

The Aquatic & Fitness Center of North Myrtle Beach: An Economic Impact Study

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INTRODUCTION

Research Objective

The objective of this research is to analyze the economic benefits and costs to the city of North Myrtle Beach of constructing the proposed Aquatic & Fitness Center, hereinafter the Aquatic Center. The report provides basic policy suggestions based on the analysis.

Scope and Limitations

This research attempts to identify and enumerate the benefits and costs of constructing the Aquatic Center. Benefits from the Aquatic Center include both monetary and non-monetary benefits. Monetary benefits consist of any net increases in spending within North Myrtle Beach and are directly measurable. Non-monetary benefits are any net increases in the welfare of North Myrtle Beach residents that are not directly measurable.

Monetary benefits are divided into direct spending (spending in the Aquatic Center), indirect spending (spending outside the Aquatic Center, but within North Myrtle Beach) and induced spending (additional spending that result from a multiplier effect). Both direct and indirect spending lead to a multiplier effect because money that is initially spent in North Myrtle Beach, whether within or outside of the Aquatic Center, can then be reused by the recipient to make additional spending. Thus, the total economic impact on the local economy exceeds the initial amount of spending.

The monetary benefits included in this study are the direct spending by non-resident members of the Aquatic Center, direct and indirect spending by event tourists (individuals who come to the Aquatic Center to attend a certain event) and their parties and direct spending by daily users who come to North Myrtle Beach for some purpose besides the Aquatic Center. Additionally the study estimates the indirect spending by incremental retirees (individuals who would not retire in North Myrtle Beach if it were not for the Aquatic Center) and indirect spending by incremental part-time residents (part-time residents who would not reside in North Myrtle Beach if it were not for the Aquatic Center). Any direct or indirect spending would create additional induced spending, which are also estimated.

The non-monetary benefits considered in this study are consumer surplus (the difference between the value of the center for resident members and the price that they must pay) and positive externalities. Non-monetary benefits are discussed in Section 3. Costs are also divided into monetary and non-monetary costs. Monetary costs include the start up cost and annual operating cost. Non-monetary may include increased traffic, environmental harm and so on. In the case of the Aquatic Center these costs are fairly small and are, therefore, ignored in this report. Costs are discussed in Section 4.

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Methodology

The goal of this study is to enumerate all the direct, indirect and induced benefits from as well as the costs of constructing the Aquatic Center. The study compares the benefits and costs of a typical year.¹ Economic benefits only include net inflows into the local economy (in this case, the city of North Myrtle Beach). For instance, any spending by existing residents of North Myrtle Beach would not be counted as an economic benefit since they represent a movement of money rather than a net inflow. On the other hand, all new direct and indirect spending by any non-residents are included. Data for this project was collected from various sources and individuals including the Center for Economic and Community Development at Coastal Carolina University, the 2000 Population Census, the Bureau of Labor Statistics, International Health, Racquet and Sportsclub Association, Melinda Chappell (director of the Aquatic Center) and Joyce Rowley (principal city planner for the city of North Myrtle Beach).

The multiplier effect was estimated using a program called IMPLAN. IMPLAN is widely used by private and public institutions throughout the United States, including the government of South Carolina. Based on IMPLAN the expenditure multiplier for Horry County is about .54. The expenditure multiplier for North Myrtle Beach cannot be derived directly in IMPLAN and, therefore, I use a slightly lower multiplier of .5. The study estimates a worse case, conservative case and best case scenarios for each category of benefits. The conservative case provides a realistic yet conservative estimate of the benefit, whereas the worse and best scenarios provide a theoretical lower and upper bounds. Additional notes on methodology are provided throughout the text.

MONETARY BENEFITS FROM THE AQUATIC CENTER

Spending by Non-Resident Members

Due to the proximity of North Myrtle Beach to several other towns including Atlantic Beach, Briarcliff, Little River, Calabash and the north end of Myrtle Beach, many of the Aquatic Center members are expected to reside outside of the city limits of North Myrtle Beach. The membership fees and other direct spending of these non-resident members is considered a net inflow for North Myrtle Beach.

