

**Economic Analysis of Beach Spending
and the Recreational Benefits
of Beaches in the City of San Clemente**

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Executive Summary

- A survey of visitors to San Clemente’s beaches was conducted in the summer of 2001. The survey was sponsored by the City.
- Most summer visitors to San Clemente are relatively local: 23.4% live in the City, another 25.2% live outside the City but within 20 miles, and another 24.5% live within 60 miles. 16.3% live in California more than 60 miles away. 8.9% of visitors are US residents from out of state; 1.8% are foreign visitors.
- Close to 60% of respondents stated that they would go out of state if California’s beaches ceased to exist.
- 78% rated lifeguards as “very important” to their visit and only 5.3% said lifeguards were “not important.”
- Almost half (48.9%) of respondents said that they would use a trail connecting San Clemente’s northern and southern beaches; another 29.4% said they might use such a trail.
- The typical visitor spends \$77.16 per (person per) day on their beach trip. \$54.79 (71%) of this is spent in San Clemente. Please note that the amount spent per day varies widely, as one can see in the box plots below. As a general rule, overnight guests who come from far away and stay in San Clemente spend far more than day-trippers.
- The City of San Clemente itself generates \$1.65 million in revenues from beach related spending including parking fees, permits and fines, transient occupancy taxes, concessions, and the City’s share of sales taxes from beach spending. While this is a substantial amount, the City spends an estimated \$1.55 million on beach services and maintenance, police and public safety. Overall the City receives just \$92,776 in net revenue from beaches, about 5 cents per visitor day.
- Overnight visitors generate substantially more tax revenue per visitor, \$5.72, than do day-trippers: \$1.16.
- The City’s beaches generate a substantial economic and tax revenue impact for the state and the nation. Including multiplier effects, beach activity in San Clemente generates \$116 per person per day in economic activity, or \$132 million per year for the State of California.
- Including indirect and induced effects, the City’s beaches generate \$4.16 per beach visitor in direct State taxes and \$10.32 in direct Federal taxes; this result is in stark contrast to the amount generated in parking fees, transient occupancy taxes, and sales tax revenue, which amount to 87 cents per person per day (and 5 cents after City expenses are deducted).
- The value of one beach day is estimated at \$30.58 per person per day during high season. Overall, we estimate the economic value of San Clemente’s beaches at just over \$37 million per year.

- This study indicates that a substantial portion of the economic and tax benefit from the beach tourism and recreation in the City of San Clemente does not flow to the City. **Indeed, the City does not generate sufficient revenues, and should not be expected to pay for, nourishment projects, when most of the benefits from these projects go to the State and Federal government.**
- *For a successful nourishment project the City should receive support from the State and from the Federal government.*

1. Introduction

Beach erosion is a serious problem at many of California's beaches. Sandy beaches, which are valued so highly by residents and visitors alike, are inherently unstable in many locations, and most beaches are best viewed as part of a dynamic process which carries these fine particles on and off the beach often moving sand up or down the coast, as well as onshore and offshore. Periodic storms on the coast, in particular El Niño storms, also play an important role in the life cycle of a beach, stripping the beach of sand.

In the typical life cycle of a beach, sand leaves the beach and migrates offshore or to adjacent beaches, but sand is also replenished by rivers and other fresh water transportation of sediment as well as (to a much lesser extent) bluff erosion. Thus in a world with no human intervention, beaches are created and destroyed by nature as sediment shifts. Beaches with rich flows of sediment and low levels of transport offshore are wide; on the other hand, areas where sand is easily transported offshore and with few sources to replenish sand are narrow or non-existent.

Human intervention in the 20th century has played a major role in the life cycle of beaches in California. The construction of dams, reservoirs and other structures that block fresh water has significantly reduced the flow of sediment to the coastline. Similarly the construction of certain harbors, breakwaters, and other coastal structures has altered, and in some cases impeded, the flow of sand along the coast. It is widely recognized today by geologists that the construction of these systems is a major factor in the erosion of many of California's beaches.

Human intervention has also played a role in creating and maintaining some of California's beaches. For over seventy years the U.S. Army Corps of Engineers (and most recently other agencies such as SANDAG) have played a role in countering erosion by enhancing existing beaches by dredging natural sand from offshore or other nearby sites and placing this sand on beaches. Indeed many of these beaches, most notably Venice beach and other adjacent beaches, are essentially man made, sometimes also including (in the case of Venice beach) man made structures such as groins to reduce the transport of sand offshore and thus maintain a beach that is healthy both for human recreation as well as for habitation and spawning for such threatened species as the grunion, the least tern and the snowy plover.

Currently, San Clemente is under consideration for a shoreline protection project by the US Army Corps of Engineers (USACE). This project will almost certainly involve the addition of sand to the beach ("beach nourishment"). Under current USACE and OMB (Office of Management and Budget) policy, the primary purpose of shoreline protection projects is to create a buffer to minimize the likelihood of storm damage prevention to onshore structures, both public and private (but especially public). Current USACE policy limits the enumeration of the recreational benefits to be no more than those due to storm damage prevention, even though it is widely recognized that for most beaches, especially in Southern California, the main benefit is recreational.

This study has been sponsored and funded by the City of San Clemente. Current OMB and USACE policy requires state and local funding to match federal participation and allows some or all local funding to be in-kind, that is, localities may fund their own economic and engineering studies provided that these studies are recent and relevant to the shore protection project under consideration. This study is designed to help the City (and State) evaluate its own participation (which is costly) in a USACE project. Specifically this study will focus on the recreational value of San Clemente's beaches as well as provide a brief fiscal and economic impact analysis of these beaches.

The purpose of this study is to provide the following:

- an economic analysis of the value of San Clemente's beaches,
- a profile of visitors to San Clemente's beach during high season,
- a fiscal impact analysis for the city—that is how much tax revenue San Clemente's beaches bring to the city compared to the City's own beach-related costs including public safety,
- an economic impact study of beach tourism to the City and the State,
- an evaluation of a city hiking trail which would allow residents and visitors to travel between all of San Clemente's beaches without traveling on or near the railroad tracks.

2. Overview and Methodology Employed in the Project

The project was initiated during the summer of 2001. Philip King, the Principal in this project, met with Bill Humphreys, the Marine Safety Captain for the City of San Clemente, and other officials from the City of San Clemente. Dr. King proposed a survey of the City's beaches during high season. The survey would ascertain the following:

- the primary residence of San Clemente's beach visitors;
- beach attendance patterns at San Clemente's beaches as well as California's beaches in general;
- the amount spent on beach visits broken down by type of expenditure and whether the expenditures took place within San Clemente or elsewhere;
- total attendance broken down by different types of visitors: local visitors, day-trippers, and the demographics of beach visitors;
- how important the beach was in the visitors' decision to come to San Clemente;
- whether alternate forms of outdoor recreation (e.g., parks) were considered close substitutes for beaches;
- at what point visitors would stop going if beaches eroded;
- how important lifeguard services were in their decision to attend San Clemente's beaches;
- the relative importance of certain recreational amenities (e.g., restrooms)
- the likelihood that visitors would use a footpath connecting the city's beaches.

The survey was pre-tested in early July and then a full-scale survey was conducted in late July and August. Surveyors were carefully trained to zigzag along the beach and choose respondents in a random fashion (i.e., choosing every *n*th group). Weekday/weekend and morning/afternoon times were chosen to reflect actual visitation patterns as well. The results of the survey are presented in the next section.

In addition, Dr. King agreed to provide an economic valuation of San Clemente's beaches using standard methods approved by both the economics profession and the USACE. In this case, the travel cost method was used. The analysis is useful since the data collected in the San Clemente beach visitor profile can also be used. Finally, it was agreed that Dr. King would provide a brief fiscal and economic impact analysis. Details of this part of the investigation will be presented later.

3. Results from the Survey

A written questionnaire was composed, and the questions were vetted by Bill Humphreys, and other officials in San Clemente. The questions were then pre-tested on the beach, problematic questions were re-written, and again the questionnaire was sent to Bill Humphreys for comments. Respondents were given a choice of filling out the written questionnaire themselves or having the questions read to them. The vast majority (roughly 90%) chose to fill out the survey themselves. All respondents were told that the survey was conducted under the auspices of the City of San Clemente through a professor at San Francisco State University and that the purpose was to learn more about beach attendance. Surveyors were told not to say that the survey was designed to “help” the beach since this type of pre-survey discussion is known to bias results. A high percentage of people approached (over 85%) agreed to answer the questions. A high participation rate is reassuring since it also reduces the possibility of bias (if people who choose not to respond have different characteristics from people who do). Overall 283 groups participated in the survey representing over 1100 visitors.

