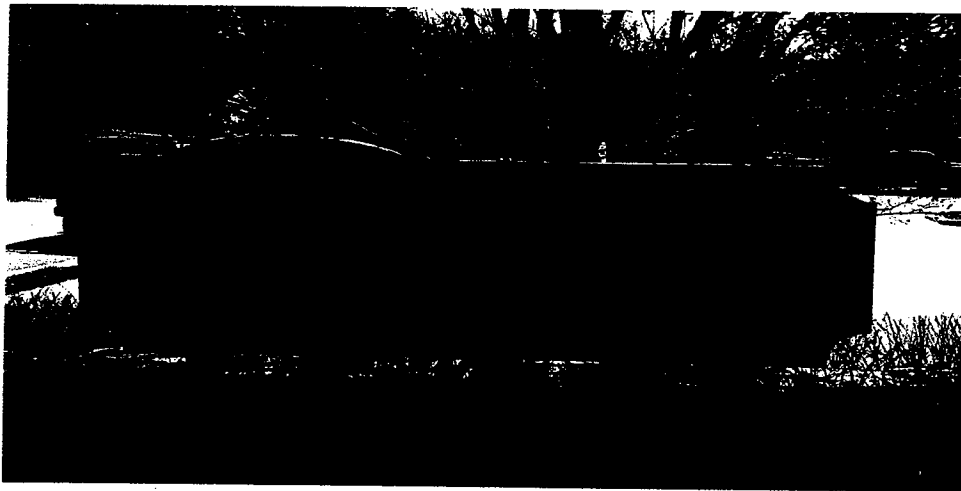


**FY 2008  
REPAIR AND REPLACEMENT  
RESERVE STUDY**

**for**

**Deer Run Crossing Homeowners Association**

**Alexandria, Virginia**



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CMC Engineering**

**December 31, 2007**

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## Executive Summary

This is a Level I Full Study (with on-site visit) as defined by CAI's National Reserve Study Standards. The site inspection was performed on December 20, 2007.

The Deer Run Crossing Homeowners Association consists of 62 Town Home units with five parking lots.

The association's FY begins January 1st.

The association is projected to have about \$47,500 in reserves at the start of its fiscal year. The reserve calculations were made using this amount.

Our analysis indicates:

- We recommend an annual Reserve Contribution of \$11,500 in FY08 with a 3% increase each year until after the projected low Reserve balances in FY13 & 14. (See 20 Year Cash Flow Chart on page A3)
- This contribution level should allow the association to overlay all of the parking lot pavements within the next six years.

There are two methods of determining the required Reserve Contribution: The **Cash Flow Method** and the **Component Method**.

The **Component Method** develops the Reserve Funding Plan based on the sum of contributions for individual components. This method of funding usually results in relatively high annual contributions and fund balances.

This study was calculated using the **Cash Flow** method - This method develops a reserve funding plan where annual contributions to the reserves are designed to offset the variable annual expenditures from the reserves. Different reserve funding plans are tested against the anticipated schedule of reserve expenses until the desired funding goal is achieved.

The funding goal used in this study is: **Threshold Funding** – this method is designed to keep the reserve balance above a specific dollar amount or percent funded amount. In this reserve study the threshold is set to keep the reserve balance above \$10,000.

All costs in this study are expressed in constant dollars.

## Introduction

The purpose of this study is to design a **Table of Repair/Replacement Reserves** for the common and limited common elements of the property to establish an annual reserve contribution to fund predictable future expenditures for the repair and replacement of these property components.

Typically associations fund capital repairs and replacements in one of three ways:

- 1) Special assessments collected from the owners when major work is needed.
- 2) Acquiring a loan using borrowed capital for major repair and replacement projects.
- 3) A level monthly reserve contribution to fund expected future repair and replacement projects.

Our goal is to establish a reasonable reserve contribution that would avoid the need for special assessments and acquiring loans. This will also ensure that every owner pays their fair share for the time that they own their property. Loans and special assessments only penalize the owners that are present at the time the work is needed.

