



# Council Agenda Report

To: Mayor Silverstein and the Honorable Members of the City Council

Prepared by: Tracey Rossine, Environmental Programs Manager

Reviewed by: Yolanda Bundy, Environmental Sustainability Director

Approved by: Steve McClary, City Manager

Date prepared: August 23, 2023 Meeting date: September 11, 2023

Subject: Amendment No. 2 to Agreement with Environmental Science Associates for the Coastal Vulnerability Assessment

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**RECOMMENDED ACTION:** Authorize the Mayor to execute Amendment No. 2 to agreement with Environmental Science Associates to: 1) increase the scope of work to include public engagement tasks; 2) extend the term of the agreement two years so that it will now expire on October 1, 2025; and 3) increase the total compensation for services.

**FISCAL IMPACT:** Funding for these services in the amount of \$164,000, are included in the Adopted Budget for FY 2023-24 in Account No. 101-2004-5100 (Building Safety and Sustainability Professional Services) and \$50,000 is included in Account No. 100-0000-1010 (SoCalGas Climate Adaptation & Resiliency Grant).

**WORK PLAN:** This item was included as item 5.f. in the Adopted Work Plan for FY 2022-23. Staff continue to work on ongoing projects and normal business while the FY 2023-24 Work Plan is finalized.

**DISCUSSION:** On April 24, 2019, the City Council directed staff to allocate funding to the FY 2019-20 Budget for a Coastal Vulnerability Assessment. On September 23, 2019, the City entered into an agreement with Environmental Science Associates for such services. On September 23, 2021, the City extended the contract to expire on October 1, 2023. During the COVID-19 pandemic, the project was among several initiatives that the Council placed on hold to focus on higher priorities. Now that California's State of Emergency is over, staff is resuming work on this project which relies heavily on public engagement.

Creating a Community Engagement Plan and involving community members in public workshops are key components to the Assessment. The first workshop aims to present findings to local stakeholders with the goal of soliciting public comments to incorporate into the final report; the second workshop will seek feedback in order to present the community's point of view to City Council. Project tasks also include analyzing sea level rise hazards such as the 100-year storm, assessing coastal resources, providing an interactive GIS webpage that depicts different sea level hazard scenarios to coastal assets, and reviewing economic and fiscal impacts.

The Coastal Vulnerability Assessment final report will include how the potential adverse effects of climate change (sea level rise, tidal inundation, storm flooding, and coastal erosion) will impact Malibu's assets along the coastline such as coastal residences, commercial development, public infrastructure, public beach access, coastal habitats, and water quality. This information will help inform City planning efforts by identifying thresholds at which significant planning areas, assets, and coastal resources could be impacted by sea level rise. The project will identify vulnerabilities and consequences that the City can use to prioritize planning efforts to account for the urgency (time horizon) of individual impacts and the importance of each impact on the community and its resources. The final report will contain coastal hazard maps for each sea level rise scenario and adaptation strategies. Further, these assessment measures will align with the California Coastal Commission's Sea Level Rise Policy Guidance.

Staff suggests authorizing the Mayor to execute an amendment to extend the term of the original agreement for an additional two years, such that the contract will expire on October 1, 2025. Due to the time extension, staff has added public engagement tasks to the scope of work and is also requesting an increase to the total compensation from \$214,000 to \$242,114 to ensure completion of the project with community input.

ATTACHMENTS: Amendment No. 2 to Agreement with Environmental Science Associates

## **AMENDMENT NO. 2 TO AGREEMENT**

THIS AMENDMENT NO. 2 TO AGREEMENT is made and entered in the City of Malibu on this 11<sup>th</sup> day of September 2023, by and between the CITY OF MALIBU, herein after referred to as City, and Environmental Science Associates, hereinafter referred to as Consultant.

The City and the Consultant agree as follows:

### **RECITALS**

- A. On September 23, 2019, the City entered into an Agreement with Consultant for Professional Consulting Services for a Coastal Vulnerability Assessment that evaluates the susceptibility of the local coastline to potential adverse effects of climate change, including beach erosion (the “Agreement”).
- B. On September 23, 2021, the City amended Section 2.0 of the Agreement to extend the Term of the Agreement to expire on October 1, 2023.
- C. The City desires to amend the Agreement to 1) increase the Scope of Work to include public engagement tasks, and Consultant has submitted a proposal for this purpose that is acceptable to the City; 2) extend the Term of the Agreement, such that the contract will now expire on October 1, 2025; and 3) to increase the Compensation for Services.

NOW THEREFORE, in consideration of their mutual promises, obligations and covenants hereinafter contained, the parties hereto agree as follows:

- 1. Section 1.0 – Scope of the Consultant’s Services, is hereby amended as set forth in Exhibit A attached hereto.
- 2. Section 2.0 – Term of Agreement, is hereby extended to October 1, 2025, unless otherwise terminated or extended as provided in the Agreement.
- 3. Section 4.0 - Compensation for Services, of the Agreement, is hereby amended as set forth in Exhibit B. The cost of services shall not exceed \$242,114.
- 4. The Parties agree that this Amendment will be considered signed when the signature of a party is delivered physically or by facsimile transmission or scanned and delivered via electronic mail. Such facsimile or electronic mail copies will be treated in all respects as having the same effect as an original signature.
- 5. All terms and conditions of the Agreement not amended by this Amendment No. 2 remain in full force and effect.

