelines, Governor’s Office of Planning and Research](#)

- ▣ When updating a local coastal program (LCP) or general plan, jurisdictions have an opportunity to integrate and align sea level rise and hazard mitigation policies with other long-term community development and land use planning goals. If a portion of a jurisdiction is in the coastal zone, the Coastal Act ([Pub. Resources Code, §§ 30000 – 30900](#)) and LCPs regulate it. Jurisdictions in the coastal zone should coordinate closely with the California Coastal Commission to assure that general plan provisions intended to apply in the coastal zone are consistent with the governing LCP and California Coastal Act as relevant.
- ▣ LCPs tend to require more specificity than general plans; when updating either plan, use the opportunity to check for, and align, inconsistent land use policies. For example, the LCP land use plan must be “...sufficiently detailed to indicate the kinds, location, and intensity of land uses, the applicable resource protection and development policies, and where necessary, a listing of implementing actions” ([Pub. Resources Code, § 30108.5](#)). To meet the requirements of the Coastal Act, applicable zoning must not only conform with the LCP land use plan and general plan, but be **adequate to carry out** the LCP land use plan ([Pub. Resources Code, § 30513](#)). For additional details on how LCP and general plan requirements differ, refer to the California Coastal Act section in Chapter 9 of the [General Plan Guidelines](#).
- ▣ General plan circulation and land use elements should be developed in coordination with LCPs as well as other local and regional transportation and mobility plans and land use plans (e.g., Local Hazard Mitigation Plans, General Plans, Public Works Plans, Capital Improvement Plans, Tribal Resiliency Plans, Caltrans District Corridor Plans), especially when considering the impacts of sea level rise in the coastal zone, to foster a cohesive approach to sea level rise adaptation and ensure consistency with the Coastal Act. Circulation elements are sometimes certified as part of a local government’s LCP and should be consistent with the general plan land use element and applicable flood hazard planning, the applicable regional transportation plan, and the applicable regional sustainable communities strategy ([Critical Infrastructure at Risk](#)).

Adaptation Pathways Approaches In General Plans & Related Plans

These ideas are not comprehensive and are intended to illustrate a variety of ways different plans might complement each other as part of an adaptation pathways planning approach.

Local or Regional Adaptation Framework/Process: An all-encompassing, jurisdiction-wide, vision and goal-setting plan such as a local adaptation plan, general plan, or other plan with a longer or unregulated time horizon

- ▶ May identify short-, mid-, and long-term objectives, phases, and strategies
- ▶ May be regionally scaled, like a regional adaptation plan or transportation plan

Strategic/Policy Setting Plans/Processes: Plans with longevity and legal basis for implementing an adaptation framework both in the near term and over the next 20-40 years, such as a general plan, LCP land use plan, or adaptation plan

- ▶ May identify specific and focused mid-term adaptation pathways and aligns with other documents that cover short- and long-term actions
- ▶ May be jurisdiction-wide, identifies more focused plans needed for specific areas/topics

- ▶ May identify mid- or near-term feasible implementation measures or decision points as part of adaptation pathways, tied to specific thresholds and triggers

Action/Implementation Plans/Processes: May be plans with shorter time horizons, such as an LHMP or Capital Improvement Plan, that can implement immediate or near-term high priority actions in alignment with near-term phase strategies identified in Framework or strategic/policy setting plans.

- ▶ Provides detailed and focused descriptions of immediate or near-term strategies and actions that do not compromise longer term strategies & considerations; are aligned with or tied to thresholds that may trigger mid-term actions or decisions
- ▶ May focus on specific areas, projects, topics, sectors, or climate impacts

Alignment Team & Community Engagement

- ▶ Consider carefully whether your alignment (planning) team or advisory groups should include any of the entities from each of the entity types listed in **Appendix A** as applicable to your jurisdiction, and how and when to engage different entities to achieve the most equitable and accurate results.

General Plan Safety Elements

Plan Overview

- ▮ The goal of the Safety Element is to reduce the potential short and long-term risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, droughts, earthquakes, landslides, climate change, and other hazards. Other locally relevant safety issues, such as airport land use, maritime hazards, emergency response, hazardous materials spills, and crime reduction, may also be included. Some local jurisdictions have chosen to incorporate their hazardous waste management plans into their Safety Elements.

The Safety Element directly relates to topics also mandated in the (1) land use, (2) conservation, (3) environmental justice, and (4) open-space elements, as development plans must adequately account for public safety considerations and open space for public health and ecological benefits often incorporate areas of increased hazard risk. The Safety Element must identify hazards and hazard abatement provisions to guide local decisions related to zoning, subdivisions, and entitlement permits.

Lead

- County or city planning department

Required Consultation, Review & Approval

- **Consultation:** California Native American Tribes; Department of Conservation – California Geological Survey; Governor’s Office of Emergency Services; and, if located within the boundaries of the Sacramento and San Joaquin Drainage District, the Central Valley Flood Protection Board
- **Review:** California Board of Forestry and Fire Protection (if a jurisdiction contains a state fire responsibility area or a very high fire hazard severity zone)
- **Approval:** County board of supervisors or city council

Applicable Statutes and Rules

Gov. Code, § [65302, subd. \(g\)](#)

Required Components

- ▶ SB 379 (2015) (Gov. Code, § [65302, subd. \(g\)\(4\)](#)) requires a Safety Element update to include a climate change vulnerability assessment (including flood and fire risk), adaptation strategies, and implementation measures to address climate vulnerabilities. This may be met by updating the LHMP, climate adaptation plan, or other similar plan and incorporating it into the Safety Element by reference. This update is triggered by the next LHMP update on or after January 1, 2017, or if there is no LHMP, on or before January 1, 2022.
- ▶ SB 1035 (2017) (Gov. Code, § [65302, subd. \(g\)\(6\)](#)) requires regular Safety Element reviews and, if necessary, updates to identify new information relating to flood and fire hazards and climate adaptation and resiliency strategies. This update is triggered upon either the next LHMP update or next Housing Element update, at the jurisdiction's discretion, but not less frequently than every eight years.
- ▶ SB 99 (2019) (Gov. Code, § [subd. 65302\(g\)\(5\)](#)) requires jurisdictions to review and update the Safety Element to include information identifying residential developments in hazard areas that do not have at least two emergency evacuation routes. This update is triggered upon the next revision to the Housing Element, on or after January 1, 2020.
- ▶ AB 747 (2019) and AB 1409 (2021) (Gov. Code, § [65302.15](#)) require jurisdictions to review and update their Safety Element as necessary to identify evacuation routes and location and evaluate their capacity and safety under a range of emergency scenarios. These bills encourage plan integration by authorizing cities and counties to incorporate relevant information in an already adopted LHMP, Emergency Operations Plan, the Housing Element, or another document into the Safety Element. This update is triggered upon the next revision of

an LHMP on or after January 1, 2022, or if there is no LHMP, beginning on or before January 1, 2022.

- ▶ [AB 162 \(2007\) \(Gov. Code, § \[65302, subd. \\(g\\)\\(2\\)\]\(#\)\)](#) Requires cities and counties to address flooding in their Safety Element by identifying information regarding flood hazards, such as coastal flooding, establishing a set of comprehensive goals, policies, and objectives for the protection of the community from the unreasonable risks of flooding, and establishing a set of feasible implementation measures designed to carry out the goals, policies, and objectives for flood protection. This update is triggered upon the next Housing Element update after 2009.

