

**RESERVE STUDY**

# HIGHGATE GREENS HOME OWNERS ASSOCIATION

VIRGINIA BEACH, VIRGINIA



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## INTRODUCTION

DLM Architects is pleased to present this reserve study for *Highgate Greens Home Owners Association*. Highgate Greens is a 186-unit association in Virginia Beach, Virginia. DLM Architects has been requested by the President, Eric Westhoff 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 Replacement Reserve Account. This study is limited to the reservable components of common ownership. These reservable components are defined by the Declaration and agreed upon in the proposal by DLM Architects initiated on May 15, 2017, and signed by Eric Westhoff, President thereafter. The reservable components covered by this study are identified on **page three**.

The conditions presented in this study are as accurate as reasonably 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 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 REPLACEMENT RESERVE ACCOUNT

One of the principal objectives of CIRA (Common Interest Realty Associations) is to maintain the community's common property. Paragraph 3.03 of the AICPA guide states that, "CIRAs may accumulate funds for future major repair and replacement of the common property through the following ways:

1. Funding through periodic assessments over the estimated life of common property.
2. Funding through special assessments at the time a major repair or replacement of common property is needed.
3. Borrowing.
4. Seeking grants or other kinds of programs from governmental entities (such as, energy retrofits, landscape plantings, etc.)
5. Seeking assistance from governmental agencies, for example, financial programs geared toward low to moderate income homeowners, are sometimes available.
6. A combination of those options."

A Replacement Reserve Study addresses item #1 in the list above. A replacement reserve study is advantageous for the long-term security of the homeowners by establishing the annual contributions to the Replacement Reserve Account necessary to provide adequate funds for the future major repair and replacement projects. The replacement reserve study is also an essential tool for determining compliance with requirements of the Association Declarations; Financial Accounting Standards Board - Accounting Standards Codification (FASB ASC) 972-235-50-2 Real Estate Disclosure; and Federal Housing Administration (FHA) regulations requiring a replacement reserve study to determine whether the Association is adequately funded before a resale to their borrower. Furthermore, [CHAPTER 459 of the Code of Virginia § 55-514.1](#). requires the following: "*Reserves for capital components. Except to the extent otherwise provided in the declaration and unless the declaration imposes more stringent requirements, the board of directors shall: Conduct at least once every five years a study to determine the necessity and amount of reserves required to repair, replace and restore the capital components.*" The Code of Virginia "§ 55-79.41. Definitions; defines 'capital components' thus: "*When used in this chapter: "Capital components" means those items, whether or not a part of the common elements, for which the unit owners' association has the obligation for repair, replacement or restoration and for which the executive organ determines funding is necessary.*"

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

The other alternative for accumulating funds would be for the Association to 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 major repair or replacement project, 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 accumulate funds for a Replacement Reserve Account is to estimate the future costs of major repair or replacement projects and annually set aside funds in advance to cover these costs when they occur. That is exactly the purpose of this Reserve Study. If the recommendations of the Reserve Study are followed, then this method estimates everyone's contribution into the Replacement Reserve Account, which means that adequate funds will be available when major repair

or replacement of the common elements 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 COMPONENTS

DLM Architects conducted a visual survey of the grounds and related components, examined documents and spoke with Eric Westhoff, President. We estimated conditions, quantities, and ages of the various common elements included in this study. Various contractors were contacted to confirm some of our conclusions as to the performance and condition of these components.

The common elements are as defined by the Declaration and, therefore, must have the appropriate funds reserved to cover the expense of their major repair or replacement in the future. The common elements included in this study are as follows:

<u>SITE AREA</u>	<u>COMMON BUILDING AREA</u>	<u>DWELLING UNIT BUILDINGS</u>
Asphalt Paving for Lake Access	Not Applicable	Not Applicable
Community Signage		
Retention Lakes		
Bulkheads		
Rip Rap		
Irrigation System		
Picnic Tables		

## ANNUAL FUNDING REQUIREMENT

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

The estimated replacement costs of various components, is determined from the quantities of each component. This was accomplished by actual field measurements obtained by DLM Architects. After the quantities are ascertained, costs can be estimated through the extensive database that DLM Architects has available to them. Some of 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 replacement reserve 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 major repair or replacement work will be accomplished non-simultaneously with other items of replacement work.

According to information provided by Eric Westhoff, construction began in 1995 - (174 Homes ) 2012 to 2013 - (12 Homes). We have used an average of **twenty-two (22)** years for the present age of all common elements unless otherwise noted.

