

Agenda

**Special Meeting of the
Captive Erosion Prevention District**
Tween Waters Inn, Wakefield Room
15951 Captiva Drive, Captiva, Florida 33924
September 21, 2010 @ 2PM

- I. Call to Order
- II. Roll Call
- III. Public to be Heard
- IV. Benefits Analysis – Dr. Bill Stronge

Adjourn

**CAPTIVA ISLAND 2013-14 BEACH NOURISHMENT PROJECT
BENEFIT ANALYSIS**

**PREPARED
FOR:**

CAPTIVA EROSION PREVENTION DISTRICT

SEPTEMBER 2010

Prepared by:

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The enabling legislation of the CEPD requires that special assessments used to finance an erosion control project be levied against benefitting properties in proportion to the benefits received by the properties from the project. The benefits from the 2013-14 nourishment of Captiva's beaches are given in TABLE 1. The benefits considered are the same as those that were used to determine assessments for the previous beach nourishment projects undertaken on Captiva since 1989.

Benefit	Amount	Percent
Storm Protection		
Roads	\$ 12,521	0.1
Other Public Property	\$ 670,282	6.5
Other Private Property	\$ 2,427,279	23.5
Sub-Total	\$ 3,110,082	30.1
Recreation		
Day Visitors	\$ 2,862,870	27.7
Single Family Properties	\$ 1,164,598	11.3
Multi-family Properties	\$ 1,885,656	18.3
Interval Properties	\$ 356,302	3.5
Commercial Properties	\$ 938,646	9.1
Sub-Total	\$ 7,208,073	69.9
Total	\$ 10,318,154	100.0

Note: Items may not add to totals because of rounding errors. Public property includes the two public beaches and land seaward of the Erosion Control Line.

The 2013-14 nourishment of Captiva's beaches will yield benefits of \$10,318,154 each year over the fifteen year life of the project. This annual benefit compares to the average annual cost of the Captiva Island Project of \$1,696,840 so that the benefit cost ratio is 6.1.¹

¹ The ratio compares the benefits of the Captiva Island Project to the costs of the same project. If the costs of the Northern Sanibel project are included, the average annual cost rises to \$2,074,973 and the benefit

The benefits from the nourishment project are twofold: storm protection and recreation. Table 1 shows that the recreation benefits are considerable larger than the storm protection benefits, \$ 7,208,073 in recreation compared to \$ 3,110,082. This is the usual case with a renourishment, since the project adds sand to an existing beach that already provides significant protection to upland properties. The benefits from the 1989 beach restoration were evenly divided between storm protection and recreation because much of the shoreline had little or no beach.

The benefits in TABLE 1 also distinguish between publicly owned and privately owned properties. The share of the project costs accounted for by the benefits to roads and other public properties are covered by a grant from Lee County. The County grant also covers the cost share for the benefits received by day visitors who use Captiva's beaches for recreational purposes.

Benefit	Amount	Percent
Storm Protection for Private Properties	\$ 2,427,279	35.8
Recreation for Single-Family Residences	\$ 1,164,598	17.2
Recreation for Multi-family Residences	\$ 1,885,656	27.8
Recreation for Interval properties	\$ 356,302	5.3
Recreation for Commercial Properties	\$ 938,646	13.9
Total	\$ 6,772,481	100.0

Note: items may not add to totals because of rounding.

TABLE 2 shows the annual benefits received by private property owners on Captiva. These amounted to \$6,772,481. The percentages in the TABLE show how the

cost ratio falls to 5.0. The storm protection benefit relative to total costs of the Captiva Island project is 1.8; relative to the cost of the Captiva Island and Northern Sanibel projects, the benefit cost ratio falls to 1.5. The storm protection benefit cost ratio needs to exceed 1.0 in order to qualify the project for federal funding.

cost of the project, less the Lee County grant, will be shared by property owners on Captiva. Of course, properties that do not receive storm protection benefits will not pay a share of the cost for storm protection. All residential and commercial properties will pay a share of the cost for providing recreational benefits.

