FIGURE EIGHT ISLAND HOMEOWNERS' ASSOCIATION, INC.

Case Study

by

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Figure 8 Island Homeowners Association, Inc.

"The property owners of Figure Eight Island have joined together to preserve and enhance the natural beauty of the island and to maintain property values"

Article II, Bylaws of Figure 8 Homeowners Association, Inc.

Mike Powell, President of the Figure 8 Homeowners Association, left the homeowners meeting confused. The meeting was intended to be informative and detail the long-range plan adopted by the Homeowners Association to preserve the island. Instead, it turned into a war of words between property owners.

It was common knowledge that Figure 8 Island desperately needed beach restoration (called renourishment) on the ocean side and canal dredging on the sound side. And, while the homeowners of the island wanted the restoration process to begin as soon as possible, little consensus could be reached as to who would bear the costs. Mike Powell thought the Homeowners Board of Directors presented a fair and equitable costallocation scheme. The homeowners thought differently.

THE ISLAND

Figure 8 Island is a 4.5 mile long barrier island located approximately 9 miles northeast of Wilmington, North Carolina. The private, very exclusive resort island varies in width from 550 to 1,250 feet and is bordered by the Atlantic Ocean on the southeast side and the Middle Sound Channel on the northwest side. Chronic beach erosion has plagued the beachfront on the southern portion of the island. A map of the barrier island is provided in Exhibit 1. The south ocean beach has experienced enough beach erosion to deem the properties located there endangered. The south sound-side waters have experienced significant shoaling, which has made the Middle Sound Channel nearly impassable by small boats, except at high tide, affecting the boating and water-recreation use by property owners. As a result, many sound-side waterfront property owners have requested that the channel be dredged to remove the shoaling.

Without beach renourishment and dredging channel maintenance, the island will likely suffer serious damage during future storms. Additionally, the increased threat of hurricanes to the Atlantic coastline reinforces the immediate need for action.

Development on Figure 8 Island began in 1965. As of January 1994, the property tax listings noted 568 total properties on the island. Of this total, 271 properties were developed and 297 properties were undeveloped (Table 1). All lots, both developed and undeveloped, are single family residential properties. The majority of homes on the island are vacation residences belonging to affluent and often high-profile people.

All lot owners pay equal annual amounts for required membership in the Homeowners Association. The Homeowners Association does not charge dues based on property development status, property value, or lot size. Homeowner dues are for the purpose of covering the cost of operations, maintenance and capital improvements to the island. No percentage of homeowner dues are reserved to cover environmental contingencies like beach restoration or channel dredging.

The Homeowners Association has a number of subcommittees to assist the Board of Directors in maintaining the welfare of the island community. The Long Range Planning Committee contracted with environmental engineers in October of 1993 to review the endangered shoreline and shoaling channels threatening the island and to propose a solution.

PLAN FEASIBILITY AND ENVIRONMENTAL ISSUES

A study of the feasibility of channel maintenance and beach restoration was undertaken by consultants, Dr. William Cleary and Dr. Paul Hosier. In May of 1994, Drs. Cleary and Hosier provided an extensive report to the Board of Directors detailing the environmental consequences of undertaking a beach renourishing project.

The report outlined a three-phase process for maintaining the island. Phase I included channel dredging from Middle Sound Channel with relocation of the dredged sand to the southern ocean side of the island. This sand relocation would reestablish the beach width to 1990 conditions. Phase II called for channel maintenance and shoreline nourishment for the northern portion of the island. The sand source for beach replenishment in Phase II would come from the dredging of nearby Rich's Inlet. Phase III proposed continued channel maintenance of the Middle Sound Channel and dune reconstruction in order to further fight erosion.

Phase I, being the most urgent, was presented in great detail by Dr. Cleary and Dr. Hosier. The environmental concerns resulting from the implementation of Phase I included disturbing coastal wetlands, interference with turtle nesting activities, and water quality. In order to avoid degrading wildlife in the wetlands, no dredging or filling would take place in tidal wetlands. To avoid interference with the nesting activities of the endangered loggerhead turtle, no beach renourishment would take place between May 1st and November 15th. Water quality changes resulting from dredging would be addressed through bulldozing a dike. This dike would provide a channel for the water running over

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the newly dredged material. Thus the channel will force "dredged" water to enter the ocean at one location instead of entering the ocean over a wide area.

