

RESERVE STUDY

FOR

SANDPIPER CAY CONDOMINIUM

OWNERS ASSOCIATION

KITTY HAWK, NORTH CAROLINA



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Sandpiper Cay Reserve Study

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INTRODUCTION

DLM Architects is pleased to present this reserve study for *Sandpiper Cay Condominium Owners Association*. Sandpiper Cay is a 280 unit association located in Kitty Hawk, North Carolina. DLM Architects has been requested by the Association Manager, Ansley Miller with Village Realty and Management Services, Inc. and authorized by the Board of Directors to prepare this Reserve Study. The study aids the Association in determining the annual funding required for the capital reserve fund. This study is limited to the reservable items of common ownership. These reservable items are defined by the Declarations and agreed upon in the proposal by DLM Architects dated January 26, 2009, and signed by Steve Kinnier, President. The common area elements covered by this study are identified on page three of this report.

The conditions presented in this study are as accurate as possible at the time this study was prepared. The conditions are assumed to be fairly accurate for one year. It must be noted that these conditions will change and conditions discovered in the future may be considerably different from those reported herein. Furthermore, rates of inflation and interest will change in the future which will affect the future financial projections of this study. It is our recommendation that the information contained in this study must be reviewed, and updated accordingly, once a year.

REQUIREMENT FOR THE RESERVE FUND

A Reserve Fund and Reserve Study are advantageous for the long term security of the homeowners and for accounting purposes. The Reserve Study is also an essential tool in determining the items and values to be included in the Reserve Fund for compliance with requirements of federal tax laws and restrictions.

Furthermore, **CHAPTER 47C - NORTH CAROLINA CONDOMINIUM ACT § 47C-3-102**. Powers of unit owners' association.

(a) Subject to the provisions of the declaration, the association, even if unincorporated, may:

- (1) Adopt and amend bylaws and rules and regulations;
- (2) Adopt and amend budgets for revenues, expenditures, and reserves and collect assessments for common expenses from unit owners.

Finally, many mortgage lenders are requiring a Reserve Study to determine whether the Association is adequately funded before a resale to their borrower.

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Without a Reserve Study, one alternative for accumulating funds is to have the Association guess at what people are willing to pay without objections and charge them that amount. This method would please the unit owners, because monthly fees may be somewhat lower. However, the community may run the risk of deterioration, if the appropriate funds are not available to cover necessary repairs or replacement to the common elements when the need arises.

The other alternative for accumulating funds is to have the Association levy a special assessment. The unit owners will be required to pay the cost of necessary repairs or replacement of deteriorated common elements as they occur. While this might raise the exact amount of money for the repair or replacement, it would inequitably assess future unit owners for costs associated with current depreciation of the common elements. Practically, a special assessment would depress resale values ahead of the assessment. This could be a financial burden on some unit owners, since it would have to be paid over a short period of time.

The proper method to obtain funds for a Replacement Reserve Fund is to estimate the costs to replace or repair materials and annually set aside funds in advance to cover these costs. That is exactly the purpose of this Reserve Study. If the recommendations of the Reserve Study are followed, then this method determines everyone's contribution into the Reserve Fund, which means that adequate funds will be available when repair or replacement of items is necessary. This method also ensures that those who are using the facilities are responsible for the depreciation of those facilities while they are being used.

DETERMINATION OF RESERVABLE ITEMS

DLM Architects conducted a visual survey of the buildings, grounds and related components, examined documents and spoke with Ansley Miller. We estimated conditions, quantities, and ages of the various common elements included in this study. Various consultants and contractors were contacted to confirm our conclusions as to the age and condition of these items.

The common elements are as defined by the Declarations and, therefore, must have the appropriate funds reserved to cover the expense of replacing or repairing them in the future. The limited number of common elements included in this study are listed on the following page:

SITE	COMMON BUILDING AREA	DWELLING UNITS
Asphalt Pavement	Clubhouse Siding	Asphalt Shingles
Asphalt Sealer	Clubhouse Flooring	Flat Roofs
Concrete Curb & Gutter	Clubhouse Furniture	Gutter & Downspouts
Concrete Drives	Clubhouse Kitchen Appliances	Chimney Caps & Enclosures
Concrete Sidewalks	Clubhouse Office Equipment	Brick Masonry
Community Signage	Clubhouse Toilets & Showers	Wood Siding
Retaining Walls	Swimming Pool Liner	Wood Trim
Dumpster Pads	Swimming Pool Equipment	Patio Fences
Irrigation	Swimming Pool Fence	Private Exterior Stairs
Pump Stations	Swimming Pool Deck	Balconies
Boardwalk	Pool Furniture	Patios & Decks
Tennis Courts	Patio/deck	Building Mounted Lighting
Tennis Court Fence	Clubhouse Hot Water System	Sealants & Caulking
	Clubhouse Central HVAC	

ANNUAL FUNDING REQUIREMENT

It would seem that the annual funding required for a particular reservable item could be established by determining the cost to replace the component and dividing it by the remaining useful life of the component. This over simplifies the formula, so it is important to know that many factors can affect the accuracy of the annual funding requirement.

To estimate the cost of various components, we begin by determining the quantities of each component. This can be accomplished by actual field measurements and by quantity take-offs from field measurements and architectural construction drawings obtained by DLM Architects. Conditions and quantities shown on the drawings are assumed to be accurate. After the quantities are determined, costs can be estimated through the extensive database that DLM Architects has available to them. These costs are then verified with local contractors and with similar projects that were recently completed. They are also modified based on the project size, location, schedule and the difficulty of work. However, it should be noted that these costs are estimated and actual price quotations will vary.

Costs of replacement can also vary greatly due to fluctuation in the cost of materials, availability of replacement materials, status of the labor market, status of the economy as a whole and cost of contractor overhead, and insurance costs at the time the replacement work is done. All costs estimated in this Study are based on our recommendation that the Association contract directly with a contractor who specializes in the appropriate trade of the work to be done. In other words, we have not included any costs for the overhead and profit of a general contractor to oversee and coordinate the work of different trades because it is our assumption that each item of replacement work will be accomplished non-simultaneously with other items of replacement work.

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According to information provided by Ansley Miller, construction began in 1989. We have used an average of **twenty (20)** years for the present age of all building materials unless otherwise noted.

The anticipated life of a building component is more difficult to estimate. To estimate what its performance should be, we have to rely on historical experiences with similar products used in the same way. Additional factors that affect the performance of a component include the proper detailing of the materials, the quality of the workmanship with which it was installed, its current condition and its exposure to the surrounding environment. The other big factor that determines the remaining life of a component is the quality and frequency of maintenance it receives. Better and more frequent maintenance can greatly extend the remaining life of a component. Regular painting, cleaning of gutters, seal coating asphalt and caulking are important for extending the component's remaining life as well as keeping the community looking good. In some sections of this study, the current condition of the component is described using terms based upon the USACERL Condition Rating System. An explanation of that system follows:

USACERL CONDITION DESCRIPTION (per sample unit)				
Condition Rating	Category	Amount of Distress	Functionality	Type of M&R
86 – 100	Excellent	Minimal deterioration	Not Impaired	Preventive or minor maintenance or minor repair
71 – 85	Very Good	Minor deterioration	Slightly Impaired	Preventive or minor maintenance or minor repair
56 – 70	Good	Moderate deterioration	Somewhat Impaired	Moderate maintenance or minor repair
41 – 55	Fair	Significant deterioration	Seriously impaired	Significant maintenance or minor repair
26 – 40	Poor	Severe deterioration over a small portion of the sample unit	Critically Impaired	Major repair with short term return on investment
11 – 25	Very Poor	Severe deterioration over a moderate portion of the sample unit	Barely exists	Major restoration with no return on investment
0 - 10	Failed	Severe deterioration over a large portion of the sample unit	Lost	Total replacement

The quantity, anticipated life and existing condition of the common elements at *Sandpiper Cay* are indicated on the following pages.

RESERVABLE ITEM:	ASPHALT PAVEMENT
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TOTAL QUANTITY:	25,365 S.Y.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	10 YRS.
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EXISTING CONDITIONS:

The asphalt surfaces include all of the paved surfaces on Swordfish Way, Captain Cuttle Court, Angler Way, Barnacle Lane, Coral Reef Court, Seahorse Court, Neptune Way, Sailfish Way, Sand Dollar Circle and the adjacent parking spaces. Sand Dune Drive and Cay Trail are county roads and are maintained by Dare County. The existing drives have an asphalt-based surface course of SM-2A bituminous asphalt 2" in depth with 2" of BM-2A underlayment and 4" of compacted aggregate base, per the construction drawings. The surfaces have not been seal coated.

The overall condition shows about 15% of the aggregate in the asphalt showing, indicating wear to the surface. The overall condition is variably good (56-60) with minor alligating, a few patches and depressions noted throughout the surfaces. The overall condition is better than would normally be expected from an asphalt surface of this age; therefore, we have given it an extended remaining life.

There are no aprons in front of the dumpsters. The pavement in the worst condition is where the refuse trucks have caused damage to the asphalt surfaces. When repaving the parking lots, consideration should be given to adding a concrete apron in front of each dumpster to better distribute the loads from the trucks.

All cracks, when they occur, should be bevel cut and replaced with an asphalt-based patching to prevent water infiltration and damage from the winter freeze-thaw cycles. Water draining through the cracks will liquefy the soil under the base, further weakening the support for the pavement. All minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

There are two reasons to repave. The first is the structural failure of the asphalt pavement, which can be seen as "alligating" (breaking of the surface course into salad plate size pieces). The second is aging, which is the erosion of the thickness of the surface course, resulting in a thinner pavement cross-section. This condition creates a very rough surface and is usually accompanied by significant aggregate accumulations in the gutters.

The National Asphalt Pavement Association recommends the asphalt surface should be overlaid in the future with a minimum 1½" layer of asphalt once every twenty-five (25) years. NAPA also recommends

that the Association consider the following issues when writing a contract and selecting a contractor for the repaving:

1. Decide who will raise any water valves or sewer inlets to meet the new asphalt around them.
2. Assign specific responsibilities and make notes.
3. Surface drainage is very important. Make sure your contractor plans and builds adequate surface slopes to produce good drainage. So-called “ponding,” or standing water, on or near the drives, is undesirable.
4. Once you have taken bids and selected the contractor you want, you’re ready for the contract.
5. A construction contract should detail such items as the responsibility for measuring pavement thicknesses, milling the surface for pavement slopes and smoothness, payment schedule and guarantee of the finished product.
6. Alligatored areas of the existing pavement do not make a good foundation for an overlay. The contract must be clear that these areas must be dug out, the base recompact and new pavement placed of a thickness to match the surrounding areas.
7. "Milling" removes 1" to 1½" of the existing surface so the height of the new pavement aligns with the adjacent curb and gutter. In the future, when it becomes time to repave, "milling" the surface is absolutely essential to prevent a reduction in curb height which increases the risk of vehicles “jumping the curb.” We included "milling" in our estimate in the Reserve Schedules at the end of the Reserve Study.
8. When it comes time to repave in the future, we strongly recommend a tack coat over the old pavement before the new asphalt is laid. The tack coat greatly improves the bond between the old and new pavement, reducing the probability that water will get between the layers, freeze and create potholes in the new pavement.
9. It’s important to make sure your contractor has adequate liability insurance. Ask for written proof of it.

RESERVABLE ITEM:	ASPHALT SEAL COATING
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TOTAL QUANTITY:	25,365 S.Y.	% OF REPLACEMENT:	100%
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PRESENT AGE:	5 YRS.	REMAINING LIFE:	0 YRS.
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EXISTING CONDITIONS:

The asphalt surfaces do not appear to have been seal-coated. The overall appearance indicates that the drives should be seal-coated now and at least every five (5) years thereafter. It is rated as failed (0-10), indicating it needs to be addressed this year.

Failure to seal coat can result in deterioration of the surface and a shortened life expectancy. Before applying the seal-coating, the cracks and other defects need to be repaired and leveled to provide a uniform surface. This is based on the standards from National Asphalt Paving Association. They state, "A high-grade asphalt emulsion sealer (sometimes called bituminous emulsified sealer) should be applied every two to five years, depending on climate and wear patterns. Pavement that is sealed regularly looks better and lasts longer. Emulsion sealers consist of asphalt cement treated to mix with water. Once applied, the water evaporates, the material hardens, and the surface is waterproof."

Seal coating is very important in maintaining structurally sound pavements for the following reasons:

1. Gas and oil can penetrate into the asphalt and break it down prematurely. This is because asphalt is also a petroleum based product. The gas or oil dissolves the asphalt binder that holds asphalt together. Coal tar is impervious to gas and oil and it keeps damaging fluids away from the asphalt, allowing the rain to wash the pavement clean.
2. Structurally sound pavements can dry out prematurely from the sun's ultraviolet rays. It makes the asphalt cement brittle and, as a result, the asphalt fines and then the larger aggregate can ravel away. The coal tar forms a tough bond that does not allow the UV rays from the sun to penetrate into the pavement.
3. Once the pavement has been weakened from the above two conditions, water can wash away the aggregates that are the strength of any pavement.
4. Asphalt is not a completely waterproof substance. If water is left sitting on the pavement it can penetrate into the sub-base causing premature pavement failure. The coal tar reduces these affects

by making the pavement much more waterproof and the jet black color raises the temperature of the pavement making water evaporate more quickly.

The color and condition of the asphalt indicate that approximately 15% of the aggregate is now exposed in the drives and parking spaces. This can result in deterioration of the surface and a shortened life expectancy if not regularly slurry seal-coated. As the asphalt aggregate is exposed, it is eroded by the traffic over the surface.

Before applying the seal-coating, the cracks and other defects need to be repaired and leveled to provide a uniform surface. Particular attention needs to be given to the sections of the parking spaces that have problems similar to those noted in the section on asphalt pavement.

RESERVABLE ITEM:	CONCRETE CURB AND GUTTER
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TOTAL QUANTITY:	5,326 L.F.	% OF REPLACEMENT:	10%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The curb and guttering in the community consist of 5,326 linear feet of curb and gutter located on the perimeter of the drives. All of the surfaces are a smooth machine finish.

