

# LEVEL 2 REPLACEMENT RESERVE REPORT FY 2022 CHARLESTOWNE VILLAGE



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CHARLESTOWNE VILLAGE

Community Management by:

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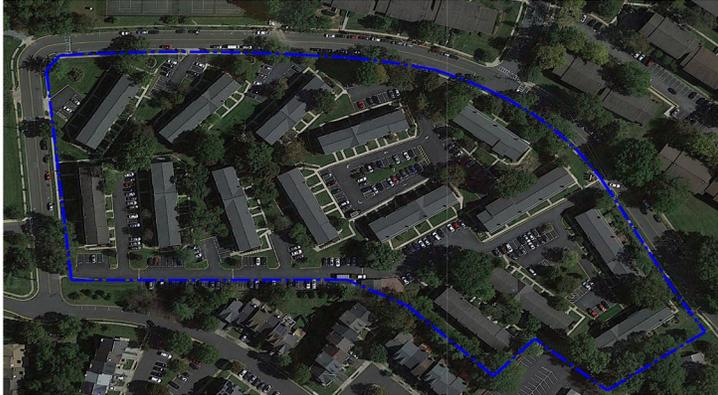
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# REPLACEMENT RESERVE REPORT

## CHARLESTOWNE VILLAGE

GREENBELT, MARYLAND

December 28, 2021



**Description.** Charlestowne Village is a Residential Condominium located in Greenbelt, Maryland. Constructed in 1964, the community consists of 15 buildings containing 165 units. The survey examined the common elements of the property, including:

- Entry Monument, Townhouse Roads, and Parking
- Sidewalks, Curbs, and Steps
- Fencing, Railing, Site Lighting, Retaining Walls, and Trash Corrals
- Underground Waterlines and Sanitary Lines
- Storm Water Management
- Tot Lot and Picnic Area
- Building Exteriors: Balconies, Roofing, Bay Windows, and Trim
- Laundry and Storage Rooms

### EXECUTIVE SUMMARY

This Reserve Study has been prepared for the Charlestowne Village for the Fiscal Year 2022 covering the period from January 1, 2022 to December 31, 2022. The Replacement Reserves Starting Balance as of January 1, 2022 are proposed to be \$608,000. The reported Current Annual Funding for Reserves is \$127,000. The Recommended Annual Reserve Funding level for 2022 is \$81,457.

Two versions of this report have been prepared in order to provide alternative approaches for the Association to consider regarding replacement reserve funding for Item #57, Concrete Balcony. In this Report, the repair/replacement of the concrete balconies is included as a 6% replacement item over an assumed 60-year Net Economic Life for the balcony structures. In the 'Balcony Scenario' Report, the

*(Continued Next Page)*

### Analyst Overview

### Section 1

#### Charlestowne Village

Replacement Reserve Analysis – A.1  
Replacement Reserve Inventory – B.1  
Projected Annual Replacements – C.1  
Condition Assessment – D.1

### Section 2

#### Balcony Scenario

Replacement Reserve Analysis – A1.1  
Replacement Reserve Inventory – B1.1  
Projected Annual Replacements – C1.1  
Condition Assessment – D1.1

### Appendix

Overview, Standard Terms, and Definitions  
Video Answers to Frequently Asked Questions

repair/replacement of all concrete balconies is assumed to occur within the projected 15-year Remaining Economic Life of the balcony structures. It is noted that there is a significant difference in the Recommended Replacement Reserve Funding between these two approaches. Other than the alternative approaches to funding for Item #57, the two Reports are the same.

The Report also includes a 'Code Compliance Condition' Statement at the end of Section D, Condition Assessment. Although the code compliance of various building systems and components is not considered part of this replacement reserve study, certain observed conditions of concern have been included for the benefit of the Association.

MillerDodson welcomes the opportunity to answer questions or to discuss this Reserve Study in more detail should the Board so desire.

**Current Funding.** The Starting Balance and Current Annual Reserve Funding figures have been supplied by the managing agent and/or Board of Directors. Confirmation or audit of these figures is beyond the scope of the study. For the purposes of this study, it is assumed that the annual contribution will be deposited at the end of each month.

