

Replacement Reserve Study
FLINT HILL MANOR

RSTUDY+
REPLACEMENT RESERVE STUDY

FLINT HILL MANOR

Oakton, Virginia

Property Management:

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April 10, 2014

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April 10, 2014

Jamie Critchfield, VP
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Email: tommie0200@aol.com

Jamie Critchfield:

Pursuant to your acceptance of our Proposal on December 22, 2013, we have completed our evaluation of FLINT HILL MANOR in Oakton, Virginia, and have developed the enclosed RSTUDY+ Replacement Reserve Study. The Study includes the following components:

- **Replacement Reserve Report.** The *Report* contains a summary of the financial data calculated by the *Replacement Reserve Analysis*, a general description of the community, a summary of the conditions observed during our site evaluation, and information about the *Replacement Reserve Inventory*.
- **Replacement Reserve Analysis.** The *Analysis* is a tabular and graphical presentation of current Association funding of Reserves, and recommended Reserve Funding, calculated by both standard funding methodologies, the Cash Flow and Component Method.
- **Replacement Reserve Inventory.** The *Inventory* lists the common components of the community evaluated by the *Replacement Reserve Analysis*, and includes estimated replacement costs, normal economic life, and the remaining economic life for each component evaluated.
- **List of Recommended Repairs.** The *Repair List* itemizes defects we observed during our site evaluation. The repairs are categorized by building trade and include estimated costs.
- **Supplemental Photographs.** The photographs document observations made during the site evaluation.
- **Replacement Reserve Allocations.** The *Replacement Reserve Allocations* suggests allocation of the annual deposits to Replacement Reserves by the Cash Flow and Component Method. Cash Flow contributions are allocated based upon a chronological method recently developed by RSTUDY.
- **Appendix.** The *Appendix* contains definitions and standard procedures.

This Study should be reviewed by the FLINT HILL MANOR, Board of Directors, those responsible for the management of the components included in the *Inventory*, and the accounting professionals employed by the Association. We are prepared to provide revisions to the *Replacement Reserve Analysis* and the *Replacement Reserve Inventory* upon the request of the Board of Directors. Revisions should be requested by the Board of Directors within three (3) months of the date of this Study. If you have any questions regarding this report, please contact Mr. Richard J. Schuetz at (703) 820-1790.

Sincerely,
RICHARD J. SCHUETZ, AIA
Architect

Wm Bruce Bennett

Wm. Bruce Bennett
Senior Reserve Analyst

Replacement Reserve Report

A. General Information - Page	1
B. Financial Summary - Page	3
C. Site Evaluation - Page	7
D. Inventory - Page	14
E. Methodology - Page	18

Replacement Reserve Analysis

Summary - A1
Cumulative Funding and Expenditures Graph - A2
Cash Flow Method
Cumulative Receipts and Expenditures - A3
Component Method
Cumulative Receipts and Expenditures - A4
Current Association Funding
Cumulative Receipts and Expenditures - A5
Annual Replacement Expenditures - A6

Replacement Reserve Inventory

Inventory of Projected Replacements - Page	1
Schedule of Projected Annual Replacements Years One to Thirty - Page	4

List of Recommended Repairs

Attachments

Supplemental Photographs
Replacement Reserve Allocations
Appendix

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REPLACEMENT RESERVE REPORT

FLINT HILL MANOR



Oakton, Virginia
April 10, 2014

A. GENERAL INFORMATION

Intent. The intent of this RSTUDY+ Replacement Reserve Study is to provide FLINT HILL MANOR (hereinafter called the Association), with an inventory of the common community facilities and infrastructure components that require periodic replacement, a general view of the condition of these components, and an effective financial plan to fund projected periodic replacements.

- **Inventory of common components.** The attached *Replacement Reserve Inventory* lists the common components of the community that require periodic replacement, whose replacement is scheduled for funding from Replacement Reserves. Section D of this *Replacement Reserve Report* provides information about components excluded from the *Inventory*, whose replacement is not scheduled for funding from Replacement Reserves, and the basis of those exclusions.
- **Condition of common components.** The *Replacement Reserve Inventory* includes our estimates of the normal economic life and the remaining economic life for those components whose replacement is scheduled for funding from Replacement Reserves. Section C of this *Replacement Reserve Report* provides additional information about several of these components including recommendations for repairs, maintenance, and replacements.
- **Financial plan.** Because many components owned by the Association have limited life and require periodic replacement, it is essential the Association have an effective financial plan to provide funding for the timely replacement of these components, to protect the appearance and value of the community. In conformance with American Institute of Certified Public Accountant guidelines, the *Replacement Reserve Analysis* evaluates the current funding of Replacement Reserves as reported by the Association, and recommends annual funding of Replacement Reserves by two generally accepted accounting methods, the Cash Flow Method and the Component Method. The *Replacement Reserve Analysis* includes graphic and tabular presentations of these methods and current Association funding.

Scope. FLINT HILL MANOR is a residential townhouse community in Oakton, Virginia. The previous *Replacement Reserve Study* states that the community was constructed in 1981 and consists of 83 residential units and associated improvements. We have assumed that all of these units are individually owned and are not the responsibility of the Association. These individually

REPLACEMENT RESERVE REPORT

owned units and other components of the community not identified in the Request for Proposal as the responsibility of the Association were not evaluated and were not included in the *Replacement Reserve Inventory* or *Replacement Reserve Analysis*.

We have identified community facilities and infrastructure components with limited life that require periodic replacement and whose replacement is the responsibility of the Association, based upon our review of the following:

- The Request for Proposal, submitted and executed by the Association.
- Our field evaluations and measurements.
- The previous *Replacement Reserve Study*, prepared by our firm, in November 2003.
- Drawings and documents provided by the Association.
- Aerial photographs acquired by Richard J. Schuetz, AIA.

We have divided the components whose replacement is the responsibility of the Association into two categories, based upon the source of funding for the needed replacement. The categories are:

- Funding from Replacement Reserves. Those components whose replacement is scheduled for funding from Replacement Reserves are listed in the *Replacement Reserve Inventory*. This is a comprehensive list and the funding of replacements other than those specifically listed in the *Replacement Reserve Inventory* will result in inaccuracies in the results calculated by the *Replacement Reserve Analysis*.
- Funding from other sources. Examples of components whose replacement is NOT to be funded from Replacement Reserves, are listed and discussed in Section D - Inventory, below. This is not a comprehensive list and we have assumed that the replacement of all components not specifically listed in the *Replacement Reserve Inventory* will NOT be funded from Replacement Reserves.

The major components included in the *Replacement Reserve Inventory* are the asphalt pavement, concrete sidewalks, concrete curb & gutter, streetlights, fence, etc. **The components included in the *Replacement Reserve Inventory* have an estimated one-time replacement cost of \$473,517.**

Site evaluation. We conducted our site evaluation in March, 2014. Our evaluation was visual and nondestructive.

Replacement Reserve Study - Level of Service. The *Replacement Reserve Study* has been performed as a Full Service *Replacement Reserve Study* as defined under the National Reserve Study Standards adopted by the Community Associations Institute. A complete component inventory was established based on information regarding commonly owned components provided by the Association and upon quantities derived from field measurement and/or quantity takeoffs from to-scale engineering drawings made available by the Association. The condition of all components was ascertained from a site visit and the visual inspection of each component by the analyst. The life expectancy and the value of components are provided based on these observations. The funding status (Replacement Reserves on Deposit) and funding plan (Current Annual Contribution to Replacement Reserves) have been provided by the Association.

REPLACEMENT RESERVE REPORT

B. FINANCIAL SUMMARY

Purpose. The purpose of the attached *Replacement Reserve Analysis* is to evaluate the current funding of Replacement Reserves as reported by the Association, and to recommend annual contributions to Replacement Reserves by two generally accepted accounting methodologies, the Cash Flow Method and the Component Method. All three evaluations are based upon the same 30-year Study Period, Replacement Reserves reported to be on deposit at the start of the Study Year, and projected expenditures for replacements of common elements shown in the *Replacement Reserve Inventory*.

Study Year and Study Period. The Association reports that they operate on a calendar year. The first year evaluated by the *Replacement Reserve Analysis*, the "Study Year," is 2015. The *Replacement Reserve Analysis* evaluates funding in a 30-year period extending forward from April 1, 2015. This 30-year period is called the "Study Period."

Current Funding. In a memo dated January 31, 2014, the Association reports Replacement Reserves on Deposit of \$49,094 as of January 1, 2014, and current annual deposits to Replacement Reserves in 2014 totaling \$6,000.

Projected Expenditures. We project that in the first year of the study, the Study Year, 2015, the Association has a cash requirement of between \$134,943 and \$146,932. This is based upon \$110,932 of expenditures for replacements listed in the *Replacement Reserve Inventory* and \$24,000 to \$36,000 of repairs, maintenance, and miscellaneous small replacements outlined in the *List of Recommended Repairs*. Several of the projects associated with these expenditures are discussed in Section C below.

We have projected annual Association expenditures (not including the \$24,000 to \$36,000 of repairs, maintenance, and minor replacements outlined in *List of Recommended Repairs*) over the next 30 years, based upon the *Replacement Reserve Inventory*. This data is presented as a graph on page A-6 of the *Replacement Reserve Analysis*. **It shows that the average annual expenditure from Replacement Reserves over the next 30 years is \$11,850 (note the Association is currently reported to be funding Replacement Reserves at \$6,000 annually).**

List of Recommended Repairs - timing of repairs. The enclosed *List of Recommended Repairs* itemizes \$24,000 to \$36,000 of defects we noted during our site evaluation. The accuracy of the values used for the remaining economic life in the *Replacement Reserve Inventory* and thereby the entire *Replacement Reserve Analysis* is dependent upon the timely completion of these repairs, maintenance, and miscellaneous small replacements.

List of Recommended Repairs - funding of repairs. We have assumed that NO Replacement Reserves will be used to fund the correction of the defects outlined in the *List of Recommended Repairs*. The United States Tax Code grants very favorable tax status to Replacement Reserves, conditional on the expenditure of Replacement Reserves within specific guidelines. Funding maintenance, repair, and/or capital improvements from Replacement Reserves may have adverse tax consequences and should be done only after consultation with an accounting professional.

REPLACEMENT RESERVE REPORT

EVALUATION OF CURRENT ASSOCIATION FUNDING. Our evaluation of the current Association funding plan is based in part, on financial data provided to us by the Association.

\$6,000 **Current Association Funding.** The Association reports that they are currently contributing \$6,000 per year to Replacement Reserves (\$6.02 per unit per month). Based upon Replacement Reserves reported to be on deposit, and the *Replacement Reserve Inventory*, our evaluation of Current Association Funding shows that it results in the Association being unable to make scheduled replacements in all 30 years of the thirty-year Study Period. We have calculated that a maximum shortfall of **\$161,032** will occur in 2031.

Projections of Current Association Funding are presented in graph and tabular format on page A-5 of the *Replacement Reserve Analysis*. These calculations assume that NO Replacement Reserves will be allocated to fund the \$24,000 to \$36,000 of repairs, maintenance, and/or minor replacements outlined in the *List of Recommended Repairs*. A more detailed explanation of the Current Association Funding calculations is contained in the *Appendix*.

STANDARD ACCOUNTING METHODOLOGIES. The enclosed *Replacement Reserve Analysis* calculates recommended funding of Replacement Reserves in each year of the 30-year Study Period, by two generally accepted methods, the Cash Flow Method, and the Component Method. Both calculations are based upon the same financial data, including the costs of the replacements scheduled in the *Replacement Reserve Inventory* and Replacement Reserves reported to be on deposit at the start of the Study. The Cash Flow Method and Component Method calculations and Replacement Reserve funding recommendations in 2015, the Study Year, are discussed below:

\$85,514 **Cash Flow Method** - Minimum Recommended Funding of Replacement Reserves in the Study Year (\$85.86 per unit per month). The Cash Flow Method calculates the minimum annual funding of Replacement Reserves that will fund Projected Annual Replacements from a common pool of Replacement Reserves and prevents Replacement Reserves from dropping below the Minimum Recommended Balance. Annual deposits to Replacements Reserves remain the same between peaks in cumulative expenditures called Peak Years.

The Cash Flow Method, Minimum Recommended Annual Contribution to Replacement Reserves declines to \$12,575 in 2016 (\$12.63 per unit per month), after the completion of \$110,932 of replacements scheduled in 2015, the Study Year.

An additional (but nominal) decline in the Cash Flow Method, Minimum Recommended Annual Contribution to Replacement Reserves occurs in 2032 with a decline from \$12,575 to \$12,241.

REPLACEMENT RESERVE REPORT

Minimum Recommended Balance. We have established the Minimum Recommended Balance at \$23,676 or 5 percent of the one-time replacement cost of all of the components listed in the *Replacement Reserve Inventory*.

The Cash Flow Method calculations are presented in graph and tabular format on page A-3 of the *Replacement Reserve Analysis*. These calculations assume that NO Replacement Reserves will be allocated to fund the \$24,000 to \$36,000 of repairs, maintenance, and/or minor replacements outlined in the *List of Recommended Repairs*. A more detailed explanation of the Cash Flow Method is contained in the *Appendix*.