<p style="text-align: center;">TABLE 3 Annual Private Property Storm Protection Benefits By Beach Zone 2013-14 Nourishment Project</p>		
Beach Zone	Amount	Percent
Upper South Seas	\$ 342,001	14.1
Lower South Seas	\$ 634,185	26.1
Village	\$ 450,930	18.6
Tween Waters Road	\$ 378,989	15.6
Upper Gold Coast	\$ 232,692	9.6
High Erosion Gold Coast	\$ 388,482	16.0
Total	\$ 2,427,279	100.0

Note: Items may not add to totals because of rounding.

Details on the private storm protection benefits are given in TABLE 3. Storm protection benefits will only be received by beachfront properties, and the beachfront properties were grouped into beach zones. The beach zones were selected on the basis of erosion conditions in the different beach areas. The zones are the same as those used in the Apportionment Plan for the 1997 Beach Nourishment Project although the borders were adjusted to match recent erosion trends. The Upper South Seas zone contains the South Seas Golf Course and the ten single family properties to the south. The remaining beachfront properties in South Seas Plantation as well as Hagerup Beach and the property immediately to its south were also included in the Lower South Seas zone. The Village zone consisted of beachfront properties below the first property south of Hagerup Park

and north of the point where Captiva turns east at the end of the Tween Waters road segment. The Tween Waters Road zone included the beachfront properties straddling the one-mile stretch of road on front of Tween Waters Inn. The Upper Gold Coast zone runs south from the southern end of the Tween Waters road section. The High Erosion Gold Coast zone runs from the southern end of the Upper Gold Coast zone to Blind Pass Inlet. Further information on the beach zones will found in Appendix A.

The percentages in TABLE 3 show how the portion of the project cost due to private storm protection will be shared by the property owners in the six beach zones. The largest shares of storm protection benefits are in the Lower South Seas zone (26.1 percent) and the Village zone (18.6 percent). Benefits received by the private properties in the Upper Gold Coast zone are relatively low because the zone has been accretional in recent years.

Type of Property	Amount	Percent
Single-Family	\$ 1,164,598	26.8
Multi-Family	\$ 1,885,656	43.4
Interval Units	\$ 356,302	8.2
Commercial	\$ 938,646	21.6
Total	\$ 4,345,203	100.0

Note: items may not add to totals because of rounding.

The portion of the project cost due to recreational benefits will be shared by four different types of properties according to the percentages shown in TABLE 4. The grouping of properties is the same as was used in the Apportionment Plan for the 1997

Beach Nourishment. The properties were grouped on the basis of the frequency of beach use by their residents, guests or customers. Surveys of beach users since 1986 substantiated the differences in intensity of beach use by these property types. The percentages in TABLE 4 show how the portion of the project cost due to recreation will be shared by the property owners of the four property types. Multifamily properties will receive the largest share of benefits (43.4 percent) and interval properties will receive the smallest share (8.2 percent).

Type of Property	Benefit	Percent Share
<u>Storm Protection</u>		
Upper South Seas	\$ 342,001	5.0
Lower South Seas	\$ 634,185	9.4
Village	\$ 450,930	6.7
Tween Waters Road	\$ 378,989	5.6
Upper Gold Coast	\$ 232,692	3.4
High Erosion Gold Coast	\$ 388,482	5.7
Subtotal Storm Protection	\$ 2,427,279	35.8
<u>Recreation</u>		
Single-Family	\$ 1,164,598	17.2
Multi-Family	\$ 1,885,656	27.8
Interval Units	\$ 356,302	5.3
Commercial	\$ 938,646	13.9
Subtotal Recreation	\$ 4,345,203	64.2
Total	\$ 6,772,481	100.0

A summary of the benefit analysis as it applies to private properties is given in TABLE 5. Once the project cost is determined, the benefit shares become the cost shares

assigned to the properties in the different benefit categories. The cost of the 2013-14 Captiva Beach Nourishment Project to be apportioned among Captiva property owners is estimated to be \$14,859,776 (TABLE 6).

