

CALIFORNIA COASTAL COMMISSION

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Th17d

Second Addendum

May 10, 2017

To: Commissioners and Interested Persons

From: California Coastal Commission
San Diego Staff

Subject: Second Addendum to **Item Th17d**, Land Use Plan Amendment
Application # **LCP-6-SOL-16-0020-1 (Public Recreation Fee)**, for the
Commission Meeting of May 11, 2017

The purpose of this addendum is to respond to concerns raised in a response letter to the staff report from the City of Solana Beach and a public comment letter from The Jon Corn Law Firm. A public comment letter from the Surfrider Foundation and a letter of analysis from Dr. Phil King, both in support of the staff recommendation, were also received and are also included in the Correspondence section of the addendum.

In addition, this addendum includes minor corrections to the staff report. Deletions shall be marked by a ~~strike through~~ and additions shall be underlined:

Response Letter from the City of Solana Beach

- The City raised two primary concerns, related to the estimated beach area (Suggested Modification #1) and to the wage rate (Suggested Modification #2), both of which are key variables in the determination of the Public Recreation Mitigation Fee. The City also indicated that they believe that their Fee Study report should be referenced in Policy 4.50 of the certified Land Use Plan (Suggested Modification #16).

As explained beginning on page 53 of the Commission Staff Report, Commission staff is suggesting that the beach area be determined using as much of the available beach width and beach area data as possible and should incorporate all of the 19 LiDAR datasets collected between 1998 and 2015.

As explained beginning on page 46 of the Commission Staff Report in the 'Beach Day Use Value' section, Commission staff is suggesting that a wage rate of 67% be used in place of the wage rate of 33% proposed by the City. Use of the suggested higher wage rate is more in line with past beach day use value studies conducted in Southern California and is consistent with the access and recreation

policies of the Coastal Act. Use of a wage rate that is too low would result in Recreation Mitigation Fees that undervalue the public beach.

Suggested Modification #16 of the staff report, in part, recommends that the City's Fee Study report be included as a substantive file document, rather than incorporating the report by reference into the Land Use Plan. This administrative change is necessary due to the inconsistencies created between the City's Fee Study report and the Public Recreation Mitigation Fee program in the LUP, as suggested to be modified by Commission staff. While Commission staff considered recommending modifications to the City's Fee Study report, the process was deemed too cumbersome and would have created unnecessary confusion.

Public comment letter from The Jon Corn Law Firm

- The Jon Corn Law Firm, which represents various blufftop property owners in the City of Solana Beach, has raised numerous concerns with the City's study and with staff's suggested modifications to the study.
 - First, the commenter argues that seawalls provide a safety benefit to beach users (Suggested Modification #7). As explained beginning on page 32 of the staff report, shoreline armoring has not been proven to increase beach safety and therefore mitigation offsets or reductions to any required Public Recreation Fees for bluff retention devices whose primary purpose is the protection of private property should not be included as a part of the mitigation fee calculus.
 - Second, the commenter contends that the suggested 67% wage rate is too high (Suggested Modification #2). As explained beginning on page 46 of the Commission Staff Report, use of a wage rate that is too low would not adequately mitigate for the impacts to public access and recreation resulting from shoreline armoring.
 - Third, the commenter contends that the surfer expansion factor used by the City to estimate beach attendance is too high. While not discussed in the staff report, the City undertook a detailed analysis related to the surfer expansion factor, which analyzed available data from nearby counties to determine how often surfers typically went to the beach and for how long, but did not use the surfer attendance numbers from other beaches, as claimed by the commenter.
 - Fourth, the commenter argues that other economic models should be used in place of the Travel Cost Model chosen by the City. The City explained in their analysis that the Travel Cost Model was chosen because it is based on a relatively simple, short, straight forward questionnaire with a high percentage of participation and collects data on actual observed actions. While the economic analysis suggested by the commenter would be prohibitively expensive and complicated for the City to undertake.
 - Fifth, the commenter contends that mitigation should not be required for seacaves or notches when shoreline armoring is constructed (Suggested Modifications #10-12). As explained beginning on page 30 in the

Commission Staff Report, recreation mitigation for the area of notches and seacaves located landward of proposed bluff retention devices is appropriate as ensuing collapse of these voids is how additional public beach area is formed.

- Sixth, the commenter argues that payment plans should be allowed for mitigation fees (Suggested Modification #14). As explained on page 55 in the Commission Staff Report, payment of mitigation fees prior to issuance of the Coastal Development Permit rather than on a payment plan will simplify the mitigation calculation, will reduce potential enforcement issues, and will result in Public Recreation Fees being available sooner to fund beach access and recreation projects.