According to the population census 10,974 individuals lived in North Myrtle Beach in 2000, which is 27.48% of the 39,928 individuals that live within a 10-mile radius of the Aquatic Center.² According to the population census there are 16,060 households within a 10-mile radius of the Aquatic Center out of which 2,751 are individuals, 2,843 are senior individuals, 3,574 are couples, 4,967 are senior couples and 1,925 are families, as shown in table 1. The intended monthly dues for each of these categories are also shown in table 1. The dues are derived by examining the dues for equivalent categories in other fitness facilities in the Grand Strand Area.³

The number of households in each category is multiplied participation rate for that household type according to the Gallup Index of Participation. I thus estimate how many households in each category are expected to patronize the Aquatic Center, and then multiply that number by .7252 to obtain the number of non-resident households in each category who are expected to purchase membership to the Aquatic Center. Accordingly, the Aquatic Center is expected to annually generate \$718,620 in direct spending by non-resident members, \$359,310 in induced spending as a result of a multiplier effect,⁴ and, thus, \$1,077,930 in total spending by attracting non-resident members.

The number of members may differ than the number used here. Specifically, the number of members may be lower than estimated because some individuals who are within the 10-mile

radius may already belong to another fitness center and may not wish to switch. I assume for the worse case scenario that the number of members is 25% lower than projected here and use a more conservative expenditure multiplier of .3. Thus, the direct spending by non-resident members are \$538,965, the induced spending are \$161,690, making the total spending \$700,655 under the worse case scenario.

On the other hand, the number of members can be considerably higher than projected here because the Aquatic Center can easily attract individuals from outside of the 10-mile radius. Additionally, the participation rates in the Grand Strand Area are probably higher than the US average because of high fitness consciousness in the area and since there are many retired individuals living in the area with ample leisure time. For the best case scenario I assume 25% more members than projected and the same multiplier as the conservative scenario. Accordingly, there would be \$898,275 in direct spending, \$449,138 in induced spending making the total spending \$1,347,413 under the best case scenario. Note that all of these figures are expected to increase as the population in the North Myrtle Beach and the surrounding area increase.⁵ Additionally, I did not account for the enrolment fee in these calculations because it represents a one-time payment and cannot be effectively annualized.

TABLE 1
Projected Spending by Non-Resident Users

<i>Category</i>	<i>Year 2000 Households</i>	<i>Gallup % Participation</i>	<i>Participant Households</i>	<i>Non-resident Participants</i>	<i>Monthly Dues</i>	<i>Projected Annual Revenue</i>
Individual	2,751	16%	440	319	\$40	\$153,120
Senior	2,843	3%	85	62	\$35	\$26,040
Individual Couple	3,574	15%	536	389	\$60	\$280,080
Senior Couple	4,967	3%	149	108	\$55	\$71,280
Family	1,925	15%	289	209	\$75	\$188,100
TOTAL	16,060	–	1,499	1087	–	\$718,620

Spending by Event Tourists

The Aquatic Center is expected to draw visitors for various events such as swim meets, league competitions and camps. Event tourists and their parties not only pay user fees to the Aquatic center, they also make various indirect expenses in North Myrtle Beach including lodging, food, recreation and shopping. According to the government of South Carolina, an average tourist spends \$52 per day in the Grand Strand Area.⁶ Both the direct and the indirect spending by event tourist would create induced spending.

Table 2 provides the projected total number of participants for each type of event, the fees that participants are expected to pay and the total direct spending. Additionally, the table provides the total party size, the average length of stay and the total indirect spending. For conferences, swim meets and tournaments the expected length of stay is 2.5 days (these events normally take an entire weekend) and the party size is conservatively estimated to be 1.5 (most participants are expected to bring their spouse, but not their family). For Swim trainings and sport camps the expected length of stay is 1 week and the party size is only 10% higher than the number of participants (to account for coaches and chaperons). For the Better Blue Beach

Biathlon the expected stay is 1.5 days (since it is a 1 day event) and the average party size is estimated at 1.5. Table 2 provides estimates for the conservative case.

TABLE 2
Projected Spending by Event Tourists

<i>Category (Number of Events)</i>	<i>Total Expected Participants</i>	<i>Fees</i>	<i>Direct Spending</i>	<i>Total in Party</i>	<i>Average Length of Stay</i>	<i>Indirect Spending</i>
Conferences (6)	600	\$200/person	\$120,000	900	2.5	\$117,000
Swim Meets (3)	315	\$10/person	\$3,150	473	2.5	\$61,490
Racquetball Tournaments (2)	140	\$50/person	\$7,000	210	2.5	\$27,300
Volleyball Tournaments (2)	96	\$150/team	\$1,800	144	2.5	\$18,720
Biathlon (1)	50	\$8/person	\$400	75	1.5	\$5,850
Sport Camps (9)	720	\$800/team	\$57,600	792	7	\$288,288
Total	1,921	–	\$189,950	2,594	–	\$518,684

