Draft

Resilient Imperial Beach
Framework for a Phased Approach to Updating the Local Coastal Program/General Plan for Coastal Resiliency

August 2022

Framework Summary & Overview

- A phased approach to sea level rise (SLR) adaptation and coastal resiliency building is well accepted by the California Coastal Commission (CCC) and used by many local cities as reflected in recently certified Local Coastal Programs (LCP) including Morro Bay and Half Moon Bay

- The approach and format of a phased adaptation plan ranges from simple tables to entire chapters devoted to listing / describing the anticipated future actions, programs and projects that the City will explore as part of a customized local response to SLR

- Key issues raised by CCC staff in their comments should be considered for inclusion in an LCP Work Plan for future implementation items as conditions warrant based on locally observed tide gauge measurements of SLR at the La Jolla Tide gauge managed by NOAA

- Work Plan programs and projects that the City is currently developing as part of the phased coastal resiliency / SLR adaptation efforts are shown in the LCP Work Plan Tables 1A – 1D and summarized in Table 2.

- Contributing and related efforts that the City is currently participating in with other local, regional state and federal partners to enhance and promote a coordinated approach to coastal resiliency building are shown in LCP Work Plan Table 3.

- Grant awards and applications in process are shown in LCP Work Plan Table 4.

Section 1. Background and Introduction

LCP Update for SLR – Issues, Challenges and Opportunities

Updating the City's Local Coastal Program (LCP)/General Plan (GP) to reflect changing climatic conditions, including sea level rise (SLR) has been a complex process that is necessarily iterative in nature due to the long-term planning horizon for SLR and SLR-related effects and the dynamic and evolving nature of climate science. For more than a decade, the City has been partnering with local, regional, state and federal government agencies as well as with special districts and non-governmental entities to advance important local goals and priorities while confronting the complex planning challenges faced by local jurisdictions attempting to implement micro-solutions to address a problem that is global in nature. While SLR is a global phenomenon, the rate of rise and the nature of SLR effects vary greatly along the coast. For example, the nearest local tide gauge In La Jolla at the Scripps Pier has shown a linear or consistent rate of SLR of 2.13 cm per year for the last 100 years reflecting no measurable SLR locally at the present time. See: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9410230

While there are site-specific and localized impacts, the rates of rise, areas of flooding and/or inundation, and erosion patterns occur on regional scales which transcend jurisdiction boundaries. The scale, complexity, economics, and political sensitivity mean that SLR adaptation is usually difficult for any single city to tackle alone. Therefore, regional approaches can be an effective tool for providing flexibility in how local entities approach coastal resiliency. Tools for managing risks from other natural hazards such as those posed by wildfires, floods, landslides and groundwater management offer models and lessons on the effectiveness of coordinated regional approaches to mitigating other natural hazards. Regional approaches offer many advantages over localized approaches and offer specialized tools and resources for effective hazard mitigation and adaptation and funding opportunities.

Building on the 2016 SLRVA, City staff has developed a path forward for updating the City's LCP to address sea level rise that includes current guidance outlined by the California Coastal Commission (CCC) in their 2021 Draft SLR Guidance for Critical Infrastructure. The City's approach is partially modeled on contemporary approaches taken by other cities with respect to preparing and/or updating their LCPs and is designed to be phased in over time in an efficient and effective manner. Importantly, as the science surrounding SLR predictions continues to evolve we will continue to improve our understanding of the complex interplay and mix of variables at play in greenhouse gas emissions (GHG) estimates and calculations, climate change and their effects on sea levels.

The City desires to pursue a phased approach to the LCP update process that incorporates multiple phased future updates rather than one single major update. The CCC has indicated its support for incremental phased updates to LCPs that include identifying appropriate baseline policies, long range planning horizon timelines, physical thresholds for policy application, and future update requirements. This phased approach takes the form of a "Work Plan" to guide implementation of and future amendments to the City's LCP. The land area encompassing the City of Imperial Beach is fully built out and the City's shoreline is fully urbanized and developed. The City's proposed "Work Plan" approach to LCP amendments acknowledges that the City's primary goal is to maintain and enhance the quality of life in the City now and in the future for its residents, visitors and businesses.