Guidance

- ▶ [California Adaptation Planning Guide](#)
- ▶ [General Plan Guidelines Chapters 4 & 8](#)
- ▶ [State of California sea level Rise Guidance](#)
- ▶ [Adaptation Roadmap](#)

Best Practices

- ▶ For jurisdictions updating their Safety Element or other plans for compliance with evacuation route planning requirements mandated by SB 99 (2019) (Gov. Code, § [65302, subd. \(g\)\(5\)](#)), AB 747 (2019) and AB 1409 (2021) (Gov. Code, § [65302.15](#)), agencies can consider potential constraints regarding evacuations when updating their land use or Housing Elements.
- ▶ When possible, update the Housing Element, Safety Element, and/or local hazard mitigation plan concurrently or sequentially to synchronize long-term integration and meet SB 1035 (2017) (Gov. Code, § [65302, subd. \(g\)\(6\)](#)) requirements. Updating both elements concurrently may trigger an SB 1000 (2016) (Gov. Code, § [65302, subd. \(h\)](#)) environmental justice element update. **See Appendix B for additional ideas on how to align multiple updates.**

Case Study

San Diego County developed a Vulnerability Assessment and Adaptation report for the County's unincorporated areas with adaptation goals that align with existing County plans, policies, and programs, and used the report to update the general plan Safety Element. The County simultaneously conducted community engagement and updates for the safety, housing, and environmental justice elements, and subsequently updated the multijurisdictional hazard mitigation plan.

- ▶ Review the [California Adaptation Planning Guide](#) and [General Plan Guidelines](#), especially the Safety Element and Climate Change chapters, which include mandates and best practices for incorporating climate change into the Safety Element.
- ❏ Consider incorporating sea level rise adaptation strategies when reviewing and updating strategies in the Safety Element to meet the flooding and climate adaptation requirements of Gov. Code, § 65302, subd. (g)(2), (4), and (6). Evaluate how sea level rise and other associated hazards such as rising groundwater and storm surge may impact overall flood risk, and related mandated goals, policies, objectives, and feasible implementation measures that address the following:
 - *Avoid and minimize flood risks for new development.*
 - *Evaluate whether new developments should be located in flood hazard zones and possible appropriate mitigation actions.*
 - *Maintain the integrity of essential public facilities.*
 - *Locate, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities, or identifying mitigation actions.*
 - *Establishing cooperative working relationships among public agencies with responsibility for flood protection.*

Tips & Requirements for the Vulnerability Assessment

- ▶ Jurisdictions may incorporate a climate vulnerability assessment directly, or by reference to another document, such as an LHMP or adaptation plan. The specific vulnerability assessment requirements for SB 379 (2015) (Gov. Code, § 65302, subd. (g)(4)) compliance include at minimum, the following:
 - *An assessment of how climate change may affect flood and fire risks,*
 - *Information from [Cal-Adapt](#) and the [California Adaptation Planning Guide](#),*
 - *Local agency information on assets, resources, and populations sensitive to climate exposures, and the agencies' current ability to manage climate impacts,*
 - *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,*
 - *Information on existing and planned development in identified at-risk areas, including structures, roads, utilities, and essential public facilities, and*
 - *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.*
- ❏ Consider the effects of sea level rise on fluvial/riverine flooding, shallow groundwater rise, and shoreline erosion/slope instability as well as subsidence and storm surge potential when updating the flood risk information in Safety Elements. Additionally, consider sea level rise impacts to maritime and waterfront facilities (e.g., wharfs, piers) in the vulnerability analysis.
- ❏ Incorporate sea level rise information and refer to the most up to date version of the [State of California sea level Rise Guidance](#) when reviewing and updating the mandated Safety Element flood hazard and risk assessment information, where applicable (See Gov. Code, § 65302, subd. (g)(2)).

Alignment Opportunities

- ▶ Incorporate the LHMP into the Safety Element when updating the general plan. AB 2140 (2006) (Gov. Code, §§ [65302.6](#) and [8685.9](#)) enables jurisdictions to be eligible for consideration for state funding to cover the local match (6.25%) of FEMA Public Assistance costs for recovery activities after hazard events. Incorporation of the LHMP is also one option of compliance for meeting SB 379 (2015) and SB 1035 (2017) (Gov. Code, §§ [65302, subd. \(g\)\(4\)](#) and [\(6\)](#)) adaptation requirements.
- ▶ Synchronize LHMP and Housing Element updates with Safety Element updates, when possible, to leverage the process and reduce redundancy across all three efforts, especially when communities have an LHMP update due proximal to their next Housing Element update. Recently updated LHMPs can be used as a resource for a subsequent Safety Element review or update.
- ▶ Inform the disaster recovery plan with climate information (greenhouse gas mitigation, adaptation, and resiliency strategies and actions) included in the general plan Safety Element or local climate adaptation plan. The Safety Element also includes residential vulnerability and evacuation route information that should be evaluated during recovery planning (see SB 99 (2019), AB 747 (2019) and AB 1409 (2021), codified at Gov. Code, §§ [65302, subd. \(g\)\(5\)](#), [65302.15](#)).
- ▶ Where transportation infrastructure functions as part of emergency evacuation routes, local governments should coordinate with transportation asset managers and emergency response planners to ensure consistency between LCPs, LHMPs, emergency operations plans, transportation and mobility plans, and Safety Element evacuation planning requirements (see SB 99 (2019), AB 747 (2019) and AB 1409 (2021), codified at Gov. Code, §§ [65302, subd. \(g\)\(5\)](#), [65302.15](#)). This could involve developing contingency plans and alternative routes to utilize when infrastructure is inoperable due to coastal flooding and/or erosion.

Alignment Team & Community Engagement

Consider carefully whether your alignment (planning) team or advisory groups should include any of the entities from each of the entity types listed in **Appendix A** as applicable to your jurisdiction, and how and when to engage different entities to achieve the most equitable and accurate results.



General Plan Housing Elements

Plan Overview

- The general plan Housing Element implements the declaration of State law that “the availability of housing is a matter of vital statewide importance and the attainment of decent housing and a suitable living environment for all Californians is a priority of the highest order” (Gov. Code, § [65580](#)). Provisions in the Housing Element are more specific and directive than other elements and contain detailed guidance and reviews. The law requires that the Department of Housing and Community Development (HCD) review the Housing Element for compliance and that local jurisdictions submit annual progress reports to HCD (Gov. Code, §§ [65585](#), [65400](#), subd. (a)(2) (B)). The Housing Element must be revised and submitted periodically on a four, five, or eight year cycle, depending on various factors (Gov. Code, § [65588](#)).

Lead

- ▶ County or city planning department

Required Consultation, Review & Approval

- ▶ **Consultation:** California Native American Tribes; Housing Accountability and Enforcement Unit at the Department of Housing and Community Development
- ▶ **Review:** Department of Housing and Community Development
- ▶ **Approval:** Department of Housing and Community Development; county board of supervisors or city council

Applicable Statutes and Rules

Gov. Code, §§ [65302](#), subd. (c); [65580-65589.11](#)

Required Components

- ▶ State law requires jurisdictions make a diligent effort to include all economic groups when developing a Housing Element (Gov. Code, § [65583, subd. \(c\)\(9\)](#)).
- ▶ AB 686 (2018) requires public agencies to affirmatively further fair housing by taking meaningful actions, in addition to combating discrimination, that overcome patterns of segregation and foster inclusive communities free from barriers that restrict access to opportunity based on protected characteristics. (Gov. Code, § [8899.50](#)).
- 📌 [Government Code section 65588, subdivision \(d\)](#) requires the review of the Housing Element for jurisdictions located within a coastal zone to provide an additional analysis of units constructed, demolished and replaced within three miles of a coastal zone to ensure the affordable housing stock with the coastal zone is being protected and provided as required by [Government Code section 65590](#).

Guidance

- ▶ [Building Blocks: A Comprehensive Housing-Element Guide](#)
- ▶ [General Plan Guidelines Chapter 4](#)
- ▶ [Affirmatively Furthering Fair Housing](#)

Best Practices

- ▶ For jurisdictions updating their Safety Element or other plans for compliance with evacuation route planning requirements that SB 99 (2019) (Gov. Code, § [65302, subd. \(g\)\(5\)](#)), AB 747 (2019) and AB 1409 (2021) (Gov. Code, § [65302.15](#)) mandate, agencies can consider potential constraints regarding evacuations when updating their land use or Housing Elements.

