

OFFICE OF THE CITY ATTORNEY  
CHARLES PARKIN, City Attorney  
333 West Ocean Boulevard, 11th Floor  
Long Beach, CA 90802-4664

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FIRST AMENDMENT TO AGREEMENT NO. 34497

**34497**

THIS FIRST AMENDMENT TO AGREEMENT NO. 34497 is made and entered, in duplicate, as of July 20, 2017, for reference purposes only, pursuant to a minute order adopted by the City Council of the City of Long Beach at its meeting on December 13, 2016, by and between AECOM TECHNICAL SERVICES, INC., a California corporation ("Consultant"), with a place of business at 999 Town and Country Road, Orange, California 92868, and the CITY OF LONG BEACH, a municipal corporation ("City").

WHEREAS, City requires specialized services requiring unique skills to be performed in connection with preparation of a Climate Action and Adaptation Plan; and

WHEREAS, City and Consultant (the "Parties") entered into Agreement No. 34497 (the "Agreement") whereby Consultant agreed to provide these services; and

WHEREAS, the Parties desire to revise the scope of work;

NOW, THEREFORE, in consideration of the mutual terms, covenants, and conditions herein contained, the Parties agree as follows:

1. The Scope of Work in Exhibit "A" to the Agreement is hereby amended to include additional services more particularly described in Exhibit "A-1", attached hereto and incorporated by this reference.

2. Except as expressly modified herein, all of the terms and conditions contained in Agreement No. 34497 are ratified and confirmed and shall remain in full force and effect.

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IN WITNESS WHEREOF, the parties have caused this document to be duly executed with all formalities required by law as of the date first stated above.

AECOM TECHNICAL SERVICES, INC., a California corporation

7.20, 2017

By [Signature]  
Name Richard Metallara  
Title V.P.

July 24<sup>th</sup>, 2017

By [Signature]  
Name RICHARD M HANSEN  
Title V.P.

"Consultant"

CITY OF LONG BEACH, a municipal corporation

July 31, 2017

By [Signature]  
City Manager

EXECUTED PURSUANT TO SECTION 501 OF THE CITY CHARTER.

"City" Tom Modica  
Assistant City Manager

This First Amendment to Agreement No. 34497 is approved as to form on 7/27, 2017.

CHARLES PARKIN, City Attorney

By [Signature]  
Deputy

# EXHIBIT “A-1”

## Scope of Work

July 11, 2017

**Request for add-service for the City of Long Beach Climate Action and Adaptation Plan to ensure compliance with Assembly Bill 691 and perform additional outreach services.**

**Background Overview of Assembly Bill 691:**

Assembly Bill (AB) 691 requires the City of Long Beach, as a local trustee of the lands granted by the State Lands Commission, to address the impacts of sea level rise (SLR) for all of its legislatively granted public trust lands. The assessment shall include all of the following:

- An assessment of the impact of sea level rise on granted public trust lands, as described in the Resolution of the California Ocean Protection Council on Sea-level Rise and the latest version of the State of California Sea-Level Rise Guidance Document. *(Completed as part of Long Beach Climate Action and Adaptation Plan (CAAP) – Task 6).*
- Maps showing the areas that may be affected by sea level rise in the years 2030, 2050, and 2100. These maps shall include the potential impacts of 100-year storm events. *(Completed as part of CAAP – Task 6).*
- An estimate of the financial cost of the sea level rise impact on granted public trust lands. The estimate should consider the potential cost of damage repair and the value of lost use of improvements and land, and the anticipated cost to prevent or mitigate potential damage. *(Additional scope of work highlighted below).*
- A description of how to protect and preserve natural and manmade resources and facilities located, or proposed to be located, on trust lands and operated in connection with the use of the trust lands, including how wetlands restoration and habitat preservation, if applicable, would mitigate impacts of SLR. *(Completed as part of CAAP – Task 7).*

**Task: Sea Level Rise Potential Financial Cost Analysis**

**Methodology:**

To ensure compliance AB 691, the City must develop an estimate of the financial/economic costs of sea level rise (SLR). AECOM will develop a methodology to assess these potential costs across defined scenarios, develop order-of-magnitude estimates of repair and lost use by asset type, and report the results of the analysis in a memorandum. The methodology will build upon past work done for the Port of Long Beach and other jurisdictions subject to AB 691. The analysis will be underpinned with industry standard inputs and outputs (where reliable data are available) that can be updated over time in the event of improvements or other land use changes that can affect the economic vulnerability of City-managed public coastal lands to SLR. The financial/economic cost of SLR estimate will be completed for public trust lands only, as compared to all assets in Long Beach potentially impacted by SLR.