Under the conservative scenario, the center is expected to generate \$189,950 in direct spending, \$518,684 in indirect spending, \$354,317 in induced spending and \$1,062,951 in total spending. Under the worse case scenario event, I assumed that direct and indirect spending would be 50% lower because many of these events may not be successful as predicted. Accordingly, event tourists would generate \$94,975 in direct spending, \$259,342 in indirect spending, \$106,295 in induced spending and, thus, \$460,612 in total spending. The spending by event tourist can be considerable larger if the events are marketed wisely and if many participants bring their families. For the best case scenario, I assumed that direct and indirect spending would be 50% higher than projected. Accordingly, event tourist would generate \$284,925 in direct spending, \$778,026 in indirect spending, \$531,476 in induced spending and \$1,594,427 in total spending.

Spending by Daily Users

In addition to regular members and event tourist the Aquatic Center is expected to attract tourists, convention goers and other individuals who are in the Grand Strand Area for a short period of time (under a month). These daily users must pay a user fee in order to use the facility. The indirect spending that these individuals make in North Myrtle Beach is not considered an economic benefit of building the Aquatic Center because they would have made these spending regardless of the Aquatic Center.

I thus assume that no additional short-term visitors would come to North Myrtle Beach if the Aquatic Center were constructed, although if the city succeeds in marketing itself as a fitness destination this assumption may not hold. Additionally, there is little reason to believe that attending the center will lead short-term visitors to reduce their other recreational activities since workouts normally take a short period of time and are not good substitutes to other activities that Grand Strand Area has to offer.

The number of daily users is projected to be 9,000 a year based on the fact that similar facilities in the area draw 20 to 30 daily users per day. The Aquatic Center intends to charge daily visitors a \$10 daily fee; therefore, the total projected direct spending from daily users is \$90,000.

These spending will induce approximately \$45,000 additional spending, making the total net inflow due to daily users \$135,000 under the conservative scenario. Under the worse case scenario I assume that the number of daily users would be 25% lower than projected and use a multiplier of .3 resulting in direct spending of \$67,500, induced spending of \$20,250 and total spending of \$87,750. Under the best case scenario I assume that the number of daily users would be 25% higher than projected and the expenditure multiplier is .5. Accordingly, the direct spending is \$112,500, the induced spending is \$56,250 and the total spending is \$168,750.

Spending by Incremental Retirees

It is quite likely the Aquatic Center would attract additional retirees to North Myrtle Beach. The availability of fitness facilities is an important requirement for many seniors and some of them will not retire in North Myrtle Beach if the Aquatic Center is not constructed. Additional retirees would create a net inflow of indirect spending to North Myrtle Beach since they would spend a considerable portion of their income in North Myrtle Beach. These indirect spending would create additional induced spending.

According to the 2000 population census there are 2363 individuals in North Myrtle Beach over the age of 65 – most of these individuals are retirees who moved into the area for their retirement. It is reasonable to speculate that if North Myrtle Beach had an Aquatic Center the number of retirees in North Myrtle Beach would have been approximately 3% higher since according to the Gallup Index of Participation about 3% of all individuals over the age of 55 participate in fitness facilities.⁷ If that were the case there would be about 71 more retirees in North Myrtle Beach.

Based on the 2000 population census, about 36.4% of all senior individual in North Myrtle Beach live by themselves and the rest live with a spouse or family. Thus, approximately 26 of the incremental retirees would be single and 45 would be a part of a family (about 23 households). The average disposable income of retired individuals was \$20,221 and for a family it was \$33,005 in 2000 according to AARP.⁸ With a saving rate of 4.6%, these retirees are expected to spend 95.6% of their income (an estimated 90% in North Myrtle Beach)⁹. Therefore, single incremental retirees are expected to generate \$473,171 of indirect spending and families of retirees are expected to generate \$683,204 of indirect spending. Thus, incremental retirees are expected to generate \$1,156,375 in indirect spending, \$578,188 in induced spending and \$1,734,563 in total spending.

Under the worse case scenario I assume that the number of retirees would be 50% lower than projected here. This may be the case since many retirees may be willing to retire in North Myrtle Beach and either drive to another center or work out some other way. I also assume that retirees would only spend 85% of their income in North Myrtle Beach. Consequently, the total indirect spending would be \$546,066, the induced spending \$163,820 and the total spending \$709,886. The number of retirees could be 50% higher, or even more, than the number projected here if North Myrtle Beach successfully markets itself as retirement community for physically active seniors. Under the best case scenario the total indirect spending would be \$1,734,563, the induced spending \$867,282 and the total spending as a result of incremental retirees \$2,601,845. Note that I do not consider the direct spending by incremental retirees that live outside of North Myrtle Beach since that number is small and difficult to derive.