Minor Corrections to the Staff Report:

1. On Page 44 of the staff report, the last incomplete paragraph shall be corrected as follows:

In its application, the City has proposed to modify Policy 4.50 of the LUP to incorporate the proposed Public Recreation Fee method. ~~Suggested Modification 15~~ Suggested Modification 16 requires that Policy 4.50, as proposed by the City, shall be modified to remove reference to specific mitigation amounts from Table 1 of Appendix C for two reason; first, the table is proposed to be changed through other suggested modifications by staff and second, because Table 1 will be updated over time, which would necessitate further changes to Policy 4.50 in the future. Instead ~~Suggested Modification 15~~ Suggested Modification 16 refers solely to Appendix C which allow for a more streamlined LUP amendment process every ten years...

1. On Page 55 of the staff report, the last complete paragraph shall be corrected as follows:

As proposed by the City, the "...City Council shall make the controlling decisions regarding payment options and terms [for the Public Recreation Fee]..." The City proposal includes example payment options at 5-year and 10 year intervals. ~~Suggested Modification 13~~ Suggested Modification 14 instead requires that payment in full of the Public Recreation Fee be made prior to issuance of the Coastal Development Permit.



CITY OF SOLANA BEACH

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May 9, 2017

Mr. Jack Ainsworth, Executive Director
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA. 94105

SUBJECT: City of Solana Beach Public Recreation Impact Fee Program and Local Coastal Program (LCP) Land Use Plan Amendment (LUPA) (Item Th17d)

Dear Executive Director Ainsworth:

The City of Solana Beach has spent more than 10 years developing a Public Recreation Impact Fee Program (Fee Program) for shoreline protective devices as part of the certified LCP LUP. This continued effort was made possible with the support of the California Coastal Commission (CCC) in providing a LCP Planning Grant (Round #1) to the City in the amount of \$120,000 to complete the fee study originally initiated by the City in 2007.

We have worked closely and collaboratively with your staff for many years on this effort. As you know, the City and its team of expert economists, planners, scientists and coastal engineers conducted an extensive, multi-year stakeholder involvement program and public outreach effort that resulted in a total of three iterations of the Fee Program between 2010 and 2016.

With each iteration, each of the fee studies became more robust than the previous version because the City incorporated key technical and analytical refinements reflecting the inputs and revisions submitted by the stakeholders through numerous public hearings conducted on this issue.

As a result, the City was able to develop a science-based Fee Program that gained stakeholder support and demonstrates the nexus between impact and mitigation with a roughly proportional fee.

The same nexus and rough proportionality analysis is not present in the approach that the CCC staff is recommending. It appears that the suggested modifications are simply recommended as a means to maximize the fee without the scientific rationale to back it up; in fact CCC staff

recommends doubling the proposed fee of up to \$42,100 from the \$21,550 recommended by the City's experts.

The Fee Program submitted by the City to the CCC in April 2016 (on-time and within the budget) as the final LCP Planning Grant deliverable reflects the collective input and technical refinements suggested by CCC staff, property owners, academic economists, Surfrider Foundation representatives and many other interested parties. As a result of the extensive, multi-year stakeholder involvement effort conducted by the City, the recommendations contained within the Fee Program and LUPA submitted to the CCC should be regarded as intensive and robust.

As the City's Fee Program is likely to be used by the CCC to ultimately develop a statewide Fee Program, it is particularly important that the Commission get this first Fee Program right. This means that the CCC should defer to the science-based recommendations in the Fee Program funded in part by the CCC that were extensively studied and developed by the City and their team of experts and stakeholders over a period of almost 10 years.

While the City appreciates the that CCC staff is relying on much of the data collected and analyzed by the City over the last 10 years as the basis of their recommendations for the City's Fee Program, CCC staff modifications to some of the key study variables in the City's Fee Program will undermine our efforts to establish a Fee Program that is science-based, with an established nexus that is proportional to the impact being mitigated. As such, the Fee Program as submitted by the City is legally sound.

CCC Staff Suggested Modifications

In all, CCC staff is recommending 16 Suggested Modifications to the City's Fee Program and LUPA. While the City can support the majority of the proposed Suggested Modifications, the City cannot support Suggested Modifications #1 or #2 as these would change two of the key variables on which the scientifically-based Impact Fee has been based. The variables are:

- the percentage of wages assumed in the consumer surplus model, and;
- the physical area (size) of the beach that corresponds directly to actual beach attendance surveys.