There are a number of cracks, as well as areas damaged by traffic running over the curb at the intersections. It is important, in order for these structures to reach their anticipated life, that the needed repairs are made now and on a regular basis in the future. The overall condition is rated as variably good (65-70).

Under normal conditions, the curb and gutter should last the life of the community. There is some cracking of the curb and the gutter, but there are no areas of major deterioration. Some of the cracking is at the various intersections which appears to be caused by impact from vehicles. There are linear cracks in the curbs and gutters, but nothing indicating immediate replacement at this time.

There will be more cracking due to settlement and impact from traffic in the future. Areas of additional concern will be at the joints with the concrete drive surfaces and the asphalt pavement, which may show some vegetative growth in the future.

The existing cracks and damaged areas should be repaired now before the winter freeze-thaw cycles compound the damage. Broken sections will need to be removed and recast. Smaller cracks should be cut on a reverse angle and filled with an appropriate concrete mixture. In the future, the existing expansion joints in the curb and the gutter will need to have the existing caulking removed, the area cleaned and the joints caulked with a polysulfide caulking compound.

Severely broken or cracked sections should be replaced when damage occurs. The "2001 Housing Facts, Figures and Trends" published by the National Association of Home Builders (NAHB) lists the life expectancy of concrete as 50 years. It is estimated that over a thirty-year period, ten percent (10%) of the curb and gutter will need replacement in this manner. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM:	CONCRETE PAVEMENT
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TOTAL QUANTITY:	2,000 S.F.	% OF REPLACEMENT:	20%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The only concrete pavement is located at the clubhouse. The concrete pavement consists of three broom finished slabs, each approximately 35 feet by 20 feet, with an asphalt impregnated wood fiber strip between the individual slabs. The surface was found to be about four inches (4") thick and did not show any hollow areas. The overall condition is rated as variably good (56-65).

There is one significant crack through the middle of the concrete pavement. The more severely cracked sections need to be demolished and replaced. At that time the concrete should be poured in smaller sections to reduce the amount of shrinkage and thereby reduce the tendency to crack. There will be more cracking in the future due to settlement and impact from traffic. The areas of particular concern are at the joints, which all show some deterioration of the caulking. This area is being used as for outside storage.

American Concrete Institute standards state, that under normal conditions, the drive should last the life of the facility. Severely broken or cracked sections should be replaced when damage occurs. It is estimated that over a thirty-year period, twenty percent (20%) of the drive will need replacement in this manner. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM:	CONCRETE SIDEWALKS
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TOTAL QUANTITY:	6,355 S.Y.	% OF REPLACEMENT:	10%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The site contains three feet (3') and four feet (4') wide broom finished surface concrete sidewalks which connect the drives and parking areas to the dwelling units.

The existing concrete walks are in variably good (56-70) condition. There are some minor cracks that appear to be from impact or subsidence. There are a few areas of displacement, cracking and spalling throughout the community.

The "2001 Housing Facts, Figures and Trends," published by the National Association of Home Builders (NAHB), lists the life expectancy of concrete as 50 years. The American Concrete Institute states in several publications that concrete should exceed the life expectancy of the structures.

These minor cracks can be filled with a polysulfide caulking sealant. In the future, all of the sidewalks with significant spalling or displacement need to be repaired as soon as possible to prevent future damage and to reduce any tripping hazard. The displaced areas that constitute a tripping hazard need to be leveled with the edge of the curb. This can be accomplished by raising the existing slabs or by removing and re-pouring the concrete.

In the future, severely broken or cracked sections should be replaced when damage occurs. It is estimated that over a thirty-year period, normally ten percent (10%) of the sidewalks will need replacement in this manner. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM:	COMMUNITY SIGNAGE
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TOTAL QUANTITY:	11 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	10 YRS.
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EXISTING CONDITIONS:

Community signage consists of one large (5' x 6') community identification sign located on Sand Dune Drive. It is mounted on three (3) 4" x 4" poles recessed in the ground. The community identification sign is of sand blasted wooden construction with a paint finish. The sign is in good condition (56-70), but needs to be re-painted. The posts are not capped or treated. There is some indication of damage from lawn equipment.

The ten (10) 'stop' and street signs are constructed of 4" x 4" treated wood posts with metal signage, approximately six feet (6') high and are unpainted. The signs are generally in good condition, showing some damage from moisture and maintenance equipment. The signs need to be maintained with a power washing and wood preservative stain treatment for the posts and paint for the signs, now and on a regular basis in the future. Broken and warped boards should be replaced. Given the current condition, the Reserve Study anticipates the total replacement in ten (10) years due to deterioration, warpage, decay and damage. The overall condition is rated as variably good (56-70). Due to the very low cost of replacing these items, no reserve is required.

RESERVABLE ITEM:	RETAINING WALLS
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TOTAL QUANTITY:	650 L.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	5 YRS.
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EXISTING CONDITIONS:

There is a pile and frame wood retaining wall located at the landscaped areas on the north side of the community at the entrance, along the north side of the clubhouse, along the bluff on Seahorse Court and at several points on Angler Way. The wall structures are generally in variably poor condition (26-40) with indications of settlement and decay in the wood structures.

Retaining walls are subject to settlement from soil and hydrostatic pressures and the walls should be monitored. The retaining walls are showing some early signs of deflection due to soil pressure and the cracking of one of the top most planks, but should remain in service for its useful life. There are no indications of repairs to correct this deflection.

It is recommended that some systematic monitoring of the rate of deflection of the wall be undertaken to better estimate the life of the structure. This can be accomplished by annual or biannual measurement of the amount of rotation of the top of the wall. Replacement will require construction of a new wall. The value in the Capital Repair/Replacement Schedule assumes that the newly constructed walls will require removal of the existing walls.

Any new retaining wall should have the wooden posts capped on top to prevent any damage from water intrusion into the exposed end grain of the wood. We recommended capping them with a prefabricated copper or aluminum post cap to extend the life of the posts past the expected remaining life. Repeated wettings by rainfall leach the treatment chemicals from the wood and the wood very rapidly loses its resistance to decay. When the last of the treatment chemicals leaches out, wood destroying organisms quickly begin their attack.

Care should be taken to avoid damaging the posts with string trimmers and other yard maintenance equipment. The damage from the string trimmers is especially a problem as it can cut into the wood and weaken the post itself as well as providing an opening for rot and insects. We recommend a herbicidal control be sparingly applied by the lawn maintenance crews instead of the string trimmers for grass and weed control at the posts to extend the remaining life. Use of the herbicidal control, chemical washing the

wood and staining or treating the wood with a preservative on a regular basis should allow the retaining walls to acquire some additional life expectancy.

As the walls are likely treated with chromated copper arsenate (CCA), the following should be noted by the association. There is no scientific consensus about the level of risk posed by the preservative chromated copper arsenate which may have leached into the ground from the treated wood used to construct the retaining walls. Until further research has been conducted defining the risk, then no money will be set aside in the reserve fund for the remediation of contaminated soil or replacement of the retaining wall due to the presence of CCA. For the foreseeable future, the Association should monitor developments in this area at:

[http://www.epa.gov/oppad001/reregistration/cca/.](http://www.epa.gov/oppad001/reregistration/cca/)"

RESERVABLE ITEM:	DUMPSTER PADS
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TOTAL QUANTITY:	400 S.F.	% OF REPLACEMENT:	20%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The dumpster pads are poured concrete with twelve (12) located at various locations throughout the community and two (2) that are no longer in use located on Angler Way. The dumpster pads include the area beneath the dumpster. There are no concrete aprons in front of the dumpsters.

All of the dumpster pads are in good (56-70) repair and show no major problems. There is some minor settlement, cracking and spalling. The lack of an apron in front of the dumpsters allows the refuse trucks to cause damage to the asphalt surfaces. When repaving the parking lot, consideration should be given to adding a concrete apron in front of each dumpster. Under normal conditions, concrete dumpster pads should last the life of the facility. Over time there has been some cracking due to settlement and impact from placement of the dumpsters.

Damage may occur from the placing of the dumpsters back on the pad after being emptied. This impact damage should be repaired as soon as possible. Under normal conditions, the pads should last the life of the facility. Severely broken or cracked sections should be replaced when damage occurs.

It is estimated that over a thirty-year period, twenty percent (20%) of the dumpster pads will need replacement in this manner. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM:	IRRIGATION SYSTEM
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TOTAL QUANTITY:	35 EA.	% OF REPLACEMENT:	0%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The common irrigation system runs throughout the community around the units and along the common areas and consists of 3/4" PVC piping with brass fittings. The irrigation system is divided into thirty-five (35) systems, each having their own controller and separate pump and well. There are approximately 700 sprinkler heads. The irrigation systems are in good condition (56-70).

The major causes of damage to this type of system are broken heads damaged by yard maintenance equipment and freeze damage. The life of the system is indefinite, since these items will be repaired from the operating budget, they should not require a reserve. A preventive maintenance program of regular inspection and periodic flushing of the system should be funded from the regular operating budget.

There appeared to be no leaks and the system was open and drained at the time of inspection.

RESERVABLE ITEM:	PUMP STATIONS
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TOTAL QUANTITY:	35 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	2 YRS. AVG.	REMAINING LIFE:	10 YRS. AVG.
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EXISTING CONDITIONS:

There are thirty-five (35) wells and pumps located in the community to provide water for the irrigation system. One is located at each building and consists of a small shed housing the well head and either a $\frac{3}{4}$ or 1 horsepower pump motor. The majority of the pumps' manufacturers are ProJet. There are no reported problems. The overall condition is rated as variably good (56-70). All of the motors appear to be less than three (3) years old. The motors should have a remaining average life of ten (10) years, due to their limited use and sheltered location. As it is unlikely that all of the motors will be replaced at the same time and the relatively low cost of replacing each motor, no reserve is required.

Ground well pumps, as their name implies, are used above ground to draw water from the wells. A small electric motor (called a driver) is installed to an air bellow, and an electric cable is attached to the motor. Piping is then fitted from the pump into the irrigation system. When the pump is activated, the motor, spins an impeller which injects water under pressure into the well causing a venturi which draws water up out of the well. The depth of the wells is unknown.

RESERVABLE ITEM:	BOARDWALK
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TOTAL QUANTITY:	1,200 S.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	3 YRS.
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EXISTING CONDITIONS:

The boardwalks are approximately 1,200 feet in length by 5 feet in width. The boardwalks are located at various locations throughout the community, with the main sections located between the clubhouse and Seahorse Ct., Neptune Way and the adjacent neighborhood, and between Angler Way and Swordfish Way and are constructed of 4" x 4" treated wooden joists, 2" x 4" joists and 2" x 6" decking boards. Due to the changes in the law, it is unlikely that these boardwalks could be rebuilt in this same manner. Major repairs may require compliance with the various disability acts.

It appears that the nails anchoring the deck boards are not galvanized. Many nails are protruding above the deck surface and should be removed and replaced with either galvanized or stainless steel screws. This will decrease the chances of both foot injuries and tripping. It appears that the boardwalk has not been cleaned or preservative treated in the recent past. Repeated wettings by rainfall leach the treatment chemicals from the wood and the wood very rapidly loses its resistance to decay. When the last of the treatment chemicals leaches out, wood destroying organisms quickly begin their attack.

The boardwalk is in poor condition (26-40) showing major damage from moisture. The new boardwalks should be maintained with a chemical washing and wood preservative stain treatment on a regular basis in the future. Broken and warped boards should be replaced as they occur. The reserve study anticipates the total replacement in three (3) years due to deterioration, warpage, decay and damage, unless repair and maintenance are done when needed.

As the boardwalk is likely treated with chromated copper arsenate (CCA), the following should be noted by the association. There is no scientific consensus about the level of risk posed by the preservative chromated copper arsenate which may have leached into the ground from the treated wood used to construct this boardwalk. Until further research has been conducted defining the risk, no money will be set aside in the reserve fund for the remediation of contaminated soil or replacement of the boardwalk due to the presence of CCA. For the foreseeable future, the Association should monitor developments in this area at: <http://www.epa.gov/oppad001/reregistration/cca/>

The association should consider alternative materials when replacing the boardwalks. One consideration should be a Trex like material that can better resist the exposed conditions.

RESERVABLE ITEM:	TENNIS COURT SURFACE
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TOTAL QUANTITY:	7,200 S.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	3 YRS.	REMAINING LIFE:	7 YRS.
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EXISTING CONDITIONS:

The existing tennis court is located off of Sand Dune Drive. It is 120' by 60'. It has an asphalt-based surface course approximately 1½ inches in depth with a 4" gravel base. The surface was repainted/restriped in 2006. This periodic maintenance to the asphalt base helps to extend the life expectancy significantly. The overall condition is rated as variably good (56-70).

There are no areas that require major repairs at this time, however, there are numerous cracks in the surface of the court which need to be addressed. The areas along the edge of the court are showing some asphalt breaking up. The court shows no signs of pocking of the surface. Also, the court is showing no failure of the surface around the base of the net poles. Damage in this area is usually a result of over tightening of the nets.

Some consideration should be given to placing an edging around the tennis court surface to prevent vegetative intrusion. There is only one area in the northeast corner where there is an indication of ponding on the court.

The asphalt surface should be overlaid with a minimum 1½" layer of asphalt once every twenty (20) years. The tennis court should reach its remaining life if it receives a regular application of the resurfacing materials and the minor cracks are repaired in a timely fashion.

RESERVABLE ITEM:	TENNIS COURT FENCE
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TOTAL QUANTITY:	360 L.F.	% OF REPLACEMENT:	10%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	20 YRS.
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EXISTING CONDITIONS:

The existing tennis court fence consists of three hundred sixty (360) linear feet, ten foot (10') high, enclosing the tennis court proper. The fences are green vinyl coated steel chain-link. The posts, frame and the gates are not coated, but are galvanized.

The fence fabric is in good repair (56-70) with minor indications of sagging or stretching, especially at the bottom. All of the vinyl surfaces of the chain-link fencing appear to be in good condition with no major cuts or nicks. Routine maintenance needs to be performed to maintain the tension on the fence and to repair any minor nicks or cuts in the vinyl coating. This will help to retard the effect of moisture on the metal portions of the fence.