Cost Item	Amount
Design & Supervision Administration	\$2,065,895
Mobilization	\$3,299,092
Contingency @15 % Construction & Mobilization Cost	\$2,662,318
Captiva Dredge & Fill	\$11,059,207
Captiva Dune Revegetation	\$166,667
Captiva Monitoring etc.	\$745,443
Captiva Construction & Mobilization Subtotal	\$15,270,409
Northern Sanibel Dredge & Fill	\$2,311,855
Northern Sanibel Monitoring etc.	\$166,523
Northern Sanibel Construction Subtotal	\$2,478,378
Total Project Costs	\$22,477,000
Lee County Grant (capped)	\$7,617,224
Captiva Property Owners	\$14,859,776

Source: Coastal Planning & Engineering, Email from Chris Day, August 29th, 2010.

THE CEPD Board directed that calculations be made under the assumption of a \$15 million dollar project that will be paid by island private property owners. The benefit shares in TABLE 5 are used to apportion the \$15,000,000 cost among the different benefit (storm protection and recreation) categories. The results are presented in TABLE 7.

TABLE 7 Cost Shares for Captiva Private Properties By Benefit Category 2013-14 Nourishment Project		
Type of Property	Benefit Share	Cost Share
<u>Storm Protection</u>		
Upper South Seas	5.0	\$750,000
Lower South Seas	9.4	\$1,410,000
Village	6.7	\$1,005,000
Tween Waters Road	5.6	\$840,000
Upper Gold Coast	3.4	\$510,000
High Erosion Gold Coast	5.7	\$855,000
Subtotal Storm Protection	35.8	\$5,370,000
<u>Recreation</u>		
Single-Family	17.2	\$2,580,000
Multi-Family	27.8	\$4,170,000
Interval Units	5.3	\$795,000
Commercial	13.9	\$2,085,000
Subtotal Recreation	64.2	\$9,630,000
Total	100.0	\$15,000,000

Tabulations of the “just” (market) values from the Property Appraiser's NAL File were made for the Captiva private properties in each of the benefit categories. These are presented in TABLE 8. The cost shares are divided by the just values and the results are present as millages in the TABLE. (Millages are thousandths, or tenths of percentages.)

TABLE 8
Basic Millage Rates for the 2013-14 Beach Renourishment Project

Benefit	Cost Shares	Just Values	Millage Rates
<u>Storm Protection</u>			
Other Upper South Seas Properties	\$750,000	\$35,403,502	21.1366
Lower South Seas Properties	\$1,410,000	\$300,299,579	4.6953
Village Properties	\$1,005,000	\$45,127,687	22.2701
Tween Waters Properties	\$840,000	\$161,553,527	5.1995
Upper Gold Coast Properties	\$510,000	\$161,674,010	3.1545
High Erosion Gold Coast Properties	\$855,000	\$70,975,708	12.0464
Sub-Total	\$5,370,000	\$676,979,094	NA
<u>Recreation</u>			
Single-Family	\$2,580,000	\$901,388,259	2.8623
Multi-Family	\$4,170,000	\$297,230,118	14.0295
Interval Units	\$795,000	\$61,803,447	12.8634
Commercial	\$2,085,000	\$65,653,104	31.7578
Sub-Total	\$9,630,000	\$1,322,073,756	NA
Total	\$15,000,000	NA	NA

NA = not applicable

The millage rates given in TABLE 8 are labeled “basic” because they do not take into account adjustments directed by the CEPD Board to fine tune the results of the benefit models. These adjustments affect a small number of properties and the details are presented in Appendix B. The resulting millage rates for the bulk of the island properties that were not adjusted are presented in TABLE 9.