Within the Work Plan are various policies, programs and projects that the City can phase in over time as targeted future amendments to the LCP. This phased approach will enable the City to implement policies, programs and projects as incremental steps intended to achieve continued progress in effectively planning to forestall, avoid, mitigate and adapt to future SLR effects in the City. The Work Plan includes measures for both critical public infrastructure as well as private development. The Work Plan is intended to be a living document based on the best available science and current best practices and has been tailored to reflect the unique local conditions, preferences, goals and vision of the City of Imperial Beach.

This phased approach to improving coastal resiliency will be subject to future periodic reviews and updates by the City and is intended to tackle SLR related challenges in a way that does not overwhelm the resources of the City or the resolve of the City leadership to continue to make meaningful progress in addressing and adapting to SLR.

The City's Work Plan is based in part on approaches incorporated by other cities as part of their LCPs including those of Solana Beach, San Clemente, Santa Barbara, Morro Bay and Santa Cruz. Based on a comprehensive review by Staff, a phased approach to addressing SLR is well accepted and used by many local cities and the approach and format varies widely across jurisdictions.

Significant challenges to effective SLR adaptation remain and include lengthy analyses and planning and permitting processes, inadequate funding, and legal uncertainties, among others, which have slowed, or stalled local government and Coastal Commission efforts to update LCPs for SLR. The City of Imperial Beach is no exception; however, Imperial Beach has already taken several critical first steps to addressing SLR by completing a vulnerability assessment in 2016 and submitting numerous grant applications in 2020-2021 to obtain funding to implement local coastal resiliency related programs and projects as described in Table 4.

The City's LCP includes various resources, safety, access, hazard and SLR adaptation policies. To make California's coast resilient to SLR risks and hazards, it is recognized that all cities and counties will need to take local actions to ensure progress towards addressing sea level rise and ensuring local coastal resiliency.

Section 2. Regional & Statewide Coordination on Phasing Coastal Resiliency

Beginning with the 2012, the City participated on the Steering Committee and assisted in the preparation of the *SLR Adaptation Strategy for San Diego Bay*. For the past decade the City has continued to seek partners to address SLR and enhance regional coastal resiliency. In 2020, the CCIG, CSAC and CCC prepared a Joint Statement intended to provide a foundation for local governments' collective efforts on sea level rise adaptation planning going forward. The Joint Statement outlined guiding principles, opportunities, challenges, and actions associated with proactive and effective sea level rise adaptation for California's coastal communities. It focuses specifically on Local Coastal Program (LCP) policy development, adaptation planning, and project decision-making. The Joint Statement was adopted by the Commission in November 2020 and laid the foundation for the December 17, 2020 Local Government Workshop that focused on the next steps regarding how to apply the shared principles.

The City acknowledges the challenges and opportunities associated with the LCP update process, and specifically those associated with planning horizons, local. Local goals, needs and conditions. In the Joint Statement, the Commission and local governments agreed to establish timeframes under which the LCP update will be operable by identifying the appropriate scope and time horizon for future updates. the update.

The Commission and local governments agree that while some degree of statewide consistency is important, all LCP updates should address unique local issues. As a result, the Imperial Beach LCP and Work Plan is not identical to those of other jurisdictions. The City's LCP update includes baseline hazards policies and concepts, including policies related to sea level rise hazards, use of best available science, and the appropriate siting of new development.

Through the Work Plan, the City has outlined a series of steps and options to efficiently move update work, one phase at a time. Fundamental to this approach is obtaining the necessary funding to support not only future LCP updates but also funding to implement actual programs and projects that will enhance local coastal resiliency in IB such as those efforts described in Tables 1A - 1D and summarized in Table 2.

Section 3. Work Plan Phasing of the Imperial Beach LCP Update

Process & Substance

The City's LCP Work Plan will include phasing of both the LCP update *process*, the *substance* of the policies themselves, and the Implementation Plan (IP) *measures* necessary to carry out the LUP policies. The Work Plan identifies the time horizon associated with the current update LCP Update (2020 – 2040), as well as the information needed to support the coastal resiliency and adaptation plan for the City.