\$105,326

Component Method - Recommended Funding of Replacement Reserves in the Study Year (\$105.75 per unit per month). The Component Method is a time tested and very conservative mathematical model developed by HUD in the early 1980's. The Component Method treats each component in the *Replacement Reserve Inventory* as a separate account and deposits are made annually to each of these individual accounts. A fence with a life of ten years and a value of \$1,000, will require a deposit of \$100 per year to Replacement Reserves. Based upon this funding formula, the Association should have \$269,513 on deposit (Current Funding Objective), but the Association reports to having Replacement Reserves totaling \$49,094 on deposit, approximately 18.22 percent funded.

The Component Method calculations are presented in graph and tabular format on page A-4 of the *Replacement Reserve Analysis*. These calculations assume that NO Replacement Reserves will be allocated to fund the \$24,000 to \$36,000 of repairs, maintenance, and/or minor replacements outlined in the *List of Recommended Repairs*. A more detailed explanation of the Component Method is contained in the *Appendix*.

REPLACEMENT RESERVE REPORT

FUNDING RECOMMENDATIONS:

We recommend the Association adopt an annual contribution to Replacement Reserves calculated by one of the standard accounting methods, either the Cash Flow Method or the Component Method, to insure that proper funding is available to make scheduled replacements throughout the entire 30-year Study Period.

We further recommend the Association fully fund the *List of Recommend Repairs* in the Study Year, and establish the necessary annual funding for the normal maintenance and repairs needed throughout the community.

The Association is facing the need to make multiple large and expensive expenditures to properly manage the common elements of the community. Current levels of Replacement Reserves on Deposit and the current levels of Annual Contribution to Replacement Reserves, leave the Association poorly prepared for these necessary expenditures.

The Board of Directors has the option of keeping components in service beyond the end of their normal economic lives. The Board of Directors can direct Richard J. Schuetz, AIA, to reschedule replacements in the first years of the study to later years, thereby resolving immediate the funding shortfall. Richard J. Schuetz, AIA, will provide this revised *Replacement Reserve Inventory and Analysis* at no cost to the Association.

The decision by the Board of Directors to keep components in service beyond the end of their normal economic lives should be made with full knowledge of the consequences. The consequences vary with the individual components, but generally include increased eventual cost of replacement, consequential damage and repair costs for adjacent components, potential liability for damage or injury caused by the components kept in service beyond the end of their normal economic lives, and a negative impact on the value of the homes in the community..

REPLACEMENT RESERVE REPORT

C. SITE EVALUATION

General comments. FLINT HILL MANOR is facing several large and expensive replacement, repair, and maintenance projects. The major replacement projects facing the Association in the first year of the Study Period, the Study Year, 2015, include:

- A comprehensive asphalt pavement replacement program.
- Partial replacements of the concrete curb & gutter and sidewalk replacements.

These projects are scheduled in the *Replacement Reserve Inventory* and have an estimated cost of \$110,932 in the first five years of the Study Period.



The *List of Recommended Repairs* outlines \$24,000 to \$36,000 of repairs, maintenance, and miscellaneous small replacements we observed throughout the community, which need correction now. Most of this amount is associated with the following:

- Correction of defective base materials and bearing soils beneath the asphalt pavement that are a consequence of the pavement having been kept in service beyond the end of its normal economic life.
- The correction of various site grading and drainage issues throughout the community.
- Maintenance and repair of the streetlights and associated electrical services.



Safety defects. Several of the defects in the *List of Recommend Repairs* are safety hazards and should be repaired immediately to protect the residents from potential injury and to protect the Association from potential liability. We have identified safety hazards in the *List of Recommended Repairs* by printing them in **bold**. We do NOT warranty that all defects throughout the community that could be considered “safety defects” are identified in the *List of Recommended Repairs*.

REPLACEMENT RESERVE REPORT

Comments on Site Evaluation. The *List of Recommended Repairs* provides a component by component discussion of defects we observe during our site evaluation. The following comments are not intended to restate these observations but address one of the following specific issues regarding the larger, more significant components at the community:

- Components that require specific comments because of the manner in which they have been treated in the *Replacement Reserve Analysis*.
- Comments on components that could not be properly addressed in the *List of Recommended Repairs*.

The comments on the following pages reflect the conditions found at the time of our site evaluation.

Asphalt pavement - general. The *Replacement Reserve Inventory* identifies approximately 49,147 square feet of asphalt pavement throughout the community that is the responsibility of the Association. No information about the dates of installation or the specifications that were used to install the pavement was provided for our review. The asphalt pavement is generally at or beyond the end of its normal economic life. We observed areas where defects in the asphalt pavement are allowing large amounts of water to penetrate through the pavement, causing damage and deterioration of the load carrying capabilities of the base materials and bearing soils beneath the pavement. The defects we observed included areas with open cracks, large holes in the pavement, severe alligating, and depressed areas of pavement indicating damage to the base materials and bearing soils beneath the pavement.



Asphalt pavement - replacement and repair. We have assumed that the Association will replace the asphalt pavement by overlaying with 2 inches of new asphalt and the cost of this project is included in the *Replacement Reserve Inventory*. Before the installation of the new pavement, the existing asphalt roads and parking areas should be milled. The asphalt pavement is milled to insure that the new pavement can be properly graded to move all water to the storm water system.



REPLACEMENT RESERVE REPORT

The project to replace the asphalt pavement should include the evaluation of all damaged and deteriorated pavement. Areas of asphalt pavement with minor defects that are limited to the asphalt pavement, where the base materials and bearing soils have not been damaged, may be repairable with one of the fabric reinforcing sheets in use today, to prevent defects from printing through to the new asphalt pavement. This evaluation is best conducted by a Professional Engineer, well experienced with asphalt pavement replacement projects.

Areas of asphalt pavement with more serious defects, where the asphalt pavement has significant damage and/or deterioration, or where base materials and/or bearing soils beneath the pavement have been damaged, should have defective asphalt pavement, base materials, and bearing soils removed and replaced with materials capable of properly supporting the new pavement.



The replacement cost shown in the *Replacement Reserve Inventory* assumes a normal replacement project with base repairs at five to 10 percent of the total area. A properly executed pavement replacement project at the community will need to include repairs at 10 to 20 percent of the total area. The expanded scope of the project to correct defects in the base should be a one-time-only repair, assuming that in the future, the Association will make timely replacements of the asphalt pavement, before the failure of the pavement and the consequential damage to the base materials and bearing soils. One-time-only repairs are not appropriately funded from Replacement Reserves and we have included the estimated repair costs of between \$10,000 and \$16,000 in the *List of Recommended Repairs*.

Failure to accomplish proper repairs prior the installation of a new asphalt top coat will result in the new pavement having a substantially reduced economic life as the old failures rapidly print through to the new asphalt. An asphalt pavement overlay, installed over defective pavement, frequently begins failing almost immediately and will generally be at complete failure in two to five years.



The result of a proper installation of a 2-inch asphalt overlay, after appropriate repairs, should be a new traffic surface with an economic life of 14 to 18 years for the roads and parking areas. For the *Replacement Reserve Inventory*, we have assumed that appropriate repairs will be made, that the new pavement will be properly installed, and that the roads and parking areas will have an economic life of 16 years. The economic life should be adjusted in the coming years as the *Replacement Reserve Inventory* is updated, to reflect the actual condition of the asphalt pavement as it ages. This evaluation should be conducted every three to five years.

REPLACEMENT RESERVE REPORT

Multiple segments of concrete curb & gutter are damaged and/or displaced. These defective segments of curb & gutter will prevent proper grading of the new asphalt pavement and/or allow water to penetrate into the bearing soils beneath the curb & gutter segments and adjacent asphalt pavement. These curb & gutter segments should be replaced before, or in conjunction with, the project to replace the asphalt pavement, to establish a proper grade and insure that all water is properly directed to the storm water system.



Asphalt Pavement Maintenance Program. After the installation of the new asphalt pavement discussed above, the Association will need to establish an Asphalt Pavement Maintenance Program. This program will be necessary if the pavement is to achieve the economic life shown in the *Replacement Reserve Inventory*. The Asphalt Pavement Maintenance Program should include the components discussed below:

- Crack sealing. All small cracks and defects in the asphalt pavement should be sealed with an appropriate sealing compound. If the cracks or defects are too large to be sealed with a sealing compound, or if the defects have resulted in displacement of the asphalt pavement, indicating damage to the base materials or bearing soils, defective areas of asphalt pavement, base materials, and bearing soils should be cut out and replaced. This repair should be done **annually**.
- Cleaning. Long term exposure to oil and gas breaks down asphalt. Automobiles leaking gas and/or oil should be removed from the community immediately and spill areas cleaned to prevent damage to the asphalt pavement. The maintenance of the asphalt pavement should include the cleaning of asphalt pavement damaged by oil and/or gas and the cutting out and replacement of deteriorated pavement. This should be done **annually** in conjunction with the crack sealing project discussed above.
- Seal coating. Seal coating should be done **every three to five years**. For this maintenance activity to be effective in extending the life the asphalt, the crack sealing and cleaning of the asphalt discussed above, should be done first.



REPLACEMENT RESERVE REPORT

- **Striping.** After completion of the seal coating, install new striping in parking areas.

We have assumed that in 2019, the Study Year, the Association will conduct a comprehensive maintenance cycle on the pavement including crack sealing, cleaning, sealcoating, and striping. The project may require cutting out and replacing asphalt pavement, base materials, and bearing soils at locations that were not properly identified as being defective in the pending (2015) asphalt pavement replacement project. The project is included in the *Replacement Reserve Inventory* for funding from Replacement Reserves. Funding maintenance and repair from Replacement Reserves may have adverse tax consequences for the Association. We recommend the Association review these expenditures with their accounting professionals prior to making any disbursements.



We have assumed three cycles of sealcoating are to be accomplished between major asphalt pavement replacement projects. We have assumed that annual asphalt pavement maintenance (cleaning, crack sealing, and correction of defects) in years not associated with a sealcoating project, will be accomplished as a maintenance task, not funded from Replacement Reserves.

Asphalt pavement replacement - scheduling. We have included the replacement of the asphalt pavement in the *Replacement Reserve Inventory* in first year of the Study, the Study Year, 2015. We recommend the Association replace the pavement as soon as possible to prevent further damage and deterioration of the asphalt pavement, base materials, and bearing soils. Delay in the replacement of the pavement will likely result in repair costs significantly higher than those shown in the *List of Recommended Repairs*.

Concrete components. The *Replacement Reserve Inventory* identifies approximately 10,840 square feet of concrete pavement (sidewalks) and 3,170 feet of concrete curb & gutter throughout the community that is the responsibility of the Association. There are extensive defects in these components including components that are severely deteriorated, damaged, and displaced. Some of these defects are trip hazards and we recommend that the defective components be replaced as soon as possible to protect the residents from potential injury and the Association from potential liability for those injuries.



REPLACEMENT RESERVE REPORT

As noted above, multiple segments of curb & gutter will need to be replaced prior to, or in conjunction with, the asphalt replacement project to insure that the new asphalt pavement can be properly graded to direct water to the storm water system.



We have assumed that 10 percent of the concrete components will be replaced in conjunction with the asphalt pavement replacement project scheduled in 2015. Subsequent cycles of concrete component replacements are scheduled at 16 year intervals in the *Replacement Reserve Inventory*, to coincide with future asphalt replacement projects. We have accelerated the percentages of concrete components scheduled for replacement in future projects to reflect a normal aging pattern. Interim replacements may be necessary and in the *Replacement Reserve Inventory*, we have assumed that these replacements will not be funded from Replacement Reserves.

Streetlights. The Association is responsible for a network of 10 streetlights and associated electrical services and wiring. The Association has made multiple maintenance, repair, and replacement operations to the system. More is needed and in the *List of Recommended Repairs* we have included a project to address defects in the system. We have assumed that a comprehensive maintenance and repair project at the present time will allow the system to be kept in service until 2025 when we have scheduled a comprehensive replacement in the *Replacement Reserve Inventory*.



We further recommend that at replacement, the Association negotiate with the local power company to assume responsibility for the entire system. The new system will need to be installed to their standard and there is a monthly fee.

REPLACEMENT RESERVE REPORT

Stormwater system - general.

The community is served by an extensive stormwater system that includes inlets, outlets, subsurface piping, trickle ditches, and a collection/impound area along the south property boundary. We discussed this facility with the Board of Directors in conjunction with the preparation of the November 2003 *Replacement Reserve Study* and they reported that the Association was ONLY responsible for the fence surrounding the collection/impound facility.



The Association has recently replaced a large section of the fence and in the *Replacement Reserve Inventory*, we have assumed the Association will inspect the fence in 2017 and make any needed replacements.

Site grading. The *List of Recommended Repairs* includes extensive site grading defects that need to be corrected if the adjacent common elements are to achieve their normal economic life.



REPLACEMENT RESERVE REPORT

D. INVENTORY

Basis. The data contained in the *Replacement Reserve Inventory* is based upon information provided by the Association and our field observations and measurements in March 2014. We reviewed the site plans provided by the Association. No other drawings or documents were provided for our review in conjunction with the preparation of this *Replacement Reserve Study*. We also utilized aerial photographs of the community. We confirmed the scale of the aerial photographs using field measurements.