Each of the CCC Staff Suggested Modifications is addressed below and an explanation of the City's opposition or support provided.

Suggested Modification #1: Size of the Public Beach Area Available for Recreation

The City cannot support this proposed change. The most fundamental assumption in developing the public recreation impact mitigation fee is that the beach population density (i.e., the number of people per square foot of beach) remains constant over time. Thus, the beach population density

measured during the beach attendance counts and population survey period is representative of that time period and can be extrapolated to all periods in the near future and the long-term.

According to the City's analysis, 156,000 people were using the beach with a beach size of 18.8 acres (e.g., density of 5.25 people per SF). While neither parameter is constant in reality, the ratio between population and area is defined as constant. Using the beach population density, the beach population can be scaled up or down relative to beach acreage (e.g., the bigger the beach area, the greater the beach population and the converse would be true too).

CCC staff is proposing to change the way beach area is calculated by using all the LiDAR data (17 years) instead of just the two years that were used. However, the two years were used because those same two years match the two years for which beach attendance and value data were actually collected and available. Therefore, our methodology is more consistent and scientifically defensible with the overall approach of tying beach width to beach attendance and then to beach valuation.

A key component of the Fee Program is the calculation of the beach population density of Solana Beach. If the goal of the Fee Study was to estimate long-term beach area in the City, a longer period of data would provide a better estimate. However, merely identifying the long term beach area independent of beach attendance is not useful for the current analysis for the following reasons:

1. While LiDAR data for a multi-year period is available, the local City of Solana Beach beach visitor and attendance count surveys were limited to a one-year period of July 2008 through July 2009. The project team evaluated the concurrent LiDAR data consistent with the 2008-2009 survey period to establish the baseline beach population density in order to determine the economic value of the beach on a per area (square foot) basis. To calculate the beach population density, a representative population count and beach area data are needed during the same time period.
2. During the February 2016 public hearing on the Fee Program, Surfrider raised the issue of potential bias being introduced if the data for the beach area calculations included years outside of the beach attendance count period. The project team considered this comment and, upon reflection, agreed with this comment and modified the approach accordingly. Also during this meeting, UCSD Economic Professor Gordon Hanson testified that the methodology utilized in this study was sound and that he and his colleagues were satisfied with the conclusions of the study.
3. The Fee Program submitted to the CCC relies on a LiDAR data set that corresponds to the same period of time during which the beach population counts and visitor surveys were administered such that the population counts directly correspond to the measured area of the beach available during that time.

4. The City, and our team of experts who prepared the Fee Program recommendations, continue to maintain that using the LiDAR data that best represents the beach area during the survey period is most appropriate unless there is evidence that the LiDAR data for that survey period is inaccurate or otherwise problematic

Suggested Modification #2: Percent of Wages Assumed in the Consumer Surplus Model

The City cannot support this proposed change. The *Solana Beach Public Recreation Impact Fee Report* (Report) contained a recommendation that the City use 33% of the wages of the adult beach visitor. CCC staff is recommending that the Fee be based on 67% of the wages of the adult beach visitor. The Fee Program utilizes 33% of wages because it was the percentage used in the Dr. Phil King study (*The Economic Analysis of Beach Spending and the Recreational Benefits of Beaches in the City of Solana Beach, King 2001*) and was used by many of the travel cost models we looked as part of the extensive literature review that was conducted by the City's team of experts.

The CCC staff recommendation to double the impact fee was released as part of the CCC agenda and without advance public vetting and comment periods unlike the processes the City went through the last decade. Absent in the recommendation is scientific rationale that would support a 100% increase from the City's submittal which renders the recommendation suspect as arbitrary.

In response to public comments, the City's team of experts analyzed three scenarios in developing a consumer surplus demand curve including 33%, 67% and 100% of wages. City Staff later requested inclusion of 50% of wages as a mid-point for informational purposes. Importantly, of the four demand curves analyzed, 33% of wages yielded the best statistical result and is therefore considered scientifically sound, defensible and responsive to the City's public involvement process. The City's recommendations are based on the concurrence of Dr. Phillip King who recommended use of the 33% of wages in his "Economic Analysis of Beach Spending and the Recreational Benefits of Beaches in the City of Solana Beach" study conducted in 2001. Furthermore, the CCC Staff's contention that a higher income requires a higher percentage of income to be used is counter-intuitive. Rather, one would expect that lower income visitors value their leisure at a higher percentage of their income because they have fewer resources to spend on leisure activities.