The City's LCP includes baseline policies for coastal resiliency and sea level rise planning and set the stage for future LCP updates as described in the LCP Work Plan.

Key issues included in the City's LCP Work Plan:

- ESHA mapping and buffers and defining allowable uses within buffers
- Coastal Resiliency Projects to be funded by various grants (See Table 4)
- Shoreline Management Plan
- Continued participation in the City's and SANDAG Regional Shoreline Monitoring Program established in 1999 (baseline)
- Tide gauge monitoring using Scripps Pier tide gage data as adjusted for IB
- Continued exploration of living shoreline / hybrid armoring projects and programs recommended in CCC 2021 Draft SLR Guidance for Critical Infrastructure.
- Allowances for shoreline protective devices per Coastal Act Section 30235 for existing structures
- Safety Element updates to convey a clear approach to addressing Collaboration with other agencies to address the impacts of SLR upon the bay and estuary shorelines as sea level rises
- Cooperation to ensure Multi-Jurisdiction Local Hazard Mitigation Plan Updates occur on a regular basis
- Working with regional, state and federal partners to implement appropriate SLR adaptation measures for the San Diego Bay shoreline
- Working with regional, state and federal partners to implement appropriate SLR adaptation measures for the TRNERR shoreline

Section 4. The Current IB 2020-2040 LCP Update & Baseline Policies

The City has incorporated foundational sea level rise hazard planning policies in the LCP as contained in the General Plan Safety Element. Future planning decisions, programs, policies and actions pertaining to coastal hazards must be consistent with these policies. set the stage for future successful LCP Amendments / updates. The following foundational policies outline the few basic policies intended to create the foundation on which local sea level rise planning and project development that reflect coastal hazards now and into the future. Future updates to the Imperial Beach LCP as described in the Work Plan would continue to rely on these baseline policies, though they would be modified as needed to reflect changed conditions, SLR predictions/best available science and best practices and lessons learned.

IB LCP Baseline Coastal Hazard and SLR Related Policies

Best Available Science (Policy 7.1.1). Requiring the use of best available science is foundational to an effective sea level rise LCP update. The Coastal Act requires new development to minimize hazards and protect coastal resources. In addition, the Coastal Act calls for the use of sound science to guide its decision making and to support public understanding and participation in coastal planning. A policy requiring the use of the best available science guides local decision makers on what science to look to when planning for sea level rise and analyzing hazards and permitting projects in the coastal zone. As a general matter, all communities should embrace the best available science and analyze a range from low to moderate to high projections of sea level rise in their planning for coastal hazards both as a part of vulnerability assessment and adaptation plan development and at the project-scale for individual permits.

The State of California has long supported the preparation and provision of scientific information on climate change and sea level rise to help guide appropriate and resilient planning, permitting, investment, and other decisions. For example, the State's California's Fourth Climate Change Assessment to advance actionable science that serves the needs of state and local-level decision-makers. Specific to sea level rise, the State also released the 2017 Rising Seas in California: An Update on Sea-Level Rise Science and the State of California Sea-Level Rise Guidance: 2018 Update (2018 OPC SLR Guidance).

The 2018 OPC SLR Guidance contains a set of projections for 12 tide gauges throughout California, and the Coastal Commission recommends using these projections and related information as best available science on sea level rise in California. The Coastal Commission will re-examine best available science periodically and as needed with the release of new information and the City will incorporate these updates as needed in the future.

Vulnerability Assessment and/or Adaptation Plan development and updates.

To ensure policies are developed consistent with Coastal Act requirements in the local context, The City completed a SLR Vulnerability Assessment (SLRVA) in 2016 to identify potential future hazards in the City and to begin the local adaptation planning process. Completion of this important first step provided the information needed to the City to begin to identify and understand the local hazards and risks that rising seas will have locally. In response, the City has developed policies that are included in

the LCP to address existing hazards and plan for new development or redevelopment that protects not only existing structures but also coastal resources and public access consistent with the Coastal Act.

The City's existing SLRVA has enabled the City to begin the process of informing the community of the need for developing a companion coastal resiliency plan to ensure appropriate response to SLR. This LCP Work Plan Appendix in intended to set the stage for future actions to planning and permitting work for shorefront development as well as for other areas at risk from the future effects of potential SLR.