With these stipulations in place, the report concluded that no significant long term changes in wildlife feeding, nesting, or other habitat were expected to occur as a result of the dredging and renourishment activities of Phase I. A detailed analysis of Phases II and III plans were to be addressed upon completion of Phase I.

PHASE I

To implement the beach restoration and channel dredging for the southern part of the island, the island was broken into four districts as indicated in Exhibit 1. District A included all lots on the south oceanside of the island. This district needed immediate beach renourishment to save endangered lots. District B included all lots on the north oceanside of the island. District C included waterfront lots on the south sound side. The sand located in the Middle Sound Channel in front of these lots would be dredged to provide beach sand for District A. District D included lots on the north sound side as well as all inland lots also located at the northern end of the island.

The details of Phase I dredging and beach maintenance follow: *Approximately 550,000 cubic yards of sand will be removed from 5,476 feet of the Middle Sound Channel behind Figure 8 Island using a hydraulic pipeline dredge with beach disposal. Sand removed from Middle Sound Channel will be discharged along a 9,700 foot section of the lots located in District A of the island. The sand will be deposited to provide an equilibrated berm of 55 feet.* Removal of sand will widen the Middle Sound Channel to 300 feet for approximately 3,600 feet along the northern portion of the channel, then widening to 900 feet with an 1,800 foot section nearest Mason's Inlet. The channel will be dredged to a depth varying from 9.7 feet at the south end to 9.3 feet at the northern terminus of the channel.

The cost estimates for this project were between \$750,000 and \$1,250,000. These estimates assumed that 550,000 cubic yards of sand would be pumped at a cost of between \$1.20 and \$2.00 per cubic yard and that the administration and contingency cost estimates would be between \$90,000 and \$150,000.

The homeowners of Figure 8 Island expect to accrue the following benefits from the completion of Phase I:

- 15 developed and undeveloped endangered lots will receive extended lifespan
- Beach renourishment will provide additional time before major dune reconstruction is necessary
- The recreational potential of both the ocean beach and Middle Sound Channel will be enhanced
- The possibility of overwashing and threat of erosion to the single access corridor to the island, Beach Road South, will be reduced
- The damage associated with hurricanes and nor'easters should be reduced.

THE MEETING

Mike Powell, excited about the results of the 8-month long study, looked forward to sharing the news with the property owners of island. Property owners from each district, understanding the long-term interests of the island were at stake, attended a special meeting called by the Homeowners Association. Property owners were given a

proposal on how the cost would be divided upon arrival at the meeting (Tables 2, 3, and

4).

MIKE POWELL (HOMEOWNER ASSOCIATION PRESIDENT):

Welcome everyone to this special meeting of the homeowners of Figure 8 Island. The board of directors is pleased to finally announce that a plan to save the southern part of the island is feasible and has been approved. On behalf of the island, I would like to especially thank Dr. Cleary and Dr. Hosier for their contributions to this extensive project.

The proposed assessment you received as you walked in describes the costs of renourishing the south oceanside beach and dredging the southern portion of the Middle Sound Channel. It is impossible to pinpoint an exact amount, but the project will cost between \$750,000 and \$1,125,000 to complete.

ROGER McDONALD (ENDANGERED DEVELOPED LOT OWNER):

It looks to me like the owners of endangered properties will bear 10% of the projects actual total cost, in addition to paying a portion of the remaining 90%.

MIKE POWELL:

Roger, that is absolutely right. The Board of Directors is aware that numerous small, privately funded canal dredgings and beach restorations have successfully taken place on the island. Those projects were paid for by the individual property owners. However, given the size of the project at hand, it would not be fair to charge the whole project to the owners of endangered property. As a result, owners of properties in immediate danger will only be directly responsible for a portion of the project costs.

JEFF BAKER (DISTRICT B PROPERTY OWNER):

So the whole island is equally dividing the remaining costs of the project equally?

MIKE POWELL:

As stated in the assessment, all lot owners will pay the same amount to cover the remaining costs of the project. Membership in the Homeowners Association is the same fixed annual amount for all property owners. So, when major projects arise that will affect the good of the island, the Board of Directors feels it should be charged just like homeowner dues.