TABLE 9
Adjusted Millages for Captiva Private Properties
By Benefit Category
2013-14 Nourishment Project

Type of Property	Basic Millage	Adjusted Millage
<u>Storm Protection</u>		
Upper South Seas	21.1366	21.2368
Lower South Seas	4.6953	4.7176
Village	22.2701	22.3758
Tween Waters Road	5.1995	5.2242
Upper Gold Coast	3.1545	3.1695
High Erosion Gold Coast	12.0464	12.1035
<u>Recreation</u>		
Single-Family	2.8623	2.9608
Multi-Family	14.0295	14.5124
Interval Units	12.8634	13.3061
Commercial	31.7578	32.8509

Note: adjusted millages are presented for information only.

The cost share for any individual property not subject to adjustment is the product of the sum of the storm protection millage and recreation millage rates times its “just” (market value) as obtained from the Lee County Property Appraiser.

Appendix A: Methodology

The Beach Renourishment Project will generate a stream of benefits for property owners on Captiva Island which, ultimately, will show up as an enhancement of property values beyond the levels they would have attained in the absence of the Project. To the extent that properties are better protected from erosion and storm damage by the Renourishment Project, their values will increase. In addition, to the extent to which properties are adjacent or close to a recreational beach that is made more attractive, their values will also increase. In sum, the Beach Renourishment Project will benefit Captiva Island properties by providing two types of benefits. First, the Project will protect properties from erosion and storm damage, the "storm protection benefit". Second, the Project will provide access to an enhanced recreational beach, the "recreational benefit". These benefits are estimated by the U.S. Army Corps of Engineers and other engineering firms for projects that receive federal funding. The basic methodology has also been validated in Lee County Court as part of a bond validation undertaken in for the 1988-89 project.

Storm Protection Benefits

Project benefits associated with storm protection were generated for properties that front on the Gulf of Mexico. The storm protection benefit to a property represents the difference between the value of expected property losses if the project is constructed compared to the value of losses if the project is not constructed.

For the purpose of determining project benefits, the enabling legislation of the Captiva Erosion Prevention District requires that Captiva properties be grouped into areas and zones. Areas are relatively large groups of properties where CEPD projects have

been undertaken in the twelve months prior to project construction. Zones are smaller divisions of areas which are characterized by the same degree of beach erosion and gradient of the beach profiles.

The entire gulf-front of Captiva is grouped into a single area because at the anticipated time of the Renourishment Project no CEPD project will have been undertaken in the preceding twelve months.

TABLE A.1 Beach Zones Used in the Economic Analysis			
Zone	Profiles	Lee Co. Parcel Numbers	Street Addresses
1	R-84 to R-87	2245210000005002B to 22452100000060070	921-957 & 1200 South Seas Plantation Road
2	R-88 to R-93	22452129000010001 to 26452104000010010	1026-5640 South Seas Plantation Road & 14790 Captiva Drive
3A	R-94 to R-96	26452102000010060 to 35452101000000140	11558/560 Laika Lane to 15300 Captiva Drive
3B	R-97 to R-101	35452101000000150 to 034621010000B0030	15301-16213 Captiva Drive
4	R-102 to R-105	034621020000B0010 to 03462100000200010	16238-16770 Captiva Drive
5	R-106 to R-109	03462100000210010 to 11462100000010010	16778-17200 Captiva Drive

The storm protection benefits were computed for different beach zones which are defined in TABLE A.1. The zones were delineated based on erosion conditions on the different beach areas. Erosion rates along each zone were based on the May 1996 to September 2009 erosion and accretion rates in cubic yards per year per foot (Table A.2). Zone 1 experiences the highest erosion rates, followed by the “Village Area” along Zone 3A. The southern Gold Coast (Zone 5) experiences moderate erosion rates due to the effects of Blind Pass. Although the shorelines in Zones 3B and 4 are relatively stable, properties in these reaches are vulnerable to storm damage.