The anticipated life span of a common element 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 helps project 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, caulking, landscaping, cleaning of storm drains, gutters, and roof drains 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:

<b>USACERL CONDITION DESCRIPTION (per sample unit)</b>				
<b>Condition Rating</b>	<b>Category</b>	<b>Amount of Distress</b>	<b>Functionality</b>	<b>Type of Maintenance and Repair</b>
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 service life and existing condition of the common elements that comprise the reservable components at *Highgate Greens* are presented on the following pages.

<b>RESERVABLE ITEM:</b>	<b>ASPHALT PAVEMENT</b>		
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<b>TOTAL QUANTITY:</b>	3,960 S.Y.	<b>% OF REPLACEMENT:</b>	100%
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<b>PRESENT AGE:</b>	22 YRS.	<b>REMAINING LIFE:</b>	8 YRS.
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**EXISTING CONDITIONS:**

The asphalt pavement consists of the three (3) drives at the three (3) lakes. Lake #1 access (1350 S.Y.) is at the end of Highland Greens Boulevard. Lake # 2 access (1100 S.Y.) is off of Lower Greens Place north of Raeford Court. Access to Lake #3 (1510 S.Y.) is on Toler Lane north of the intersection with Lower Greens Place.

The existing drives have an asphalt-based surface course approximately 1½" in depth with a 2" gravel base, per the inspection holes. The asphalt pavement is in variably fair condition (41-55). The asphalt surface has about 20% of the aggregate in the asphalt showing, indicating significant wear. There are a number of cracks in each of the drives that are showing significant vegetative growth.

This growth is an indication that moisture is penetrating the asphalt layer. This vegetation and the vegetation along the edges of the access drives will in time cause the surfaces to continue to crack and eventually crumble. It is strongly recommended that the drives be edged and the vegetation be treated. Cracks should be square bit routed and replaced with an asphalt-based patching installed into the joint, and NOT on the surface of the pavement, to prevent water infiltration and damage from the winter freeze/thaw cycles. Water draining through cracks can liquefy the soil under the base, weakening the support for the pavement. Minor repairs, such as cracks, should be included in the preventive maintenance program and funded from the regular operating budget as routine repair.

The Association may want to consider seal-coating the drives after the repairs are made to improve the appearance of the asphalt.

There are two reasons to repave. The first is the structural failure of the asphalt pavement, which can be seen as "alligatoring" (breaking of the surface course into salad-plate-sized 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 (NAPA) recommends asphalt surfaces be overlaid with a minimum 1½" layer of asphalt every twenty-five (25) years, but as these drives receive very little vehicle



traffic, we have extend the life an additional five (5) years. NAPA also recommends that the Association consider the following issues when writing a contract and selecting a contractor for the repaving:

1. Assign specific responsibilities and make notes.
2. 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.
3. Once you have taken bids and selected the contractor you want, you are ready for the contract.
4. 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.
5. Alligatored areas of 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 re-compacted and new pavement placed of a thickness to match the surrounding areas.
6. "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 have included "milling" in our estimate in the Reserve Schedules at the end of the Reserve Study.
7. 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.
8. It is important to make sure your contractor has adequate liability insurance; ask for written proof of it.

<b>RESERVABLE ITEM:</b>	<b>COMMUNITY SIGNAGE</b>		
<b>TOTAL QUANTITY:</b>	7 EA.	<b>% OF REPLACEMENT:</b>	10%
<b>PRESENT AGE:</b>	22 YRS.	<b>REMAINING LIFE:</b>	INDEFINITE

**EXISTING CONDITIONS:**

There is one (1) community sign at the entrance off of Princess Anne Road. The community signage consists of one (1) brick masonry wall in the center of the entry island. There are two (2) 18" x 10' engraved and painted marble signs affixed to the sides of the masonry wall. In addition, there are two (2) 18" circles mounted on the column. The wall is twenty (20) feet long by five (5) feet high by four (4) feet. The condition of the signage and wall appears to be very good (71-85) with no structural problems at this time.

The wall and column have a concrete masonry core with a brick masonry facing. The brick caps the top of the wall. There is no flashing under the top level of masonry to divert rainwater away from the core of this sign.

As with any type of masonry, the anticipated service life should exceed the life of the community, but because of the lack of flashing, moisture intrusion within the walls will freeze in the wintertime loosening the brick facings. To prevent any deterioration, the wall should be cleaned and treated with a masonry water repellent and the mortar on the wall should be periodically inspected and repointed as needed. We recommend applying a water repellent to the upper surface of the wall and column to prevent moisture from intruding into the tops of the sign and deteriorating the masonry when the moisture freezes. Such repair should be an ongoing maintenance responsibility and should be funded from the maintenance budget along with repair of minor defects in the stone work. It is estimated that over a thirty-year period, ten percent (10%) of the masonry wall will need re-pointing as long as the needed maintenance is performed on a regular basis; therefore, we have added this item to the reserve funding.