Estimated Life Left. The values in the "Estimated Life Left in Years" column in the *Replacement Reserve Inventory* has been established by the Analyst based upon a visual evaluation of the components. The values are not based upon a mathematical formula directly related to "Estimated Economic Life in Years." Some components may experience longer lives while others may experience shorter lives depending on many factors such as environment, quality of the component, maintenance, timeliness of repairs, etc.

Exclusions. The following items have been excluded from the *Replacement Reserve Inventory*. If any of these exclusions have been made in error, we will reinsert the component at the request of the Board of Directors:

Unit improvements. We understand that the elements of the project that relate to a single unit are the responsibility of that unit owner. Examples of components excluded from the *Replacement Reserve Inventory* by this standard include:

- Concrete lead walks behind the edge of the Association owned sidewalks, closest to the houses, including all replacements resulting from a differential in elevation between individual and community owned components.
- Utility connections, including water, sewer, gas, and electrical, that serve a single unit, even when they are on property owned by the Association.
- Building exteriors and site improvements including the decks, concrete steps, fences, stoops, retaining walls and patios.
- Limited fence installations at end units.



REPLACEMENT RESERVE REPORT

Value. For ease of administration of the Replacement Reserves and to reflect accurately how Replacement Reserves are administered, components with a dollar value less than \$1,000.00 have been excluded from the *Replacement Reserve Inventory*. Examples of components excluded from the *Replacement Reserve Inventory* by this standard include:

- Property identification signs.
- General signage throughout the community.
- Mailboxes.
- Pavers.



Utilities. Many improvements owned by utility companies and the local government are on property owned by the Association. We have assumed that repair, maintenance, and replacements of these components will be done at the expense of the appropriate utility company. Examples of components excluded from the *Replacement Reserve Inventory* by this standard include:

- Storm water management system. An extensive storm water system is installed throughout the community. The system includes inlets, outlets, trickle ditches, subsurface piping, a storm water collection/impound area, and other structures. We have assumed that any needed repairs/replacements of the components of this system (with the exception of the fence that surrounds the collection/impound area) will not be funded from Replacement Reserves.
- Domestic water supply mains and sanitary sewers. A network of domestic water mains and sanitary sewers is installed throughout the community on property owned by the Association. We have assumed that any needed repairs/replacements of the components of this system will not be funded from Replacement Reserves.
- Primary electric feeds and transformers.
- Telephone and cable TV systems.



REPLACEMENT RESERVE REPORT

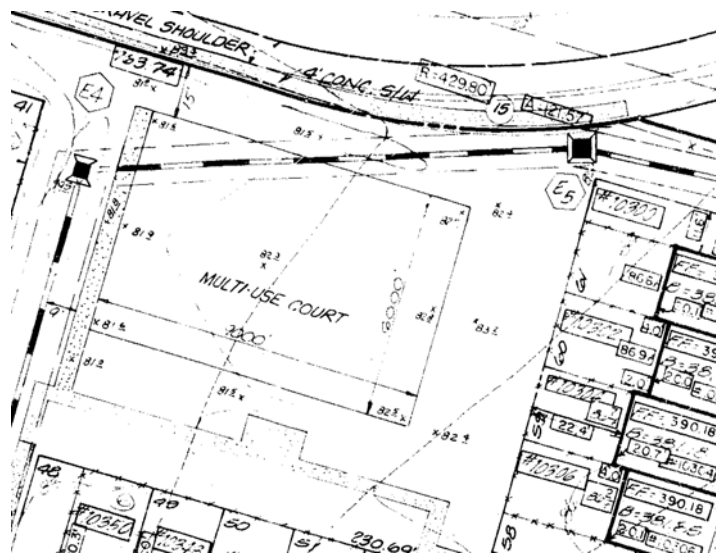
Maintenance Activities. Maintenance activities are NOT appropriately funded from Replacement Reserves. Funding maintenance and repair activities from Reserves may have adverse tax consequences for the Association. Examples of components excluded from the *Replacement Reserve Inventory* by this standard include:

- Cleaning and janitorial services.
- Interior and exterior painting.
- Landscaping, landscape maintenance and site grading.
- Asphalt pavement crack sealing and cleaning (except where it is an integral part of a sealcoat project as discussed above).

Fences - property lines. A wood stockade fences are installed along the south and east property lines. We have assumed that the fences are the responsibility of the adjacent communities. The fence along the south boundary is generally in good condition. The fence along the east boundary is in poor condition and several sections are damaged. We recommended the Association confirm ownership of both fences.

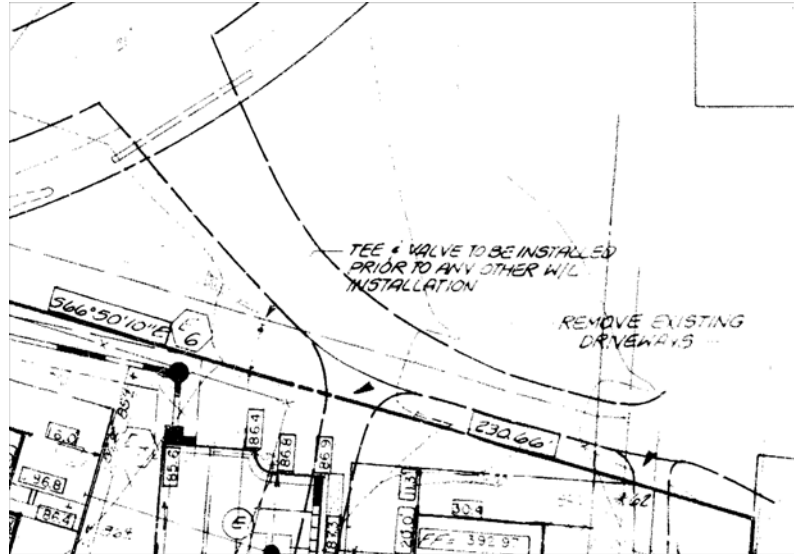


Multi-use Court. The site plans provided by the Association shows that a multi-use court was to have been installed in the open space adjacent to Flagpole Lane. We have assumed that the Association has no residual responsibility to install this court and have not included it in the *Replacement Reserve Inventory*.



REPLACEMENT RESERVE REPORT

Adjacent driveway. A driveway is installed at the northeast corner of the community on adjacent property and possibly on property owned by the Association. The site plans provided by the Association include the note “Remove Existing Driveway”. The driveway was not removed and it appears that residents of the community (and possibly adjacent communities) are using the driveway for parking. We have assumed the Association has no responsibility with regards to the driveway and that no maintenance, repair, or replacement projects will be funded from Replacement Reserves..



Tot lot. The previous *Replacement Reserve Study* identified a tot lot as being part of the *Replacement Reserve Inventory*. We have assumed that the Association has removed the tot lot and that there is no residual requirement to replace the tot lot.

Government. Site improvements that serve the community are located on property owned by the local or state government. These improvements are located in and along Flagpole Lane and White Granite Drive. We have assumed that any needed repairs or replacements of components located in these areas are not the responsibility of the Association and costs associated with any work on these components will not be funded from Replacement Reserves. The components located in these areas include but are not limited to those listed.



- Asphalt pavement.
- Concrete sidewalks.
- Concrete curb & gutter.
- Storm water management system components.
- Utilities, including electrical, sanitary sewers, domestic water mains, and natural gas.

REPLACEMENT RESERVE REPORT

E. METHODOLOGY

The site data used in this *Replacement Reserve Study* is based upon information provided by the Association and our visual survey of the property on the dates stated in the Report. We have estimated the normal economic life, remaining economic life, and replacement cost for each component listed in the *Replacement Reserve Inventory*. We have used Government standards, published estimating manuals, our experience with similar properties, and engineering judgment to develop these estimates.

Our visual survey of the property did not ascertain compliance with current building codes, but assumed that all components met building code requirements in force at the time of construction. This *Replacement Reserve Study* has been developed with care by experienced persons, but Richard J. Schuetz, AIA, Architect (and/or its representatives) makes no representations that the Study includes, evaluates, and estimates all appropriate components, or discloses all defects, concealed or visible. No warranty or guarantee is expressed or implied.

Actual experience in replacing components may differ significantly from the estimates in the Study because of conditions beyond our control. These differences may be caused by maintenance practices, inflation, variations in pricing and market conditions, future technological developments, regulatory actions, acts of God, and luck. Some components may function normally during our survey and then fail without notice.

The intent of this RSTUDY+ *Replacement Reserve Study* is to provide the Association with an inventory of the common elements of the community, a general view of the condition of these components, and an effective financial planning tool for the replacement of the community facilities and infrastructure components with limited life, for which, the Association is responsible. To be effective, this Study should be reviewed by the FLINT HILL MANOR Board of Directors, those responsible for the management of the components included in the *Inventory*, and the accounting professionals employed by the Association. We are prepared to provide a revision to *Replacement Reserve Inventory* and the *Replacement Reserve Analysis* upon the request of the Board of Directors.

Respectfully Submitted,
RICHARD J. SCHUETZ, AIA
ARCHITECT

Wm Bruce Bennett

Wm. Bruce Bennett
Senior Reserve Analyst

REPLACEMENT RESERVE ANALYSIS

FLINT HILL MANOR
April 10, 2014
GENERAL INFORMATION:

2015	Study Year
\$49,094	Replacement Reserves reported to be on deposit at start of Study Year
\$473,517	Estimated value of all Components included in the Replacement Reserve Inventory

The information shown in this Summary does not account for interest earned on Replacement Reserves on deposit, nor does it include adjustments for inflation. For more information see the attached Appendix.

REPORTED CURRENT FUNDING DATA:
\$6,000 REPORTED CURRENT ANNUAL CONTRIBUTION TO REPLACEMENT RESERVES

\$6.02 Per unit current monthly contribution to Replacement Reserves

CASH FLOW METHOD CALCULATIONS:
\$85,514 MINIMUM RECOMMENDED ANNUAL CONTRIBUTION TO REPLACEMENT RESERVES

\$85.86	Per unit minimum recommended monthly contribution to Replacement Reserves
\$23,676	Recommended minimum Replacement Reserve Funding Threshold (5.0 percent)
2015	First year Reserves fall to minimum recommended level (Design Year)

COMPONENT METHOD CALCULATIONS:
\$105,326 MINIMUM RECOMMENDED ANNUAL CONTRIBUTION TO RESERVES (IN STUDY YEAR)

\$105.75	Per unit minimum recommended monthly contribution to Replacement Reserves
\$269,513	Current Funding Objective
18.22%	Funding Percentage
\$220,419	One time deposit required to fully fund Replacement Reserves
\$13,029	Annual Contribution to Replacement Reserves if Reserves were fully funded.

PROJECT INFORMATION:

PROPERTY MANAGED BY: FLINT HILL MANOR Townhouse Association Oakton, Virginia	MAJOR COMPONENTS IN ANALYSIS: Asphalt pavement, concrete sidewalks, curb & gutter, and street lights. PROPERTY LOCATION: Oakton, VA	TYPE OF PROPERTY: Townhouse # OF UNITS: 83 YEAR BUILT: 1981
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NOTES:

1. This Replacement Reserve Analysis complies with the National Reserve Study Standards, adopted by the Community Associations Institute (CAI) in 1998. This Analysis applies to the 2015 accounting year (April 1, 2014 to March 31, 2015).
2. This Analysis does NOT include funding for the repair and replacement outlined in the List of Recommended Repairs, except as noted in the List of Recommended Repairs.
3. In a memo dated January 31, 2014, the Association reports Reserves totaling \$49,094 on deposit as of April 1, 2014 and a contribution to Reserves of \$6,000 in FY 2015.