JIM ALFORD (DISTRICT D, MIDDLE SOUND SIDE):

It looks to me like the dredging of the channel in front of District C is really going to allow better passage for watercrafts in that area and will make their lots much more useable. If it does not do that for me, my benefit is only indirect. Why am I paying the same amount as someone who is directly benefiting from this whole project?

JOHN AIMES (DISTRICT D, INTERIOR LOT):

This project is doing nothing for me, and I'm not paying anything. I receive no direct benefit at all. Listen, everyone takes a risk when they buy an island property. When you pay more for a beachfront property, you get to enjoy the view and the beach. But the trade off is the potential for erosion, and if you can't pay for the upkeep of your own property, you shouldn't live on an island.

MIKE POWELL:

John, having nice beachfront property around you stabilizes the value of your property. Plus, if beachfront property washed away, you'd be next in line for the erosion.

JOHN AIMES:

That may be true, but the value of my home and lot would go up dramatically by assuming a beachfront position. So, by saving endangered lots you're really holding back the value of my property. You should be paying me for decreasing the value of my property!

STEPHANIE MARTYN (DISTRICT C):

I think John is taking this a bit far, but does have a point concerning property values. Reflected in the value of every property on this island are the characteristics for the particular property. Location, development status, and size are all built into the value of the property. Why don't we allocate and assess the costs of this project based on the relative property value of each property on the island? That way a small interior lot would not pay as much as a large beachfront property.

CHRISSY OLSON (DISTRICT A, NOT ENDANGERED):

I think you have a point Stephanie. But I'll do you one better. I know this whole project is really saving the value of my property in the long run. I really feel bad for Roger, and I know that my property would be the next in line if all the endangered properties are abandoned. Believe it or not, we are all receiving benefits from this project. I realize my property will receive more benefit than, say, an interior lot. I think a scheme could be developed to allocate the project costs based on benefits received.

District A could be weighted at 5 times property value when allocating costs. Sand will be moved to provide a 55 foot berm in front of most of the District A properties. These properties are, thus, receiving the largest property value protection and recreational benefit of the project.

District B, on the north coast of the island, could be weighted at twice the property value. This recognizes the fact that beach renourishment programs benefit ocean front property value more than others. Further, a precedent is being set that any future beach renourishment programs of this size will be born proportionately more by ocean front lots.

District C could also be weighted at twice the property value. As a result of this particular project, Middle Sound side waterfront lots will receive improved boat water access and protection of current boating privileges. It is appropriate that these lots bear more cost than non-South Middle Sound access lots.

District D properties could remain weighted at assessed property values. These lots receive indirect benefit from renourishment through maintenance of property values.

JOHN AIMES:

I'm still not paying. All this talk about paying based on future benefits is absurd. How can you talk about future benefits on a barrier island like this? We are subject to hurricanes that could wipe this place out tomorrow. The only valid measure at all is present property value and...

JEFF BAKER:

John, you're so selfish. I think we could all chip in and pay equally...

STEPHANIE MARTYN:

Don't be ridiculous. Our tax assessed property values are set in stone. (Table 5) Let's just use a number we know we can't argue about...

CHRISSY OLSON:

Everyone is acting like this island won't be here tomorrow. There will be future benefits associated with this project. It's the job of the Homeowners Association to preserve this island, right Mike?

MIKE POWELL:

We will have to meet on this issue at another time. Let's schedule another meeting for May 31st. The Board of Directors will try to consider the points you've brought up to find an equitable way to pay for this project.

The Homeowners' Association is struggling with which cost method to use when allocating costs to individual property owners. Their debate centers around which policy is the "fairest" to all parties. Certainly, no true cost allocation is absolutely correct, however, the arguments at the homeowners' meeting addresses a number of alternatives for allocating the project costs.

A basic allocation is proposed by the Homeowners Association. Their proposal allocates cost using the number of lots on the island: Endangered lots are assessed tenpercent for the total estimated cost based on historical precedent with each other lot assessed an equal share of the estimated total cost after the initial direct charge to endangered properties. The results of these calculations are presented in Table 4.

The second allocation, proposed at the meeting, focuses on relative property values. This proposal would allocate cost to individual property owners based on unbiased and straightforward tax assessments of value that are proportional to property market values. The values given in the case reflect district values, and from these district values, an average lot value can be derived. Table 6 provides an example of this allocation scheme for the endangered lots.