The results of the survey are presented in appendix 2, with the questions exactly as they appeared in the survey. Answers are given in frequencies (percentages). Note that in some cases respondents were allowed to check more than one answer so that in some cases the frequencies add up to more than 100%. Briefly, the main points of the survey are as follows:

- Most visitors to San Clemente are relatively local: 23.4% live in the City, another 25.2% live outside the City but within 20 miles, and another 24.5% live within 60 miles. 16.3% live in California more than 60 miles away.
- 8.9% of visitors are US residents from out of state; 1.8% are foreign visitors.
- Most visitors (73.9%) arrive by car; 16.1% walk; 8.9% take the train.
- Visitors who stay overnight typically stay 5-7 days and spend about 2/3 of their time at the beach. 23% stayed in hotels; 34.7% in house or condo rentals and 33.7% stay with friends.
- Close to 60% of respondents stated that they would go out of state if California’s beaches ceased to exist.
- 78% rated lifeguards as “very important” to their visit and only 5.3% said lifeguards were “not important.”
- Almost half (48.9%) of respondents said that they would use a trail connecting San Clemente’s northern and southern beaches; another 29.4% said they might use such a trail.
- The typical visitor spends \$77.16 per (person per) day on their beach trip. \$54.79 (71%) of this is spent in the City of San Clemente. Please note that the amount spent per day varies widely, as one can see in the box plots below. As a general rule, overnight guests who come from far away and stay in San Clemente spend

far more than local guests, who typically spend very little. (Indeed if there are any “free-riders” they most likely are the 49.7% of visitors who live within 60 miles of San Clemente but who do not reside in the City.)

4. The Fiscal Impact of San Clemente’s Beaches

4.1 Cost of Beach to the City of San Clemente

The City spends a significant amount of money to maintain its beaches. To obtain these figures, we contacted City officials to obtain detailed budget information. The three main budget items are the City’s direct expenditures on lifeguard services (Marine Safety), maintenance (excluding the pier area but including the administrative overhead the City spends to help maintain this department) and San Clemente Police Services. County Police operating in San Clemente were contacted and asked what portion of their time (in particular beat cop time) was devoted to patrolling and maintaining safety at the beach. Police Services estimated that between 7% and 10% of the total budget (\$7 million) was devoted to patrols at or immediately adjacent to the beach. We used the midpoint 8.5% for our estimate.

Table 4.1.1

City Expenditures to Maintain the Beach--San Clemente		
Item		Cost to the City
Beach Maintenance (Including Admin overhead)	\$	237,762.00
Lifeguard Services	\$	725,065.00
Police	\$	595,000.00
Total	\$	1,557,827.00

As one can see in the table above, the City of San Clemente spends \$1.5 million providing maintenance and public safety for beaches.

4.2 Transient Occupancy Taxes

Transient Occupancy Taxes (ToTs) represent a substantial form of revenues for the City, just over \$1 million in the last fiscal year. While substantial portions of these revenues are beach related, not all are, since visitors to San Clemente may also come on business, to visit friends and relatives, or for other reasons. To estimate the percentage of ToTs generated by beach tourism, we decided to conduct interviews with hotel managers to estimate the percentage of their total revenue generated by beach tourism and weight their estimated percentage of the total of transient occupancy taxes for hotels collected by the City.² The estimates ranged from 10% (the Riviera adult motel) to 90% (the Sea Horse resort and Villa Del Mar Inn). Overall the average, weighted by room size and the price of rooms, was just under 57%. The results are provided in table 4.2.1 below.

² We also checked these numbers with our survey data, and they are consistent. We used this technique since it is likely to be the most accurate.

Table 4.2.1

Breakdown of Hotels in San Clemente and Percentage of Business that is Beach Related						
Business Name	No. Rooms	Room Rate	NO. x Rate	% Wt.	% Beach	%Wt.* % Beach
Beachcomber Apartments Motel	12	150.00	1,800	2.3%	75%	1.71%
Best Western Casablanca	42	85.00	3,570	4.5%	60%	2.71%
Comfort Suites	60	119.00	7,140	9.0%	60%	5.42%
El Rancho Motel	16	65.00	1,040	1.3%	50%	0.66%
Four Seasons Pacifica	5	200.00	1,000	1.3%	80%	1.01%
Holiday Inn	225	139.00	31,275	39.6%	50%	19.79%
La Vista Motor Inn	10	70.00	700	0.9%	50%	0.44%
Quality Inn	70	140.00	9,800	12.4%	30%	3.72%
Tropicana (R A Anderson, Ltd)	9	250.00	2,250	2.8%	90%	2.56%
Riviera Adult Motel	22	75.00	1,650	2.1%	10%	0.21%
San Clemente Inn	97	125.00	12,125	15.3%	80%	12.28%
Sea Horse Resort	11	225.00	2,475	3.1%	90%	2.82%
Travel Lodge	23	100.00	2,300	2.9%	50%	1.46%
Villa Del Mar Inn	8	235.00	1,880	2.4%	90%	2.14%
Total	610		79,005	100%		56.94%

In addition to hotel ToT's, the city also earns some revenues (\$114,410) from condos and timeshares. Our interviews with City realtors indicate that 100% of these revenues are beach related. The breakdown is given in the table below. Overall, we estimate that 62% of the City's ToT's, or \$641 thousand, are beach related.

Table 4.2.2

Beach Related Transient Occupant Tax Collected in San Clemente					
	TOT collected	Share of Total	% Beach	Share * Total	TOT from Beaches
Motels/hotels	\$925,677	89%	57%	51%	\$527,051.79
Condos/timeshares	\$114,410	11%	100%	11%	\$114,409.51
Total	\$1,040,086	100%	62%		\$641,461.30

4.3 Sales Taxes

The City takes in a small percentage of the 7.75% sales tax levied by the State of California. Of the 7.75%, the City receives 1% directly. In addition, 0.75% of the tax goes to Orange County (most of it for transportation). We have assumed that any additions in sales tax revenues accruing to the county are distributed to County residents roughly according to population. Since San Clemente (at 52,000 people) represents only 1.79% of the population of Orange County (2.9 million),³ the amount that the City receives from additional County revenues is so small—on the order of one hundredth of one percent of total sales, that it is not meaningful to calculate.

³ See the Center for Demographic Research, CSU Fullerton: <http://fullerton.edu/cdr/countyfacts.pdf>.

We used the survey data on spending per day to calculate the sales tax generated for the City. Recall that our survey estimated that the average person spends \$54.79 per day in the City of San Clemente. However, much of this spending is either tax exempt (most food from grocery and convenience stores is tax exempt and we estimate about 30% of items purchased will represent soda and candy, and other items which are taxed), taxed in a different way (lodging), or represents a source of revenue for the City (parking). Overall, we estimate that \$25.93 of the expenditure is subject to sales tax. The main categories that are subject to sales tax are listed in the table below. We estimate that sales taxes generate just over 31 cents per person per day in the high season.

Table 4.3.1

Expenditure Item	Amount spent per person per day in San Clemente
Beer, liquor and Miscellaneous	\$3.16
Gas	\$7.10
Restaurant Food	\$12.71
Grocery Food subject to Sales Tax	\$2.96
Sundries	\$4.90
Total	\$30.83
Total Sales generated per person per day	\$0.31

4.3.1 Attendance

To compute the total amount of sales tax generated per year during high season, we need to weight the above estimates by attendance. The City estimates attendance every year using a methodology developed a number of years ago. We used an average of the last five years available (1996-2000) and estimate that the City's beaches have 1.9 million visitors per year and that 60% of visitors attend during high season, which we define as Memorial Day to late September. In other words, in a typical year 1.14 million people visit San Clemente during high season and 760 thousand visit during the rest of the year. For low season visitation, we have used the value for San Clemente visitors only, which generate 2.3 cents per visit.

Table 4.3.2

Sales Tax Generated for the City in High and Low Season			
Sales Tax per visitor	# Visitors (High Season)	Est. Sales Tax Generated	
\$0.31	\$ 1,140,000	\$	353,400
\$0.02	\$ 760,000	\$	17,480
	\$ 1,900,000	\$	370,880

Overall, we estimate that San Clemente’s beaches generate \$370,880 in Sales tax for the City.

4.4 Parking

As table 4.4.1 indicates, the City generates just over a million dollars in parking revenue including parking fees, permits, and fines. However to account for net revenues the City collects from parking by beach visitors, one must adjust these numbers for the fact that the city spends a significant amount of money maintaining parking and meters as well as a substantial amount of money collecting fines (for personnel and Cushman vehicles, etc.). The figures used here are from the San Clemente City government and interviews with several officials. In addition, not all of the revenues collected are beach related. We estimate that 85% of parking fees are beach related (some people park to use restaurants, parks, or take the train) and 65% of fines are beach related. Using these estimates, we calculate that the City receives \$491,000 in net parking revenues from beach tourism.⁴

Table 4.4.1

Revenues Generated from Parking Fees, Permits and Fines					
Item	Total Revenue	Cost of Collection	Net Revenue	% Beach Related	Net Beach Revenue
Fees/Permits	\$ 516,770.00	\$ 117,453.00	\$ 399,317.00	85%	\$ 339,419.45
Parking Fines	\$ 596,000.00	\$ 362,500.00	\$ 233,500.00	65%	\$ 151,775.00
Total	\$ 1,112,770.00	\$ 479,953.00	\$ 632,817.00		\$ 491,194.45

Source: San Clemente City government and interviews with several officials and police officers.

4.5 Day-Trippers, Overnights and San Clemente Residents

One final way to examine the fiscal impact of San Clemente’s beaches is to look at the effect of day-trippers versus overnight visitors (excluding residents). The table below summarizes the impact per person per day of each different type of visitor. As one can see, overnight visitors generate substantially more revenue per visitor, \$5.72, than do day-trippers: \$1.16.