The posts and rails are in good repair with a few exceptions. In two areas, the fence is leaning significantly and needs to have the posts straightened and reset. The galvanized posts are showing only some minor corrosion damage. Consideration should be given to treating these areas with a rust converter and the painting all of the rails and posts with a rust inhibiting paint as needed. Consideration should be given to adding bottom rails on the fence to prevent the stretching that was observed.

Minor repairs should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM: CLUBHOUSE FLOORING

TOTAL QUANTITY: 2,050 S.F. **% OF REPLACEMENT:** 10%

PRESENT AGE: SEE BELOW **REMAINING LIFE:** SEE BELOW

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
250	Tile	20 Yrs.	Indefinite
400	Concrete	20 Yrs.	Indefinite
1400	Carpet	5 Yrs.	5 Yrs.
2050	TOTAL		

The concrete floor is 400 S.F. and was recently sealed with a non-slip epoxy coating. The floor is in good condition (56-70), well maintained and should have a long useful life. Under normal conditions, as with any concrete, the floor should last the life of the facility. Over time, there may be some cracking due to impact. These impact damages should be repaired as soon as possible. Severely broken or cracked sections should be replaced when damage occurs.

The primary floor finishes consist of a gray patterned cut level loop commercial carpet in the offices and the main room. The carpet receives little wear since the Clubhouse is not used regularly for functions. The floor is in very good condition (71-85), well maintained and should have a long useful life. While the Association checklist indicated that this carpet has never been replaced, the overall condition indicates it is no more than five (5) years old.

Carpet installed in the clubhouse will need to be properly maintained and cleaned on a regular basis to clean out the normal dirt accumulation. Additional spot cleaning may need to be done to remove stains and heavy dirt where required. Replacement of the carpet is based on its condition and not design or other considerations. The Association may choose to replace it earlier to update the interior design.

The surface in the kitchen is ceramic tile. Ceramic tile should have an indefinite life expectancy and require only periodic repairs to the grout and replacement of any cracked tiles. All repairs should be provided for in the maintenance budget. This will result in the tile remaining aesthetically attractive for its entire life span.

RESERVABLE ITEM: CLUBHOUSE FURNITURE

TOTAL QUANTITY: 59 EA. % OF REPLACEMENT: 100%

PRESENT AGE: 20 YRS. REMAINING LIFE: 10 YRS.

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
3	Office Chairs	20 Yrs.	5 Yrs.
2	Desks	20 Yrs.	10 Yrs.
2	Cabinets	20 Yrs.	10 Yrs.
24	Folding Chairs	20 Yrs.	10 Yrs.
2	Folding Tables	20 Yrs.	10 Yrs.
1	Sofa	20 Yrs.	5 Yrs.
21	PVC Chairs	10 Yrs.	5 Yrs.
3	PVC Tables	10 Yrs.	5 Yrs.
1	PVC Sofa	10 Yrs.	5 Yrs.
59	TOTAL		

The furniture in the clubhouse consists of the items listed above and the age is based on the list from the Association. The furniture is in good condition (56-70).

The tables and chairs are relatively inexpensive and it is unlikely that they will all be replaced at the same time. The upholstered chairs and sofa are of a residential quality. These items should serve through their projected life. When replacing them, consideration should be given to replacing them with newer commercial grade furniture.

Commercial grade equipment is more comfortable and will last longer than basic grade furniture. This reserve item is predicated on the furniture being replaced when it is worn out and not for aesthetic reasons. We have used an average for the remaining life since the individual values of the furniture are too small to establish a separate line for each item.

The cost of replacement for this type of equipment should be estimated for top of the line.

RESERVABLE ITEM: CLUBHOUSE KITCHEN APPLIANCES

TOTAL QUANTITY: 4 EA. % OF REPLACEMENT: 100%

PRESENT AGE: SEE BELOW REMAINING LIFE: SEE BELOW

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
1	Whirlpool Range	20 Yrs.	10 Yrs.
1	GE Refrigerator/freezer	1 Yr.	19 Yrs.
2	Microwaves	20 Yrs.	5 Yrs.
16 L.F.	Base and Wall Cabinets	20 Yrs.	10 Yrs.
16 S.F.	Counter-top	20 Yrs.	10 Yrs.
4	TOTAL		

The appliances are installed in the kitchen area off the main lobby. All of the appliances are middle of the line and, barring an accident, all should have a normal useful life. The appliances are in good condition (56-70).

It is unlikely that all of the appliances will need to be replaced at the same time. It is more likely that the appliances will be replaced on an "as needed" basis. For that reason, a small reserve is required for these items.

In addition, in the kitchen area there are laminate wood cabinets with 16 square feet of laminate counter tops and base cabinets. All appear to be in good (56-60) repair and are well maintained. It is likely that, barring an accident, all should have a normal useful life.

We have assigned a fairly long remaining life to all items because of the relatively light usage they receive. Should the Association aggressively encourage the use of the clubhouse by residents or if they open the clubhouse to outside organizations, then the remaining life of the appliances will need adjusting accordingly.

RESERVABLE ITEM: CLUBHOUSE OFFICE EQUIPMENT

TOTAL QUANTITY: 5 EA. % OF REPLACEMENT: 100%

PRESENT AGE: 20 YRS. REMAINING LIFE: 5 YRS.

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
1	HP OfficeJet 4315 Printer	5 Yrs.	5 Yrs.
1	Ricoh FT3813 Copier	5 Yrs.	5 Yrs.
1	Sprint Fax	10 Yrs.	5 Yrs.
1	Dell Computer	10 Yrs.	5 Yrs.
1	Dell LCD Monitor	5 Yrs.	5 Yrs.
5	TOTAL		

The office equipment consists of electronic and electrical appliances only. It appears they have been acquired at different times. The general condition is good (56-70). The commercial grade of equipment is very good, but due to the changing requirements for new software, it is unlikely that the systems will have a longer life expectancy than 5 years. The above equipment is included in the reserve schedule.

We have used an average for both the present age and the remaining life since the individual values of the equipment are too small to establish a separate line for each item.

RESERVABLE ITEM: CLUBHOUSE TOILETS & SHOWERS

TOTAL QUANTITY: 6 EA. % OF REPLACEMENT: 10%

PRESENT AGE: 20 YRS. REMAINING LIFE: INDEFINITE

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
3	Commodes	20 Yrs.	Indefinite
1	Urinal	20 Yrs.	Indefinite
2	Sinks	20 Yrs.	Indefinite
6	TOTAL		

There are two (2) bathrooms located off the pool deck and they are part of the Clubhouse. Both are in variably good (56-70) condition. The inventory consists of two (2) sinks, three (3) commodes and one (1) urinal. The porcelain fixtures do not require a reserve as it is unlikely that they will need to be replaced.

We have assigned a fairly long remaining life to all items because of the relatively light usage they receive. Should the Association aggressively encourage the use of the clubhouse by residents or if they open the clubhouse to outside organizations, then the remaining life of the appliances will need adjusting accordingly.

The existing shower is located on the exterior of the building and consists only of the plumbing pipes and shower head. No reserve is required for this item.

RESERVABLE ITEM:	POOL LINER
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TOTAL QUANTITY:	3,400 S.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	10 YRS.	REMAINING LIFE:	5 YRS.
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EXISTING CONDITIONS:

The existing pool has a surface area of approximately 2,200 square feet. This translates to 3,400 S.F. of total surface area for the liner, including the sides and bottom of the pool. It is a white marbled cement liner and appears to be about 10 years old.

This white Portland cement liner deteriorates over time due to the effects of chemical leeching and periodic cleaning. It is necessary to replace this item about every 10 to 15 years. The current cost of a cement liner will run about \$30,000. The overall condition is good (56-70) with no flaking of the surface and minor staining, based on the inspection. It was possible to do a complete inspection of the bottom of the liner due to the condition of the water. The pool was operating at the time of the inspection.

When it is necessary to replace the liner, a fiberglass liner should be considered in addition to a traditional resurfacing of the pool. The fiberglass alternative will cost about \$30,000 to \$40,000, with the advantage of a 25-year warranty.

The coping and the water line tiles are in good repair with no observed breaking. While the caulking is also in good condition over time it will fail. When it does, it will require removing the existing caulking and backing and replacing it with all new material.

The life of the liner has been extended by treating the pool water throughout the year to prevent the formation of algae. The elimination of algae formation reduces the need to acid wash the pool prior to opening. It is estimated that acid washing reduces the life expectancy by one (1) year for every treatment. We have included the funds for relining the pool as a reserve item.

Eventually the skimmers, coping and waterline tiles will need replacement, about 20 to 25 years after the pool was constructed. We have included money in the reserve for that work. The base construction of the gunite pool does not require a reserve as the life expectancy is indefinite.

RESERVABLE ITEM: POOL EQUIPMENT

TOTAL QUANTITY: 6 EA. % OF REPLACEMENT: 100%

PRESENT AGE: SEE BELOW REMAINING LIFE: SEE BELOW

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
2	Triton II Commercial TR-140C	20 Yrs.	10 Yrs.
1	Sta-Right 1 HP	3 Yrs.	2 Yrs.
2	A.O. Smith 2 HP	3 Yrs.	2 Yrs.
1	Hayward 1.5 2 HP	2 Yrs.	3 Yrs.
6	TOTAL		

The Filter: The pool filters, Triton II Commercial TR-100C high rate sand filters, were built in 1989. There is no compaction or crystallization of the filter sand according to the pool contractor and was confirmed on inspection. The tank is of fiberglass construction and shows no deterioration. The tank should be maintained on a regular basis as part of the routine maintenance program. It should be regularly cleaned by back washing and the sand filtration medium changed every few years, based on the recommendations of the pool contractor. Life expectancy is 30 years from installation.

According to the Association maintenance supervisor who maintains the pool, there have been no problems with the filter and the pump motors are replaced on a rotating basis.

The Pool Pump: The 1.5 horsepower, Hayward Super Pump electric motor was last replaced two (2) years ago according to the maintenance supervisor.

One of the 2 horsepower, A.O. Smith electric motors was last replaced three (3) years ago according to the maintenance supervisor.

The other 2 horsepower, A.O. Smith electric motor was last removed (3) years ago according to the maintenance supervisor and is currently held as a spare.

The 1 horsepower, Sta-Right Smith electric motor was last removed (3) years ago according to the maintenance supervisor and is currently held as a spare.

Pump motors will generally last 2 to 5 years. We recommend that the motor be inspected every year as part of the process of closing the pool at the end of the season to prevent the closing of the pool during repair periods.

All of the piping observed was PVC. Due to the level of chlorine, it is recommended that the pipes be regularly inspected for leaks or deterioration to prevent a major leak. There was no major indication of chlorine oxidation on any of the metal components. It is recommended that these pipes and fittings be cleaned periodically with fresh water to reduce the corrosion. All of the pool equipment is in good condition (56-70).

RESERVABLE ITEM:	POOL FENCE
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TOTAL QUANTITY:	350 L.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	10 YRS.
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EXISTING CONDITIONS:

The fence construction consists of a masonry base and 25 masonry columns, 2" x 4" stringers, 1" x 6" x 4" slats and a 1" x 6" top rail. The fence has not been stained and does not appear to have been cleaned or treated in the recent past. The fence is typical in that it is subject to damage from insects, warpage and decay.

The fence's condition is variably fair (41-55). There were indications of rot in some of the main fence sections and minor warping of the fence and the stringers. There is mold showing on all of the sections of the fence as well as a few damaged boards. The framing stringers supporting the slats are adequate but can still allow the fence to warp and twist.

The fence should be repaired and chemically washed on a periodic basis. Repeated wettings by rainfall leach the treatment chemicals from the wood and the wood very rapidly loses its resistance to decay. When the last of the treatment chemicals leaches out, wood destroying organisms quickly begin their attack. The posts should be properly repaired where needed and the wood should be treated with a wood preservative and a regular basis. If these steps are undertaken, the life of the fence will be greatly increased.

Care should be taken to avoid damaging the posts and boards with string trimmers and other yard maintenance equipment. The damage from the string trimmers is especially a problem as it can cut the finish coat and allow moisture penetration which, due to the salt air conditions in this area, can lead to failure of the fence over a number of years. The fence is protected from most impacts by its elevated location. We recommend a herbicidal control be sparingly applied by the lawn maintenance crews instead of the string trimmers for grass and weed control. It should be noted that the current grounds contractor is not following these recommendations.

There are several areas where fungal growth should be removed. Given the current conditions, it is estimated that the fencing will require replacement in ten (10) years. Minor repairs should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM:	POOL DECK
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TOTAL QUANTITY:	3,900 S.F.	% OF REPLACEMENT:	10%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The existing deck finishes consist of poured aggregate concrete “tiles” with polyvinyl chloride (PVC) rubber caulking along the edge of the pool coping and caulking between the tiles. There were minor cracks observed in the deck. All of the areas around the ladder anchors have been cut out and are being removed and replaced. In addition, the pool deck has settled on the south side of the pool and a bevel has been poured to eliminate the tripping hazard. The deck is currently in good repair (56-70).

Any cracks will need immediate attention. Failure to repair this type of problem could cause failure of the deck structure and possibly even the pool, if erosion was allowed to undermine the pool itself. The existing cracks should be repaired now before the winter freeze-thaw cycles compound the damage. These areas should be cut out and repoured with an appropriate concrete mixture to prevent a tripping hazard.

Under normal conditions, the pool deck should last the life of the facility. The joints in the pool deck are filling with dirt and debris. The existing expansion joints in the pool deck need to have the existing caulking removed, the area cleaned and the joints should be recaulked with a polysulfide caulking compound or a product such as Deck-o-Drain that permits the water to drain directly off the deck.

In the future, severely broken or cracked sections should be replaced when damage occurs. It is estimated that under normal conditions over a thirty-year period, ten percent (10%) of the pool deck would need replacement in this manner. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM: POOL FURNITURE

TOTAL QUANTITY: 101 EA. % OF REPLACEMENT: 100%

PRESENT AGE: 5 YRS. REMAINING LIFE: 5 YRS.

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
41	PVC Lounges	5 Yrs.	5 Yrs.
42	PVC Chairs	5 Yrs.	5 Yrs.
10	PVC Tables	5 Yrs.	5 Yrs.
8	Umbrellas	5 Yrs.	5 Yrs.
101	TOTAL		

According to the Association manager, the date of purchase is unknown, but based on appearance it would appear the furniture is about five (5) years old.