This Agreement is executed on this \_\_\_\_ day of \_\_\_\_\_, 2023, at Malibu, California, and effective as of October 1, 2023.

CITY OF MALIBU

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BRUCE SILVERSTEIN, Mayor

ATTEST:

\_\_\_\_\_  
KELSEY PETTIJOHN, City Clerk  
(seal)

APPROVED AS TO FORM:

THIS DOCUMENT HAS BEEN REVIEWED  
BY THE CITY ATTORNEY'S OFFICE  
\_\_\_\_\_  
TREVOR RUSIN, Interim City Attorney

CONTRACTOR

  
\_\_\_\_\_  
By: ANN BORGONOVO  
Title: Vice President



# City of Malibu

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## COASTAL VULNERABILITY ASSESSMENT Scope of Work (Exhibit A)

**SCOPE OF SERVICES:** The Consultant shall provide all professional services described herein below.

### ***Task 1. Project Kickoff and Management (Completed)***

ESA will mobilize and initiate the project upon receiving notice to proceed and will lead a project kickoff meeting with the City (Task 1.1). ESA's scope includes managing the project, the ESA team, budget, and schedule and to have regularly scheduled meetings with the City (Task 1.2).

#### ***Task 1.1 Project Kickoff (Completed)***

ESA will participate in a kickoff meeting with representatives from relevant City departments. The ESA team and the City will meet to discuss and review the project schedule (see Table 7-1), goals, and potential challenges. The kickoff meeting will enable ESA to identify and obtain existing information such as critical City assets that were not included in the AdaptLA Vulnerability Assessment (ESA 2016). The pertinent background studies listed in the RFP will also be reviewed in the kickoff meeting for information relevant to the project.

#### ***Task 1.2 Project Management and Meetings***

ESA will coordinate with the City's project manager to establish regularly scheduled project management meetings. These meetings will occur on a monthly basis throughout the planning process. The primary intent of these meetings will be for staff and ESA to regularly and efficiently check in on project progress and schedule. The meetings also provide an opportunity to discuss issues that have arisen and share ideas.

Project meetings could include City staff from different departments, such as engineering and public works, to ensure that all groups are informed of the planning efforts and can participate in the process. Monthly meetings can be scheduled to coincide with other meetings and events to maximize efficiency, or re-scheduled as needed. ESA will consult with City staff as to the format and desired outcomes of these meetings, as well to identify the appropriate attendees. ESA assumes in the budget

that one ESA staff will remotely attend the monthly meetings (up to 1 hour) for a project duration of 12 months.

This task includes ESA's management of efforts related to the Scope of Work, schedule, budget, and invoicing, as well as general internal and external team management. ESA will assist City staff with meeting administrative grant requirements such as the quarterly reporting required by the CCC. This task includes a total of 60 hours of project management time, which assumes an average of 5 hours per month over the 12-month life of the project.

ESA Team will continue project management through the remainder of the project, tentatively through October 2023.

***Task 1 Assumptions:***

- City staff will coordinate representative attendance from key City departments
- The kickoff meeting will be held at a City building and will be up to 2 hours in length
- ESA Team attendance will be in-person and will include the project director, project manager, and a representative from Kearns and West. Other team members may attend remotely.

***Task 1 Deliverables:***

- Kickoff meeting and project schedule (completed)
- Up to 7 monthly conference calls with the City (April through October 2023)

***Task 2. Public Engagement***

ESA and Kearns & West (K&W) will draw from our experience with prior SLR projects to assist the City with public outreach and stakeholder involvement for the project by developing an engagement plan, an interactive web-map, and presentation materials as well as conducting meetings with the public and key stakeholders.

***Task 2.1 Community Engagement Plan***

ESA team prepared a draft community engagement plan with prior City staff. This working Community Engagement Plan will be confirmed/updated with the City.

Following the project kick off meeting, Kearns and West will prepare a Community Engagement Plan, which will serve as a guide to provide communities the opportunity to engage in the vulnerability assessment and for developing educational tools to immerse the community in the process. The Community Engagement Plan will also anticipate the process for communities to provide input on selecting preferred strategies in the second phase of the project. The Plan will include elements necessary for the consultant team and City staff to create pathways for active public engagement in the Project through developing an outreach and participation program for residents and stakeholders.

For this project, conducting a vulnerability assessment and identifying a range of possible sea-level rise adaptation strategies, opportunities for input include:

- The types and locations of community and environmental assets to address in the Vulnerability Assessment including environmental justice concerns.
- Hazard mitigation and adaptation planning approaches, in the context of 1) applicable established regulations and requirements; 2) relative impacts on coastal, environmental, recreation, and fiscal resources; 3) opportunities for achieving multiple benefits, including other community goals and needs; and 4) assumptions of the vulnerability assessment.

The Community Engagement Plan will incorporate stakeholder analysis, an outreach program, a communications plan, programs & activities, roles and responsibilities, and a calendar. In addition to outlining methods for how residents will be engaged in the process through in person meetings, workshops, and digital engagement, the plan will identify additional outreach that the City should consider, including online surveys, partnerships with community organizations, etc. Particular consideration will be given to effective strategies for providing information to the public in understandable, relevant formats.