Table 4.5.1

Revenues Generated by Day Trippers and Overnights to San Clemente (non-Residents)				
Item	Day Trippers		Overnights	
Transient Occupancy Tax	\$	-	\$	4.82
City portion of Sales Tax	\$	0.12	\$	0.43
Parking	\$	1.04	\$	0.46
Total	\$	1.16	\$	5.72

⁴ Note that we were also not able to calculate a value for the cost to the City of contesting a fine, so our net revenue may be slightly lower.

4.6 City Concessions

The City also earns revenues from Concessions on and near the beach as well as on the pier. Table 4.6.1 summarizes these City concessions along with an estimate of the percentage that is due to beach visits and tourism. We estimate the City derives \$147 thousand in concession revenue created by beach tourism.

Table 4.6.1

Revenues from Concessions near the Beach			
Concession	Revenues	% Beach Related	Beach Revenue
Fisherman's Rest. & Bar	\$255,000	50%	\$127,500
Base of Pier Concession	\$3,787	80%	\$3,030
T-Street Concession	\$10,268	90%	\$9,241
Calafia Concession	\$1,525	90%	\$1,373
North Beach Concession	\$5,410	90%	\$4,869
Telescope	\$955	20%	\$191
Bait Tackle Concession	\$8,834	0%	\$0
Telephone Commissions	\$1,729	50%	\$865
Total Concession Revenues	\$287,508		\$147,068

4.7 The Fiscal Impact of Beach Tourism

The table below itemizes the total estimated revenues generated by beach tourism and compares this to the costs to the City.⁵ As one can see, beach tourism does generate revenue for the City, but it is not as substantial a benefit as some claim. In particular, the Office of Management and Budget and many beach “experts” quoted in the national press have claimed that most benefits of beach tourism go to local Cities. However, after accounting for costs, the net benefits to the City of San Clemente are relatively small: \$92,776, or roughly 5 cents per visitor.

The point here is not that the City should not maintain beaches and beach safety, and the City of San Clemente should be commended for doing an excellent job. One should also keep in mind that 23% of high season visitors and a substantially higher proportion of low season visitors enjoy the beach and pay other City taxes. **What these numbers indicate is that the City does not generate sufficient revenues, and should not be expected to pay for, nourishment projects, when most of the benefits from these projects go to the State and Federal government.**

⁵ Please note that the calculation here only estimates taxes that are directly generated by beach tourism and does not include other taxes that are indirectly linked to beach tourism. For example, we have not estimated property taxes generated by beach tourism for a number of reasons.

Table 4.7.1

Source of Revenue/Expense		
Sales Tax	\$	370,880.00
Transient Occupancy Tax	\$	641,461.00
Beach Concessions	\$	147,067.80
Net Parking	\$	491,194.45
Total Revenue Generated	\$	1,650,603.25
Est. revenue per visitor	\$	0.87
Beach Maintenance	\$	237,762.00
Lifeguard Services	\$	725,065.00
Police	\$	595,000.00
Total City Cost	\$	1,557,827.00
Net Revenue from Beaches	\$	92,776.25
Net Revenue per visitor	\$	0.05

5. Economic Impact

Another common way to analyze the role that beaches play in a city, state, or nation's economy is to analyze the economic impact of spending. Economic impact analysis looks not only at the direct spending we focused on previously, but also the induced spending impacts due to what economists call the multiplier effect. In simple terms, if one spends a dollar at the beach in San Clemente, the business that receives that dollar will use the money to hire workers and other factors of production produced by other workers. These workers will in turn spend additional money from their wages, some of it in San Clemente. These multiplier effects can be quite large depending upon the region and the industry. For the United States as a whole, the multiplier typically ranges between 2 and 3. However for a small town like San Clemente, the multiplier effect is typically quite small since workers in the City may reside elsewhere or may spend their money elsewhere. The table below presents the Direct and Induced multiplier effects for the City and the State of California.⁶ The results indicate the City gains little of the indirect and induced spending generated by San Clemente beach commerce, simply because of its small size. On the other hand, the direct and induced effects for the State of California are quite large: \$116 per person per day or \$132 million per year for the State of California.

Table 5.0.1

Impact Results per Person per Day				
Model Name	1	2	3	4
Region	San Clemente	San Clemente	CA	CA
Multiplier Type ¹	Type I	Type II	Type I	Type II
Direct Spending ²	\$54	\$54	\$69	\$69
Indirect Spending	\$9	\$9	\$17	\$17
Induced Spending	\$0	\$13	\$0	\$30
Multiplier	1.17	1.41	1.25	1.68
Total Impact	\$63	\$76	\$86	\$116

⁶ Type I multipliers provides direct and indirect effects only, i.e. the original expenditures at the beach plus the indirect effects of industries buying from industries. The induced household expenditure effects are not included here, but are included in Type II multipliers.

5.1 Tax Revenue Impact on the State of California and the Federal Government

A useful comparison for the City is to contrast the amount of tax revenue collected by the State and Federal government including the indirect and induced effects.⁷ These figures should be taken as general indicators and cannot, strictly speaking, be directly compared to the City numbers since we are looking at direct and indirect effects. Nevertheless, the numbers are instructive. **Including indirect and induced effects, the City's beaches generate \$4.16 per beach visitor in direct State taxes and \$10.32 in direct Federal taxes; this result is in stark contrast to the amount generated in parking fees, ToT's, and sales tax revenue, which, after expenses are deducted, amounts to 87 cents per person (5 cents after City expenses are deducted).** If one includes indirect and induced effects, the comparison becomes even starker.⁸

⁷ Please note that the spending values differ. The \$77 per day represents the total amount visitors said they spend on a typical beach day. We assumed that 90% of this value is captured within State and 95% within the US.

⁸ The numbers are \$6.06 in State revenues and \$15.80 in Federal revenues.

Table 5.1.1

Impact of San Clemente Beach Direct, Indirect and Induced Expenditure on Federal Tax Receipts		
	Estimated 2001 San Clemente Beach Direct Expenditure per Person per Visit	\$ 73
A.	Ratio of Income Tax Receipts to GDP	0.109
	Estimated 2001 Federal Income Tax Revenue Generated By Direct California Beach Spending	\$ 7.98
B.	Ratio of Corporate Tax Receipts to GDP	0.0250
	Estimated 2001 Federal Corporate Tax Revenue Generated By Direct California Beach Spending	\$ 1.83
C.	Ratio of Excise Tax Receipts to GDP	0.0070
	Estimated 2001 Federal Corporate Tax Revenue Generated By Direct California Beach Spending	\$ 0.51
Estimated 2001 Federal Tax Revenue Generated per Person per Visit		\$ 10.32

Impact of San Clemente Beach Direct, Indirect, and Induced Expenditure on California Tax Receipts		
	Estimated 2001 San Clemente Beach Direct, Indirect, and Induced Expenditure per Person per Visit	\$ 69
A.	Ratio of CA State Income Tax Receipts to GSP	0.028
	Estimated 2001 CA State Income Tax Revenue Generated	\$ 1.94
B.	Ratio of CA Sales Tax Receipts to GSP	0.0320
	Estimated 2001 CA Sales Tax Revenue Generated	\$ 2.22
Estimated 2001 CA State Tax Revenue Generated per Person per Visit		\$ 4.16

6. The Economic Value of San Clemente's Beaches

Non-economists often wonder at the difference between “economic value” and “economic impact” although the conceptual difference is straightforward. Economic Impact numbers estimate how much people spend on a particular activity including complementary spending (lodging at beach hotels, gas, etc.), whereas the economic value tries to estimate how much people are willing to pay to enjoy the activity. While the difference may seem academic, it is not in the case of public beaches simply because beaches are free—it is quite possible for someone to spend very little (or nothing) and still enjoy the pleasures of a day at the beach. Indeed, beaches (below the mean high tide line) are free by law in the State of California. Further, if one spends a week at the beach and goes out to dinner, or stays in a nice hotel, this generates income for businesses and for the city (calculated above) but one cannot necessarily count all of this income towards the economic value of a beach since many people would go out to dinner even if there was no beach.

For this reason, economists have devised a number of standard ways to calculate the economic value of what we refer to as “non-market goods,” that is, goods that are free. In the case of beaches, it is clear that people place a value on the beach (even if they resent paying parking fees) as demonstrated by their willingness to fly or drive substantial distances to get to a beach, often in heavy traffic. One widely accepted and used method of calculating the economic value of a day at the beach is the “travel cost method” which estimates the cost of traveling to and from the beach as a measure of the willingness of visitors to pay. The USACE has officially approved the travel cost method as a legitimate way to measure ability to pay, and it is widely used in the economic profession to value recreational sites like beaches.

To calculate the willingness to pay for a day at the beach we used information provided by the survey coupled with attendance data to estimate consumer surplus for the beaches at San Clemente. The complete details of the calculations are rather technical and hence are presented in appendix 1. Suffice to say, we did the following:

- Estimated the demand curve for beach visits using the travel cost method;
- Estimated consumer surplus by integrating the demand curve.