**Level of Service.** This study has been performed as a Level 2 Update with Site Visit/On-Site Review as defined by the Community Associations Institute's, National Reserve Study Standards. As such, the component inventory is based on the study that was performed by Miller+Dodson in 2018. This inventory was adjusted to reflect changes provided by the Community Manager and/or the Board of Directors, or adjustments made based on the site visit and visual assessment performed by the Analyst. The analysis, including fund status and funding plan, is developed from the adjusted inventory.

To aid in the understanding of this report and its concepts and practices, on our web site, we have developed [videos](#) addressing frequently asked topics. In addition, there are posted [links](#) covering a variety of subjects under the resources page of our web site at [mdareserves.com](http://mdareserves.com).

**Purpose.** The purpose of this Replacement Reserve Study is to provide Charlestowne Village (hereinafter called the Association) with an inventory of the common community facilities and infrastructure components that require periodic replacement. The Study includes a general view of the condition of these items and an effective financial plan to fund projected periodic replacements.

- **Inventory of Items Owned by the Association.** Section B lists the Projected Replacements of the commonly owned items that require periodic replacement using funding from Replacement Reserves. The Replacement Reserve Inventory also provides information about excluded items, which are items whose replacements are not scheduled for funding from Replacement Reserves.
- **Condition of Items Owned by the Association.** Section B includes our estimates of the normal economic life and the remaining economic life for the projected replacements. Section C provides a year-by-year listing of the projected replacements. Section D provides additional detail for items that are unique or deserving of attention because of their condition or the manner in which they have been treated in this study.
- **Financial Plan.** The Association has a fiduciary responsibility to protect the appearance, value, and safety of the property and it is therefore essential the Association have a financial plan that provides funding for the projected replacements. In conformance with American Institute of Certified Public Accountant guidelines, Section A, Replacement Reserve Analysis evaluates the current funding of Replacement Reserves as reported by the Association and recommends annual funding of Replacement Reserves by the Cash Flow Method. Section A, Replacement Reserve Analysis includes graphic and tabular presentations of the reported current funding and the recommended funding based on the Cash Flow Method. An Executive Summary of these calculations is provided on Page A1.

**Basis.** The data contained in this Replacement Reserve Study is based upon the following:

- The Request for Proposal submitted and executed by the Association.
- Miller+Dodson performed a visual evaluation on December 28, 2021 to determine a remaining useful life and replacement cost for the commonly owned elements of this facility.
- This study contains additional recommendations to address inflation for the Cash Flow Method only. For this recommendation, Miller+Dodson uses the Producers Price Index (PPI), which gauges inflation in manufacturing and construction. Please see page A5 for further details.

**To-Scale Drawings.** Site and building plans were not used in the development of this study. We recommend the Association assemble and maintain a library of site and building plans of the entire facility. Record drawings should be scanned into an electronic format for safe storage and ease of distribution. Upon request for a nominal fee, Miller+Dodson can provide scanning services.

**Acknowledgment.** Miller+Dodson Associates would like to acknowledge the assistance and input of Matt Mericle, CMCA, AMS, CVI who provided very helpful insight into the current operations of the property.

**Analyst's Credentials.** Mr. Michael J. Pellegrino, AICP, NCARB, is an architect with active registrations in the states of Kentucky, Maryland, Virginia, and Delaware, as well as a certified Urban Planner. As president of PAS Architecture, LLC, located in Southern Maryland, Mr. Pellegrino and has over 30 years of professional practice in architecture and planning, including commercial, religious, entertainment, and residential projects throughout the region. Mr. Pellegrino is a Reserve Analyst for Miller+Dodson Associates.