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page:

A-1

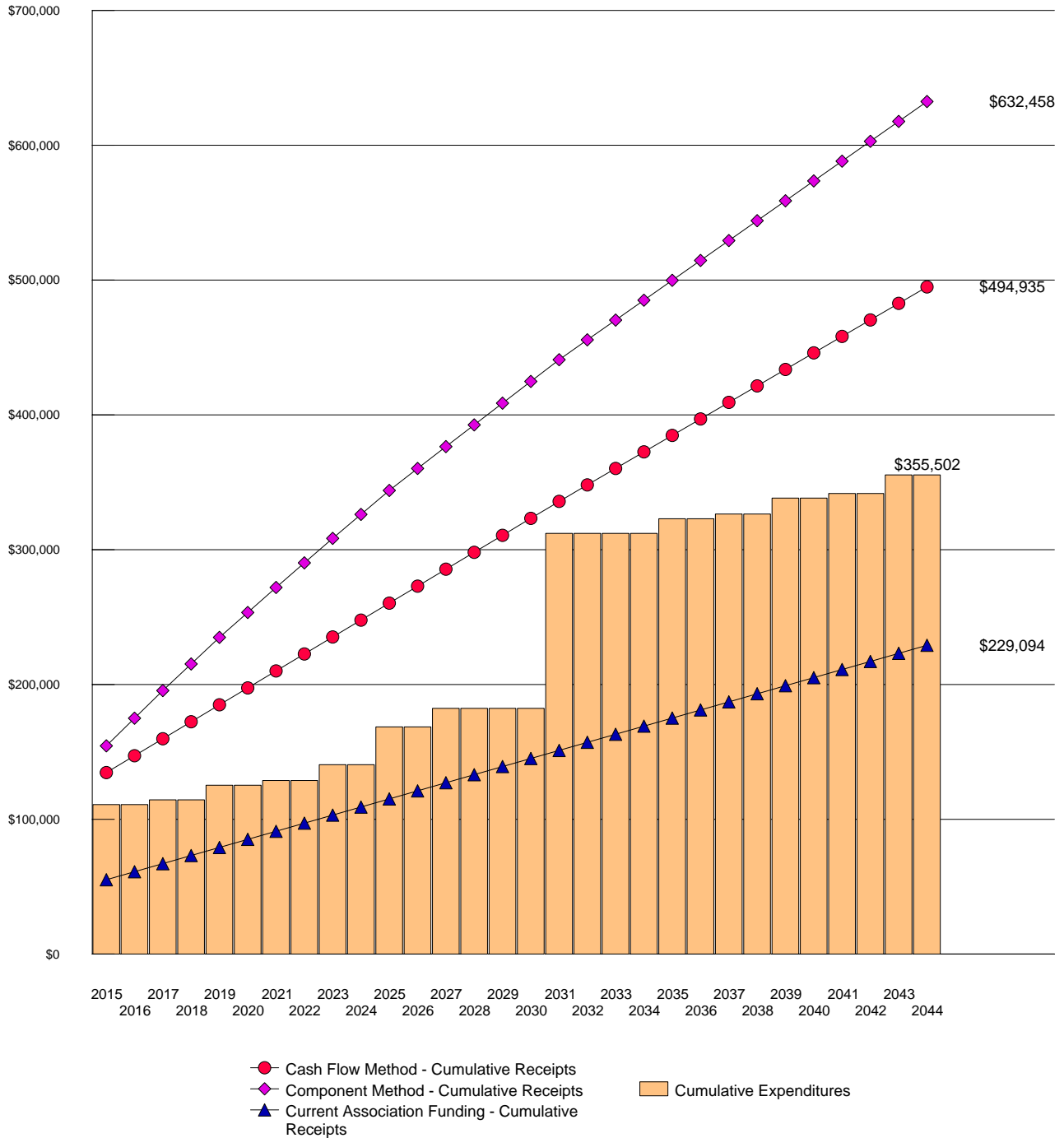
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REPLACEMENT RESERVE ANALYSIS

FLINT HILL MANOR

April 10, 2014

Funding Methods Comparison Graph - Cumulative Receipts and Expenditures

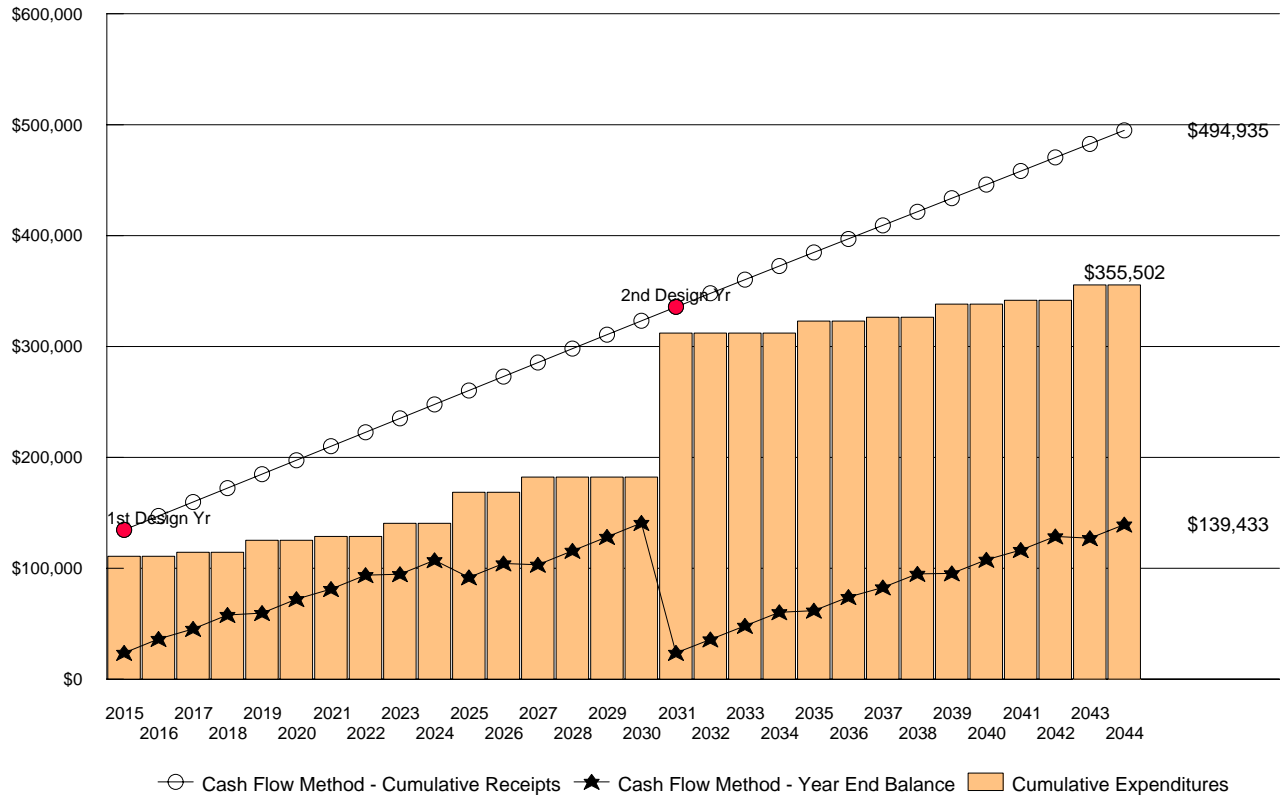


REPLACEMENT RESERVE ANALYSIS

FLINT HILL MANOR

April 10, 2014

Cash Flow Method - Cumulative Receipts and Expenditures Graph



Cash Flow Method Data - Years 1 through 30

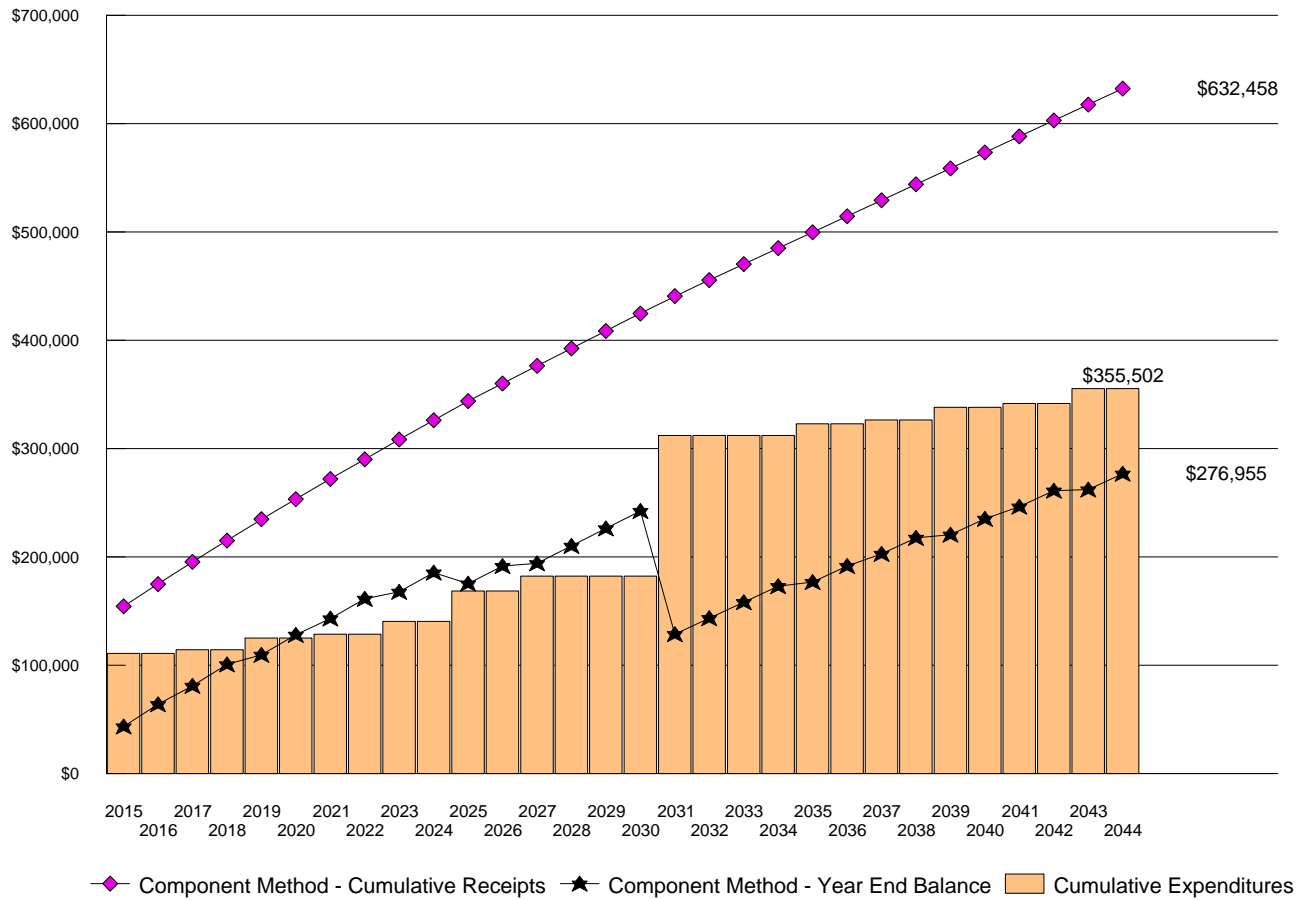
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	TEN YEAR SUMMARIES
Starting balance	\$49,094										
Annual deposit	\$85,514	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	Expenditures: \$140,545 Receipts: \$247,780
Expenditures	\$110,932	\$0	\$3,500	\$0	\$10,815	\$0	\$3,500	\$0	\$11,798	\$0	
Year end balance	\$23,676	\$36,250	\$45,325	\$57,900	\$59,660	\$72,234	\$81,309	\$93,884	\$94,660	\$107,235	
Minimum rec. funding lvl.	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	
Cumulative expenditures	\$110,932	\$110,932	\$114,432	\$114,432	\$125,247	\$125,247	\$128,747	\$128,747	\$140,545	\$140,545	
Cumulative receipts	\$134,608	\$147,183	\$159,757	\$172,332	\$184,907	\$197,481	\$210,056	\$222,630	\$235,205	\$247,780	
1st Design Yr											
Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	TEN YEAR SUMMARIES
Annual deposit	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,575	\$12,241	\$12,241	\$12,241	Expenditures: \$171,581 Receipts: \$126,770
Expenditures	\$28,000	\$0	\$13,764	\$0	\$0	\$0	\$129,817	\$0	\$0	\$0	
Year end balance	\$91,810	\$104,384	\$103,195	\$115,769	\$128,344	\$140,919	\$23,676	\$35,917	\$48,158	\$60,399	
Minimum rec. funding lvl.	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	
Cumulative expenditures	\$168,545	\$168,545	\$182,309	\$182,309	\$182,309	\$182,309	\$312,126	\$312,126	\$312,126	\$312,126	
Cumulative receipts	\$260,354	\$272,929	\$285,504	\$298,078	\$310,653	\$323,227	\$335,802	\$348,043	\$360,284	\$372,525	
2nd Design Yr											
Year	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	TEN YEAR SUMMARIES
Annual deposit	\$12,241	\$12,241	\$12,241	\$12,241	\$12,241	\$12,241	\$12,241	\$12,241	\$12,241	\$12,241	Expenditures: \$43,376 Receipts: \$124,445
Expenditures	\$10,815	\$0	\$3,500	\$0	\$11,798	\$0	\$3,500	\$0	\$13,764	\$0	
Year end balance	\$61,825	\$74,066	\$82,808	\$95,049	\$95,492	\$107,733	\$116,474	\$128,715	\$127,192	\$139,433	
Minimum rec. funding lvl.	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	\$23,676	
Cumulative expenditures	\$322,941	\$322,941	\$326,441	\$326,441	\$338,238	\$338,238	\$341,738	\$341,738	\$355,502	\$355,502	
Cumulative receipts	\$384,766	\$397,007	\$409,248	\$421,489	\$433,730	\$445,971	\$458,212	\$470,453	\$482,694	\$494,935	

