



AB 691 Sea Level Rise Assessment City of Morro Bay Tidelands and Submerged Lands Grant June, 2019



INTRODUCTION

The City of Morro Bay is currently well underway in the process of updating its General Plan (GP), Local Coastal Program (LCP), Zoning Code (ZC) and other planning and permitting documents. As part of that process, all of the assessment criteria in AB 691 are addressed in various locations in the various documents produced. To date, the following finalized documents are pertinent to AB 691, and tabulated in this submission:

- A. Sea Level Rise Adaptation Strategy Report (“SLRASR”), January 2018
<http://www.morro-bay.ca.us/DocumentCenter/View/11753/Sea-Level-Rise-Adaptation-Report-January-2018?bidId=>
- B. Community Vulnerability and Resilience Assessment (“CVRA”), March 2017
<http://www.morrobayca.gov/DocumentCenter/View/10676/Final-Draft--Revised-Community-Vulnerability-and-Resilience-Assessment-3-6-17?bidId=>
- C. Environmentally Sensitive Habitat Area Sea Level Rise Analysis (“ESHASLRA”), August 2018
<https://www.morrobayca.gov/DocumentCenter/View/12572/ESHA-SLR-Assessment-August-2018>
- D. Plan Morro Bay (“PMB”) Public Draft, May 2018
<http://www.morro-bay.ca.us/DocumentCenter/View/11817/Plan-Morro-Bay-LCP-Public-Draft-May-2018>
- E. Community Baseline Assessment (“CBA”), May 2017
<http://www.morrobayca.gov/DocumentCenter/View/11031/Final---Revised-Community-Baseline-Assessment-July-2017?bidId=>

Under Section 6311.5 of the Public Resources Code;

“For purposes of compliance with this subdivision, if a trustee has already completed an assessment of the impacts of sea level rise that meets the criteria of this section, the trustee may submit that assessment to the commission.”

Because the update of the City’s GP, LCP, ZC and other documents is a very intensive, multi-year effort costing approximately \$1.2M, the City of Morro Bay is exercising its ability to submit the above-referenced finalized documents to the State Lands Commission in order to meet its obligations under AB 691.

In order to make evaluation of the City’s documents simpler for the State Lands Commission, references to where in the City’s various documents the four assessment criteria bullet point items are met are called-out below.

Due to the very large size of some of the documents referenced, only the below-referenced sections of the pertinent documents have been submitted in paper form. The entirety of each document is available online at the links referenced above, and on the thumb-drive provided. It should be noted, however, throughout all of the referenced documents are sections and treatments of sea level rise assessment, planning and policy development, and not every page addressing sea level rise has been definitively referenced here.

ASSESSMENT CRITERIA

1. IMPACTS OF SEA LEVEL RISE

- a. Inventory of vulnerable natural and built resources and facilities:
 - CVRA pages 9-29, 34, 37, 40, 42, 46, 48, 50, 54, 57, 61, and Tables A-1, A-8, A-9, A-16, A-17, A-23, A-24, A-31, A-32, A-39
 - ESHASLRA Table 3
 - PMB pages 4-77 to 4-109
 - CBA Table 3-3

- b. Consider impacts and recommendations described in the current State Sea Level Rise Policy Guidance:
 - CVRA Tables A-1, A-8, A-9, A-16, A-17, A-23, A-24, A-31, A-32, A-39
 - SLRASR entire document
 - ESHASLRA page 8
 - PMB pages 3-40 to 3-43, 3-60, 4-33, 4-47, 4-72, 4-75 to 4-109, 5-1 to 5-30
 - CBA pages 3-1 to 3-6, 3-17 to 3-50, 6-35 to 6-35, 8-16 to 8-19, 8-24 to 8-31, 8-35, 8-42, 12-1 to 12-14, Appendix A

- c. Consider impacts of storms and extreme events:
 - CVRA pages 32, 36, 42, 45, 53, 56, 60, 64, and Tables A-1, A-7, A-9, A-15, A-17, A-22, A-24, A-30, A-32, A-38
 - SLRASR pages 8-9, 13, 17, 22
 - PMB page 4-77 to 4-109
 - CBA pages 3-1 to 3-50, 8-16 to 8-19, 8-24 to 8-31, 8-35

- d. Consider changing shorelines:
 - SLRASR entire document
 - CBA pages 12-1 to 12-14

- e. Consider trends in relative local sea level:
 - All Morro Bay SLR documents were developed with the latest OPC guidance, and therefore, trends in relative local sea level would have been considered per that guidance. There are no specific references to trends in relative local sea level in Morro Bay's documents.