Zone	Profile Lines	Erosion (+) & Accretion (-) (c.y./foot/year)	Equiv. Shoreline Retreat (-) & Advance (+) (feet/year)	Average Residential Land Value per Square Foot
1. Upper South Seas	R-84 to R-87	-8.0	-12.0	\$56.09
2. Lower South Seas	R-88 to R-93	-0.9	-1.3	\$52.88
3A Village	R-94 to R-96	-4.8	-7.2	\$52.96
3B Tween Waters Road	R-97 to R-101	-1.3	-2.0	\$65.16
4 Upper Gold Coast	R-102 to R-105	2.9	-1.4*	\$62.97
5 High Erosion Gold Coast	R-106 to R-109	-2.4	-3.6	\$66.42

Note: In Zone 4, the “equivalent retreat” rate is based on the observed retreat from May 1996 to September 2009 instead of the observed accretion rate.

The storm protection received by a property is the expected loss due to erosion and storm damage in the absence of the Renourishment Project, or the cost of an alternative erosion control project for storm protection, whichever is less. A comparison of the erosion control options which include the expected loss under the "do-nothing" alternative is made for each property. The expected loss consists of the discounted stream of future losses multiplied by the probabilities of various storm events. In addition to beach conditions in each zone, expected losses reflect land and building values, beach widths and distances between buildings and the mean high water line. Future losses are discounted by an interest rate of 4.375 percent over the 15 year project life of the Renourishment Project. Revetted properties experience annual maintenance and structural damage to the revetments during the storms in the computation of project benefits. The Risk and Uncertainty Storm Damage Model version 2.0 (RU SDM, U.S. Army Corps of Engineers, Jacksonville District, 1999) was used to calculate benefits in each zone.

The benefits analysis for Captiva Island was based on property value data obtained from the Lee County Property Appraiser Data Services Department. This data

was current as of July 2009 for the storm damage benefit analysis and current as of July 2010 for the recreation benefit analysis. An interest rate of 4.375% was used in this study. This rate was based on the “Memorandum for Planning Community of Practice” issued by the U.S. Army Corps of Engineers on October 26, 2009 (<http://www.usace.army.mil/CECW/PlanningCOP/Documents/egms/egm10-01.pdf>).

Average land values were calculated based on the total value (in dollars) and total land area (in square feet) of the residential parcels fronting the Gulf of Mexico. Land loss values used in the analysis appear in Table A.2.

Recreational Benefits

Recreational benefits consist of the recreational value of the beach that is created once the beach maintenance project is implemented. Unlike the storm protection benefits, the recreational benefits flow to properties on the island regardless of whether they are on the Gulf or not.

The recreational value of the beach was obtained from detailed surveys of more than 800 beach users on Captiva, conducted during a nine-day period in the winter of 2010 and during a 7 day period in the summer of 2010. Surveys were collected all along the beach and the results are to be found in the reports Beach Usage and Economic Impact Winter 2010 and Beach Usage and Economic Impact Summer 2010. The results were extrapolated to the entire year and projected forward to 2013-14.

The primary determinant of recreational value is beach usage. Properties which send, or can send, relatively large numbers of beach users on to the beach receive relatively greater recreational benefits than do properties which send relatively few beach users onto the beach.

Users of Captiva's beaches were classified on the basis of the type of properties that they lived in or were staying in. Such properties were classified into single family, multi-family, interval and commercial (hotel) categories. Day visitors to the beaches were not assigned to a lodging type on Captiva and were accounted for separately. On the basis of the lodging type of beach users, beach usage and recreational value was assigned to Captiva properties.

Recreational value was obtained from a willingness to pay survey of beach users. The same average willingness to pay value, projected to 2013-14 was assigned to almost all beach users, and the annual recreational value over the 15-year project life was discounted to present worth using an interest rate of 4.375 percent.

Properties can also be categorized on the basis of their land use. The land uses of properties were determined on the basis of the land use code specified on the tax roll record obtained from the Lee County Property Appraiser. No distinction was made between vacant and improved properties. Multi-family properties on the island include condominiums and apartments. Commercial properties include resorts, restaurants, shops and offices. Non-lodging commercial properties were grouped with hotels and resorts because their businesses are mainly dependent, either directly or indirectly, on beach users, particularly users who spend at least one night on the island.