They are all currently in good repair (56-70) showing some minor weathering effects. The proper maintenance and repair of the furniture will require periodic cleaning which, based on the appearance of the furniture, has been done. This equipment should have the surface cleaned with an appropriate cleaner, then have a surface treatment applied to limit the damage from the sun and oils from suntan lotion. The correct cleaner and surface treatment is available at most pool furniture suppliers.

The Capital Repair/Replacement Summary provides for the eventual replacement of all items due to its use in an active outdoor environment and the repeated stacking of items, which damages the finish.

RESERVABLE ITEM: PATIO & DECK

TOTAL QUANTITY: 800 S.F. % OF REPLACEMENT: 100%

PRESENT AGE: 20 YRS. REMAINING LIFE: SEE BELOW

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
400	Concrete Patio	20 Yrs.	Indefinite
400	Wood Deck	20 Yrs.	10 Yrs.
800	TOTAL		

The concrete patio area adjacent to the pool consists of poured aggregate concrete “tiles” and rigid plastic edging between the tiles. There were minor cracks observed in the patio. The deck is currently in variably good repair (56-70). Any cracks will need immediate attention. Failure to repair this type of problem could cause failure of the deck structure and possibly even the pool, if erosion was allowed to undermine the pool itself. These areas should be cut out and repoured with an appropriate concrete mixture to prevent a tripping hazard. Under normal conditions, the patio deck should last the life of the facility.

The wood deck is approximately 400 square feet. The deck is not accessible by a ramp and it may become necessary to meet current code requirements if extensive repairs become necessary. Due to the changes in the law, it is unlikely that this deck could be rebuilt in this same manner. Major repairs may require compliance with the various disability acts.

The wood deck is generally in poor variably condition (26-40) showing some broken and warped boards. The deck needs to be maintained with a chemical washing and wood preservative stain treatment now and on a regular basis in the future. Broken and warped boards should be replaced and the deck should be repaired and chemically washed on a periodic basis. Repeated wettings by rainfall leach the treatment chemicals from the wood and the wood very rapidly loses its resistance to decay. When the last of the treatment chemicals leaches out, wood destroying organisms quickly begin their attack. When warped or split pieces of wood are replaced, the existing fasteners should be discarded and replaced with either galvanized or stainless steel fasteners. If these steps are undertaken, the life of the deck will be greatly increased. Given the current condition, the Reserve Study anticipates the total replacement in ten (10) years due to deterioration, warpage, decay and damage unless substantial repairs and maintenance are done.

RESERVABLE ITEM:	HOT WATER SYSTEM
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TOTAL QUANTITY:	1 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	5 YRS.
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EXISTING CONDITIONS:

The existing system is a Reliance Model 5 40 20N30 NC water heater. The water heater is a 50-gallon capacity electric unit. It serves only the clubhouse restrooms and the kitchen. Because the system receives only light usage, it will and has had an extended life expectancy. It appears to be in good repair (56-60). The tank needs to be flushed at least once a year to remove bottom sediment from the tank. This will increase the life expectancy of the tank and improve the operating efficiency.

RESERVABLE ITEM:	CLUBHOUSE HVAC
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TOTAL QUANTITY:	1 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	5 YRS.	REMAINING LIFE:	15 YRS.
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EXISTING CONDITIONS:

The air conditioner is located on the north side of the clubhouse. It serves the common areas in the clubhouse building. The heat pump is a Trane Model XR11 that was installed in 2004. It is a 5 ton, 60,000 BTU, 16 SEER Central Air Conditioner using R410A Refrigerant.

The system does appear to receive regular maintenance. This program includes having the filters changed about every three (3) months.

In the future, the exterior unit will need to have its housing cleaned, a rust preventative used where appropriate and repainted. By treating any corrosion problem when it is minor, the Association will save both time and money in the future. The Association does not have the unit covered by a service contract, but it is serviced on an "as needed" basis. A service contract is recommended as the best preventive maintenance program for this type of equipment.

Given continued regular and preventive maintenance, the HVAC system should reach its full life expectancy. We anticipate the system being replaced in fifteen (15) years. As HVAC technology improves, all or some of the system should be considered for replacement when the cost of the replacement can be offset by the cost savings.

RESERVABLE ITEM:	ASPHALT SHINGLES
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TOTAL QUANTITY:	61,045 S.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	8 YRS.	REMAINING LIFE:	17 YRS.
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EXISTING CONDITIONS:

The asphalt shingles are located on the clubhouse and the Williamsburg style buildings. They are an architectural grade 3-tab asphalt fiberglass shingle. Based on information recalled by the Association, they were last replaced in 2001. The wind rating for the shingles could not be determined, but it should be noted that the building code in Dare County North Carolina gives this area a basic wind speed of 110 mph. The buildings will have to meet the higher wind speed rating when the roofs are replaced. There are no indications that shingles have been replaced due to wind damage. The overall condition of the roofs is rated as variably good (65-70).

The roofs were examined in normal wind conditions. The following conditions were noted on the inspection:

1. There is a small metal edge on the roofs. The addition of this metal edging on the roofs is insufficient to constitute a proper drip edge. A proper drip edge would result in a longer life expectancy for those sections of the roof by helping to reduce the lifting of shingles in wind storms or breakage during winter weather. Without a proper drip edge, the shingles on the edge tend to break off at the roof line and allow water to penetrate behind the metal fascia cladding, causing moisture problems inside the walls. It is recommended that the drip edge be installed on all roofs each time the roofs are re-shingled. The roofs were examined in normal wind conditions.
2. The sealing around all of the roof penetrations appears to be of good quality. The rubber boot at vent pipes is particularly susceptible to long term embrittlement from the ultraviolet (UV) rays of the sun. These will need replacement before the shingles fail. Given their low cost, the Association should pay for these from the operating budget
3. It was noted that the underlying roof structures on the buildings show no signs of sagging between the rafters.
4. There are no indications of dry-roof fungus growing on the asphalt shingle surfaces of the roofs. Due to the date of installation, it is possible that the shingles contain a fungicidal retardant. This

fungus attacks the asphalt base of the shingle over time as the shingles age. The Association should ensure that the replacement shingles are treated to reduce this problem.

According to the National Roofing Contractors Association, the tar used in the manufacture of asphalt is fossilized, dead organic matter – the specific food source needed to support dry-roof fungus. The fungus secretes enzymes into the asphalt on which it grows. The enzymes digest the material, which is then absorbed through the walls of the fungus. Asphalt, at the ceramic granule base, is normally consumed first. Once these granules dislodge, accelerated deterioration of the roof will occur. Ceramic granules represent the outer hard shell that protects against hail and other falling debris. Ceramic granules protect against damaging UV radiation and insulate the roof against extreme heat.

The reports of the National Roofing Contractors Association indicate that modern roofs begin to age and become brittle under the triple action of heat, sunlight and rain around fifteen (15) to twenty (20) years. When that happens, the asphalt layer changes both texture and color indicating that it is turning brittle. Additional damage can then occur from mechanical damage such as hail, wind and foot traffic. When this process begins, the roof theoretically could last another five (5) years before total failure of the roof occurs, if it were not for this susceptibility to mechanical damage.

It can be assumed that these roofs will reach their ultimate life expectancy but that some of them may need replacement sooner than others. The Reserve Summary has scheduled for this variance in roof replacement by using the average of the remaining lives. The additional cost of ongoing maintenance, including the replacement of damaged shingles, should be paid from the operating budget. The capital repair/replacement schedule provides for the future replacement of the new shingles, but not any ongoing repairs or maintenance, which should be covered in the operating budget.

RESERVABLE ITEM: FLAT ROOFS

TOTAL QUANTITY: 156,090 S.F. **% OF REPLACEMENT:** 100%

PRESENT AGE: SEE BELOW **REMAINING LIFE:** SEE BELOW

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
4200	Membrane Roof	1 Yr.	18 Yrs.
114210	New Modified Bitumen	7 Yrs.	8 Yrs.
37680	Old Modified Bitumen	20 Yrs.	0 Yrs.
156090	TOTAL		

There are three (3) different flat roofing systems in place:

- IB Membrane Roof System installed on building 300 in 2008.
- New bituminous roofing on buildings 200, 400, 900, 1000, 1200, 1300, 1400, 1500, 1700, 1900, 2000, 2100, 2200, 2400, 2500, 2600, 2900, 3100, 3200, 3400 and 4100.
- Original bituminous roofing on all remaining buildings.

There are no roof drains on these roofs and these roofs have no parapet. All draining rain water runs over the edges of these roofs increasing the quantity water available for leaks in these areas.

The installation of the new membrane roof on building 300 called for the contractor to:

- Install a uniform layer of ¼” Dens-Deck high density recovery-board underlayment, mechanically fastened over the existing membrane roof.
- Install a fully-adhered IB Roof System 50 mil white reinforced CPA roof assembly in accordance with the manufacturer’s details and specifications for local wind design.
- Fabricate and install new 24 ga. coated metal edge flashings.
- Install 6 IB 8” two-way vents to promote attic space ventilation.
- Flash existing roof penetrations as required to create a watertight condition.

This roof is in excellent condition (86-90). It appears to be properly installed. Only limited signs of ponding water were observed on the building. Single-ply roof membranes are susceptible to avian damage,

especially from seagulls and pigeons. While no damage was noted, every means must be taken to keep seagulls and other birds such as pigeons from roosting on this roof. The Reserve Summary schedules the replacement of the membrane and insulation boards within eighteen (18) years. It is very important to note that the remaining life for this roof membrane will be achieved as long as the roof receives regular monitoring and maintenance. This means checking the membrane seams, restricting mechanics to use roof protection while working on the rooftop equipment and guarding against the possibility for avian attack.

The new non-membrane roofs are a modified bitumen membrane, 2 ply with a granulated cap sheet. Modified bitumen or "modbit" membranes consist of an asphalt and polymer blend which allow the asphalt to take on characteristics of the polymer. These roofs have a cap sheet with a factory applied mineral surface; a gravel surface laid in bitumen or a liquid applied coating that is typically reflective in nature to lower roof temperatures, thus lengthening their remaining lives and reducing the heat entering the 2nd floor dwelling units.

These roofs were installed, on average about seven (7) years ago based on the information provided by the maintenance supervisor. There is no slope to drainage resulting in ponding water. Almost all of the vents have been recaulked due to ongoing leaks. The remaining life is set at eight (8) years due to the ongoing leak problems. There is a minor amount of seam separation that should be repaired immediately. These roofs are in fair condition (41-55).

The older non-membrane roofs are a bitumen membrane, 2 ply, with no granulated cap sheet. There is no slope to drainage. Almost all of the vents have been recaulked due to ongoing leaks. There are no roof drains. The roof has no parapet. The membranes were installed twenty (20) years ago based on the information provided by the Association. The remaining life is set at zero (0) years due to the ongoing leak problems and the age of the membranes. There is a large amount of seam separation that should be repaired immediately. These roofs are in failed condition (0-10).

RESERVABLE ITEM: GUTTERS & DOWNSPOUTS

TOTAL QUANTITY: 8,400 L.F. **% OF REPLACEMENT:** 100%

PRESENT AGE: 20 YRS. **REMAINING LIFE:** 10 YRS.

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
1400	PVC	20 Yrs.	10 Yrs.
7000	Aluminum	20 Yrs.	10 Yrs.
8400	TOTAL		

The five (5) Williamsburg style buildings have gutters and downspouts constructed from PVC. They are located along the courtyard roof edges only. The white aluminum gutters and downspouts were installed on the first floor eave of the mansard roofs above the patios. The gutters are a 2" x 4" configuration with a thickness of .040 inches. All existing gutters and downspouts appear to be in good repair. There are no indications of blockages.

The Association needs to aggressively clear any debris that might occur to prevent damage to the adjoining fascia, whenever there is an indication of blockages. Leakage from the gutters and downspouts can cause serious damage to the siding and the underlying wooden structure. Regular inspections, particularly during heavy rain conditions, will display any such problems and any gutter blockages can be noted. The overall condition of the gutters and downspouts is rated as variably good (56-70).

It was noted that there is erosion around the discharges of a number of the downspouts on the buildings. This is partially due to the fact that some of the splash blocks slope toward the buildings or are missing. At a minimum, blocks should be properly installed to provide positive drainage away from the buildings. The best solution is that, wherever the downspouts discharge on grade, they should be extended to carry the water away from the foundation walls for a minimum of six feet (6'). This will prevent moisture build-up in the foundation walls and any resulting damage.

There are no other items of note on the gutters or downspouts. Loose gutter straps and leaking joints should be repaired and covered under the operating account. The reserve study anticipates that the gutters and downspouts will be replaced at the same time as the roof shingles due to the high probability that the re-roofing operations will damage the gutters.

RESERVABLE ITEM:	CHIMNEY CAPS
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TOTAL QUANTITY:	200 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	7 YRS.
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EXISTING CONDITIONS:

The facade of the chimneys are masonry and this component is included in the masonry portion of this report. The chimney arresters are galvanized metal with a parged mortar chimney cap. The overall condition of the chimney caps is rated as variably poor (26-40).

The metal spark arresters are located on and serve a single flue. Based on the Declaration of Sandpiper Cay Condominium, Section 2.4 (c), these items are limited common elements and therefore not included in the reserve study.

The chimney tops are constructed of cement parging sloping from the brick chimney faces up to the clay tile flue. Cracked parging was observed at all locations and should be repaired to prevent further deterioration. The cement parging at chimney tops are subject to thermal stresses that lead to their failure. Based on the condition of the chimney, we have arrived at a seven (7) year remaining life for the parging on the chimneys.

Caps should not be constructed as a mortar wash, which is simply parging the surface with mortar. The cement mortar absorbs water, which freezes in the wintertime, causing it to crack. The cracks allow more water to enter, accelerating the deterioration of the brick chimneys. The chimney cap should be made with cast in place concrete, precast concrete or heavy gauge metal. The chimney cap should be sloped away from the flue. The cap should overhang the chimney wall at least two inches and should have a drip edge cast into the overhang. If done this way rain water would be directed off of the top of the chimney and drip off of the overhang.