### ***Task 2.2 Public Workshops***

There will be two workshops to facilitate discussion on the Vulnerability Assessment and Adaptation Strategies. The first workshop, Public Workshop #1, will take place once the Vulnerability Assessment report draft is complete. The workshop will be structured to allow for community members to learn about sea level rise and will include a large group format presentation and structured small group breakout stations with collaborative, hands-on activities to allow for cross-pollination of ideas between participants. The second workshop, Webinar Workshop #1, will take place virtually to present the same information from the in-person public workshop to provide the community with various options and dates to participate. This workshop will provide an additional opportunity for community members to learn and engage.

#### **Vulnerability Assessment and Adaptation Strategies Presentation**

ESA will develop materials on the findings of the Vulnerability Assessment to be presented in the Public Workshop 1 as well as excerpted for meetings with the City Planning Commission, City Council, and Council Committees. The presentation includes a slideshow and graphics that will also be presented in Virtual Public Workshop 1.

### ***Task 2.3 City Presentations***

ESA will prepare for and attend up to two presentations on the Coastal Vulnerability Assessment and Adaptation Strategies to the City Planning Commission, City Council, and/or Council Committees.

ESA will prepare draft presentation materials for the City's review and revised final presentation materials in response to comments. ESA assumes that presentation materials will consist of PowerPoint presentations and handouts previously prepared for the workshops.

#### ***Task 2.4 Interactive SLR Web-map***

A web –map allows the public to view and manipulate GIS maps on the internet without special software and helps make this technical information accessible to the public. A City-based web page can be helpful in making project information accessible. A web-map for Malibu's Vulnerability Assessment would include the coastal hazard maps developed in Task 3.2 and the Assets identified in Task 3.3 for the public to interact with and explore potential sea-level rise impacts on the Malibu coastline for themselves.

#### ***Task 2.5 Communication Materials Development***

Following the draft community engagement plan, the ESA team (Kearns and West) will assume responsibility for the following communication materials that were previously identified for City staff to complete in support of the two public workshops:

- Online, Press and Social Media
  - Social media posting language and graphics for City to post on its social media channels
  - Press release language for City to format and coordinate with media (radio, newspaper)
- Informational materials
  - Draft press release for the project for the City to distribute
  - Review of content for City-made flyers to promote the project/workshops for the City to distribute
  - Post card design provided for City to print and distribute
- Partner engagement
  - Draft email notifications for public and stakeholder engagement for the City to distribute

#### ***Task 2.6 Public Survey***

Residents of Malibu are highly engaged online, and previous projects in Malibu have shown that digital engagement through online survey tools reach a wide audience. For the Malibu Bluffs Parkland, almost 10% of residents in Malibu responded to the survey. This indicates that an online tool, whether through SurveyMonkey or a more integrated platform, can more readily immerse the community in sea level rise education and input opportunities for the vulnerability assessment and adaptation workshops. The consultant team will provide survey questions for the City to incorporate into and implement the online survey.



***Task 2 Assumptions:***

- Preparation and presentation at two Public Workshops held virtually, for example one Draft Vulnerability Assessment Workshop and one Adaptation Strategies Workshop.
- Up to 4 members of the ESA Team will attend each virtual workshop (two facilitators and an associate from Kearns and West and the ESA Project Manager).
- Presentations will include hazard and asset maps produced in Task 3 (for vulnerability) and content from Task 5 (adaptation). No new content will be prepared for the workshop.
- Up to two presentations to City Planning Commission, City Council, and/or Council Committees using PowerPoint.
- Up to one ESA team member will attend each City Planning Commission, City Council, and/or Council Committees meeting.
- The City will host a webpage for the project upon which deliverables and other relevant materials may be posted (e.g. links to relevant background studies as well as web-map developed for the project).
- City will post social media content and distribute emails and other informational materials for the project workshops
- City will create and implement the public online survey and summarize the results.
- The layers uploaded to the web-map will be similar to the maps prepared under Tasks 3.2 and 3.3 and will not require substantive changes to symbology or content.

***Task 2 Deliverables:***

- Draft and Final Community Engagement Plan (completed)
- Public Workshops (October and November 2023, January 2024)
- Preparation of logistics memo before workshops (September and December 2023)
- Large-scale map printouts before workshops (September and December 2023)
- Draft and final slide deck before workshops (September and December 2023)
- Workshop attendance and facilitation (October and November 2023, January 2024)
- Memorandum summarizing workshop attendance, format and presentation, input, and major discussion themes (November 2023, February 2024)
- Up to two presentations to City Planning Commission, City Council, and/or Council Committees (September 2023)
- Communications materials to support the public workshops, including draft social media post language, draft press release, draft stakeholder engagement emails, review of City-made project flyers (August 2023)
- Two public online survey questions for each public workshop (August 2023)
- Draft and final presentation materials (September 2023)

- Interactive web-map (August 2023)

### ***Task 3 Technical Analysis (Completed)***

ESA will establish existing coastal hazard conditions at Malibu, select sea-level rise scenarios for analysis, compile sea-level rise hazard data, inventory the City's development, infrastructure, and natural coastal resources potentially at risk to sea-level rise, and tabulate the economic value of these built and natural assets to support the Vulnerability Assessment in Task 4.

