CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE (415) 904- 5200
FAX (415) 904- 5400
TDD (415) 597-5885

CALIFORNIA COASTAL COMMISSION
LCP PLANNING
GRANT APPLICATION FORM
MARCH 28, 2016

The California Coastal Commission is pleased to announce the availability of Round 3 grant funding to support local governments in developing or updating Local Coastal Programs (LCPs) pursuant to the California Coastal Act and with special emphasis on addressing impacts from climate change and sea-level rise. For Fiscal Year 2015-2016, Governor Brown approved an augmentation of $3 million to the California Coastal Commission's budget to support local governments responsible for planning under the California Coastal Act (Coastal Act) to develop or update their Local Coastal Programs. A full description of the grant program is available here: http://www.coastal.ca.gov/lcp/lcpgrantprogram.html.

Coastal Commission staff is available to work with local governments and to assist during the application process. Please note the entire grant application will be public record upon submittal. Click in the shaded text fields to enter text, numbers and dates. The fields will expand to accommodate the data.

Grant applications are due by **May 20, 2016 at 5 pm.**

APPLICANT INFORMATION

Applicant name (agency): City of Del Mar

[redacted]

PROJECT INFORMATION

Project title: City of Del Mar Supplemental Sea-Level Rise Analysis

LCP/ LCP Segment: Del Mar Certified LCP / Implementing Ordinances and Land Use Plan

Project location: City / Geographic area: City of Del Mar / Coastal County: San Diego

Project timeline: Start date: 9/1/2016 End date: 11/30/2017

MAPS AND PHOTOS

The maps and photos listed below are included in the following pages:

- Figure 1 shows a map of the City of Del Mar boundary and planning areas for the project.
- Figure 2 shows the City's Districts for reference.
- Figures 3 and 4 show photos of historic flooding and damage in Del Mar, including the 1980 San Dieguito River flood event and the 1983 El Niño coastal flood event. These photos and information obtained from the public on these flood events were incorporated into the approach for the Draft Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Report and will be used as part of the basis for completing and applying the City of Del Mar's Supplemental Sea-Level Rise Analysis
- Figure 5 includes a map of flood zones and hazards estimated for the 1980 and 1983 flood events from the initial analysis in the Draft Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Report.

The Draft Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Report (available at: http://www.delmar.ca.us/sealevelrise) includes additional maps showing initial assessment results and photos of historic flooding and damage in Del Mar.

APPLICATION MATERIALS

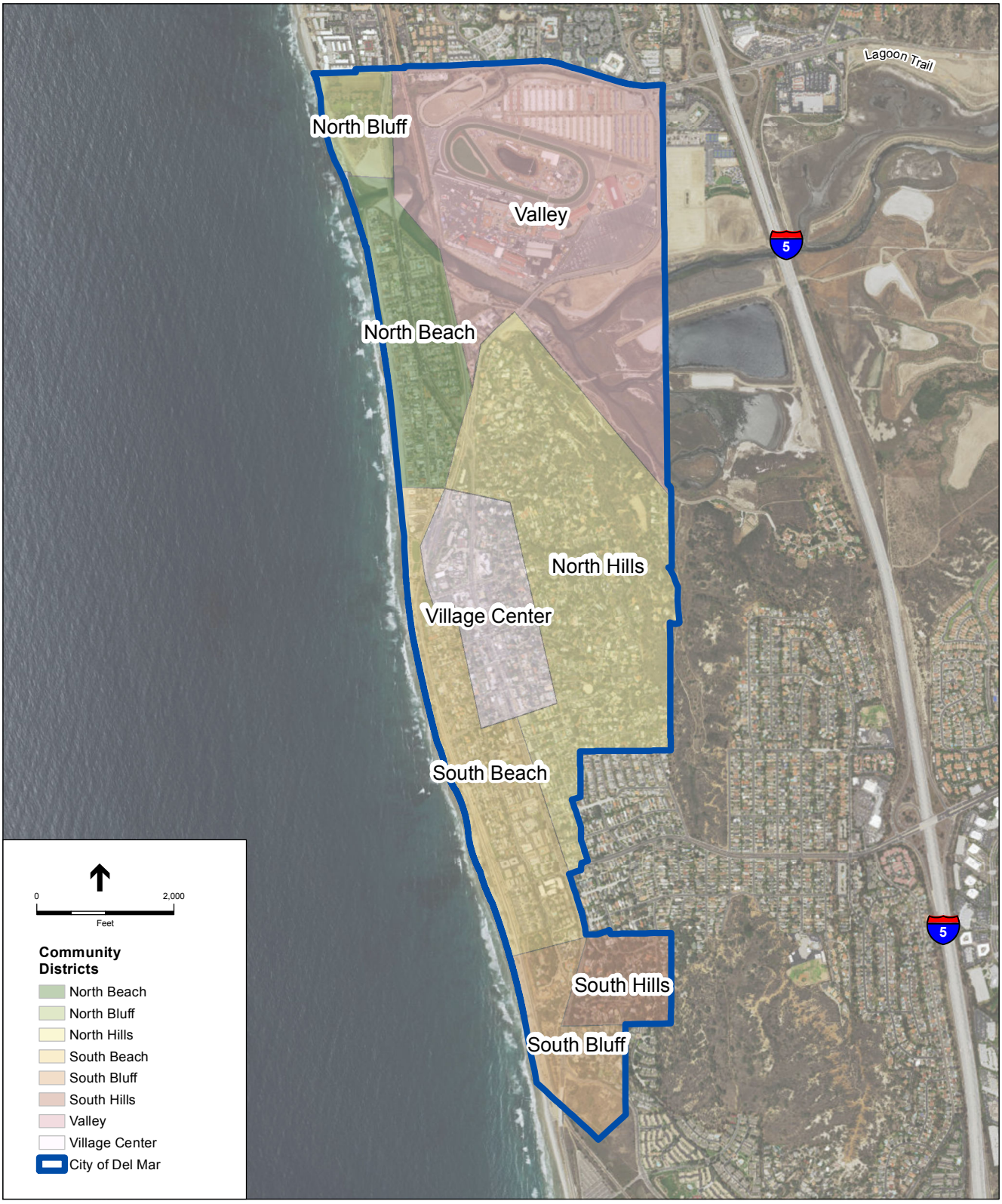
The following sections include the required application materials:

1. Project Description
2. Work Program and Schedule
3. Budget
4. Draft Resolution from the Applicant's Governing Body

Del Mar LCPA. D150347

Figure 1

Del Mar Planning Area



SOURCE: SanGIS 2016, USGS 2015

Del Mar LCPA . D150347

Figure 2

Community Districts in Del Mar

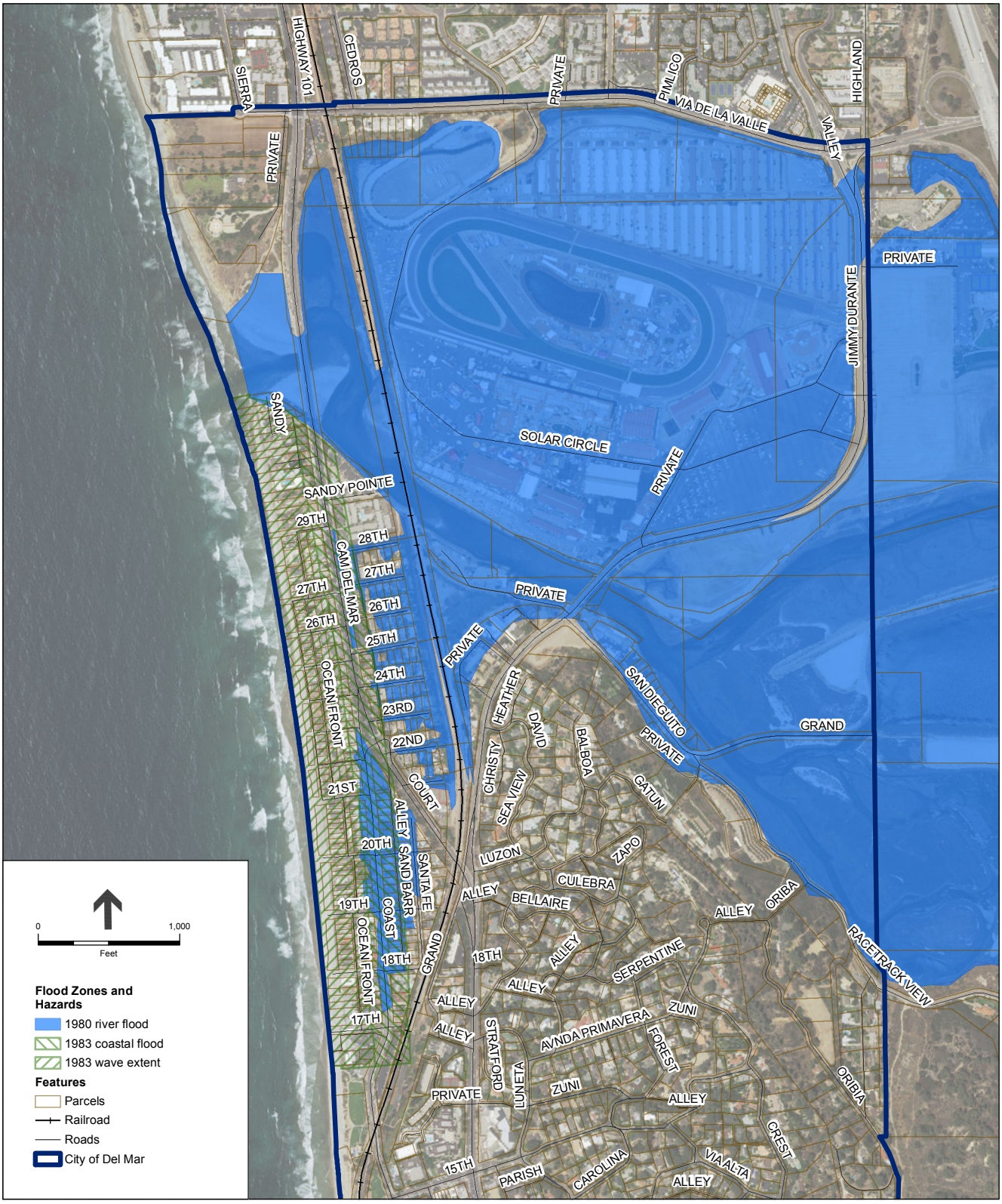
Figure 3
Flooded North Beach Streets 1980

Source: Fletcher, 1983

Del Mar LCPA. D150347.00

Figure 4

Coastal Damage following 1983 Storm



SOURCE: SanGIS 2016, FEMA

Del Mar LCPA . D150347

Figure 5

Estimated Flood Zones and Hazards for 1980 and 1983 Events

1. PROJECT DESCRIPTION

a. Project Description: Goals and Objectives

Background: On December 2, 2014, the California Ocean Protection Council (OPC) awarded a Round 2 planning grant to the City for the City of Del Mar LCP Amendment (LCPA) to Address Sea-Level Rise, Storm Surge, and Coastal Flooding. Administration of the grant award was transferred from OPC to the California Coastal Commission (CCC). In accordance with the grant Work Program, the City has completed the Draft Coastal Hazards, Vulnerability, and Risk Assessment Report (Assessment Report, available at: http://www.delmar.ca.us/sealevelrise). The Assessment Report shows how the City's current vulnerabilities are projected to increase in both frequency and intensity, resulting in increased damage risk to the Del Mar shoreline. This assessment is based on an initial analysis using an approach developed to specifically address the increase in frequency of Del Mar's existing hazards and supplement results from the initial release of the U.S. Geological Survey's (USGS) Coastal Storm Modeling System 3.0 (CoSMoS 3.0). The assessment is also based on key assumptions on the long-term sediment dynamics of the San Dieguito River Lagoon and Del Mar beach, which were identified as data gaps in the Gaps Analysis and Data Summary deliverable (also available at the above website). In addition, the Assessment Report includes an initial analysis of San Dieguito Lagoon wetland habitat vulnerability to sea-level rise, which shows that existing wetland habitats will be inundated more frequently and vegetated wetland habitats will be "drowned out" and convert to intertidal mudflats and subtidal habitat.

The next steps in the current LCPA Work Program, presently underway, include:
1. Finalizing the Assessment Report
2. Applying the findings from the Assessment Report to the development of an Adaptation Plan
3. Preparation, review, and approval of the LCPA by the City
4. Submittal of the LCPA to the CCC for processing and certification

The City is developing the LCPA in close coordination with an appointed Sea-Level Rise Stakeholder Technical Advisory Committee (STAC), which the City established to provide oversight and ensure the amendment process is open, inclusive and develops consensus amongst the many stakeholders involved. (For more details on the STAC, see: http://www.delmar.ca.us/499/Sea-Level-Rise-Stakeholder-Committee.) To date, the City has completed nine STAC meetings including a community forum on the issues, LCPA tasks, and deliverables on schedule. All deliverables to-date have been submitted to CCC Grant Coordinator Carey Batha and have also been made available for use by other LCP planning grant recipients, regional local governments, and other entities, as appropriate. The City is committed to preparing and submitting the LCPA to the CCC on April 30. 2017, as currently scheduled.