RESERVABLE ITEM:	BRICK MASONRY
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TOTAL QUANTITY:	57,700 S.F.	% OF REPLACEMENT:	20%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

The brick veneer on the buildings includes walls on each elevation. The brick is either a red or tan cored brick with a slight texture to the exposed surface. The mortar is a cream color with a square tooled joint. All of the veneers appear to be in good (56-70) condition. No structural failures were observed at the time of our inspection and no cracking of the brick. As with any type of brick, the life expectancy should exceed the life of the buildings. To prevent any deterioration, the mortar on the buildings should be periodically inspected and repaired as needed. Such repairs should be an ongoing maintenance responsibility and should be funded from the maintenance budget along with repair of minor defects in the brick work.

The brick veneer has weep holes but no vertical crack control joints. As a result, there may be limited cracking of the brick veneer, especially at the corners and at changes of the plane of the wall, in the future. While this limited cracking will not be serious, it does provide a path of moisture penetration into the wall. Cracks in the mortar should be pointed up to prevent this intrusion of moisture.

Once water enters a brick masonry wall, it needs a path for it to drain out to the exterior. This is accomplished by means of small holes (weep holes) at the base of the brick wall and just above horizontal obstructions in the wall, such as windows, doors and low roofs. Omission of weep holes would have a deleterious effect on the moisture resistance of the exterior wall. In the case of these buildings, the exterior walls are protected by both the weep holes and generous roof overhangs on all sides of the buildings which helps to keep the exterior walls dry, except in strong wind driven rains.

The walls have no vertical expansion control joints. Brick slowly expands with increases in temperature and moisture. Since brick is relatively brittle, it does not contract when the temperature or moisture content decreases. Accommodating the expanding brick is the purpose of the expansion control joints. The Brick Institute of America recommends expansion control joints between every 17 feet to 25 feet and especially at door and window openings. Since the exterior walls of the buildings are relatively short, the amount of expansive movement is in the order of 1/8" or so. While this isn't much, it could be enough to press on the side of the window jambs and cause complaints with sticking casement windows. We have seen windows wedged shut by the expanding brick on other condominiums which have longer exterior walls without vertical expansion control joints.

We are unable to determine if there is a full moisture barrier below the masonry. There are numerous places where moisture can and may be entering the masonry wall on the buildings. This moisture accumulates in the wall and can cause the accelerated deterioration of wooden items in contact with the masonry, such as window frames and wall studs. This is a serious condition which needs to be investigated in more detail than can be done in this report. As a result, we have included additional monies in the Reserve fund for a full moisture study to determine the cause of any leaks and the best cure. Given the age of the buildings and the lack of complaints, we haven't taken this possibility into account when estimating the remaining life of this component.

Normally it is estimated that over a thirty-year period, ten percent (10%) of the masonry will need repointing or repairs; however, due to the recommended moisture study, we have increased that to 20%. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM: WOOD SIDING

TOTAL QUANTITY: 65,900 S.F. % OF REPLACEMENT: 100%

PRESENT AGE: 20 YRS. REMAINING LIFE: SEE BELOW

EXISTING CONDITIONS:

Quantity	Item	Present Age	Remaining Life
5400	Cedar	20 Yrs.	Indefinite
65900	T1-11	20 Yrs.	10 Yrs.
71300	TOTAL		

The wood siding includes rough sawn 6" exposure cedar siding, siding trim on chimney enclosures on the residential buildings and on the pool building. T1-11 is used on all of the courtyard elevations including the clubhouse, with the exception of the five (5) Williamsburg style buildings that use cedar siding. The T1-11 siding is nailed to the wall sheathing in a vertical application. The overall condition of the siding is rated as fair (41-55).

The following conditions were noted during the inspection:

1. The siding is showing major signs of bowing cracks, checks, delamination and knot displacement. On several of the buildings, there are indications of previous repairs.
2. The siding does appear to have been repainted about every 5 to 7 years. This condition is likely due to the lack of paint on the interior face of the siding, splash back of water splattering off the concrete patios and that annular threaded fasteners were not used to guard against fastener backout.
3. Almost all of the boards at the ground level are showing some damage from the lawn maintenance equipment. The current and future areas of fastener backout should be repaired using annular threaded fasteners which will prevent the recurrences of this problem.
4. There is chalking of the painted/stained surfaces. Chalking of the painted surface as well as areas of blistering and peeling is a symptom of paint or stain failure caused by aging and weathering. The colors used were dark and will probably fade or discolor at a faster rate than lighter colors. These areas need to be addressed as soon as possible.

5. It could not be determined if the buildings have a moisture barrier between the siding and the underlayment or if any existing moisture barrier was continuous. To make this determination would require removing some of the siding which was beyond the scope of this study.

The purpose of a moisture barrier is to prevent air and water infiltration behind the siding. We recommend that the Association have a moisture study done to determine the presence, condition and extent of any moisture barrier that may be present. Moisture entering behind any portion of the siding can migrate to other portions of the building resulting in wood rot. This would attract termites, which can result in additional damage.

It must be noted that the siding is only the primary barrier to moisture intrusion in the exterior walls. The continuity of the moisture barrier is equally important to keeping the exterior walls dry and free from rot. It is extremely difficult to check the continuity of the moisture barrier after installation of the siding. If there is no moisture barrier or it is not continuous, there will be an increase in the amount of air leakage and an increase in the likelihood of water infiltration around any penetrations. Siding is not water tight. It admits wind driven rain at the end laps and around penetrations (windows, light fixtures, doors, balconies, electric meters and hose bibs). Once behind the siding, the water drains until it finds a seam or failure of the moisture barrier. It then becomes trapped between the siding and the wood underlayment. Usually the first sign of wood deterioration occurs after a major wind storm resulting in a loss of siding which failed to stay nailed to the wood siding because the wood had rotted.

Because of the wide range of quality in the material available, siding, of any type, cannot be considered a lifetime material. Being made from wood, it is susceptible to long term damage from decay. Regular cleaning and painting should extend the life expectancy of the siding. Proper preventive maintenance will include washing the siding and re-caulking on a regular basis as well as repainting. All of the buildings need to be chemically washed periodically to prevent mold and/or mildew. A regular maintenance program should prevent any large scale replacement of siding.

Cedar siding can be considered a lifetime material if it is installed over vertical wood furring strips to allow the backside to breathe and maintained on a regular schedule by protecting it from weathering with a wood sealer/stain type paint finish. However, in this case the failure to install the siding over furring strips has resulted in the backside being in contact with the moisture barrier that require replacement in the near future. Most cedar siding available on the market today comes from fast growth timber grown on tree farms. Therefore, it doesn't last as long, regardless of the level of maintenance it receives. We recommend the Association consider alternate siding materials such as vinyl siding or Hardi-plank siding. Either of these alternatives, if properly installed, will provide a better alternative then replacing the current siding with new wood. A proper schedule of replacement will be to do a single building at a time rather than patching

the existing siding. The current condition of the buildings should allow the Association to perform the replacement over a period of time.

RESERVABLE ITEM:	WOOD SHINGLES
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TOTAL QUANTITY:	103,200 S.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	5 YRS.
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EXISTING CONDITIONS:

The mansard roofs of the thirty-three (33) buildings have six (6) inch exposure, white cedar shingle siding. The shingles are 6" x 18" x 1/2". The anticipated life of treated shingles is twenty five (25) years. However, it is impossible to determine from a visual survey whether or not the shingles are preservatively treated. Based on the amount of warpage and curling of the shingles, it is assumed that the shingles were untreated. It was also noted during our visual survey that in many areas, predominantly on the north sides of the buildings, there is some fungal growth on the cedar shingles. It is anticipated in this study that all of the wood shingles will need to be replaced in the next five (5) years.

The shingle siding appears to be in very poor overall condition (11-25) with major areas showing signs of accelerated weathering due to failure of the protective sealer-stain coating, as well as constant drainage off of the flat roofs. Rain water diverters over the 2nd floor balconies also concentrate water at the ends of the diverters, hastening the failure of the shingles downslope.

There are numerous cases of nail back out, curling, split shingles and missing shingles. The nails that have backed out do not appear to be galvanized and do not have threads to guard against pull out. The shingles are showing extensive signs of cracks and rot.

If wood shingles are to be continued, the shingles should be periodically restrained with a wood protectant and checked for any loose or damaged shingles. At the time this is done, any loose shingles should be re-nailed with a spiral shank siding nail. Replacement of any damaged sections can be done at the same time. All exterior sealants should also be replaced at time of recoating.

However, we recommend that the Association consider using an alternative material that would require less maintenance and provide a longer life expectancy.

RESERVABLE ITEM:	WOOD TRIM
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TOTAL QUANTITY:	17,500 L.F.	% OF REPLACEMENT:	10%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

Wood trim consists of boards along the roof edges, windows, doors and the corner boards. The fascia and soffits consist of 1" x 6" and 1" x 3" boards at the roof edges. The wood is solid wood and appears to be in good (60-70) condition. All of the trim appears to be painted around the soffits and are in good repair, with some minor indications of chalking and flaking.

There are a few cases of nail backout. The nails that have backed out do not appear to be galvanized and do not have threads to guard against pull out. It is not known if these nails are original to the buildings or were installed as part of a maintenance item when the buildings were painted. The trim is showing minor signs of cracks. All of the trim shows a failure of the sealants that can lead to failure of the material.

If wood is used to replace the trim, then it needs to be back primed before installation and treated with a waterproofing stain or paint. At the time this is done, any loose trim should be re-nailed with a spiral shank siding nail. Replacement of any damaged sections can be done at the same time. If the trim is inspected, repaired and painted/stained every 3 to 7 years, the trim should last the life of the facility.

Regular cleaning and repainting should extend the life expectancy of the trim indefinitely once these steps are taken. Major areas of repair and replacement will probably be the window and door sills which should be replaced with treated lumber when required.

RESERVABLE ITEM:	PATIO FENCES
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TOTAL QUANTITY:	4,900 L.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	10 YRS.
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EXISTING CONDITIONS:

There is a wood fence located at each of the 186 patios throughout the community. The construction consists of 4" x 4" posts, 2" x 4" cross members and 1" x 4" x 6' pickets. There are new boards. The fencing is typical in that it is subject to damage from root growth, impact, insects, warpage and string trimmers. All of the wood appears to be preservative treated and it is not painted. In addition, a number of the fences appear to have been cleaned and treated with a stain type preservative. As this has not been done on a community wide basis, the question arises as to whether or not these are a common element. The overall condition is variably fair (41-55).

There is some rot in sections of the fences as well as a few missing or damaged boards. The fences are leaning in a few areas because of the probability that the posts are not buried to a sufficient depth or they have rotted away. The framing supporting the slats is minimal which allows the fence to warp and twist. There are also numerous areas of damage at the bottom of the fences that appear to be from the lawn maintenance equipment.

Repeated wettings by rainfall leach the treatment chemicals from the wood and the wood very rapidly loses its resistance to decay. When the last of the treatment chemicals leaches out, wood destroying organisms quickly begin their attack. The fences should be repaired when needed and stained on a regular basis, which is usually every three to five years. However, if the repairs are not commenced in the near future, then it is likely that the fences will require a full replacement within ten (10) years.

The posts should be properly repaired. All of the fence posts need to be capped on top to prevent any additional water damage. We recommend capping them with a prefabricated copper or aluminum post cap to extend the life of the posts past the expected remaining life. If these steps are undertaken, the life of the fences will be greatly increased. It is very important to pull back mulch in the flower beds to avoid contact with the wood surface of the fence.

Care should be taken to avoid damaging the posts of the fence posts and boards with string trimmers and other yard maintenance equipment. The damage from the string trimmers is especially a problem as it can cut into the wood and weaken the wood itself as well as providing an opening for rot and insects. We

recommend a herbicidal control be sparingly applied by the lawn maintenance crews instead of the string trimmers for grass and weed control at the fence posts and boards to extend the remaining life of the fence posts and boards. It should be noted that the current grounds contractor is not following these recommendations.

As the fences are likely treated with chromated copper arsenate (CCA), the following should be noted by the association. The product has been banned by the EPA for use in exterior locations. There is no scientific consensus about the level of risk posed by the preservative chromated copper arsenate which may have leached into the ground from the treated wood used to construct these fences. Until further research has been conducted defining the risk, then there has been no money set aside in the reserve fund for the remediation of contaminated soil or replacement of the fences due to the presence of CCA. For the foreseeable future, the Association should monitor developments in this area at http://www.epa.gov/pesticides/factsheets/chemicals/cca_transition.htm.

RESERVABLE ITEM:	PRIVATE EXTERIOR STAIRS
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TOTAL QUANTITY:	48 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	10 YRS. AVG.	REMAINING LIFE:	15 YRS. AVG.
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EXISTING CONDITIONS:

The existing stairs are installed on the exterior of twelve (12) buildings and run from a concrete deck to a second floor landing located in the corner of each building. The stairs are constructed of pressure treated wood. Joists and stringers are three inch (3") thick material and the posts are 4" x 4" and 6" x 6". Stair treads are 3" x 12". Most of the connections are made by nailing, with only the connection to the frame being lag bolted. The railing consists of two inch (2") by two inch (2") balusters located four inches (4") on center with 2" x 6" handrails.

The overall condition of the stairs is rated as variably good (56-70). It appears that repairs have been made on a regular basis, with 6 sets replaced in 2008, according to the Association.

All future repair and replacement of the framing members should continue to make use of screws or bolted connections to prevent the displacement of fasteners. There may be some deterioration of wood where water sits on treads or water has been absorbed into the wood and grain. All wood members should be cleaned and treated with a wood preservative periodically to obtain the anticipated life expectancy of the material. This is considered a maintenance item and is not included in this study.

At the point where each anchor is set into the wood decking, regular inspection and replacement of the sealants should be done to prevent these points from becoming a source of moisture intrusion. Regular pressure washing and staining are necessary to maximize the life expectancy of pressure treated wood.

As the posts and framing lumber are likely treated with chromated copper arsenate (CCA), the following should be noted by the association. There is no scientific consensus about the level of risk posed by the preservative chromated copper arsenate which may have leached into the ground from the treated wood used to construct these stairs. Until further research has been conducted defining the risk, then there has been no money set aside in the reserve fund for the remediation of contaminated soil or replacement of the stairs due to the presence of CCA. For the foreseeable future, the Association should monitor developments in this area at <http://www.epa.gov/oppad001/reregistration/cca/>.