#### ***Task 3.1 Existing Conditions***

ESA will begin Task 3 by documenting existing conditions in Malibu to be incorporated into the Draft Vulnerability Assessment. Existing Conditions will establish the planning context and identify existing processes, such as current coastal flooding, creek and lagoon flooding, coastal sediment processes, and existing adaptation measures such as coastal armoring. ESA will compile and describe the information and data derived from existing studies, reports, and data sources listed below in a memorandum:

- USGS's CoSMoS 3.0 coastal flooding and erosion projections
- FEMA Flood Insurance Rate Maps and Flood Insurance Study for Malibu Creek and the City's coastline.
- State of California Sea Level Rise Guidance – 2018 Update
- Rising Seas in California, An Update on Sea-Level Rise Science
- 2012 National Research Council's Sea-Level Rise for the Coast of California, Oregon and Washington: Past, present, and Future
- California Coastal Commission 2015 Sea Level Rise Policy Guidance
- California Coastal Commission Local Coastal Program Update Guide
- California Coastal Commission 2018 Residential Adaptation Policy Guidance (Draft)
- Safeguarding California Plan: 2018 Update, California's Climate Adaptation Strategy
- California Adaptation Planning Guide
- Los Angeles County Public Beach Facilities Sea-Level Rise Vulnerability Assessment
- Los Angeles County Coastal Regional Sediment Management Plan
- Regional AdaptLA: Coastal Impacts Planning in the Los Angeles Region (ESA and Terra Costa hazard maps)
- Pathways to resilience: adapting to sea level rise in Los Angeles (Annals of the New York Academy of Sciences, Technical Report, Volume 1427, Special Issue, September 2018)
- Las Virgenes-Malibu Council of Governments Multi-Jurisdictional Hazard Mitigation Plan General Plan
- Local Coastal Program

In ESA's review of available data and studies, ESA will identify any critical data gaps for the assessment. To address critical data gaps, ESA will develop a set of reasonable assumptions for use in the assessment and/or identify additional data collection or studies that could be performed in the future as part of implementing the Adaptation Plan in subsequent phases of this project. As part of developing the Existing Conditions, ESA will define coastal sub-areas for Malibu. It is important to define sub-areas in Malibu to properly characterize the range of shoreline typology (e.g. low beach, tall bluff, lagoon), wave exposure, geomorphic processes, and level/type of development so that appropriate adaptation measures can be applied in the Adaptation Strategies task and second phase of the project. ESA anticipates defining between three and five sub-areas.

### ***Task 3.2 Sea-level Rise Hazard Analysis***

#### **Define Sea-Level Rise Scenarios**

ESA will define a set of sea-level rise planning scenarios in coordination with the City that provide a defensible basis for an efficient vulnerability assessment that can be clearly articulated to the public and stakeholders and accepted by the CCC. The sea-level rise scenarios will be selected to represent the following scenarios per the City's Request for Proposals and the 2018 OPC Guidance recommendations to aid in planning and understanding the worst-case scenario for projected time horizons:

**Extreme Risk Aversion (H++) Scenario:** for the critical infrastructure, and other development as appropriate.

**Medium-High Risk Aversion Scenario:** for all other built and natural assets.

ESA will recommend sea-level rise scenarios that will be associated with the planning horizons for mid-century (e.g. 2050/2060) and late century (e.g. 2100). For efficiency, ESA assumes that two sea-level amounts will be selected to represent the Medium-High Risk Aversion Scenario for the project, and that the same two SLR amounts will be used to evaluate the Extreme Risk Aversion Scenario. ESA will review vertical land motion (i.e. regional tectonic uplift and local subsidence) and identify implications to relative sea-level rise for the City.

#### **Flooding and Erosion Mapping Analysis**

The ESA team will review CoSMoS hazard outputs and compare with hazard information previously prepared by ESA and TerraCosta for the study area during the Adapt LA project. ESA proposes to quantitatively analyze the selected sea-level rise scenarios using existing hazard modeling outputs produced by USGS (CoSMoS 3.0) for flooding and erosion in addition to wave run-up hazards by ESA (AdaptLA, shown on [coastalresilience.org](http://coastalresilience.org)).

ESA will analyze coastal erosion and flooding hazards representing storm conditions and chronic (non-storm) conditions for existing conditions and the selected sea-level rise amounts. The following sea-level rise related coastal hazards will be evaluated:

- **Tidal inundation (non-storm)**
  - Extent of high water such as a “king tide” event with existing topography in the City.
  - Groundwater level response to sea-level rise in low-lying areas using projected tide levels as surrogates for groundwater levels.
- **Storm flooding from a 100-year event**
  - Coastal flooding, lagoon flooding, wave run-up and overtopping
  - Nearshore wave heights to evaluate pier exposure.
  - Lagoon flooding accounting for geomorphic response to SLR using the approach ESA developed and applied for AdaptLA and a high-level qualitative assessment of the effects of fluvial discharge.
- **Coastal erosion**
  - Historic and future changes in bluff erosion.
  - Beach width changes due to sea-level rise. ESA will apply CoSMoS and/or AdaptLA hazard mapping outputs to determine beach widths for the Vulnerability Assessment. Alternatively, ESA may utilize our two-line beach width model that applies the Bruun rule and historic shoreline and bluff erosion rates. ESA proposes to use our 2-line shore response model in Phase 2 to analyze adaptation scenarios. If ESA's review of the CoSMoS and AdaptLA erosion results indicates that it may be more efficient to perform 2-line modeling for the VA “do-nothing scenario,” ESA will use the 2-line model in place of using the CoSMoS and AdaptLA results.