Goal: The goal of the City of Del Mar Supplemental Sea-Level Rise Analysis is to complete supplemental best-practice sea-level rise and climate change analyses and planning, thereby providing a strong scientific basis to inform and enhance the preparation and implementation of the City's Adaptation Plan and LCPA. The supplemental sea-level rise analyses will specifically address the City's vulnerability to the increased frequency of existing flood and erosion hazards, long-term sediment management for Del Mar's beach and the San Dieguito River Lagoon, and

San Dieguito Lagoon wetland habitat resiliency with sea-level rise and climate change. It will further address the State-owned 22nd District Agricultural Association (DAA) Del Mar Racetrack and Fairgrounds' vulnerabilities to these hazards as well.

Objectives: The objectives of the Supplemental Sea-Level Rise Analysis are as follows:

1. *Address public stakeholder requests to perform supplemental analyses*. During STAC meetings to obtain input on the analysis approach, public stakeholders requested that the Del Mar sea-level rise assessment analyze, present, and communicate the near-term (i.e.., by 2030 to 2050) increase in frequently-occurring hazards, vulnerabilities, and risks (e.g., typical flooding that has occurred in Del Mar, including coastal and San Dieguito River flood events that occur more frequently than a 100-year event; near term beach erosion). STAC members requested this analysis to supplement the results of the initial release of CoSMoS 3.0, which only provided 100-year coastal flood extents and shoreline positions in 2100 for sea-level rise scenarios. Since July 2015, STAC has held nine public meetings including a community forum on these issues and has been active in its regional coordination with local governments and agencies. Specifically, STAC has been in coordination with representatives of the State 22nd District Agricultural Association (22nd DAA), San Diego Association of Governments (SANDAG), North County Transit District (NCTD), and the San Diego Climate Collaborative, which includes other LCP grant recipients and regional agencies studying these issues. Further, STAC has ongoing coordination with CCC staff from the San Diego District office.

2. *Apply supplemental hazard analyses*. In coordination with STAC, the City and its LCPA consultant (subcontractor), Environmental Science Associates (ESA), developed an approach to analyze the increase in frequency of Del Mar's existing flood hazards that considers local knowledge and information on historic flooding, projected future sea-level rise, and the effects of projected future precipitation with climate change and long-term deposition in the San Dieguito River on river flooding with sea-level rise. The City and ESA also developed an approach to estimate the timeframe for when Del Mar's beach will be lost to erosion. The initial results of these analyses are included in the Assessment Report. Consistent with the City's Public Outreach Plan created as part of its work program, the City has been actively communicating these results with stakeholders and interested parties. The City will complete these analyses and apply the results to the development of the Adaptation Plan and LCPA. Also, as requested by STAC, the City and ESA will review the final results of CoSMoS 3.0 (which are expected to be completed and released this summer) and prepare an addendum to the Assessment Report that incorporates and compares CoSMoS results to the supplemental analysis for Del Mar. The City and ESA will also prepare a separate memorandum with observations and recommendations for applying CoSMoS 3.0 results and supplemental hazard analyses as a case study for the CCC and coastal managers to consider and use in preparing sea-level rise LCPAs.

3. *Prepare a Del Mar Sediment Management Plan*. Following the CCC's Sea-Level Rise Policy Guidance, the City and ESA will prepare a Del Mar Sediment Management Plan that identifies "soft" sediment management solutions to protect development and coastal resources, including beach nourishment, dune management, San Dieguito River Lagoon

mouth and channel dredging (for river flood management and beneficial reuse of dredge material for beach nourishment), and integration with the San Diego Regional Sediment Management Program. The need for a Sediment Management Plan is supported by STAC and the Assessment Report's initial findings that the Del Mar beach could be lost between 2030 and 2070[1]. It is further supported by initial findings that long-term deposition in the San Dieguito River channel has the potential to significantly increase river flood risks. While the San Dieguito Lagoon mouth is currently managed and dredged by Southern California Edison (SCE) as part of the San Onofre Nuclear Generation Station (SONGS) Mitigation and Lagoon restoration, studies have analyzed sediment transport during extreme events. An assessment of the Lagoon's long-term sediment dynamics has not been performed and was identified as a data gap in the Gaps Analysis and Data Summary completed as part of the City's Work Program. The City will therefore perform a long-term sediment budget analysis considering watershed sediment supply, sea-level rise, and the period after SCE fulfills its requirements for the SONGS mitigation and Lagoon mouth management. The sediment budget analysis and Sediment Management Plan will also identify a beach and dune nourishment plan optimized to maintain the Del Mar beach, coastal access, and protect development that considers dredged material reuse as well as other potential sources of sand. The Sediment Management Plan will serve as a companion document to the Adaptation Plan and LCPA that provides the framework for implementing this adaptation measure and associated LCPA policies.

4. *Perform a San Dieguito Lagoon Wetland Habitat Migration Assessment*. The City and ESA will assess the potential for San Dieguito Lagoon wetland habitats to migrate upstream and to upland areas adjacent to Lagoon to complete the wetland vulnerability assessment and develop adaptation measures that facilitate habitat migration and avoid habitat disruption per the CCC Sea Level Policy Guidance. The Assessment Report includes an initial vulnerability assessment of existing wetland habitats, which shows that pickleweed marsh habitat could drown out and be lost by 2070 and that cordgrass low marsh habitat could be lost by 2090, such that almost all of the existing San Dieguito Lagoon Wetland habitat would be converted to intertidal mudflat and subtidal open water. The City and ESA will perform a supplemental spatial wetland migration analysis to identify areas where salt marsh habitats will or could migrate to. This assessment will identify and evaluate measures to reserve these potential habitat migration areas and corridors, including potential land acquisition, use designations, zoning buffers, setbacks, and conservation easements. The assessment will therefore inform and serve as a companion to the LCPA.

5. *Effectively communicate the supplemental sea-level rise analysis to the public*. The City and ESA will coordinate with and obtain input from the public on the Supplemental Sea-Level Rise Analysis through stakeholder outreach and meetings. In addition, the City and ESA will develop summaries of the supplemental analyses that communicate key findings and messages to the public and can be used for the City's Sea Level Rise LCPA webpage and information pamphlets.

[1] Corresponding to 1.7 ft of sea-level rise in 2030 per the NRC high-end projection and 1 ft of sea-level rise in 2070 per the NRC mid-range projection.

6. *Complete the LCPA on schedule with a strong scientific basis*. The City and ESA will prepare and submit the LCPA to the CCC on April 30. 2017, as currently scheduled. The LCPA will incorporate the supplemental hazard analyses (from Objective 2) and reference the Sediment Management Plan (from Objective 3) and San Dieguito Lagoon Wetland Habitat Migration Assessment (from Objective 4) to provide a strong scientific basis for LCPA policies.