In addition, there are four (4) small flood lights mounted on short pedestals in front of the sign. The lights have anodized aluminum housings with clear lens covers containing photocell-activated halogen lights of 50 watts. The fixtures appear to have weathered due to exposure. The lenses on the lamps show some indications of clouding which would also be a result of exposure to the elements. There is no indication of electrical or mechanical problems such as breakage or shorting. The lights are in very good (71-85) repair with no indication of major damage. None of the lights were on during daylight, indicating that the photo cells do not need to be adjusted or replaced.

Care should be taken to avoid damaging the fixtures with string trimmers and other landscape maintenance equipment. It should be noted that the current grounds contractor is following these recommendations, as there are no indications of damage to the fixtures.

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 at ten (10) years due to aging fixtures and newer, more efficient luminaires becoming available in the future.

In addition to the entry signage, there are five (5) painted wooden signs and one bulletin board. Four (4) of the signs are small wooden signs mounted on 4" X 4" posts. They are in very good condition (71-85). The fifth sign is a carved sign mounted at the end of the access drive at Lake #1. It is mounted on 4" x 4" wooden posts. It is 11' x 18" and is in poor condition (26-40) showing significant weathering and some decay. The bulletin board is constructed of 2" x 4" framing, plywood sheathing and an asphalt shingle roof. It is at the entrance to Lake #1. The bulletin board is in fair condition (41-55), needing to be painted and showing some delamination of the plywood and damage to the posts.

<b>RESERVABLE ITEM:</b>	<b>RETENTION LAKES</b>		
<b>TOTAL QUANTITY:</b>	242,711 S.F.	<b>% OF REPLACEMENT:</b>	0%
<b>PRESENT AGE:</b>	20 YRS.	<b>REMAINING LIFE:</b>	INDEFINITE

**EXISTING CONDITIONS:**

<b>Quantity (s.f.)</b>	<b>Item</b>	<b>Present Age</b>	<b>Remaining Life</b>
75,721	Lake #1	22 Yrs.	Indefinite
128,077	Lake #2	22 Yrs.	Indefinite
114,634	Lake #3	22 Yrs.	Indefinite
242,711	<b>TOTAL</b>		

There are three (3) retention lakes on the property. Lake #1 is at the end of Highland Greens Boulevard. Lake #2 is off of Lower Greens Place north of Raeford Court. Lake #three is on Toler Lane north of the intersection with Lower Greens Place.

Most of the lake frontages are contained within the property lines of the lots abutting the lakes. The lot lines according to the City of Virginia Beach GIS extend into the center of the lakes indicating that the Association would not be responsible for the dredging costs except for the portion that is contained within the limits of the three (3) lake access areas.

The issue of the dredging of the lakes will be complicated because of the way the lot lines are drawn. Essentially, when the time comes to dredge, the Association will have to obtain the cooperation of the abutting owners to sign on to the dredging agreement. We suggest that the Association consult with its attorney to determine if there are any provisions of the Declaration that would provide for that contingency or if there is a solution to allowing the Association to act for all the owners.

<b>RESERVABLE ITEM:</b>	<b>BULKHEADS</b>		
<b>TOTAL QUANTITY:</b>	176 L.F.	<b>% OF REPLACEMENT:</b>	100%
<b>PRESENT AGE:</b>	22 YRS.	<b>REMAINING LIFE:</b>	SEE BELOW

**EXISTING CONDITIONS:**

Quantity (l.f.)	Item	Present Age	Remaining Life
87	Lake #1 Wood Bulkhead	22 Yrs.	18 Yrs.
89	Lake #2 Wood Bulkhead	22 Yrs.	18 Yrs.
176	<b>TOTAL</b>		

There are 87 linear feet of timber bulkhead at the end of the access area for Lake #1. It is not tied into any adjacent bulk heading. It appears to be constructed of 4' x 6" pressure-treated planking, set vertically into about 2 feet of the lake bottom. In addition, there is a wooden cap placed on top which is composed of a 2" x 10" waler and a 2" x 10" top cap. The tie-back system consists of 3/4" diameter tie-backs set six feet (6') on a center. The type of deadman used to anchor the tie-backs is unknown.

There are 89 linear feet of timber bulkhead at the end of the access area for Lake #2. It is tied into the adjacent bulk heading on the east end but not on the west end. It appears to be constructed of 4' x 6" pressure-treated planking, set vertically into about two (2) feet of the lake bottom. In addition, there is a wooden cap placed on top which is composed of a 2" x 10" Waler and a 2" x 10" top cap. The tie-back system consists of 3/4" diameter tie-backs set six feet (6') on a center. The type of deadmen used to anchor the tie-backs is unknown.