The Value of one beach day is estimated at \$30.58 per person per day during high season. For low season (October through early May) we use a conservative estimate of \$3 per day.⁹ This value is consistent with other values estimated for Southern California beaches as well as figures used by the U.S. National Parks service¹⁰, but is substantially higher than the value used by the USACE, which is limited to \$9 per day. The number reflects the fact that a substantial number of people are willing to travel quite far to spend a day at San Clemente's beaches, which provide substantially more amenities than many

⁹ Low season visits are considered less valuable by economists since they involve local visitors, who have a low travel cost, and who typically use the beach for lower value uses, such as walking.

¹⁰ See, for example, Chapman, D., Hanemann, M., and Ruud, P., 1998, “The American Trader Oil Spill,” and National Park Service. *Benefits Estimation*.

other beaches. As table 6.1 below shows, we estimate the economic value of San Clemente’s beaches at just over \$37 million per year.

Table 6.1

Economic Value per Year of San Clemente's Beaches					
	High Season		Low Season		Total
Value of Beach Day	\$	30.58	\$	3.00	
Est. Attendance (millions)		1,140,000		760,000	1,900,000
Total Value	\$	34,861,200.00	\$	2,280,000.00	\$ 37,141,200.00

7. Conclusion

The main purpose of this report is to allow policy makers at the City, State and Federal level to analyze the economic value and the fiscal impact of San Clemente’s beaches to the City, State and National economies. Currently, the Office of Management and Budget has claimed that most of the benefits accruing from beaches go to local residents and City governments. While there is no doubt that San Clemente benefits from its beautiful location on the coast, its pier, and its beaches, the specific economic benefits and tax revenues accruing to the City from beach tourism are far smaller than is often claimed. Indeed, given the City’s relatively high expenditures on Marine Safety, the expense of police and public safety, and even the cost of collecting parking tickets, the City actually nets a small amount of revenue from its beaches: \$92,776, or 5 cents per visitor annually.

Much of the reason for this apparent discrepancy is due to the fact that 50% of beach visitors to San Clemente are day-trippers who spend a relatively small amount in the City; much of this (i.e., food from grocery stores) is not subject to any tax. Recall that overall we estimate that these visitors generate \$1.16 per person per day in revenues (mostly from parking) for the City, which barely covers the cost of basic services. This amount is not sufficient to pay for nourishment or other projects which are necessary for the long term health of San Clemente’s beaches.

One conclusion that should **NOT** follow from this study is that San Clemente should spend less on maintaining its beaches or on public safety. Indeed, the City should be applauded for its excellent staff and services, which in this author’s (admittedly anecdotal) experience are among the best in the State. Instead, the results from this study are best viewed as a rationale for other entities, notably the State and Federal governments, to become more involved.

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Appendix 1: The Travel Cost Methodology

The Model

Individuals travel to the beach as part of a household (which varies in size), and the model estimates the number of household trips to the subject beach as a function of the total cost to the household of gaining access to that beach, including travel cost (airline tickets, car expense, parking expense) and the opportunity cost of the time spent traveling:

Households walking or biking to the beach are assumed to have zero transportation cost. Travel cost for households traveling by car was calculated as the product of distance times \$0.49 per mile, a composite national average cost per mile for four door sedans.¹¹ The data did not include exact routes or fares paid for air travel, so an airfare function¹² was estimated from 14 day advance purchase airfares as a function of distance, and this function was used to calculate airfares. Households traveling by air are assumed to travel from San Diego Airport to the subject beach by rental car using the cost per mile from the composite national average as a proxy for total rental car cost (economic theory suggest that the cost of renting or owning a car should be approximately equal). However, cost of driving from home to the airport was ignored in the absence of any data, possibly underestimating surplus for air travelers.

This study uses “the convention that the opportunity cost of time is 33% of the respondents wage rate,”¹³ although in this instance, we use household income instead of individual income. While there is much controversy surrounding the opportunity cost of time, we believe the approach used here is conservative and well supported in the literature.

The model was estimated using the regression:

$$\ln(\text{TRIPS}) = \alpha + \beta \ln(\text{RTCOSTs})$$

where TRIPS is the annual number of trips a household makes to the subject beach, and RTCOST is the round trip cost of visiting that beach, including both travel cost and the opportunity cost of time.

Linear and log-linear forms were also estimated to test sensitivity to functional form. Typically, the linear regression were quite disappointing, giving R^2 values of less than 5%, while log-linear regressions produced somewhat better results, but still under 15%. Log-log regressions produced R^2 values between 43% and 59%.

¹¹ <http://www.nctr.usf.edu/clearinghouse/costtodrive.htm>
(Center for Urban Transportation Research at the University of South Florida).

¹² Linear, log-linear and linear-log functions were estimated. The linear log function, $\text{Fare} = (131.6 * \ln(\text{Distance})) - 720.8$ was used since it produced the best “fit” -- $R^2 = 0.9639$.

¹³ Garrod, Guy, and Willis, Kenneth G. (1999) *Economic Valuation of the Environment*. Edward Elgar, Northampton, MA. pp. 70-73.

Regression Results

San Clemente

Dependent Variable: LOG(TRIPS)				
Method: Least Squares				
Date: 02/24/02 Time: 22:39				
Sample: 1 282				
Included observations: 211				
Excluded observations: 71				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.256161	0.202973	20.96907	0.0000
LOG(RTCOST2)	-0.611658	0.048596	-12.58668	0.0000
R-squared	0.431176	Mean dependent var		1.921897
Adjusted R-squared	0.428454	S.D. dependent var		1.584946
S.E. of regression	1.198230	Akaike info criterion		3.209001
Sum squared resid	300.0728	Schwarz criterion		3.240773
Log likelihood	-336.5496	F-statistic		158.4244
Durbin-Watson stat	1.992419	Prob(F-statistic)		0.000000

Estimating Consumer Surplus

While the log-log form was clearly the most appropriate method to estimate the relationship between the number of trips and the total round trip cost, it does present certain challenges in estimating consumer surplus. Integrating under the demand curve from zero trips to the mean number of trips gives a surplus of infinite. This difficulty “may be alleviated by adding unity or some other positive value to the dependent value,” but this technique is “entirely arbitrary, and gives different answers depending on the unit in which the rate is measured.”¹⁴

Our approach (method 1), which also has the advantage of treating the dependent variable as a discrete random variable rather than a continuous variable, is to calculate consumer surplus as the sum of a series of rectangles, each one day wide (except for the fractional amount), touching the demand curve at its upper right corner. As an alternative (method 2), we have also calculated the surplus as the sum of a rectangle for the area under the curve between zero and one, and the definite integral for the area between one and the average number of trips. Neither method is arbitrary, nor are they likely to overstate the surplus for day one.

Once annual household surplus has been calculated, average daily individual surplus is calculated by dividing the average annual household surplus by the average

¹⁴ Garrod & Williw. pp 65.

number of individuals per household, the average number of trips per year, and by the average number of days per trip.

Individual Surplus/Day	Carpinteria	Encinitas	San Clemente	Solana Beach
Method1	20.484	18.841	25.697	14.578
Method 2	24.425	22.174	30.581	17.353

Driving Cost, Household Size and Vehicle Size

We have used \$0.49/mile as the expense rate for all drivers, regardless of family size. This is probably lower than it should be for a number of reasons. We have not adjusted this figure for large households, even though it is clearly unreasonable to expect a family of eight or ten to travel in a single four-door sedan type car. More generally, the recent proliferation of large SUVs for families both large and small is not acknowledged by our assumptions. It seems likely that both these factors will tend to cause consumer surplus to be understated for beach visitors who travel by road, and also for airline travelers, to the extent that they rent SUVs out of preference or necessity.

Appendix 2: Survey Questions and Summary Statistics

See attached pages.

Question 1: How far away from this beach do you live (your **primary** residence)?

Location	In San Clemente	Outside San Clemente, but within 20 miles	Within 60 miles	More than 60 miles but in California	In the US, but not in California	Outside the US
Frequency	23.4%	25.2%	24.5%	16.3%	8.9%	1.8%

Question 2: We'd like to know how many people are in your group today (friends and family member) who have approximately the same beach attendance as you and live with or near you.

Number of People	Frequency
1	5.7%
2	18.4%
3	16.0%
4	17.0%
5 to 6	21.3%
7 to 9	14.2%
10 to 12	2.1%
13 or more	5.0%
Non response	0.4%

Question 2a: Of these people, how many are under 16?

Number of People	Frequency
0	27.7%
1	13.5%
2	22.7%
3	12.8%
4	9.6%
5 to 6	6.0%
7 to 9	3.5%
10 to 12	1.8%
13 or more	1.1%
Non response	1.4%

Question 3: How many days this year will you go to **this** (San Clemente) **Beach**?

Number of Days	Frequency
1 to 3	25.2%
4 to 7	20.6%
8 to 10	12.1%
11 to 14	6.7%
15 to 21	8.9%
21 to 28	5.0%
28 to 5	8.9%
5 to 100	5.7%
More than 100	7.1%

Question 4: How many additional days this year will you go to **other beaches in California**?