Consistent with the City's current work program, the supplemental analysis described above would be made available for use by other LCP planning grant recipients, regional local governments, and other entities, as appropriate.

Note that Objectives 1 and 2 are the highest priority for successfully completing the Del Mar LCPA. Objectives 3 and 4 would further integrate the CCC Sea Level Policy Guidance into the Del Mar LCPA and are important components for informing and enhancing the preparation of this planning effort.

b. Project Description: Approach and Details

The City will carry out the Supplemental Sea-Level Rise Analysis with the City's consultant, Environmental Science Associates (ESA). The City previously selected ESA through a competitive bidding process for the Sea-Level Rise LCP Update consultant contract. City staff will coordinate the analysis and public outreach and manage the consultants and grant. ESA will provide the technical analyses, planning, and reporting. The City's engineering consultant will provide review of technical analyses and reports.

Community outreach program: Community outreach for the Supplemental Sea-Level Rise Analysis will be integrated into the ongoing community outreach program for the City's Sea-Level Rise LCPA as outlined in the completed Public Outreach Plan (Task 1.4, available at http://www.delmar.ca.us/sealevelrise). Since July 2015, the City has conducted nine public STAC meetings as public forums, workshops, and presentations. The Work Program includes two additional STAC meetings to present and obtain public stakeholder input on the development of the Sediment Management Plan (SMP) and the San Dieguito Lagoon Wetland Habitat Migration Assessment. Furthermore, in addition to completing the SMP and the Habitat Migration Assessment technical reports, the City and ESA will prepare summary documents of these technical reports to effectively communicate the findings and plans to the public via the City's Sea-Level Rise LCPA website and/or brochures.

Grant priority sea-level rise and climate change impact analysis: The City's Supplemental Sea-Level Rise Analysis will provide best-practice analyses addressing the impacts of projected sea-level rise and potential increases in extreme precipitation and San Dieguito River flooding with climate change. The analysis will provide a strong scientific basis and actionable plans to inform and enhance the implementation of the City's Sea-Level Rise Adaptation Plan and LCPA.

Grant criteria fulfillment: The City's Supplemental Sea-Level Rise Analysis meets the following grant criteria:

Public Benefit/Significance. The City's Supplemental Sea-Level Rise Analysis will directly address the reduction of regionally-significant potential sea-level rise and climate change impacts to coastal development and resources. The analysis will provide a significant public benefit by providing actionable plans within the framework of the Adaptation Plan and LCPA to reduce these impacts and risks and protect Del Mar's unique coastal resources, which include public access, beaches and bluffs, lagoon and hillside open space, scenic resources, key transportation and infrastructure corridors, visitor-serving commercial, and State-owned land used for a variety of public activities.

The Sediment Management Plan will provide a detailed analysis and actionable plan for beach nourishment to maintain Del Mar beach public access and recreation and San Dieguito River Lagoon channel dredging to reduce future flood risks for the City and the Stated-owned Del Mar Racetrack and Fairgrounds. The Del Mar Racetrack and Fairgrounds provide a wide range of entertainment and low-cost visitor-serving opportunities, and directly influences the thriving coastal-dependent economy in north San Diego County (e.g., hotels, restaurants, and retail).

The San Dieguito Lagoon Wetland Habitat Migration Assessment will identify potential migration areas and adaptation measures to reserve these areas and migration corridors, thereby enhancing the resiliency of the Lagoon's critical and regionally-significant wetland habitat. Together, the SMP and Habitat Migration Assessment will provide a plan for long-term management of the San Dieguito Lagoon wetlands, which is critically important given the potential impacts of sea-level rise and the fact that Southern California Edison will complete its mitigation requirements for management of the SONGS Mitigation/San Dieguito Lagoon Wetland Restoration.

Public participation will be an integral component to the analysis. The Work Program includes STAC meetings to review and obtain public input on the analyses and planning, summary documentation to effectively communicate findings to the public, and public hearings. Since Del Mar is bordered by the Cities of Solana Beach to the north and San Diego to the east and south, the Supplemental Sea-Level Rise Analysis will contribute to a standard of regional significance for how other municipalities in San Diego County are planning to manage the effects of sea-level rise and coastal flooding in their jurisdictions.

Relative Need for LCP Update/Extent of Update. The Supplemental Sea-Level Rise Analysis will effectively protect and maintain the City's coastal resources and development by providing a detailed scientific basis for the Sea-Level Rise Adaptation Plan and LCPA, thereby providing the planning tools needed to reduce future impacts and risks. The analysis will build on, complement, and enhance the effectiveness of the City's Sea-Level Rise LCPA grant-funded effort current underway. The analysis will provide critical information needed for adaptation planning and LCPA policy development, particularly for the City's North Beach and Valley Districts. These areas comprise the majority of the City's shoreline and vulnerabilities to coastal and river flooding. The analysis will develop the hazard information needed to detail adaptation measures and triggers to reduce flood and damage risks and maintain key City beaches and public access points, transportation and utility infrastructure, and the Del Mar Racetrack and Fairgrounds. Without the Supplemental Sea-Level Rise Analysis, the City's Sea-Level Rise

LCPA will need to be more generalized and less effective in implementing adaptation measures to offset sea-level rise and climate change impacts.

***Addressing the Effects of Climate Change*.** The Supplemental Sea-Level Rise Analysis will include completing an analysis of the effects of climate change on extreme precipitation and San Dieguito River flooding, a Sediment Management Plan to address the effects of sea-level rise on beach erosion and Lagoon deposition and erosion, and a San Dieguito Lagoon Wetland Habitat Migration Assessment to provide a plan for improving habitat resiliency to sea-level rise. These analyses represent best-practices for sea-level rise planning and are in accordance with the CCC's Sea-Level Rise Policy Guidance and the State of California Sea-Level Rise Guidance.

Likelihood of Success/Effectiveness. The Supplemental Sea-Level Rise Analysis will directly support the development and implementation of the City's Sea-Level Rise Adaptation Plan and LCPA. The Supplemental Analysis will make the LCPA more effective by providing a comprehensive technical basis to the LCPA and an actionable Sediment Management Plan and adaptation measures for wetland habitat migration and resiliency. Without the proposed completion and application of supplemental hazard analysis, the LCPA would need to rely on the initial release of CoSMoS 3.0 results, which are limited to 100-year storm flooding and shoreline change in 2100 and do not address more frequent and near-term hazards, vulnerabilities, and risks. The proposed supplemental analysis will provide sea-level rise adaptation triggers based on the increased frequency of existing Del Mar coastal and river hazards and sea-level rise amounts over time.