There is minor corrosion on the escutcheons, washers and nuts of many of the tie-backs. This needs to be addressed to prevent deterioration of the anchoring system.

There is no rotation of the bulkheads toward the lakes at this time which would indicate a failure of the tie-backs. The overall condition is rated as very good (71-85). The bulkhead remains sturdy with no indication of failures in any of its components.

There is one (1) area of loss of backfill material indicating a gap or failure of the vertical planking at each bulkhead. Loss of backfill material is considered a significant problem as it is an early indication of failure of the bulkhead, usually the result of undermining below the waterline. If this should occur, it is recommended that either rip-rap or a similar material be established against the lake side of the retaining wall to stabilize the bulkhead and reduce the erosion problem.

A bulkhead of this type is considered to last up to forty (40) years. The wood will begin to deteriorate at the waterline as the pressure treatment chemicals gradually leach from the wood. Once that begins, wood destroying organisms will attack the wood, usually at the water line where the leaching is greatest. It is recommended that some systematic monitoring of the rate of rotation of the bulkhead 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 bulkhead. Replacement will require construction of a new bulkhead outboard of the existing one. The value in the Reserve Replacement Schedule assumes that the installed tie-backs and deadmen will be accessible and in good condition so they can be reused at the time of replacement.

<b>RESERVABLE ITEM:</b>	<b>RIP-RAP</b>		
<b>TOTAL QUANTITY:</b>	171 L.F.	<b>% OF REPLACEMENT:</b>	10%
<b>PRESENT AGE:</b>	22 YRS.	<b>REMAINING LIFE:</b>	SEE BELOW

**EXISTING CONDITIONS:**

There is rip-rap is at the end of the access for Lake #3. It extends about four feet (4') up the bank. It appears that the shoreline protection is VDOT Class I rip-rap on top of 6" of crush-and-run gravel. The gravel is not apparent for the most part. No filter fabric was observed. The rip-rap is in good condition (56-70).

The rip-rap extends down to the elevation -4.0 feet into the lake helping to protect the banks from erosion during heavy rain discharges and rodent control; however, there is still some soil erosion in these areas. It is also tied into the rip-rap on the adjacent lots.

The presence of filter fabric would help to prevent the fine soil material from eroding between the large rip rap stones. This fabric is subject to deterioration over time and will become less effective as it ages.

No defects were noted at the time of the inspection. We recommend that a periodic inspection of the rip-rap be done and that any recommendations be completed based on that inspection. We have provided funds to cover these periodic repairs to the rip-rap.

<b>RESERVABLE ITEM:</b>	<b>IRRIGATION SYSTEM</b>		
<b>TOTAL QUANTITY:</b>	4 EA.	<b>% OF REPLACEMENT:</b>	100%
<b>PRESENT AGE:</b>	22 YRS.	<b>REMAINING LIFE:</b>	18 YRS.

**EXISTING CONDITIONS:**

The irrigation system is divided into three (3) zones. One is at the entrance running the length of both islands and in the flower beds adjacent to the entry. The others are along the access drives at the three lakes. There is approximately 2,150 linear feet of piping and approximately forty (40) sprinkler heads. The systems appear to be in good condition (56-70); however, many of the heads are covered by the mulch in the various beds.

The systems consist of 3/4" PVC piping with brass fittings. There appeared to be no leaks, but the system was not operating at the time of inspection. The major causes of damage to this type of system are heads broken by yard maintenance equipment and freeze damage. The life of the distribution 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. The reserve schedules cover the cost of the replacement of the controllers.

There are four controllers and the irrigation systems appear to be fed from the city water system, since no evidence of wells was observed.



<b>RESERVABLE ITEM:</b>	<b>PICNIC TABLES</b>		
<b>TOTAL QUANTITY:</b>	8 EA.	<b>% OF REPLACEMENT:</b>	100%
<b>PRESENT AGE:</b>	5 YRS.	<b>REMAINING LIFE:</b>	5 YRS.

**EXISTING CONDITIONS:**

There are eight (8) PVC picnic tables manufactured by Hampton Bay in the park area at Lake #3. The tables are installed on the grass area. They are in good (56-70) repair with some very minor warping of the vinyl.

The tables are not showing any discoloration or staining. The remaining anticipated service life is set at five (5) years based on the overall condition. The Capital Repair/Replacement Summary provides for the eventual replacement of these items due to their use in an outdoor environment.

The proper maintenance and repair of the furniture will require periodic cleaning which, based on the appearance of the furniture, has been done. The picnic tables will require periodic treatment for corrosion. If these items get the necessary maintenance, then their remaining life can be extended.