The above hazards will be analyzed using mapping outputs from one or more of the above mentioned existing sources. ESA will summarize the various data for discussion with the City and selection of appropriate hazard maps. Selected hazard maps will be compiled for analysis in the Vulnerability Assessment and presented on the web-map, PDF maps and engagement materials (posters and presentations).

### ***Task 3.3 Coastal Resources Assessment***

ESA will work with the City department staff to identify the City's assets and critical assets that are most critical and vulnerable to sea-level rise impacts. It is assumed that the primary source for Asset data will be the AdaptLA study and that City staff will collect and provide any other relevant asset data that should be included in the Vulnerability Assessment in GIS format. The coastal resources assessment will include tabulating the following assets:

- **Coastal Development and Coastal Dependent Development**
  - Residential
  - Commercial and Visitor-serving development
  - Public infrastructure (e.g. roads, bridges, utilities)
  - Critical infrastructure
  - Construction altering natural shorelines
- **Public Access and Recreation**
  - Beach width and associated access and recreation functions
  - California Coastal Trail
- **Coastal Habitat**
  - Beaches
  - Wetlands and Estuarine Habitats
  - Environmentally Sensitive Habitats
  - Other Marine Resources
- **Socio-Economic Impacts**
  - Vulnerable population groups, such as the elderly, renters, and seasonal residents as well as low-income and non-white communities
- **Water Quality**
  - Potential flooding and inundation of contaminated sites or treatment systems
- **Archeological and paleontological resources**
  - Archaeological resources, historic-period built resources, Native American cultural resources, and paleontological resources.

The inventoried AdaptLA asset data and any additional pertinent data from the City will be organized into a geodatabase for the Vulnerability Assessment and presented on the web-map, PDF maps and engagement materials as needed. The actual list of assets that will be incorporated into the Vulnerability Assessment will be developed and agreed upon with the City at the beginning of this task. The Vulnerability Assessment (Task 4) will group the assets into asset categories, describe each asset category exposure to sea-level rise hazards, sensitivity of the asset to hazard impacts, the adaptive capacity of the asset, and consequences from impacts.

#### ***Task 4. Vulnerability Assessment (Completed)***

ESA has completed the first draft vulnerability assessment. ESA will respond to comments from City staff, including a potential conference call to discuss comments. The hazard maps selected in Task 3.1 will be overlaid on the asset inventory developed in Task 3.2 to produce vulnerability maps. The potentially impacted assets will be quantified and tabulated, and asset categories will be assessed for vulnerability considering the exposure, sensitivity, and adaptive capacity of asset categories. The results will be presented in a Draft Vulnerability Assessment to be reviewed by City staff; ESA will make one round of edits prior to sharing the draft for public input. Feedback from the community/stakeholders and the public will be incorporated into the report to develop the Final Vulnerability Assessment.

For each asset category, asset vulnerability will be assessed and mapped based on the exposure mapping, asset inventory, and consideration of each asset's sensitivity and adaptive capacity. For each asset category, a sensitivity rating will be assigned that characterizes the degree of impact that would result from a given amount of exposure (inundation or erosion).

ESA anticipates providing an initial assessment of asset sensitivity and adaptive capacity based on professional judgement; ESA assumes City staff will coordinate with relevant departments to review and verify these factors during the City review of the Draft Vulnerability Assessment. The vulnerability mapping will assess vulnerability to natural resources (beaches, bluffs, and lagoons), the built environment (property and infrastructure including utilities and storm drain systems), vulnerable populations, and public access. Vulnerability will be assessed for the asset categories listed in the RFP, and consistent with CCC guidelines:

- Coastal Development and Coastal Dependent Development
  - Vulnerability of development will be evaluated as described above.
- Public Access and Recreation
  - Vulnerability of public access and recreation will be evaluated based on the beach width analysis results as well as projected erosion and flooding impacts to coastal access points.
- Coastal Habitat / Ecology
  - In order to assess coastal habitat vulnerability, the ESA team will summarize the ecological assets within the hazard zones and how they will be impacted by sea-level rise. This will focus on characterizing the existing estuarine, coastal bluff, and beach habitats for existing conditions, and then using information from the physical modeling tasks to evaluate the future conditions. ESA proposes to use ESA's Habitat Evolution Model (HEM), the California Sea-level Affecting Marshes Model (CA-SLAMM), or another custom GIS model to assess Malibu Lagoon habitat change with sea-level rise. ESA will work with the City to select the appropriate model(s) for the project. ESA will then use habitat evolution modeling to assess the future vulnerability of the different habitat types in Malibu Lagoon. ESA will evaluate beach ecology along the Pacific shoreline by interpreting beach width results from ESA's two-line model referenced above. ESA team members, Dr. Richard

Ambrose, PhD and Dr. Karen Martin, PhD, will provide input on the methodology and review and interpretation of results to inform the habitat vulnerability assessment based on their research and expertise on Malibu beach ecology, rocky intertidal habitat, Malibu Lagoon, and key species such as grunion.

- Socio-Economic Impacts
  - Vulnerable population groups will be identified based on impacts sea-level rise related hazards could have on community members most at-risk, including the elderly, renters, seasonal residents, low-income households, and non-white communities.
- Water Quality
  - ESA will evaluate potential contaminated site flooding and inundation will be analyzed where applicable and potential impacts to treatment systems.
- Archeological and paleontological resources
  - ESA will identify potential flood and erosion impacts to any known archeological and paleontological resource based on maps provided by the City, if available.