The third allocation, also proposed at the meeting, attempts to match cost with benefit. This proposal calls for the cost to be allocated to each lot in proportion to the estimated benefits each lot will realize over time. Weighting factors are proposed in the case to adjust relative sales values to reflect relative benefits received from the dredging and replenishment project.

Assignment Questions

- What is the average cost to each property owner in Districts A, B, C, and D if costs are allocated based on relative property values as suggested by Ms. Martyn (use the allocation of 10% of the total cost to the endangered lots provided in Table 6).
- What is the average cost to each property owner in Districts A, B, C, and D if costs are allocated based on relative benefits received as suggested by Ms. Olson (use the allocation of 10% of the total cost to the endangered lots provided in Table 6).
- Suppose property values for the participants attending the meeting were as follows:

Name	District & Location	Assessed Value
Roger McDonald	Endangered lot, District A	\$430,000
Chrissy Olson	Not endangered, District A	270,000
Jeff Baker	District B	370,000
Stephanie Martyn	District C	190,000
Jim Alford	Sound-front lot. District D	212.000
John Aimes	Interior lot, District D	160,000

How much will each of these owners pay using each of the three cost allocation methods?

- 4. Which of the three cost allocations do you believe is the best? Why? Which is the most fair? Why?
- 5. What does this analysis suggest about the Homeowner Association's policy of charging equal annual dues for each lot? Is this policy equitable? Why or why not? How do annual dues differ from the costs of the dredging and replenishment project?
- 6. How would you respond to each proposal if you were a property owner?

7. Can you suggest an alternative proposal that would better meet the objectives of a fair allocation to each property owner?

EXHIBIT 1 FIGURE EIGHT ISLAND



ATLANTIC OCEAN

TABLE 1				
FIGURE 8 ISLAND PROPERTIES				
District	Number of	f Properties	Total	
A (South oceanside)**	61	42	103	
B (North oceanside)	55	70	125	
C (South Middle Sound side)	99	98	197	
D (North Middle Sound side and interior lots)	56	87	143	
	271	297	568	
**South oceanside contains 15 endangered properties Developed Endangered = 8 lots Undeveloped Endangered = 7 lots				

TABLE 2
ALLOCATION OF 10% OF TOTAL COST TO ENDANGERED LOTS

	Developed	Undeveloped	
LOW ESTIMATE - \$750.000	Lots	Lots	<u>Totals</u>
Total Cost			\$750,000
10% Allocation			\$75,000
# Endangered Lots	15	8	15
Direct Cost To Each Endangered Lot			\$5,000
	Developed	Undeveloped	
<u>HIGH ESTIMATE - \$1,250,000</u>	Developed <u>Lots</u>	Undeveloped <u>Lots</u>	Totals
<u>HIGH ESTIMATE - \$1,250,000</u> Total Cost	Developed Lots	Undeveloped Lots	<u>Totals</u> \$1,250,000
HIGH ESTIMATE - \$1,250,000 Total Cost 10% Allocation	Developed <u>Lots</u>	Undeveloped Lots	<u>Totals</u> \$1,250,000 \$125,000
HIGH ESTIMATE - \$1,250,000 Total Cost 10% Allocation # Endangered Lots	Developed Lots 15	Undeveloped Lots 8	<u>Totals</u> \$1,250,000 \$125,000 15
HIGH ESTIMATE - \$1,250,000 Total Cost 10% Allocation # Endangered Lots Direct Cost To Each Endangered Lot	Developed Lots 15	Undeveloped <u>Lots</u> 8	<u>Totals</u> \$1,250,000 \$125,000 15 \$8,333

TABLE 3

REMAINING COST ALLOCATION - BASED ON NUMBER OF LOTS

LOW ESTIMATE \$750,000

	Total # of			Total cost to	Cost Per
	Lots	Allocation %	Cost to Allocate	Each District	Lot
District A	103	18.13%	\$675,000	\$122,403	\$1,188
District B	125	22.01%	\$675,000	\$148,548	\$1,188
District C	197	34.68%	\$675,000	\$234,111	\$1,188
District D	143	25.18%	\$675,000	\$169,938	\$1,188
Total	568	100.00%		\$675,000	
			Plus Direct Allocation		
			to District A	\$75,000	_
		тс	DTAL PROJECT COST	\$750,000	=