RESERVABLE ITEM:	BALCONIES
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TOTAL QUANTITY:	192 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	10 YRS.
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EXISTING CONDITIONS:

Only thirty (30) of the buildings (192 units) have wood balconies of about 30 S.F. each. The balconies are constructed of pressure treated lumber. The railings are wood rails with 2" x 2" pickets spaced at approximately 4" on center and 2" x 6" top rails. It appears that the decks were constructed of pressure treated lumber. The stairs are exposed to the weather at all locations and are in variably fair condition (41-55). All of the balconies are supported off the second floor framing.

The normal life expectancy of pressure treated lumber structures, if left exposed, is approximately twenty (20) years. Repeated wettings by rainfall leach the treatment chemicals from the wood and the wood very rapidly loses its resistance to decay. When the last of the treatment chemicals leaches out, wood destroying organisms quickly begin their attack. We have extended the life of these balconies due to the ongoing maintenance that has been performed. Continued regular cleaning and sealing of the wood are necessary to maximize the life expectancy of the pressure treated wood stairs, steps, decks and balconies. The remaining life projected for this item is the average of all its components.

All future repair and replacement of the framing members should continue to make use of screws or bolted connections to prevent the displacement of fasteners. There may be some deterioration of wood where water sits on treads or water has been absorbed into the wood and grain. All wood members should be cleaned and treated with a wood preservative periodically to obtain the anticipated life expectancy of the material. This is considered a maintenance item and is not included in this study.

As the aluminum sliding glass doors leading to these balcony decks age, their corners open up, creating leaks. They are installed without the benefit of sill pan flashing to collect leaking water and draining it to the outside. The Z-flashing isn't installed with clearances to allow trapped water to drain. The Z-flashing has been found to be discontinuous in the corners. Furthermore, the railings are attached directly into the side walls of the balcony providing another opening for moisture intrusion. On other communities with similarly constructed balconies, severe moisture intrusion into the first floor exterior walls has created significant damage as a result of these short comings. Usually the first sign of this problem at these other communities, has been the presence of persistent mildew stains on the brick veneer wall below the corners of the balconies. We noted this condition on several balconies at Sandpiper Cay.

At these other communities, there has been significant debate as to the cause and origin of these leaks, since the ownership of these components determines responsibility. If it is found that the failure of the sliding glass doors is the cause, then the resulting damage is assessed to the appurtenant homeowner, and it isn't a cost for the Association. However, if the lack of a sill pan flashing beneath the sliding glass door is found to be the cause, then it becomes the Association responsibility since flashings are specifically identified as the Association's responsibility in Section 2.4(e) of the Declarations.

Therefore we recommend having a comprehensive moisture study performed of the exterior walls beneath these balconies to determine the presence of moisture in these exterior walls, its extent and its cause(s). Once the results of this study are known, then adjustments to future replacement cost projections contained in this reserve study may be needed. We have included an estimate of the funds needed for this study in the next year.

Regular inspection and replacement of the sealants should be done to prevent these points from becoming a source of moisture intrusion. This activity should be funded from the operating account.

RESERVABLE ITEM:	PATIOS & DECKS
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TOTAL QUANTITY:	18,500 S.F.	% OF REPLACEMENT:	10%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	INDEFINITE
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EXISTING CONDITIONS:

There are concrete patios located on the ground floor of each of the units. All of the concrete patio pads are in good repair (56-70) and show no major problems. There is some minor settlement and cracking. Each deck is 10' x 10'.

The "2001 Housing Facts, Figures and Trends," published by the National Association of Home Builders (NAHB), lists the life expectancy of concrete as 50 years. The American Concrete Institute states in several publications that concrete should exceed the life expectancy of the structures.

Any minor cracks that occur can be filled with a polysulfide caulking sealant. In the future, all of the patios with significant spalling or displacement need to be repaired as soon as possible to prevent future damage and to reduce any tripping hazard. Any areas that show displacement should be repaired by raising the existing slabs or by removing and re-pouring the concrete.

In the future, severely broken or cracked sections should be replaced when damage occurs. It is estimated that over a thirty-year period, normally ten percent (10%) of the patios will need replacement in this manner. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

RESERVABLE ITEM:	BUILDING MOUNTED LIGHTING
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TOTAL QUANTITY:	186 EA.	% OF REPLACEMENT:	100%
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PRESENT AGE:	20 YRS.	REMAINING LIFE:	5 YRS.
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EXISTING CONDITIONS:

There are approximately 186 wall mounted lights. The lights are mounted on all of the buildings. All of the fixtures appear to be original. The fixtures are 6.5" x 12" x 8". All of the fixtures are in fair repair (41-55) with indications of corrosion of the fixtures and discoloration of the lenses. They are photo cell activated. None of the lights were on during daylight, indicating that the photo cells do not need to be adjusted or replaced.

Eventually the lights will need to be replaced due to corrosion, clouding of the lenses and the development of more efficient lighting standards. Routine cleaning and replacement of bulbs and ballasts should be handled as part of a preventive maintenance program. The Capital Repair/Replacement Summary includes total replacement in five (5) years due to aging fixtures and newer more efficient luminaries being available in the future.

RESERVABLE ITEM:	SEALANTS & CAULKING
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TOTAL QUANTITY:	35,000 L.F.	% OF REPLACEMENT:	100%
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PRESENT AGE:	2 YRS.	REMAINING LIFE:	5 YRS.
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EXISTING CONDITIONS:

The sealant joints around the buildings are in variably good condition (56-70) and, according to the Association have been replaced as each building has been painted. This translates to about every five (5) to seven (7) years.

The majority of the sealant joints on the exterior are located around the window and door frames. The sealants are on the exterior of the building joining dissimilar materials to keep them weather tight. The sealants are showing a few cracks but no failure in the joints.

It appears that an elastomeric sealant was used to replace the original caulk. It is important that low quality latex caulk not be used in any replacement. The problem with this grade of latex caulk is that it rapidly degrades under ultraviolet radiation and loses any elasticity. As the exterior cladding expands or contracts, the sealant fails. Failed sealant joints do not provide any protection against wind driven moisture penetration. When replacing the existing sealant, it should be removed and replaced with a high quality elastomeric sealant based on a regular inspection program of the community.

Resealing of all the joints (when required) should be accomplished by raking out the existing sealant, removing any bond inhibitors, preparing the joint and installing new high quality all temperature elastomeric sealant. The Reserve Summary schedules for replacement of the sealant joints on the exterior of the building with each inspection or about every five to ten years.

All other components indicated as common elements have a life span coincident with the life span of the structures, and should not need replacement or repair unless subjected to catastrophic conditions (fire, lightning, hail, hurricanes, earthquakes, etc.), which should be covered under an adequate property insurance policy. It should be noted that any problems that may arise and are not addressed by the Association maintenance program and repaired in a timely manner, may cause further deterioration.

PREVIOUSLY ACCUMULATED FUNDS

According to information furnished by the Community Manager, Ansley Miller, there are currently no accumulated funds in the Replacement Reserve Account. Therefore, we used \$0.00 as the starting value in the Capital Repair and Replacement Reserve Summary as "TOTAL PRIOR ACCUMULATION."

CONCLUSION

The Association is facing several large projects (reroofing, repaving, exposed wood replacement) in the near future. Because some needed maintenance had been deferred, the Association is facing these projects sooner than would otherwise be anticipated. As a result, the recommended annual contribution to the reserve fund is \$209,000.00. Even then, we are projecting the need for a special assessment of \$2 million in about 10 years to fully fund these upcoming projects. Furthermore, in order to have sufficient funds on hand for future projects, we recommend increasing the annual contribution by 4% per year for each year thereafter. It is highly unusual for an association of this age to have no current balance in their Replacement Reserve Account. This is indicative of severe underfunding in previous year's budgets which makes a special assessment necessary to provide the adequate funds for replacement of the common elements in the future. These projections are illustrated in the graph at the end of this reserve study. It must be noted that unplanned expenses for items outside the scope of a reserve study (landscape replacement, painting, insurance deductibles, property upgrades, etc.) can be major expenses and without an adequate operating reserve established for these items, a special assessment may be required to fund these kinds of expenses, too.

INFLATION

Other factors must be considered when allocating funds for projects of this nature. One of the biggest factors and possibly the most difficult to predict is inflation and the interest rate on invested capital reserve funds. We have allowed for a **3% annual inflation rate** in our calculations. Given the economic patterns over the past decade, we feel this is a conservative figure and will ensure that the return on the fund keeps pace with inflation on an annual basis. Please note that construction cost inflation rates differ from the Consumer Price Index (CPI) and can be obtained from the F. W. Dodge division of McGraw-Hill. Because the fund is receiving interest on the current balance on the reserve fund and not on the entire cost of the project, it is further necessary to update the replacement cost and therefore the annual contributions

based on inflation of construction cost once a year. This assures the Association over the life of the project that the necessary funds are available as the particular items conclude their useful life. See the table below for a comparison of a hypothetical \$100,000 project cost inflated over five years to a non-adjusted reserve contribution and an inflation adjusted contribution to the reserve fund.

COMPARATIVE EXAMPLE FOR A HYPOTHETICAL RESERVE FUND

	COLUMN 1	COLUMN 2	COLUMN 3
YEAR	RESERVE REQUIRED FOR A \$100,000 PROJECT AT 7% ANNUAL INFLATION OF CONSTRUCTION COST	BALANCE OF RESERVE BASED ON <u>THE ANNUAL CONTRIBUTION AS A CONSTANT AMOUNT*</u> PLUS A 7% ANNUAL RETURN	BALANCE OF RESERVE BASED ON AN <u>INFLATION ADJUSTED ANNUAL CONTRIBUTION**</u> PLUS A 7% ANNUAL RETURN
1	\$100,000	\$21,400	\$21,400
2	\$107,000	\$44,298	\$45,796
3	\$114,490	\$68,799	\$73,503
4	\$122,504	\$95,015	\$104,864
5	\$131,080	\$123,066	\$140,255

* The Annual Contribution as a Constant Amount uses the first year's construction cost divided by the 5 year life of this hypothetical item plus a 7% return on each years' contributions. This approach does not consider the inflation of the construction costs. As a result, in the fifth year, the accumulated funds are approximately \$8,000 short of the amount required in column 1.

** Inflation adjusted annual contribution uses the result of the current year's inflation adjusted construction cost divided by the 5 year life of the item. This allows the reserve fund to keep pace with inflation.

Column 3 shows that inflating the current year's annual contribution by the previous year's inflation rate provides the financial resources available to keep pace with the inflation rate of the construction cost shown in column 1.

EXCLUSIONS

Because the IRS does not allow routine maintenance items to be included in a Replacement Reserve Fund, we have not included them in this report. However, it should be noted that these items such as painting, termite treatment and repair, power washing, wood preservative treatment, reserve study fees and landscape replacement have the possibility of being major expenses and the Association should plan for them accordingly in their operating budget. This comes from IRS rulings and audit filings which state that

these are "maintenance" items and not "contributions to capital." Note that these are IRS definitions, and these are only issues if the association is filing Federal Tax Form 1120 (Corporation Tax Return) rather than form 1120-H (Homeowners Association Tax Form). Therefore, by IRS definitions the assessments collected for these types of future expenses aren't deductible from taxable income under the "contributions to capital" definition. Even if the association chooses to file Form 1120, there are ways that your accountant can adjust for these tax differences. It is not uncommon to have differences between generally accepted accounting principles and tax laws. With regards to non-capital reserves, your accountant should suggest that the cash set aside be segregated from other accounts.

The Reserve Study is predicated on replacing each item in kind. As a result, there are not enough monies anticipated to 'upgrade' the common element to a better grade or product. While a better grade or different product may last significantly longer than the existing product, the Reserve Study cannot plan for that upgrade since it would be the decision of the Board to make that change at the time of replacement. Should the Association choose to upgrade, then the proper funding method is through the Association's operating reserve. Throughout this study we have made notations of items that could be enhanced at the time of replacement which in our opinion would not constitute an 'upgrade'.

The financial analysis portion of the Reserve Study is at the end of this study and is broken down into two sections; Capital Repair/Replacement Reserve Summary (on a Component Basis), Capital Repair/Replacement Reserve Schedule (on a Cash Flow Basis) followed by a graph of the future projected reserve fund balances. Cash Flow and Component Basis are the two most common funding objectives. Funding on a Component Basis is typically the most conservative funding objective because the calculations for the Reserve Fund contribution include a contingency. Cash Flow Basis means establishing an objective of keeping the Reserve Fund balance above zero, with no contingency for unanticipated expenses. Unfortunately, due to having little or no "margin for error" this funding objective exposes the association to the risk of special assessments should the future predictions vary from actual performance or cost. Threshold Basis is an alternate funding objective which keeps the Reserve Fund above a predetermined dollar or Percent Funded amount (a kind of "middle ground" objective). Statutory Basis (setting the specific minimum amount of Reserves required by state statutes) is one specific form of Threshold Basis, where the threshold is set by state statute. This is not desirable because it gives the Association little say over their funding objectives. Therefore North Carolina doesn't have a threshold statute.

Because Reserve income and expenses never occur exactly as projected, decide in advance your risk strategy, and your tolerance for special assessment before determining an appropriate Reserve Funding Objective for your association. An explanation of how to read each section follows.

EXPLANATION OF CAPITAL REPAIR/REPLACEMENT RESERVE SUMMARY

The remaining life of the building and site components and the costs to replace them have previously been estimated. Their values are found in the two columns entitled REMAINING LIFE and COST OF REPLACEMENT, respectively. From these two values, the following steps can be followed in order to estimate the total annual contributions that are required to provide for repair and replacement of the components.

