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Th17d

LCP-6-SOL-16-0020-1 (PUBLIC RECREATION FEE)

MAY 11, 2017

EXHIBITS

Exhibit 1: Solana Beach Interim Fee Projects
Exhibit 2: City Proposed Policy 4.50 (City Edits are Blue and Red)
Exhibit 3: City Proposed Appendix C
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Solana Beach Interim Fee Projects

Address	Applicant	CDP #	Approval Year	Length of Armoring (ft.)	Rec Fee Ammount
417 Pacific Ave	Brehmer et al.	6-07-134	2008	170	$170,000
423 Pacific Ave	Brehmer et al.	6-07-134	2008		
205 South Helix Ave	Surfsong Condos	6-03-033-A5	2009	253	$253,000
365 Pacific Ave	DiNoto et al.	6-08-073	2009	94	$94,000
367 Pacific Ave	DiNoto et al.	6-08-073	2009		
371 Pacific Ave	DiNoto et al.	6-08-073	2009		
521 Pacific Ave	Winkler	6-08-122	2009	62	$62,000
211 Pacific Ave	O'Neal et al.	6-09-033	2010	256.3	$256,300
215 Pacific Ave	O'Neal et al.	6-09-033	2010		
219 Pacific Ave	O'Neal et al.	6-09-033	2010		
225 Pacific Ave	O'Neal et al.	6-09-033	2010		
231 Pacific Ave	O'Neal et al.	6-09-033	2010		
707 South Sierra	Seascape Chateau	6-02-039-A1	2013	7.2	$7,200
341 Pacific Ave	Koman et al.	6-13-025	2013	150	$150,000
347 Pacific Ave	Koman et al.	6-13-025	2013		
355 Pacific Ave	Koman et al.	6-13-025	2013		
249 Pacific Ave	Presnel	6-13-0437	2014	24	$24,000
523 Pacific Ave	Bannasch	6-13-0948	2014	31	$31,000
525 Pacific Ave	Bannasch	6-13-0948	2014		
517 Pacific Ave	Winkler et al.	6-16-0281	2017	140	$140,000
521 Pacific Ave	Winkler et al.	6-16-0281	2017		
			Total	**1187.5**	**$1,187,500**

EXHIBIT NO. 1

Interim Fee Projects

Solana Beach LCP-6-SOL-16-0020-1

California Coastal Commission

City Proposed Policy 4.50 (City Edits are Blue and Red)

Policy 4.50: The bluff property owner shall pay for the cost of the coastal structure or Infill and pay a Sand Mitigation Fee and a Public Recreation Fee per LUP Policy 4.39. These mitigation fees are not intended to be duplicative with fees assessed by other agencies. It is anticipated the fees assessed as required by this LCP will be in conjunction with, and not duplicative of, the mitigation fees typically assessed by the CCC and the CSLC for impacts to coastal resources from shoreline protective devices.

Sand Mitigation Fee - to mitigate for actual loss of beach quality sand which would otherwise have been deposited on the beach. For all development involving the construction of a bluff retention device, a Sand Mitigation Fee shall be collected by the City which shall be used for beach sand replenishment and/or retention purposes. The mitigation fee shall be deposited in an interest-bearing account designated by the City Manager of Solana Beach in lieu of providing sand to replace the sand that would be lost due to the impacts of any proposed protective structure. The methodology used to determine the appropriate mitigation fee has been approved by the CCC and is contained in LUP Appendix A. The funds shall solely be used to implement projects which provide sand to the City's beaches, not to fund other public operations, maintenance, or planning studies.

Sand Mitigation Fees must be expended for sand replenishment and potentially for retention projects as a first priority and may be expended for public access and public recreation improvements as secondary priorities where an analysis done by the City determines that there are no near-term, priority sand replenishment Capital Improvement Projects (CIP) identified by the City where the money could be allocated. The Sand Mitigation funds shall be released for secondary priorities only upon written approval of an appropriate project by the City Council and the Executive Director of the Coastal Commission.

Public Recreation Fee – Similar to the methodology established by the CCC for the sand mitigation fee, the City and the CCC are jointly developing a methodology for calculating a statewide public recreation fee. To assist in the effort, the CCC provided the City with an LCP Planning Grant to prepare an updated fee study. The current recommendation is that the City establish a methodology and formula that utilizes a $62 per square foot fee and a $307 linear foot fee (in 2016) that increases over time depending on the year the coastal structure is built as outlined in Appendix C, Table 1. ~~City has shared the results of their draft study with the CCC to support their development of a uniform statewide Public Recreation / Land Lease Fee.~~ Until such time as the ~~an approved~~ City's fee study ~~methodology for determining this fee~~ has has been certified by the CCC, ~~established, and the methodology and payment program has been incorporated into the LCP through an LCP amendment,~~ the City will continue to collect a $1,000 per linear foot interim fee deposit. In the interim period, CCC will evaluate each project on a site-specific basis to determine impacts to public access and recreation, and additional mitigation may be required. As required by the CCC, t~~T~~he City has ~~shall~~ completed its public recreation~~/land lease~~ fee study within 18 months of effective certification of the LUP.

Project applicants have the option of proposing a public recreation/access project in lieu of payment of Public Recreation Fees (or interim deposits) to the City. At the City's discretion, these projects may be accepted if it can be demonstrated that they would provide a directly-related recreation and/or access benefit to the general public.

Public Recreation Fees must be expended for public access and public recreation improvements as a first priority and for sand replenishment and retention as secondary priorities where an analysis done by the City determines that there are no near-term, priority public recreation or public access CIP identified by the City where the money could be allocated. The Public Recreation funds shall be released for secondary priorities only upon written approval of an appropriate project by the City Council and the Executive Director of the Coastal Commission.

EXHIBIT NO. **2**

City Proposed 4.50

Solana Beach LCP-6-SOL-16-0020-1

California Coastal Commission

City Proposed Appendix C

APPENDIX C

PUBLIC RECREATION IMPACT FEE

PUBLIC RECREATION IMPACT MITIGATION FEE

In conformance with the Certified City of Solana Beach Local Coastal Program (LCP) Land Use Plan (LUP) Policy 4.50, Bluff Property Owners who construct Coastal Structures shall pay the City a Public Recreation Impact Fee (may also be referred to as Public Recreation Fee) consistent with this appendix. The Public Recreation Fee is separate and independent of the Sand Mitigation Fee detailed in Appendix A.

These mitigation fees are not intended to be duplicative with fees assessed by other agencies. It is anticipated the fees assessed as required by this LCP will be in conjunction with other the mitigation fees typically assessed by the CCC and the CSLC for impacts to coastal resources from shoreline protective devices.

The Public Recreation Fee (consistent with the Sand Mitigation Fee) will be calculated on a project-specific basis to ensure the mitigation fees are proportional to the impact being mitigated. Variables to be considered in determining the fee imposed will depend on the impact to the beach area based upon (1) the specific physical configuration and footprint of the proposed coastal structure and (2) the absence of a bluff notch overhang or the depth of a coastal bluff notch overhang determined by the City's geotechnical engineer and confirmed to be in imminent danger of collapse.

The Public Recreation Fee addresses impacts to the loss of recreation based upon the loss of beach area described below as (1) Initial Area and (2) theoretical 20-year Bluff Retreat Area. Table 1 identifies separate rates, to ensure proportionality between the impact and the mitigation fee to be applied to the Initial Area and Bluff Retreat Area. The rates in Table 1 are based on the recommendations contained in the *2016 Draft Public Recreation Impact Fee Study* prepared under an LCP Planning Grant provided to the City. The fees address the impacts to public recreation for a 20-year period consistent with the requirements of LUP Policies 4.49 and 4.53 at which time they may be reassessed.

The Public Recreation Fee will be imposed as a condition of approval of any discretionary permit for a non-erodible coastal structure and will be payable to the City at the time the construction permits are issued. The Fee will be paid to the City prior to construction of the coastal structure so that, in effect, the mitigation fee is paid before the anticipated impact is created.

City Staff will calculate the Public Recreation Fee on a project-specific basis during the discretionary permit approval process and will include the estimated fee as a condition of project approval. The Fee will be finalized by City Staff at the time the City construction permit is issued and may be modified based on the final project design and

condition of the bluff. This second fee review is warranted due to (1) the fact that there is often a considerable lapse of time between the point at which the City approves the initial discretionary permit and the time that the applicant comes back to the City to obtain the construction permit; and (2) changes to the project design that may result from the CCC permit review and approval process.

Coastal structures that consist of entirely of erodible concrete (see LUP Appendix B, Figure 1A) are exempt from both the Public Recreation Impact Fee and the Sand Mitigation Fee per the LUP.

As an alternative allowed by LUP Policy 4.50, project applicants have the option of proposing a public recreation/access project in lieu of payment of Public Recreation Impact Fees to the City. At the City's discretion, these projects may be accepted if it can be demonstrated that they would provide a directly-related recreation and/or access benefit to the general public.

Development of a statewide Public Recreation Impact Fee remains under the jurisdiction of the California Coastal Commission and Land Leases remain under the jurisdiction of the California State Lands Commission.

Table 1 - Public Recreation Impact Mitigation Fee Schedule

Permit Year	Initial Area Rate (Per SF)	Bluff Retreat Rate (Per LF)
2016	**$62**	**$307**
2017	**$63**	**$322**
2018	**$64**	**$340**
2019	**$66**	**$358**
2020	**$67**	**$378**
2021	**$68**	**$400**
2022	**$70**	**$423**
2023	**$71**	**$448**
2024	**$73**	**$475**
2025	**$74**	**$503**
2026	**$76**	**$534**

The Total Public Recreation Impact Fee (PRF), for a 20-year period, shall equal the Initial Area multiplied by the Initial Area Rate plus the Bluff Retreat Length multiplied by the Bluff Retreat Rate for the Permit Year.

The formula to calculate the Total PRF =

(Initial Area x Initial Area Rate) + (Bluff Retreat Length x Bluff Retreat Rate)

Definitions:

Calculation of the PRF is based on the following terms which are defined / explained below.

Initial Area - The Initial Area shall be that Useable Beach Area that is occupied by a seawall or other coastal structure measured as the width of the structure multiplied by the length of the structure plus any area determined by the City's Geotechnical Engineer to be subject to imminent bluff failure, measured in square feet. For the purposes of calculating the Initial Area, any area subject to imminent bluff failure shall be included.

Bluff Retreat Length - The Bluff Retreat Length shall be the length of the seawall measured along the bluff, measured in feet.

Initial Area Rate - The Initial Area Rate shall be the amount identified in Table 1, under the Column titled Initial Area Rate dependent on the Permit Year.

Bluff Retreat Rate - The Bluff Retreat Rate shall be the amount identified in Table 1, under the Column titled Bluff Retreat Rate dependent on Permit Year. The Bluff Retreat Rate is based on a linear foot of seawall or other coastal structure and incorporates the annual area impacted by the wall estimated by the Erosion Rate over a 20-year period.

Total PRF – Means the Total Public Recreation Impact Fee, for a 20-year period as calculated by the above formula.

Permit Year - The year the wall is considered permitted (construction year) as defined in the LCP LUP.

Useable Beach Area – That area of Solana Beach bound by the northern and southern city limits, the average width of the beach based on the distance between Mean Sea Level and the toe of coastal bluff and that may extend landward of the toe of coastal bluff based upon recommendations of the City Geotechnical Engineer.

City Fee Study and Appendices

City of Solana Beach Public Recreation Fee Report February 25, 2016:

http://solana-beach.hdso.net/docs/CD_FeeStudy-2016.pdf

City of Solana Beach Public Recreation Fee Report February 25, 2016 Appendices:

http://solana-beach.hdso.net/docs/CD_FeeStudy-2016Appendices.pdf

CALIFORNIA COASTAL COMMISSION
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January 6, 2015

CCC Staff Comment Letters

Leslea Meyerhoff
Harvey Meyerhoff Consulting Group, Inc.
2810 Cazadero Drive
Carlsbad, California 92009

Re: Peer Review for the Solana Beach Shoreline Armoring Mitigation Fee Program

Dear Ms. Meyerhoff:

This letter is in response to your November 26, 2014 submittal and request for Commission comments on the document titled "Fee Study Peer Review Process Outline." The document proposes a process that would establish a peer review panel to assess the scientific and economic analysis to be contained in the forthcoming Solana Beach Shoreline Armoring Mitigation Fee Program (Fee Study), which is being funded in part through a grant from the California Coastal Commission.

The focus areas for peer review identified in the outline are for the most part related to economic aspects of the Fee Study. Given the extensive documentation already available related to future sea level rise projections and future bluff erosion rates, Commission staff recommends that these more scientific based focus areas be eliminated in order to more precisely focus the peer review on the economic aspects of the study.

Commission staff is supportive of the intent of the proposed peer review panel, which is to contract with qualified persons to conduct a review of the assumptions to be included in developing the Fee Study. However, the formal peer review process outlined in the document may be difficult to successfully accomplish, given existing logistical constraints. Staff recommends that various changes be made to the outline in order to clarify and streamline the review process.

The outline proposes that the review panel would consist of five representatives, each appointed by one of the following entities: the City of Solana Beach, Pacific Municipal Consultants, local bluff top property owners/COOSA/BBC, Surfrider, and the California Coastal Commission. As proposed, the City would effectively be choosing two representatives if the City's primary grant consultant (Pacific Municipal Consultants) is on the review panel and another City representative is also appointed. Staff would recommend that the City chose only one representative to provide review.

The outline suggests that the peer review panel would produce one report authored by all five of the reviewers. Based on the comments that the City received on the 2010 Draft Fee Study, it appears improbable that the panel of reviewers would be able to reach consensus on the content and direction in a final combined report. Any expert analysis that results from peer review would be helpful in the formulation of the Fee Study, but it may not be necessary for the peer review to result in a formal report. Less formal comments related to each of the focus areas may be sufficient to guide the City's completion of the Fee Study and the Commission's review.

As an alternative to the peer review panel approach presented in the outline, Commission staff would suggest that City and Commission staffs could work collaboratively to identify a single independent expert that would review the economic and statistical elements of the Fee Study. This reviewer would provide specific comments and/or a summary report that could then inform final development of the Fee Study. If additional parties (e.g. Surfrider or local bluff top property owners) would like to hire outside reviewers to provide comments on the focus questions and/or the results of this independent peer review, then this analysis could further inform the development of the Fee Study as well.