Policies and implementation measures that require shoreline hazard evaluations in connection with new development or redevelopment using best available science will generate the information needed to plan for the next generation of development along the shoreline and throughout the other areas of the City at risk from rising seas. Such future studies will take into consideration the current alignment of existing structures, whether they are currently vulnerable or require protection and whether the standards typically applied to new development assuring anticipated safety for the life of the development can be met. The information contained within the City's existing SLRVA provides the foundation for the City to develop a local, community-specific coastal resiliency plan/strategy that can be developed and incorporated into future LCP amendments/updates.

The City's LCP Work Plan includes steps to update the SLRVA periodically based on the best available science, and when new science becomes available that would significantly change their land use planning and permitting decisions (e.g., when sea level rise projections, probabilities are and/or risk tolerances are updated). The Work Plan also includes measures to prepare a local Coastal Resiliency Plan to outline the menu of policies, plans, programs and projects to be implemented by the City to ensure and enhance long term coastal resiliency.

Imperial Beach LCP Work Plan Phased Updates.

By committing to a phased approach to LCP updates for sea level rise, the City is acknowledging that the current LCP update is part of a phased, multi-step update process more fully outlined in the LCP Work Plan. The City's LCP will be reevaluated and updated at regular future intervals to respond to new information and dynamic sea level rise science and on the ground local and regional conditions.

Selecting an applicable future planned update timeframe will help the City and its residents, visitors and business communities better understand how the policies will play out on the ground in their neighborhoods so an adaptation plan can be developed with community input utilizing information gained from vulnerability assessments and hazard evaluation plans. This will help prepare for future updates and changes to come.

Crafting next round LCP amendments for small increments of time is a new approach so there are few examples available on which to rely. However, there are examples of policy language that can be used to set the necessary steps toward completion of an adaptation plan that meets the requirements of the Coastal Act and also takes into consideration the specific context of a local government's shoreline, and what needs to be done in identified increments to protect both development and public recreational amenities and use of the public beach.

A key component of establishing baseline policies in the current comprehensive LCP update is committing to these future updates when indicated by local, regional and statewide data, and objective, measurable triggers for those future updates. Or, the City may decide they want to do a

review for a periodic update consistently into the future on a specific timeframe, for example an evaluation every 10 years. The City could also decide they wish to combine a trigger-based update with a time certain update. For example, every 10 years, or once sea level rise hits a certain elevation as measured at the tide gauges being tracked, whichever is sooner.

In any case, updates to the City's LCP will be important in the sea level rise context because everything associated with the hazard is highly dynamic: the best available science continues to evolve, sea levels continue to change, storm conditions continue to shift patterns and intensity, etc. In addition, local understanding and local goals, preferences and priorities may also shift with time.

Section 5. Advantages to Regional Approaches to SLR Adaptation Planning:

Using a common vision for a region, the future of a coastal region (i.e., littoral cell, SANDAG region or some defined area) can be established. Regional planning encourages discussions between communities, across jurisdictions, and the formation of coordinated visions and planning processes. Regional discussions allow stakeholders to see beyond local needs and challenges to see the interconnectedness of the coastal communities. Other advantages include:

- Strategic prioritization of protected spaces and infrastructure.
- Regional planning allows communities to be more strategic with:
    - Protecting areas or resources threatened in the near term
    - Protecting infrastructure, beaches and resources of unique value
    - Capitalizing on opportunities when certain funds or mitigation options become available.
- Prioritization is critical for effective use of public funds for building, protecting, or relocating major state and regional infrastructure (AB 67).
- Flexibility for solutions. Allows you to go beyond jurisdictional constraints to identify adaptation and mitigation solutions.
- Flexibility in location and type of protection (including hybrid solutions like living shorelines) and mitigation expands options for developing durable solutions and establishing partnerships, sharing and leveraging resources.
- Collaborative planning can aggregate resources and leverage and attract funding that might not be available for smaller scale projects. [For example, a small city may not have funding to generate SLR model runs for their community but may succeed if collaborating with neighboring jurisdictions to fund a regional-scale assessment.]
- Equipment and other resources can be shared/leveraged across a region.
- Stimulates creative partnerships.