Spending by Incremental Part-time Residents

In addition to increasing the number of retirees to North Myrtle Beach, the Aquatic Center may also increase the number of part-time residents, defined as individuals who have a

second home in North Myrtle Beach and reside in it at least a month a year. Like incremental retirees, incremental part-time residents create an inflow of indirect spending to North Myrtle Beach. Unfortunately, there is insufficient information about these individuals' age, income, length of residency and spending patterns to make any accurate calculations for this study. Therefore, I will only consider the impact of part-time residents for the best case scenario.

A recent survey conducted by Joyce Rowley, a city planner for North Myrtle Beach, reveals that there are 3,005 second-home households in North Myrtle Beach. Out of the household surveyed, 1,544 stated that they stay in North Myrtle Beach for over a month every year. Suppose, as a very rough and conservative estimate, that the Aquatic Center would increase the number of part-time residents by 2% or 31 household. The average earnings of individuals in the South Atlantic Region, where most part-time residents are from, are 16.95 per hour or approximately \$2,871 a month according to the Bureau of Labor Statistics (although individuals who own a second home probably earn considerably more than the average). Also note, these are figures for individuals not households, which should be considerable higher.

If incremental part-time residents (individual who would not buy their second home in North Myrtle Beach if it were not for the Aquatic Center) spend as much 80% of their monthly income during a two month stay in North Myrtle Beach, they would create \$142,402 in indirect spending, another \$71,201 in induced spending and, thus, a total of \$213,603. This is an extremely rough estimate and the actual inflow may be considerably higher or lower. The increase in part-time residents strongly depends on the ability of North Myrtle Beach to market itself as a fitness destination.

NON-MONETARY BENEFITS FROM THE AQUATIC CENTER

Consumer Surplus of Resident Users

In addition to monetary benefits, the residents of North Myrtle Beach will obtain several non-monetary benefits from the construction of the Aquatic Center. The most important non-monetary benefit is the consumer surplus that resident members of the Aquatic Center would gain from their membership. Consumer surplus is defined as the value that consumers place on their membership over the price that they must pay to become members. Consumer surplus can be obtained by surveying potential members and acquiring what is their maximum willingness to pay for membership. However, this method is too resource consuming for this study.

As a rough estimate, I assume for the conservative case that the willingness of consumers to pay is on average 25% higher than their membership fee. This figure is derived by comparing the membership fees of the Aquatic Center to other fitness centers in the area. The average cost of Life Quest, Elite Fitness, Conway Medical Center and Kingston Plantation is \$47.5 for individuals compared to \$40 for the Aquatic Center. Additionally, individuals have to pay about \$3.75 in travel cost (assuming 3 visits per week and \$1.25 in gas and depreciation per visit). Thus, the total cost is going to another facility is about 28% higher than going to the Aquatic Center.¹⁰

Based on table 3, the Aquatic Center would provide membership to approximately 412 resident households. If these households have an average maximum willingness to pay that is 1.25 time higher than their membership fee, the total consumer surplus would be \$68,160. Consumer surplus under the conservative scenario is shown in table 4. Under the best case scenario, I assume that residents of North Myrtle Beach consider the center a superior product because of its superior facilities and since they have city pride. If on average residents are willing to pay fees that are 50% higher than current fees, the total consumer surplus would be \$136,320. Although the consumer surplus under these assumptions is significant, it is relatively small compared to the monetary benefits that the Aquatic Center can bring to North Myrtle Beach.

TABLE 3
Estimated Consumer Surplus

<i>Category</i>	<i>Year 2000 Households</i>	<i>Gallup % Participation</i>	<i>Participant Households</i>	<i>Resident Participants</i>	<i>Average Consumer Surplus</i>	<i>Total Consumer Surplus</i>
Individual	2,751	16%	440	121	\$120	\$14,520
Senior Individual	2,843	3%	85	23	\$105	\$2,415
Couple	3,574	15%	536	147	\$180	\$26,460
Senior Couple	4,967	3%	149	41	\$165	\$6,765
Family	1,925	15%	289	80	\$225	\$18,000
TOTAL	16,060	–	1,499	412	–	\$68,160

Positive Externalities

The Aquatic Center can also create positive externalities by increasing the health of its users. Positive externalities are benefits that are received by individuals other than the members themselves. These externalities include a decrease in health cost, which is borne partially by local hospitals, and an increased sense of pride and well being in North Myrtle Beach. Although these benefits may be significant, they are merely impossible to measure and therefore are not enumerated here. Policy makers, though, may wish to keep these benefits in mind when making their decision.