The Supplemental Sea-Level Rise Analysis will be integrated with the current Work Program for the Sea-Level Rise LCPA. The supplemental hazard analyses will be completed and applied within the current adaptation planning effort and the LCPA will reference the Sediment Management Plan and San Dieguito Wetland Habitat Migration Assessment. Draft outlines of the Sediment Management Plan and Habitat Migration Assessment will be included with the submittal of the LCPA to the CCC to obtain CCC review and input on approach and integration of the documents. The City will then develop the Sediment Management Plan and Habitat Migration Assessment in coordination with the STAC, which includes a CCC staff member who can further guide these efforts. After these supplemental documents are completed and approved by the City Planning Commission and Council through a series of public hearings, the City will submit the Sediment Management Plan and Habitat Migration Assessment to the CCC for review and approval along with any recommended updates to the LCPA. The Work Program and Schedule provide further detail on the process, timeline, and benchmarks for completing the Supplemental Sea-Level Rise Analysis.

Workload. Preparation and incorporation of the Sediment Management Plan into the Sea-Level Rise LCPA will provide a programmatic framework for potential future beach nourishment and river channel dredging. This approach is expected to streamline future permitting for sediment management projects developed within the City- and CCC-approved sediment management program.

Project Integration/Leverage/Matching Funds. The estimated the total cost of the Supplemental Sea-Level Rise Analysis is $240,152 as detailed in the Work Program and Budget. The City is

requesting $211,220 in grant funding and will provide $28,932 in matching funds, including $27,072 for the City Planning Department staff's in-kind services and $1,860 for the City's engineering review of the analysis (to be provided by the City's on-call engineering consultant).

The Table below summarizes both the requested Round 3 grant and matching City fund amounts and the Round 2 grant award and matching City fund amounts. Note that for the current Sea-Level Rise LCPA effort, the City has applied $77,794 in funding to the consultant contract and is contributing in-kind staff services of $36,190, for a total City match of $113,984 to the prior $100,000 grant award. If awarded the requested grant for the Supplemental Sea-Level Rise Analysis, the total grant award would come to $311,220 with total City matching funds of $142,916 (a 46% match).

SUMMARY OF FUNDING FOR ROUND 3 REQUEST AND ROUND 2 AWARD

Grant Effort	**Total cost**	**Grant** (amount/request)	**Total City matching funds**	**City funding**	**In-kind services**
Sea-Level Rise LCPA (previously awarded in Round 2/applied)	$213,984	$100,000	$113,984	$77,794	$36,190
Supplemental Sea-Level Rise Analysis (proposed for Round 3)	**$240,152**	**$211,220**	**$28,932**	**$0**	**$28,392**
Total	*$454,136*	*$311,220*	*$142,916*	*$77,794*	*$65,122*

In-kind services will be provided by Del Mar Planning and Engineering staff for the following components of the Update:

1. Manage day-to-day project organization, communication, and consultant services.
2. Review technical reports for consistency with existing policy and practice.
3. Facilitate community and stakeholder outreach including any necessary expenses associated with travel, meeting organization, communications and presentation materials.
4. Process the supplemental analysis and plans through the Planning Commission, City Council, and CCC for review and approval.

The staff currently working on the Sea-Level Rise LCPA will also assist with the Supplemental Sea-Level Analysis for continuity and efficiency. These staff have the capacity to assist with the supplemental analysis.

Project completion and implementation: The City will ensure the successful completion and implementation of the Supplemental Sea-Level Rise Analysis by performing these best-practice analyses according to the following Work Program, Schedule, and Budget with community involvement to inform and enhance the implementation of the City's Sea-Level Rise Adaptation Plan and LCPA. The Supplemental Sea-Level Rise Analysis will provide a strong scientific basis and actionable plans for implementation of the LCPA.

2. WORK PROGRAM AND SCHEDULE

DESCRIPTION OF TASKS

Task 1. Application of Supplemental Hazard Analyses

The City and ESA have developed supplemental coastal hazard analysis approaches and performed an initial analysis for the Draft Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Report to meet the LCPA work program and schedule, stakeholder and STAC input, and CCC Sea-Level Rise Policy Guidance. The City and ESA will complete and apply these supplemental hazard analyses to develop the Adaptation Plan and LCPA. These supplemental hazard analyses will:

- Respond to City Sea-Level Rise Stakeholder Technical Advisory Committee (STAC) input to present a coastal hazard analysis that would be relevant to the public, other LCP planning grant recipients, regional local governments, and other entities by analyzing near-term hazards (prior to 2100) and the increase in the frequency of flooding, rather than the increase in the severity of rare flood events (e.g., the 100-year event).
- Address how existing flood hazards will increase in the future as identified in the CCC Sea-Level Rise Policy Guidance.
- Provide a complete hazard analysis to supplement results from the initial release of the USGS CoSMoS 3.0 model. Initial CoSMoS 3.0 results included shoreline and bluff positions in 2100 and 100-year coastal flood information for the present shoreline under different sea-level rise scenarios.

The following supplemental analyses initiated in the Draft Assessment Report will be completed and applied to the development of the Adaptation Plan and LCPA:

1. *Beach erosion analysis for 2030, 2050, 2070, and 2100 to identify the timeframe for beach loss, triggers for adaptation, and adaptation measures*. Initial CoSMoS 3.0 results provided shoreline positions in 2100 only and included a sediment supply term that accounts for the continuation of past beach nourishment, which is effectively an imbedded adaptation measure. The City and ESA will estimate the amount of beach nourishment necessary to maintain beach width and the time period over which beach nourishment is expected to be an effective adaptation measure.
2. *Wave runup and coastal flooding analysis for 2050 and 2100 to account for the reduction in beach width, identify the extent of flooding and high wave velocity zones, and develop adaptation measures for the high wave velocity zone*. Initial CoSMoS 3.0 flooding results were modeled using only the present beach width and therefore under-predict future flooding with sea-level rise. Initial CoSMoS 3.0 results also only include flooding extents for areas inundated for more than one minute and therefore do not include wave runup, which occurs approximately every 20 seconds and causes flooding and wave damage. The City and ESA will finalize and apply the results of the initial wave runup and coastal flooding analysis from the Draft Assessment Report to identify and detail adaptation measures specific to the high wave velocity zone (i.e., FEMA V-zone) estimated from this supplemental analysis, which may include identifying approximate elevations for raised structures based on wave runup calculations.