Finally, the CCC staff uses nearby property value to influence what they believe should be the percentage of income to be used. However, property values in Solana Beach are influenced by a variety of factors, not just beach access. If that was the case, property on the bluffs would be valued the same as similar property inland but located the same distance to beach access. Additionally, higher property cost does not need to be directly reflected in the day-use value as it is already reflected in the higher incomes needed to afford the higher cost.

Suggested Modification #3: The City does not support this modification as it would implement Suggested Modifications 1 and 2 which the City objects to for the reasons cited above.

Suggested Modification #4: The City can support this proposed change.

Suggested Modification #5: The City can support this proposed change.

Suggested Modification #6: The City can support this proposed change.

Suggested Modification #7: This topic is addressed in the Fee Program in Chapter 5 which documents public safety benefits. While we continue to disagree with CCC staff that seawalls provide a public safety benefit by stabilizing the bluff and preventing bluff materials from falling on visitors to the public beach below, the City does not object to this modification because there is no net effect on the Fee at this time.

Suggested Modification #8: The City can support this proposed change.

Suggested Modification #9: The City can support this proposed change.

Suggested Modification #10: The City can support this proposed change.

Suggested Modification #11: Provided that this would not make the Fee retroactive for existing coastal structures, the City can support this proposed change.

Suggested Modification #12: Provided the Fee is not applied in a duplicative manner to individual properties, the City can support this proposed change.

Suggested Modification #13: The City can support this proposed change.

Suggested Modification #14: The City would prefer to give applicants the flexibility to pay the impact fees over time as outlined in the Fee Study. The City can support this proposed change.

Suggested Modification #15: As discussed with CCC staff, there must be an inland terminus of the responsibility of the property owner for mitigation. The City suggests that when the theoretical line of erosion reaches the vertical projection of the landward property line the property owner's mitigation responsibility is terminated. A property owner is not responsible for offsetting impacts that would theoretically occur landward of their property, nor can impacts beyond the control of property owner, such as sea level rise be considered in the Fee Program. If this can be satisfactorily addressed by the CCC, the City can support this proposed change.

Suggested Modification #16: The Fee Program was funded in part by a CCC Round #1 LCP Planning Grant. The City's Fee Study and all of the technical appendices form the scientific and technical basis for the recommendations in the Fee Program. We find it odd that references to the City's Fee Study should be deleted and therefore cannot support this provision. The City can support the proposed change regarding removal of references to an "interim fee deposit" as it would be superseded by an approved Fee Program.

Conclusion and Request

The City respectfully requests that the CCC approve the Fee Study and LUPA as submitted by the City in April 2016 as it represents the collective input and refinements generated by a wide range of experts and other stakeholders over an extensive 10-year public outreach process and is scientifically sound and defensible.

If the Commission is unable to do this, then our request would be to reject CCC Staff Suggested Modifications 1 and 2 for the reasons stated above. Thank you for your consideration of our request.

Sincerely,



Mike Nichols

Mayor, City of Solana Beach

CC: California Coastal Commission Commissioners
Solana Beach City Councilmembers
Gregory Wade, City Manager
Johanna Canlas, City Attorney



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Coastal Property Rights, Land Use & Litigation

May 8, 2017

California Coastal Commission
7575 Metropolitan Drive, Suite 103
San Diego, CA 92108

Re: City of Solana Beach Major Amendment LCP-6-SOL-16-0020-1

Dear Commissioners:

This firm represents the Beach and Bluff Conservancy, Protect the Beach, COOSSA, numerous individual Solana Beach oceanfront property owners and the following oceanfront condominium homeowners' associations: Del Mar Beach Club, Surfsong, Seascape Chateau, Del Mar Shores Terrace, Seascape Sur, and Seascape Shores. In preparation for the Coastal Commission meeting May 11, 2017, we have reviewed the April 28, 2017 Staff Recommendation regarding the City of Solana Beach Land Use Plan Major Amendment LCP-6-SOL-16-0020-1 (Public Recreation Fee). This correspondence, along with the attached prior correspondence and reports, constitute our clients' response.

Our clients respectfully object to the Staff's recommendation that the Commission approve the City's Public Recreation Fee with Staff's suggested modifications. The proposed Public Recreation Fee, with modifications, unfairly places an unreasonable and excessive financial burden on coastal property owners that is disproportionate to the impact created by the construction of a bluff retention device. The Fee also fails to acknowledge the public safety benefits provided by bluff retention devices.