From the Vulnerability Assessment, ESA will identify trigger points at which specific sub-areas, critical assets or coastal resources could be impacted by SLR. These triggers will help to define the timing of needed adaptation measures. Example triggers include amount of observed sea-level rise, minimum beach width or development offset from bluff edge (see Section 9 for an example table of adaptation triggers developed for the Pacifica LCP Update). The vulnerabilities and the consequences identified in this assessment will help prioritize planning efforts to account for the urgency (time horizon) of each impact, and the importance of each impact on the community and resources.

#### ***Task 4 Assumptions:***

- City will provide one consolidated set of staff comments on the Draft Vulnerability Assessment that will include City department staff input on asset sensitivity and adaptive capacity. Comments will be inherently consistent.
- Trigger points will be developed at a high level for the asset categories listed above. Specific triggers for individual adaptation actions/areas will be developed in the second phase for the Adaptation Plan analysis.

#### ***Task 4 Deliverables:***

- Draft and Final Vulnerability Assessment reports (August 2023)
- Presentation materials for Public Workshop 1 on the Draft Vulnerability Assessment (September 2023)

#### ***Task 5. Adaptation Strategies and Policies***

ESA will develop a list of applicable adaptation measures for evaluation and review with the City and community. Preferred adaptation measures will then be combined to create high-level potential Priority Adaptation Strategies specific to the various coastal sub-areas in Malibu. For the purposes of

this scope, ESA defines adaptation measures as the individual tools or options that are available for sea-level rise adaptation (e.g. beach nourishment, armoring, retreat policies, etc.) and adaptation strategies as an initial or high-level strategy for combining one or more measures over time in a potential adaptation scenario or pathway (e.g. nourish beach in near-term, armor backshore in mid-term, raise structures in long-term).

#### ***Task 5.1 Identify Adaptation Measures***

ESA will develop a matrix of adaptation measures (individual tools) that could be employed in Malibu to alleviate the vulnerabilities of public and private coastal resources in the City through 2100 identified in Task 4. ESA will evaluate each measure for effectiveness, trade-offs, and relative costs in addition to community values identified in the first public workshop. Consistent with CCC Guidance, a variety of adaptation measures will be considered, including traditional coastal engineering and nature-based or green infrastructure solutions, and multi-objective measures that incorporate environmental considerations and a holistic approach, rather than focusing on independent or single-purpose solutions for protection. Adaptation measures will be compiled from various categories: policy measures, non-structural measures (beach nourishment, sediment management), structural measures (shoreline armoring, floodwalls, building/road elevation) and hybrid measures (low wall, cobbles and sand cover). An example matrix is provided in Section 9 from our work on the Pacifica LCP which lists the pros and cons of various adaptation measures along with high level suitability for the various sub-areas of coastline. ESA will also consider innovative measures such as living sea walls with input from Dr. Ambrose, as well as artificial offshore reefs.

The result of this task will be a draft SLR adaptation memorandum with the adaptation measures matrix that will be discussed in Public Workshop 2. In addition, a summary memorandum including feedback received during the workshop and ESA recommendations will be created as part of the community engagement plan. These documents will be the basis for the development of the Adaptation Plan and draft Local Coastal Program policies in the second phase of the LCP update.

Materials from the adaptation measures memorandum will be reviewed in Public Workshop 2 to communicate the available adaptation options and gather feedback from the public and stakeholders. Community input will inform the City and ESA of the priorities to consider when developing the adaptation strategies.

#### ***Task 5.2 Prioritize Adaptation Strategies***

ESA will develop high-level potential Priority Adaptation Strategies that are tailored for each of the various sub-areas of Malibu's coastline. The Strategies will be comprised of the preferred adaptation measures resulting from the analysis in Task 5.1 and community input received in Task 3.1. Per CCC guidance, the Prioritized Adaptation Strategies will include the following themes:

- Accommodation
- Protection



- Retreat
- Hybrids of the above

Adaptation measures will be categorized by costs and relative timeframe for implementation. The prioritized adaptation strategies will be organized in a list for each sub-area. The specific timing of each adaptation strategy will be determined in the second phase of the project as part of the Adaptation Plan analysis.

To prepare for the second phase of the project, ESA can work with the City to identify relevant agencies and departments needed to scope and analyze each adaptation strategy for the adaptation plan.

***Task 5 Assumptions:***

- One Priority Adaptation Strategy consisting of one or more measures will be developed for each coastal sub-area, based on evaluation of the adaptation measures matrix and community input.
- Priority Adaptation Strategies will be developed at a high level with relative timing. The ESA team can perform detailed analysis of engineering quantities and costs, trigger timing, and economic cost-benefit analysis in the second phase of the project.

***Task 5 Deliverables:***

- Adaptation Measures Matrix (August 2023)
- Adaptation measures evaluation and recommendations summary memorandum based on results from Public Workshop 1. (September 2023)
- Prioritized Adaptation Strategies and Policies (February 2024)

***Contingency Items (NOT INCLUDED IN BUDGET)***

ESA's budget estimate includes a contingency for optional tasks that may benefit the project. The various items that may warrant use of contingency budget are described below.