3. *San Dieguito River flood analysis for 2030, 2050, 2070, and 2100 considering sea-level rise, changes in precipitation due to climate change, and channel deposition*. Initial CoSMoS 3.0 flooding results show the increase in flood extent due to the estimated 20-year river discharge accompanying the 100-year coastal storm; however, the City is currently vulnerable to river flooding without a coastal storm or sea-level rise and the CoSMoS does not provide a useful river flood scenario for assessing vulnerability. Other prior studies of San Dieguito River flooding have only considered the increase in tide level due to sea level rise and have not addressed the potential for long-term deposition of sand in the channel, which has a much greater potential effect on river flood hazards. The City and ESA will finalize and apply the initial analysis of San Dieguito River flooding from the Draft Assessment Report, which considers sea-level rise, the potential for long-term channel deposition, and projected changes in extreme precipitation based on down-scaled Global Climate Models. This analysis will be applied to develop river flooding adaptation measures, which may include identifying potential river channel dredging extents and elevations and triggers for dredging and/or other adaptation measures.

In addition, given that the final release of CoSMoS 3.0 is scheduled for summer 2016 and the STAC has asked whether these final results can be used for the Del Mar LCPA, the City and ESA will review the final CoSMoS 3.0 results when available, compare and assess differences between the Del Mar hazard analyses and CoSMoS results, and provide an addendum to the Assessment Report that discusses the final CoSMoS results relative to the Del Mar analyses. The City and ESA will also prepare a separate memorandum with observations and recommendations for applying CoSMoS results and supplemental hazard analyses as a case study for the CCC and coastal managers to consider and use in preparing sea-level rise LCPAs.

The supplemental analysis described above, including the memorandum for applying CoSMoS results and supplemental hazard analyses would be made available for use by other LCP planning grant recipients, regional local governments, and other entities, as appropriate

Deliverables:

- *Final Del Mar Coastal Hazards, Vulnerability, and Risk Assessment document with completed supplemental hazard analyses for application to the Adaptation Plan and LCPA*
- *Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Addendum addressing final CoSMoS 3.0 results*
- *Application of CoSMoS 3.0 to LCPAs Memorandum*

Task 2. Sediment Management Plan

The Draft Assessment Report results show significant vulnerabilities and risks due to beach erosion and the potential for long-term river channel deposition to increase San Dieguito River flooding. The City and ESA will therefore develop a Del Mar Sediment Management Plan (SMP) to inform the development of sediment management adaptation measures to reduce these risks. The SMP will serve as a companion document to the Adaptation Plan and LCPA. Preparation of a SMP is consistent with the CCC Policy Guidance's discussion of the need for sediment management planning in LCPs.

The Del Mar SMP will include the following:

1. *Long-term sediment budget assessment*. Note that prior studies of the San Dieguito Lagoon have not analyzed long-term deposition and erosion. This assessment will assess rates and patterns of deposition and erosion with future sea-level rise for the Lagoon and beach system based on estimates of river sediment load, Lagoon channel and wetland deposition, inlet dynamics, and beach and bluff erosion. This assessment will be based on available data such as Southern California Edison monitoring and dredging reports for the Lagoon inlet, estimates of the river sediment load considering the effects of the Lake Hodges dam upstream and prior watershed sediment supply studies such as Inman and Jenkins (1999) and prior Lagoon restoration studies. The City and ESA will apply a quantified conceptual model of lagoon inlet dynamics (based on Battalio *et al.* 2006 and Behrens *et al.* 2015) to simulate deposition and changes in the inlet cross-section with sea-level rise and sediment budget that identifies areas and rates of sediment deposition and erosion.
2. *Channel dredging plan*. Based on the above assessment, the City and ESA will identify a potential program for river flood management with channel dredging above and beyond what Southern California Edison is required to perform. This component of the SMP will provide estimated extents, volumes, frequency, and triggers for potential future channel dredging with sea-level rise.
3. *Beach nourishment plan*. The City and ESA will develop a beach nourishment plan that identifies and evaluates potential sand sources including reuse of river channel dredge material. The City and ESA will develop a plan for sand placement at the Del Mar beach that is optimized to reduce risks with sea-level rise, including placement locations, volumes, and frequency.

The SMP will also include planning-level cost estimates and schedules for sediment management measures including channel dredging and beach nourishment.

A draft outline of the Sediment Management Plan will be submitted to the CCC along with the Sea-Level Rise LCPA to obtain CCC review and input on the approach and integration of the SMP into the LCPA. The City and ESA will meet with stakeholders to obtain public input and review of a Draft SMP. A summary document will be prepared along with the Final SMP that can be used for the City's Sea-Level Rise LCPA website or brochures to effectively communicate the SMP to the public. The SMP will be made available for use by other LCP planning grant recipients, regional local governments, and other entities, as appropriate

Deliverables: *Draft Outline, Draft, and Final Del Mar Coastal Sediment Management Plan; Summary Document; and STAC meeting.*

Task 3. Lagoon Wetland Habitat Migration Assessment

The Draft Assessment Report identifies the potential for San Dieguito Lagoon wetland habitat conversion and vegetated wetland loss with sea-level rise by 2070[2]. The City and ESA will assess the potential for San Dieguito Lagoon wetland habitats to migrate upstream and to upland

[2] Corresponding to 3.2 ft of sea-level rise in 2070 per the NRC high-range projection.

areas adjacent to Lagoon to complete the wetland vulnerability assessment and develop adaptation measures that facilitate habitat migration and avoid habitat disruption per the CCC Sea Level Policy Guidance. The City and ESA will perform a spatial analysis of wetland habitat evolution and migration using ESA's GIS-based Habitat Evolution Model (HEM). The HEM is similar to the Sea Levels Affecting Marshes Model (SLAMM), but was developed and customized by for California coastal wetlands and has been applied to Los Peñasquitos Lagoon for the development of the Los Peñasquitos Lagoon Enhancement Plan (in progress).

This assessment will identify potential areas where wetland habitats will or could migrate to with sea-level rise, including upland areas adjacent to the Lagoon and areas upstream. This assessment will identify and evaluate measures to reserve these potential habitat migration areas and corridors, including potential land acquisition, use designations, zoning buffers, setbacks, and conservation easements. The assessment will inform and serve as a companion to the Adaptation Plan and LCPA.

A draft outline of the Lagoon Wetland Habitat Migration Assessment will be submitted to the CCC along with the Sea-Level Rise LCPA to obtain CCC review and input on the approach and integration of the Assessment Report into the LCPA. The City and ESA will meet with stakeholders to obtain public input and review of the Draft Lagoon Wetland Habitat Migration Assessment. A summary document will be prepared along with the Final Lagoon Wetland Habitat Migration Assessment that can be used for the City's Sea-Level Rise LCPA website or brochures to effectively communicate the assessment to the public. The Assessment will be made available for use by other LCP planning grant recipients, regional local governments, and other entities, as appropriate

Deliverables: *Draft Outline, Draft, and Final San Dieguito Lagoon Wetland Habitat Migration with Sea Level Rise Assessment; Summary Document; and STAC meeting.*

Task 4. City Public Hearings

The City, with ESA's support, will hold a public hearing before the City's Planning Commission (as applicable) and the City Council to review the Sediment Management Plan, San Dieguito Lagoon Wetland Habitat Migration Assessment, and any associated updates to the LCPA. Resolutions will be developed for each hearing for consideration, approval, and authorizing the submittal of the supplemental analyses to the CCC for review and approval. At the completion of the public hearings and approvals, the City will submit the Supplemental Sea-Level Rise Analysis to the CCC.