Institutional properties include the properties owned by the Captiva Civic Association and Chapel by the Sea. Government properties included those owned by Lee County and the Captiva Island Fire Association, There were also a small number of miscellaneous properties including those owned by utilities and rights of way. Storm protection benefits were calculated for institutional, government and miscellaneous

properties that were located on the beachfront. Recreation benefits were not computed for institutional or government properties. Utility and right of way properties owned by for-profit enterprises were included with commercial properties in the assignment of recreation benefits.

Appendix B: Adjustments to the Benefit Analysis

Storm Protection Benefits and Adjusted Millages

East Turner Beach Properties

There are two properties immediately north of the Turner Beach public parcel where the structures are landward of Captiva Drive. The road acts as a revetment that protects the structures and the portion of the land that is landward of the road from erosion and storm damage. The millage rate for these properties was applied to fifty percent of their land values, as obtained from the Lee County Property Appraiser's NAL file to determine their storm protection cost shares. The adjustment for East Turner Beach reduces the sum of the storm protection assessments by \$28,663.

Captiva Gulf Way Improvement Association

There is a right of way parcel in the Upper Gold Coast beach zone that has a zero just value in the Property Appraiser's NAL file. This is because the Property Appraiser treats the parcel as a "common element" for members of the Association and each member's share of the value of the right of way parcel is added to the just value of the member's primary parcel elsewhere on Captiva. This treatment will ensure that the recreational assessments will be computed correctly but it does not allow for the storm protection benefit. The storm protection assessment for this parcel was calculated using an estimate of its land value. The estimate was based on the average of the land values per square foot of the two parcels on either side of the right of way parcel and multiplying it by the square footage of the right of way. This adjustment increases the sum of storm protection assessments by \$3,195.

The effect on revenues of making these adjustments to the storm prevention methodology is a loss of \$25,468 as shown in TABLE B.1.

TABLE B.1 Adjustments to the Storm Protection Assessments	
Source	Revenue Changes
East Turner Beach Parcels	- \$ 28,663
Gulf Way Improvement Association	+ \$ 3,195
Total	- \$ 25,468

The basic storm protection millage rates were proportionately increased in order to make up the revenue loss. TABLE B.2 shows the resulting changes in millage rates.

TABLE B.2 Adjusted Storm Protection Millage Rates		
Beach Zone	Basic Millage Rates	Adjusted Millage Rates
Upper South Seas Properties	21.1366	21.2368
Lower South Seas Properties	4.6953	4.7176
Village Properties	22.2701	22.3758
Tween Waters Properties	5.1995	5.2242
Upper Gold Coast Properties	3.1545	3.1695
High Erosion Gold Coast Properties	12.0464	12.1035

Adjustments to Recreation Benefits and Adjusted Millages

Previous apportionment plans assessed residential and commercial properties for recreational benefits.² Residential properties obtain recreational benefits because people living or staying in them enjoy the beach as a recreational resource. Commercial properties receive recreational benefits because most of their profits come from providing services to recreational users of the beach. These profits are increased as recreational use of the beach is expanded and this benefits commercial properties by increasing their value. Residential and commercial properties account for 1,092 of the 1,110 properties on Captiva.

Nonresidential and Non-Commercial Properties

There are 18 properties not classified as residential or commercial: Four are institutional including church and Civic Association property, four are governmental including Lee County and Fire District property, and ten are in a miscellaneous category that includes utility properties and rights of way.

Five of the 18 properties will receive storm protection benefits because they are on the beachfront including the church properties, the public parks and the right of way parcel on the Upper Gold Coast. Seven of the remaining properties will receive recreational assessments because they are owned by for profit entities and their profits on the island are largely a result of the recreational use of the beach. As recreational activity increases due to the nourishment projects, these entities will experience increased profits and the value for their land holdings will increase. Thus their properties will benefit from the project. Assessing the properties at the commercial recreation rate will

² The one exception was the Captiva Yacht Club which was assessed as a commercial property even though the property was classified by the Lee County Appraiser as institutional. In the current tax roll, the Appraiser has classified this property as commercial.

result in an increase in revenues from the recreational assessments of \$12,088³. Of the six parcels that will not receive recreational or storm protection assessments, two are owned by the Civic Association, two are owned by the Fire District and two are owned by the Island Water Association.