- ▶ When possible, update the Housing Element, Safety Element, and/or local hazard mitigation plan concurrently or sequentially to synchronize long-term integration and meet SB 1035 (2017) requirements (Gov. Code, § [65302, subd. \(g\)\(6\)](#)). Updating both elements concurrently may trigger an SB 1000 (2016) environmental justice element update (Gov. Code, § [65302, subd. \(h\)](#)). **See Appendix B for additional ideas on how to align multiple updates.**
- ▶ Jurisdictions can affirmatively further fair housing amidst growing climate and disaster risks by employing place-based strategies to encourage community conservation and revitalization. Climate disasters can be a significant cause of displacement, but strategies like home hardening in higher risk areas and preservation in lower risk areas can help protect affordable housing supply ([Guidance for Affirmatively Furthering Fair Housing](#)).
- ▶ Equitable hazard mitigation strategies, such as urban forestry and flood prevention measures in disadvantaged communities, can both reduce climate risk to property and improve environmental health. Jurisdictions can build community adaptive capacity to climate impacts by improving infrastructure and services in areas of lower opportunity and concentrated poverty, such as parks, schools, public transportation, and other community amenities ([Guidance for Affirmatively Furthering Fair Housing](#)).
- 📌 When inventorying and analyzing specific sites along the shoreline for housing development suitability as part of the regional housing needs allocation process, jurisdictions should evaluate whether the impacts of a changing climate will affect the suitability of sites and zoning by subjecting sites to risks such as erosion, flooding, sea level rise, groundwater intrusion, and other climate change-related hazards.

Tips and Requirements for the Vulnerability Assessment

- ▶ A climate vulnerability assessment and other risk assessments can be used to determine future housing placement based on both current and future risks.
- ▶ California's recent history has shown that environmental disasters such as wildfires, earthquakes, and floods can be significant causes of displacement, and that climate change is

accelerating the risk from such disaster events. Climate risks can put pressure on lower income communities who may not have the means to relocate to lower risk areas, while disasters can place significant upward pressure on housing costs in receiving communities that suddenly absorb new residents before additional housing can be built. The Housing Element must include an assessment of disproportionate housing needs, including displacement risk, on people with protected characteristics and households with low incomes (Gov. Code, § 65583, subd. (c) (10); [Guidance for Affirmatively Furthering Fair Housing](#)).

- ▶ Any analysis of disaster-driven displacement risk should call out how intensifying environmental hazards and climate risk may impact low-income renters in the community, as well as any existing programs or resources meant to increase resiliency and address those risks. Disaster risk is not a justification for the perpetuation of patterns of segregation. Jurisdictions should strategically use land use, hazard mitigation, and disaster recovery planning to coordinate strategies for addressing environmental hazard risk, climate change adaptation, fair housing, and housing affordability ([Guidance for Affirmatively Furthering Fair Housing](#)).
 - ▶ Jurisdictions should refer to their LHMP, Safety Element, environmental justice element, disaster recovery frameworks/plans, and any other recent locally available hazard data to detail the types of environmental hazards present in the community, the location of high hazard risk areas in the community, and which populations are in vulnerable areas. FEMA flood maps are a good starting point for assessing flood risk, but jurisdictions are encouraged to utilize any more recent local flood risk data available, as FEMA flood maps do not account for climate change and aren't always up to date ([Guidance for Affirmatively Furthering Fair Housing](#)).
- i** When considering how climate change impacts populations in shoreline areas, especially when considering coastal hazards, include port and harbor populations living in maritime vessels and any other populations living in less-traditional, long- or short-term housing.

Alignment Opportunities

- ▶ Synchronize LHMP and Housing Element updates with Safety Element updates, when possible, to leverage the process and reduce redundancy across all three efforts, especially when communities have an LHMP update due proximal to their next Housing Element update. Recently updated LHMPs can be used as a resource for a subsequent Safety Element review or update.
- ▶ Use existing goals and projects in the housing and land use elements as the foundation for disaster recovery planning, including expanding housing access for residents of all income levels and focusing new development in the existing development footprint, to protect natural and working lands, reduce the fiscal costs of sprawl, and limit future disaster vulnerability. This approach, also known as infill development, can help align recovery planning efforts with policies and building codes already in place, while helping to identify where changes might need to be made to support the building back of safer communities that are more resilient to future disasters.



❏ Potential conflicts may arise between Housing Element policy and LCP sea level rise adaptation strategies (for example, policies for avoiding new construction, or moving existing housing, in high-risk areas). This can be avoided by aligning Housing Element zoning, density policy, and other measures with LCP sea level rise policies and general plan Safety Element information regarding flooding and climate adaptation. If conflicts do arise, the Coastal Act generally takes precedence within the Coastal Zone.

❏ Local governments may also consider submitting LCP land use plans with provisions that protect and encourage affordable housing consistent with general plan Housing Element requirements and Chapter 3 policies of the Coastal Act, as the Coastal Commission is required to encourage housing opportunities for persons of low and moderate income (Pub. Resources Code, § 30604, subd. (f)).

Alignment Team and Community Engagement

- ▶ Consider carefully whether your alignment (planning) team or advisory groups should include any of the entities from each of the entity types listed in **Appendix A** as applicable to your jurisdiction, and how and when to engage different entities to achieve the most equitable and accurate results.



Climate Adaptation Plans

Plan Overview

- Climate Adaptation Plans involve an evaluation and prioritization of actions or strategies to prepare for and respond to climate impacts. The State and Federal government do not require standalone adaptation plans, but cities and counties in California must address climate adaptation in local general plan Safety Elements per SB 379 (2015) ((Gov. Code, § [65302, subd. \(g\)\(4\)](#)). While not required for other jurisdiction types such special districts, climate adaptation planning is encouraged for all communities to prepare for climate change risks, whether the result is an update to one or more existing plans, and/or a new unique plan. Some local or tribal jurisdictions may find it helpful or necessary to consolidate all climate adaptation-related information in a standalone document to be referenced and integrated with other local plans. Standalone plans can also allow for greater detail than other plans. Cities and counties should carefully review related statutory requirements when initiating an adaptation planning process.

Lead

- ▶ **Varies:** Typically, a local, regional, or tribal planning department

Required Consultation, Review & Approval

- ▶ **Consultation:** N/A
- ▶ **Review:** N/A
- ▶ **Approval:** Varies - if local, the city council, county commissioners, or board of supervisors

Key State Contacts

Statewide adaptation planning assistance: icarp@opr.ca.gov

Sea level rise adaptation science and guidance: opc.ca.gov/opc-staff/

Bay Area adaptation: adaptingtorisingtides.org/contact-us/

Applicable Statutes and Rules

- ▶ SB 379 (2015) (Gov. Code, § [65302, subd. \(g\)\(4\)](#))
- ▶ SB 1035 (2017) (Gov. Code, § [65302, subd. \(g\)\(6\)](#))

Required Components

- ▶ SB 379 (Gov. Code, § [65302, subd. \(g\)\(4\)](#)) requires adaptation and resilience be incorporated in a city or county's general plan Safety Element, either directly or by incorporating other plans by reference into the general plan. Jurisdictions may choose to develop a climate adaptation plan as a standalone document, or appendix to another document to meet this requirement; in these cases, the climate adaptation plan must substantially comply with the requirements set forth in [Government Code section 65302, subdivision \(g\)\(4\)](#) including:
 - *A climate change vulnerability assessment (including flood and fire risk);*
 - *Adaptation goals, policies, and objectives to address identified vulnerabilities; and,*
 - *Feasible implementation measures.*
- ▶ SB 1035 (2017) (Gov. Code, § [65302, subd. \(g\)\(6\)](#)) requires cities and counties to update their Safety Elements with newly available climate science, flood, and fire information no less frequently than every eight years, upon the next update to either the Housing Element or

LHMP. A local jurisdiction may choose to develop a climate adaptation plan as a standalone document or appendix to another document to meet this requirement. **This update is triggered upon either the next LHMP update or next Housing Element update, at the jurisdiction's discretion, but not less frequently than every eight years.**

- ▶ Updates or changes to local zoning or other codes and ordinances developed through an adaptation planning process must be consistent with local general plans.
- ▶ Jurisdictions should assess whether CEQA applies to any new or updated plans or projects developed through the adaptation planning process.
- ▶ Projects within the San Francisco Bay Conservation and Development Commission (BCDC)'s jurisdiction seeking a permit are subject to policies in the [Bay Plan](#). Bay Plan Climate Change Policies include conducting a risk/vulnerability assessment for major shoreline projects (Policy 2), and being resilient and adaptable (Policy 3), among others. For examples of how climate change policies have been applied in past projects, reference BCDC's [Climate Change Policy Guidance](#).