Example:

If a component has a replacement cost of \$1,000 and an average useful life of 10 years, by straight calculations a contribution of \$100 per year should be made to the reserves.

If the contribution level is suppressed and only \$50 per year is contributed to the reserves, the result would be a \$500 short fall. Additionally if one owner owns his or her property for the first 8 years and then sells their unit, that owner should have paid their share of \$800, but at the suppressed contribution level they only paid their share of \$400. In the 10<sup>th</sup> year when the component is due for replacement the new owner has to pay their share of the \$200 for the two years that they owned as well as the share of the previous owners \$400 short fall.

It is important to note that a reserve study is a valuable budget management tool not a work plan. The remaining useful life of each component is based on averages and is the point at which the association should be financially prepared to replace/repair that component. This does not suggest that if the component has reached its average useful life that the component should be repaired/replaced if it is not failing.

In developing the table we consider items that have a predictable life cycle as well as those that will most likely need annual repairs to extend the useful life of the component.

Although we use generally accepted techniques and the best information available, it is possible actual costs and useful life can vary from our estimates.

Current cost estimates are based on similar work recently performed on other local properties, estimating publications and software, information provided by local contractors and other reliable sources.

This study does not consider correcting hazardous or defective conditions associated with asbestos, radon, lead, mold, etc. unless otherwise noted in this report

### **Different Levels of Work**

There are three levels of work necessary to properly care for equipment and property components.

- 1) Maintenance – typically this is the least expensive and most important task that is performed on property components. Good maintenance extends the useful life of property components and keeps them in good working order.
- 2) Repair - replacing a portion of an item to keep the component as a whole in good working order. Repair is usually more expensive than maintenance but less expensive than total replacement. If repairs are excessively expensive a cost analysis should be performed to determine if replacement of the item is more economical.
- 3) Replacement - involves the entire replacement of the item.

## DEFINITION OF ABBREVIATIONS

AN – An annual allowance for components without a predictable useful life.  
AOH – Reserve fund Amount-On-hand at the start of the fiscal year.

EA - Each  
CY - Cubic Yards  
LF - Linear Feet  
LS - Lump Sum

HP - Horsepower  
SF - Square Feet  
SY - Square Yards  
TN - Tons

## Definition of Terms

These definitions pertain to the categories shown in the Repair & Replacement Reserves Tables and Chart.

**Property Component** - The components on the property we believe the community should include in the reserves. If we have omitted or added any items that are not common or limited common area responsibility, please inform us so we can provide a revised table

**Quantity** – The approximate quantity and unit of measure of each component.

**Average Useful Life** – The average of how long a component should be expected to last before replacement is needed. Leading publications on useful life data, information from local contractors, our own experiences and historical trends are used to determine the average useful life.

**Remaining Useful Life** – The time remaining before we believe the associations should be financially prepared to replace a component. This is determined by the age and existing condition of the component. Providing good maintenance to a component can extend the remaining useful life beyond the average useful life of the component.

**Replacement Cost** – The amount we believe the association should set aside in today's dollars for the replacement of each component. These are budget numbers and could vary from actual bids to do the work. This assumes the association will competitively seek bids and obtain a fair price in today's market.

**Recommended Contribution** - The contribution needed to achieve the funding goal of this study.

**Projected Annual Expenses** – A table of expected expenditure for each component and the annual expenses from the reserves over the life of the study.

**20 Year Cash Flow Chart** – A chart showing the anticipated annual reserve balance based on the projected annual expenses and the recommended reserve contributions over the life of the study.

## Components Description

### **Pavements & Sidewalks**

**Parking Lots**– All of the parking lots have exceeded the normal average useful life of pavement. This is due to the good maintenance and repair that the association has done over the years to extend the useful life; however at this point it is our opinion that the association's funds will now be better spent in overlaying these pavements and providing new useful lives to all of the parking lots.