In addition to other fees associated with the issuance of a discretionary permit for a bluff retention device, the City seeks to charge coastal property owners a fee to mitigate the purported impact of the device on the general public's ability to use and enjoy the adjacent beach. As Staff acknowledges, it is very difficult to place a monetary value on the potential loss of a portion of beach area, as a day at the beach is not a market commodity. Thus, the City's final proposed LUP amendment reflects many years of studies, expert and public input. While our clients continue to oppose the proposed Fee in its entirety, Staff's recommendations make it even less palatable.

We have included our previous reports and submissions to the City with this correspondence, and ask that you review and include them as part of the administrative record.

The Wage Rate Proposed by the City Should Not be Modified Upward (Modification No. 2)

To determine the average beachgoer's travel cost, which forms the basis for the City's proposed Recreation Mitigation Fee, Staff suggests a 67% wage rate should be utilized rather than the City's proposed 33% wage rate. Staff's recommended rate increase arbitrarily doubles the Recreation Mitigation Fees that coastal property owners will be required to pay. Staff acknowledges that there is no across the board consensus as to which wage rate is appropriate, and economists often use 33%. The Commission should defer to the City. It selected the 33% wage rate because that rate provided the best statistical fit, not for an arbitrary reason. Also, most beachgoers visit the beach on weekends and summer holidays when they would otherwise earn no wages.

Further, in proposing the increase, Staff contends that the City's proposed wage rate results in mitigation fees that fall considerably short of previous valuation estimates and raises concerns that the City may "undervalue" the public beach. Logically, the higher wage rate makes is more likely to overvalue the beach. Staff's recommendations fail to explain why it is more important for the City not to underestimate than overestimate the value of the beach. It strikes us that Coastal staff would simply like to charge a higher fee to make seawall construction less affordable and more burdensome on coastal property owners. Coastal property owners are often blamed for ruining the beach with seawalls, but the truth is that seawalls are necessary due to collective effects of the government's installation of harbors, jetties, and groins up and down the California coastline, and due to intensive, government-approved development throughout the upland watershed. These developments, especially transportation arteries such as freeways and railways, have effectively eliminated 96% of natural sediment flow to Southern California's beaches. This has caused significant shoreline erosion and has removed the sand barrier that historically protected oceanfront properties. Seawalls are a reaction to unnatural shoreline erosion, not its cause.

Staff's recommended increase in wage rates also fails to consider the numerous uncertain variables that impact the value of a public beach and are not accounted for and/or are improperly assumed within the City's proposed Fee structure, including the following:

- The City relies upon an overestimated number of beachgoers, including a grossly exaggerated surfer count, as it relies upon an estimated number of surfers that is not specific to Solana Beach. (See January 22, 2016 correspondence to Chopyk.) Additionally, the City's study fails to acknowledge that surfers do not typically utilize the sandy beach area for recreation; thus, the impact upon any loss of beach area is negligible for that segment of the population.
- It is erroneous to assume that the retention of a coastal bluff through the construction of a device intended as such will deplete a significant source of beach sand in Solana Beach. Coastal bluffs are not a significant source of beach sand. Upland watershed sources, and particularly the Oceanside Littoral Cell, provide Solana Beach with the majority of its beach sand. As the upland watershed is impacted by inland development, the amount of sand deposited on coastal beaches is also depleted. (See, Exhibit A to January 22, 2016 correspondence to Chopyk, Crampton Report.). Additionally, coastal property owners already pay a sand mitigation fee to address any potential impact resulting in a loss of beach sand.

- The City's fee study fails to consider the availability of other alternative beach options nearby which serve as substitutes for any lost beach area in Solana Beach.
- The City's fee study fails to address the multiple destination issue, which artificially skews the fee upwards. (See, Exhibit B to January 22, 2016 correspondence to Chopyk, Bosworth Report.)

Bluff Retention Devices Provide a Significant Public Safety Benefit (Modification No. 7)

The City's proposed rebate or discount to the property owner is reasonable, as bluff retention devices provide an indisputable public safety benefit. It is generally accepted that beachgoers should not recreate in an area that is 20 to 30 feet seaward of the toe of an unstable bluff. This is evidenced by the fact that Solana Beach lifeguards proactively warn beachgoers to avoid a "bluff collapse danger zone," via both posted and verbal warnings. Thus, an unstable, unprotected, bluff renders a large swath of beach unsafe for recreation.

Since 1995, five beachgoers have been killed on beaches within a few miles (north and south) of Solana Beach after being hit by falling bluff material. There have been no injuries or deaths on beaches backed by seawalls. Seawalls eliminate the bluff collapse danger zone and allow beachgoers to enjoy the portion of the beach that has been rendered unsafe due to shoreline erosion.