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.

## CONCLUSION

The association is facing several large projects (signage and asphalt pavement) in the future. Because some needed maintenance has been deferred, the association is facing these projects sooner than would otherwise be anticipated. Construction costs have also escalated in since the time of the previous reserve study, because of the stronger economic times during that period. As a result, the recommended annual contribution to the Replacement Reserve Account is \$6,850.00. Furthermore, in order to have sufficient funds on hand for future projects, we recommend increasing the annual contribution by 3% per year for each year thereafter (Option 'D' in the Table below). If the Association chooses another rate of increase, the change to the recommended annual contribution is shown in this Table:

OPTION ▼	RATE OF INCREASE IN THE ANNUAL CONTRIBUTION	RECOMMENDED ANNUAL CONTRIBUTION
A	0%	\$9,000.00
B	1%	\$8,300.00
C	2%	\$7,600.00
D	3%*	\$6,850.00*
E	4%	\$6,250.00
F	5%	\$5,600.00

\*The 3% per year projected increase in the recommended annual contribution is illustrated in the graph at the end of this reserve study.

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.

## 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 RSMMeans Construction Costs book.

Because the fund is receiving interest on the current balance on the Replacement Reserve Account 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 components conclude their useful life. See the table on this page 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 Replacement Reserve Account.

### COMPARATIVE EXAMPLE FOR A HYPOTHETICAL RESERVE FUND

COMPARATIVE EXAMPLE FOR A HYPOTHETICAL RESERVE FUND			
	COLUMN 1	COLUMN 2	COLUMN 3
YEAR	<u>RESERVE REQUIRED FOR A \$100,000 PROJECT AT 7% ANNUAL INFLATION OF CONSTRUCTION COST</u>	<u>ACCUMULATED BALANCE IN THE RESERVE BASED ON THE ANNUAL CONTRIBUTION AS A CONSTANT AMOUNT* PLUS A 7% ANNUAL RETURN</u>	<u>ACCUMULATED BALANCE IN THE RESERVE BASED ON AN INFLATION ADJUSTED ANNUAL CONTRIBUTION** PLUS A 7% ANNUAL RETURN</u>
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 component 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 component. This allows the Replacement Reserve Account 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.

## VIRGINIA STATUTORY REQUIREMENTS FOR RESERVES

As of July 1, 2002, [CHAPTER 459 of the Code of Virginia § 55-514.1](#) requires the following: Reserves for capital components.

"A. Except to the extent otherwise provided in the declaration and unless the declaration imposes more stringent requirements, the board of directors shall:

1. Conduct at least once every five years a study to determine the necessity and amount of reserves required to repair, replace and restore the capital components;
2. Review the results of that study at least annually to determine if reserves are sufficient; and
3. Make any adjustments the board of directors deems necessary to maintain reserves, as appropriate.

B. To the extent that the reserve study conducted in accordance with this section indicates a need to budget for reserves, the association budget shall include, without limitation:

1. The current estimated replacement cost, estimated remaining life and estimated useful life of the capital components;
2. As of the beginning of the fiscal year for which the budget is prepared, the current amount of accumulated cash reserves set aside, to repair, replace or restore capital components and the amount of the expected contribution to the Replacement Reserve Account for that year; and
3. A general statement describing the procedures used for the estimation and accumulation of cash reserves pursuant to this section and the extent to which the association is funding its reserve obligations consistent with the study currently in effect."

## PREVIOUSLY ACCUMULATED FUNDS

According to an account statement furnished by the Association Treasurer, Michael Leggiadro, there are currently accumulated funds in the Replacement Reserve Account for a total of \$44,909.18 as of September 29, 2017. This value is used in the Capital Repair and Replacement Reserve Summary as "TOTAL PRIOR ACCUMULATION." The funds are in BB & T earning various rates of return. Based on the account statement furnished by the treasurer, we have used a combined interest rate of 0.04% in the calculation to estimate the hypothetical accumulated Replacement Reserve Account balance at year thirty (30) which follows at the end of this study.

## EXCLUSIONS

Because FASB ASC 972-235-50-2 does not allow the accumulation of monies for routine maintenance and minor repair components to be included in a Replacement Reserve Account, we don't include them in this study; however, it should be noted that these components 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" components 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 component 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 components 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 Replacement Reserve Account 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 Replacement Reserve Account contribution include a contingency. Cash Flow Basis means establishing an objective of keeping the Replacement Reserve Account 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 Replacement Reserve Account 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 to that required by state statute. This is not desirable because it gives the Association little say over their funding objectives and therefore Virginia doesn't have a threshold statute.