***Optional Task 1 items***

**CCC Staff Coordination**

ESA recommends the City consider coordinating with California Coastal Commission (CCC) staff near the beginning of the project and at key milestones in the preparation of the Coastal Vulnerability Assessment and Adaptation Strategies. ESA has included the following scope of work for an optional CCC staff coordination task for the City's consideration and can provide a cost proposal for this task at the City's request.

CCC staff is charged with evaluating LCP updates for Coastal Act consistency and forwarding to the Commission a recommendation regarding LCP certification. As its formal review comes at the very end of the process, the CCC staff's decision in this regard can have substantial implications for project schedule, budget, and process; CCC-suggested modifications could involve substantive LCP revisions that could trigger subsequent reviews by the City Council and CCC. For these reasons, ESA recommends that City staff consider focused meetings with CCC staff at key project milestones. Three such meetings are recommended for this first phase, although additional focused meetings may be necessary:

1. The first meeting would occur at the start of the project phase (Task 1) to discuss the City's work program for the first and subsequent phases of the Coastal Vulnerability Assessment and LCP update, project timelines, review cycles, and protocols for communications with CCC staff. The meeting could also include a discussion of major staff-directed changes the City would like to make to the LCP at the outset of the LCP update effort (alternatively, this discussion could be deferred to the second phase of the project). ESA proposes that this meeting be attended by City staff only.
2. The second meeting would occur early in the Vulnerability Assessment phase (Task 1), with the purpose of briefing CCC staff on the sea-level rise scenarios, methodology, and findings from the Vulnerability Assessment.
3. The third meeting would occur early during the development of Adaptation Strategies (Task 5.1), with the purpose of briefing CCC staff on possible adaptation measures. ESA would also share public input received from Public Workshop #1, which will inform the City and ESA of community values and priorities.

ESA expects that City staff would take the lead in coordinating and facilitating CCC coordination. However, ESA assumes it would participate in up to two meetings, potentially by phone or internet, and to be on hand to support City staff, as needed, within the available budget for these tasks.

## ***Optional Task 2 Items***

### **Additional Workshops**

An additional workshop could be added in the middle of the process that is focused on informing residents to increase education opportunities and to increase the opportunities for community input to help guide the study. Given that this is a citywide project, holding each workshop twice (different locations, two different date/times) could help to widen the number of participants and range of perspectives.

If the City added a third workshop, ESA suggests the following sequencing: The first workshop could be structured to introduce project, focus on providing info about sea level rise trends and implications, and engage participants in discussions so that they have a chance to ask questions and get information about what they are most concerned about. The first workshop could also include a discussion about potential vulnerabilities, to help guide the team's research and analysis. The second and third workshops could be structured to share conclusions of the team's vulnerability analysis (second workshop) and adaption measures (third workshop), and solicit feedback, answer questions, and hear additional ideas for consideration.

### **Additional City Council Meetings**

ESA may present at more than two City Council Meetings.

### **Online Survey**

Residents of Malibu are highly engaged online, and previous projects in Malibu have shown that digital engagement through online survey tools reach a wide audience. For the Malibu Bluffs Parkland, almost 10% of residents in Malibu responded to the survey. This indicates that an online tool, whether through SurveyMonkey or a more integrated platform, can more readily immerse the community in sea level rise education and input opportunities for the vulnerability assessment.

### **Pop-Up Outreach**

Pop-up workshops, sometimes known as tactical urbanism, are an engaging way to bring the community together around projects and plans using short-term and scalable activities out in the places where people gather. These are especially geared for community members that might not attend traditional workshops and to engage a broader sector of the community. Pop-up events could be implemented throughout the process to share information about sea-level rise and adaptation strategies, and provide opportunities for input outside of the traditional project workshops.

### **Presentations to Community and Stakeholder Organizations**

Existing community and stakeholder groups in Malibu have relationships with residents that could be beneficial in sharing information about sea-level rise and adaptation strategies. Presentations at existing groups using a "go to them" strategy can help increase the level of community engagement

in the project and engage different groups in the process. Presentations usually include a slide deck, a set of display boards and handouts that can be available for staff to use at additional meetings if desired.

### Webpage

ESA and K&W could develop the City's webpage for the project if desired by the City. A project webpage is an effective tool for community members to access information on the project process, educational materials and to provide opportunity for input. The webpage would be hosted on the City of Malibu's website, and would be a central hub for the fact sheets, FAQs, online survey tools, community engagement summaries, and products related to adaptation measures for Malibu.

### Video

Opportunities to develop educational materials on sea-level rise and potential vulnerabilities in Malibu could be shown graphically using video. Unlike other planning processes, sea-level rise planning has strong visual components. A project video hosted on the City's website and the project webpage could provide a concise and engaging tool for residents to learn more about sea-level rise and adaptation measures in Malibu.

### Informational Materials, FAQ

Informational material can be used to inform and engage residents on sea-level rise and adaptation measures and provide a consistent message for the project. ESA's team recommends providing a visually engaging project information handout (or project factsheet) as an educational tool, with information about the project, why it is taking place, the schedule, and opportunities for engagement. The factsheet can be both electronic and in print. Along with the fact sheet, ESA recommends a list of FAQs to be hosted on the City's website that can be updated throughout the project if new items are brought to the City's attention.

Included in this task could be opportunities to develop a concept like Game of Floods, which teaches players about sea-level rise adaptation choices. Like the award-winning version developed by Marin County, the game allows players to design solutions that protect entire communities as well as individual properties to address the permanent flooding impacts of sea-level rise.