We have labeled the lots from 1 to 5 starting at the top of Deer Run Drive (lot #4 is on Deer Run Court). We allow for the lots #2, #1 and #3 respectively, to receive overlays over the next three years as we feel these are the order of importance. Lots #5 & #4 are in better shape and we feel that their useful lives may be extended by continuing the maintenance of sealing cracks and seal coating the pavement surfaces.

With the escalating cost of asphalt and all other petroleum products, we do feel that it is in the association's best interest to maintain the pavements and extend the useful life for as long as possible; therefore we allow for seal coating of the lots every 5 years. We also recommend filling all cracks and repairing any basefail areas as they occur to prevent water, gas, oil and ice melt from penetrating the surface and damaging the sub base of the pavements; therefore we allow an average annual amount to perform this type of work. Please note that we recognize that in some years this work may be more and others may be less than the average annual allowance. This average annual allowance of \$2,000 should also be viewed as an allowance to spend \$20,000 over a ten year period.

**Sidewalks & Curbs** -It is reported that damaged concrete sidewalks, curbs & gutters were replaced in FY02. During our inspection we noticed one possible trip hazard on Deer Run Court and some spalling of the gutters in court #5. Most asphalt companies also perform concrete work and would likely give a discount rate for replacing these areas to coincide with the recommended pavement work.

### **Site Items**

**Pole Lights** – a good job has been done by the association in maintaining these lights. We allow an average annual allowance to continue to perform necessary maintenance as it may be needed. We also include a line item for total replacement of these lights in ten years if the association elects to do so.

**6' Board Fence** – This fence was reportedly installed in FY06 and stained in FY07. We allow for re-staining of this fence every 5 years. Any repairs that may be needed to the fence should be funded through the annual **Miscellaneous Site Items** allowance listed below.

**Split Rail Fencing** - we allow for the fencing on Deer Run Court to be replaced first to avoid mix matching of new with old pieces of fence. The replaced members of this fence that are still in good condition can be used to make repairs to the fencing on Deer Run Drive and extend its useful life.

**Storage Shed** – an allowance to purchase a shed to store association property and equipment.

**Miscellaneous Site Items** – This average annual allowance is intended to be a "catch all" maintenance allowance to allow the association to fix what is needed when it is needed.