The LCP grant contract between the Coastal Commission and the City includes a detailed budget allocation and deadlines for submittal of work products. If the City intends to include the peer review as a new work product or to modify the budget allocation or established deadlines, a detailed change proposal must first be submitted to Commission staff for review and approval. It should also be noted that no additional grant funding, aside from the funds already approved for the City's LCP grant, can be made available to hire a peer reviewer, and the Commission does not have additional funding available to hire a peer reviewer. However, staff does believe that an objective third party expert review would be a valuable undertaking and will work with the City to select a peer reviewer and identify an effective solution on how best to fund this analysis.

Commission staff continues to appreciate the collaborative approach the City has undertaken in regards to the development and review of the Fee Study. Please feel free to contact me directly to further discuss this letter with any questions you might have.

Sincerely,

Eric Stevens
Coastal Program Analyst II

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March 26, 2015

Leslea Meyerhoff
Harvey Meyerhoff Consulting Group, Inc.
2810 Cazadero Drive
Carlsbad, California 92009

Re: Commission Staff (Staff) Comments on Deliverables Three (Memos/Analysis) and Four (Response to Comments) - Solana Beach Shoreline Armoring Mitigation Fee Program (Fee Study)

Dear Ms. Meyerhoff:

Commission staff (Staff) has the following comments in response to Deliverable 3 (Memos/Analysis), which was submitted to Staff on November 14, 2014, and Deliverable 4 (Response to Comments), which was submitted to Staff on October 8, 2014. We apologize for the delay in getting these comments to the City for your consideration and acknowledge we all anticipated additional information from the NOAA Beach Evaluation Study would be available by this time. We will continue to work toward getting the results of the draft NOAA study to the City as soon as we are able. The following comments are meant to identify questions and concerns raised by the submitted information that we feel needs further analysis and discussion.

Deliverable 3 consists of analysis related to updated data and methodology; current erosion and sea level rise information; a review of previous statewide California Coastal Commission actions that required mitigation for shoreline armoring; an analysis of Solana Beach Land Use Plan (LUP) policies relevant to the Fee Study; data on costs of previous and expected beach replenishment projects; analysis of the ongoing NOAA beach evaluation study; and an analysis of how recreation fees will be used. Deliverable 4 is a review of public and agency comments received by the City on the 2010 draft Fee Study.

General Comments

Staff continues to have concerns about the overall concept of offsets for public benefits of bluff retention devices authorized to protect private development, and continues to question how the concept has been defined and applied in the Fee Study. The purpose of the mitigation fee for the loss of sand to the beach and the loss of recreational benefit is to compensate for the impact to public resources caused by shoreline protection. The beach and bluffs are publicly owned resources that are adversely impacted by the construction of shoreline protective devices.

Commission staff and City staff have previously discussed using an independent third party reviewer to provide additional analysis related to the economic aspects of the Fee Study (Ref: Letter from Staff to City dated January 6, 2015 regarding peer review process). However, it may also be the case that a third party review of the economic aspects of the Fee Study will not be necessary pending the results of the ongoing NOAA study on this issue.

Deliverable 3 - Specific Comments

- Page 7 – Comparison of past & future proposed beach nourishment project costs:
    - The sand cost analysis indicates that the City will begin to charge $7.65 per cubic yard of sand. This figure was based off the cost of the two Regional Beach Sand Projects and projections for the cost for two projects that have not been implemented, One Paseo and the USACE Coastal Storm Damage Reduction Project. The determination of the cost per cubic yard of sand relies too heavily on very large scale projects and unrealized projections. The proposed cost of sand is approximately half the cost per cubic yard as previously determined, which was based on the cost to purchase and deliver sand to the beach. If the City chooses to pursue this alternate method of valuing sand for mitigation purposes, Staff recommends that a greater number of completed and more diverse beach replenishment projects should be included in the analysis. Projects should include small scale projects that have been implemented in Solana Beach and other San Diego County Beach cities and large scale projects undertaken or projected to occur in other parts of Southern California, including the Broad Beach project in Malibu.
    - The purpose of requiring this analysis as part of the Fee Study was not to determine an alternative method to value a cubic yard of sand. Instead, the purpose was to determine the cost to maintain the beach fronting a seawall, for the life of the seawall. The Fee Study should include an analysis of the cost to maintain a section of beach fronting a seawall through beach replenishment.
- Page 9 - Analysis of how Public Recreation Fees may be used by the City and the parameters for defining “near term priority projects” per LUP Policy 4.50:
    - The analysis of how public recreation fees will be used includes a variety of specific projects that could be eligible for funding. However, one of projects proposes to use public recreation fees to repair a seawall, which is not a use that Staff would support. In addition, general parameters for how to determine the type of project that could receive funding are not included. Staff recommends that a more inclusive discussion of the types of eligible projects and how the City will determine which projects to fund, be provided in the Fee Study, such that specific projects could be evaluated on a case by case basis. Also, detail should be included that identifies that new project types could be added to the list in the future, and a description for how this process to add new projects would be conducted.

- Page 10 - Identify and incorporate, as appropriate, relevant results from the NOAA Beach Evaluation Study:
    - As we said, staff recognizes that the City has not been provided the opportunity to review any deliverables related to the NOAA Beach Evaluation Study and that the City's Fee Study may benefit from this information. Therefore, staff is amenable to discussing schedule changes for the interim grant deliverables in order to allow the City time to review information from the NOAA Beach Evaluation Study.
- Page 11 – Analysis of previous statewide Commission actions regarding public recreation/public access mitigation and sand supply mitigation and how these valuation methods may be applicable to Solana Beach:
    - The analysis of past Commission permit approvals for projects that included recreation mitigation is thorough. However, analysis as to why the Travel Cost method is preferable to the Appraisal method for purposes of determining adequate public recreation/public access mitigation was not included. The Commission has utilized the Appraisal method for various recent shoreline armoring projects. Staff recommends that further analysis of this question be undertaken.
- Page 34 – Sea Level Rise:
    - The second bullet point on this page states that *"…If future SLR [Sea Level Rise] differs from the NRC [National Research Council 2012] Projection (as confirmed through monitoring), overpayment of fees can be credited to permit applicants and underpayment can be added to future assessments."* It is not clear how allocation of the mitigation credits and deficits would be implemented in practice. Staff does not support crediting overpayment of mitigation fees or adding underpayment of mitigation fees to future assessments. After-the-fact adjustments to mitigation fee amounts would increase uncertainty for applicants, the City, and the Coastal Commission. Furthermore, sea level rise estimates are based on long term averages and Staff would likely not support adjustments based on a shorter time scale.
- Page 36 – Sea Level Rise:
    - The deliverable proposes to use a bluff erosion rate of 0.4 feet per year to determine mitigation payments for public access and recreation impacts of shoreline armoring. Additional analysis is needed to justify the proposed erosion rate of 0.4 ft. per year.

      The LUP requires that the erosion rate be determined based on historic erosion, erosion trends, aerial photographs, land surveys or other acceptable techniques and that the erosion rate be subject to a vote of the City Council at a public hearing (Ref: LUP Policies 4.25 and 4.51 and LUP Appendix A and Appendix B). The LUP also states that the approximate erosion rate averages 0.4 feet per year, but that erosion rates may vary depending on multiple factors, such as wave action, winter storms, potential sea level rise predictions, and upper bluff irrigation runoff. The online version of Appendix B of the LUP currently states: "=*RECOMMENDED COASTAL COMMISSION SETBACK (40' + 75yrs @ .4ft/yrs).*" However, this language

was changed pursuant to LUP amendment #SOL-MAJ-1-13 and should be corrected to state: "=*GSL (APPROX.) GSL – GEOLOGIC SETBACK LINE; ACTUAL GEOLOGIC SETBACK LINE TO BE DETERMINED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN POLICY SECTION 4.25 OF THE CITY OF SOLANA BEACH LUP.*"

The Commission most recently accepted an erosion rate in Solana Beach, for use in the 20 year public access and sand mitigation calculations, of 0.3 feet per year (Ref: CDP #6-13-25/Bannasch). However, for purposes of siting new development on a bluff top lot, a more conservative estimated long term erosion rate of 0.47 feet per year is typically used by the Commission in Solana Beach (Ref: Figure 3a - Benumof and Griggs, 1999).

- Page 42 – 4.2.6 Bluff Erosion
  - Staff would likely not support crediting overpayments and correcting underpayments of the public recreation fee based on observed short term erosion. Additional rationale for this process of determining when an under or overpayment has occurred and details regarding implementation would be required.
- Page 43 – 4.2.7 Bluff Erosion
  - See previous comments related to an erosion rate of 0.4 feet per year. Explain why an erosion rate of 0.8 feet per year is proposed to be used between 2026 and 2046.
- Page 44 – Sea Level Rise:
  - Staff is supportive of the City's plan to perform periodic LiDAR surveys of the Solana Beach bluffs to document observed erosion.

<u>Deliverable 4 - Specific Comments</u>

- Page 2 – Comment 3:
  - Staff agrees that adverse aesthetic impacts of shoreline armoring are reduced as a result of the LUP policies related to structure design requirements and monitoring. However, even well designed and maintained shoreline armoring creates an artificial shoreline which adversely impacts the visual quality of scenic coastal resources. Provide an analysis of potential options to mitigate for this impact. Options may include funding for trash or graffiti removal or improvements to or acquisition of public view areas.
  - As stated previously, Staff recognizes that the City has not been provided the opportunity to review any deliverables related to the NOAA Beach Evaluation Study. However, a City-specific review of the ecological impacts of shoreline armoring should be undertaken. Although most, if not all, of the beach area in Solana Beach may be inundated during high tides, the beach likely continues to support a diverse habitat assemblage. Provide an analysis of potential impacts and mitigation for impacts to ecological resources resulting from shoreline armoring.

- The following excerpt from a Memo by the Commission ecologist, Dr. Jonna Engel, included as Exhibit 20 of the Commission staff report for CDP #4-12-043, is applicable to the City of Solana Beach and states, in part:

"…The effects of alongshore coastal armoring on the physical features of open-coast beaches are well described and documented[1]*. Any type of structure placed in a coastal setting will alter hydrodynamics and modify the flow of water, wave regime, sediment dynamics, grain size and deposition processes. In soft-sediment habitats, the loss of original habitat that is covered by the footprint of man-made coastal structures is a primary impact, along with the altered coastal hydrodynamic processes in the remaining and adjacent habitats. Beach widths are reduced seaward of shore-parallel structures, initially in response to placement loss, followed by the ongoing effects of passive*[2] *and active erosion. These physical changes may result in reduction or loss of key beach system exchanges and functions, including organic and inorganic material transfers (detritus, nutrients, prey, and sediments), water filtration, and nutrient uptake*[3]*. They can also result in ecological changes to both intertidal and subtidal benthic communities such as complete loss of habitat components (e.g. upper beach), community structure alterations (changes in organism abundance and species richness) and disruption of predator-prey interactions…"*

- Page 4 – Comment 8:
  - This response appears to allow a permittee to pay the 20 year mitigation fee annually or as one payment at the start of the mitigation period. Staff recommends that the option for annual payments be removed in order to reduce enforcement related issues.
- Page 5 – Comment 11:
  - This response proposes to allow a potential offset to mitigation fees if the armoring partially protects public infrastructure. This response references an example provided in the draft 2010 Fee Study. The example looked at a situation in which the three property owners directly north of the Community Center would construct a 195 ft.-long seawall fronting their properties and fronting the Community Center. In this example, the 2010 Draft Fee Study found that the public benefits would equal $967,223 (Cost of Seawall Fronting Community Center + Public Safety Benefit + Increased Tax Revenue) and the private benefit would be equal to $725,000 (estimated cost of the portion of the seawall fronting the three private homes). Thus the potential offset would equal $242,223. The Public Access and Recreation fee for the 195-ft.-long wall would equal $604,500. Thus, the required mitigation fee would be

[1] Griggs, G.B., 2010, The effects of armoring shorelines—The California experience, *in* Shipman, H., Dethier, M.N., Gelfenbaum, G., Fresh, K.L., and Dinicola, R.S., eds., 2010, Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop, May 2009: U.S. Geological Survey Scientific Investigations Report 2010-5254, p. 77-84..

[2] Whenever a hard structure is built along an eroding coastline, the shoreline eventually migrates landward on either side of it.

[3] Dugan et al. 2008. Ibid.

reduced by the offset amount ($242,223) and would be $362,227 instead of $604,500 over a 72 year period.

- Commission staff does not believe that construction of a seawall to protect public infrastructure results in a benefit to public beach access and recreation. Furthermore, staff would not support the use of public beach access and recreation mitigation fees for construction of shoreline armoring.
- Commission staff also does not support using a Public Safety Benefit as an offset to impacts of shoreline armoring. Passive erosion and loss of usable beach area is a direct result of shoreline armoring and can decrease the safety of a beach as areas of safe passage are reduced or eliminated. In addition, while a seawall may decrease the chance of a bluff collapse, there is no guarantee that a seawall or the bluff above a seawall will not also fail and result in death or injury to beach users.
- Commission staff also questions whether increased property tax revenue should be included as a benefit to public beach access and recreation. Unless, the increased tax revenue will be allocated in its entirety to improving public access and recreation at the City's beaches, it should not be included in the public benefit calculations. It may also be the case that seawalls will result in decreased property values in the future if the combination of seawalls and sea level rise further reduce or even eliminate the public's ability to enjoy the City's beaches.
- Review of Commission actions on public works projects would indicate the Commission has not typically required payment of an in-lieu fee for armoring that protects public infrastructure if some other public benefit is incorporated into the project. For instance, applicants are often required to provide beach access improvements in association with armoring to protect public infrastructure (Ref: CDPs A-3-SCO-07-015/City of Santa Cruz, 3-07-019/City of Santa Cruz, 4-11-026/Caltrans, 3-12-055/Santa Cruz County). In contrast to past Commission action, the draft 2010 Fee Study appears to require that armoring that protects public infrastructure would also be subject to public access and recreation mitigation fees. Confirm that this is a correct interpretation of proposed Fee Study. This comment also states that there may come a point that the erosion line is landward of the blufftop private property and coastal armoring would be protecting public infrastructure. The Fee Study should address if the City would be responsible for public access and recreation mitigation fees in that scenario.