Challenges to Local and Regional Approaches to Adaptation

Some of the challenges to regional planning and adaptation may include the following:

- Logistic challenges of conducting projects across multiple jurisdictions
- Differing priorities and needs of communities and landscapes within a region
- Inadequate funding for regional SLR planning
- Varying nature of rise and potential effects along the coast
- It is difficult enough to have discussions on sea level rise in one community, let alone across and between multiple communities simultaneously.
- Not all regional or communities are suitable for, or will want to take, a regional approach to adaptation planning.
- Potential costs for regional projects (including major infrastructure projects) are large and will likely require federal partnerships

Opportunities for Regional Approaches to Adaptation

The City endorses regional approaches to planning and adaptation. In order implement regional strategies, there are a range of tools, mechanisms and funding that will be required. Some of these exist and will need to be expanded and customized for sea level rise planning (such as joint powers authorities). Some are in pilot phases (such as Caltrans Advance Mitigation program). Some need new sources and models.

The City is committed to continue to develop pilot approaches to using these tools in order to support regional and phased approaches to sea level rise planning, specifically within the context of LCP development and approval.

The City will work with partner agencies including SANDAG to engage in local experiments, and statewide discussions to speed and improve the use of the following tools for planning and adaptation:

- Regional vulnerability assessments with best available science
- Regional visions for plans and coastal management
- JPAs and special funding and authority districts
- Advance mitigation banking programs
- Funding sources for regional planning and projects

Section 6. Overview of Selected Phased Approaches used by Others

City of Solana Beach: Efforts to obtain a Certified LCP were initiated by Solana Beach in 2000. In 2012, their LUP was certified by the CCC for the first time. The LUP was amended in 2014 to clarify key policies regarding shoreline protection, requirements for a fee study to determine mitigation for seawalls and changes to policies for new development. Work on an internal Draft IP is underway. The City does not have a stand-alone SLR vulnerability study as one was done for the City by the USACE as part of Feasibility Study for a 50-year beach sand replenishment project that will be implemented in late 2023/early 2024. Similarly, there is no formal coastal resiliency plan as the City has already committed to periodic beach sand replenishment for the next 50 years as the key coastal resiliency strategy.

The City has an LCP Work Plan that serves as a guide for follow-up actions on LUP policies that require implementation either in the form of a task (i.e., conduct an ESHA map update every 10 years) or that require a corresponding IP regulation in order to implement an LUP Policy (i.e., providing further specificity/standards). The Work Plan is not an "official" part of the LCP; rather it is used as an internal document by City Staff for budgeting, tracking progress on the LUP items and prioritizing CIP expenditures since the LCP is an official City CIP Project.

City of San Clemente: The City does not yet have a Certified LCP. Its first LUP was certified in 1996 and was comprehensively updated between 2015-2018 via several CCC LCP Planning Grants. A comprehensively updated LUP was certified in 2018. City staff attempted to amend the LUP in 2020 to modify a definition and ultimately withdrew the LUPA prior to the CCC taking action to deny the City's amendment. The IP is in progress and the document was published for public review in early 2022. A SLRVA was completed and submitted to the CCC as a final grant deliverable at the end of 2019. A Coastal Resiliency Plan was completed in 2021. Although both the SLRVA and Coastal Resiliency Plan were prepared with the assistance of CCC LCP Planning Grants, both are stand-alone documents and not formally part of the City's LCP and prepared subsequent to the LUP update. The City is now working on a nature-based adaptation project feasibility study which will get underway in late 2022. A link to the San Clemente Final SLRVA and Coastal Resiliency Plan can be found at https://www.san-clemente.org/departments-services/planning-services/long-range-planning/local-coastal-program

City of Santa Barbara: The City's LCP/LUP was certified by the CCC in 2019. The Coastal Hazards section of the LUP references a future Sea Level Rise Adaptation Plan which was approved by the Santa Barbara City Council in February 2021. City staff is in the process of developing the LCP Amendment to incorporate the Plan which will require Planning Commission and City Council approval. Ultimately, the CCC will receive the Plan and be asked to certify it. This is another example of a City pursuing a phased approach to addressing coastal resiliency / SLR adaptation using a phased or tiered approach. The approach of Santa Barbara is in contrast to the approach taken by San Clemente where the SLRVA was submitted to the CCC to "receive and file" and no action was requested by the City from the CCC on the document though CCC staff did provide comments on the draft SLRVA.