Guidance

- ▶ [California Adaptation Planning Guide](#)
- ▶ [General Plan Guidelines](#), Chapters 4 & 8
- ▶ [State of California sea level Rise Guidance](#)
- ▶ [Adaptation Roadmap](#)
- ▶ [Climate Change Policy Guidance \(Bay Area Only\)](#)

Best Practices

- ▶ Review the *California Adaptation Planning Guide (APG)*, and *General Plan Guidelines* (especially the Required Elements and Climate Change chapters), which include both mandates for cities

and counties, and best practices for any jurisdiction to consider when incorporating climate change into local planning documents.

- *Jurisdictions in the Bay Area should also consider reviewing the [Adaptation Roadmap](#). Though the Roadmap provides Bay Area- specific guidance and resources, it also provides information relevant statewide.*
- ▶ Consider whether the adoption of a standalone climate adaptation plan by a public agency would constitute a project subject to CEQA. Agencies should determine whether the adoption is a discretionary action that could result in a direct physical change or a reasonably foreseeable indirect change in the environment (Pub. Resources Code, § 21065). For more information, consult the Governor’s Office of Planning and Research (See OPR’s [CEQA page](#) for more).
- ℳ While some climate change impacts are already happening, others such as sea level rise may be gradually appearing or only appear once certain ecosystem thresholds are met at an uncertain time frame in the future. As such, adaptation plans and planning processes should include a balance of both short-term and longer-term horizons. See the **Adaptation Pathways in the Adaptation Plan** box below for specific suggestions on phased adaptation planning.
- ℳ Numerous state and federal agency staff are available to support local and regional agencies when planning for coastal resilience. [SB 1 \(2021\)](#) authorized the Ocean Protection Council (OPC) to coordinate the California Sea Level Rise State and Regional Support Collaborative, which is intended to provide information and technical assistance to agencies updating local and regional land use plans to take sea level rise into account. (See Pub. Resources Code, §§ 30970-30973.) OPC, in coordination with the Collaborative, is directed to support and align local and regional sea level rise planning efforts. Jurisdictions should consider engaging the Collaborative and member agencies for guidance and assistance translating science into planning and policy, implementing strategies, governing regional adaptation, and accessing state and federal funding.



Adaptation Pathways In The Adaptation Plan:

Given the uniquely flexible nature of adaptation plans, they can be opportune for testing an adaptation pathways approach at any scale. Jurisdictions may also choose to complement this approach with risk tolerance and scenario-based planning, as appropriate. Adaptation plans can also be used to fill an adaptation role or cover a phase that may be out of scope for another plan. For example, most plan horizons cover 30 years or less, and may not be well scoped to plan for climate scenarios beyond 2050, as the [Adaptation Planning Guide](#) recommends. Examples may look like:

- ▶ **A Conceptual framework:** The plan may serve mostly as a conceptual long-term, vision-setting framework for an entire jurisdiction or region that identifies high level adaptation goals, priorities, and objectives, and will guide the development of more focused plans and strategies. The plan may describe foundational information such as the timeline, criteria, and process for developing, updating, or integrating plans, processes, actions, thresholds and triggers while balancing short-, mid- and long-term risks and priorities. The framework could describe at a general level the jurisdiction or region-wide phases and pathways, and identify information gaps to inform future research, while leaving flexibility for more area, topic, or project-specific pathways to be covered by other plans. Other non-climate change hazards could be addressed where the potential for compounding or cascading hazards could occur.
- ▶ **An Action Plan:** This plan format may be a more intricately detailed, implementation or action plan that complements a conceptual framework, and include focused near-term actions, timelines, implementation roles, funding opportunities, and specific adaptation pathways thresholds and triggers. The plan may cover all climate risks, or a specific subset such as sea level rise and coastal hazards, and a blend of near- and longer-term risks and actions. BCDC counsels in the *Adaptation Roadmap* that “having all actions and strategies exist in one plan can improve coordination efforts across multiple implementors to more clearly communicate and track how various actions function as a cohesive adaptation strategy.”
- ▶ **A Focused Plan:** Similar to the action plan format, a focused plan may be more detailed, but focus on a specific area, sector, or subset of climate impacts. This type of plan may cover an entire jurisdiction, or perhaps in larger jurisdictions, be part of a suite of adaptation plans that cover smaller geographic portions or specific topics, such as a shoreline area or the transportation sector. The plan may be focused on near-term actions, or include a blend of near- and longer-term actions. Regardless, a focused plan would ideally support and align with other plans, especially an overarching visionary or framework document.
- ▶ **An Integrated Plan:** This format may be either more visionary/conceptual or more focused/actionable, and is either merged with another type of community plan such as an LCP or hazard mitigation plan, or attached as an appendix or annex. Ideally, if integrated in this way, the integrated plans are complementary and fully aligned, and identify the ways that thresholds, triggers, and other adaptation pathways concepts inform the plan.

Tips and Requirements for the Vulnerability Assessment

- ▶ A vulnerability assessment for an adaptation plan may be used to meet Safety Element requirements per SB 379 (2015). The specific vulnerability assessment review requirements (Gov. Code, § 65302, subd. (g)(4)) include at minimum the following:
 - *An assessment of how climate change may affect flood and fire risks,*
 - *Climate science and other relevant information from Cal-Adapt and the California Adaptation Planning Guide.*
 - *Local agency information on assets, resources, and populations sensitive to climate exposures, and the agencies' current ability to manage climate impacts,*
 - *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,*
 - *Information on existing and planned development in identified at-risk areas, including structures, roads, utilities, and essential public facilities, and*
 - *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.*
- The LHMP risk and vulnerability assessment, LCP sea level rise vulnerability assessment, general plan flood risk information, coastal hazard, stormwater, and flooding assessments, and other existing local and regional sources can be used to inform an SB 379 (2015) and SB 1035 (2017) – compliant vulnerability assessment review for an adaptation plan, so long as all the information review requirements described in Government Code, section 65302, subdivision (g)(4)(A) are met.

Alignment Opportunities

- ▶ When updating the Safety Element to incorporate adaptation information or an adaptation plan, use the opportunity to incorporate the LHMP into the Safety Element. Under AB 2140 (2006) (Gov. Code, §§ 65302.6 and 8685.9), this enables jurisdictions to be eligible for consideration for state funding to cover the local match (6.25%) of FEMA PA costs for recovery activities after hazard events. Incorporation of the LHMP is also one option of compliance for meeting SB 379 (2015) and SB 1035 (2017) (Gov. Code, § 65302, subd. (g)(4) and (6)) general plan adaptation requirements.
- ▶ When updating the Safety Element to incorporate adaptation information or an adaptation plan, use the opportunity to sync the Housing Element and Safety Element to meet SB 1035 (2017) requirements (Gov. Code, § 65302, subd. (g)(6)). Updating both elements concurrently may trigger an SB 1000 environmental justice element update (Gov. Code, § 65302, subd. (h)).
- ▶ Inform disaster recovery planning with climate information (greenhouse gas mitigation, adaptation, and resiliency strategies and actions) included in the general plan Safety Element or local climate adaptation plan. The Safety Element also includes residential vulnerability and evacuation route information that should be utilized in recovery planning (See SB 99 (2019) and AB 747 (2019), codified at Gov. Code, §§ 65302, subd. (g)(5), 65302.15).