- Page 9 – Comment 1.2:
  - This response indicates that if large sand replenishment projects are implemented, mitigation fees may be reduced. Staff would likely not support this concept, as sand can be removed from a beach by one or two large wave events and there is no guarantee that long term replenishment projects will continue to be funded in the future. Therefore, reducing mitigation fees due to a scheduled or one time beach replenishment event may result in underpayment of fees and inadequate mitigation for impacts.

- Page 10 – Comment 1.5:
  - In order to ensure that the sand and public access mitigation fees are not duplicative of the California State Lands Commission (CSLC) fees, more information on the CSLC fees is needed.
- Page 29 – Comment 14:
  - The response states, in part: *"…The fees may apply to existing seawalls that were constructed with the condition to mitigate impacts by paying a fee and in which a deposit was collected at the time of permit issuance..."* Staff is unclear why this statement uses the word "may." All shoreline armoring permits in the City that have been subject to the mitigation deposit are required to pay the final mitigation amount within six months of the Commission's certification of the mitigation fee program, as part of the certified LCP.
  - The response also states, in part: *"…Fees may also apply to existing seawalls if additional discretionary approval is required at some point in the future and would trigger review under the City's approved LUP…"*

    Policy 4.17 of the City's LUP addresses when new development or significant alteration or improvement to existing structures on blufftop lots with legally-established bluff retention devices is proposed. A geologic analysis is required to describe the condition of the existing shoreline armoring, to identify any impacts the shoreline armoring may be having on public access and recreation, scenic views, sand supply and other coastal resources; and to evaluate options to mitigate any previously unmitigated impacts of the structure or modify, replace or remove the existing protective device in a manner that would eliminate or reduce those impacts.

    When revisions to an existing shoreline protective device are proposed, it is important to re-evaluate the site conditions and impacts the protective device has on coastal resources. Solana Beach LUP Policy 4.53 requires review of existing bluff retention devices any time that an expansion or alteration of an existing bluff retention device is proposed. Specifically, the review must include a re-assessment of the need for the device, the need for any repair or maintenance of the device, and the potential for removal of the device based on changed site conditions. Existing site conditions that must be evaluated include the age, condition, and economic life of the existing principal structures that rely on the armoring, changed geologic conditions relative to sea level rise and sand replenishment or shoreline restoration programs, and any impact to coastal resources resulting from shoreline armoring.

    Additional analysis is needed to address when review of blufftop development or alterations to existing shoreline armoring would trigger reassessment of impacts and potential application of additional or new mitigation requirements. This is an implementation measure that will have to be developed and incorporated into the certified LCP Implementation Program.

Staff continues to appreciate the collaborative approach the City has undertaken in regards to the development and review of the Fee Study. Please feel free to contact me directly to further discuss this letter with any questions you might have.

Sincerely,

Eric Stevens
Coastal Program Analyst II

cc: Sherilyn Sarb, Deputy Director
Deborah Lee, District Manager
Gabriel Buhr, Coastal Program Manager
Hilary Papendick, LCP Grant Manager

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January 22, 2016

Bill Chopyk
Community Development Director
City of Solana Beach
635 South Highway 101
Solana Beach, CA 92075

Re: Commission Staff (Staff) Comments on 2015 City of Solana Beach Public Recreation Report (Fee Study)

Dear Mr. Chopyk:

Commission staff (Staff) has the following comments on the 2015 City of Solana Beach Public Recreation Report (Fee Study), which was released for public and Commission staff review on November 18, 2015. This work was conducted as a component of a Local Coastal Plan (LCP) Local Assistance Grant from the Coastal Commission, awarded January 2014. Commission staff appreciates the ability to work collaboratively with City staff on the development of this study. As a part of our review efforts, Commission staff considered analysis provided through a Project of Special Merit funded by NOAA that included research conducted by Commission staff, and a field of economic and ecological experts. The following comments are meant to identify questions and concerns related to the Fee Study that Staff believes warrant further analysis and discussion.

General Comments

Beaches are valuable economic, recreational, and natural resources, and they are increasingly threatened in the state of California. An issue of major concern today is the loss of beaches due to shoreline protection and other coastal development. In addition to supporting recreation and coastal economies, beaches provide unique and important ecological services like filtering water, recycling nutrients, buffering the coast from storm waves, and providing critical habitats for a myriad of species. Seawalls, revetments, and other types of hard armoring have long been used to protect backshore development from erosion and flooding, but have deleterious effects on beach ecosystems. These shoreline protective options have unintended ecological and public access impacts such as loss of biodiversity and ecosystem services and replacement of recreational beach area with armoring structures. The field of economics provides methods for quantifying these impacts.

There is significant literature on valuing beaches economically. For beach communities, there are direct market benefits from tourists who rent hotel rooms, buy meals, buy or rent beach equipment, etc. Tourism also generates indirect market impacts, resulting from spending by the people whose employment depend upon the tourist economy. These economic impacts are often measured by the tax dollars paid directly or indirectly through tourism activities. The market value of yearly beach visits in California has been

estimated at well over $3 billion, with estimates as high as $14 billion in direct revenue (King 1999).[1] Beach value, however, extends beyond tax revenues, and contributes to the overall value to society that comes from there being a beach. Such values can include an existence value (the value that comes from knowing that a beach exists, even if people do not visit it), the value it can provide for future generations, values for erosion and flood protection, or values due to proximity to surfing and fishing resources. Based on a conservative estimate of beach attendance of 150 million beach days annually, Pendleton and Kildow (2006) calculated the non-market value of beach visits in California to range from $2.25 billion to $7.5 billion (2006 dollars) annually. Although the subject Fee Study focuses only on beach access and recreation value, it is important to remember that beaches also provide strong support for the market economy in Solana Beach and beyond.

Consumer Surplus Value

Consumer surplus value is used by economists to represent economic benefit. Consumer surplus in the Fee Study is the estimated per person value of a day at the beach, represented by beach visitors' willingness to pay based on individual surveys. In the Fee Study, beach value was calculated using data derived from travel cost data methodology combined with local beach attendance figures, beach area and beach erosion predictions. There have been numerous studies done to value the consumer surplus of California beaches. Specifically, Pendleton and Kildow (2006) looked at multiple past studies to provide a range of $15-50 (2005 dollars), or $18-61 (2015 dollars), for their consumer surplus estimate of the total value of California beach visitation. Based on information provided by the past beach economic valuation studies in California statewide and published literature[2] on San Diego beach recreation value, Commission staff are concerned that the recommended consumer surplus values of $13.42 and $17.50 in the Fee Study do not adequately capture the value of the beach resource—they do not meet even the lowest threshold of the range according to Pendleton and Kildow (2006) and Lew and Larson (2008).

Travel-Cost Data

The travel cost model, which was implemented in the Fee Study, is one method that can produce a value for beach recreation. This method derives consumer surplus based on cost of transportation and the time a person spends traveling to the beach.

Economists collect travel cost data, or data that determines the money and time spent to reach a particular destination, to infer what an individual is willing to pay to visit the location, and, ultimately, the value an individual places on the environment. However,

[1] King, P., 1999. "The Fiscal Impact of Beaches in California," *Public Research Institute*, San Francisco University, report commissioned by California Department of Boating and Waterways.
Pendleton, L., Kildow, J. and Rote, J.W., 2006. The non-market value of beach recreation in California. *Shore and Beach*, *74*(2), p.34.

[2] Mean value of a beach day in San Diego County is $34.31 (2015 dollars) according to Lew, D.K. and Larson, D.M., 2005. Valuing recreation and amenities at San Diego County beaches. *Coastal Management*, *33*(1), pp.71-86.
Value of a beach day in San Diego County ranges from $23.12-25.32 (2015 dollars) according to Lew, D.K. and Larson, D.M., 2008. Valuing a beach day with a repeated nested logit model of participation, site choice, and stochastic time value.*Marine Resource Economics*, pp.233-252.

economists use this information to infer an individual's *marginal* willingness to pay to travel to a particular location – their willingness to pay for incremental improvements to an environment. For example, by comparing the time and money an individual is willing to spend to reach the cleaner beach in a region, the travel cost method may shed light on the value individuals place on incremental improvements to beach cleanliness. While this method provides insight into what an individual is willing to pay for marginal benefits and small changes (incremental improvements to air quality, water quality, etc.), the method does have some negative attributes. The method does not effectively capture the increased value of a particular environment once the environment becomes scarce. The method also fails to account for the high cost of property in the city (average Solana Beach homes are valued at approximately $1.16 million[3]) and the fact that many beach visitors are local residents (one third, according to the Fee Study), which indicates local residents value the beach through their property ownership.

Additionally, using travel cost data to infer the value of a particular location does not account for individuals that place a high value on the location, but lack the funds to access the location on a regular basis, such as low-income communities. While low-income individuals may place a high value on the beach, they may lack the discretionary income needed to travel to the beach as often as they would like. Further, inland location increases travel costs and may result in the decision to save gas money and take advantage of nearby recreational opportunities – but this does not necessarily reflect the value low-income or inland residents place on the beach, rather it is a reflection of whether visiting the beach is financially feasible. Wealthier individuals, on the other hand, have more discretionary income to travel to the beach, which provides them more financial freedom to visit the beach more often. For this reason, the travel-cost method does not fully portray the value the public places on the beach and may ultimately exclude the input of a large proportion of the public, particularly, low-income individuals. In order to make sound policy decisions that protect and maximize the public's ability to access the coast, as required by the Coastal Act, it is important to ensure the needs of the broader public are included in determining recreational value, not just those that can afford to travel to the coast regularly.

The Fee Study uses a 33% wage rate to estimate the value of visitors' time in traveling to Solana Beach. The Fee Study describes that a 33% wage rate percentage was utilized to create a consumer surplus that "compares well with King's figure of $17.35 estimated in his report." However, the King $17.35 value is from a 2001 study, and CPI adjustments would raise that figure to $23.22 (2015 dollars). In fact, through personal communication with staff on 1/8/2016, Dr. Phil King stated that he would use a higher wage rate than 33% to estimate consumer surplus in the Solana Beach today. While 33% of wages is sometimes used in travel cost calculations, it is not a universal standard among economists. There is much variation in the opportunity cost of time—economists go from zero (for retired people, unemployed, etc.) to 100 (or even 150%) of wages (when opportunity cost is high). Using the lower wage rate for the travel cost method consumer surplus for the City of Solana Beach, as recommended in the Fee Study, and taking into

[3] http://www.zillow.com/solana-beach-ca/home-values/ accessed on January 22, 2016.

account the other negative aspects of the travel cost method as described above, has the potential to underestimate the value of the beach. A consumer surplus value based on a 67% wage rate is better supported by the King 2001 study estimate and by the mean San Diego County estimate of about $23-25 (2015 dollars) from Lew and Larson (2008). Lew and Larson's 2008 study is conservative compared to earlier work (2005) that estimated an approximately $34 (2015 dollars) consumer surplus and Leeworthy's (1995)[4] estimate of over a $100 consumer surplus for San Diego beaches. Therefore, Commission staff recommends incorporation of at least a 67% wage rate percentage into the Fee Study calculations.

Mitigation Fees

The purpose of the mitigation fee for the loss of sand to the beach and the loss of recreational benefit is to compensate for the impact to public resources caused by shoreline protection. The beach and bluffs are publicly owned resources that are adversely impacted by the construction of shoreline protective devices. Not only do many shoreline protective devices occupy beach area that would otherwise be available for recreation, but they can block public access and will also eventually cause beach area to be eliminated through beach erosion and as sea levels rise in the future.

Shoreline protective devices also cause ecological impacts in the beach environment. Ecological impacts result from armoring causing direct loss of beach due to the physical footprint of the structure, from erosion and scour resulting from the armoring, and from reduced sediment supply as a result of fixing the back beach. These physical changes to the beach environment have ecological impacts such as the loss of sandy beach zones/habitat and the concomitant loss of biomass and biodiversity, loss of sandy beach area currently or potentially used for feeding, roosting, nesting, or reproduction of wildlife, and loss of sandy beach ecosystem services and functions (flood protection, nutrient cycling, etc.).

When considering benefits and costs that are incurred over a number of years, the dollar values must be adjusted to reflect the fact that a dollar received today is considered more valuable than a dollar received in the future—this is referred to as discounting. Standard discounting practices face a critical problem in that the rates that are typically used to discount value to future generations. Applying a discount rate of 3%, for example, implies that benefits or costs born in 100 years are only weighted 5% (1/20) of current costs and benefits; if one uses a 2% rate, the weighting changes to (a still low) 14%. Even applying a rate as low as 1% implies that benefits/costs 100 years from now are only weighted at 37% of today's benefits. Given the potentially enormous costs of climate change impacts, including sea level rise, to future generations, and the longer time scale, many environmental economists have proposed applying lower discount rates when analyzing the economic impacts of climate change. Weitzman (2001) and others have suggested a 1% discount rate for longer time horizons.[5] Following Weitzman (2001) and

[4] Leeworthy, V.R., 1995. Transferability of Bell and Leeworthy Beach Study to Southern California Beaches. *Memo to David Chapman, June*, *22*, pp.319-367.
[5] Weitzman, M., 2001. Gamma discounting. Am. Econ. Rev. 91 (1), 261–271.

others, Commission staff recommends that a 1% discount rate in calculations for 20-50 year permit fees be adopted in the Fee Study.

Mitigation Offsets

The concept of offsets for potential public benefits from shoreline protective devices authorized to protect private development is not consistent with the Commission's past actions related to shoreline protection. Furthermore, as indicated in previous comments, Commission staff does not support using a Public Safety Benefit as an offset to impacts of shoreline armoring. Passive erosion and loss of usable beach area is a direct result of shoreline armoring and can decrease the safety of a beach as areas of safe passage are reduced or eliminated. In addition, even with shoreline protection, there is no guarantee that a seawall or the bluff above a seawall will not also fail and result in death or injury to beach users. Even if it were appropriate to do a public safety benefit from seawalls preventing fatalities, the City does not have appropriately sized data sets. The mortality rate of 0.008 is based on one substantive data point, which isn't enough data to base a population sized mortality rate upon.

Commission staff also questions whether increased property tax revenue should be included as a benefit to public beach access and recreation.[6] Unless the increased tax revenue will be allocated in its entirety to improving public access and recreation at the City's beaches, it should not be included in the public benefit calculations. Additionally, beach recreation value is not market-based (indirect economic impacts are not part of the calculations), so including tax revenue dollars as an offset is incompatible with the scope of the Fee Study. If tourism related tax revenues for the community were included in valuing beach recreation, the resulting fee would be substantially higher.