Number of Days	Frequency
0	17.0%
1 to 3	26.2%
4 to 7	21.3%
8 to 10	11.0%
11 to 14	5.0%
15 to 21	7.1%
21 to 28	3.2%
28 to 50	2.5%
50 to 100	3.2%
More than 100	2.8%
Non response	0.7%

Question 5: How did you get to San Clemente Beach **today**?

Mode of Transportation	Car	Foot	Bicycle	Train	Other
Frequency	73.9%	16.1%	0.4%	8.9%	0.7%

Question 6: How long did it take you to get to this beach **today**?

Length of Time	Less than 20 minutes	20 - 45 minutes	45 minutes - 1 1/2 hours	1 1/2 hours - 3 hours	3 - 5 hours
Frequency	56.4%	18.4%	17.7%	6.7%	0.7%

Question 7: Please check the most appropriate box.

	Day Trip from home	Trip or Vacation to the area	Non response
Frequency	68.4%	29.8%	1.8%

Questions 8-15 were answered only by overnight guests.

Question 8: How many days do you plan to be away from home on your current trip?

Number of Days	Frequency
2 days (overnight)	12.4%
3-4 days	20.2%
5-7 days	38.2%
8-10 days	12.4%
11-14 days	10.1%
14-21 days	2.2%
More than 21 days	3.4%
Non response	1.1%

Question 9: How many days will you spend at the beach on your current trip?

Number of Days	Frequency
One day or less	10.1%
2 days (overnight)	15.7%
3-4 days	28.1%
5-7 days	30.3%
8-10 days	5.6%
11-14 days	5.6%
14-21 days	2.2%
More than 21 days	1.1%
Non response	1.1%

Question 10: How did you get to this area?

Mode of Transportation	Drove	Took Plane	Took train	Other	Non response
Frequency	78.1%	18.5%	1.1%	1.1%	1.1%

Question 11: Consider how you arrived on this trip (drove, flew, etc.). What best describes your attitude toward the process of traveling?

	Frequency
I hate traveling	2.2%
I don't mind traveling, but my time is valuable	39.3%
I like traveling	57.3%
Non response	1.1%

Question 12: We'd like to know how important visiting the beach is for your trip/vacation.

	Frequency
The beach is important to me--No beach, no trip	56.2%
If there were no beach I might not come or would stay less often	27.0%
I would still come but I like the fact that I can go to the beach	15.7%
I can take the beach or leave it; it would not affect my decision	1.1%

Question 13: Where are you staying?

	Camping	Hotel	House or Condo Rental	With Friends/Family
Frequency	9.0%	23.0%	34.3%	33.7%

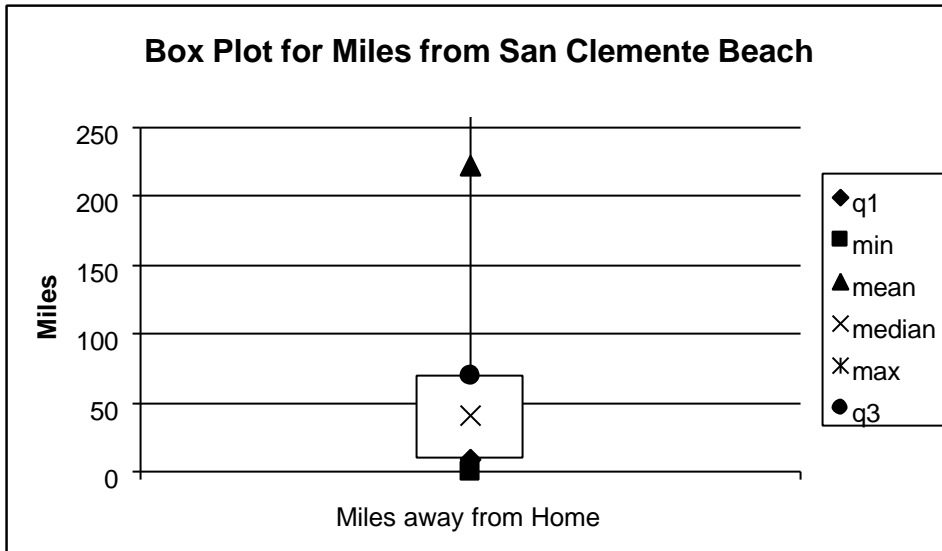
Question 14: If California's beaches disappeared, would you go to beaches in another state/country?

	Yes	Maybe	No	Non response
Frequency	59.6%	30.3%	9.0%	1.1%

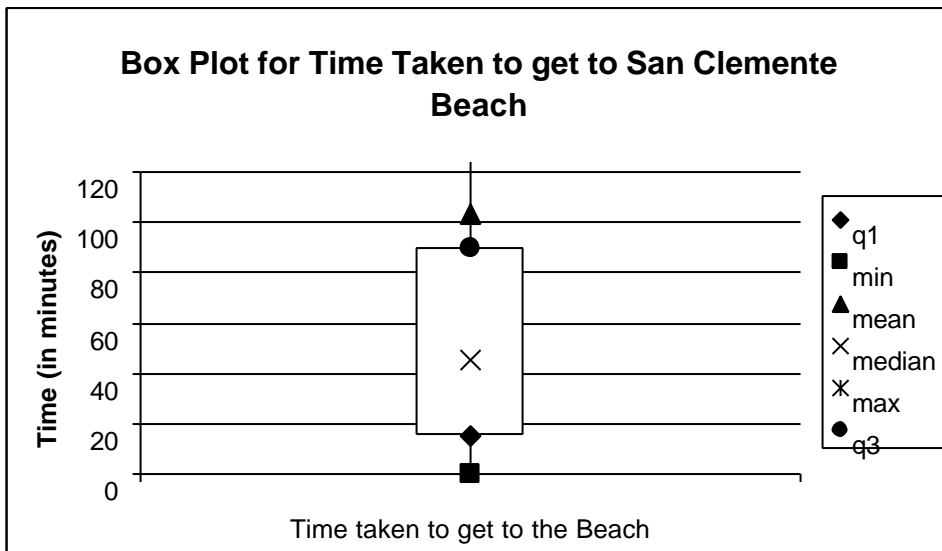
Question 15: On a typical day, how many hours do you spend at the beach?

Length of Time	Less than 1 hour	2-3 hours	3-5 hours	5-8 hours	More than 8 hours
Frequency	7.9%	24.7%	41.6%	22.5%	3.4%

Question 16: How many miles away is your home (permanent residence)?



Question 17: How long does it take to get from your (permanent) home to here?



Question 18: What was your reason for coming to this beach?

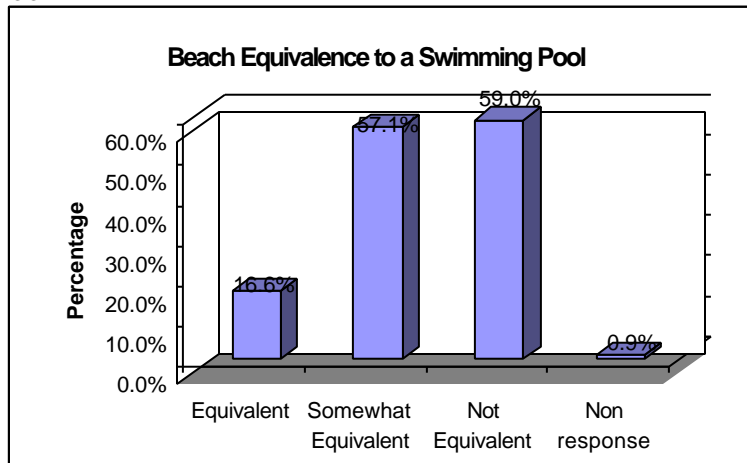
	Frequency
So I could swim	10.5%
So my children could play/swim	37.4%
To surf	10.0%
To hike	0.4%
To play on the beach	5.8%
To hang-out on the beach	33.3%
To walk my dog	0.1%
Working	0.4%
For the weather	0.4%
Non response	1.8%

Question 19: What is the minimum width a beach needs to be before you would stop going?

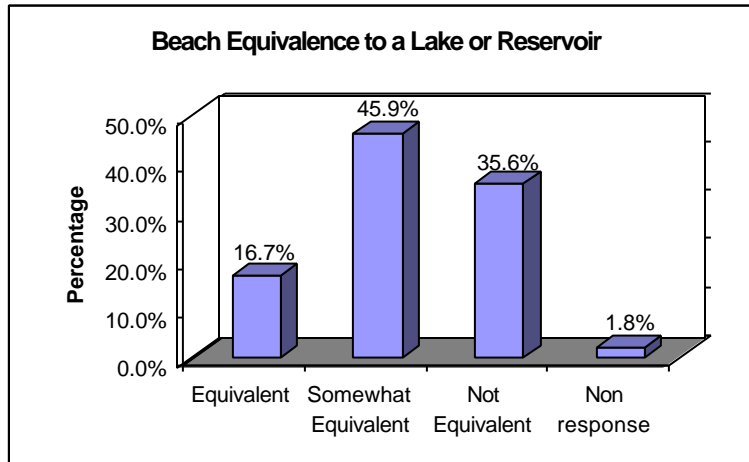
Width	5 ft	10 ft	15 ft	20 ft	40 ft	50 ft	100 ft	200 ft	Non response
Frequency	7.1%	8.9%	0.4%	17.0%	0.4%	31.9%	14.0%	12.6%	7.8%

Question 20: Consider alternate forms of recreation to the beach. How would you rate the following as alternatives to the beach?