REPLACEMENT RESERVE ANALYSIS

FLINT HILL MANOR

April 10, 2014

Component Method - Cumulative Receipts and Expenditures Graph



Component Method Data - Years 1 through 30

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	TEN YEAR SUMMARIES
Starting balance	\$49,094										
Annual deposit	\$105,326	\$20,534	\$20,534	\$19,723	\$19,723	\$18,507	\$18,507	\$18,241	\$18,241	\$17,772	
Expenditures	\$110,932	\$0	\$3,500	\$0	\$10,815	\$0	\$3,500	\$0	\$11,798	\$0	Expenditures: \$171,581 Receipts: \$160,930
Year end balance	\$43,487	\$64,021	\$81,056	\$100,779	\$109,687	\$128,194	\$143,201	\$161,442	\$167,886	\$185,658	
Cumulative Expenditures	\$110,932	\$110,932	\$114,432	\$114,432	\$125,247	\$125,247	\$128,747	\$128,747	\$140,545	\$140,545	Expenditures: \$43,376 Receipts: \$149,385
Cumulative Receipts	\$154,420	\$174,954	\$195,488	\$215,211	\$234,934	\$253,441	\$271,948	\$290,189	\$308,431	\$326,203	
Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Expenditures: \$171,581 Receipts: \$160,930
Annual deposit	\$17,772	\$16,263	\$16,263	\$16,101	\$16,101	\$16,101	\$16,101	\$14,735	\$14,735	\$14,735	
Expenditures	\$28,000	\$0	\$13,764	\$0	\$0	\$0	\$129,817	\$0	\$0	\$0	Expenditures: \$43,376 Receipts: \$149,385
Year end balance	\$175,430	\$191,693	\$194,192	\$210,293	\$226,393	\$242,494	\$128,777	\$143,512	\$158,247	\$172,982	
Cumulative Expenditures	\$168,545	\$168,545	\$182,309	\$182,309	\$182,309	\$182,309	\$312,126	\$312,126	\$312,126	\$312,126	Expenditures: \$43,376 Receipts: \$149,385
Cumulative Receipts	\$343,975	\$360,238	\$376,501	\$392,601	\$408,702	\$424,802	\$440,903	\$455,638	\$470,373	\$485,108	
Year	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	Expenditures: \$43,376 Receipts: \$149,385
Annual deposit	\$14,735	\$14,735	\$14,735	\$14,735	\$14,735	\$14,735	\$14,735	\$14,735	\$14,735	\$14,735	
Expenditures	\$10,815	\$0	\$3,500	\$0	\$11,798	\$0	\$3,500	\$0	\$13,764	\$0	Expenditures: \$43,376 Receipts: \$149,385
Year end balance	\$176,902	\$191,637	\$202,872	\$217,607	\$220,544	\$235,279	\$246,514	\$261,249	\$262,220	\$276,955	
Cumulative Expenditures	\$322,941	\$322,941	\$326,441	\$326,441	\$338,238	\$338,238	\$341,738	\$341,738	\$355,502	\$355,502	Expenditures: \$43,376 Receipts: \$149,385
Cumulative Receipts	\$499,843	\$514,578	\$529,313	\$544,048	\$558,783	\$573,518	\$588,253	\$602,988	\$617,723	\$632,458	

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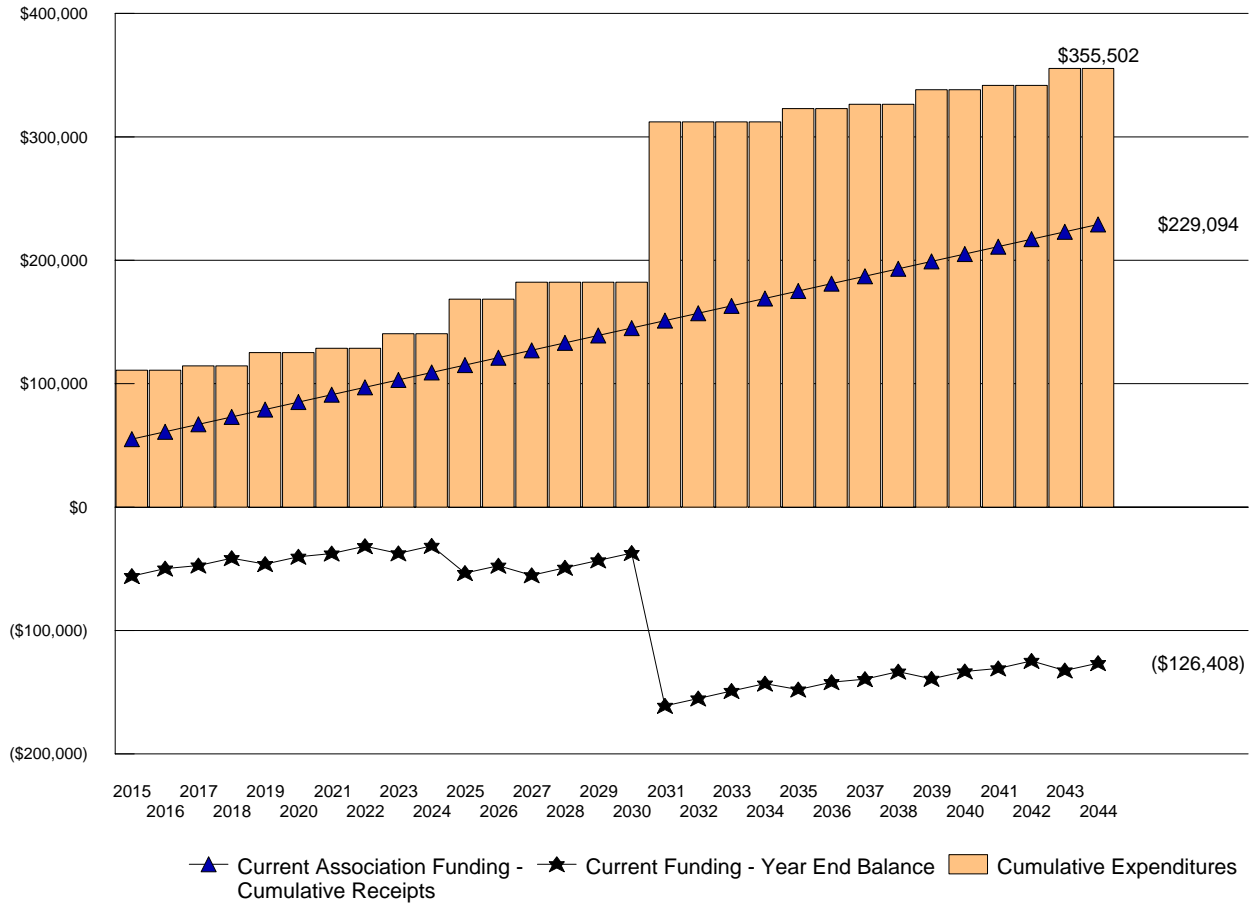
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REPLACEMENT RESERVE ANALYSIS

FLINT HILL MANOR

April 10, 2014

Current Association Funding - Cumulative Receipts and Expenditures Graph



Current Funding Data - Years 1 through 30

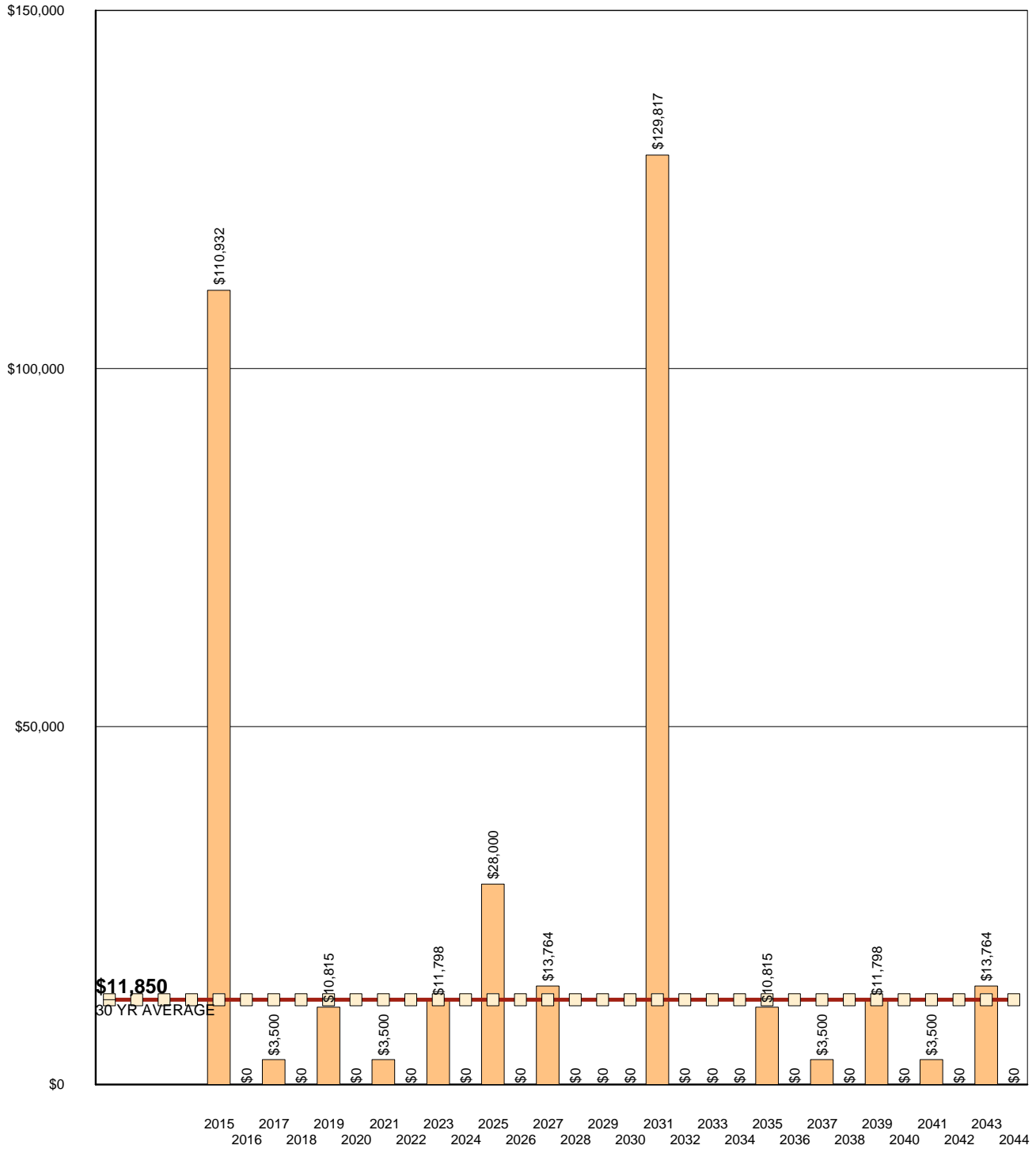
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	TEN YEAR SUMMARIES
Starting balance	\$49,094										Expenditures: \$140,545 Receipts: \$109,094
Annual deposit	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	
Expenditures	\$110,932	\$0	\$3,500	\$0	\$10,815	\$0	\$3,500	\$0	\$11,798	\$0	
Year end balance	(\$55,838)	(\$49,838)	(\$47,338)	(\$41,338)	(\$46,153)	(\$40,153)	(\$37,653)	(\$31,653)	(\$37,451)	(\$31,451)	
Cumulative Expenditures	\$110,932	\$110,932	\$114,432	\$114,432	\$125,247	\$125,247	\$128,747	\$128,747	\$140,545	\$140,545	
Cumulative Receipts	\$55,094	\$61,094	\$67,094	\$73,094	\$79,094	\$85,094	\$91,094	\$97,094	\$103,094	\$109,094	
Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	TEN YEAR SUMMARIES
Annual deposit	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	Expenditures: \$171,581 Receipts: \$60,000
Expenditures	\$28,000	\$0	\$13,764	\$0	\$0	\$0	\$129,817	\$0	\$0	\$0	
Year end balance	(\$53,451)	(\$47,451)	(\$55,215)	(\$49,215)	(\$43,215)	(\$37,215)	(\$161,032)	(\$155,032)	(\$149,032)	(\$143,032)	
Cumulative expenditures	\$168,545	\$168,545	\$182,309	\$182,309	\$182,309	\$182,309	\$312,126	\$312,126	\$312,126	\$312,126	
Cumulative receipts	\$115,094	\$121,094	\$127,094	\$133,094	\$139,094	\$145,094	\$151,094	\$157,094	\$163,094	\$169,094	
Year	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	TEN YEAR SUMMARIES
Annual deposit	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	Expenditures: \$43,376 Receipts: \$60,000
Expenditures	\$10,815	\$0	\$3,500	\$0	\$11,798	\$0	\$3,500	\$0	\$13,764	\$0	
Year end balance	(\$147,847)	(\$141,847)	(\$139,347)	(\$133,347)	(\$139,144)	(\$133,144)	(\$130,644)	(\$124,644)	(\$132,408)	(\$126,408)	
Cumulative Expenditures	\$322,941	\$322,941	\$326,441	\$326,441	\$338,238	\$338,238	\$341,738	\$341,738	\$355,502	\$355,502	
Cumulative Receipts	\$175,094	\$181,094	\$187,094	\$193,094	\$199,094	\$205,094	\$211,094	\$217,094	\$223,094	\$229,094	

REPLACEMENT RESERVE ANALYSIS

FLINT HILL MANOR

April 10, 2014

Graph of Annual Replacement Expenditures



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page:

A-6

1404.05

REPLACEMENT RESERVE INVENTORY

FLINT HILL MANOR

April 10, 2014

INVENTORY OF COMPONENTS - NORMAL REPLACEMENT

ITEM #		UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NORMAL ECONOMIC LIFE (YRS)	REMAINING ECONOMIC LIFE (YRS)	TOTAL REPLACEMENT COST (\$)
ASPHALT PAVEMENT							
1	Asphalt pavement - Graystone Court	sf	9,492	\$1.85	16	none	\$17,560
2	Asphalt pavement - Silverstone Court	sf	6,685	\$1.85	16	none	\$12,367
3	Asphalt pavement - Granite Creek	sf	32,980	\$1.85	16	none	\$61,013
4	Pavement sealcoat (initial cycle)	sf	49,157	\$0.22	16	4	\$10,815
5	Pavement sealcoat (mid cycle)	sf	49,157	\$0.24	16	8	\$11,798
6	Pavement sealcoat (final cycle)	sf	49,157	\$0.28	16	12	\$13,764

COMMENTS:

Asphalt roadways and parking replacement. The cost shown above assumes that the pavement will be milled and that base repairs will be needed at less than 10 percent of the total area. We have assumed that all of the pavement in the community will be done as a single project to achieve economies of scale.