Specific Comments

- On Page 1-2 of the Fee Study, there is a brief discussion related to mitigating the visual impacts of shoreline armoring. Staff agrees that adverse aesthetic impacts of shoreline armoring are reduced as a result of the LUP policies related to structure design requirements and monitoring. However, even well designed and maintained shoreline armoring creates an artificial shoreline which adversely impacts the visual quality of scenic coastal resources. Provide an analysis of potential options to mitigate for this impact. Options may include funding for trash or graffiti removal or improvements to or acquisition of public view areas.

Gollier, Christian; Weitzman, Martin L. (2009) : How should the distant future be discounted when discount rates are uncertain?, CESifo working paper, No. 2863

[6] It may also be the case that seawalls will result in decreased property values in the future if the combination of seawalls and sea level rise further reduce or even eliminate the public's ability to enjoy the City's beaches. Also a Southeast US study found that building a seawall increased individual shoreline property values but lowered the property value of non-waterfront properties, leading to a net property value loss in the community (Warren Kriesel & Robert Friedman, 2003. Coping With Coastal Erosion: Evidence For Community-Wide Impacts, 71 Shore & Beach 19, 19-23).

- On Page 1-2 of the Fee Study, there is a brief discussion related to mitigating the ecological impacts of shoreline armoring. Commission staff is sympathetic to the fact that identifying in-kind mitigation for impacts to beach ecological impacts can be challenging, and acknowledge that further research in this area is necessary. It should also be noted that traditional beach nourishment projects do not provide adequate mitigation for impacts to beach ecology as they often introduce additional impacts to the already affected faunal communities.

- On Page 4-13, the Fee Study explains that beach width data between Spring 2002 and Fall 2014 is proposed to be used to determine the average beach area of the City and that earlier available beach width measurements are not being considered because the profile locations were modified beginning in Spring 2002. Staff is concerned that the proposed time frame begins immediately after the implementation of RBSP 1, which placed a large volume of sand on the City's beaches and thus likely is not an accurate long term average of the area of the beach. Using only post replenishment data likely results in an undervaluation of the beach as a larger than average beach area results in a reduced mitigation amount. Staff recognizes the City's desire to use recent profile data, but recommend that the City also utilize available historical beach width data prior to RBSP 1 in calculating average beach area.

- Beginning on Page 4-23 of the Fee Study, there is a discussion regarding allocation of mitigation credits and deficits if sea level rise or erosion estimates differ from projections. It is not clear how allocation of the mitigation credits and deficits would be implemented in practice. Staff does not support crediting overpayment of mitigation fees or adding underpayment of mitigation fees to future assessments. After-the-fact adjustments to mitigation fee amounts would increase uncertainty for applicants, the City, and the Coastal Commission. Furthermore, sea level rise estimates and erosion estimates are based on long term averages and Staff would likely not support adjustments based on a shorter time scale. As described in Policy 4.51 of the City's certified LUP, the erosion rate may be adjusted at ten year intervals with a vote of the Council. Staff is supportive of the process laid out in Policy 4.51, but does not support retroactive changes to mitigation fee amounts. Any change to the estimated erosion rate would require an amendment to the City's Local Coastal Plan. An appropriate time to adjust mitigation payment amounts on individual properties is at the 20-year intervals when additional review of approved shoreline armoring is required. This section also indicates if large sand replenishment projects are implemented, mitigation fees may be reduced. Commission staff would likely not support this concept, as sand can be removed from a beach by one or two large wave events and there is no guarantee that long term replenishment projects will continue to be funded in the future. Therefore, reducing mitigation fees due to a scheduled or one time beach replenishment event may result in underpayment of fees and inadequate mitigation for impacts.

- Page 4-25 of the Fee Study includes Policy 4.50 of the LUP, which lists the requirements for applicants to pay both sand mitigation and public access mitigation for the impacts of shoreline armoring. However, no analysis of how public recreation

fees will be used or what type of projects could be eligible for funding is included in the Fee Study. Staff recommends that an inclusive discussion of the types of eligible projects that would provide public access benefits be presented, and develop methodology for how the City will determine which projects to fund, be provided in the Fee Study. Also, detail should be included that identifies that new project types could be added to the list in the future, and a description for how this process to add new projects would be conducted.

- On Page 4-23, Table 4-5 "Payment Schedule (Per Linear Foot of Wall)" is clear on how to calculate the required mitigation amount for impacts from a standard two foot wide seawall for a period of 20 years. However, it is not clear to Staff how mitigation amounts will be calculated for shoreline armoring that has different dimensions or that provides mitigation for a shorter or longer timeframe than 20 years. Calculations for payment schedule should be derived from a clear formula that can adjust to incorporate a wide range of seawall dimensions/conditions. Please explain how the calculation can be adopted for use for non-standard conditions. An example of a non-standard shoreline armoring project is the Bannasch non-erodible concrete plugs that are currently adversely impacting beach access, but cannot be removed at this time (CDP #6-13-0948).

Next Steps:

Staff continues to appreciate the collaborative approach the City has undertaken in regards to the development and review of the Fee Study. Ongoing discussion on this significant topic will continue to evolve as a better understanding of this complex subject area expands, and Commission staff may provide additional feedback as new information becomes available. Important next steps in this process at Solana Beach will be to address comments received from the public along with those received from Commission staff and then presenting the final Fee Study to City Council. Direction from a final Fee Study can then be used to inform any necessary update to the City's Land Use Plan and aid the in the development of an Implementation Program that addresses this critical beach valuation assessment. Please feel free to contact me directly to further discuss this letter with any questions you might have.

Sincerely,

Eric Stevens
Coastal Program Analyst II

cc: Sherilyn Sarb, Deputy Director
Deborah Lee, District Manager
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April 8, 2016

Bill Chopyk
Community Development Director
City of Solana Beach
635 South Highway 101
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Re: Comments on 2016 City of Solana Beach Public Recreation Report (Fee Study)

Dear Mr. Chopyk:

The purpose of this letter is to provide the City of Solana Beach with feedback and specific comments from Coastal Commission staff on the 2016 City of Solana Beach Public Recreation Report (Fee Study), which was released for a 6-week public review period on February 24, 2016. This work was conducted as a component of a Local Coastal Plan (LCP) Local Assistance Grant from the Coastal Commission, awarded January 2014. Commission staff appreciates the ability to work collaboratively with City staff on the development of this study. The Fee Study is based on variables that are unique to the City of Solana Beach and should not be reviewed as a statewide model for mitigating impacts to public access and recreation that result from shoreline armoring. As a part of our review efforts, Commission staff considered analysis provided through a Project of Special Merit funded by NOAA that included research conducted by economic and ecological experts. Staff also recognizes that this issue continues to be a challenge on both statewide and local levels and appreciates the work that the City has undertaken to develop the community specific Fee Study.

The following comments are meant to identify questions and concerns related to the Fee Study that Commission staff believe warrant further analysis and discussion. Many of the comments in this letter have been raised by our office in past comment letters and previous coordination meetings related to the City's grant (Reference Commission staff comment letters dated July 14, 2010; March 26, 2015 and January 22, 2016). In summary, Commission staff supports the use of the single site travel cost model for the development of the City's public access and recreation mitigation fee. However, while this comment letter addresses several elements, staff is very concerned about four key issues. First, the City's analysis needs to be augmented to include available LiDAR data to more appropriately characterize beach area. Second, the City should commit to undertaking future beach visitor counts at ten year intervals in order to ensure the visitation data used in the Fee Study remains current and appropriate for the local conditions. Third, the City's analysis should be modified to incorporate population growth projections, again in order to more accurately reflect demand. Fourth, consistent with prior correspondence, staff will not support the inclusion of any public benefit offsets to the proposed mitigation fee.

Travel Cost Model vs. Recreation Substitution Model

The City's travel cost model derives consumer surplus based on cost of transportation and the time a person spends traveling to the beach. Commission staff supports the use of travel cost data to determine public access and recreation mitigation requirements. As discussed below, staff does not recommend modifying the current approach to include substitution effects or surveys of multiple sites.

Some local property owners have suggested that the City should utilize a recreation substitution model in place of the selected travel-cost model. The Fee Study includes discussion as to why the travel-cost model approach was appropriate for this project, and Commission staff takes this opportunity to further support that selection. An important consideration in recreation valuation is the treatment of substitutes. The availability of substitute beaches can affect the number of trips a person makes, as can many other factors not explicitly represented in a single site travel cost model (such as environmental quality, travel distance to alternative beaches, and reasons for the trip). The City does not account for the complicating variables that can affect a visitor's choice to travel to the beach in their single site travel cost model. We know from multiple site studies conducted in southern California that the effects of sea level rise, including the economic impacts of both permanent inundation and storm-related erosion, will likely be distributed unevenly across the region.[1] However, when Solana Beach suffers impacts due to sea level rise, substitute beaches will likely also suffer impacts (i.e., all substitutes cannot be assumed to maintain quality while Solana Beach declines in quality). Thus, it is reasonable to accept the City's single site travel cost model because the purpose of the study was to value Solana Beach itself, not to predict values for changing beach characteristics along the entire San Diego coast.

Lew and Larsen (2005, 2008) created a multiple site model that includes beaches in San Diego County.[2] In their multiple site modeling for San Diego County, the researchers calculated lost recreational value associated with individual beaches being unavailable while substitutes are available. The San Diego studies indicate daily beach closure values for individual beaches at less than $1.00, but the value of a day at the beach was still significant ($34.31 in 2015 dollars per beach trip in the 2005 study). The following issues suggest adapting these studies to account for Solana Beach substitution have limitations that would require further research:

[1] Pendleton, L., King, P., Mohn, C., Webster, D. G., Vaughn, R., & Adams, P. N. (2011). Estimating the potential economic impacts of climate change on Southern California beaches. *Climatic change*, *109*(1), 277-298.

[2] Mean value of a beach day in San Diego County is $34.31 (2015 dollars) according to Lew, D.K. and Larson, D.M., 2005. Valuing recreation and amenities at San Diego County beaches. *Coastal Management*, 33(1), pp.71-86. Value of a beach day in San Diego County ranges from $23.12-25.32 (2015 dollars) according to Lew, D.K. and Larson, D.M., 2008. Valuing a beach day with a repeated nested logit model of participation, site choice, and stochastic time value. *Marine Resource Economics*, pp.233-252.

- The multiple site studies of San Diego County beaches only value the beaches for county residents (non-county residents were not surveyed)
- The sample size for Solana Beach visitation representation was small (2 people visited Solana Beach in the 2005 study); 66 (or <1% of the total sample) visited Solana Beach in the 2008 study
- The 2008 San Diego multiple site study was conducted in 2000-2001 and only surveys the respondents about the beaches visited in the most recent two weeks of the phone survey. One cannot separate the high season/summer from non-summer consumer surplus to attribute to the City's attendance survey data
- Many substitute beaches will have parking constraints, so one cannot assume a substitute beach will be able to support all potential visitors

Available Public Beach Area

The Fee Study now proposes to use available LiDAR data to determine average beach area within the City, and has focused on four specific survey dates to inform this analysis. These dates were selected due to proximity to the beach survey collection dates utilized in the Fee Study. Measuring beach size with LiDAR is a sound method; however, as has been discussed previously with the City's staff and consultants, Commission staff strongly recommend using as much of the available beach width and beach area data as possible in establishing available public beach area. For the reasons noted below, using the four LiDAR surveys as the City proposes is not appropriate:

- Beach visitors go to the beach with an expectation of the beach size based on previous experience or information based on past area. Beach visitors do not get information on the exact area of the beach right before deciding to visit, but rather base their beach perception on their mental recall and average of prior visits. Thus, an average based on more data points reflects what the average visitor would expect.
- Using an average from multiple datasets accounts for the variability of beach widths that visitors experience. The average of all available LiDAR beach areas and transect beach areas produce similar values (15.2 and 15.5 acres, respectively), providing greater confidence that these numbers are better representations of the average condition.
- The Fall 2008 LiDAR survey recorded significantly more beach area than any of the other LiDAR surveys or transect measurements. The Fall 2008 LiDAR survey also shows a beach area that is 8.3 acres greater than that of the Fall 2008 transect. The Fall 2008 LiDAR beach area measurement is an outlier when compared with the full multi-year set of beach area data. The inclusion of this outlier survey as one of only four data points greatly skews the average beach area that is used to inform the Fee Study. Given the large difference between LiDAR and transect Fall 2008 areas, it is imprudent to disregard the other LiDAR and transect data points.
- The limitations on the attendance data should not put an artificial limit on the use of the available beach area data. This constraint would, at the extreme, reduce the beach area data to only the Fall 2008 and Spring 2009 survey results. Commission

staff do not support using only 2 or 4 points in an average when additional data are readily available.

Beaches are dynamic environments that can change in size in a relatively short period of time. The use of such a small data set has the potential to create significant inconsistencies. Commission staff recommends using, at a minimum, the whole LiDAR data set available to provide a more representative depiction of average beach area. It will also be important to incorporate future LiDAR and transect data into the beach area calculation to further approximate the beach area.

Beach Visitor Growth Rates

California's coastal population is projected to show significant growth in the coming decades. A new study indicates that population growth through 2100 will place 5 times more people at risk to sea level rise when comparing future population trends to current population.[3] Demand for recreation in coastal areas will also grow with the increases in coastal population as well as with longer and more recurrent heat waves that will drive visitors to the beach for relief from the heat. Thus, Commission staff recommends the City acknowledge and account for beach visitor growth because it is possible that some beaches will experience higher visitation rates.

SANDAG projections of population and income growth[4] for San Diego County residents show significant levels of increasing growth through 2050. Many San Diego beach visitors also come from Arizona,[5] and that state is projected to grow in population by over 1% annually.[6] Adjusting for population and income growth is very important because demand and willingness to pay for a day at the beach will increase over time in this region. Commission staff recommends the public beach recreation value be increased by the population growth factor previously included in the Fee Study.

Furthermore, given the uncertainty regarding future population growth and its potential effects on beach attendance, the City should commit to undertaking future beach visitor counts at ten year intervals in order to ensure the visitation data used in the Fee Study remains current and appropriate for the local conditions.