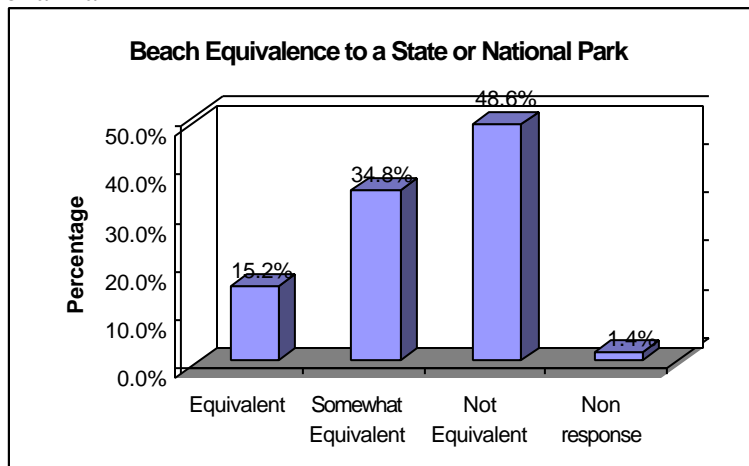
Item 1: Swimming Pool



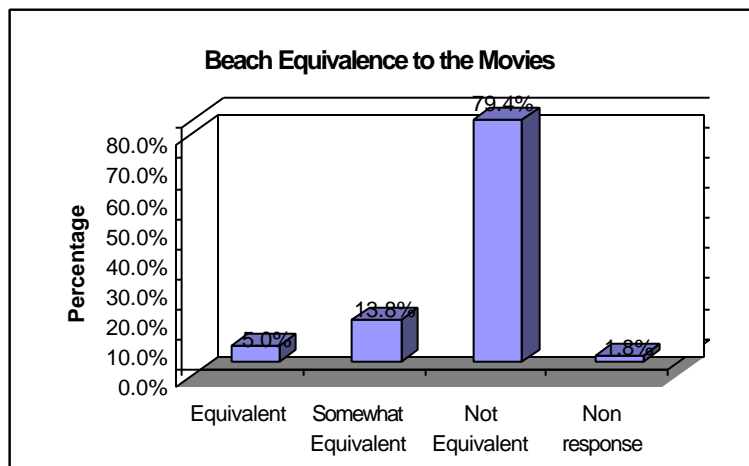
Item 2: Lake/Reservoir



Item 3: State or National Park

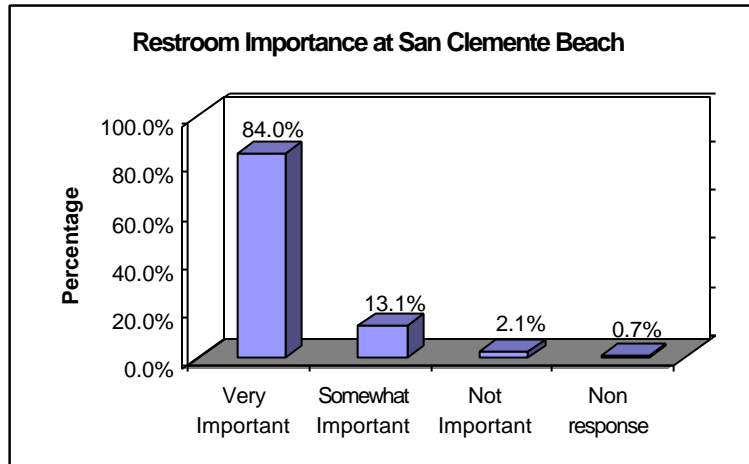


Item 4: Movies

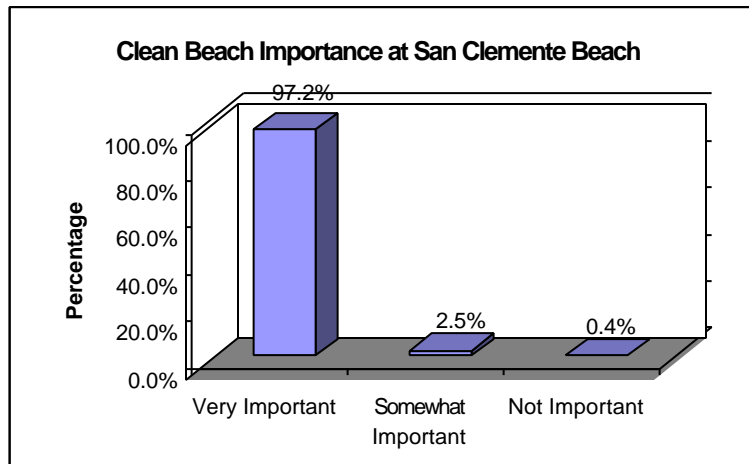


Question 21: How important are the following amenities/services to you?