The proposed assessment will involve a series of tasks that will include: (1) data collection; (2) data analysis; and (3) sensitivity testing. As part of the City's CAAP, AECOM is conducting an initial inventory of vulnerable assets in 2030, 2050, and 2100 per identified SLR and storm scenarios. Identified vulnerable assets will be classified by type (e.g., commercial, recreational, etc.) and will be assigned economic attributes using the best, readily available data. The resulting asset database will be linked to order-of-magnitude economic repair, replacement and loss-of-use values by type to inform the final estimates. Data (where available) and estimates based on market experience will be used to apply

sensitivity parameters when there are multiple economic indicator values that could be applied to vulnerable assets, and additional consideration will be given to uncertainty as it relates to the degree and type of exposure (i.e., temporary, permanent).

The analysis will result in a first-order estimate at each time horizon of the following: (1) potential damage to vulnerable assets measured as a basis of repair or replacement cost; (2) the value of lost operational use of assets from temporary or permanent inundation; and (3) the anticipated returns from adaptation, based on a comparison of previously identified adaptation strategy costs to estimated losses. The quantitative first-order estimates will be categorized into low, medium and high tiers of impact according to the evaluated SLR and storm scenarios.<sup>1</sup> This standardized system for classifying returns will enable the City to compare the costs of repair and value of lost use with the costs of adaptation strategies to understand the potential benefits of adaptation, as well as provide information that can be used to prioritize implementation of adaptation strategies.

**Additional Considerations:**

SLR poses a broad range of economic risks to coastal communities. Generally these risks are estimated with goods and services where market prices are available, allowing for measurement of economic vulnerability in a relatively straightforward manner. Public trust lands vulnerable to SLR, like beaches and wetlands, provide a number of important ecological, social and cultural services that do not have an explicit market price, but do provide considerable value. Accounting for these non-market values can provide a more comprehensive accounting of economic vulnerability and the tradeoffs of different adaptation strategies. Economists have devised a number of nuanced techniques to estimate the non-market value of coastal resources. However, employing these non-market methods would require significant time and resources that are outside of the scope of this analysis. Because these non-market values are an important piece of cost-benefit calculus of coastal adaptation, AECOM staff will qualitatively discuss relevant values present in City lands subject to AB 691. Further, data that readily exists will be incorporated to provide a quantitative lens on the value of some of these services, e.g., the number of coastal visitors and the associated value a visitor places on a day at the beach.

**Deliverables:**

- Order-of-magnitude cost of repair and lost use for 3 SLR + 100-year storm scenarios
- Memorandum on SLR Financial Costs (3-5 pages, includes methodology and summary)

**Budget:**

The estimated budget for the level of effort described above is \$19,757. Please see Attachment A for more details.

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<sup>1</sup> AECOM, through consultation with the City, will determine the appropriate level of supplemental data to include in the deliverable. In particular, quantitative data on the number of buildings, marina slips or area of shoreline exposed to SLR and flooding could help to substantiate the final impact rankings and the scale of identified adaptation strategies. Including additional data metrics like these could provide for more transparency and support of findings. Yet it may be the case that some of these data points are confidential or proprietary in nature and the preferred course would be to not include these details in the final deliverable.

**Background Overview of Outreach Services:**

The City of Long Beach has requested AECOM to develop social media posts and E-newsletter content related to the Climate Action and Adaptation Plan. These tasks are described below in detail.

**Task: Additional Outreach Services**

**Methodology:** AECOM will develop up to 7 social media posts at key stages during the development of the Long Beach Climate Action and Adaptation Plan. Further, AECOM will also develop content for up to 6 E-Newsletters to be distributed periodically over the course of the project. The social media posts and E-newsletters will cover topics such as upcoming events, project deliverables (e.g., related to greenhouse gas (GHG) inventories, vulnerability assessment results, GHG target setting, adaptation and mitigation strategy development, etc.), and other general project updates. The social media posts and E-newsletters will be reviewed by the City, MBI, and Climate Resolve. The City will be responsible for the formatting of the E-Newsletter.