Mitigation Offsets

The City's analysis still includes the concept of granting reductions ("offsets") to the proposed fee for potential public benefits from shoreline protective devices authorized to protect private development. Commission staff does not support using a Public Safety Benefit as an offset to impacts of shoreline armoring. Passive erosion and loss of usable beach area is a direct result of shoreline armoring and can decrease the safety of a beach

[3] Hauer, M.E., Evans, J.M. and Mishra, D.R., 2016. Millions projected to be at risk from seal-level rise in the continental United States. Nature Climate Change, 8 pp., http://dx.doi.org/10.1038/nclimate2961
[4] http://www.sandag.org/uploads/projectid/projectid_503_19239.pdf
[5] Phil King, personal communication. March 24, 2016.
[6] https://population.az.gov/population-projections

as areas of safe passage are reduced or eliminated. In addition, even with shoreline protection, there is no guarantee that a seawall or the bluff above a seawall will not fail and result in death or injury to beach users.

The construction of shoreline armoring to protect private property results in a direct benefit to private property owners at the expense of the public. Commission staff does not support the inclusion of any mitigation fee offsets and will recommend modifications in any Land Use Plan amendment submittal to eliminate any reference to such offsets.

Consumer Surplus

Commission staff appreciates the inclusion of statistical detail for the wage rate variable in the travel cost model. The Fee Study uses a 33% wage rate to estimate the value of visitors' time in traveling to Solana Beach. While 33% of wages is sometimes used in travel cost calculations, it is not a universal standard among economists. Recommending use of the lowest wage rate for the travel cost method consumer surplus for the City of Solana Beach has the potential to underestimate the value of the beach. Commission staff does not object to the City's determination that a wage rate of 33% is appropriate to use for the Fee Study; however, the section of the Fee Study describing the results of the travel cost model could better clarify the explanation for the choice of the conservative wage rate. Commission staff recommends that the City explain why they disagree with Dr. Gordon Kubota's support of a higher value of a beach day ($21.15) that better matches a 50% wage rate result and explain the choice of the lower value (based on the 33% wage rate).

Consumer Price Index

The City reduced the Consumer Price Index (CPI) from 2.08% to a static figure of 2%. Every month, government economists at the Bureau of Labor Statistics of the U.S. Department of Labor release the latest Consumer Price Index, which provides a measure of inflation. In order to ensure that current inflation numbers are reflected in the calculation of the fee, the City should make regular use of the published CPI. When any new permit is being issued, the most recent CPI should be used to calculate the payment installment amounts.

Mitigation Fee Projects

The purpose of the mitigation fee for the loss of sand to the beach and the loss of recreational benefit is to compensate for the impact to public resources caused by shoreline protection. The beach and bluffs are publicly owned resources that are adversely impacted by the construction of shoreline protective devices. Not only do many shoreline protective devices occupy beach area that would otherwise be available for recreation, but they can block public access and will also eventually cause beach area to be eliminated through beach erosion and this condition will likely accelerate as sea levels rise in the future.

The Fee Study proposes to use public access and mitigation funds to pay for capital improvement projects and operations and maintenance projects throughout the City and not just located on or adjacent to the beach. Commission staff does not support this dispersal of funds, as inland projects would not result in improved public access and recreation at the beach and would therefore not provide an adequate nexus to mitigate for the impacts of shoreline armoring. A specific list of shoreline-related projects should be developed which would identify opportunities where mitigation fund dollars could be utilized to improve direct public access and recreation improvements on the beach or directly adjacent to the beach.

Ecological Impacts

The effects of shoreline armoring on sandy beach ecosystems are increasingly recognized, though difficult to quantify. Armoring directly encroaches upon the beach and fixes shoreline position, constraining the possible responses and evolution of beach ecosystems to adjust to changes in sea level and other dynamic coastal processes. This loss of the scope and ability of beaches to respond to coastal processes results in the reduction of overall width and the elimination of habitat zones and the space needed by biota to adjust to changing swell, tide and beach conditions. As pressure to develop the coast continues, and as sea level continues to rise and coastal erosion accelerates, the need to understand the ecological consequence of armoring on coastal ecosystems is increasingly urgent.

Sandy beach ecosystems are unique--their intrinsic biota and ecological functions are not provided by any other coastal ecosystem. Many beach ecology studies identify three different sandy beach biological zones: the supra-littoral zone, the mid-littoral zone, and the surf zone, each of which provides critical habitat, food and/or breeding grounds for many species. These zones provide functions that include buffering and absorption of wave energy by stored sand, filtration of large volumes of seawater, extensive detrital and wrack processing and nutrient recycling, and the provision of critical habitat and resources for declining and endangered wildlife, such as shorebirds and pinnipeds. On unarmored beaches, these zones are able to persist by moving inland as the beach erodes; yet, on armoring beaches, these zones compress or are completely lost as the beach narrows and becomes more frequently inundated.

While the Commission has not determined how to adequately mitigate for the ecological impacts of shoreline armoring, Commission staff continue to participate in efforts to resolve this issue in the future. The Fee Study and the Land Use Plan amendment should acknowledge the impacts that shoreline armoring has on beach ecology and identify that mitigation for these impacts should be considered as more detailed analysis and understanding of this issue become available, and what opportunities may best provide mitigation for impacts to beach ecological values.

Mitigation for Seacaves Landward of Shoreline Armoring

Commission staff supports the recent update to the Fee Study which eliminates the assumption that there is an 8.2 ft. deep seacave landward of all shoreline armoring, and the loss of which must be mitigated. Mitigating for actual site specific seacaves is more defensible and more accurately reflects the impacts of shoreline armoring. However, as currently described in the fee study, mitigation for seacaves located landward of shoreline armoring will only require mitigation if lower bluff failure is imminent as determined by the City's geotechnical engineer. If this approach remains part of the City's program, the Fee Study should further define how a geotechnical engineer will determine if lower bluff failure is imminent. In addition, the imminence of collapse should be consistent with information used to determine when any type of shoreline protection is warranted. Thus, collapse cannot be imminent for purposes of a shoreline protection application, yet, not imminent for purposes of the mitigation fee. Commission staff recommends that any area of with a seacave located landward of a shoreline armoring device should be considered imminently subject to failure and be included in the mitigation calculations. This clarification will ensure consistency for projects going forward and will reduce uncertainty for property owners, the public, the City and the Commission.

Clarification should also be included in the Fee Study in relation to existing seacave and notch infills and the mitigation requirements if a seawall is proposed on the site. Commission staff recommends that the Fee Study be updated to clarify that any previously infilled seacaves or notches be included in the mitigation fee determination. The Fee Study should also be modified to change reference to the City's geotechnical engineer only, and also refer the technical staff of the decision making agency that will be responsible for issuance of the Coastal Development Permit.

Calculation of Mitigation Fee

Similar to the concern raised above, the Fee Study states that the City will calculate the mitigation fee during the discretionary approval process and will finalize the fee at the time that the construction permit is issued. The Fee Study should be modified to state that the mitigation fee will be calculated by the decision making entity for the Coastal Development Permit at the time of that action. Commission staff will also continue to coordinate with the City regarding the appropriate timing of mitigation payments.

Visual Impacts

The Fee Study includes a brief discussion related to mitigating the visual impacts of shoreline armoring. Commission staff agrees that adverse visual impacts of shoreline armoring are reduced as a result of the LUP policies related to structural design requirements, aesthetic treatments and monitoring. However, even well designed and appropriately maintained shoreline armoring creates an artificial shoreline which adversely impacts the visual quality of scenic coastal resources. The Fee Study should include an acknowledgment of this reduction in aesthetic quality along with an analysis of potential options for how to mitigate this impact. As an example, some options may

include funding for trash or graffiti removal or improvements to or acquisition of public view areas.

Mitigation Fee Credits and Deficits

The Fee Study includes a discussion regarding allocation of mitigation credits and deficits if sea level rise or erosion estimates differ from projections. It is not clear how such an accounting for mitigation credits and deficits would be implemented in practice. Commission staff does not support crediting overpayment of mitigation fees or adding underpayment of mitigation fees to future assessments. After-the-fact adjustments to mitigation fee amounts would increase uncertainty for permittees, the City, and the Coastal Commission. Furthermore, sea level rise estimates and erosion estimates are based on long term averages and adjustments should not be based on a shorter time scale. As described in Policy 4.51 of the City's certified LUP, the erosion rate may be adjusted at ten year intervals with a vote of the Council. Staff is supportive of the process laid out in Policy 4.51, but does not support retroactive changes to mitigation fee amounts. Any change to the estimated erosion rate would require an amendment to the City's Local Coastal Plan. An appropriate time to adjust mitigation payment amounts on individual properties is at the 20-year intervals when additional review of approved shoreline armoring is required.

This section of the Fee Study also indicates if large sand replenishment projects are implemented, mitigation fees may be reduced. However, sand can be removed from a beach by one or two large wave events and there is no guarantee that long term replenishment projects will continue to be funded in the future. Reducing mitigation fees due to a scheduled or one time beach replenishment event may result in underpayment of fees and inadequate mitigation for impacts. Therefore, such a proposal should be removed. Instead, as described above, continuing to update beach area data with current LiDAR or other available data can provide a better representation of long term beach area that is available for public access and recreation.

Land Use Plan Amendment

Staff is supportive of the City's plan to include a summary of the Fee Study as an appendix to the Land Use Plan, which is similar to the approach used for the Sand Mitigation Fee. Staff will include additional suggested modifications to this Fee Study appendix, consistent with the issues raised in this comment letter.

At this time, Commission staff offers the following suggested language for modifications to Policy 4.50 of the existing Land Use Plan. The modifications mirror the Land Use Plan language already certified for the Sand Mitigation Fee.

> …Public Recreation Fee – Similar to the methodology established by the CCC for the sand mitigation fee, the City and the CCC ~~are~~ have jointly developed ~~developing~~ a methodology for calculating a ~~statewide~~ public recreation fee the City of Solana Beach. ~~To assist in the effort, the City has shared the results of their draft study with~~

~~the CCC to support their development of a uniform statewide Public Recreation / Land Lease Fee. Until such time as an approved methodology for determining this fee has been established, and the methodology and payment program has been incorporated into the LCP through an LCP amendment, the City will collect a $1,000 per linear foot interim fee deposit. In the interim period, CCC will evaluate each project on a site-specific basis to determine impacts to public access and recreation, and additional mitigation may be required. The City shall complete its public recreation/land lease fee study within 18 months of effective certification of the LUP.~~ To mitigate for impacts to public access and recreation resulting from loss of beach area, for all development involving construction of a bluff retention device, a Public Access and Recreation Fee shall be collected by the City which shall be deposited in an interest-bearing account designated by the City Manager of Solana Beach in lieu of providing beach area to replace the public access, coastal recreation, and ecological benefits that would be lost due to the impacts of any proposed protective structure. The methodology used to determine the appropriate mitigation fee has been approved by the CCC and is contained in LUP Appendix C. The funds shall solely be used to implement projects which augment and enhance coastal resources along the shoreline, not to fund other public operations, maintenance or planning studies. …

Staff also suggests the following changes to the last paragraph on Page 15 and the first Paragraph on Page 16 of Chapter 4 of the LUP:

~~In April 2010, the City completed a draft fee study and conducted a public hearing on the fee study to determine the amount of fees that maybe appropriately assessed as mitigation for the potential adverse effects on public recreation and public lands resulting from placing a bluff retention device on a public beach. The City received a substantial number of comments on the fee study from local stakeholders including property owners, surfers and CCC staff and the fee study remains a draft. Because this is a statewide issue, the City will provide this draft study and the data developed by the City to the CCC. The City will coordinate with the CCC and other state regulatory entities in developing a uniform statewide Public Recreation / Land Lease Fee.~~

Based on the October 2010 MHTL survey, the land on which bluff retention devices are proposed to be located may include public lands owned by the State of California, the City of Solana Beach or both. In addition, the location of the MHTL is constantly changing. For all development involving construction of a bluff retention device, a Public Access and Recreation Fee shall be collected by the City which shall be deposited in an interest-bearing account designated by the City Manager of Solana Beach in lieu of providing beach area to replace the public access, coastal recreation, and ecological benefits that would be lost due to the impacts of any proposed protective structure. The methodology used to determine the appropriate mitigation fee has been approved by the CCC and is contained in LUP Appendix C. ~~The City is collecting a $1,000 per linear foot fee deposit to be applied towards a future Public Recreation/Land Lease Fee. Therefore, until such time as a final Public Recreation / Land Lease Fee is adopted by the City following Coastal Commission approval of~~

~~such a payment and certification of an LUP amendment adding to the City's LCP, the City will continue to impose an interim fee deposit in the amount of $1,000 per linear foot to be applied as a credit toward the Public Recreation / Land Lease Fee. The City shall complete its Public Recreation/Land Lease fee study within 18 months of effective certification of the LUP.~~ In association with approval of any bluff retention device on public land, the City will also require an encroachment/removal agreement to be renewed at least every 20 years in coordination of any reassessment of mitigation requirements. ~~Additional mitigation for impacts to public access and recreation may also be required through site-specific review and approval of the coastal development permit.~~

Next Steps:

Staff appreciates the continued collaborative efforts that the City has undertaken in regards to the development and review of the Fee Study. Ongoing discussion on this significant topic will continue to evolve as a better understanding of this complex subject area expands, and Commission staff will continue to provide additional feedback as new information becomes available. These comments are offered by Commission staff and do not bind the Coastal Commission in it future deliberations. Important next steps in this process at Solana Beach will be to address comments received from the public along with those received from Commission staff and then presentation of a final Fee Study to City Council. Direction from this final Fee Study can then be used to inform the necessary updates to the City's Land Use Plan and aid in the development of an Implementation Program that addresses this critical beach valuation assessment. Please feel free to contact me directly to further discuss this letter with any questions you might have.