Asphalt pavement - sealcoat. We have assumed that three cycles of sealcoating (and associated maintenance) will be funded from Replacement Reserves between major pavement replacement projects.

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page:

1

1404.05

REPLACEMENT RESERVE INVENTORY

FLINT HILL MANOR

April 10, 2014

INVENTORY OF COMPONENTS - NORMAL REPLACEMENT

ITEM #		UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NORMAL ECONOMIC LIFE (YRS)	REMAINING ECONOMIC LIFE (YRS)	TOTAL REPLACEMENT COST (\$)
CONCRETE COMPONENTS							
7	Concrete sidewalks - 10%	sf	1,084	\$8.50	80	none	\$9,214
8	Concrete sidewalks - 15%	sf	1,626	\$8.50	80	16	\$13,821
9	Concrete sidewalks - 20%	sf	2,168	\$8.50	80	32	\$18,428
10	Concrete sidewalks - 25%	sf	2,710	\$8.50	80	48	\$23,035
11	Concrete sidewalks - 30%	sf	3,252	\$8.50	80	64	\$27,642
12	Concrete curb & gutter - 10%	ft	317	\$34.00	80	none	\$10,778
13	Concrete curb & gutter - 15%	ft	634	\$34.00	80	16	\$21,556
14	Concrete curb & gutter - 20%	ft	1,268	\$34.00	80	32	\$43,112
15	Concrete curb & gutter - 25%	ft	1,902	\$34.00	80	48	\$64,668
16	Concrete curb & gutter - 30%	ft	2,219	\$34.00	80	64	\$75,446

COMMENTS:

Concrete components. We have assumed that the concrete sidewalk and curb & gutter replacements will be done in conjunction with the asphalt pavement replacement project in 2015 and every 16 years thereafter. We have include increasing percentages of components for replacement to reflect the normal aging of the materials. Interim replacements may be needed and we have assumed that they will not be funded from Replacement Reserves.

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page:

2

1404.05

REPLACEMENT RESERVE INVENTORY

FLINT HILL MANOR

April 10, 2014

INVENTORY OF COMPONENTS - NORMAL REPLACEMENT

ITEM #		UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NORMAL ECONOMIC LIFE (YRS)	REMAINING ECONOMIC LIFE (YRS)	TOTAL REPLACEMENT COST (\$)
GENERAL SITE IMPROVEMENTS							
17	Fence at stormwater impound	ft	250	\$14.00	20	2	\$3,500
18	Fence at stormwater impound	ft	250	\$14.00	20	6	\$3,500
19	Fence at stormwater impound	ft	250	\$14.00	20	16	\$3,500
20	Streetlights (& electric services)	ea	10	\$2,800.00	40	10	\$28,000

COMMENTS:

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page:

3

1404.05

REPLACEMENT RESERVE INVENTORY**FLINT HILL MANOR****April 10, 2014****SCHEDULE OF REPLACEMENTS - YEARS ONE TO FIFTEEN**

2015	2016	2017
Asphalt pavement - Granite Cree \$61,013 Asphalt pavement - Graystone C \$17,560 Asphalt pavement - Silverstone C \$12,367 Concrete curb & gutter - 10% \$10,778 Concrete sidewalks - 10% \$9,214		Fence at stormwater impound \$3,500
Total Scheduled Replacements \$110,932	No Scheduled Replacements	Total Scheduled Replacements \$3,500
2018	2019	2020
No Scheduled Replacements	Pavement sealcoat (initial cycle) \$10,815	No Scheduled Replacements
	Total Scheduled Replacements \$10,815	
2021	2022	2023
Fence at stormwater impound \$3,500		Pavement sealcoat (mid cycle) \$11,798
Total Scheduled Replacements \$3,500	No Scheduled Replacements	Total Scheduled Replacements \$11,798
2024	2025	2026
No Scheduled Replacements	Streetlights (& electric services) \$28,000	No Scheduled Replacements
	Total Scheduled Replacements \$28,000	
2027	2028	2029
Pavement sealcoat (final cycle) \$13,764		No Scheduled Replacements
Total Scheduled Replacements \$13,764	No Scheduled Replacements	No Scheduled Replacements

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page:

4

1404.05

REPLACEMENT RESERVE INVENTORY

FLINT HILL MANOR

April 10, 2014

SCHEDULE OF REPLACEMENTS - YEARS SIXTEEN TO THIRTY

<p style="text-align: center;">2030</p> <p>No Scheduled Replacements</p>	<p style="text-align: center;">2031</p> <p>Asphalt pavement - Granite Cree \$61,013 Concrete curb & gutter - 15% \$21,556 Asphalt pavement - Graystone C \$17,560 Concrete sidewalks - 15% \$13,821 Asphalt pavement - Silverstone C \$12,367 Fence at stormwater impound \$3,500</p> <p>Total Scheduled Replacements \$129,817</p>	<p style="text-align: center;">2032</p> <p>No Scheduled Replacements</p>
<p style="text-align: center;">2033</p> <p>No Scheduled Replacements</p>	<p style="text-align: center;">2034</p> <p>No Scheduled Replacements</p>	<p style="text-align: center;">2035</p> <p>Pavement sealcoat (initial cycle) \$10,815</p> <p>Total Scheduled Replacements \$10,815</p>
<p style="text-align: center;">2036</p> <p>No Scheduled Replacements</p>	<p style="text-align: center;">2037</p> <p>Fence at stormwater impound \$3,500</p> <p>Total Scheduled Replacements \$3,500</p>	<p style="text-align: center;">2038</p> <p>No Scheduled Replacements</p>
<p style="text-align: center;">2039</p> <p>Pavement sealcoat (mid cycle) \$11,798</p> <p>Total Scheduled Replacements \$11,798</p>	<p style="text-align: center;">2040</p> <p>No Scheduled Replacements</p>	<p style="text-align: center;">2041</p> <p>Fence at stormwater impound \$3,500</p> <p>Total Scheduled Replacements \$3,500</p>
<p style="text-align: center;">2042</p> <p>No Scheduled Replacements</p>	<p style="text-align: center;">2043</p> <p>Pavement sealcoat (final cycle) \$13,764</p> <p>Total Scheduled Replacements \$13,764</p>	<p style="text-align: center;">2044</p> <p>No Scheduled Replacements</p>

Richard J. Schuetz, AIA, Architect

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page:

5

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LIST OF RECOMMENDED REPAIRS

FLINT HILL MANOR

Oakton, Virginia

April 10, 2014

REPAIR CATEGORY AND REPAIR DESCRIPTION

PHOTOGRAPHS ESTIMATED REPAIR COST

1. Asphalt pavement - replacement

From Reserves




- Replace the asphalt pavement throughout the community including the roadways and parking areas. The project should include the operations discussed below. See Supplemental Photographs #3, 7, 9, 10, 11, 12, 19, 27, 35, 37, 42, 45, 47, 48, 50, 51, 52, 56.
- Replace the existing asphalt pavement by overlaying with 2 inches of new asphalt. Prior to the installation of the new pavement, mill the existing asphalt pavement to insure that the final grade of the new pavement will not impound water and to eliminate the need to run the asphalt pavement into the curbs.
- Evaluate damaged and deteriorated asphalt pavement and make necessary repairs to insure that the new asphalt pavement will have a normal economic life. See "2. Asphalt pavement - repairs" below for an outline of these repairs and funding for these repairs.
- Prior to, or in conjunction with the asphalt replacement discussed above, replace defective segments of curb & gutter that would prevent the new asphalt pavement from being properly graded. See "3. Concrete components" below for a discussion of these repairs.



LIST OF RECOMMENDED REPAIRS

2. Asphalt pavement - repairs

\$10,000 - 16,000

- The project to replace the asphalt pavement should include the corrections of defects in the asphalt pavement, base materials, and bearing soils. The cost shown in the Replacement Reserve Inventory assumes that base repairs will be needed at 5 to 10 percent of the total area. The asphalt pavement has been kept in service long past the normal end of its economic life and repairs are needed a 10 to 20 percent of the total area and the cost shown above is for these additional repairs. We have assumed that in the future, the Association will make timely replacements and that these repairs are one-time-only costs. One-time-only repair activities are not appropriately funded from Replacement Reserves. The repair activities should include the operations discussed below. See Supplemental Photographs #3, 7, 9, 10, 11, 12, 19, 27, 35, 37, 42, 45, 47, 48, 50, 51, 52, 56.
 - Conduct a comprehensive evaluation of asphalt pavement to identify defective asphalt pavement, base materials, and bearing soils.
 
 - Correct minor defects in the asphalt pavement that are limited to the asphalt pavement (no damage to the base materials or bearing soils), to insure that the new asphalt pavement will have a normal economic life. This may be accomplished by the use of a fabric reinforcement to prevent existing minor defects from printing through to the new pavement.
 
 - Correct more serious defects where the asphalt pavement has significant damage and/or deterioration, or where base materials and/or the bearing soils beneath the pavement have been damaged. Corrective actions should include the removal of the defective asphalt pavement, base materials, and bearing soils and their replacement with materials capable of properly supporting the new asphalt pavement.
 

LIST OF RECOMMENDED REPAIRS

3. Concrete components

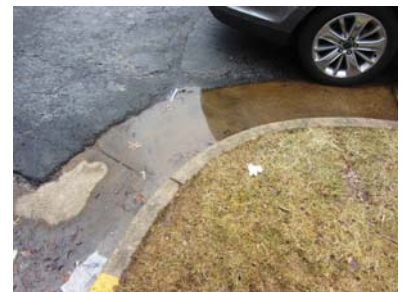
From Reserves

- Concrete pavement. Replace defective segments of concrete sidewalk and aprons at the entrances to the community. The segments that require replacement have one or more of the defects outlined below. See Supplemental Photographs #3, 6, 8, 28, 46, 54, 55.
 - **Displaced segments of concrete pavement (with a difference in elevation over 1 inch) which are trip hazards.**
 - **Spalling segments of concrete pavement. Segments with loose or very rough pavement are trip hazards.**
 - Damaged/deteriorated segments of concrete pavement.

- Trail. Install a proper concrete sidewalk to replace the mulch and timber trail at the southeast corner of the community. See Supplemental Photographs #24.

- Concrete curb & gutter. Replace defective concrete curb & gutter segments. The curb & gutter segments that require replacement have one or more of the defects outlined below. See Supplemental Photographs #5, 19, 36, 42, 43, 50, 53
 - **Defects that are typical of concrete pavement and listed under concrete pavement above.**
 - Segments that are displaced and impound water.

 - Segments with defects that allow water to penetrate into the base materials and bearing soils beneath the curb & gutter and adjacent asphalt pavement.
 - Segments that prevent the proper grading of the asphalt pavement.

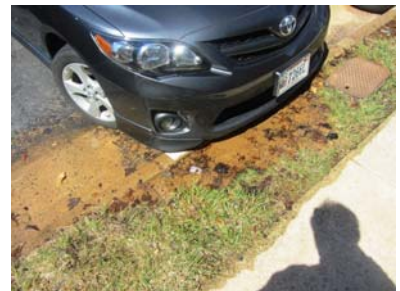


LIST OF RECOMMENDED REPAIRS

4. Grading, drainage, and landscape.

\$8,000 - 12,000

- **Grade adjacent to concrete pavement to prevent water, silt, and debris from being impounded on the components, a potential trip hazards. See Supplemental Photographs #6, 46, 55**
- **Properly set utility access points installed between the sidewalks and curb & gutter where the installations are potential trip hazards. See Supplemental Photographs #13, 14**
- **Grade between sidewalk and curb & gutter to eliminate ponding water and the consequential damage to the base and bearing materials under the adjacent components. See Supplemental Photographs #8, 25**
- **Remove or properly install pavers installed on property owned by the Association. See Supplemental Photographs #29.**
- **Correct defective grading that impounds water on property owned by the Association. Establish proper ground cover on property owned by the Association. See Supplemental Photographs #32, 44.**



LIST OF RECOMMENDED REPAIRS

5. Site Improvements - Miscellaneous

\$6,000 - 8,000

- **Streetlights.** Conduct a minor renovation project to address defects in the streetlights and the electrical services that serve the streetlight to enable the system to be kept in service until 2025. See Supplemental Photographs #16, 17, 20, 26, 39, 60.



- **Utilities.** Contact utility companies and request that they remove all loose-laid cables. See Supplemental Photographs #18.



- Make minor repairs/replacements to the fence at the stormwater collection/impound along the south property boundary in the southwest corner of the community. See Supplemental Photographs #31, 33, 49.



- Restore deteriorated paint finish on signs throughout the community. See Supplemental Photographs #4.



LIST OF RECOMMENDED REPAIRS

- Request those responsible for the fence installed along the east property boundary to remove the fence or to make needed repairs/replacements. See Supplemental Photographs #21.
- Request those responsible for the stormwater management facility to properly identify the facility. See Supplemental Photographs #59.
- Repair damaged mailbox. See Supplemental Photographs #41.