Deliverables:

- *Planning Commission hearing and Recommending Resolution to the City Council*

- *City Council hearing and resolution approving the Supplemental Sea-Level Rise Analysis, and authorizing submittal to the CCC for review and approval*
- *Submittal of the Supplemental Sea-Level Rise Analysis to the CCC*

SCHEDULE

Proposed starting date: 9/1/2016
Estimated completion: 11/30/2017

WORK PROGRAM

TASK	PROJECTED START/END DATES
Task 1. Application of Supplemental Hazard Analyses	9/1/2016 - 4/30/2017
1.1 Final Del Mar Coastal Hazards, Vulnerability, and Risk Assessment with supplemental hazard analyses	9/1/2016 - 12/23/2016
1.2 Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Addendum addressing final CoSMoS 3.0 result	1/2/2017 - 4/30/2017 (if final CoSMoS 3.0 results are delayed beyond summer 2016)
1.3 Application of CoSMoS 3.0 to LCPAs Memorandum	9/1/2016 - 9/30/2016 (assuming final CoSMoS 3.0 results are release in summer 2016; if release is delayed beyond summer 2016, schedule will follow schedule for 1.2 above)
Outcome/Deliverables (listed above)	*Projected start/end dates listed above*
Task 2. Sediment Management Plan	9/1/2016 - 8/18/2017
2.1 Draft SMP Outline	9/1/2016 - 4/30/2017
2.2 Draft Sediment Management Plan	9/1/2016 - 7/14/2017
2.3 STAC Meeting	7/20/2017
2.4 Final Sediment Management Plan	7/20/2017 - 8/4/2017
2.5 Summary Document	8/7/2017 - 8/18/2017
Outcome/Deliverables (listed above)	*Projected start/end dates listed above*
Task 3. San Dieguito Lagoon Wetland Habitat Migration Assessment	9/1/2016 - 8/18/2017
3.1 Draft Assessment Outline	9/1/2016 - 4/30/2017
3.2 Draft Assessment Report	9/1/2016 - 7/14/2017
3.3 STAC Meeting	7/20/2017
3.4 Final Assessment Report	7/20/2017 - 8/4/2017
3.5 Summary Document	8/7/2017 - 8/18/2017
Outcome/Deliverables (listed above)	*Projected start/end dates listed above*
Task 4. City Public Hearings	9/12/2017 - 11/30/2017
4.1 Planning Commission Hearing	9/12/2017
4.2 City Council Hearing	11/20/2017
Outcome/Deliverables 4.1 Planning Commission Resolution to City Council 4.2 City Council Resolution approving the SMP and Migration Assessment Report	 9/12/2017 11/20/2017
Submittal of SMP and Migration Assessment Report to the CCC	**11/30/2017**

BENCHMARK SCHEDULE

ACTIVITY	COMPLETION DATE
Task 1. Application of Supplemental Hazard Analyses	
1.1 Final Del Mar Coastal Hazards, Vulnerability, and Risk Assessment with supplemental hazard analyses	12/23/2016
1.2 Del Mar Coastal Hazards, Vulnerability, and Risk Assessment Addendum addressing final CoSMoS 3.0 result	4/30/2017 (if final CoSMoS 3.0 results are delayed beyond summer 2016)
1.3 Application of CoSMoS 3.0 to LCPAs Memorandum	9/30/2016 (assuming final CoSMoS 3.0 results are release in summer 2016; if release is delayed beyond summer 2016, schedule will follow schedule for 1.2 above)
Task 2. Sediment Management Plan	
2.1 Draft SMP Outline	4/30/2017
2.4 Final Sediment Management Plan	8/4/2017
2.5 Summary Document	8/18/2017
Task 3. San Dieguito Lagoon Wetland Habitat Migration Assessment	
3.1 Draft Assessment Outline	4/30/2017
3.4 Final Assessment Report	8/4/2017
3.5 Summary Document	8/18/2017
Task 4. City Public Hearings	
4.1 Planning Commission Resolution to City Council	9/12/2017
4.2 City Council Resolution approving the SMP and Migration Assessment Report	11/20/2017
Submittal of SMP and Migration Assessment Report to the CCC	**11/30/2017**

3. BUDGET

APPLICATION BUDGET INFORMATION

Funding Request: $211,220 **Total Project Cost: $240,152**

PROJECT FUNDING SOURCES

Task Number	Task Name	Total Cost	Allocation of total cost among all funding sources			
			Applicant's Funding	LCP Grant Funding	Other Funds	Other Funds (define below)
1	*Application of Supplemental Hazard Analyses*	*$76,894*	*$8,064*	*$68,830*		
2	*Sediment Management Plan*	*$97,726*	*$10,146*	*$87,580*		
3	*San Dieguito Lagoon Wetland Habitat Migration Assessment*	*$54,204*	*$6,114*	*$48,090*		
4	*City Public Hearings*	*$11,328*	*$4,608*	*$6,720*		
TOTAL		***$240,152***	***$28,932***	***$211,220***	***$0***	***$0***

OTHER FUNDING SOURCES (NOT INCLUDING IN-KIND SERVICES)

TOTAL	$ -	

In-kind Services (for this grant request): $28,932 *(Note that the City of Del Mar has already applied an additional $36,190 of in-kind staff services for the existing City of Del Mar Sea-Level Rise LCPA effort. If awarded, the total amount of in-kind services for both grants totals $65,122 in-kind)*

BUDGET SUMMARY
Grant Application Budget Form

	Applicant's Funding	CCC Grant Funding	OPC Grant Funding	Other Funds
Personnel[1]				
Salaries and wages	$ 20,492			
Benefits	$ 6,580			
Total Personnel	$ 27,072	$ -	$ -	$ -
Consultants[2]				
Subcontractor: City engineering consultant	$ 1,860			
Subcontractor: ESA		$ 211,220		
Total Consultants	$ 1,860	$ 211,220	$ -	$ -
Operating Expenses[3]				
Postage/Shipping				
Supplies/Materials				
Travel				
Indirect Costs				
Total Operating Expenses	$ -	$ -	$ -	$ -
Total Budget	$ 28,932	$ 211,220	$ -	$ -

[1] *CCC grant funds are not being requested for City personnel.*
[2] *Subcontractors have been selected pursuant to a competitive bidding process that seeks at least three (3) bids from responsible bidders. The City selected ESA as the Sea-Level Rise LCPA consultant through this process.*
[3] *Operation expenses are not included in the project budget.*

5. DRAFT RESOLUTION FROM THE APPLICANT'S GOVERNING BODY

The City has prepared the following draft resolution that contains the authorizations required for the grant. The City of Del Mar will consider adoption of the resolution at the June 6, 2016 City Council meeting. The City will submit the adopted resolution to the CCC by 5 pm on June 10, 2016.