1. The TOTAL COST OF PROJECTS in current dollars is the sum of the values in the column titled COST OF REPLACEMENT.
2. The PRIOR ACCUMULATION is an allocation of the COST OF REPLACEMENT for each item based on its age. The FUTURE REQUIREMENT is the balance of the COST OF REPLACEMENT.
3. The column titled ANNUAL CONTRIBUTION is the result of dividing the value in the column titled FUTURE REQUIREMENT by the value in the column titled REMAINING LIFE. The resulting value is the amount of money required to be accumulated the first year for each item. These values must be changed each subsequent year by the amount of the prior year's construction inflation rate as previously discussed.
4. The ANNUAL CONTRIBUTION (COMPONENT BASIS) is the resulting value required to maintain a contingency of 100% of the value of the most expensive reservable item. This does not factor in the effects of inflation and interest on the funds as indicated in the RESERVE SCHEDULE. When the interest rate exceeds the inflation rate, the accumulated balance will grow at a faster rate than the cost of replacement creating a surplus of funds. The ANNUAL CONTRIBUTION (CASH FLOW BASIS) is the resulting value that allows the accumulated funds to periodically dip to zero (\$0) at the conclusion of a major project yet still satisfies the requirements of the RESERVE SCHEDULE. The two different means of calculating the ANNUAL CONTRIBUTION are the result of the level of risk each of them represents. Carrying a contingency (COMPONENT BASIS) in the Reserve Fund allows the Association to use the reserves to pay for those unexpected items should they occur. Such an occurrence might be the result of a change in the Fire Code requiring a fire sprinkler system in all buildings for example. The CASH FLOW BASIS assumes unexpected items would be paid by a special assessment or a temporary increase in the ANNUAL CONTRIBUTION. The Board of Directors must decide which level of risk is correct for their Association.

EXPLANATION OF THE CAPITAL REPAIR / REPLACEMENT RESERVE SCHEDULE ON A CASH FLOW BASIS - SHEET 1, SHEET 2 AND SHEET 3

This is a RESERVE SCHEDULE which tracks the project costs annually for a period of the next thirty (30) years on a cash flow basis. The non-inflated cost of each project is displayed under the column headed by the year in which that project is projected to occur. The sum of all projects is displayed at the bottom of each yearly column. Below this number at the bottom of the page is the sum of the project costs increased by the inflation rate mentioned in the left-hand column.

SHEET 1A, SHEET 2A AND SHEET 3A

These sheets are a continuation of each of the preceding sheets. For example, Sheet 1A is a continuation of Sheet 1, etc. The number on the first line on these sheets has been carried forward from the last line of the preceding sheet. The annual amount contributed by the average unit is listed on the line titled "CONTRIBUTION PER UNIT" which is the following line divided by the total number of units in the Association. The following line titled "TOTAL ANNUAL CONTRIBUTION ADJUSTED @ _ % ANNUALLY" represents the number from the lower right-hand corner of the "CAPITAL REPAIR / REPLACEMENT RESERVE SUMMARY" adjusted annually at a rate which is high enough to keep the Reserve Fund from having a negative balance in a future year where some very large project costs occur. The annual rate of adjustment is displayed in the title for this line. In cases where the Association is severely under-funded due to the large cost of a pending project, it may not be acceptable to annually adjust the annual contribution enough to prevent a negative balance in the Reserve Fund. In cases such as these, a special assessment may be the only way of curing a projected deficit. The Reserve Graph at the back of this section will illustrate the size and duration of any deficit. The line titled "TOTAL ACCUMULATED BALANCE" is the total of the previous annual contributions minus the inflated cost of the previous projects, without any interest on the accumulated funds. To find the balance of the Reserve Fund with interest you need to refer to the last line titled "ACCUMULATED BALANCE WITH INTEREST @ _ INTEREST RATE." The interest rate used for the calculation is the rate of interest currently being paid to the Association as reported to DLM Architects.

SHEET 4

This sheet is an illustration of the devastating impact that changes in the inflation rate or interest rate have on the accumulated balance with interest of the Reserve Fund in year thirty (30). This matrix is based on the projected accumulated balance of your Reserve Fund thirty (30) years from now and you can read your projected fund balance directly from this matrix by selecting an interest rate from the left-hand column and reading across until you are under your selected rate of inflation. Read more about this on Sheet 4.

EXPLANATION OF THE CASH FLOW GRAPH

This graph plots, on a cash flow basis, the ACCUMULATED BALANCE WITH INTEREST, TOTAL ACCUMULATED BALANCE and the ADJUSTED ANNUAL CONTRIBUTION and graphically shows their balances throughout the thirty (30) year projection. Any negative balances in the ACCUMULATED BALANCE WITH INTEREST can be eliminated by increasing the rate of adjustment of the annual contribution or by a special assessment in the years where the negative balance occurs.

**CAPITAL REPAIR/REPLACEMENT RESERVE SCHEDULE FOR:
SANDPIPER CAY CONDOMINIUM ASSOCIATION**

SHEET 1

ITEM	2009 YEAR 1	2010 YEAR 2	2011 YEAR 3	2012 YEAR 4	2013 YEAR 5	2014 YEAR 6	2015 YEAR 7	2016 YEAR 8	2017 YEAR 9	2018 YEAR 10
ASPHALT PAVEMENT		\$9,500								
ASPHALT SEALER		\$25,365					\$25,365			
CONCRETE CURB & GUTTER										
CONCRETE PAVEMENT										
CONCRETE SIDEWALKS										
COMMUNITY SIGNAGE										
RETAINING WALLS						\$17,550				
DUMPSTER PAD										
PUMP STATIONS										
BOARDWALK				\$10,200						
TENNIS COURT SURFACE								\$25,200		
TENNIS COURT FENCE										
CLUBHOUSE CARPET						\$5,600				
CLUBHOUSE FURNITURE								\$14,750		
CLUBHOUSE KITCHEN APPLIANCES										
CLUBHOUSE KITCHEN CABINETS										
CLUBHOUSE OFFICE EQUIPMENT						\$1,500				
SWIMMING POOL LINER						\$22,100				
SWIMMING POOL EQUIPMENT			\$8,000					\$8,000		
SWIMMING POOL FENCE										
SWIMMING POOL DECK										
POOL FURNITURE						\$12,625				
PATIO WOOD DECK										
CLUBHOUSE HOT WATER SYSTEM						\$1,200				
CLUBHOUSE CENTRAL HVAC										
ASPHALT SHINGLES										
FLAT ROOF - IB										
FLAT ROOFS - MOD. BIT.									\$856,575	
FLAT ROOFS - MOD. BIT.		\$282,600								
GUTTER & DOWNSPOUTS										
CHIMNEY CAPS								\$90,000		
BRICK MASONRY										
WOOD SIDING - CEDAR										
WOOD SIDING - T1-11						\$49,425				
WOOD SHINGLES								\$464,400		
WOOD TRIM										
PATIO FENCES										
PRIVATE EXTERIOR STAIRS										
BALCONIES										
BALCONY MOISTURE STUDY		\$18,000					\$18,000			
PATIOS & DECKS										
BUILDING MOUNTED LIGHTING						\$93,000				
SEALANTS & CAULKING						\$87,500				
TOTAL COST IN 2009 DOLLARS		\$335,465	\$8,000	\$10,200		\$290,500	\$43,365	\$602,350	\$856,575	
TOTAL COST IN INFLATION										
ADJUSTED \$ @ 3.0% INFL RATE		\$345,529	\$8,487	\$11,146		\$336,769	\$51,780	\$740,815	\$1,085,084	

**RESERVE ANALYSIS FOR:
SANDPIPER CAY CONDOMINIUM ASSOCIATION**

SHEET 1A

ITEM	2009 YEAR 1	2010 YEAR 2	2011 YEAR 3	2012 YEAR 4	2013 YEAR 5	2014 YEAR 6	2015 YEAR 7	2016 YEAR 8	2017 YEAR 9	2018 YEAR 10
TOTAL COST IN INFLATION ADJUSTED \$ @ 3.0% INFL RATE	\$0	\$345,529	\$8,487	\$11,146	\$0	\$336,769	\$51,780	\$740,815	\$1,085,084	\$0
CONTRIBUTION PER UNIT	\$748	\$778	\$809	\$842	\$875	\$910	\$947	\$985	\$1,024	\$1,065
TOTAL ANNUAL CONTRIBUTION ADJUSTED @ 4.0% ANNUALLY	\$209,500	\$217,880	\$226,595	\$235,659	\$245,085	\$254,889	\$265,084	\$275,688	\$286,715	\$298,184
TOTAL ACCUMULATED BALANCE	\$209,500	\$81,851	\$299,959	\$524,472	\$769,558	\$687,677	\$900,982	\$435,855	(\$362,514)	(\$64,330)
ACCUM. BALANCE W/INTEREST AT 2.0% INTEREST RATE	\$213,690	\$87,762	\$311,987	\$547,230	\$808,162	\$740,807	\$973,194	\$518,228	(\$285,743)	\$12,690

**CAPITAL REPAIR/REPLACEMENT RESERVE SCHEDULE FOR:
SANDPIPER CAY CONDOMINIUM ASSOCIATION**

SHEET 2

ITEM	2019 YEAR 11	2020 YEAR 12	2021 YEAR 13	2022 YEAR 14	2023 YEAR 15	2024 YEAR 16	2025 YEAR 17	2026 YEAR 18	2027 YEAR 19	2028 YEAR 20
ASPHALT PAVEMENT	\$253,650									
ASPHALT SEALER		\$25,365					\$25,365			
CONCRETE CURB & GUTTER	\$12,236									
CONCRETE PAVEMENT	\$5,000									
CONCRETE SIDEWALKS	\$60,325									
COMMUNITY SIGNAGE	\$3,500									
RETAINING WALLS										
DUMPSTER PAD	\$2,800									
PUMP STATIONS	\$66,500									
BOARDWALK										
TENNIS COURT SURFACE								\$25,200		
TENNIS COURT FENCE										
CLUBHOUSE CARPET						\$5,600				
CLUBHOUSE FURNITURE										
CLUBHOUSE KITCHEN APPLIANCES		\$2,250								
CLUBHOUSE KITCHEN CABINETS	\$5,600									
CLUBHOUSE OFFICE EQUIPMENT								\$1,500		
SWIMMING POOL LINER										
SWIMMING POOL EQUIPMENT			\$8,000					\$8,000		
SWIMMING POOL FENCE	\$11,200									
SWIMMING POOL DECK	\$5,655									
POOL FURNITURE						\$12,625				
PATIO WOOD DECK	\$8,000									
CLUBHOUSE HOT WATER SYSTEM										
CLUBHOUSE CENTRAL HVAC						\$7,500				
ASPHALT SHINGLES								\$137,351		
FLAT ROOF - IB									\$37,800	
FLAT ROOFS - MOD. BIT.										
FLAT ROOFS - MOD. BIT.										
GUTTER & DOWNSPOUTS	\$37,800									
CHIMNEY CAPS										
BRICK MASONRY	\$40,390									
WOOD SIDING - CEDAR	\$3,510									
WOOD SIDING - T1-11						\$49,425				
WOOD SHINGLES										
WOOD TRIM	\$31,500									
PATIO FENCES	\$171,500									
PRIVATE EXTERIOR STAIRS						\$216,000				
BALCONIES	\$864,000									
BALCONY MOISTURE STUDY		\$18,000					\$18,000			
PATIOS & DECKS	\$31,450									
BUILDING MOUNTED LIGHTING										
SEALANTS & CAULKING			\$87,500							\$87,500
TOTAL COST IN 2009 DOLLARS	\$1,614,616	\$45,615	\$95,500			\$291,150	\$43,365	\$172,051	\$37,800	\$87,500
TOTAL COST IN INFLATION										
ADJUSTED \$ @ 3.0% INFL RATE	\$2,169,909	\$63,142	\$136,160			\$453,602	\$69,588	\$284,375	\$64,352	\$153,432

RESERVE ANALYSIS FOR:

SHEET 2A

SANDPIPER CAY CONDOMINIUM ASSOCIATION

ITEM	2019 YEAR 11	2020 YEAR 12	2021 YEAR 13	2022 YEAR 14	2023 YEAR 15	2024 YEAR 16	2025 YEAR 17	2026 YEAR 18	2027 YEAR 19	2028 YEAR 20
TOTAL COST IN INFLATION ADJUSTED \$ @ 3.0% INFL RATE	\$2,169,909	\$63,142	\$136,160	\$0	\$0	\$453,602	\$69,588	\$284,375	\$64,352	\$153,432
CONTRIBUTION PER UNIT	\$1,108	\$1,152	\$1,198	\$1,246	\$1,296	\$1,347	\$1,401	\$1,457	\$1,516	\$1,576
TOTAL ANNUAL CONTRIBUTION ADJUSTED @ 4.0% ANNUALLY	\$310,111	\$322,516	\$335,416	\$348,833	\$362,786	\$377,298	\$392,390	\$408,085	\$424,409	\$441,385
TOTAL ACCUMULATED BALANCE	(\$1,924,128)	(\$1,664,754)	(\$1,465,498)	(\$1,116,665)	(\$753,879)	(\$830,183)	(\$507,382)	(\$383,671)	(\$23,614)	\$264,339
ACCUM. BALANCE W/INTEREST AT 2.0% INTEREST RATE	(\$1,884,050)	(\$1,657,170)	(\$1,487,072)	(\$1,161,004)	(\$814,182)	(\$908,296)	(\$597,205)	(\$482,964)	(\$125,365)	\$165,840