## Appendix

**REPAIR AND REPLACEMENT RESERVE CALCULATIONS**

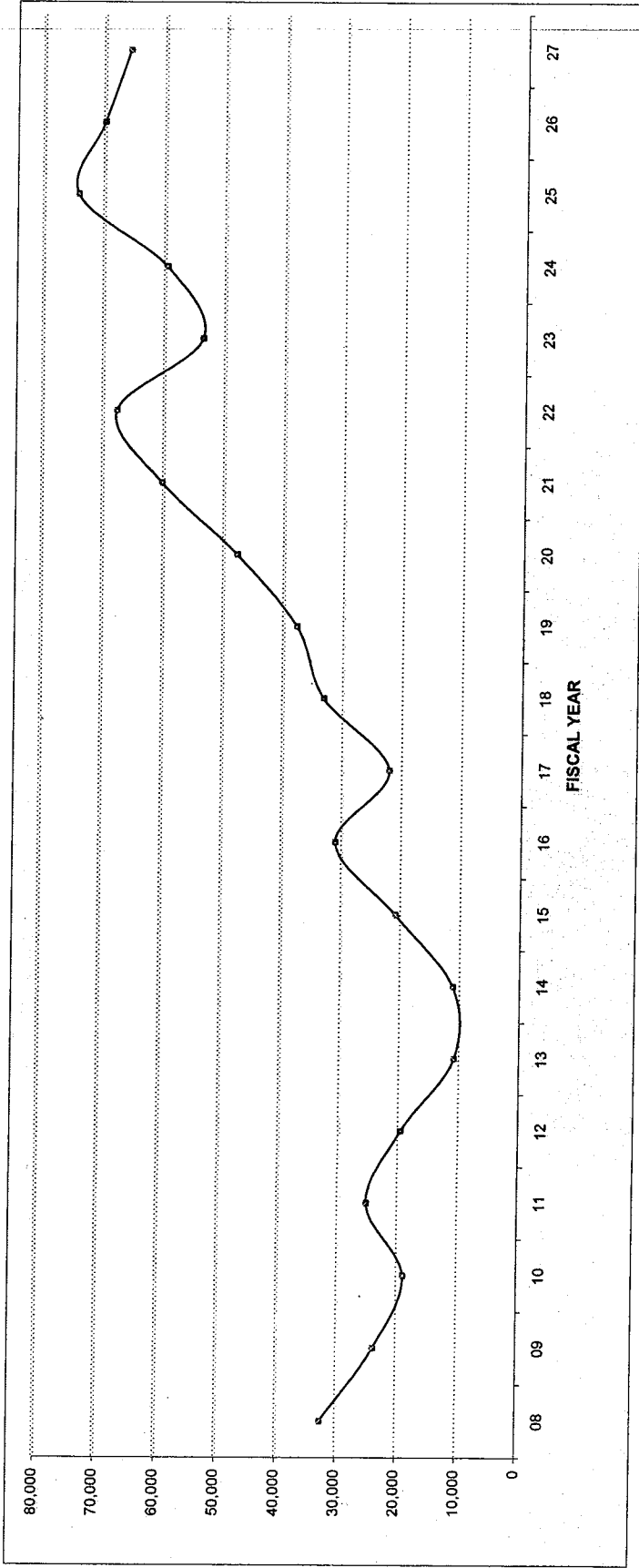
PROPERTY COMPONENTS	QUANTITY	SIZE	UNITS	USEFUL LIFE (YRS.)		REPLACEMENT COST	RECOMMENDED CONTRIBUTION	CONTRIBUTION TOTALS
				AVERAGE	REMAINING			
<b>PAVEMENTS &amp; SIDEWALKS</b>								
<b>LOT #1</b>								
PAVEMENT OVERLAY		1,056	SY	18	1	12,670	1,520	
SEAL COATING		1,056	SY	5	6	1,320	50	
<b>LOT #2</b>								
PAVEMENT OVERLAY		1,457	SY	18	0	17,480	4,200	
SEAL COATING		1,457	SY	5	6	1,820	60	
<b>LOT #3</b>								
PAVEMENT OVERLAY		1,056	SY	18	2	12,670	1,010	
SEAL COATING		1,056	SY	5	6	1,320	50	
<b>LOT #4</b>								
PAVEMENT OVERLAY		1,478	SY	18	5	17,730	710	
SEAL COATING		1,478	SY	5	1	1,850	220	
<b>LOT #5</b>								
PAVEMENT OVERLAY		566	SY	18	4	6,790	330	
SEAL COATING		566	SY	5	1	710	90	
CRACK FILL/BASE REPAIR ALLOW.			AN	1	0	2,000	480	
SIDEWALKS & CURBS			LS	3	0	2,000	480	
<b>TOTAL PAVEMENTS &amp; SIDEWALKS</b>								<b>\$9,200</b>
<b>SITE ITEMS</b>								
POLE LIGHTS		10	EA	30	9	12,000	290	
POLE LIGHT MAINTENANCE/REPAIR			AN	1	0	400	90	
6' BOARD FENCE		1,280	LF	18	15	25,600	380	
6' BOARD FENCE STAINING		1,280	LF	5	4	5,500	260	
SPLIT RAIL FENCING		84	LF	15	1	1,050	130	
SPLIT RAIL FENCING		138	LF	15	4	1,730	80	
STORAGE SHED			LS	20	0	2,500	600	
MISC. SITE ITEMS			AN	1	0	2,000	480	
ENTRANCE FEATURES, SIGNS, DRAINAGE, MINOR LANDSCAPING, FENCING, WALKING PATHS, ETC.								<b>\$2,310</b>
<b>TOTAL SITE ITEMS</b>								<b>\$2,310</b>
<b>RESERVES TOTALS</b>						<b>\$129,140</b>	<b>\$11,500</b>	