Sincerely,

Eric Stevens
Coastal Program Analyst II

cc: Sherilyn Sarb, Deputy Director
Deborah Lee, District Manager
Gabriel Buhr, Coastal Program Manager
Carey Batha, LCP Grant Manager

City Resolution

RESOLUTION 2016-039

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLANA BEACH, CALIFORNIA, ADOPTING THE 2016 REVISED DRAFT PUBLIC RECREATION IMPACT FEE STUDY AND RELATED LOCAL COASTAL PROGRAM LAND USE AMENDMENT TO IMPLEMENT THE FEE PROGRAM AND SUBMITTAL TO THE CALIFORNIA COASTAL COMMISSION FOR PROCESSING

WHEREAS, the City Council of the City of Solana Beach has a Certified Local Coastal Program (LCP) Land Use Plan (LUP) that reflects the long-term policy goals of the City Council; and

WHEREAS, the City LCP will consist of (1) the Certified Land Use Plan (LUP) plus any amendments thereto and (2) Local Implementation Plan (LIP) (i.e., the implementing zoning ordinances and maps) which together meet the Coastal Act requirements and implement its provisions and policies within the City; and,

WHEREAS, the California Coastal Commission provided the City of Solana Beach with an LCP Planning Grant in the amount of $120,000 for the purpose of updating the draft 2010 Public Recreation Fee Study (Fee Study) and preparing a related LUP Amendment that is submitted to the CCC for processing no later than April 30, 2016; and

WHEREAS, the Fee Study update is needed to incorporate and reflect the polices contained in the Certified LUP and to incorporate applicable public comments and suggestions received in the 2010 draft Fee Study; and

WHEREAS, the first public outreach meeting on the Fee Study update was held on September 23, 2014 and a second public workshop was held on January 12, 2016; and

WHEREAS, the Draft Fee Study update was completed and was issued for a 66-day public review and comment period that started on November 18, 2015 and ended on January 22, 2016 and the City received a total of six comment letters on the November 2015 Draft Fee Study including a comment letter from California Coastal Commission staff; and

WHEREAS, following the close of the public review and comment period on the November 2015 Fee Study, an informational update was presented to the Council on February 10, 2016 on the progress of the Fee Study update, including the status of the responses to comments and preparation of a revised Draft Fee Study and related LCP LUP Amendment (LUPA); and

WHEREAS, the City reviewed and considered all input provided by the public in response to the public review and comment period on the Draft Fee Study; and

WHEREAS, some of the public comments on the Draft Fee Study raised issues that required additional research and analysis resulting in changes to some of the Draft Fee Study assumptions, variables and recommendations; and

WHEREAS, at a public hearing before the Council on February 24, 2016, City Staff presented a revised Draft Fee Study containing an analysis of the changes in assumptions and recommendations made in response to comments received on the November 2015 Draft Fee Study;

WHEREAS, a revised Draft Fee Study was prepared in February 2016 reflecting the changes made to the document since the November 2015 Draft Fee Study was issued; and

WHEREAS, a Local Coastal Program Land Use Plan Amendment has been prepared to implement the recommendations of the revised Draft Fee Study as required by the terms of the LCP Planning Grant; and

WHEREAS, on February 24, 2016, a revised Draft Fee Study and the draft LUPA were issued for a six-week public review and comment period under Council Resolution 2016-21 from February 25, 2016 through April 7, 2016; and

WHEREAS, the City received comments on the revised Draft Fee Study and LUPA during the six-week public review period which were reviewed by City Staff and the consultant team; and

WHEREAS, a Public Hearing Notice and Notice of Availability for the revised Draft Fee Study and Land Use Plan Amendment was issued and was distributed to a mailing list which was included as an Attachment in the Staff Report; and the Public Notice was published in the San Diego Union Tribune on April 1, 2016, and posted on the City's website (www.CityofSolanaBeach.org), sent via e-Blast to a City distribution list and posted out front in the kiosk at City Hall; and

WHEREAS, following the six-week public review period and a public hearing before the Solana Beach City Council on the 2016 revised Draft Fee Study and LUPA, it is anticipated that the Fee Study and LUPA would be submitted to the CCC for processing and formal consideration at an upcoming California Coastal Commission meeting; and

WHEREAS, the City Council of the City of Solana Beach acknowledges that the LUPA will be carried out in a manner fully consistent with the Coastal Act and the City Council desires to apply the basic policies and provisions contained in the LUPA to current (incomplete) and future projects in the City; and

WHEREAS, this decision is based upon the comments provided by staff reports, testimony, input of CCC staff and additional information presented during the City Council public hearings on February 24, 2016 and April 13, 2016 on this matter; and

WHEREAS, the City of Solana Beach commits to and agrees to fully support a planning effort intended to complete a certified LCP pursuant to the provisions of the California Coastal Act, with full public participation and coordination with the Coastal Commission staff.

NOW THEREFORE, the City Council of the City of Solana Beach, California does resolve as follows:

1. That the foregoing recitations are true and correct.

2. The Fee Study is a required element of the City's certified LCP LUP. Preparation and adoption of a LCP, or an amendment thereto, is statutorily exempt from CEQA per CEQA Guidelines Section 15265. The LCP process is exempt because the criteria under the Coastal Act are the functional equivalent of the EIR process. See Santa Barbara County Flower & Nursery Growers Association v. County of Santa Barbara, 121 Cal. App. 4th 864, 872 (2004). LCP/LUP project exempt from the California Environmental Quality Act pursuant to Section 15265 of the State CEQA Guidelines

3. The City Manager of the City of Solana Beach issued the revised Draft Public Recreation Impact Fee Study and related Local Coastal Program Land Use Plan Amendment for public review and comment from February 24, 2016 through April 7, 2016;

4. The LUP Amendment incorporates the Fee Study recommendations into the City's Certified LUP for submittal to the CCC at a City Council public hearing on or before April 30, 2016 per the terms of the LCP Planning Grant.

5. The City Council hereby makes the following Findings:
   a. The City's LCP consists of (1) the adopted Land Use Plan (LUP) and (2) a future Local Implementation Plan (LIP) which together meet the Coastal Act requirements and implement its provisions and policies within the City.
   b. The City's LCP/LUP will be implemented in a manner fully consistent with the Coastal Act.
   c. The LIP will consist of specific sections within the Solana Beach Municipal Code and maps that describe actions, which carry out provisions of the LCP/LUP and Coastal Act policies.
   d. In order for the City's LCP/LUP to take full force and effect, a public hearing on the LIP will be required.

6. The City Council agrees to issue coastal development permits for the total area covered by the certified LUP.

7. The City adopts this Resolution in accordance with the provisions of the Coastal Act Public Resources Code (PRC) Sections 30510(a) and 30514(a), and Sections 13544.5 and 13551(b) of Title 14 of the California Code of Regulations.

PASSED AND ADOPTED this 13th day of April 2016, at a regular meeting of the City Council of the City of Solana Beach, California by the following vote:

AYES: Councilmembers – Zito, Nichols, Heebner
NOES: Councilmembers – Marshall
ABSENT: Councilmembers – Zahn
ABSTAIN: Councilmembers – None

DAVID A. ZITO, Mayor

APPROVED AS TO FORM:

JOHANNA N. CANLAS, City Attorney

ATTEST:

ANGELA IVEY, City Clerk

RESOLUTION CERTIFICATION

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO } §
CITY OF SOLANA BEACH

I, ANGELA IVEY, City Clerk of the City of Solana Beach, California, DO HEREBY CERTIFY that the foregoing is a full, true and correct copy of **Resolution 2016-039** *adopting the 2016 Revised Draft Public Recreation Impact Fee Study and Related Local Coastal Program Land Use Amendment to Implement the Fee Program and Submittal to the California Coastal Commission for Processing,* as duly passed and adopted at a Regular Solana Beach City Council meeting held on the 13th day of April 2016 and the original is on file in the City Clerk's Office.

ANGELA IVEY, CITY CLERK

CERTIFICATION DATE: 4-20, 2016

Strikeout/Underline Appendix C

APPENDIX C

PUBLIC RECREATION IMPACT FEE

PUBLIC RECREATION IMPACT MITIGATION FEE

In conformance with the Certified City of Solana Beach Local Coastal Program (LCP) Land Use Plan (LUP) Policy 4.50, Bluff Property Owners who construct ~~Coastal Structures~~Bluff Retention Devices shall pay the City a Public Recreation Impact Fee (may also be referred to as Public Recreation Fee) consistent with this appendix. The Public Recreation Fee is separate and independent of the Sand Mitigation Fee detailed in Appendix A.

These mitigation fees are not intended to be duplicative with fees assessed by other agencies. It is anticipated the fees in this appendix would be assessed as required by this LCP ~~will~~ and shall be in conjunction with ~~other~~ the mitigation fees typically assessed by the CCC and the CSLC for impacts to coastal ~~resources~~ recreation from Bluff Retention Devices~~shoreline protective devices~~.

The Public Recreation Fee ~~(consistent with the Sand Mitigation Fee) will~~ shall be calculated on a project-specific basis to ensure the mitigation fees are proportional to the impact being mitigated. Variables to be considered in determining the fee imposed ~~will~~ shall depend on the impact to the beach area based upon (1) the specific physical configuration and footprint of the proposed ~~coastal structure~~Bluff Retention Device and (2) the presence of a seacave or notch of any depth that would be fronted by a Bluff Retention Device. The entire area of a seacave or notch located landward of the proposed Bluff Retention Device shall be considered imminently subject to failure and be included in the mitigation calculation. In addition, the area of any seacaves or notches that have been previously infilled with erodible concrete, located landward of the proposed bluff retention device, which are no longer allowed to erode as originally approved, shall be included in the mitigation calculation~~absence of a bluff notch overhang or the depth of a coastal bluff notch overhang determined by the City's geotechnical engineer and confirmed to be in imminent danger of collapse~~.

The Public Recreation Fee addresses impacts to the loss of recreation based upon the loss of beach area described below as (1) Initial Area and (2) theoretical 20-year Bluff Retreat Area. Table 1 identifies separate rates, to ensure proportionality between the impact and the mitigation fee to be applied to the Initial Area and Bluff Retreat Area. ~~The rates in Table 1 are based on the recommendations contained in the *2016 Draft Public Recreation Impact Fee Study* prepared under an LCP Planning Grant provided to the City.~~ The fees address the impacts to public recreation for a 20-year period, consistent with the requirements of LUP Policies 4.49 and 4.53. At the end of each 20-year period, the bluff retention device shall either be removed or new fees shall be assessed. The use values in Table 1 were determined as follows: ~~at which time they may be reassessed.~~

- The proxy recreational use value per beach visitor per day (Day Use Value) for Solana Beach is $32.33 in the summer months and $19.09 in the non-summer months. In the future, this Day Use Value may be required to be updated to reflect current practices or new information.

- The City's useable beach area includes the area from the toe of the coastal bluff to mean sea level existing between the northern and southern City limits. Based on 19 LiDAR datasets collected between 1998 and 2015, the useable beach area in Solana Beach is presently calculated at 15.2 acres. The City shall determine if the beach area has changed every ten years and incorporate any changes as an amendment to the LUP.
- The average annual beach attendance in Solana Beach is estimated to be 134,817 adults per year. Children are not included in the attendance data because of the assumption that consumer surplus of children is captured in the adult consumer surplus use values. The attendance estimate is based on attendance counts undertaken by the City between July 2008 and July 2009 and expansion factors to account for the likelihood that some user groups were underrepresented in the original attendance counts due to the time of day that the original population counts were conducted. Every ten years, the City shall adjust the attendance based on available population growth estimates or through an updated attendance survey. The City shall incorporate any changes to the attendance as an amendment to the LUP.
- The annual use value of the beach within the City is $4,715,843 and is obtained by multiplying the Day Use Value by the number of adults that visit the beach annually and adding the value of the Junior Lifeguard Program, which is $269,501. The City shall update the annual use value of the beach every ten years if there are changes to the beach area or attendance estimates and shall incorporate the change as an LUP amendment.
- The use value of one sq. ft. of beach was calculated to be $6.06 in 2016 and is obtained by dividing the annual use value of the beach by the size of the beach.
- The Initial Area Rate in Table 1 represents the use value of one sq. ft. of beach area over a 20-year period and this use value is multiplied by the total area of encroachment of a Bluff Retention Device (Initial Area) to determine the fee. The use value is increased each year to reflect an estimated 2% Consumer Price Index (CPI). The use value is also subject to a 2% Present Value (PV), which offsets the CPI over the 20 year mitigation period. Table 1 shall be updated every ten years and any changes shall be incorporated as an amendment to the LUP.
- The Bluff Retreat Rate (Per Linear Ft.) in Table 1 is equal to one linear ft. (Bluff Retreat Length) multiplied by 20 years of estimated erosion multiplied by the use value of one sq. ft. of beach. It represents the use value of the expected beach area that would otherwise be available for public use through passive erosion if the Bluff Retention Device was not constructed. An erosion rate of 0.4 ft. per year is assumed between 2016 and 2025 and an erosion rate of 0.673 is assumed between the years 2026 and 2046. Any change to the estimated erosion rate will require an amendment to the certified LUP. The use value increases each year to reflect an estimated 2% CPI.

The Public Recreation Fee ~~will~~ shall be imposed as a condition of approval ~~of~~ on any Coastal Development Permit for a Bluff Retention Device, which does not propose comparable or greater project specific in-kind mitigation. The decision making entity (Coastal Commission or City of Solana Beach) for the Coastal Development Permit shall calculate the Public Recreation Fee on a project-specific basis during the Coastal Development Permit approval process. The entire fee shall be submitted to the City prior to issuance of the Coastal Development Permit and shall be assessed in 20-year increments starting on the building permit completion certification date. ~~discretionary permit for a non-erodible coastal structure and will be payable to the City at the time the construction permits are issued. The Fee will be paid to the City prior to construction of the coastal structure so that, in effect, the mitigation fee is paid before the anticipated impact is created.~~

Seacave/notch infills that consist entirely of erodible concrete (see LUP Appendix B, Figure 1A) are exempt from both the Public Recreation Impact Fee and the Sand Mitigation Fee as allowed by the LUP, provided that the infills erode with the natural bluff and are maintained to do so and provided that a Bluff Retention Device is not constructed seaward of the infills. If monitoring of the infills reveals evidence that the back of the beach has been fixed, the Permittee shall submit a complete CDP amendment application to address the impacts from these changed circumstances. At such time, sand supply mitigation and public access and recreation mitigation shall be required.

LUP Policy 4.50 requires that Public Recreation Fees shall be expended for public beach access and public recreation as a first priority, and may be expended for sand replenishment and retention if the City determines that a near-term priority public recreation or public access project is not identified. All projects funded by the Public Recreation Fees shall be located directly along the coast and projects shall result in direct improvements to coastal recreation or beach access. As an alternative allowed by LUP Policy 4.50, project applicants have the option of proposing an in-kind public coastal recreation or beach access project in lieu of payment of Public Recreation Impact Fees to the City. At the City's discretion, project specific in-kind mitigation may be accepted if the applicant can demonstrate that the project would provide a comparable or greater coastal recreation or beach access benefit to the general public.