Notches and Sea Caves Should Not Be Included in the Area Subject to a Mitigation Fee (Modification Nos. 10 & 11)

Staff's recommendation that notches and sea caves be included in the City's calculation of the amount of beach area estimated to be lost due to a bluff retention device is not reasonable or practical. Notches and sea caves are inherently unstable and unsafe for recreation. Moreover, the public does not typically utilize the beach area occupied by a notch or a sea cave for any recreational activity, as the areas are too small, unsafe and not typically exposed to light. Property owners are already required to mitigate the estimated loss of sand caused by the loss of a notch or sea cave through a required sand replenishment fee.

Elimination of the Option to Pay Mitigation Fees Over Time Creates an Undue Burden on Property Owners (Modification No. 14)

The City's proposal reasonably provides property owners with an opportunity to pay mitigation fees over time (e.g., five or ten year intervals). Staff's recommendation that Solana Beach modify its proposed LUP to eliminate the option for property owners to pay Public Recreation Fees over time is not justified or fair to property owners, who will already be facing the heavy financial burden associated with constructing a bluff protective device. Namely, the recommendation fails to acknowledge that some property owners may not have adequate financial resources to pay the entire fee upfront. Staff's recommendation does not cite any realistic urgency requiring upfront collection of the funds, other than the City's desire to use the funds for certain projects. The City's proposed payment plan option provides relief for property owners who cannot bear the financial burden of an upfront payment (on top of other fees associated with obtaining a discretionary permit, and in addition to construction costs) and does not create any unfair or disproportionate burden for the public or the City, who can reasonably expect to receive payments over time from property owners.

Conclusion

The Recreation Mitigation Fee proposed by the City of Solana Beach is unfair, unreasonable and disproportionate to the actual impact of a bluff retention device. On behalf of our clients, and as explained in this letter, as well as the attachments submitted herewith, we respectfully request that the Commission reject the Recreation Mitigation Fee with Staff's proposed modifications.

Respectfully Submitted,

THE JON CORN LAW FIRM



Arie L. Spangler, Esq.

cc: Eric Stevens

Enclosures

CALIFORNIA COASTAL COMMISSION

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Th17d

Addendum

May 4, 2017

To: Commissioners and Interested Persons

From: California Coastal Commission
San Diego Staff

Subject: Addendum to **Item Th17d**, Land Use Plan Amendment Application # **LCP-6-SOL-16-0020-1 (Public Recreation Fee)**, for the Commission Meeting of May 11, 2017

The purpose of this addendum is to make minor corrections and clarifications to the staff report. Staff recommends the following changes be made to the above-referenced staff report. Deletions shall be marked by a ~~strike through~~ and additions shall be underlined:

1. On Page 5 of the staff report, the summary of Suggested Modification 3 shall be modified as follows:

- Staff is recommending that Table 1 in Appendix C, which details the Initial Area Rate and the Bluff Retreat Rate for bluff retention devices constructed between 2016 and 2026, be updated to reflect the Commission's suggested modifications to the beach day use value and to the estimated beach area. Staff is also recommending that Table 1 in Appendix C be updated every ten years as an amendment to Appendix C of the LUP.

2. On Page 9 of the staff report, the final complete paragraph shall be corrected as follows:

The appropriate resolutions and motions begin on page ~~XX~~ 12. The suggested modifications begin on page ~~XX~~ 13. The findings for denial of the Land Use Plan Amendment as submitted and approval as modified begin on page ~~XX~~ 22. ~~The findings for approval of the Land Use Plan Amendment if modified begin on page XX.~~

3. On Page 14 of the staff report, the first sentence of Policy 4.50 shall be corrected as follows:

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 ~~4.38~~ 4.39...

4. On Pages 14-21 of the staff report, the Suggested Modifications shall be annotated with the Suggested Modification number on the attached document titled “Annotated Suggested Modifications.”

5. On Page 16 of the staff report, the first bullet point shall be corrected as follows:

- The proxy recreational use value per beach visitor per day (Day Use Value) for Solana Beach is ~~\$32.33~~ \$35.56 in the summer months and ~~\$19.09~~ 21.00 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.

6. On Page 17 of the staff report, the third bullet point shall be corrected as follows:

- The annual use value of the beach within the City is ~~\$4,715,843~~ \$4,010,581 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.