Summary of Benefits

The total estimated annual benefits for the city of North Myrtle Beach from constructing the Aquatic Center are \$4,069,577 under the conservative case scenario, \$6,062,358 under the best case scenario and \$1,958,903 under the worse case scenario. The total benefits are summarized in table 4 by category. The benefits are likely to be at least as high as the conservative case scenario.

TABLE 4
Total Estimated Benefits

<i>Scenarios</i>	<i>Best</i>	<i>Conservative</i>	<i>Worse</i>
Non-Resident	1,347,413	1,068,930	700,655
Event Tourists	1,594,427	1,062,951	460,612
Daily Users	168,750	135,000	87,750
Retirees	2,601,845	1,734,536	709,886
Part-timers	213,603	0	0
Consumer Surplus	136,320	68,160	0
Total	6,062,358	4,069,577	1,958,903

COSTS OF THE AQUATIC CENTER

Start Up Cost

The construction cost for the Aquatic Center is \$10,310,332 according to the Aquatic Center's management. This cost includes the cost of construction, \$8,777,213, as well as various public works such site work, mechanical work and reallocation of street and utility divisions, \$1,533,119. Additionally, North Myrtle Beach must pay \$352,900 in interest payments and financial charges on an \$8,600,000 bank loan with a 4.1 APR. The interest payment will decrease as the Aquatic Center pays part of the principle on the loan; therefore, the average interest payment is actually lower. The rest of the construction would be financed through contributions, interest earnings and land sales.

It is important to note that the construction cost is not a true economic cost for North Myrtle Beach because the money is reinvested in the local economy. Nonetheless, there is an opportunity cost in using resources that could have been used elsewhere and if markets are competitive the construction cost provides a good estimate of what that opportunity cost is.¹¹ In order to compare the construction cost to the annual benefits that were estimated in the previous two sections, the cost must be annualized (i.e., converted to an annual figure). According to the Aquatic Center's management the entire start up cost would be paid over a period of 20 years. Therefore, I divided the construction cost by 20 and added the annual interest payment of \$352,900 to obtain the average, annual start up cost, \$868,417, for the first 20 years following the initial phase of construction.¹²

Operation Cost

In addition the construction cost the management of the Aquatic Center anticipates an annual operation cost of \$1,063,103. This cost includes: workers' wages and benefits, training, uniforms, utility, maintenance, supplies, advertisement, communication, insurances, contingency funds and depreciation. The operation cost presented here does not include any debt service since that is already accounted for in the start up cost. Therefore, the total average, annual cost of the Aquatic Center is \$1,931,520.