While a reduction or elimination of the required Public Recreation Fees may be considered for Bluff Retention Devices that protect public infrastructure, mitigation offsets or reductions to any required Public Recreation Fees for Bluff Retention Devices whose primary purpose is the protection of private property are prohibited. In addition, retroactive adjustments to Public Recreation Fees (excluding the $1,000 per linear foot interim fee deposits), in the form of crediting overpayment of mitigation fees or adding underpayment of mitigation fees to future assessments based on observed bluff erosion, is prohibited.

~~City Staff will calculate the Public Recreation Fee on a project-specific basis during the discretionary permit approval process and will include the estimated fee as a condition of project approval. The Fee will be finalized by City Staff at the time the City construction permit is issued and may be modified based on the final project design an condition of the~~

bluff. This second fee review is warranted due to (1) the fact that there is often a considerable lapse of time between the point at which the City approves the initial discretionary permit and the time that the applicant comes back to the City to obtain the construction permit; and (2) changes to the project design that may result from the CCC permit review and approval process.

Coastal structures that consist of entirely of erodible concrete (see LUP Appendix B, Figure 1A) are exempt from both the Public Recreation Impact Fee and the Sand Mitigation Fee per the LUP.

As an alternative allowed by LUP Policy 4.50, project applicants have the option of proposing a public recreation/access project in lieu of payment of Public Recreation Impact Fees to the City. At the City's discretion, these projects may be accepted if it can be demonstrated that they would provide a directly-related recreation and/or access benefit to the general public.

Development of a statewide Public Recreation Impact Fee remains under the jurisdiction of the California Coastal Commission and Land Leases remain under the jurisdiction of the California State Lands Commission.

Table 1 - Public Recreation Impact Mitigation Fee Schedule

Permit Year	Initial Area Rate (Per SF)	Bluff Retreat Rate (Per LF)
2016	$62	$307
2017	$63	$322
2018	$64	$340
2019	$66	$358
2020	$67	$378
2021	$68	$400
2022	$70	$423
2023	$71	$448
2024	$73	$475
2025	$74	$503
2026	$76	$534

Table 1 - Public Recreation Impact Mitigation Fee Schedule		
Permit Year	**Initial Area Rate (Per SF)**	**Bluff Retreat Rate (Per LF)**
2016	**$121**	**$600**
2017	**$124**	**$630**
2018	**$126**	**$662**
2019	**$129**	**$698**
2020	**$131**	**$737**
2021	**$134**	**$780**
2022	**$136**	**$825**
2023	**$139**	**$874**
2024	**$142**	**$926**
2025	**$145**	**$982**
2026	**$148**	**$1,044**

The Total Public Recreation Impact Fee (PRF), for a 20-year period, shall equal the Initial Area multiplied by the Initial Area Rate plus the Bluff Retreat Length multiplied by the Bluff Retreat Rate for the Permit Year.

The formula to calculate the Total PRF =

(Initial Area x Initial Area Rate) + (Bluff Retreat Length x Bluff Retreat Rate)

Definitions:

Calculation of the PRF is based on the following terms which are defined / explained below.

Initial Area - The Initial Area shall be that Useable Beach Area that is occupied by a Bluff Retention Device~~seawall or other coastal structure~~ measured as the width of the structure multiplied by the length of the structure plus the entire area of seacaves or notches located landward of a Bluff Retention Device and any area of seacaves or notches previously infilled with erodible concrete (which are no longer allowed to erode as originally approved)~~any area determined by the City's Geotechnical Engineer to be subject to imminent bluff failure, measured in square feet. For the purposes of calculating the Initial Area, any area subject to imminent bluff failure shall be included~~.

Bluff Retreat Length - The Bluff Retreat Length shall be the length of the Bluff Retention Device~~seawall~~ measured along the bluff, measured in feet.

Initial Area Rate - The Initial Area Rate shall be the amount identified in Table 1, under the Column titled Initial Area Rate dependent on the Permit Year. The Initial Area Rate is based on the value of one sq. ft. of beach area over a 20-year period.

Bluff Retreat Rate - The Bluff Retreat Rate shall be the amount identified in Table 1, under the Column titled Bluff Retreat Rate dependent on Permit Year. The Bluff Retreat Rate is based on a linear foot of Bluff Retention Device~~seawall or other coastal structure~~ and incorporates the annual area impacted by the Bluff Retention Device ~~wall~~ estimated by the Erosion Rate over a 20-year period.

Total PRF – Means the Total Public Recreation Impact Fee, for a 20-year period as calculated by the above formula.

Permit Year - The year the wall is considered permitted (building permit completion certification date~~construction year~~) as defined in the LCP LUP.

Useable Beach Area – That area of Solana Beach bound by the northern and southern city limits, the average width of the beach based on the distance between Mean Sea Level and the toe of coastal bluff and that may extend landward of the toe of coastal bluff ~~based upon recommendations of the City Geotechnical Engineer~~.

Examples Scenarios (Using a 67% wage rate, 2008-2009 Attendance Figures, and a 15.2 Acre Beach):

Example 1: In the year 2016, construction of a typical 2 ft. wide by 50 ft. long seawall with no seacave/notch landward of proposed seawall.

Initial Area = 2' x 50' = 100 sq. ft.
Initial Area Rate = 100 sq. ft. x $121 = $12,100
Bluff Retreat Rate = 50 ft. X $600 = $30,000
PRF = $12,100 + $30,000 = $42,100

PRF = ((2 ft. x 50 ft.) x $121 per sq. ft.) + (50 ft. x $600 per linear ft.) = $42,100

Example 2: In the year 2016, construction of a typical 2 ft. wide by 50 ft. long seawall with a 10 ft. deep by 20 ft. long seacave/notch (which has not been previously infilled) landward of proposed seawall.

PRF = (((2 ft. x 50 ft.) + (10 ft. x 20 ft.)) x $121 per sq. ft.) + (50 ft. x $600 per linear ft.) = $66,300

Example 3: In the year 2016, construction of a typical 2 ft. wide by 50 ft. long seawall with a 2 ft. deep by 20 ft. long seacave/notch (which has not been previously infilled) landward of proposed seawall.

PRF = (((2 ft. x 50 ft.) + (2 ft. x 20 ft.)) x $121 per sq. ft.) + (50 ft. x $600 per linear ft.) = $46,940

Example 4: In the year 2016, construction of a typical 2 ft. wide by 50 ft. long seawall with a 2 ft. deep by 20 ft. long seacave/notch that has been previously infilled with erodible concrete landward of proposed seawall.

PRF = (((2 ft. x 50 ft.) + (2 ft. x 20 ft.)) x $121 per sq. ft.) + (50 ft. x $600 per linear ft.) = $46,940

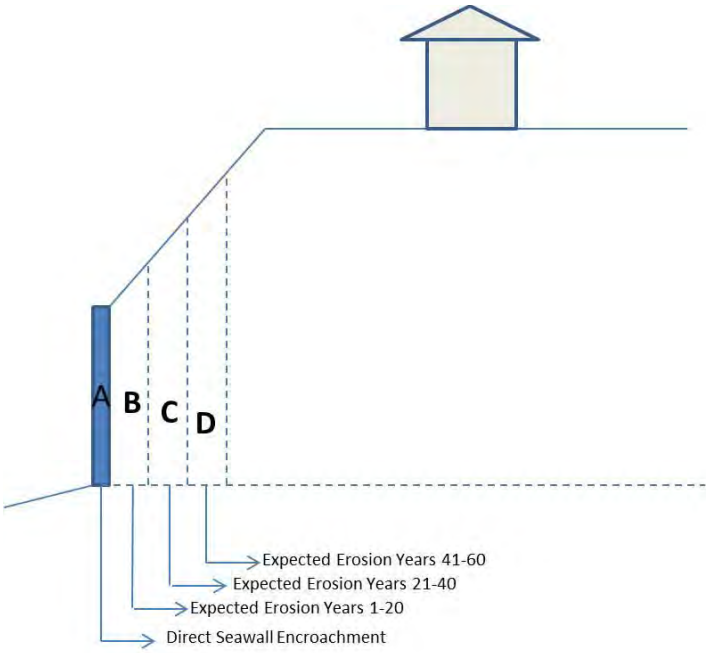
Example 5: In the year 2016, construction of a 2 ft. deep by 20 ft. long seacave/notch with non-erodible concrete.

PRF = ((2 ft. x 20 ft.) x $121 per sq. ft.) + (20 ft. x $600 per linear ft.) = $16,840

Subsequent Mitigation Periods:

If a geotechnical report finds evidence that a Bluff Retention Device cannot be removed at the end of a 20 year mitigation period, mitigation shall be required for the subsequent 20 year period. As shown in Figure 1, in subsequent mitigation periods, mitigation shall include the direct shoreline protection device encroachment and all beach area that would have otherwise been available to the public through passive erosion had the shoreline armoring not been constructed.

Figure 1



Mitigation Period	Mitigation Area
1st Mitigation Period (Pay in Year 1)	A + B
2nd Mitigation Period (Pay in Year 21)	A + B + C
3rd Mitigation Period (Pay in Year 41)	A + B + C + D

Beach User Surveys and Codes

Date: _____
Time: _____
Acc: _____

SOLANA BEACH SURVEY - #640

ID#

Rev 11/20/08

Date_____
Time_____
Zone_____

Hello. My name is _____. I am conducting a survey for the City of Solana Beach. May I ask you a few questions? (If a group, select one person to interview)

1. What time did you arrive at the beach today? _____ ☐ AM ☐ PM — Q1_____

1a. From where did you gain access to the beach? _____ — Q1A_____

2. What time do you plan to leave the beach today? _____ ☐ AM ☐ PM — Q2_____

3. What is the main activity of your beach visit today? Are there any other activities you'll be participating in today? (RECORD ANSWERS AS 1, 2, 3 IN ORDER GIVEN)

___Sunning/lying on beach$_1$ ___People watch$_5$
___Walk/run on beach$_2$ ___Collect shells, beachcomb, etc.$_6$
___Surfing$_3$ ___Swimming/play in water$_7$
___Fishing$_4$ ___Picnic$_8$
___Other (SPECIFY)_____

Q3a_____
Q3b_____
Q3c_____

4. How did you get to the beach today?

☐$_1$ Drive/ride with someone ☐$_3$ Bike ☐$_5$ Got dropped off
☐$_2$ Walk/skateboard ☐$_4$ Public Transportation ☐$_*$ Other(SPECIFY) _____

Q4_____

5. On today's visit how many people came with you? You + _____ others — Q5_____

6. How many miles did you travel today to get to this beach? _____ miles — Q6_____

7a. What's the city and nearest intersection to where you stayed last night? (If DK intersection, get something: hotel, address + city, landmark + city, etc.)

city _____

Intersection _____ & _____

7b. What is your home ZIP code? _____ — Q7_____

8. In the last 30 days, how many days have you visited a beach in Solana Beach? _____days — Q8_____

9. In the next 30 days, how many days do you expect to visit a beach in Solana Beach? _____days — Q9_____

In order to group your answers with others, we need some information about you.

10. Are you currently employed? ☐ yes (ASK Q10A) ☐ no (ASK Q10C)

10A. What is your occupation? _____ — Q10A_____

10B. How long have you been working in your current occupation?_____ years or _____ months — Q10B_____

10C. Are you . . . (READ CHOICES)

☐$_1$ a student ☐$_4$ disabled ☐$_3$ not employed outside the home
☐$_2$ unemployed, looking for work ☐$_5$ retired
☐ or something else? (SPECIFY) _____

Q10C_____

11. Which category on this card includes your age? (SHOW CARD) _____ — Q11_____

11a. Which category on this card includes the highest level of education you've completed so far?_____ — Q11a_____

12. Which category on this card includes your personal income? Not your family or household income, but your individual personal income. _____

13. (SEX:) ☐$_1$ Male ☐$_2$ Female *(Randy: # of kids ? age 15:*_____

Thank you for assisting the City of Solana Beach. Enjoy your visit at the bea

CIC Research, Inc.

EXHIBIT NO. 8
Beach Survey & Codes
Solana Beach LCP-6-SOL-16-0020-1
California Coastal Commission

Q11. Respondent's age

Code	Age Category	Percent
1	Under 18	4%
2	18 - 24 years	14%
3	25 - 34 years	23%
4	35 - 44 years	23%
5	45 - 54 years	16%
6	55 - 64 years	7%
7	65 years or over	13%
	Total	100%

Q11a. What is the highest level of education completed so far?

Code	Level	Percent
1	Some High School	6%
2	High School Graduate	14%
3	Some college or technical school	31%
4	Associate degree in college or technical school	6%
5	Bachelor’s Degree	27%
6	Master’s Degree	12%
7	Doctorate Degree	4%
	Total	100%

Q12. Respondent's personal income

Code	Income	Percent
1	Under $20,000	25%
2	$20,000 - $29,999	7%
3	$30,000 - $39,999	16%
4	$40,000 - $59,999	17%
5	$60,000 - $79,999	12%
6	$80,000 - $99,999	10%
7	$100,000 - $124,999	5%
8	$125,000 - $149,999	4%
9	$150,000 - $174,999	2%
10	$175,000 - $199,999	1%
11	$200,000 or more	1%
	Total	100%

Economist Curriculum Vitae

PHILIP G. KING
Economics Department, San Francisco State University
E-mail: pgking@sfsu.edu
Cell: (530)-867-3935

Education:

July, 87 **Ph.D. in ECONOMICS** **CORNELL UNIVERSITY**
Fields: Applied Microeconomics, Economic Development, International Economics
Dissertation: Bargaining between Multinational Corporations and Less Developed Countries over Mineral Concessions Contracts.

May, 78 **B. A. in PHILOSOPHY & ECONOMICS** **WASHINGTON UNIVERSITY**
Nominated to Omicron Delta Epsilon (Economics Honor Society.)