Homesteaded Multifamily Properties

Previous CEPD Boards have reduced the assessments for homesteaded multifamily properties to the single family rate. This is because the beach surveys have shown that year round residents of the island are relatively infrequent users of the beach, compared to transients.

TABLE B.6 Homesteaded Multifamily Properties						
	Just Value	Original Millage	Original Assessments	Adjusted Millages	New Assessments	Revenue Change
Homesteaded	\$28,386,676	14.0295	\$ 398,252	2.8623	\$ 81,250	-\$317,002
Non-Homesteaded	\$268,843,442	14.0295	\$3,771,748	14.0295	\$3,771,748	\$0

The just value of homesteaded multifamily properties is \$28,386,675. If these properties are assessed for recreational benefits at the single family rate, the loss in revenues from the recreational assessment program would amount to \$317,002.

Reduced Recreational Assessments for Neighbors of the Public Parcels

The Board decided to reduce the recreation assessments for properties in the neighborhood of the public parcels (Hagerup and Turner Beaches). This reflects the increased beach congestion, noise and other factors on the nearby parcels as a result of increased use of the public parcels due to the beach nourishment project. The parcels in

³ The Right of Way beachfront parcel in the Upper Gold Coast is treated by the Property Appraiser as a common elements parcel whose value has been distributed to the owners who share its ownership. The recreational benefits will be paid by the parcels owned by the owners.

the neighborhood of the public beaches are single family homes, except for parcels at the end of the South Seas properties. These latter parcels include an apartment building for housing South Seas Resort employees and condominiums. Access by residents and guests of the South Seas Resort takes place at some distance north of the public parcel and the resort's volleyball nets largely separate South Seas beach users from those who access the beachfront from Hagerup Park. As a result, the recreational assessments at the south end of the South Seas property were not adjusted for the effects of increased use of Hagerup Beach. The properties south of Hagerup Beach do experience increased beach congestion, however.

Because the affected properties are single family homes, a comparison was made between the average value of a beach visit from a person staying in a house on a congested beach with the average value on a less congested beach. The comparison was made between the Village Beach which is relatively congested and the Tween Waters Road Beach (away from the hotel property) which is uncongested. The average value of a beach user from a house on the Tween Waters Road Beach was \$12.90 and the average value of a beach user from a house on the Village Beach was \$8.66 in the summer survey. This implies that congestion and other similar factors reduce the value of a beach visit by 32.9 percent and this was the basis for reducing the recreational assessments of the single family properties neighboring the public beaches. In the case of the Village, the adjustment extend beyond the nearest six family single family parcels because congestion beyond this point is largely due to the Jet Ski and other commercial activities involving the beach at the end of Andy Rosse Lane. Reducing the recreational assessments for the six properties by 32.9 percent would result in a loss of \$9,829

from the recreational assessment program. Applying a similar reduction to the six properties north of Turner Beach results in a reduction of \$16,722 from the recreational assessment program.

If the above adjustments to recreation assessments were approved by the CEPD Board, the effect on revenues would be a loss of \$331,461 as shown in TABLE B.7.

TABLE B.7 Adjustments to the Recreation Assessments	
Source	Revenue Changes
For Profit Miscellaneous Properties	+ \$ 12,088
Homesteaded Multifamily Properties	- \$ 317,002
Public Parcel Neighbors	- \$ 26,550
Total	- \$ 331,461

The basic recreational millage rates was proportionately increased in order to make up the revenue loss. TABLE B.8 shows the resulting changes in millage rates.

TABLE B.8 Adjusted Recreation Millage Rates		
Beach Zone	Basic Millage Rates	Adjusted Millage Rates
Single Family Properties	2.8623	2.9608
Multifamily Properties	14.0295	14.5124
Interval Properties	12.8634	13.3061
Commercial Properties	31.7578	32.8509