7. On Page 47 of the staff report, the last paragraph shall be modified as follows:

While 33% of wages is sometimes used in travel cost calculations, it is not a universal standard among economists. In fact, in response to comments on previous versions of the City’s Recreation Mitigation Fee study, the City stated that the 33% wage rate was chosen because “...it is considered the lower boundary and is therefore conservative and defensible.” There is much variation in the opportunity cost of time—economists have used zero (for retired people, unemployed, etc.) to 100 (or even 150%) of wages (when opportunity cost is high). Using income as a key determinate of beach value has the potential to drastically undervalue a beach given the presence of retired people, homemakers, students, and unemployed people who do not have a full time job, so that the value of the beach to them is not represented in the beach value. Reliance on a low wage rate therefore has the potential to further underestimate value due to the fact that these other persons are not included in the calculation. An additional argument against the use of a low wage rate in Solana Beach relates to the high price of real estate that masks the value that local residents place on beach visits. The average home value in Solana Beach is over \$1.1 million, more than double the average home value in San Diego County¹. Thus, using the low wage rate for the beach use value has the strong potential to underestimate the value of the beach and to result in a low Recreation Mitigation Fee. Local residents are willing to pay more to live close to this beach, but that investment is then underrepresented when looking at cost of travel given the close proximity of these homes to the beach, and the inherently reduced cost for local homeowners to get to the beach.

¹ <https://www.zillow.com/solana-beach-ca/home-values/>

Conversely, the City argues that because the cost of housing and the medium income in Solana Beach is higher than the County average, the use of a lower wage rate is appropriate because even a 33% wage rate for these higher income levels would represent a higher monetary amount that would then increase the calculated beach value. However, as explained above, the fee study likely undervalued the beach for local residents due to the decreased travel time and reduced transportation costs necessary to get to and from the beach that would instead be captured in the property investments and not adequately represented by a travel cost analysis.

8. On Page 48 of the staff report, the first paragraph and the following table shall be modified as follows:

In response to concerns raised by stakeholders, the City also analyzed beach day use values using a 50%, 67%, and 100% wage rate. The table below shows the results of the multiple wage rate alternatives:

Wage Percentage	Summer/Non-Summer	Average Beach Day Use Value Per Visitor (2016 Dollars)
33%	Summer	\$19.25
	Non-Summer	\$14.76
<u>50%</u>	<u>Summer</u>	<u>\$26.59</u>
	<u>Non-Summer</u>	<u>\$17.39</u>
67%	Summer	\$35.56
	Non-Summer	\$21.00
100%	Summer	\$59.04
	Non-Summer	\$28.07

9. On Page 50 of the staff report, the last sentence of the final complete paragraph shall be corrected as follows:

...Specific to Solana Beach, the Commission's approval of CDP 6-05-072/Las Brisas for a 2 ½ ft. wide 120 ft. long seawall required a Public Recreation Fee of \$248,680.72, or ~\$181 per sq. ft. for the initial 22 year period based on a ~~similar travel cost study, as proposed in this application~~ benefit transfer comparison of Southern California beach valuation studies available at that time (Exhibit 10).

10. On Page 53 of the staff report, the final complete paragraph shall be corrected as follows:

Beach Area

The City proposes to use available Light Detection and Ranging Imagery (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 conducted by the City. The LiDAR data that the City proposes to use were taken on April 2008, September 2008, March 2009, and October-December 2009 and results in an average beach area of 18.8 acres. The City's beach attendance surveys were conducted between July 25, 2008 and July 23, 2009 and these LiDAR dates were specifically selected by the City because of the overlap with the attendance surveys. The City asserts that use of only these four LiDAR datasets is consistent with their assumption "...that average beach density (persons per SF) is generally constant across all of Solana Beach [and that] if the beach were to narrow, fewer people would visit, but the density (persons per SF would be the same..." Measuring beach size with LiDAR is a sound method; however, using only four data points to calculate an average does not provide the best available estimate of beach area. Instead, beach area should be determined using as much of the available beach width and beach area data as possible and should incorporate all of the 19 LiDAR datasets collected between 1998 and 2015 ([Exhibit 11](#)).

11. On Page 61 of the staff report, the final complete paragraph shall be modified as follows:

Nevertheless, the Commission is required in an LCP submittal to find that the LCP does conform with CEQA provisions. The proposed City of Solana Beach LUPA is not consistent with the public access, ecological, and other coastal ~~visual protection, and natural~~ resource protection policies of the Coastal Act. Suggested modifications have been added as described and listed above. If modified as suggested, no impacts to coastal resources are expected to result from the amendment.

12. On Page 2 of Exhibit 7 of the staff report, the first bullet point shall be corrected as follows:

- The proxy recreational use value per beach visitor per day (Day Use Value) for Solana Beach is ~~\$32.33~~ \$35.56 in the summer months and ~~\$19.09~~ 21.00 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.