If the adaptation plan, or policies from the adaptation plan, will be incorporated into the general plan or a Local Coastal Program, or impact the coastal zone, care should be taken to avoid potential inconsistent land use policies between each plan. If a portion of a jurisdiction is in the Coastal Zone, that area is regulated by the Coastal Act (Pub. Resources Code, §§ 30000–30900) and local coastal programs, and policies will require more specificity than general plans. In accordance with SB 1 (2021), jurisdictions updating LCP’s must consider sea level rise based on guidance and findings established by the Coastal Commission. (See Pub. Resources Code, §§ 30421, 30501, subd. (c), 30270.)

Case Study

Humboldt County takes a regional approach to coastal resilience planning, and in partnership with other entities in the North Coast region, has conducted multiple efforts to study sea level rise vulnerability and develop adaptation strategies. More recently, the County developed a [site characterization and 50% preliminary design report for a portion of the Humboldt Bay transportation corridor](#). The project lays the groundwork for implementing natural infrastructure solutions to sea level rise along the shoreline.

Previously, the County conducted sea level rise vulnerability assessment and adaptation studies [to incorporate into the County’s Local Coastal Program](#), and prepared a scenario-based, [technical sea level rise adaptation plan for transportation infrastructure for another portion of the Humboldt Bay](#). The County has received various grants from the Coastal Commission, Ocean Protection Council, Caltrans, and National Fish and Wildlife Federation for these efforts.

Alignment Team & Community Engagement

- ▶ Consider carefully whether your alignment (planning) team or advisory groups should include any of the entities from each of the entity types listed in **Appendix A** as applicable to your jurisdiction, and how and when to engage different entities to achieve the most equitable and accurate results.



Implementation Planning

Implementing an adaptation framework can take many forms, and the process of integrating climate risk and adaptation solutions throughout government planning, decision-making, and investment processes is iterative and ongoing. The four primary plans described in this guide can support compliance with state adaptation mandates, establish authority for adaptation solutions, open opportunities for funding and financing, and identify specific implementation processes. When developing adaptation strategies in these plans, consider identifying implementation plans, such as the capital improvement plan, specific plans, area plans, or sector-based plans that are useful for implementing the strategies.

Cascading plans that resilience planning can influence, from the [Regional Resilience Toolkit](#).

- Guiding or Overarching Plans
- Secondary Long-Term Plans
- Annual Plans & Implementation Elements



Many other plans are used across a community and region to ensure our communities, economies, and environment are thriving – plans with key roles in investment decisions or a specific and detailed topical or area focus – that should be consistent with LHMPs, LCPs, general plans, and adaptation plans. These plans, for the purpose of this section, fall under the broad category of implementation plans, which can turn high-level policy into specific actions and stepwise roadmaps. Examples are shown in the graphic and listed below. This list, while likely not exhaustive, can be used to identify alignment opportunities, implementation mechanisms for specific adaptation strategies, and plans necessary for enforcing strategies.

Common Characteristics of Effective Implementation Plans

Plans that are more effective for carrying strategy and policy into action often have the following characteristics, alongside specific and detailed strategies and actions:

- ▶ Describes monitoring programs and criteria
- ▶ Processes for ongoing maintenance
- ▶ Prioritizes areas for upgrades
- ▶ Include actions that mitigate negative impacts of implementation
- ▶ Includes specific mechanisms for each strategy or action
- ▶ Identifies zoning modifications and restrictions
- ▶ Identifies other fiscal and regulatory incentives



Example Implementation Plans for Integrating Climate Solutions

Capital & Infrastructure Plans

- ▶ Capital Improvement Plans
- ▶ Public Works Plans (Local Coastal Programs)
- ▶ Maintenance Plans

Transportation Plans

- ▶ Active Transportation Plans (Bike or Pedestrian Plans)
- ▶ Regional Transportation Plans
- ▶ Sustainable Communities Plans
- ▶ Community Transportation Plans
- ▶ Caltrans District Corridor Plans
- ▶ Long Range Transportation Plans

Adaptation Implementation/Action Plans

- ▶ Shoreline Adaptation Implementation Plans (Bay Area)

Hazard-Specific Plans

- ▶ Flood Protection Plans
- ▶ Stormwater Management Plans
- ▶ Natural Resource Management Plans
- ▶ Green Infrastructure Plans
- ▶ Debris Management Plans

Emergency Operations Plans

- ▶ Evacuation Plans
- ▶ Maritime Response Plans

Area Plans

- ▶ Beach/Shoreline Strategy or Management Plans
- ▶ Maritime Improvement Plans
- ▶ Specific Plans
- ▶ Precise Plans
- ▶ Neighborhood or Community Plans
- ▶ Urban Design Standards and Guidelines

Watershed Plans

- ▶ Watershed Master Plans
- ▶ Integrated Regional Water Management Plans
- ▶ Sediment Management Plans
- ▶ Groundwater Sustainability Management Plans

Economic Plans

- ▶ Community Economic Development Plans
- ▶ Workforce Development Plans
- ▶ Organizational Strategic Business Plans
- ▶ Waterfront Revitalization Plans

Classifying Strategies To Identify Implementation Mechanisms:

The California Adaptation Planning Guide uses the term “strategy” generally to refer to a policy, program, project, measure, or action meant to increase resilience ([APG Phase 3.3](#)). Categorizing adaptation strategies during the planning process according to the following categories can be helpful for identifying implementation mechanisms and plans.

- ▶ Operational/internal;
- ▶ Programmatic/external;
- ▶ Plans, regulations, permitting, and policy development;
- ▶ Capital improvement/infrastructure projects;
- ▶ Education, outreach, and coordination;
- ▶ Funding and financing:
 - *incentives or disincentives*
 - *budget approaches*
 - *funding/financing sources*
- ▶ Capacity building

Guidance

For additional guidance on adaptation implementation, explore these state resources:

- ▶ [California Adaptation Planning Guide](#), Phase 4
- ▶ [General Plan Guidelines](#), Chapters 4 & 8



[Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone](#)

[The Adaptation Roadmap](#), Chapter 6

Tips for Aligned Budgeting and Investment

- ▶ When budgeting and prioritizing funding for infrastructure adaptation projects, evaluate the costs and benefits of strategies over the entire life cycle of at-risk infrastructure, as opposed to 20- or 30-year increments, when performing alternatives analyses. This analysis should assess both market and non-market values, such as ecosystem services that may be impacted, and environmental justice considerations. This analysis can inform the mitigation action details in an LHMP, the next update to a capital improvement plan, and subsequent implementation plans. (For more infrastructure resilience guidance, reference [Critical Infrastructure at Risk](#).)
- ▣ Consider creating or supporting a multi-jurisdictional entity, climate collaborative, joint powers authority or agreement (JPA), climate resilience district, or other independent special-purpose mechanism with the authority to coordinate, finance, and implement flood protection and sea level rise projects. These types of mechanisms can streamline planning, coordination, and implementation of multiple local and regional plans, finance regional infrastructure and natural resource projects, jointly purchase equipment, pursue grants, and start new programs.
 - *Public agencies can form a JPA to implement sea level rise solutions and other adaptation strategies, providing they meet the requirements of the California Joint Exercise of Powers Act (Gov. Code, §§ 6500-6599.3).*
 - *SB 852 (2022) (Gov. Code, §§ 62300 – 62312) gives communities and regions the authority to establish local “climate resilience districts” (CRDs), which can span jurisdictional lines and focus resources on local climate resilience risks and solutions. Cities, counties, and special districts can create CRDs to raise revenue, and plan and implement climate mitigation or adaptation projects. CRDs can also leverage a variety of local funding sources including private, local, state, and federal sources.*

Case Study

The San Mateo City/County Association of Governments of (C/CAG), a joint powers authority, developed a Green Infrastructure Design Guide to advance sustainable stormwater management through the San Mateo Countywide Water Pollution Prevention Program. C/CAG integrated climate resilience throughout the “one-stop-shop” guide, which covers green infrastructure and low impact development design and construction guidance, implementation strategies, operation and maintenance information, and technical specifications for agencies, developers, and design professionals. The Guide is interactive and regularly updated, and complements the C.3 Regulated Projects Guide, which provides technical guidance for navigating regional water quality regulations and stormwater permits.