RESOLUTION NO. 2016-XX

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DEL MAR, CALIFORNIA, AUTHORIZING THE FILING OF A SUPPLEMETNAL GRANT APPLICATION WITH THE CALIFORNIA COASTAL COMMISSION TO FURTHER ASSIST WITH THE CITY'S SEA-LEVEL RISE LOCAL COASTAL PROGRAM AMENDMENT, ACCEPTING THE TERMS OF THE SUPPLEMENTAL GRANT AGREEMENT, AND TO APPROPRIATE UP TO $28,932 OF IN-KIND STAFF SERVICES IN FY 2015-16 AND 2016-17 TO FACILITATE THE ADDITIONAL COMPONENTS

WHEREAS, the City of Del Mar is committed to ensuring that future land use decisions related to the effects of sea-level rise and coastal flooding will be consistent with the goals and policies of the Del Mar Community Plan, including those related to environmental management, and the Del Mar Local Coastal Program (LCP) Land Use Plan (LUP), including those related to shoreline hazards, flood hazards, and wetland preservation; and

WHEREAS, the California Coastal Commission (CCC), under the authority of the California Coastal Act, may provide financial assistance to support coastal planning and has approved a competitive grant program to provide such financial assistance for LCP planning; and

WHEREAS, one of the goals of the grant program is to update LCPs in conformance with the California Coastal Act and to reflect current circumstances and new scientific information, including new understandings and concern for the effects of climate change; and

WHEREAS, grant proposals submitted under this grant program must include an LCP Amendment to significantly update the City's certified LCP with special emphasis on effects of climate change and sea-level rise; and

WHEREAS, the City of Del Mar, has an effectively certified LCP; and

WHEREAS, the City of Del Mar, desires to pursue a project that would result in the completion and submittal for certification by the CCC of an amendment to update the LCP; and

WHEREAS, the City of Del Mar commits to and agrees to fully support a planning effort intended to update a certified LCP pursuant to the provisions of the California Coastal Act, with full public participation and coordination with CCC staff; and

WHEREAS, the Budget Act of 2013 provided appropriations of $1 million for CCC and California Ocean Protection Council (OPC) grants in Fiscal Year (FY) 2014-15 to local governments to support LCP planning; and

WHEREAS, on June 2, 2014, the City Council adopted Council Resolution No. 2014-35 to authorize the City Manager to submit a grant application with OPC in the amount of $100,000 to assist in the preparation of an amendment to the Del Mar LCP for sea-level rise planning. As

part of its action, the City Council further appropriated up to $100,000 in matching funds and in-kind services (for a total project cost of $200,000); and

WHEREAS, on July 3, 2014, the City filed the grant application with OPC; and

WHEREAS, on December 2, 2014, OPC awarded the City a grant in the amount of $100,000 and transferred administration of awarded grant funds to the CCC; and

WHEREAS, on May 20, 2015, the City executed a grant agreement (LCP-14-13) with the CCC for a two-year work program period set to terminate on April 30, 2017; and

WHERAS, since July 2015, the City has been actively working on the various components of the work program in preparation of an LCP amendment submittal to the CCC by the end of April 2017; and

WHEREAS, on March 28, 2016, the CCC provided an additional appropriation of $3 million in FY 2015-16 for CCC grants to local governments to support LCP planning between 2016 and 2018; and

WHEREAS, during the process of completing the City's work program, additional components were identified that qualify for supplemental grant funding and would further assist in the preparation of the City's LCP amendment, including a need for supplemental analysis of sea-level rise and river flooding scenarios, preparation of a Sediment Management Plan, preparation of a Lagoon Wetland Habitat Migration Assessment, and supplemental community and stakeholder outreach on the requested components; and

WHEREAS, the cost to supplement the City's work program with the additional components is estimated at $211,220 with an additional cost of $28,932 in staff time that would be provided as in-kind services; and

WHEREAS, the City wishes to delegate authorization to execute these agreements and any amendments thereto.

NOW, THEREFORE, BE IT RESOLVED that the Del Mar City Council hereby:

1. Directs the Director of Planning and Community Development, or her designee, to submit a grant application package to the CCC to provide financial and planning assistance, under authority of the California Coastal Act, in the amount of $211,220 to fund the project more particularly described in the grant application package.

2. Authorizes the City Manager, of the City of Del Mar, to execute, in the name of the City of Del Mar, all necessary applications, contracts and agreements and amendments thereto to implement and carry out the grant application package attached hereto and any project approved through approval of the grant application.

BE IT FURTHER RESOLVED that, upon award of the CCC Sea-Rise Planning Grant, the City Council commits up to $28,932 of in-kind staff services in Fiscal Years 2015-16 and 2016-17 Operating and Capital Budget (Account 01.5530.3200).

PASSED, APPROVED AND ADOPTED by the City Council of the City of Del Mar, California, at a Regular Meeting held the 6th day of June 2016.

_____
SHERRYL PARKS, Mayor
City of Del Mar

_____
Leslie E. Devaney, City Attorney
City of Del Mar

ATTEST AND CERTIFICATION:

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO
CITY OF DEL MAR

I, ASHLEY JONES, Administrative Services Director/City Clerk of the City of Del Mar, California, DO HEREBY CERTIFY, that the foregoing is a true and correct copy of Resolution 2016-xx, adopted by the City Council of the City of Del Mar, California, at a Regular Meeting held the 6th day of June 2016, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____

Ashley Jones
Administrative Services Director/City Clerk
City of Del Mar

ATTACHMENT B - APPLICATION CHECKLIST

The City of Del Mar's Supplemental Sea-Level Rise Analysis Grant Application Packet includes the following required components:

- ✓ Signed LCP Grant Application Form (.pdf)
- ✓ Project Description (.doc)
- ✓ Work Program, Budget, and Schedule (.doc)
- ☐ Signed Resolution (.pdf)
  Note: a draft resolution is included in Section 5 of the Grant Application Packet PDF. The City of Del Mar will consider adoption of the resolution at the June 6, 2016 City Council meeting and submit the adopted Signed Resolution to the CCC by 5 pm on June 10, 2016.
- ☐ Supplemental Form(s)
  Note: the City will provide any supplemental information and/or forms at the request of the CCC.
- ✓ All documents combined into a single PDF file (.pdf)