TOTAL COST OF RECOMMENDED REPAIRS

\$24,000 to \$36,000

NOTE: Defects that are potential safety hazards should be repaired immediately to prevent personal injury and to protect the Association from potential liability. We have identified safety hazards in the above List of Recommend Repairs by printing them in **bold**.



Photo #1. Start of photographs taken on March 11, 2014. Property identification signage at the Granite Creek Lane entrance to the community.



Photo #2. Detailed view of property identification signage.



Photo #3. Asphalt pavement and concrete apron at the intersection of Granite Creek Lane and Flagpole Lane.



Photo #4. Typical faded signage.



Photo #5. Typical depressed pavement and concrete curb & gutter may indicate damage to base materials and bearing soils beneath the asphalt pavement.



Photo #6. Displaced sidewalk and defective grading impounds water and silt on the concrete pavement, Granite Creek Lane.



Photo #7. Typical alligatored asphalt pavement, Granite Creek Lane.



Photo #8. Defective grading between sidewalk and curb & gutter impounds water. Note displaced sidewalk, Granite Creek Lane.



Photo #9. Failed pavement adjacent to utility access point, Granite Creek Lane



Photo #10. Severely alligatored asphalt pavement, Granite Creek Lane.



Photo #11. Crack sealing of alligatored pavement, typical.



Photo #12. Standing water on asphalt pavement, Granite Creek Lane.



Photo #13. Defective grading between sidewalk and curb & gutter, Granite Creek Lane.



Photo #14. Improperly installed utility access points are potential trip hazards and may indicate that water services are not installed at the proper depth.



Photo #15. Height differences between sidewalks and lead walks are assumed to be the responsibility of the individual unit owners.



Photo #16. Older (original?) streetlight fixture.



Photo #17. Newer (replacement?) streetlight fixtures.



Photo #18. Utility companies have loose-laid wiring on sidewalk, Granite Creek Lane.



Photo #19. Typical depressed pavement and concrete curb & gutter may indicate damage to base materials and bearing soils beneath the asphalt pavement.



Photo #20. Common electrical service.



Photo #21. Fence installed along the east property boundary.



Photo #22. Limited wood fence installations at end unit, Granite Creek Lane



Photo #23. Wood stockade fence installed along the south property boundary.



Photo #24. Timber wall connects sidewalk common sidewalks to the adjacent community.



Photo #25. Defective grading between sidewalk and curb & gutter, Silverstone Court.



Photo #26. Crooked light fixture at the Silverstone Court entrance to the community.



Photo #27. Alligatored asphalt pavement, Silverstone Court.



Photo #28. Displaced sidewalk, Silverstone Court.



Photo #29. Limited paver installation at Silverstone Court leads to open space surrounding the stormwater impound facility.



Photo #30. General view of the stormwater impound facility in the southwest corner of the community.



Photo #31. Fence around the stormwater impound facility. Note that fence in foreground has been recently installed and other fence sections are much older.



Photo #32. Typical common property without proper ground cover.



Photo #33. Stormwater fence is captured in the tree.



Photo #34. Signage at the impound facility.



Photo #35. General view of Graystone Court.



Photo #36. Displaced curb & gutter at stormwater inlet, Graystone Court.



Photo #37. Alligatored asphalt pavement, Graystone Court.



Photo #38. Property identification signage at the intersection of Flagpole Lane and White Granite Drive.

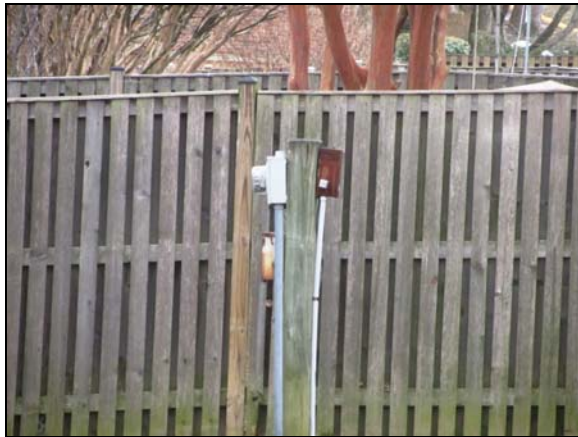


Photo #39. Electrical service between Graystone Court and Silverstone Drive.



Photo #40. Typical mailbox installation.



Photo #41. Start of photographs taken on March 31, 2014. Mailbox installation, Graystone Court. Note missing box door.



Photo #42. Typical depressed pavement and concrete curb & gutter may indicate damage to base materials and bearing soils beneath the asphalt pavement.



Photo #43. Typical depressed pavement and concrete curb & gutter may indicate damage to base materials and bearing soils beneath the asphalt pavement.



Photo #44. Standing water in open space between Graystone Court and Silverstone Court.



Photo #45. Alligatored asphalt pavement, Silverstone Court.



Photo #46. Defective grading and displaced sidewalk segments impound water and silt on the pavement, typical.



Photo #47. Typical failed pavement at utility access point.



Photo #48. Typical alligatored asphalt pavement.



Photo #49. Rusty fence at stormwater impound facility.



Photo #50. Typical depressed pavement and concrete curb & gutter may indicate damage to base materials and bearing soils beneath the asphalt pavement.



Photo #51. Typical open crack in asphalt pavement. Note failed crack seal.



Photo #52. Typical deteriorated and alligatored asphalt pavement.



Photo #53. Displaced curb & gutter, typical.



Photo #54. Displaced sidewalk is a trip hazard, typical.



Photo #55. Defective grading and displaced sidewalk segments impound water and silt on the pavement, typical.



Photo #56. Defective utility access point impounds water, Granite Creek Lane.



Photo #57. General view of the east end of Granite Creek Lane.



Photo #58. Trickle ditches in the stormwater impound facility.



Photo #59. Stormwater impound does not have a "Facility ID".



Photo #60. Detailed view of the electrical service between Graystone Court and Silverstone Court.

REPLACEMENT RESERVE STUDY APPENDIX

1. COMMON INTEREST DEVELOPMENTS - AN OVERVIEW

Over the past 30 years, the responsibility for community facilities and infrastructure around many of our homes has shifted from the local government and private sector to Community Associations. Thirty years ago, a typical new town house abutted a public street on the front and a public alley on the rear. Open space was provided by a nearby public park and recreational facilities were purchased ala carte from privately owned country clubs, swim clubs, tennis clubs, and gymnasiums. Today, 60% of all new residential construction - townhouses, single family homes, condominiums, and cooperatives - is in Common Interest Developments (CID). In a CID, a homeowner is bound to a Community Association that owns, maintains, and is responsible for periodic replacements of the roads, curbs, sidewalks, playgrounds, street lights, recreational facilities, and other community facilities and infrastructure.

The growth of Community Associations has been explosive. In 1965 there were only 500 Community Associations in the United States. According to the U.S. Census, there were 130,000 Community Associations in 1990. Community Associations Institute (CAI), a national trade association, estimates there were more than 200,000 Community Associations in 2000, and the majority of new construction throughout the country is in CIDs.

The shift of responsibility for billions of dollars of community facilities and infrastructure from the local government and private sector to Community Associations has generated new and unanticipated problems. Although Community Associations have succeeded in solving many short term problems, many Associations have failed to properly plan for the tremendous expenses of replacing community facilities and infrastructure components with limited life. When inadequate funding results in less than timely replacements of failing components, homeowners are exposed to the burden of special assessments, major increases in Association fees, and a decline in property values.

2. REPLACEMENT RESERVE STUDY - RSTUDY+

The financial planning tool designed to provide an Association with the information to plan for the expenses of replacing community facilities and infrastructure components with limited life is a Replacement Reserve Study.

This Replacement Reserve Study format is called RSTUDY+. It is intended to provide an Association with the most effective financial planning tool available. RSTUDY+ consists of the following components:

- **Replacement Reserve Report.** The *Report* contains a summary the financial data calculated by the enclosed *Replacement Reserve Analysis*, a general description of the community, a summary of the conditions observed during our site evaluation, and information about the *Replacement Reserve Inventory*.

REPLACEMENT RESERVE STUDY APPENDIX

- **Replacement Reserve Analysis.** The *Analysis* is a tabular and graphical presentation of current Association funding and the Cash Flow and Component Method Replacement Reserve Funding calculations.
- **Replacement Reserve Inventory.** The *Inventory* lists the common components of the community evaluated by the *Replacement Reserve Analysis*, and includes estimated replacement costs, normal economic life and the remaining economic life for each component evaluated.
- **List of Recommended Repairs.** The *Repair List* itemizes defects we observed during our site evaluation. The recommended repairs are categorized by building trade and include an estimated cost.
- **Photographs and a Log of Photographs.** The photographs document observations made during the site evaluation.
- **Appendix.** This Appendix contains general information, definitions, and standard procedures.

The intent of the RSTUDY+ Replacement Reserve Study is to provide the Association with an inventory of the common components of the community, a general view of the condition of these components, and an effective financial planning tool to address the costs associated with the replacement of community facilities and infrastructure components with limited life.

- **Inventory of commonly owned components.** The *Replacement Reserve Inventory* lists the common components of the community which we have scheduled for replacement from the Replacement Reserves. Section D of the *Replacement Reserve Report* provides information about the basis of the *Replacement Reserve Inventory* and the components excluded from the Inventory.
- **Condition of common components.** The *Replacement Reserve Inventory* includes our estimates of the normal economic life and the remaining economic life. Section C of the *Replacement Reserve Report* provides additional information on several of these components including recommendations for maintenance and replacements.
- **Financial Plan.** Because many of the components owned by the Association have limited life and will require periodic replacement, it is essential the Association have an effective financial plan to provide for the timely replacement of these components, to protect the appearance and value of the community. In conformance with American Institute of Certified Public Accountant guidelines, the *Replacement Reserve Analysis* has calculated the minimum recommended contribution to Replacement Reserves by both the Cash Flow Method and the Component Method. The *Analysis* includes a graphic presentation of these methods and the Association current funding.

REPLACEMENT RESERVE STUDY APPENDIX

3. REPLACEMENT RESERVE INVENTORY

The work on a Replacement Reserve Study starts with the development of the Replacement Reserve Inventory. In theory, the Inventory is a detailed listing of each and every component that requires replacement, for which the Association is responsible. In function, the Inventory only includes components whose replacement will be funded from Replacement Reserves. Replacement of components not included in the Inventory should be funded from sources other than Replacement Reserves.

Identification of Reserve Components. The Reserve Analyst has only two methods of identifying Reserve Components, information provided by the Association and observations made at the site. It is important that the Reserve Analyst be provided with all available information detailing the components owned by the Association. It is our policy to request such information prior to bidding on a project and to meet with the individuals responsible for maintaining the community after acceptance of our proposal. After completion of the Study, the Study should be reviewed by the Board of Directors, individuals responsible for maintaining the community, and the Associations accounting professionals. We are dependent upon the Association for correct information, documentation, and drawings.

Exclusion of Reserve Components. Every effort has been made to identify all common components, which should be reasonably considered for inclusion in the Replacement Reserve Inventory. This may result in the inclusion of some components in the Inventory that may reasonably be deleted. We will make such deletions at the direction of the Board of Directors. The Board of Directors should understand that future replacement of the deleted components should be funded from sources other than the Replacement Reserves. Generally, three kinds of components are excluded from the Inventory:

- Small components. For ease of administration, relatively low cost components are normally funded from the annual operating budget rather than making disbursements from Replacement Reserves. An obvious example is a light bulb, but examples might also include benches, trash cans, or miscellaneous signage. Our policy is to assume the use of operating funds for replacement of any component with a replacement cost less than \$1,000, unless requested otherwise by the Association.
- Long lasting components. Some Inventories include components with estimated economic lives exceeding 40 years. Some analysts would omit these components from the schedule entirely on the basis that the economic life of these components approaches the property as a whole. We recommend these components remain in the Inventory because deletion would expose the Association to the potential of a large unfunded liability should the replacements be needed at some time in the future. An example of this type of component is a swimming pool shell.
- Components incorrectly included. In an effort to include all reserve components which could reasonably be considered as "common," it is possible some components have been incorrectly included.

REPLACEMENT RESERVE STUDY APPENDIX

Estimating. The final step in the development of the Inventory is the estimation of replacement costs, normal economic life, and remaining economic life for each component listed in the Inventory. In addition to observations made during the site evaluation, government standards, published estimating manuals, our experience with similar properties, and engineering judgment is used to develop these estimates.

4. REPLACEMENT RESERVE ANALYSIS

A Replacement Reserve Analysis is the financial evaluation portion of a Replacement Reserve Study. The enclosed Replacement Reserve Analysis calculates the minimum Recommended Annual Deposit to Reserves by two different methods, the *Component Method* and the *Cash Flow Method*. We recommended the Board of Directors discuss with their accounting professional, which method is more suitable for use by the Association.