**CAPITAL REPAIR/REPLACEMENT RESERVE SCHEDULE FOR:
SANDPIPER CAY CONDOMINIUM ASSOCIATION**

SHEET 3

ITEM	2029 YEAR 21	2030 YEAR 22	2031 YEAR 23	2032 YEAR 24	2033 YEAR 25	2034 YEAR 26	2035 YEAR 27	2036 YEAR 28	2037 YEAR 29	2038 YEAR 30
ASPHALT PAVEMENT										
ASPHALT SEALER		\$25,365					\$25,365			
CONCRETE CURB & GUTTER										
CONCRETE PAVEMENT										
CONCRETE SIDEWALKS										
COMMUNITY SIGNAGE										
RETAINING WALLS										
DUMPSTER PAD										
PUMP STATIONS			\$66,500							
BOARDWALK							\$10,200			
TENNIS COURT SURFACE								\$25,200		
TENNIS COURT FENCE	\$16,200									
CLUBHOUSE CARPET						\$5,600				
CLUBHOUSE FURNITURE										
CLUBHOUSE KITCHEN APPLIANCES										
CLUBHOUSE KITCHEN CABINETS										
CLUBHOUSE OFFICE EQUIPMENT										\$1,500
SWIMMING POOL LINER	\$22,100									
SWIMMING POOL EQUIPMENT			\$8,000					\$8,000		
SWIMMING POOL FENCE										
SWIMMING POOL DECK										
POOL FURNITURE						\$12,625				
PATIO WOOD DECK										
CLUBHOUSE HOT WATER SYSTEM										
CLUBHOUSE CENTRAL HVAC										
ASPHALT SHINGLES										
FLAT ROOF - IB										
FLAT ROOFS - MOD. BIT.				\$856,575						
FLAT ROOFS - MOD. BIT.			\$282,600							
GUTTER & DOWNSPOUTS										
CHIMNEY CAPS										
BRICK MASONRY										
WOOD SIDING - CEDAR										
WOOD SIDING - T1-11						\$49,425				
WOOD SHINGLES										
WOOD TRIM										
PATIO FENCES										
PRIVATE EXTERIOR STAIRS										
BALCONIES										
BALCONY MOISTURE STUDY		\$18,000					\$18,000			
PATIOS & DECKS										
BUILDING MOUNTED LIGHTING										
SEALANTS & CAULKING							\$87,500			
TOTAL COST IN 2009 DOLLARS	\$38,300	\$43,365	\$357,100	\$856,575		\$67,650	\$141,065	\$33,200		\$1,500
TOTAL COST IN INFLATION										
ADJUSTED \$ @ 3.0% INFL RATE	\$69,174	\$80,672	\$684,241	\$1,690,525		\$141,644	\$304,220	\$73,747		\$3,535

**RESERVE ANALYSIS FOR:
SANDPIPER CAY CONDOMINIUM ASSOCIATION**

SHEET 3A

ITEM	2029 YEAR 21	2030 YEAR 22	2031 YEAR 23	2032 YEAR 24	2033 YEAR 25	2034 YEAR 26	2035 YEAR 27	2036 YEAR 28	2037 YEAR 29	2038 YEAR 30
TOTAL COST IN INFLATION ADJUSTED \$ @ 3.0% INFL RATE	\$69,174	\$80,672	\$684,241	\$1,690,525	\$0	\$141,644	\$304,220	\$73,747	\$0	\$3,535
CONTRIBUTION PER UNIT	\$1,639	\$1,705	\$1,773	\$1,844	\$1,918	\$1,995	\$2,074	\$2,157	\$2,244	\$2,333
TOTAL ANNUAL CONTRIBUTION ADJUSTED @ 4.0% ANNUALLY	\$459,040	\$477,402	\$496,498	\$516,358	\$537,012	\$558,493	\$580,832	\$604,066	\$628,228	\$653,357
TOTAL ACCUMULATED BALANCE	\$654,205	\$1,050,935	\$863,193	(\$310,974)	\$226,038	\$642,887	\$919,499	\$1,449,818	\$2,078,047	\$2,727,869
ACCUM. BALANCE W/INTEREST AT 2.0% INTEREST RATE	\$566,820	\$982,821	\$810,980	(\$370,450)	\$169,893	\$598,476	\$892,591	\$1,451,368	\$2,121,188	\$2,826,431

IMPACT OF INFLATION/INTEREST ON ACCUMULATED BALANCE W/INTEREST FOR:

SANDPIPER CAY CONDOMINIUM ASSOCIATION

ASSUMES ADJUSTMENT IN THE ANNUAL CONTRIBUTION = 4.0%

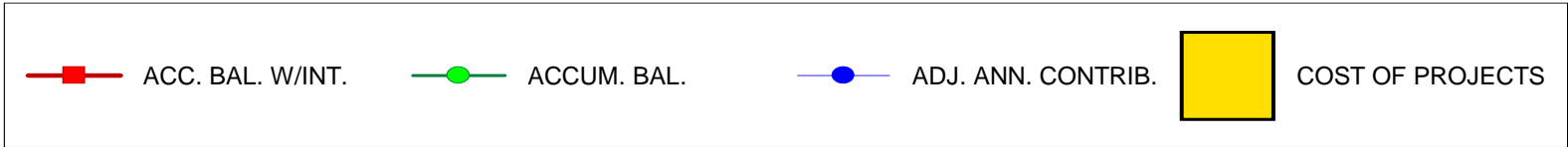
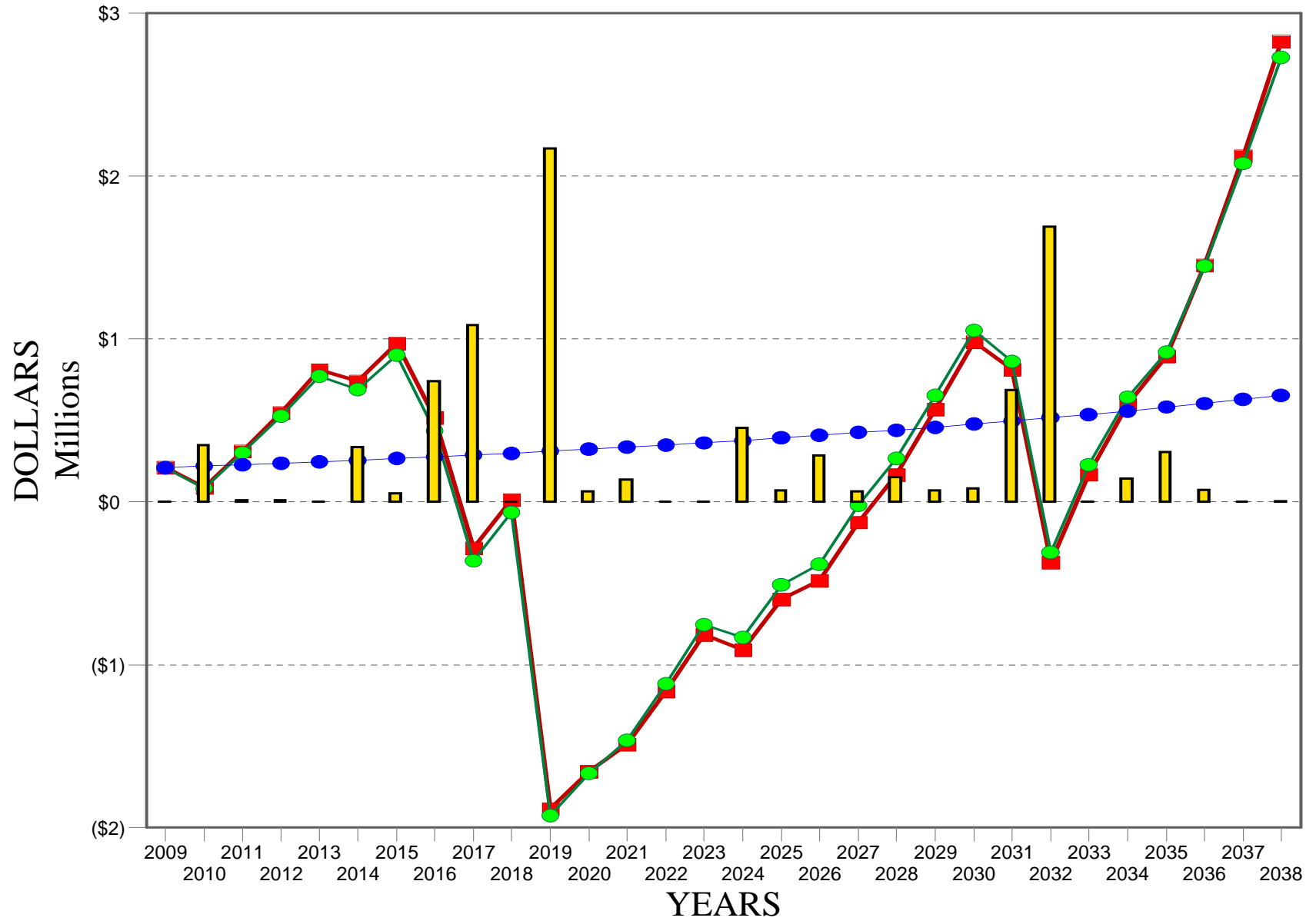
****		INFLATION RATE - percent										
		0	1	2	3	4	5	6	7	8	9	10
INTEREST RATE percent	1	\$6,135,205	\$5,184,393	\$4,075,772	\$2,779,304	\$1,258,931	(\$528,635)	(\$2,635,345)	(\$5,123,527)	(\$8,067,925)	(\$11,558,121)	(\$15,701,421)
	2	\$6,657,628	\$5,566,714	\$4,300,538	\$2,826,431	\$1,105,243	(\$909,946)	(\$3,275,357)	(\$6,058,347)	(\$9,339,581)	(\$13,215,624)	(\$17,802,011)
	3	\$7,258,461	\$6,002,833	\$4,552,096	\$2,870,673	\$916,016	(\$1,362,776)	(\$4,026,595)	(\$7,148,283)	(\$10,814,950)	(\$15,130,741)	(\$20,220,114)
	4	\$7,955,844	\$6,506,221	\$4,838,852	\$2,914,952	\$688,225	(\$1,896,601)	(\$4,905,539)	(\$8,417,420)	(\$12,526,382)	(\$17,344,815)	(\$23,006,856)
	5	\$8,772,977	\$7,094,513	\$5,172,424	\$2,964,366	\$419,911	(\$2,521,032)	(\$5,930,089)	(\$9,892,652)	(\$14,510,531)	(\$19,905,094)	(\$26,220,999)
	6	\$9,739,558	\$7,790,785	\$5,568,725	\$3,027,087	\$110,868	(\$3,245,335)	(\$7,119,325)	(\$11,603,687)	(\$16,808,622)	(\$22,865,294)	(\$29,929,812)
	7	\$10,893,603	\$8,625,171	\$6,049,382	\$3,115,551	(\$236,400)	(\$4,077,743)	(\$8,493,088)	(\$13,582,926)	(\$19,466,649)	(\$26,286,129)	(\$34,209,957)
	8	\$12,283,753	\$9,636,945	\$6,643,562	\$3,248,019	(\$615,401)	(\$5,024,475)	(\$10,071,327)	(\$15,865,153)	(\$22,535,435)	(\$30,235,767)	(\$39,148,370)
	9	\$13,972,184	\$10,877,155	\$7,390,318	\$3,450,613	(\$1,013,957)	(\$6,088,392)	(\$11,873,132)	(\$18,486,974)	(\$26,070,500)	(\$34,790,160)	(\$44,843,086)
	10	\$16,038,274	\$12,411,966	\$8,341,592	\$3,759,955	(\$1,411,954)	(\$7,267,166)	(\$13,915,349)	(\$21,485,908)	(\$30,131,663)	(\$40,033,190)	(\$51,403,960)

() = NEGATIVE NUMBER

IT IS VERY IMPORTANT TO NOTE THE IMPACT THAT THE INFLATION RATE HAS ON THE AMOUNT OF INVESTED FUNDS AVAILABLE FOR FUTURE PROJECTS. THE TABLE ABOVE GRAPHICALLY DISPLAYS THE INFLATION RATE FOR A GIVEN RATE OF INTEREST ON THE ADJUSTED ANNUAL CONTRIBUTION. TO USE THIS TABLE, SELECT AN INTEREST RATE FOR YOUR INVESTED FUNDS IN THE LEFT-HAND COLUMN AND READ ACROSS TO THE RIGHT TO SEE HOW THE "ACCUMULATED BALANCE W/INTEREST " IN YEAR 30*, DECREASES WITH THE INCREASE IN THE INFLATION RATE. FOR EXAMPLE: IF THE ASSOCIATION WERE TO INVEST THE ANNUAL CONTRIBUTIONS IN AN INTEREST BEARING ACCOUNT AT 4% INTEREST, THE RESERVE FUND WOULD HAVE AN ACCUMULATED BALANCE W/INTEREST OF \$-1896601 IN YEAR 30 IF THE INFLATION RATE STAYED A CONSTANT 5%. HOWEVER, THAT BALANCE OF \$-1896601 WOULD BECOME A BALANCE OF \$-8417420 IF THE INFLATION RATE CLIMBS JUST 2%. THIS IS WHY RESERVE STUDIES PREPARED BY DLM ARCHITECTS RECOMMEND INCREASING THE ANNUAL CONTRIBUTION BY THE CURRENT DIFFERENCE BETWEEN THE INFLATION RATE AND THE INTEREST RATE TO PROVIDE ADEQUATE FUNDS FOR FUTURE PROJECTS.

* THIS IS THE VALUE IN THE LOWER RIGHT OF SHEET 3A

SANDPIPER CAY CONDOMINIUM ASSOCIATION



ARCHITECTURAL RESERVE STUDY NOTE

The existence of any environmental hazard such as the presence of hazardous wastes, toxic substances, radon gas, lead based paint, asbestos-containing materials, ureaformaldehyde insulation, etc. which may or may not be present in or on the subject community or any site within the vicinity of the community, was not observed by the architect and the architect has no knowledge of any such environmental hazard. The architect is not qualified to detect such substances. No responsibility is assumed for any such conditions, or for any expertise or engineering knowledge required to discover them.

The architect performed no testing of the treated wood products found in this community to confirm the presence of chromated copper arsenate (CCA), since testing is outside the scope of the reserve study. Given the age of the community and the prevalence of CCA used as a wood preservative, it is the architect's opinion that CCA treated wood may be present at this community.

The presence of such substances may affect the value of the reserve in the future. The reserve estimate is predicated on the assumption that there is no such material on or in the community and the regulations governing the possession of these substance remains unchanged.

The architect has not taken into consideration, since an Environmental Impact Study or Environmental Site Assessment was not provided, any consequence that the Clean Water Act of 1990 and/or the Chesapeake Bay Preservation Act may have on the community.

The Association may wish to retain an expert in these fields to make an accurate determination concerning the existence of such hazardous materials and their impact due to possible existence of environmentally protected property.

The existence of polybutylene pipe was not reviewed because it is not a common element. The reserve estimate is predicated on the assumption that there is no such material on or in the community.

The architect has not taken into consideration, any consequence that the Fair Housing Act of 1991 may have on the community, because the buildings are exempt from the Act's design and construction requirements due to their first occupancy occurring before March 13, 1991.