Work Experience:

1/06-present	**ASSOCIATE PROFESSOR**	**SAN FRANCISCO STATE UNIVERSITY**
9/02-12/05	**CHAIR, ECONOMICS DEPARTMENT**	**SAN FRANCISCO STATE UNIVERSITY**
9/93-present	**ASSOCIATE PROFESSOR**	**SAN FRANCISCO STATE UNIVERSITY**
9/87-9/93	**ASSISTANT PROFESSOR**	**SAN FRANCISCO STATE UNIVERSITY**
9/83-5/85	**ASSISTANT PROFESSOR, ECONOMICS**	**S.U.N.Y. at CORTLAND**

Current Research

- Economics of Sea Level Rise at Ocean Beach, San Francisco (w. SPUR), and in Southern Monterey Bay (w. PWA).
- The Ecological Economics of Beaches (Funded by California Dept. of Boating and Waterways and BEACON), w. J. Dugan (UCSB).

Recent Refereed Papers:

"The Economic Costs of Sea Level Rise to California Beach Communities," w. A. McGregor and J. Whittet, California Resources Agency & Dept. of Boating and Waterways (Refereed through California Ocean Science Trust).

"Who's Counting: An Analysis of Beach Attendance Estimates in Southern California," w. A. McGregor, revise and resubmit at *Ocean and Coastal Management*.

"Size Matters: The Economic Value of Beach Erosion and Nourishment in Southern California', with L. Pendleton, C. Mohn, R. Vaughn, and J. Zoulas., in press, *Contemporary Economic Policy*.

"ESTIMATING THE POTENTIAL ECONOMIC IMPACTS OF CLIMATE CHANGE ON SOUTHERN CALIFORNIA BEACHES," with L. Pendleton, C. Mohn, D. G. Webster, R. Vaughn, and P. Adams, in press, *Climatic Change*.

"Economic Analysis of Reconfiguring the Long Beach Breakwater," w. A. McGregor, *Shore and Beach*, April/May 2011.

"Potential Loss in GNP and GSP from a Failure to Maintain California's Beaches", Fall 2004, with Douglas Symes, *Shore and Beach*.

Books: *International Economics and International Economic Polic*

International Economics and International Economic Polic

International Economics and International Economic Policy, 3rd Edition, McGraw-Hill, 2000.

International Economics and International Economic Policy, 2nd Edition, McGraw-Hill, 1995.

International Economics and International Economic Policy, 1st Edition, McGraw-Hill, 1990.

Policy Papers prepared for Government and Non-Profit Organizations:

Contributed Economics portion of Regional Sediment Master Plan for BEACON (Beach Erosion Authority for Clean Oceans and Nourishment—Santa Barbara and Ventura Counties), February 2009, with Noble Consultants.

ESTIMATING THE POTENTIAL ECONOMIC IMPACTS OF CLIMATE CHANGE ON SOUTHERN CALIFORNIA BEACHES, prepared for the California Energy Commission (Energy Commission) and the California Environmental Protection Agency (Cal/EPA), with Linwood Pendleton, Craig Mohn, D. G. Webster, Ryan K. Vaughn, and Peter Adams.

Prepared for the City of Stockton: Economic Analysis of A Proposed Ordinance to Limit Grocery Sales at Superstores in Stockton, California, May 10, 2007

Contributed Economics Portion of: "The ARC GIS Coastal Sediment Analysis Tool: A GIS Support Tool for Regional Sediment Management Program: White Paper, Draft Technical Report for U.S. Army Corps of Engineers, by Ying Poon (Everest Consultants), Los Angeles District, April 2006.

Contributed Economics Portion of: "Coastal Sediment Analysis Tool (CSBAT) Beta Version--Sediment Management Decision Support Tool for Santa Barbara and Ventura Counties," Draft Technical Report for U.S. Army Corps of Engineers, by Ying Poon (Everest Consultants), Los Angeles District, June 2006.

"The ArcGIS Coastal Sediment Analyst: A Prototype Decision Support Tool for Regional Sediment Management, John Wilson et. al., USC Geography Department, 2004 (contributed economic analysis for paper).

"The Economic of Regional Sediment Management in Ventura and Santa Barbara Counties," prepared for the California State Resources Agency, Final draft (refereed) , Fall 2006, prepared for the Coastal Sediment Management Work group (CSMW).

"The Potential Loss in GNP and GSP from a failure to Maintain California's Beaches," with Douglas Symes, prepared for the California State Resources Agency, 2002, http://userwww.sfsu.edu/~pgking/pubpol.htm.

"The (Economic) Benefits of California's Beaches," prepared for the California State Resources Agency, 2002, http://dbw.ca.gov/beachreport.htm.

"The Economic and Fiscal Impact of Beach Recreation in San Clemente," presented as part of Hearings on Congressional Appropriations for California Coastal Projects, US House of Representatives, April 2002. Also completed similar projects for Cities of Carlsbad, Carpinteria, Encinitas, and Solana Beach.

"Do Beaches Benefit Local Communities?: A Case Study of Two California Beach Towns," Fall 2002, *Proceedings of the Conference on California and the World Oceans.*

San Francisco's Economic Growth 1995-2000: The Fiscal Health of the City and Implications for the Future," prepared for the San Francisco Committee on Jobs Summer 2001. This report was widely cited in the San Francisco press including front page articles by the *Chronicle* and *Examiner*.

"The Demand for Beaches in California," prepared for the California Dept. of Boating and Waterways, Spring 2001.

"Cost Benefit Analysis of Shoreline Protection Projects in California," prepared for the California Dept. of Boating and Waterways, Spring 2000.

"The Fiscal Impact of Beaches in California," prepared for the *Public Research Institute*, San Francisco State University, Fall 1999, available at http://online.sfsu.edu/~pgking/beaches.htm.

"An Economic Analysis of Coastal Resources on the Majuro Atoll," prepared for the *United Nations Development Program* Project MAS 95/001/D01/99 and the *Majuro Atoll Local Government*, September, 1997.

"The Economic Impact of California's Beaches," prepared for the *Public Research Institute*, San Francisco State University, Summer, 1997 (with Michael Potepan.)

"The Revenue Impact of the Proposed Marine Link Pipeline System in Richmond, California," prepared for the *Public Research Institute*, San Francisco State University, Spring, 1997 (with Ted Rust.)

"The Economic Impact of California's Ports and Harbors," prepared for the *Public Research Institute*, San Francisco State University, Spring, 1997 (with Ted Rust).

Public Testimony:

Testified and prepared report to the California Coastal Commission in San Diego on the economic loss due to a proposed seawall at Las Brisas, Solana Beach, California, 2005.

Current SFSU Committees:

Chair, SFSU Foundation Investment Committee and member of SFSU Foundation.

Board Member, SFSU University Corporation and Finance Committee.

Other:

- Present papers at one to three Environmental and Coastal Management Conferences a year.
- Appointed to the City of Davis Budget and Finance Commission.
- Prepared (CEQA) testimony in over forty cases involving Big Box stores in California.

CHAD EDWARD NELSEN

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Laguna Beach, CA 92651
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Professional Background:

Environmental Director, Surfrider Foundation (September 1999- October 2014)

- Provide organization-wide leadership on environmental programs, campaigns, issues and strategy to achieve mission goals of a healthy ocean, waves and beaches.
- Support the extensive chapter network on myriad coastal and ocean conservation issues.
- Design, coordinate and execute coastal and ocean environmental campaigns at local through national scale.
- Primary spokesperson on environmental issues with extensive media and communications experience.
- Lead fundraising and maintain support from private foundations.
- Manage over 40% of the operating budget.
- Built Environmental Department from 1 to 13 staff via regional ocean protection campaigns.
- Founded the “surfonomics” movement.

Environmental Programs Manager, Surfrider Foundation (August 1998-August 1999)

- Coordinated and developed environmental programs for 44 national chapters.
- Supported chapters and staff with scientific expertise.

NOAA Coastal Zone Management Fellow, Oregon DLCD (October 1996 - July 1998)

- Managed the Dynamic Estuary Management Information System project.
- Facilitated a 25-member team of local, state, and federal estuarine managers to identify important issues and data to improve management decision-making.

GIS Specialist, United States Geological Survey, Menlo Park (April 1993 - August 1994)

- Created ArcInfo database of bedrock geology of San Francisco Bay area.
- Assisted in scientific visualization maps of gravity accelerations of North Ridge earthquake.

Education:

Doctorate of Environmental Science and Engineering, University of California, Los Angeles, CA, June 2012

Focus: *The economics of coastal recreation and surfing and how coastal development can impact coastal recreation*

Masters of Coastal Environmental Management, Duke University, May 1996

Focus: *The science and policies associated with coastal processes, using artificial surfing reefs as a case study*

Bachelor of Science in Geological Sciences, Brown University, May 1992

Recent Publications, Proceedings & Presentations:

Nelsen, Chad E. 2014 (forthcoming). Surfonomics: Using Economic Valuation to Protect Surfing. In Sustainable Stoke: Transitions to Sustainability in the Surfing World, Plymouth University Press, Plymouth, UK.

Nelsen, Chad E., Andy Cummins, and Hugo Tagholm. 2013. Paradise Lost: Threatened Waves and the need for Global Surf Protection. Proceedings of the International Coastal Symposium 2013. Plymouth, UK.

Craig B. Leidersdorf, Brady Richmond, and Chad E. Nelsen. 2012. Expectation vs. Reality: the History of Pratte's Reef. Proceedings of the American Shore and Beach Preservation Association. San Diego, CA

Nelsen, Chad E. 2012. The Impacts of Shoreline Armoring on California's Ocean Economy. Proceedings of The Coastal Society's 23rd International Conference. Miami, FL.

Clara Cartwright, Rick Wilson and Chad E. Nelsen. 2012. Beach Ecology around the Nation: A Critical Look at State-level Management. Proceedings of The Coastal Society's 23rd International Conference. Miami, FL.

Nelsen, Chad E. 2011. Worldwide Strategies to Protect Waves: Trestles Case Study. Global Wave Conference. Biarrtiz, France.

Nelsen, Chad E. 2011. Economic Profile of U.S. Surfers. Global Wave Conference. San Sebastian-Donostia, Spain.

Craig B. Leidersdorf, Brady Richmond, and Chad E. Nelsen. 2011. The Life and Death of North America's First Man-Made Surfing Reef. Proceedings of the Conference on Coastal Engineering Practice: Engineering Sustainable Coastal Development. San Diego, CA

Nelsen, Chad E. 2011. Beyond the Boundaries: Coastal Issues and Marine Protected Areas. 2nd International Marine Conservation Congress. Victoria, BC, Canada.

Richmond, Brady, Craig Liedersdorf, and Chad E. Nelsen. 2011. Life Cycle of an Artificial Surfing Reef. Headwaters to Ocean (H2O) Conference 2011. San Diego, California.

Nelsen, Chad E. 2010. The Impact of Shoreline Armoring on California's Ocean Economy. Proceedings of the California and the World Ocean 2010. San Francisco, California

Nelsen, Chad E. 2010. Surf Value – The Economics of Surfing and Water Quality. Recontre qualité des eaux de baignades en zone littorale. Hendaye, France (invited).

Additional & Volunteer Experience:

Conference Chair, 3rd Global Wave Conference, 2013
President, Board of Directors, Save the Waves, 2009 – present
Advisory Board, Beach Ecology Coalition, 2008 – present
Board of Directors, The Coastal Society, 2002 – 2006, 2013 - present
Contributing writer, Laguna Beach magazine, 2007 - 2011

Conference Chair, 4th International Surfing Reef Symposium 2006
Avid surfer and outdoors sports enthusiast

TABLE 4-8
SELECTED STATEWIDE CCC CDP RECREATION/PUBLIC ACCESS MITIGATION FEE OVERVIEW

Project Name	Location/ CDP #	Year Filed	Mitigation Approach/Years	In Lieu Fee	Area Loss (sf)	Cost per Square Foot (sf)
Ocean Harbor House	Monterey County 3-02-024	2005	In Lieu-Recreational 50 years	$5,300,000	43,500	$122
Las Brisas	Solana Beach 6-05-72	2005	In Lieu-Recreational 22 years	$248,681	1,372.8	$181
Sea Breeze	Santa Cruz County 3-08-019	2009	Project Based	~	0	~
Oceanus	San Diego 6-11-010	2010	In Lieu-Negotiated 20 years	$86,000[23]	780	$110
O'Neill	Santa Cruz County 3-09-042	2010	In Lieu-Sand Volume compared to Project Based 20 years	$93,000-$190,000	3,716	$25–$50
Li	Encinitas 6-07-133	2010	In Lieu-Appraisal 20 years	$136,606	801	$170
City of Pacifica	Pacifica 2-11-009	2011	In Lieu-Appraisal or Project Based 17 years	$263,581	7,944	$33
Lands End	Pacifica 2-11-039	2011	In Lieu-Appraisal and Project Based[24]	$1,600,000	37,895	$42
Lynch/Frick	Encinitas 6-88-464	2011	Project Based[25]	~	~	~
Caltrans	Ventura County 4-11-26	2012	Project Based	~	~	~
Lampl/Baskin	Encinitas 6-12-041	2012	In Lieu-Appraisal 20 years	$122,716	796.8	$154
Bannasch	Solana Beach 6-13-0948	2013	In Lieu-Interim Deposit 20 years	$31,000	241	$129

FUTURE FEE STUDY UPDATE CONSIDERATIONS

It is anticipated that this fee study will be reviewed for necessary updates at approximately ten-year intervals after adoption or more frequently if necessary by changed conditions or changes

[23] Total in-lieu payment equaled $86,000 of which $5,000 was for sand loss to public beach and littoral cell.

[24] The project-based improvements were valued at $1.2 million which offset the in-lieu fee.

[25] The project made an additional 425 square feet of beach available to the public because the seawall was located landward of the existing bluff.

LiDAR Data

Table 6. Beach Areas from LiDAR Data

SEASON/MONTH	YEAR	AREA (ACRE)
Spring	1998	6.9
May	2002	10.4
Sept	2002	19.2
Dec	2002	15.2
Mar	2003	6.6
Oct	2003	14.5
Apr	2004	9.1
Sept	2004	20.8
Apr	2005	11.3
Oct	2005	18.2
Mar	2006	10.5
Oct	2006	21.9
Apr	2007	7.8
Dec	2007	17.0
Apr	2008	12.4
Sept	2008	26.2
Mar	2009	11.9
Oct-Dec	2009	24.6
Oct 2014 – Feb 2015		23.8
Average of All		15.2
Avg. Fall '08 - Spring '09		19.1
Avg. Spring '08 - Fall '09		18.8

EXHIBIT NO. **11**
LiDAR Data
Solana Beach LCP-6-SOL-16-0020-1
California Coastal Commission