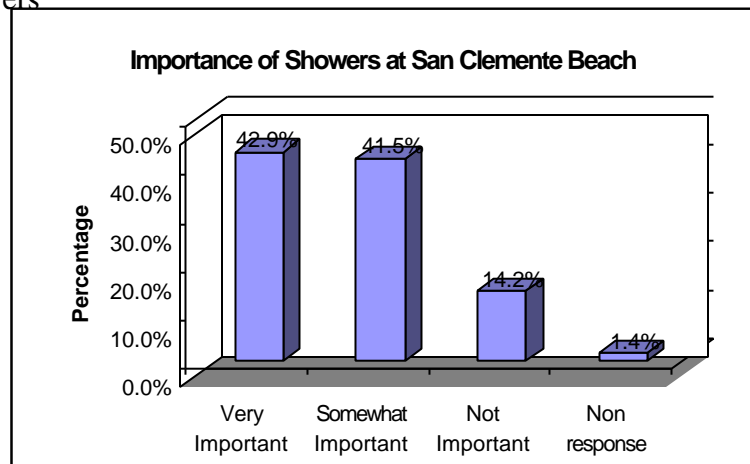
Amenity 1: Restrooms



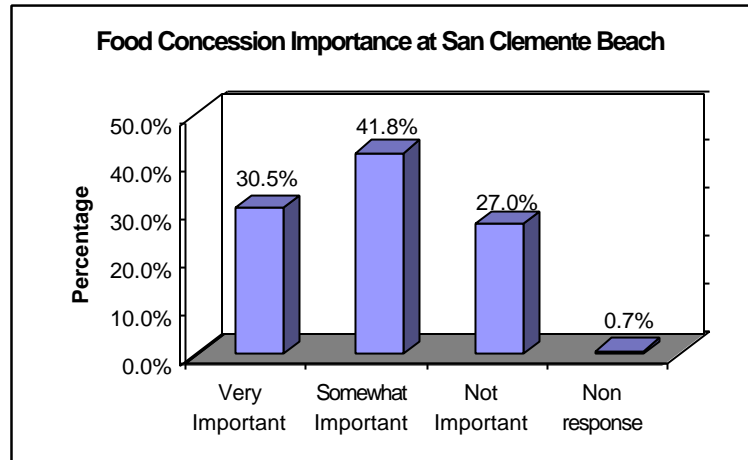
Amenity 2: Clean beaches



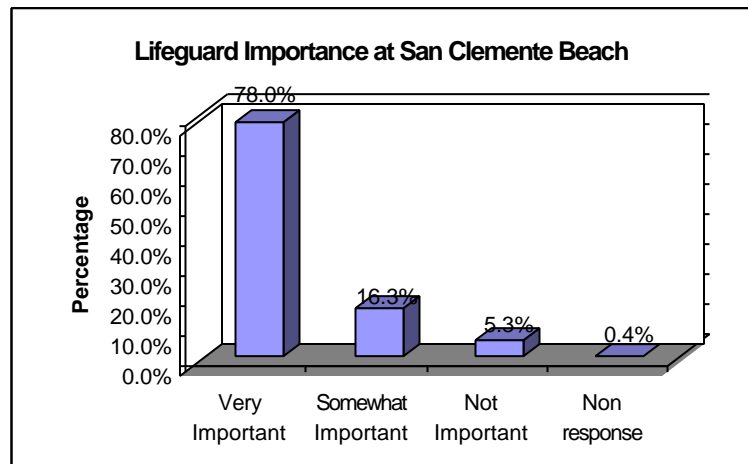
Amenity 3: Showers



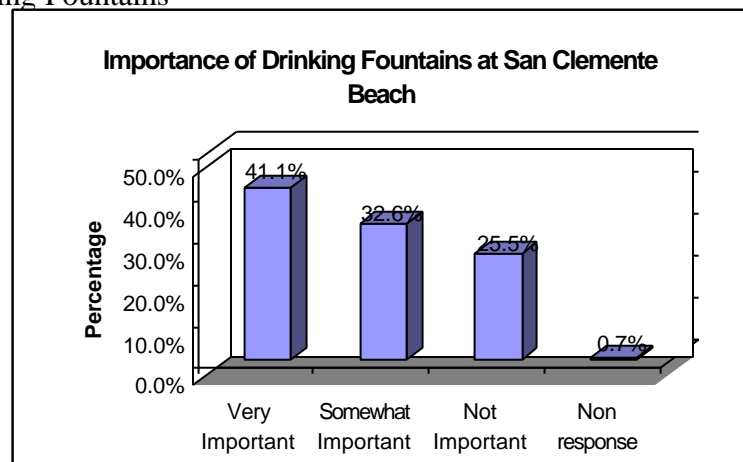
Amenity 4: Food Concession



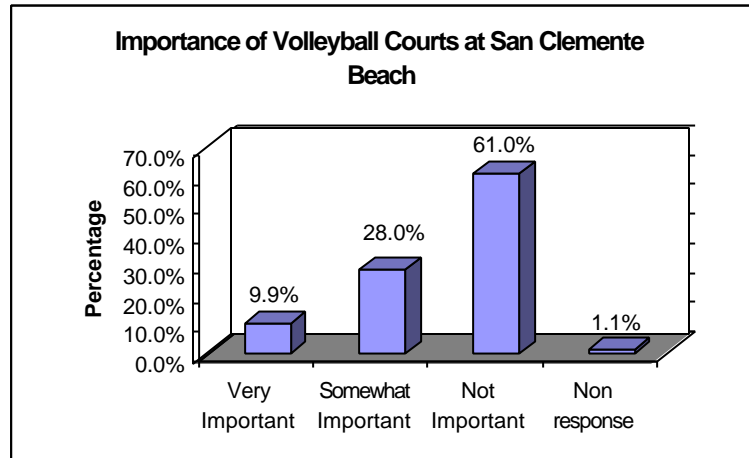
Amenity 5: Lifeguards



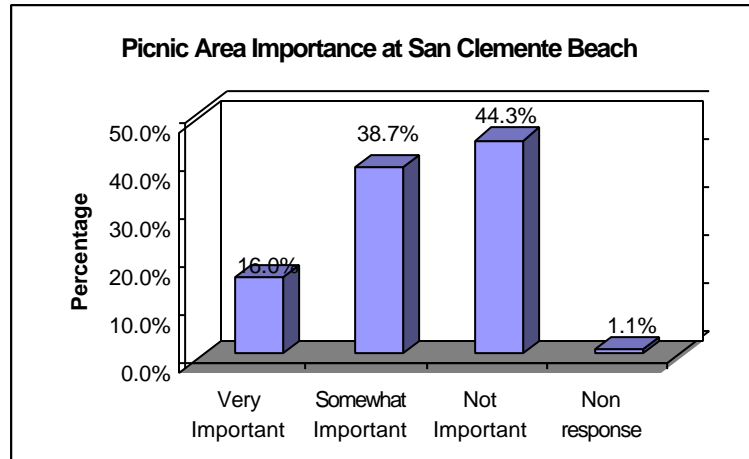
Amenity 6: Drinking Fountains



Amenity 7: Volleyball Courts



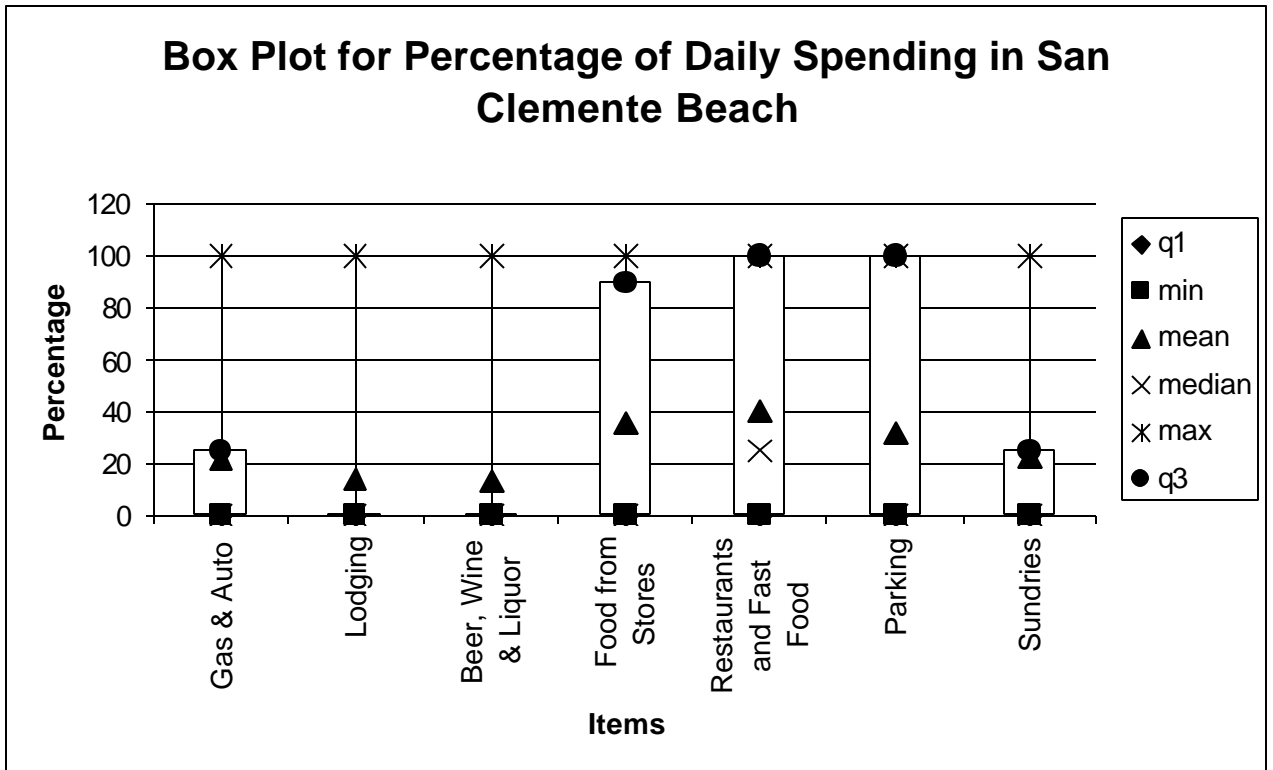
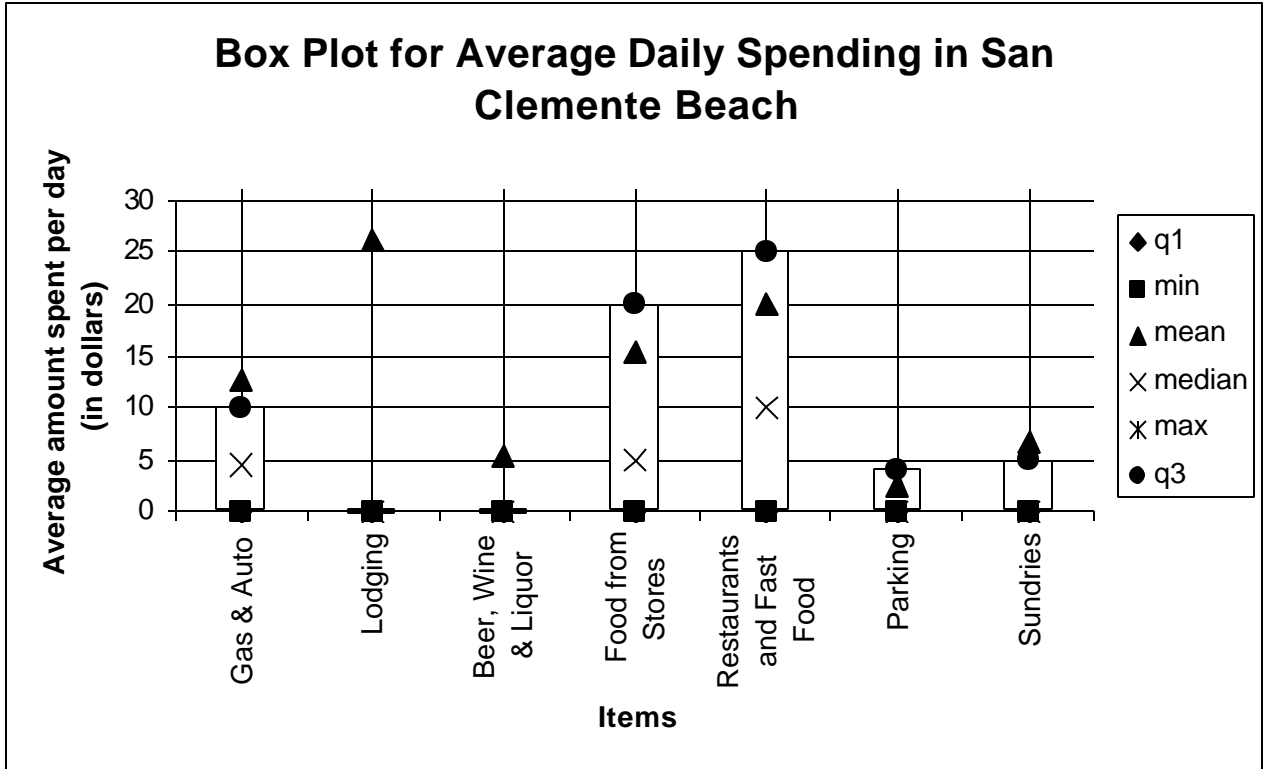
Amenity 8: Picnic Area



Question 22: Daily Spending.