13. On Page 3 of Exhibit 7 of the staff report, the third bullet point shall be corrected as follows:

- The annual use value of the beach within the City is ~~\$4,715,843~~ \$4,010,581 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.

14. In [Exhibit 9](#) of the staff report, the Curriculum Vitae for Dr. Chad Nelson shall be added following the Curriculum Vitae for Dr. Philip King.

Annotated Suggested Modifications

Suggested modifications to Policy 4.50:

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 4.38. 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.*

[...]

SM
#16

Public Recreation Fee – ~~Similar to the methodology established by the CCC for the sand mitigation fee, the~~ The City and the CCC have developed developing a methodology for calculating a statewide public recreation fee Public Recreation Fee for 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 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 and coastal recreation benefits that would be lost due to the impacts of any proposed protective structure. The method 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 public access and coastal recreation along the shoreline, not to fund other public operations, maintenance or planning studies.

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.

Suggested modifications 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 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 and coastal recreation benefits that would be lost due to the impacts of any proposed protective structure. The method used to determine the appropriate mitigation fee has been approved by the CCC and is contained in LUP Appendix C. Mitigation for impacts to ecological and other relevant coastal resource impacts that result from the construction of bluff retention devices are not included in this public recreation fee and the City's LUP shall be updated once an accepted approach on how to calculate these fees has been developed by the Commission. 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 located landward of the MHTL and on public land, the City shall also require an encroachment/removal agreement to be renewed at least every 20 years. Additional mitigation for impacts to public access and recreation may also be required through site-specific review and approval of the coastal development permit.

Staff is recommending that Appendix C be replaced in its entirety as shown below. A strike-out/underline version of Appendix C is contained in [Exhibit 7](#).

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#16
Cont.

PUBLIC RECREATION IMPACT MITIGATION FEE (APPENDIX C)

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 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 and shall be in conjunction with the mitigation fees typically assessed by the CCC and the CSLC for impacts to coastal recreation from Bluff Retention Devices.

The Public Recreation Fee 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 shall depend on the impact to the beach area based upon (1) the specific physical configuration and footprint of the proposed 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.

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 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:

- SM #2

- 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.
- SM #1

- 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.

SM #4 { • 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.

SM #5 { • 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.

SM #3 { • 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.

SM #6 { • 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.

SM #13 { The Public Recreation Fee shall be imposed as a condition of approval 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.

} SM #14

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.

SM #9 { 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.

SM #7 { 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.

SM #8 }

SM
#3

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 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).

Bluff Retreat Length - The Bluff Retreat Length shall be the length of the Bluff Retention Device 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 and incorporates the annual area impacted by the Bluff Retention Device 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) 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.

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

SM
#12

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

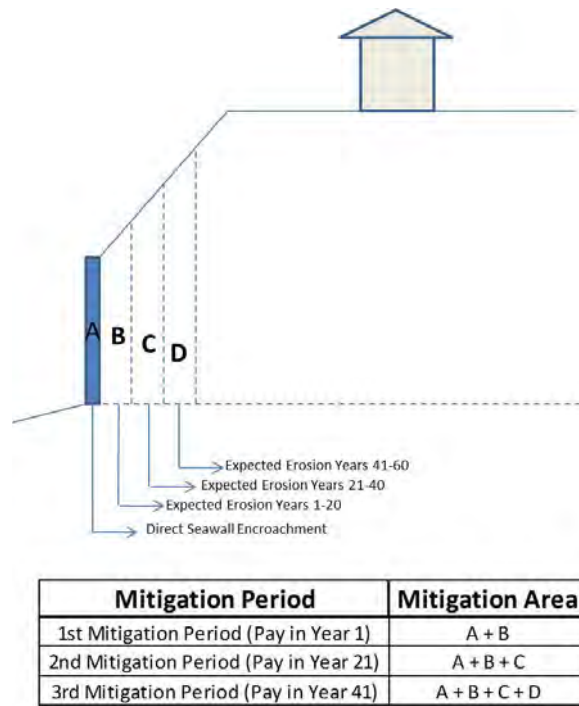
$$PRF = ((2 \text{ ft.} \times 20 \text{ ft.}) \times \$121 \text{ per sq. ft.}) + (20 \text{ ft.} \times \$600 \text{ per linear ft.}) = \$16,840$$

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

SM
#15



CHAD EDWARD NELSEN

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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. Biarritz, 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. Rencontre 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