- **Component Analysis.** We first calculate a Current Objective, which is the reserve amount that would have been accumulated by now had all of the components on the schedule been included from initial construction at their current replacement costs. We then distribute the actual reserves on hand, as reported by the Association, to the components on the schedule in proportion to the current objective figures. The annual deposit for each component is equal to the difference between the replacement cost and the reserves on hand, divided by the years of life remaining. The analysis is then repeated for as many future years as are covered by the study, assuming that replacements occur as forecasted. The Component Analysis ensures a regular buildup of reserves for every component on the schedule, but usually results in an annual contribution higher than that calculated by the Cash Flow Method.
- **Cash Flow Analysis.** We first determine a recommended Minimum Recommended Reserve Funding Level (defined below). We then distribute the estimated replacement costs for the next 50 years to the future years in which they are projected to occur, and calculate the minimum constant yearly contribution to the reserves necessary to keep the reserves on hand above the minimum reserve level. The Cash Flow Method assumes that the Association has the authority to use all of the reserves on hand for replacements as the need actually occurs. The Cash Flow calculated for annual contribution is normally somewhat less than that developed by the Component Method.

Interest and Inflation - Adjusted Component and Adjusted Cash Flow Analysis. It is possible to modify the Replacement Reserve Analysis to include inflation and interest calculations. Attempting to forecast future inflation and interest rates and the impact of changing technology is highly tenuous and we recommend that the Analysis be updated periodically, rather than attempt to project far into the future. We do, however, have the capability to produce an Adjusted Analysis. The inflation and interest rates used must be specified by the Association. We will provide more information on this type of analysis upon your request.

REPLACEMENT RESERVE STUDY APPENDIX

Repair and maintenance. The Replacement Reserve Analysis addresses replacements only, not repairs or maintenance. If we develop a repair list, the life left is based on the recommended repairs being accomplished within one year of the study.

Revisions. Revisions will be made to the Replacement Reserve Analysis in accordance with the written instructions of the Board of Directors. There is no fee for the first revision, if requested in writing within three months of the date of the Study.

Updating. We recommend the Replacement Reserve Analysis be updated annually, by the Board of Directors, to identify replacements which have actually occurred, the cost of actual replacements, and current Reserves on Deposit.

The Analysis should also be updated annually with information on current construction costs and changes in building technology. This update should be performed by independent, qualified individuals, experienced in the process of updating a Replacement Reserve Analysis. Updating an Analysis after a major replacement is made usually results in a significant reduction in the Minimum Recommended Annual Contribution to Replacement Reserves as calculated by the Component Method.

We also recommend the Board of Directors commission a new Analysis every three to five years. This analysis should be performed by independent, qualified individuals, experienced in the process of developing a Replacement Reserve Analysis.

5. LIST OF RECOMMENDED REPAIRS

List of Recommended Repairs. The List of Recommended Repairs identifies defects observed during the site evaluation. The repairs required to correct these defects are listed by trade and include the estimated cost of the repair.

Remaining Economic Life. The "Remaining Economic Life" listed for each component in the Inventory assumes that all repairs will be completed within the next 12 months, unless specifically stated otherwise. Failure to make timely repairs may result in significant inaccuracies in the Analyses.

Repair Funding. The Replacement Reserve Analysis assumes the costs of the repairs listed in the List of Recommended Repairs will NOT be funded from the Replacement Reserves. If the Association intends to fund these repairs from Replacement Reserves, the Analysis should be adjusted with the Replacement Reserves reduced by the funding used for the repairs.

Trade Grouping. Repairs are grouped by trade and cost estimates assume that all work by a given trade will be done together as a single project. If repairs are done piecemeal, the costs would be significantly higher.

REPLACEMENT RESERVE STUDY APPENDIX

Completion of Repairs. The Replacement Reserve Analysis assumes that all repairs will be completed within the next twelve months unless stated otherwise in the Study. Deletion of certain repairs or delays in the completion of the repairs may result in major inaccuracies in the Replacement Reserve Analysis.

Estimated Costs. We used standard estimating manuals. Contractor proposals or actual cost experience may be available to the Association. We will adjust the Inventory to conform to your proposals upon the written request of the Board of Directors.

Safety Issues. Should be given the highest priority and repairs done immediately.

Replacement Criteria for frequently observed defects:

- Concrete pavement:
 1. Tripping hazard (0.5" or more height difference)
 2. Severe cracking (numerous or over 1/8 inch wide)
 3. Severe spalling
 4. Uneven riser heights on steps
 5. Steps with risers in excess of 8.25"

- Asphalt pavement:
 1. Large cracks, settled or heaved areas. In relatively isolated areas, these should be patched by removing the affected asphalt, inspecting and repairing the substrate, and pouring a new top coat. If extensive (more than 60% of the pavement affected), it is probably more economical to replace the entire section. This situation would be the basis for an early projected replacement in the Replacement Reserve Schedule.
 2. Minor cracking. These cracks should be cleaned of debris and plant growth and then filled with an appropriate sealing compound to prevent water infiltration through the asphalt into the base. This repair should be done now and then on a yearly basis. Note that this is a different process from seal coating discussed below.
 3. Crankcase oil. Long term exposure to oil or gasoline breaks down asphalt. Spill areas should be cleaned, or if deterioration has penetrated the asphalt, patched.
 4. Seal coating. Seal coating should be done every three to five years. To be effective in extending the life of the asphalt, the repairs described above need to be done first. Seal coating is a maintenance item and is not normally included in the Replacement Reserve Inventory or on the List of Recommended Repairs.

- Roofing:
 1. Missing, badly worn or limited life shingles or surfaces
 2. Deteriorated fire resistant treated (FRT) sheathing
 3. Inadequate attic ventilation and insulation
 4. Problem gutters, roof drains and downspouts

REPLACEMENT RESERVE STUDY APPENDIX

6. DEFINITIONS

Complete Cycle - Years. (Interval Replacement only) The number of years after Initial Replacement required to achieve 100% replacement.

Current Objective. As of the study date, the dollars that would have been accumulated in the designated account of a component, had that component been included in the Replacement Reserve Inventory from the time of construction at the current replacement cost. Calculation:

$$\text{Total Replacement Cost} \times [\text{Normal Economic Life} - \text{Remaining Economic Life}]$$

Note that all three elements of this calculation are estimated.

The Total Current Objective is the sum of the current objectives for each component included in the Inventory and would be the Association's Replacement Reserve if they were fully funded by the Component Method.

Initial Replacement - Years. (Interval Replacement only) Estimated number of years until the replacement cycle is expected to begin.

Interval Replacement Component. An Interval Replacement Component is not replaced as a whole, but portions of the component are replaced at intervals.

Minimum Recommended Annual Contribution to Replacement Reserves. The requirement for annual contribution to reserves calculated by both the Component and Cash Flow Method.

Minimum Recommended Reserve Funding Level (Cash Flow Analysis only). The Cash Flow Analysis calculates a Minimum Recommended Annual Contribution to Replacement Reserves that will, based upon the Inventory, prevent Reserves from dropping below this prescribed level. This value is established as a percentage of the Estimated Value of All Reserves Components included in this Analysis by the Reserve Consultant, based on the conditions of the community and considering the effects of a high cost component having a shorter than estimated Remaining Economic Life.

Normal Economic Life. Estimated number of years that a new component should last until it has to be replaced.

Normal Replacement Component. A component of the property that, after an expected economic life, is replaced in its entirety.

Number of Years of the Study. In the Component and Cash Flow Methods, number of years into the future for which expenditures are projected and reserve levels calculated. This number should be large enough to include the projected replacement of every component on the schedule at least once. The RSTUDY+ Analysis projects data over a 50 year period. The graphical presentation includes the first 30 years of this data.

REPLACEMENT RESERVE STUDY APPENDIX

Remaining Economic Life. Estimated number of years from the Study Year until the component is expected to require replacement. In theory, this should be the difference between the Normal Economic Life and the age of the component. It may vary because of maintenance practices, solar orientation, technological development, regulatory action, acts of God, or other reasons.

Replacement Reserves Reported to be on Deposit. Amount of accumulated reserves available to the Association.

Replacement Reserve Study. An analysis of the components of the common property of the Association for which a need for replacement should be anticipated within the economic life of the property as a whole. The analysis involves estimation for each component of its replacement cost, economic life, and life remaining. The objective of the study is to calculate a recommended annual contribution to the Association's Replacement Reserves.

Total Replacement Cost. Total of the Estimated Replacement Costs for all components on the schedule.

Transition Year. In the cash flow analysis, a year in which the reserves on hand are projected to fall to the Minimum Recommended Replacement Reserve Funding Level.

Unit Cost. Estimated replacement cost for a single unit of a given component on the schedule. We use standard estimating manuals and judgement.

Unit of Measure. We use the following abbreviations:

EA: each LF: lineal feet LS: lump sum SF: square feet

REPLACEMENT RESERVE ALLOCATION

FLINT HILL MANOR
April 10, 2014
CASH FLOW METHOD - THREE YEAR ALLOCATION OF REPLACEMENT RESERVES

Item #	Component	Estimated Replacement Cost	Allocation of Reserves on Deposit	2015			2016			2017		
				Deposits	Expenses	Year End Balance	Deposits	Expenses	Year End Balance	Deposits	Expenses	Year End Balance
NORMAL COMPONENTS												
ASPHALT PAVEMENT												
1	Asphalt pavement - Graystone C	17,560	7,771	9,789	(17,560)							
2	Asphalt pavement - Silverstone C	12,367	5,473	6,894	(12,367)							
3	Asphalt pavement - Granite Cree	61,013	27,002	34,011	(61,013)							
4	Pavement sealcoat (initial cycle)	10,815		10,815		10,815			10,815			10,815
5	Pavement sealcoat (mid cycle)	11,798		5,861		5,861	5,936		11,798			11,798
6	Pavement sealcoat (final cycle)	13,764										
CONCRETE COMPONENTS												
7	Concrete sidewalks - 10%	9,214	4,078	5,136	(9,214)							
8	Concrete sidewalks - 15%	13,821										
9	Concrete sidewalks - 20%	18,428										
10	Concrete sidewalks - 25%	23,035										
11	Concrete sidewalks - 30%	27,642										
12	Concrete curb & gutter - 10%	10,778	4,770	6,008	(10,778)							
13	Concrete curb & gutter - 15%	21,556										
14	Concrete curb & gutter - 20%	43,112										
15	Concrete curb & gutter - 25%	64,668										
16	Concrete curb & gutter - 30%	75,446										
GENERAL SITE IMPROVEME												
17	Fence at stormwater impound	3,500		3,500		3,500			3,500		(3,500)	3,500
18	Fence at stormwater impound	3,500		3,500		3,500			3,500			3,500
19	Fence at stormwater impound	3,500										
20	Streetlights (& electric services)	28,000					6,638		6,638	12,575		19,213

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REPLACEMENT RESERVE ALLOCATION**FLINT HILL MANOR****April 10, 2014****COMPONENT METHOD - THREE YEAR ALLOCATION OF REPLACEMENT RESERVES**

Item #	Component	Estimated Replacement Cost	Allocation of Reserves on Deposit	2015			2016			2017		
				Deposits	Expenses	Year End Balance	Deposits	Expenses	Year End Balance	Deposits	Expenses	Year End Balance
NORMAL COMPONENTS												
ASPHALT PAVEMENT												
1	Asphalt pavement - Graystone C	17,560	3,199	14,361	(17,560)		1,098		1,098	1,098		2,195
2	Asphalt pavement - Silverstone C	12,367	2,253	10,114	(12,367)		773		773	773		1,546
3	Asphalt pavement - Granite Cree	61,013	11,114	49,899	(61,013)		3,813		3,813	3,813		7,627
4	Pavement sealcoat (initial cycle)	10,815	1,354	1,892		3,246	1,892		5,138	1,892		7,030
5	Pavement sealcoat (mid cycle)	11,798	940	1,206		2,147	1,206		3,353	1,206		4,559
6	Pavement sealcoat (final cycle)	13,764	470	1,023		1,493	1,023		2,515	1,023		3,538
CONCRETE COMPONENTS												
7	Concrete sidewalks - 10%	9,214	1,678	7,536	(9,214)		115		115	115		230
8	Concrete sidewalks - 15%	13,821	1,983	696		2,679	696		3,375	696		4,072
9	Concrete sidewalks - 20%	18,428	1,972	499		2,471	499		2,969	499		3,468
10	Concrete sidewalks - 25%	23,035	1,626	437		2,063	437		2,500	437		2,937
11	Concrete sidewalks - 30%	27,642	944	411		1,355	411		1,766	411		2,176
12	Concrete curb & gutter - 10%	10,778	1,963	8,815	(10,778)		135		135	135		269
13	Concrete curb & gutter - 15%	21,556	3,092	1,086		4,178	1,086		5,264	1,086		6,351
14	Concrete curb & gutter - 20%	43,112	4,614	1,167		5,780	1,167		6,947	1,167		8,114
15	Concrete curb & gutter - 25%	64,668	4,565	1,227		5,791	1,227		7,018	1,227		8,244
16	Concrete curb & gutter - 30%	75,446	2,577	1,121		3,698	1,121		4,819	1,121		5,940
GENERAL SITE IMPROVEME												
17	Fence at stormwater impound	3,500	542	986		1,528	986		2,514	986	(3,500)	
18	Fence at stormwater impound	3,500	414	441		855	441		1,296	441		1,737
19	Fence at stormwater impound	3,500	96	200		296	200		496	200		696
20	Streetlights (& electric services)	28,000	3,698	2,209		5,907	2,209		8,116	2,209		10,326

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