**Deliverables:**

- Seven (7) social media posts
- Content for six (6) E-Newsletters

**Budget:**

The estimated budget for the level of effort described above is \$3,403. Please see Attachment A for more details.

**Technical Leads:**

Aaron McGregor – Economist with 10 years of experience in assessing the costs and benefits of climate change adaptation in coastal communities, including public trust lands. Aaron has performed financial and economic analyses of SLR for the Port of Los Angeles, marinas in the Long Beach area and has studied coastal uses along the Long Beach waterfront in support of the U.S. Army Corps of Engineers' (USACE's) initial investigation of federal interest in reconfiguring the Long Beach breakwater. He was also a co-author on the *Economic Impacts of Climate Adaptation Strategies for Southern Monterey Bay* cited by the State Lands Commission (SLC) as an example framework for considering the financial costs of SLR.

Feliz Ventura – Feliz M. Ventura has fifteen years of public sector, non-profit and private sector experience in economic analysis and development strategy that incorporate climate change and technological change across the US and globally. Feliz has worked on projects across California, the U.S., and the world that seek to improve economic, environmental, and social outcomes informed by the most current scientific and technical data for areas ranging from local communities to countries.. Feliz has performed financial analyses of SLR for Port of Los Angeles and Port of Long Beach, sustainable leasing strategy development for the Port of San Diego, and climate action planning in Southern California.

Melissa Higbee – Melissa Higbee is part of the current project team as a Climate Adaptation Specialist. She will oversee that each component of AB691 is addressed at the appropriate stage of the project and included within the final CAAP.

Amruta Sudhalkar – Amruta Sudhalkar is part of the current project team as a Deputy Project Manager and climate mitigation task lead. She will produce content for the social media posts and E-newsletters.

Laura Adleman – Laura Adleman is part of the current project team as a Senior Community Outreach Advisor. She will provide strategic guidance to Amruta on the production of content for social media posts and E-newsletters.

Deanna Weber – Deanna Weber is part of the current project team as the Project Manager. She will review the social media posts and E-newsletter content for quality assurance and control.

**ATTACHMENT A**

Long Beach AB 691 Compliance and Additional Outreach Services Budget								
Staff	Feliz Ventura	Aaron McGregor	Melissa Higbee	Amruta Sudhalkar	Laura Adleman	Deanna Weber		
Role	Cost Lead	Senior Cost Analyst	Adaptation Lead	Outreach Support	Senior Outreach Support	Outreach Review Lead		
Billing Rate	\$177.48	\$138.78	\$126.13	\$126.13	\$134.54	\$192.72		
Task	Hours	Hours	Hours				Total Hours	Labor Cost
<b>1.0 Analysis on Cost of SLR Impact and Adaptation</b>	30	80					<b>110</b>	<b>\$16,427</b>
Order-of-magnitude cost of prioritized adaptation scenarios								
Order-of-magnitude cost of repair and lost use								
Cost of SLR Methodology and Findings Memo								
<b>2.0 Summary of AB 691 Compliance</b>			8				<b>8</b>	<b>\$1,009</b>
<b>3.0 Meetings</b>	4	4	4				<b>12</b>	<b>\$1,770</b>
<b>4.0 Additional Outreach Services</b>				16	6	3		

Long Beach AB 691 Compliance and Additional Outreach Services Budget								
Staff	Feliz Ventura	Aaron McGregor	Melissa Higbee	Amruta Sudhalkar	Laura Adleman	Deanna Weber		
Role	Cost Lead	Senior Cost Analyst	Adaptation Lead	Outreach Support	Senior Outreach Support	Outreach Review Lead		
Social media posts (up to 7) and E-Newsletter content related to CAAP (up to 6)				16	6	3	25	\$3,403
<b>Total Hours</b>	<b>34</b>	<b>84</b>	<b>12</b>	<b>16</b>	<b>6</b>	<b>3</b>	<b>155</b>	
							<b>Labor Cost</b>	<b>\$22,609</b>
							<b>Market Data Expenses</b>	<b>\$400</b>
							<b>Total</b>	<b>\$23,009</b>