PROJECTED ANNUAL EXPENSES

FISCAL YEAR	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
<b>PAVEMENTS &amp; SIDEWALKS</b>																					
LOT #1																					
PAVEMENT OVERLAY	0	12,670	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,670	0
SEAL COATING	0	0	0	0	0	0	1,320	0	1,320	0	0	0	0	0	0	0	1,320	0	0	0	0
LOT #2																					
PAVEMENT OVERLAY	17,480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,480	0
SEAL COATING	0	0	0	0	0	0	1,820	0	1,820	0	0	0	0	0	0	0	1,820	0	0	0	0
LOT #3																					
PAVEMENT OVERLAY	0	0	12,670	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEAL COATING	0	0	0	0	0	0	1,320	0	1,320	0	0	0	0	0	0	0	1,320	0	0	0	0
LOT #4																					
PAVEMENT OVERLAY	0	0	0	0	0	17,730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEAL COATING	0	1,850	0	0	0	0	1,850	0	1,850	0	0	0	0	0	0	0	1,850	0	0	0	0
LOT #5																					
PAVEMENT OVERLAY	0	0	0	0	6,790	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEAL COATING	0	710	0	0	0	0	710	0	710	0	0	0	0	0	0	0	0	0	0	0	0
CRACK FILL/BASE REPAIR ALLOW.	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
SIDEWALKS & CURBS	2,000	0	0	2,000	0	2,000	0	0	0	2,000	0	0	2,000	0	0	2,000	0	0	0	2,000	0
<b>SITE ITEMS</b>																					
POLE LIGHTS	0	0	0	0	0	0	0	0	0	12,000	0	0	0	0	0	0	0	0	0	0	0
POLE LIGHT MAINTENANCE/REPAIR	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
6' BOARD FENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6' BOARD FENCE STAINING	0	0	0	0	5,500	0	0	0	0	5,500	0	0	0	0	0	25,600	0	0	0	0	0
SPLIT RAIL FENCING	0	1,050	0	0	0	0	0	0	0	0	0	0	0	0	5,500	0	0	0	0	0	5,500
SPLIT RAIL FENCING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,050	0	0	0	0
STORAGE SHED	2,500	0	0	0	1,730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,730
MISC. SITE ITEMS	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
ENTRANCE FEATURES,																					
SIGNS, DRAINAGE,																					
MINOR LANDSCAPING,																					
FENCING, WALKING PATHS, ETC.																					
<b>Totals</b>	<b>\$26,380</b>	<b>\$20,680</b>	<b>\$17,070</b>	<b>\$6,400</b>	<b>\$18,420</b>	<b>\$22,130</b>	<b>\$13,420</b>	<b>\$4,400</b>	<b>\$4,400</b>	<b>\$4,400</b>	<b>\$23,900</b>	<b>\$4,400</b>	<b>\$11,420</b>	<b>\$6,400</b>	<b>\$9,900</b>	<b>\$32,000</b>	<b>\$12,470</b>	<b>\$4,400</b>	<b>\$23,880</b>	<b>\$24,300</b>	

# 20 YEAR CASH FLOW CHART

BEGINNING BALANCE      \$47,500      INTEREST      0.0%  
 PERCENT FUNDED      61%      INFLATION      0.0%



FISCAL YEAR	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ANNUAL EXPENSE	26,380	20,680	17,070	6,400	18,420	22,130	13,420	4,400	4,400	23,900	4,400	11,420	6,400	4,400	9,900	32,000	12,470	4,400	23,880	24,300
CONTRIBUTION	11,500	11,845	12,200	12,566	12,943	13,332	13,732	14,144	14,568	15,005	15,455	15,919	16,396	16,888	17,395	17,917	18,454	19,008	19,578	20,165
YEAR END BALANCE	32,600	23,800	18,900	25,100	19,600	10,800	11,100	20,800	31,000	22,100	33,200	37,700	47,700	60,200	67,700	53,600	59,600	74,200	69,900	65,800