	Dollar Amount	Percentage of Total Spent
Average daily spending in San Clemente Beach	\$54.79	71.0%
Average daily spending outside San Clemente Beach	\$22.37	29.0%

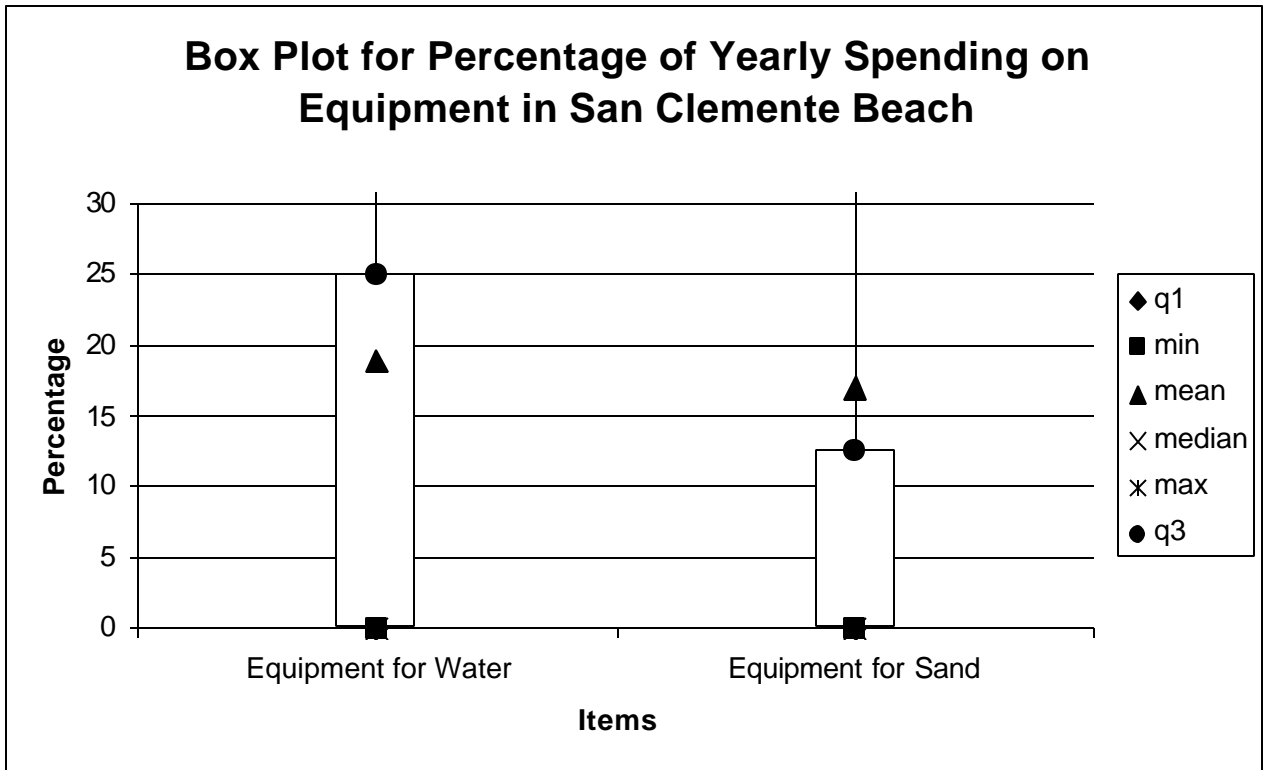
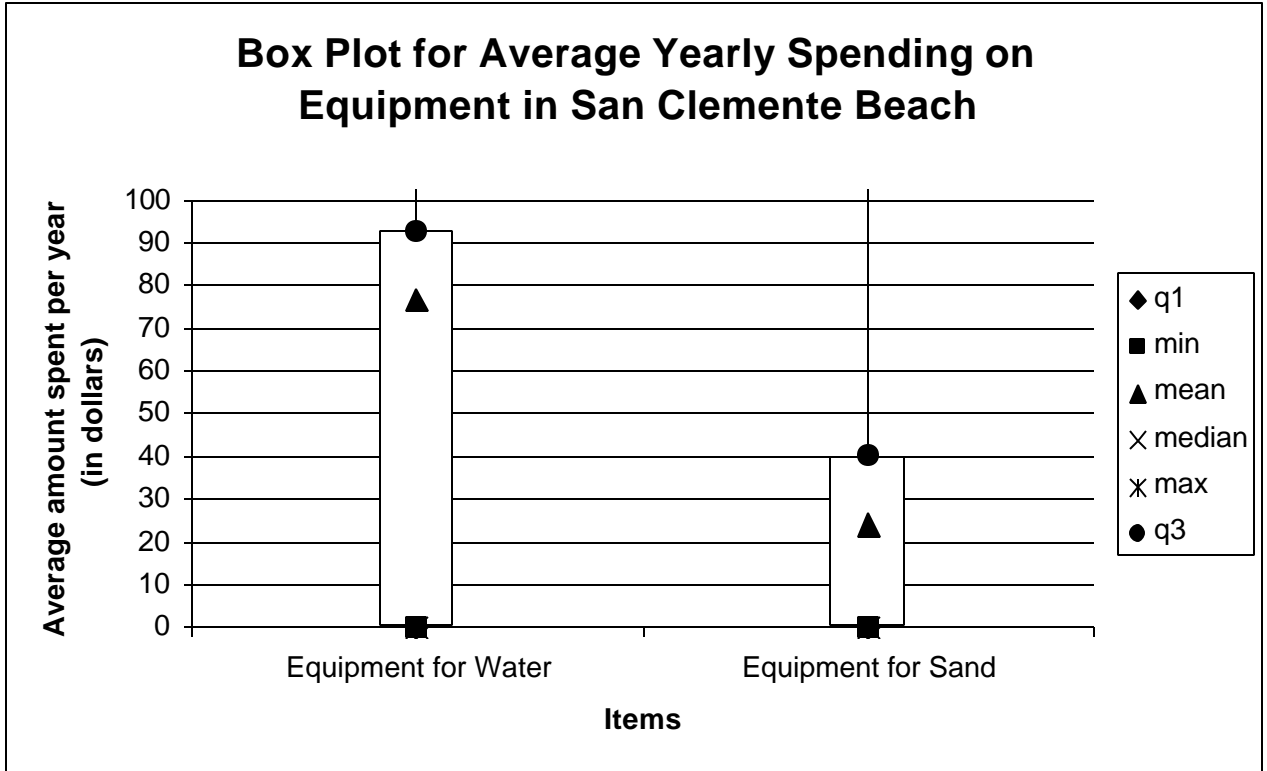
Please refer to the following box plots.



Question 23: Spending on Equipment.

	Dollar Amount	Percentage of Total Spent
Average yearly spending in San Clemente Beach	\$48.02	53.7%
Average yearly spending outside San Clemente Beach	\$41.38	46.3%

Please refer to the following box plots.



Question 24: San Clemente's northern and southern beaches cannot be accessed from the pier area except by driving through the city or walking along railroad tracks. If the City built a safe trail connecting all its beaches, would you use it?

	Yes	Maybe	No	I'm not sure	Non response
Frequency	48.9%	29.4%	11.7%	6.0%	3.9%

Question 25: How important are lifeguard services in your decision to attend San Clemente Beaches?

	Frequency
I would not attend without lifeguards	31.6%
I would attend much (50%) less frequently without lifeguards	23.0%
I attend somewhat (25%) less frequently without lifeguards	10.6%
I would attend the same amount with or without lifeguards	30.5%
Non response	4.3%

Question 26: How old are you?

Age	16-19	20-24	25-34	35-44	45-54	55-64	65 or older	Non response
Frequency	8.5%	5.3%	11.0%	37.6%	25.7%	4.8%	3.2%	3.9%

Question 27: What is your ethnicity?

Ethnicity	White (Caucasian)	Hispanic	Asian	Black (African American)	Other	Non response
Frequency	78.0%	9.7%	1.4%	3.7%	2.7%	4.6%

Question 28: What is your highest level of Education?

Level of Education	did not finish high school	high school	some college	college degree	post graduate degree	Non response
Frequency	2.6%	11.3%	30.1%	34.0%	18.0%	3.9%

Question 29: How many people are in your current household (people you live with and share financial resources)?

Number of People	1	2	3	4	5 to 6	7 to 9	Non response
Frequency	7.8%	22.7%	18.4%	25.2%	18.4%	3.5%	3.9%

Question 30: What would you estimate is the current yearly income of your entire household (before taxes)?

Income (in dollars)	Frequency
Less than 9,999	2.1%
10,000-14,999	1.4%
15,000-24,999	2.5%
25,000-34,999	5.0%
35,000-49,999	11.0%
50,000-74,999	15.6%
75,000-99,999	13.5%
100,000-149,999	18.4%
150,000 or more	18.1%
Non response	12.4%