Tips for Aligned Implementation

- ▶ Develop a monitoring and evaluation system to track social and economic impacts, monitor and adjust the effectiveness of climate resilience integration and plan alignment, and inform recovery frameworks and plans after hazard events and major disasters. Monitoring and evaluation activities are also critical for phased adaptation approaches that rely on specific thresholds, which would trigger subsequent decisions, planning, or actions.
 - *To ensure continued success and improvement, develop accessible, equitable, and transparent reporting mechanisms for community members to provide continuous feedback on plans, programs, and projects, even once the project has already been completed.*
- ▶ Accessible and transparent community engagement should continue in all phases of projects for equitable results and continued alignment across the community. Continuing open communication and engagement between community members and local government entities and allowing community members to express their thoughts on the resulting project is important for monitoring whether solutions are effective.
- ▶ To minimize the time and financial costs of reanalyzing a series of projects related to a planning document where CEQA analysis is required, a jurisdiction can use a programmatic EIR for a local plan, such as an adaptation plan, hazard mitigation plan, or the general plan, which may allow them to tier their analysis of subsequent discretionary projects from the program EIR. (CEQA Guidelines § 15168.) By using this approach, a jurisdiction can limit the environmental review for a subsequent project, such as capital improvement or development projects that are within the scope of the plan and associated programmatic EIR, to those project-specific significant effects that the program EIR either did not examine fully or did not examine at all.
- ▶ Permitting coordination is useful to consider during the planning phase, as it may be necessary to update the LCP, general plan implementation documents, or other plans to modify permitting regulations and enable aligned regional permitting. The varied permitting

requirements and processes of different agencies with shared jurisdiction over an area can lead to lengthy and costly project implementation. To mitigate this potential, consider starting or joining a local or regional group of agencies committed to streamlining, aligning, or even integrating permitting requirements and processes.

- ▶ Use land use regulations to implement general plan flood and sea level rise hazard mitigation policies. Making changes to zoning and subdivision ordinances to align with sea level rise projections and associated risks that impact coastal flooding and floodplain management needs is crucial to the success of flood management under a changing climate.

Case Study

Santa Barbara County leads and supports numerous initiatives to scale local and regional solutions, empower community members to take action, and coordinate with neighboring jurisdictions:

- ▶ **The One Climate initiative unifies messaging and outreach for several major County climate efforts, including the adaptation plan, general plan safety and Housing Element updates, climate action plan, and active transportation plan. The County is also developing an environmental justice element.**
- ▶ **The County is a founding member of the Santa Barbara County Regional Climate Collaborative, a multi-sector network of organizations working together to advance emissions reductions and adaptation. The Collaborative has successfully received grants to develop resilience hubs and a sea level rise monitoring plan.**
- ▶ **The Resilient Central Coast campaign is a multi-jurisdictional effort to empower community members to reduce their carbon footprint and make their communities more resilient through everyday actions. Households can create a profile; commit to adaptive actions like growing their own food or making an emergency plan; and track their progress over time.**

Final Thoughts

This resource was developed for sharing with colleagues, community leaders, and other interested community members.

We hope the resources and ideas found here will help advance the journey to improved collaboration, integrated planning, and community resilience. For additional resources, guidance, questions, and technical assistance, contact staff at the Governor's Office of Planning and Research by emailing icarp@opr.ca.gov. All the resources listed here are available at ResilientCA.org/plan-alignment, along with examples from peers who are tackling the same challenges.

Other Plan Integration and Alignment Resources

Many other resources exist to support plan integration and alignment. The following resources complement the information in this guide and may be useful for those wishing to learn more about integrated planning and pathways for alignment between plans and other topics not covered in this guide.

- ▶ [Building Resilience Through Plan Integration](#): The American Planning Association released this Planning Advisory Service Memo in 2021 to show how planners can use the Plan Integration for Resilience Scorecard. The memo also provides a manageable list of concrete steps to take when just getting started.
 - *Plan Integration for Resilience Scorecard (PIRS): The PIRS method, which Texas A&M University developed, is a planning and spatial analysis process helpful for assessing consistency, identifying areas of policy conflict, and prioritizing alignment opportunities between plans. The 2017 version of the guidebook is [available for free online](#).*
- ▶ The Federal Emergency Management Agency (FEMA) has developed a number of plan integration guides linking hazard mitigation planning to other plans and processes:
 - [Comprehensive Economic Development Strategy and Hazard Mitigation Plan Alignment Guide \(2022, FEMA and EDA\)](#)
 - [Integrating Hazard Mitigation Into the Local Comprehensive Plan \(2020\)](#)
 - [Plan Integration: Linking Local Planning Efforts \(2015\)](#)
 - [Integrating Hazard Mitigation Into Local Planning \(2013\)](#)
 - [Hazard Mitigation: Integrating Best Practices into Planning \(2010, FEMA and APA\)](#)

Appendix A: Community/Entity Engagement

The planning process, as well as the consistent engagement and collaboration throughout the process, should be inclusive and multidisciplinary. All plans and alignment initiatives should center around the community's vision, but community engagement should continue throughout these processes. Comprehensive engagement is essential for promoting alignment, adopting effective planning policies and strategies, identifying implementation opportunities, and can improve local conditions and enhance equity. Additionally, community engagement, collaboration, and partnership are often critical for effective plan implementation and maintaining ongoing support for actions identified in local plans. To learn more about the important role engagement plays in plan alignment, please refer to the **Big Ideas** and **Best Practices** sections.

The Plan Alignment Guides highlight two primary coordination and engagement mechanisms beyond a document's core planning team:

- ▶ A broader **alignment team** that meets regularly to keep plan coordination consistent and ongoing, and to build the institutional practice of interdisciplinary planning. This team may consist of all planning teams within a jurisdiction and/or throughout the broader region, as well as key entities that play a central role in community visioning, planning, and implementation.
- ▶ A **robust engagement process** that involves community, local agency, regional, tribal, state, federal, and private sector entities. Each phase of the planning and alignment process should include engagement and the solicitation of input, support, and expertise.
 - ↔ *State law requires that local planning agencies provide opportunities for the involvement of the community when updating General Plans (Gov. Code, § 65351), and that jurisdictions make a diligent effort to include all economic groups when developing its Housing Element (Gov. Code, § 65583, subd. (c)(9)).*
 - ↔ *When adopting or amending a General Plan, local governments must contact, provide notice to refer plans to, and consult with California Native American tribes that are identified with help from the Native American Heritage Commission (NAHC). These requirements apply to adoption and amendment of both General Plans and specific plans. For more information, refer to OPR's "[Tribal Consultation Guidelines](#)."*

Each communities' alignment team and engagement process will look different based on their unique capacity, needs, and landscape. The table below outlines examples of entities within four sample groups but should not be interpreted as a complete list of relevant entities or a prescriptive approach.

The alignment team should inform who will be involved and what their role will be in the planning and implementation processes. The answers to these questions will dictate how, when, and how often they should be engaged. Entity mapping can be a useful tool for making these distinctions and building a comprehensive outreach plan.