HIGH ESTIMATE \$1,250,000

	Total # of			Total cost to	Cost Per
	Lots	Allocation %	Cost to Allocate	Each District	Lot
District A	103	18.13%	\$1,125,000	\$204,005	\$1,981
District B	125	22.01%	\$1,125,000	\$247,579	\$1,981
District C	197	34.68%	\$1,125,000	\$390,185	\$1,981
District D	143	25.18%	\$1,125,000	\$283,231	\$1,981
Total	568	100.00%		\$1,125,000	
			Plus Direct Allocation		
			to District A	\$125,000	_
		-	TOTAL PROJECT COST	\$1,250,000	
			=		-

Table 4 SUMMARY OF COSTS TO PROPERTY OWNERS BY DISTRICT

Average Lot PROJECT COST \$750,000 TO \$1,250,000

	\$750,000	<u>\$1,250,000</u>
DISTRICT A - ENDANGERED	\$6,188	\$10,314
DISTRICT A	\$1,188	\$1,981
DISTRICT B	\$1,188	\$1,981
DISTRICT C	\$1,188	\$1,981
DISTRICT D	\$1,188	\$1,981

TABLE 5

FIGURE 8 ISLAND ASSESSED PROPERTY TAX VALUES

Property Values

De	eveloped Lots	<u>Unc</u>	leveloped Lots	To <u>Pi</u>	otal Assessed roperty Value
\$	2,585,246	\$	1,164,987	\$	3,750,233
	17,127,254		5,824,933		22,952,187
	19,712,500		6,989,920		26,702,420
	18,909,200		10,805,000		29,714,200
	21,122,690		7,463,460		28,586,150
	13,831,510		6,635,000		20,466,510
\$	90,703,154	\$	37,718,313	\$	132,171,700
	<u>De</u> \$	Developed Lots \$ 2,585,246 17,127,254 19,712,500 18,909,200 21,122,690 13,831,510 \$ \$ 90,703,154	Developed Lots Unc \$ 2,585,246 \$ 17,127,254 19,712,500 18,909,200 18,909,200 21,122,690 13,831,510 \$ 90,703,154 \$	Developed Lots Undeveloped Lots \$ 2,585,246 \$ 1,164,987 17,127,254 5,824,933 19,712,500 6,989,920 18,909,200 10,805,000 21,122,690 7,463,460 13,831,510 6,635,000 \$ 90,703,154 \$ 37,718,313	Developed Lots Undeveloped Lots To \$ 2,585,246 \$ 1,164,987 \$ \$ 17,127,254 5,824,933 \$ \$ 19,712,500 6,989,920 \$ \$ 18,909,200 10,805,000 \$ \$ 21,122,690 7,463,460 \$ \$ 37,718,313 \$

TABLE 6ALLOCATION OF 10% OF TOTAL COST TO ENDANGERED LOTS

		Average	Average
	Total Lots	Developed Lots	Undeveloped Lots
Total Property Value District A	\$26,702,420	\$19,712,500	\$6,989,920
# Lots	103	61	42
Average Value Per Lot	\$259,247	\$323,156	\$166,427
# Endangered Lots	15	8	7
Value of Endangered Lots (Table 5)	\$3,750,233	\$2,585,246	1164987
Average Value Per Endangered Lots	\$250,016	\$323,156	166427
% Value Per Endangered Lot		68.9%	31.1%
Low Estimate for Allocation	\$750,000		
10% of Low Cost Estimate	\$75,000		
High Estimate for Allocation	\$1,250,000		
10% of High Cost Estimate	\$125,000		

Based on Average Value of All Endangered Lots

Low Cost Estimate \$750,000: Allocation of \$75,000 (10%)	
Cost Allocated As a Percent of Average Endagered Lot Value	2.00%
Direct Cost To Each Endangered Lot	\$5,000
High Cost Estimate \$1,250,000: Allocation of \$125,000 (10%) Cost Allocated As a Percent of Average Endagered Lot Value	3.33%
Direct Cost To Each Endangered Lot	\$8,333

Based on Relative Value of Developed versus Undeveloped Lots

Low Cost Estimate	Developed Lots	Undeveloped Lots
Allocation of \$75,000 Low Project Cost	\$51,702	\$23,298
Allocation Per Lot	\$6,463	\$3,328
High Cost Estimate Allocation of \$125,000 Low Project Cost Allocation Per Lot	\$86,170 \$10,771	\$38,830 \$5,547