Because replacement 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.

## ARCHITECTURAL RESERVE STUDY NOTE

The existence of any environmental hazard such as the presence of hydrocarbon contamination, radon gas, lead based paint, mercury, asbestos-containing materials, ureaformaldehyde insulation, chromated copper arsenate (CCA), polychlorinated biphenyls (PCB's), toxins, fly ash, mold and other materials hazardous to human health 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. All responsibility is disclaimed for any such conditions, or for any expertise or engineering knowledge required to discover them.

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 presence of these substance remains unchanged.

The architect has not taken into consideration any consequence that the Clean Air Act of 1963 (Air Quality Act of 1967 and Amendments passed in 1970, 1977 and 1990) and the Federal Water Pollution Control Act of 1948 (Federal Water Pollution Control Act Amendments of 1972 and Clean Water Act of 1977, Water Quality Act of 1987 and Federal Water Pollution Control Act of 2002), the 2014 FEMA Coastal Study of the Flood Insurance Rate Maps and/or the Chesapeake Bay Preservation Act may have on the community since an Environmental Impact Study or Environmental Site Assessment was not provided.

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 common elements are presumed to be in compliance with the Act's design and construction requirements due to their first usage occurring after the Act's effective date of March 13, 1991.





## CAPITAL REPLACEMENT RESERVE SUMMARY FOR: HIGHGATE GREENS HOA

COMPONENT BASIS

**SHEET A1**

BASED ON FINANCIAL DATA CURRENT AS OF: **SEPTEMBER 29, 2017**

DATE PREPARED: **18-Dec-17**

ITEM	PRESENT AGE	REMAINING LIFE	YEAR TO REPLACE	QUANTITY	UNIT COST	COST OF REPLACEMENT	PERCENTAGE OF COST OF REPLACEMENT	PRIOR ACCUMULATION	FUTURE REQUIREMENT	ANNUAL CONTRIBUTION
ASPHALT PAVEMENT	22	8	2025	3,960 S.Y	\$13.00	\$51,480	39.65%	\$17,808	\$33,672	\$4,209
COMMUNITY SIGNAGE (Masonry)	22	18	2035	1 EA.	\$5,500.00	\$5,500	4.24%	\$1,903	\$3,597	\$200
COMMUNITY SIGNAGE (Wood)	22	10	2027	4 EA.	\$225.00	\$900	0.69%	\$311	\$589	\$59
COMMUNITY SIGNAGE (Wood Carved)	22	1	2018	1 EA.	\$2,000.00	\$2,000	1.54%	\$692	\$1,308	\$1,308
COMMUNITY SIGNAGE (Bulletin Board)	22	1	2018	1 EA.	\$1,250.00	\$1,250	0.96%	\$432	\$818	\$818
COMMUNITY SIGNAGE (Lighting)	22	10	2027	4 EA.	\$300.00	\$1,200	0.92%	\$415	\$785	\$78
BULKHEAD #1	22	18	2035	87 L.F.	\$132.50	\$11,528	8.88%	\$3,988	\$7,540	\$419
BULKHEAD #2	22	18	2035	89 L.F.	\$132.50	\$11,793	9.08%	\$4,079	\$7,713	\$429
RIP RAP	22	18	2035	171 L.F.	\$125.00	\$21,375	16.46%	\$7,394	\$13,981	\$777
IRRIGATION SYSTEM	22	18	2035	4 EA.	\$3,200.00	\$12,800	9.86%	\$4,428	\$8,372	\$465
PICNIC TABLES	5	5	2022	8 EA.	\$1,250.00	\$10,000	7.70%	\$3,459	\$6,541	\$1,308
	TOTAL COST OF PROJECTS:					\$129,825	ANNUAL CONTRIBUTION (COMPONENT BASIS)			\$10,069
	TOTAL PRIOR ACCUMULATION:					\$44,909	ANNUAL CONTRIBUTION (CASH FLOW BASIS)			\$6,850
	PERCENTAGE OF TOTAL COST:					34.59%	RECOMMENDED INCREASE TO THE ANNUAL CONTRIBUTION			3%/YEAR

ABBREVIATIONS: B.F.= BOARD FEET EA.= EACH L.F.= LINEAR FEET L.S.= LUMP SUM S.F.= SQUARE FEET S.Y.= SQUARE YARD SQ.= SQUARE 10'x10'

CAPITAL REPAIR/REPLACEMENT RESERVE SCHEDULE FOR:

SHEET A2

HIGHGATE GREENS HOA

CASH FLOW BASIS

ITEM	2017 YEAR 1	2018 YEAR 2	2019 YEAR 3	2020 YEAR 4	2021 YEAR 5	2022 YEAR 6	2023 YEAR 7	2024 YEAR 8	2025 YEAR 9	2026 YEAR 10
ASPHALT PAVEMENT									\$51,480	
COMMUNITY SIGNAGE (Masonry)										
COMMUNITY SIGNAGE (Wood)										
COMMUNITY SIGNAGE (Wood Carved)		\$2,000								
COMMUNITY SIGNAGE (Bulletin Board)		\$1,250								
COMMUNITY SIGNAGE (Lighting)										
BULKHEAD #1										
BULKHEAD #2										
RIP RAP										
IRRIGATION SYSTEM										
PICNIC TABLES						\$10,000				
TOTAL COST IN 2017 DOLLARS		\$3,250				\$10,000			\$51,480	
TOTAL COST IN INFLATION ADJUSTED \$ @ 3.0% INFL RATE		\$3,348				\$11,593			\$65,213	
CONTRIBUTION PER UNIT	\$37	\$38	\$39	\$40	\$41	\$43	\$44	\$45	\$47	\$48
TOTAL ANNUAL CONTRIBUTION ADJUSTED @ 3.0% ANNUALLY	\$6,850	\$7,056	\$7,267	\$7,485	\$7,710	\$7,941	\$8,179	\$8,425	\$8,677	\$8,938
TOTAL ACCUMULATED BALANCE	\$51,759	\$55,467	\$62,734	\$70,220	\$77,929	\$74,278	\$82,457	\$90,881	\$34,345	\$43,283
ACCUM. BALANCE W/INTEREST AT 0.0% INTEREST RATE	\$51,780	\$55,510	\$62,802	\$70,316	\$78,057	\$74,435	\$82,647	\$91,108	\$34,586	\$43,541

CAPITAL REPAIR/REPLACEMENT RESERVE SCHEDULE FOR:

SHEET A3

HIGHGATE GREENS HOA

CASH FLOW BASIS

ITEM	2027 YEAR 11	2028 YEAR 12	2029 YEAR 13	2030 YEAR 14	2031 YEAR 15	2032 YEAR 16	2033 YEAR 17	2034 YEAR 18	2035 YEAR 19	2036 YEAR 20
ASPHALT PAVEMENT										
COMMUNITY SIGNAGE (Masonry)									\$5,500	
COMMUNITY SIGNAGE (Wood)	\$900									
COMMUNITY SIGNAGE (Wood Carved)										
COMMUNITY SIGNAGE (Bulletin Board)										
COMMUNITY SIGNAGE (Lighting)	\$1,200									
BULKHEAD #1									\$11,528	
BULKHEAD #2									\$11,793	
RIP RAP									\$21,375	
IRRIGATION SYSTEM									\$12,800	
PICNIC TABLES						\$10,000				
TOTAL COST IN 2017 DOLLARS	\$2,100					\$10,000			\$62,995	
TOTAL COST IN INFLATION ADJUSTED \$ @ 3.0% INFL RATE	\$2,822					\$15,580			\$107,245	
CONTRIBUTION PER UNIT	\$49	\$51	\$53	\$54	\$56	\$57	\$59	\$61	\$63	\$65
TOTAL ANNUAL CONTRIBUTION ADJUSTED @ 3.0% ANNUALLY	\$9,206	\$9,482	\$9,766	\$10,059	\$10,361	\$10,672	\$10,992	\$11,322	\$11,662	\$12,012
TOTAL ACCUMULATED BALANCE	\$49,667	\$59,149	\$68,915	\$78,975	\$89,336	\$84,428	\$95,421	\$106,743	\$11,159	\$23,171
ACCUM. BALANCE W/INTEREST AT 0.0% INTEREST RATE	\$49,945	\$59,450	\$69,244	\$79,336	\$89,733	\$84,859	\$95,890	\$107,255	\$11,676	\$23,697

CAPITAL REPAIR/REPLACEMENT RESERVE SCHEDULE FOR:

SHEET A4

HIGHGATE GREENS HOA

CASH FLOW BASIS

ITEM	2037 YEAR 21	2038 YEAR 22	2039 YEAR 23	2040 YEAR 24	2041 YEAR 25	2042 YEAR 26	2043 YEAR 27	2044 YEAR 28	2045 YEAR 29	2046 YEAR 30
ASPHALT PAVEMENT										
COMMUNITY SIGNAGE (Masonry)										
COMMUNITY SIGNAGE (Wood)										
COMMUNITY SIGNAGE (Wood Carved)					\$2,000					
COMMUNITY SIGNAGE (Bulletin Board)					\$1,250					
COMMUNITY SIGNAGE (Lighting)										
BULKHEAD #1										
BULKHEAD #2										
RIP RAP										
IRRIGATION SYSTEM										
PICNIC TABLES						\$10,000				
TOTAL COST IN 2017 DOLLARS					\$3,250	\$10,000				
TOTAL COST IN INFLATION ADJUSTED @ 3.0% INFL RATE					\$6,607	\$20,938				
CONTRIBUTION PER UNIT	\$67	\$69	\$71	\$73	\$75	\$77	\$79	\$82	\$84	\$87
TOTAL ANNUAL CONTRIBUTION ADJUSTED @ 3.0% ANNUALLY	\$12,372	\$12,743	\$13,125	\$13,519	\$13,925	\$14,342	\$14,773	\$15,216	\$15,672	\$16,142
TOTAL ACCUMULATED BALANCE	\$35,543	\$48,286	\$61,411	\$74,930	\$82,248	\$75,653	\$90,426	\$105,641	\$121,314	\$137,456
ACCUM. BALANCE W/INTEREST AT 0.0% INTEREST RATE	\$36,083	\$48,846	\$61,996	\$75,545	\$82,897	\$76,332	\$91,141	\$106,399	\$122,120	\$138,318

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

HIGHGATE GREENS HOA

ASSUMES ADJUSTMENT IN THE ANNUAL CONTRIBUTION = 3.0%

*****		INFLATION RATE - percent										
		0	1	2	3	4	5	6	7	8	9	10
INTEREST RATE percent	1	\$253,571	\$227,605	\$197,343	\$162,025	\$120,754	\$72,474	\$15,935	(\$50,335)	(\$128,074)	(\$219,330)	(\$326,519)
	2	\$298,739	\$268,981	\$234,403	\$194,163	\$147,273	\$92,565	\$28,665	(\$46,047)	(\$133,478)	(\$235,874)	(\$355,882)
	3	\$355,909	\$321,749	\$282,174	\$236,256	\$182,898	\$120,815	\$48,490	(\$35,856)	(\$134,321)	(\$249,368)	(\$383,896)
	4	\$428,529	\$389,250	\$343,884	\$291,401	\$230,590	\$160,030	\$78,051	(\$17,309)	(\$128,352)	(\$257,784)	(\$408,782)
	5	\$521,026	\$475,789	\$423,700	\$363,618	\$294,204	\$213,888	\$120,827	\$12,862	(\$112,541)	(\$258,353)	(\$428,059)
	6	\$639,083	\$586,899	\$526,994	\$458,105	\$378,747	\$287,186	\$181,388	\$58,973	(\$82,847)	(\$247,338)	(\$438,322)
	7	\$789,976	\$729,682	\$660,680	\$581,567	\$490,701	\$386,161	\$265,702	\$126,699	(\$33,917)	(\$219,736)	(\$434,957)
	8	\$983,007	\$913,235	\$833,632	\$742,637	\$638,431	\$518,890	\$381,532	\$223,462	\$41,297	(\$168,911)	(\$411,773)
	9	\$1,230,050	\$1,149,189	\$1,057,215	\$952,395	\$832,709	\$695,807	\$538,945	\$358,926	\$152,024	(\$86,110)	(\$360,542)
	10	\$1,546,233	\$1,452,385	\$1,345,961	\$1,225,033	\$1,087,363	\$930,343	\$750,941	\$545,625	\$310,285	\$40,133	(\$270,403)

( ) = 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 \$230590 IN YEAR 30 IF THE INFLATION RATE STAYED A CONSTANT 4%. HOWEVER, THAT BALANCE OF \$230590 WOULD BECOME A BALANCE OF \$78051 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 3

ANTICIPATED MAJOR REPAIR AND REPLACEMENT CALENDAR FOR:

HIGHGATE GREENS HOA

2017	2018	2019	2020	2021	2022
	COMMUNITY SIGNAGE (Wood Carved), COMMUNITY SIGNAGE (Bulletin Board),				PICNIC TABLES,
2023	2024	2025	2026	2027	2028
		ASPHALT PAVEMENT,		COMMUNITY SIGNAGE (Wood), COMMUNITY SIGNAGE (Lighting),	
2029	2030	2031	2032	2033	2034
			PICNIC TABLES,		
2035	2036	2037	2038	2039	2040
COMMUNITY SIGNAGE (Masonry), BULKHEAD #1, BULKHEAD #2, RIP RAP, IRRIGATION SYSTEM,					
2041	2042	2043	2044	2045	2046
COMMUNITY SIGNAGE (Wood Carved), COMMUNITY SIGNAGE (Bulletin Board),	PICNIC TABLES,				

### HIGHGATE GREENS HOA