County of Santa Barbara: The County submitted an amendment to their Certified LUP and IP to add policies and provisions related to coastal hazards and SLR as well as to add and amend policies and provisions related to coastal resources, such as ESHA and public access. This item was scheduled to be heard before the CCC on 9/8/21 but the County withdrew the proposed amendments before the hearing as the CCC was going to deny the County's submittal and impose 20 of their own "suggested modifications.". The County prepared an SLRVA in 2017 using CCC grant funds. The main issue of

disagreement focuses on the CCC interpretation that "existing structures" for purposes of Coastal Act Section 30235 means those that existed as of 1/1/77 the Coastal Act effective date.

City of Morro Bay: The City received approval of a comprehensively updated LUP on 8/12/21 by the CCC. The LUP update effort was initiated in 2015. This update was partially funded via three CCC LCP planning grants. A SLRVA was prepared using grant funds. The City's LUP was originally approved by the CCC in 1982 and the IP was originally approved in 1984. The document was ultimately approved as submitted and without formal "Suggested modifications" because the City had already agreed to accept and integrate the CCC staff changes to the LUP during the 5+ year iterative process between City and CCC staff. The LUP update includes planned retreat policies and only allows protection if it serves coastal-dependent uses or protects public beaches or development built before January 1, 1977 that has not been redeveloped since that date. The IP still needs to be updated and this will be done as a follow up effort over the next few years. Within the LUP is Chapter 5, "Implementation Strategy" which is an 18-page table that lists implementation actions for LUP goals and policies that create a next steps work plan/outline for the City. See beginning on page 333 of the PDF at this link https://www.coastal.ca.gov/meetings/agenda/#/2021/8

City of Half Moon Bay: The City of Half Moon Bay received CCC approval of an updated LUP on April 15, 2021. The City's LUP was originally approved by the CCC in 1985 and the IP was certified in 1996. The City intends to update its IP now that the LUP is updated. They completed an SLRVA in 2016. Like Morro Bay, the LUP was approved as submitted as all of the negotiations and "suggested modifications" had already been integrated into the LUP prior to the CCC hearing. Of note, Charles Lester, former CCC Executive Director was working for the City as a contractor in charge of the City's LCP update. Appendix A to the LUP is the "Land Use Plan Implementation" chapter and is available at beginning on page 400 of the PDF https://documents.coastal.ca.gov/reports/2021/4/Th9a/Th9a-4-2021-exhibits.pdf. The Appendix outlines both process and substantive actions the City needs to take as part of its LCP work plan.

Smart Coast California: According to Smart Coast California https://www.smartcoastca.org/ a phased approach to an LCP update is an appropriate tiered response to SLR. A tiered response is a planning principle that institutes certain defined policies if/when there are specific thresholds of sea level rise that are observed, measured/quantified and documented as opposed to relying only projections only. Their website has a list of each City/County LCP and SLR efforts and the current status.

There are multiple options that can be incorporated into a phased or tiered coastal resiliency response LCP policy including, but not limited to, beach nourishment, kelp forests, offshore reefs, groins, submerged breakwaters, community seawalls to protect critical public infrastructure and nature-based solutions such as living shorelines.

These options should be adopted as preferred alternatives to managed retreat in areas that cannot accommodate relocation of existing housing, visitor serving or other public developments and those that prohibit property owners from defending their homes, businesses and related infrastructure.

The concept of a "Tiered Response" (TR) to Sea Level Rise (SLR) is being utilized by cities and counties for adoption into their LCPs. The logic behind a phased approach is that it is prudent to wait and see if the projected SLR should manifest within the time frames postulated. In addition, this approach provides the best opportunities to develop regional initiatives for SLR adaptation and co-benefits. For

example, if there is a section of the coastline that is predicted to have 3.5 ft. of SLR by 2050, moving forward on unnecessarily aggressive regulatory policies requiring managed retreat could result in significant impacts to communities costing tens of billions of dollars. It makes sense to monitor closely to see how much SLR occurs before moving forward aggressively.