CONCLUSIONS

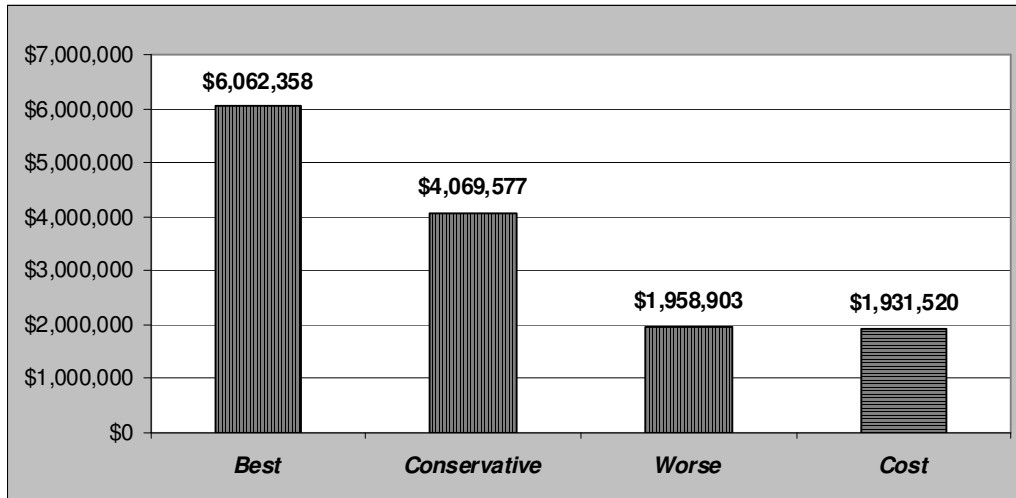
Costs and Benefits Analysis

Figure 1 shows the average annual cost and the expected benefits under each of the three scenarios. Note that under the worse case scenario the annual benefits, estimated at \$1,958,903, slightly exceed the estimated cost of \$1,931,520 by \$27,383. However, after the construction cost is fully paid off, the benefits derived from the Aquatic Center would exceed the annual operation cost of \$1,063,103 by \$895,800 under the worse case scenario. Under the conservative scenario the expected benefits of \$4,069,577 exceed the total cost by \$2,138,057, resulting in a benefit to cost ratio of 2.107. Under the best case scenario the expected benefits of \$6,062,358 exceeds the total cost by \$4,130,838, resulting in a benefit to cost ratio of 3.139.

There are several additional benefits and costs that are not included in these calculations. For instance, non-resident members may also spend additional money outside of the Aquatic Center. Some non-resident members may stop to shop, eat or purchase gasoline either before or after their work-out.¹³ There may also be additional benefits from retirees and part-time residents who move close to North Myrtle Beach. These benefits are difficult to estimate. The Aquatic Center may also generate producer surplus from resident members, which is not calculated here.

Finally, the study does not account for non-monetary costs such as environmental damage because they are probably minor or at least not substantially greater than alternative uses for the land.

FIGURE 1
Estimated Benefits & Costs from the Aquatic Center



Policy Recommendations

It is reasonable to assume that the economic benefits of constructing the Aquatic Center to the city of North Myrtle Beach would be twice as high as the economic costs. The conservative scenario has a benefit to cost ratio of over 2.0. What the actual benefits from the Aquatic Center would be depend largely on the ability of the City of Myrtle Beach to market itself as a fitness destination. The three largest sources of economic benefits under the conservative scenario is the ability of the North Myrtle Beach to attract more retirees into the area, the ability of the center to attract non-resident members, and the ability of the center to attract event tourists for conferences, tournaments, camps and so on.

It is important to emphasize that the conservative scenario is in fact a very conservative estimate of the total benefits that North Myrtle Beach can obtain from the Aquatic Center. The conservative scenario assumes a relative small increase in the number of retirees and no increase in the number of part-time residents. If the Aquatic Center is wisely marketed to part-time residents and retirees, its potential benefits are enormous. Similarly, if the center can attract more and larger conferences (the demand for conference facilities in the US is constantly growing), and more sport events it can have a substantial impact on tourism in North Myrtle Beach.

ACKNOWLEDGEMENTS

Data for this study was collected from various organizations by various individuals. I would like to thank Gary Loftus (director of the Center for Economic and Community Development at Coastal Carolina University), Melinda Chappell (director of the Aquatic Center), Joyce Rowley (principal city planner for North Myrtle Beach) and Taylor Damonte (director of the Brittany Center for Tourism at Coastal Carolina University) for helping me obtain valuable data. I would also like to the American Association of Retired Persons and the Bureau of Labor Statistics for providing me with much-needed data.

¹ Actual benefits and costs will slightly vary from one year to the next

² The latter figure is derived by determining the population that is within a 10-mile radius of the Aquatic Center using census tracks from the population census and was derived by Sarah Wells.

³ This data is available from the

⁴ The expenditure multiplier is approximately .5 according to IMPLAN.

⁵ In fact, since the figures are based on the 2000 population census, the actual spending for 2004 and later are expected to be somewhat higher than projected.

⁶ This figure is solicited with the help of the Brittany Center for Tourism at Coastal Carolina University.

⁷ The Gallup Index of Participation does not provide more accurate figures for people over the age of 65. However, the International Health, Racquet and Sportsclub Association indicate that the participation rate for retirees may be as high as 10%.

⁸ AARP is American Association of Retired Persons

⁹ The saving rate was obtained from the Bureau of Labor statistics and it represents a US average.

¹⁰ This cost varies with location (those who are north of North Myrtle Beach have a higher cost of getting to facilities in the Myrtle Beach Area than those who are south of it) and individual characteristics.

¹¹ If markets are competitive the cost of these resources provides a good indication of their value.

¹² The actual cost would be higher during the first few years following the construction of the Aquatic Center and then would decline.

¹³ Producer surplus equals the difference between the revenue that the center generates from resident members and the true economic cost of the center, which includes both accounting cost and normal profit.