Resources

- ▶ [General Plan Guidelines Chapter 3](#)
- ▶ [Regional Resilience Toolkit Entity Mapping Template](#)
- ▶ California Adaptation Planning Guide [Phase 1, Step 1.4](#) page
- ▶ California Adaptation Planning Guide [Community Vision and Goals Template](#)
- ▶ Additional community engagement guidance is integrated throughout the [California Adaptation Planning Guide](#) – explore the online version or download the full PDF version on the Adaptation Clearinghouse.
- ▶ State Adaptation Clearinghouse [Communications and Educational Materials](#)
- ▶ State Adaptation Clearinghouse [Equitable Planning and Community Engagement](#) page
- ▶ [Adaptation Roadmap](#) - Chapter 2



Key Entities to Engage

This table provides examples of entities to help you brainstorm who to engage in your planning process.

Community-Based Entities

- *Academic Institutions / Community Research Entities*
- *Community Based Organizations (CBO's)*
- *Non-profits and other non-governmental organizations (NGO's)*
- *Environmental Justice / Climate Equity Groups*
- *Representatives of / from Vulnerable Communities*
- *Faith-based groups*
- *Homeowner's Associations*
- *Environmental Organizations*
- *Fish and Wildlife Organizations*

Local Agency Entities

- *City Manager*
- *County Accountability Office*
- *Communications Department / Public Information Office*
- *Housing Officials*
- *Finance Managers*
- *Natural Resource Managers*
- *City Council / Board of Supervisors*
- *Planning / Building Commissions*
- *Public Works / Utilities*
- *Building Department / Code Enforcement*
- *Parks and Recreation*
- *Special Districts*
- *School Districts*
- *Local Transit Agency / Authority*
- *Public Health Officials*
- *Police / Sheriff Departments*
- *Local Continuum of Care Providers*

Regional Entities

- *Metropolitan Planning Organizations*
- *Councils / Associations of Government*
- *Regional Collaboratives*
- *Joint Powers Authorities*
- *Neighboring Jurisdictions*
- *Continuum of Care Entities*
- *Air Quality Management Districts*

Private Sector Entities

- *Utility Representatives*
- *Chambers of Commerce*
- *Local Business Owners*
- *Downtown / Business / Merchants Associations*
- *Small Business Development Centers*
- *Climatologists*

Federal, Tribal & State Entities

- *Federal Emergency Management Agency (FEMA)*
- *National Oceanic and Atmospheric Administration (NOAA)*
- *United States Geological Survey (USGS)*
- *Relevant state agencies, departments, regional districts, and entities*
- *California Native American Tribes*
- *Tribal organizations*
- *Tribal agencies*
- *US Bureau of Indian Affairs (BIA)*
- *US Board of Land Management (BLM)*
- *USDA Forest Service*

Key Coastal Entities to Engage

Entities particularly important to engage for coastal hazard resilience include, but are not limited to:

Community-Based Entities

- *Shoreline protection organizations*
- *Coastal recreation organizations*
- *Wetlands and estuaries organizations*
- *Conservation organizations*
- *Coastal businesses and homeowners*
- *Maritime vessel residents and owners*

Local Agency Entities

- *Resource Conservation Districts / Natural Resource Managers*
- *University of California Cooperative Extension Offices*
- *Local Flood Control Agencies*
- *Maritime agencies*
- *Port and Harbor Districts and officials*

Regional Entities

- *Integrated Regional Water Management Collaboratives*

Private Sector Entities

- *Private Landowners (both industrial and non-industrial)*
- *Insurance Companies*
- *Natural resource-based private entities*
- *Private ports and harbors*
- *Maritime entities*

Federal, Tribal, & State Entities

- *California Ocean Protection Council*
- *California Coastal Commission*
- *San Francisco Bay Conservation and Development Commission*
- *California State Lands Commission*
- *California Coastal Conservancy*
- *California Governor's Office of Emergency Services*
- *California Governor's Office of Planning and Research*
- *California Department of Water Resources*
- *California Geological Survey under Department of Conservation*

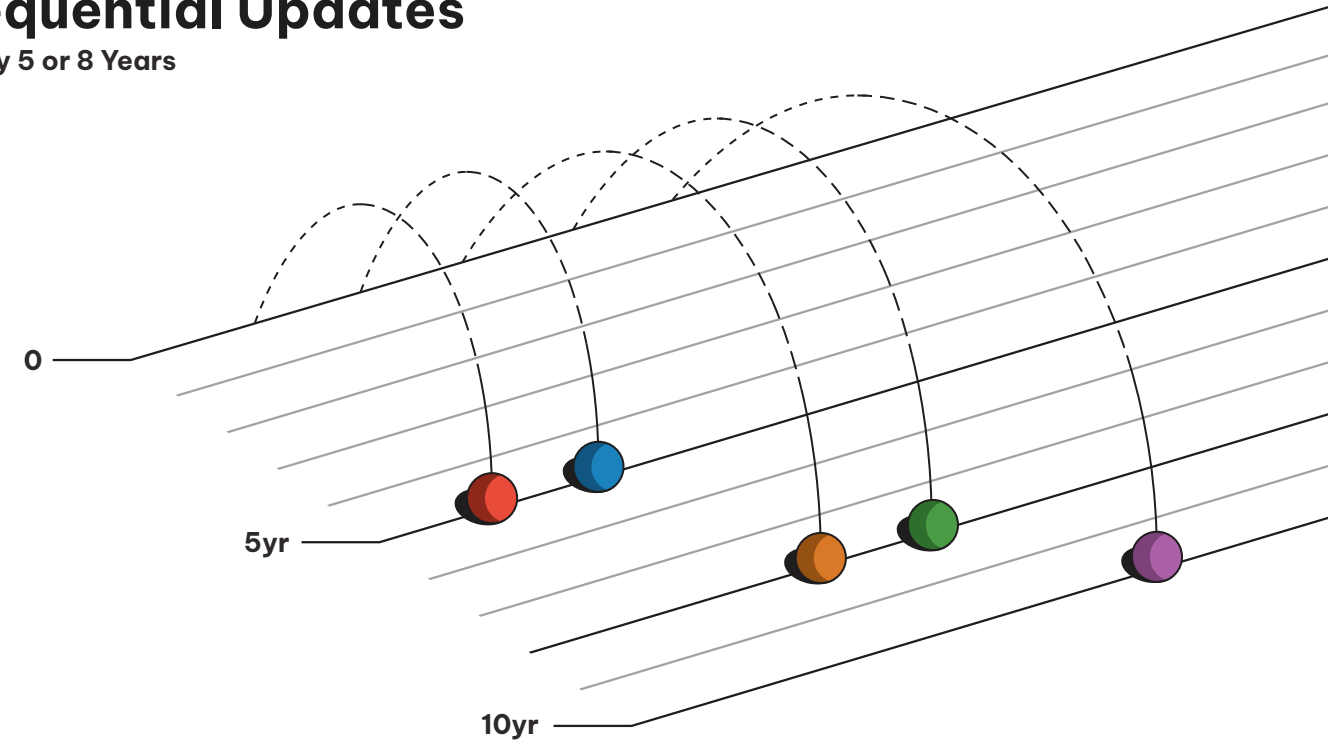
Appendix B:


Example Plan Update Pathways Over 10 Years

Plan Update Pathway A:

Sequential Updates

Every 5 or 8 Years

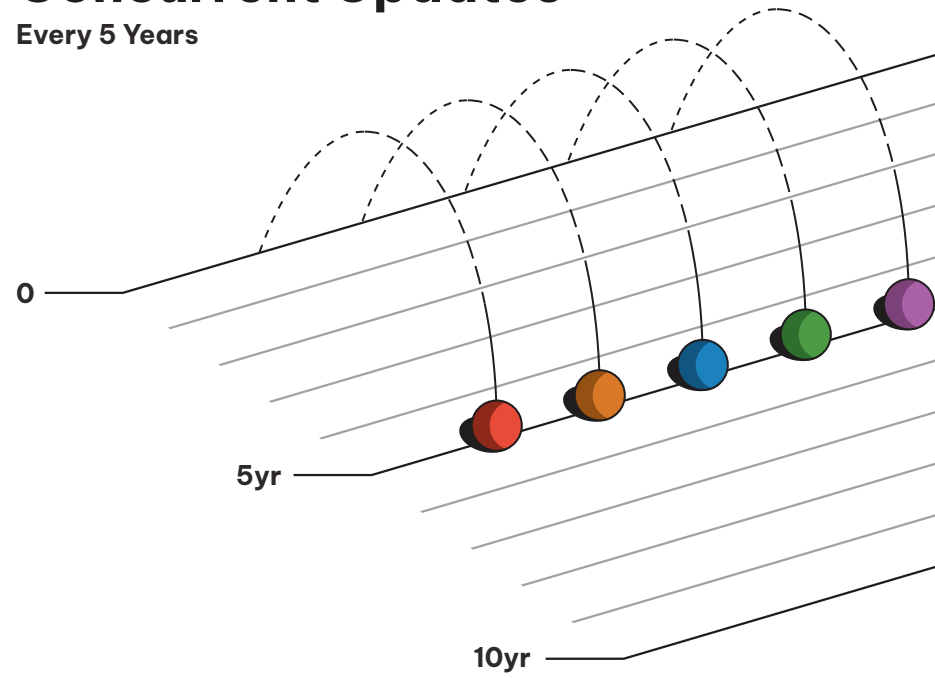







-  LHMP
-  Safety Element / Adaptation
-  Housing Element
-  EJ Element
-  Other General Plan Elements

Plan Update Pathway B:

Concurrent Updates

Every 5 Years

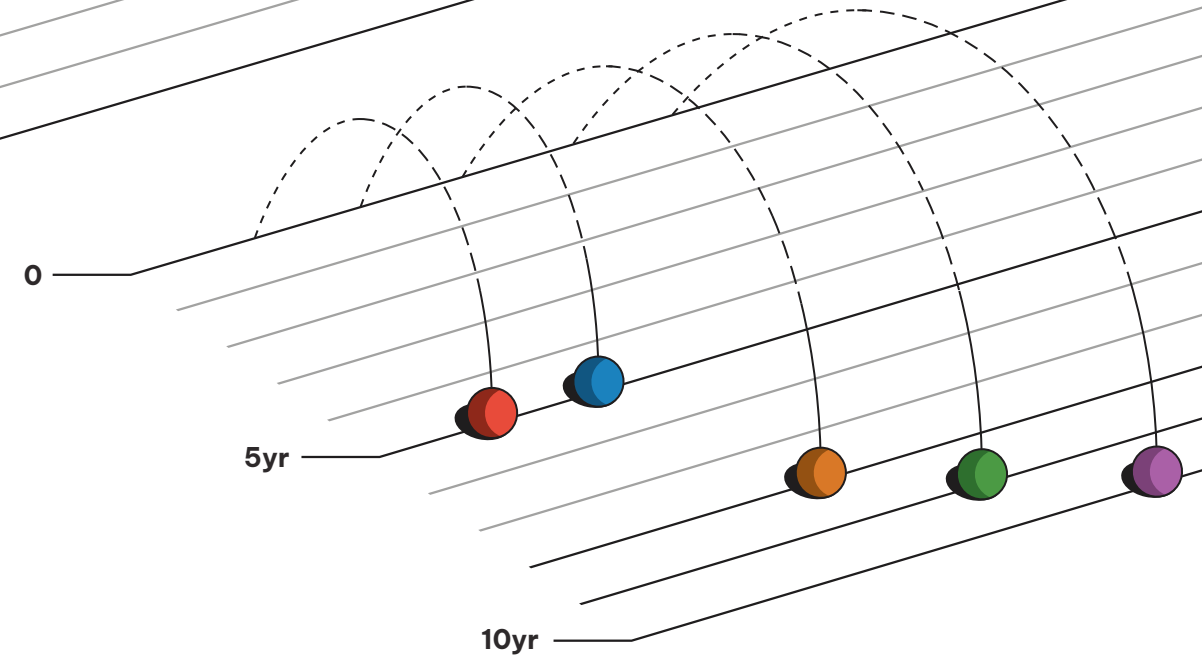


-  LHMP
-  Safety Element / Adaptation
-  Housing Element
-  EJ Element
-  Other General Plan Elements

Plan Update Pathway C:

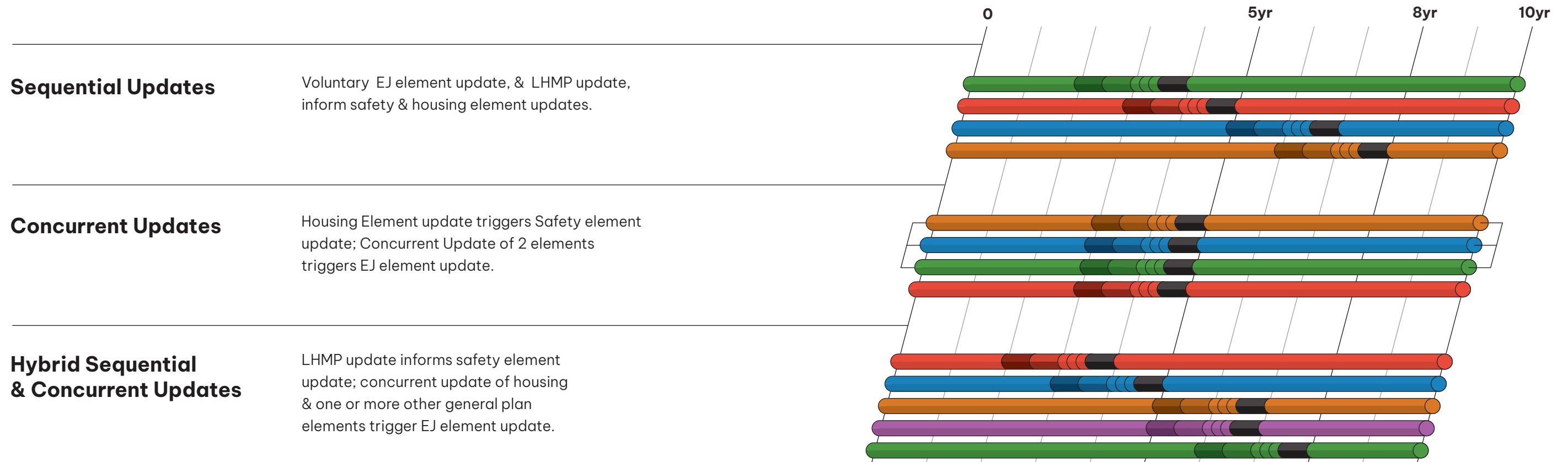
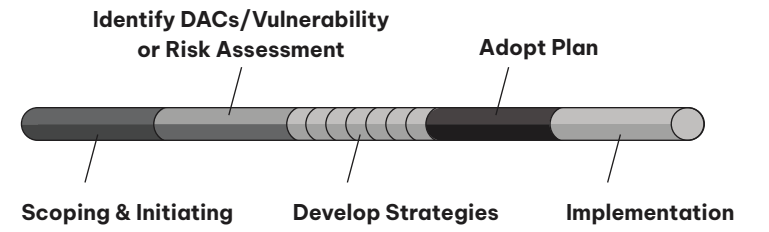
Hybrid Sequential & Concurrent Updates

Every 5 or 8 Years



Overlapping Tasks

- EJ Element
- LHMP
- Safety Element / Adaptation Plan
- Housing Element
- Other General Plan Elements





■ **Coordination & Integration Make a Community Stronger**

For more information and insight on the
Plan Alignment Guides visit ResilientCA.org/plan-alignment