## ***Task 3 Optional Items***

### Asset Data Collection and Characterization

ESA may assist with additional asset data gathering beyond the existing AdaptLA asset data and additional assets provided by City staff. Additionally, ESA can conduct asset manager surveys to properly characterize the sensitivity and adaptive capacity of various assets to SLR hazards.

## Hazard Mapping Analysis

ESA may perform updates to specific flooding and erosion hazards if the regional hazard mapping (AdaptLA and/or CoSMoS) are determined to mischaracterize hazard exposure for a given area. ESA can provide the option to refine and/or update ESA's regional AdaptLA hazard mapping for the City based on the selected SLR scenarios, if needed or desired.

In addition to coastal flooding, ESA can assess flooding from fluvial sources using available information (e.g., FEMA Flood Insurance Studies) and ESA's experience with increased precipitation associated with climate change. ESA can revise the lagoon flooding assessment ESA developed for AdaptLA to refine the results for Malibu Lagoon. ESA can also review available existing Malibu Creek flood hydraulics with lagoon and ocean levels to provide a high-level assessment of future flood levels for use in the vulnerability assessment.

### ***Task 4 Optional Items***

## Vulnerability Assessment

ESA may revise the Vulnerability Assessment more than the one proposed iteration in response to public or stakeholder comments or Coastal Commission comment, and may assist the City to respond to technical comments received on the Final Vulnerability Assessment.

### ***Task 5 Optional Items***

## Adaptation Pathways Schematics

The prioritized adaptation strategies can be developed into adaptation pathway schematics as a communication tool. An example schematic provided in Section (9) details various adaptation measures phased over time based on SLR amount.



# City of Malibu

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## **Compensation for Services (Exhibit B)**

The City shall pay the Consultant for its professional services rendered and costs incurred pursuant to this Agreement in accordance with the Scope of Work's fee and cost schedule. No additional compensation shall be paid for any other expenses incurred, unless first approved by the City Manager, or his designee.

The Consultant shall submit to the City, by no later than the 10<sup>th</sup> day of each month, its bill for services itemizing the fees and costs incurred during the previous month. The City shall pay the Consultant all uncontested amounts set forth in the Consultant's bill within 30 days after it is received.

## Task Cost Estimate for Coastal Vulnerability Assessment

Task #	Labor Category	Total Hours	Labor Price
Task #	Task Name/Description		
<b>1.0</b>	<b>Project Kickoff and Management</b>	<b>44</b>	<b>\$ 10,240</b>
1.1	Project Kickoff	-	\$ -
1.3	Project Management and Meetings	44	\$ 10,240
<b>2.0</b>	<b>Public Engagement</b>	<b>343</b>	<b>\$ 75,339</b>
2.1	Engagement Plan	18	\$ 4,080
2.2	Public Workshops	179	\$ 40,425
2.3	City Council Meetings	36	\$ 7,712
2.4	SLR Web-map	20	\$ 4,132
2.5	Communications Materials	96	\$ 18,990
2.6	Public Survey	48	\$ 9,630
<b>3.0</b>	<b>Technical Analysis</b>	<b>0</b>	<b>\$ -</b>
3.2	SLR Hazards	-	\$ -
	<i>Define Scenarios</i>	-	
	<i>Flooding and Erosion Mapping</i>	-	
3.3	Coastal Resources	-	\$ -
	<i>Asset Inventory</i>	-	
3.4	Economic and Fiscal Impacts	-	\$ -
<b>4.0</b>	<b>Vulnerability Assessment</b>	<b>79</b>	<b>\$ 15,528</b>
	Draft VA	-	\$ -
	Final VA	79	\$ 15,528
<b>5.0</b>	<b>Adaptation Strategies</b>	<b>92</b>	<b>\$ 18,488</b>
5.1	Adaptation Measures	52	\$ 10,280
5.2	Strategies Development	40	\$ 8,208
Total Hours		<b>558</b>	
<b>Total Labor Costs</b>			<b>\$ 119,595</b>
Percent of Effort - Total Project Cost			\$ 1
	<b>ESA Labor Cost</b>		<b>\$ 119,595</b>
	<b>Non-Labor Expenses</b>		
	ESA Expenses		\$ 500
	Subconsultant Expenses		\$ 10,220
	<b>Subtotal ESA Non-Labor Expenses</b>		<b>\$ 10,720</b>
	<b>Total Cost to Complete</b>		<b>\$ 130,315</b>
	Original 2019 contract budget		\$ 213,195
	Remaining budget (as of 6/15/2023)		\$ 101,415
	Additional funds needed to complete		\$ 28,919
	<b>Total Revised Budget</b>		<b>\$ 242,114</b>

## Standard Fee Schedule

Professional, Technical and Support Personnel*	Hourly Rate
<b>Environmental Science Associates</b>	
Principal Consultant 3	\$255
Senior Consultant 5	\$220
Consultant 6	\$159
Principal Consultant 1	\$202
<b>Kearns &amp; West</b>	
Principal	\$320
Vice President	\$265
Director	\$210
Associate	\$160
<b>Senior Technical Advisors</b>	
Coastal Biology Expert	\$150
Coastal Ecology and Adaptation Expert	\$250
Coastal Geology Expert	\$200