CCC August 2021 *Pubic Review Draft SLR Guidance for Critical Infrastructure* In addition to coastal communities embracing a phased approach to SLR adaptation, the August 2021 CCC *Public Review Draft Critical Infrastructure SLR Planning Guidance* document (see page 56) explains and recommends phased adaptation "*Phased adaptation – also known as an adaptation pathway approach or trigger-based adaptation – is the use of different adaptation strategies over time as certain sea level rise thresholds are met. For example, adaptation phases can start with protection strategies, such as sand replenishment, or accommodation strategies, such as floodproofing and elevation, and lead to eventual relocation in the longer term as protection and accommodation strategies become infeasible due to increasing hazards, costs, and coastal resource impacts.* Therefore, this planning principle of phased adaptation or a tiered response is supported by CCC staff as well. Appendix B of this CCC document contains policies that can be incorporated in the City's LCP if desired and Appendix F contains a list of Nature Based Adaptation Strategies that can also be considered for local application and inclusion in the City's LCP SLR Work Plan.

Section 7. LCP Work Plan Conclusions and Recommendations

Adopting a phased approach to addressing the risks and uncertainties associated with SLR predictions and timelines provides local stakeholders with the opportunity to constructively engage on this issue. The CCC however is recommending that cities use the H++ extreme SLR scenario for planning purposes and that cities should explicitly note the planning horizon associated with their LCP and at what point in the future the LCP will be updated. However, in 2022 NOAA stopped recommending the use of the H++ scenario in its 2022 Sea Level Rise Technical Report available here https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report-sections.html

In addition, there is a new "State Agency Sea Level Rise Action Plan for California" document out for public review https://www.opc.ca.gov/webmaster/_media_library/2022/02/Item-7_Exhibit-A_SLR-Action-Plan-Final.pdf

A critical aspect of phased adaptation to SLR is what policies, projects and programs get implemented should certain SLR thresholds manifest. From the CCC perspective, including that reflected in the August 2021 Draft SLR guidance on critical infrastructure, the H++ scenario should be assumed, and managed retreat should be the default policy with the appurtenant regulations in the works (see SB1 Atkins). SLR will be devastating to many developed communities but so would broad-based managed retreat particularly in urbanized sections of the coastline like Imperial Beach where there is no room in the City for relocating residents displaced by SLR.

The rate of rise and the nature of SLR effects vary greatly along the coast. For example, the nearest local tide gauge In La Jolla at the Scripps Pier has shown a linear or consistent rate of SLR of 2.13 cm per year for the last 100 years reflecting no measurable SLR locally at the present time. See: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9410230 Therefore, a phased approach for the Imperial Beach coastline is founded on preferred alternatives to managed retreat to protect the existence and integrity of the community and the built environment and critical infrastructure within the community.

It is also recommended that benefit cost analyses be conducted by experienced professional economists. These actions are incorporated into the LCP Work Plan and include local IP policies and standards that will be phased in to protect the existing community in its current configuration, including, but not limited to: beach nourishment; groin fields, nature-based pilot projects such as hybrid dune systems, nature-based solutions like living shorelines, kelp forests and offshore multi-purpose reefs; and community shoreline protection systems. In fact, the *2021 Draft CCC SLR Guidance* document notes on page 114 that communities should look at "hybrid armoring" solutions (i.e., living shorelines or nature-based projects) for their shorelines and on page 116 states that "… there is an urgent need for more pilot projects…" The City shares this encouragement and is actively exploring several pilot projects which are described in the Work Plan.

Examples of local coastal resiliency enhancement projects abound. Currently, such projects are being developed by the City of Oceanside (groin field), City of Solana Beach (long term beach nourishment in partnership with local, State and Federal partners), Encinitas (Cardiff living shoreline) and those in San Diego Bay being developed by the San Diego Unified Port District (oyster beds and fabricated eco-crete polygons intended to provide multiple benefits including shoreline stabilization benefits and ecosystem benefits).