- f. Consider impacts to public trust resources and values, including but not limited to public access, commerce, recreation, coastal habitats and navigability:
 - CBA pages 3-21 to 3-50
 - CVRA tables A-8, A-16, A-23, A-31, A-39

2. MAPS OF 2030, 2050 & 2100 IMPACTS

- CBA pages 3-25 to 3-33, Appendix B
- SLRASR figures 4-1, 4-2
- CVRA pages 11-29

3. ESTIMATE OF FINANCIAL COST OF SEA LEVEL RISE

- a. Replacement of repair costs to resources and facilities that could be impacted by sea level rise and climate change processes:

- SLRASR pages 10-11
- CVRA tables A-8, A-16, A-23, A-31, A-39

- b. Non-market values, including recreation and ecosystem services, of public trust resources that could be impacted by climate change and sea level rise processes:

- The City's GP/LCP update documents do not directly address non-market valuations. It would not be anticipated that sea level rise would have a significant negative impact on water-borne recreation in the Morro Bay granted lands. Sea level rise could, however, negatively affect beach usage.

The City of Morro Bay has no market or valuation data on beach visitation. The City's beach lifeguards do, however, gather daily summer beach user data. The Ocean Economics Website references a study entitled "Valuing Recreation and Amenities at San Diego County Beaches" by Daniel K. Lew (2005), which found the average visitor to a San Diego County beach spent \$37/day visiting the beach. Adjusting for the cost of inflation would arrive at a present-day value of approximately \$50/day.

Should Morro Bay's beaches become unusable because of sea level rise, applying the \$50/day per visitor valuation to Morro Bay's summer beach visitation extrapolated to the entire year, an estimated 250,000 beach visitors per year arrives at a potential economic loss of \$12.5M annually.

In "Economic Analysis of Beach Spending and the Recreational Benefits of Beaches in the City of San Clemente" by P.G. King (2001), the recreational (non-market) value of California's beaches per person per day is \$16.79. Again applying an inflation calculator, a present-day value of \$24.50 per person per day is indicated. Thus the potential non-market value loss of 250,000 beach visitations per year in Morro Bay under this valuation methodology is approximately \$6.125M.

Regarding ecosystem impacts, while the Morro Bay National Estuary Program (MBNEP) does have data and information on the effects of sea level rise and climate change on the estuary (see included MBNEP *State of the Bay 2017* report), no non-market valuation data was identified for potential SLR- or climate change-related loss of habitat or negative ecosystem effects relative to Morro Bay.

- SLRASR pages 10-11

- c. Consider costs of 2030, 2050 and 2100 high sea level rise projection with a 100-year storm:

- SLRASR pages 10-11

- d. Include anticipated costs of adaptation/mitigation measures, and potential benefits of such strategies and structures.
 - SLRASR entire document

- 4. DESCRIPTION OF HOW TRUSTEE PROPOSES TO PROTECT AND PRESERVE RESOURCES AND STRUCTURES THAT WOULD BE IMPACTED BY SEA LEVEL RISE
 - a. Describe proposed mitigation/adaptation measures, and how vulnerabilities will be addressed:
 - SLRASR entire document
 - CVRA tables A-8, A-16, A-23, A-31, A-39
 - PMB pages 5-1 to 5-30
 - ESHASLRA pages 8-10

 - b. Describe timeframe of implementation of such measures:
 - SLRASR entire document
 - PMB pages 5-3 to 5-30
 - Fall/Winter 2019/2020 final GP/LCP approved by Morro Bay City Council
 - Summer 2020 GP/LCP certified by California Coastal Commission
 - GP/LCP implementation: immediately upon Coastal Commission certification

 - c. Describe plans to monitor impacts of sea level rise and climate change, as well as effectiveness of mitigation/adaptation measures:
 - SLRASR entire document
 - PMB pages 5-1 to 5-30

 - d. Describe any regional partnerships the trustee is party to or intending to form that would address sea level rise and climate change vulnerability or increase resiliency:
 - CBA pages 3-45 to 3-47, 12-12 to 12-13
 - The City of Morro Bay continues to be an active partner with the Morro Bay National Estuary Program and its funding arm, the Bay Foundation, since their inception ~20 years ago. These partnerships have resulted in many successful collaborative efforts to address threats to the Morro Bay estuary ecosystem.

Additional Materials

- F. Local Hazard Mitigation Plan (currently under revision; completion expected Fall, 2019)
- G. 2018 Morro Bay National Estuary Program State of the Bay Report