Respectfully Submitted,



*Michael Pellegrino*

Michael J. Pellegrino

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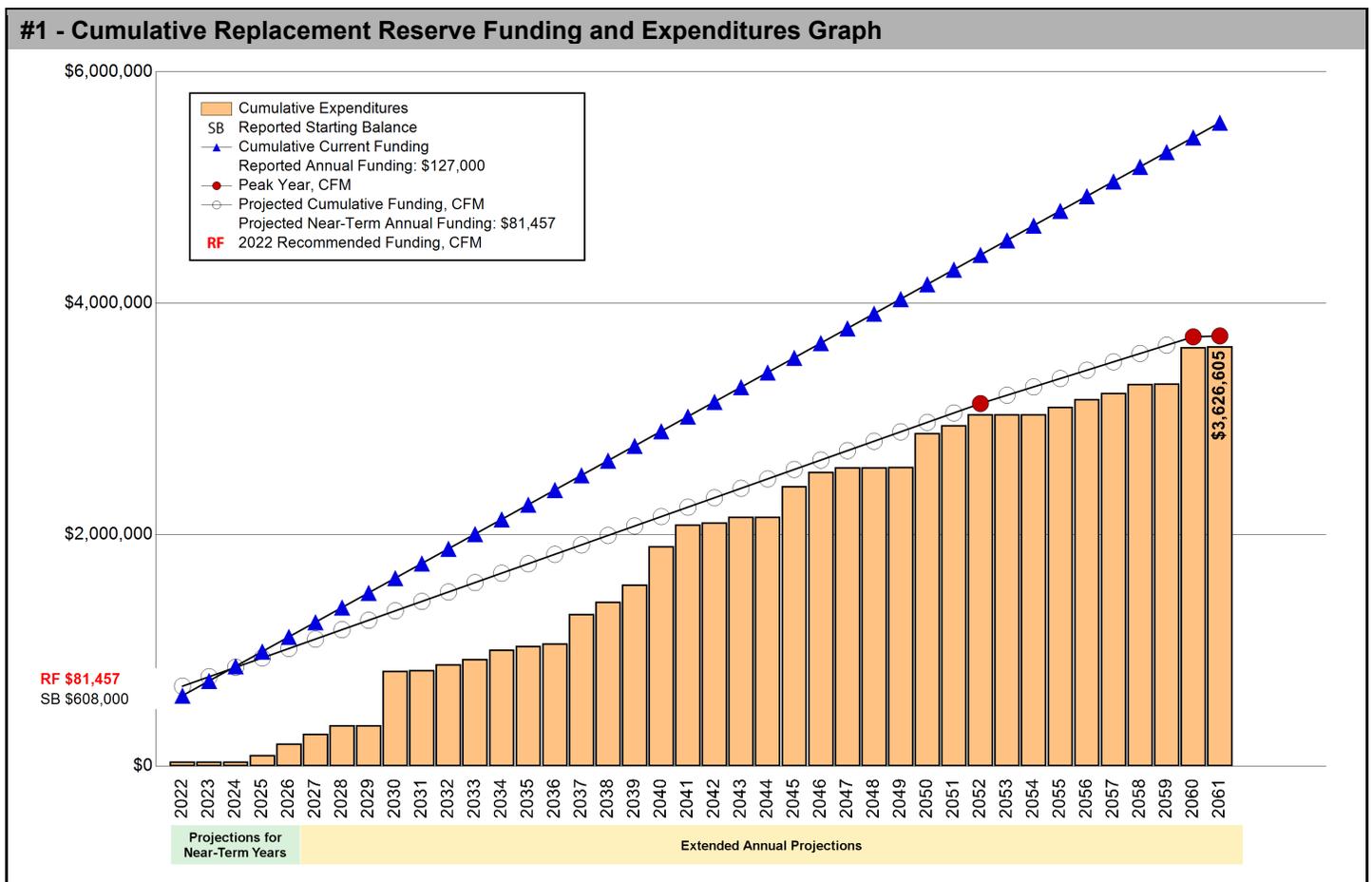
## SECTION A - FINANCIAL ANALYSIS

The Charlestowne Village Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 67 Projected Replacements identified in the Replacement Reserve Inventory.

**\$81,457** RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2022  
 \$41.14 Per unit (average), minimum monthly funding of Replacement Reserves

We recommend the Association adopt a Replacement Reserve Funding Plan based on the annual funding recommendation above. Inflation adjusted funding for subsequent years is shown on Page A.5.

Charlestowne Village reports a Starting Balance of \$608,000 and Annual Funding totaling \$127,000, which adequately funds projected replacements for the near-term years. See Page A.3 for a more detailed evaluation.



Two versions of this report have been prepared in order to provide alternative approaches for the Association to consider regarding replacement reserve funding for Item #57, Concrete Balcony. In this Report, the repair/replacement of the concrete balconies is included as a 6% replacement item over an assumed 60-year Net Economic Life for the balcony structures. In the 'Balcony Scenario' Report, the repair/replacement of all concrete balconies is assumed to occur within the projected 15-year Remaining Economic Life of the balcony structures. It is noted that there is a significant difference in the Recommended Replacement Reserve Funding between these two approaches. Other than the alternative approaches to funding for Item #57, the two Reports are the same.

The Report also includes a 'Code Compliance Condition' Statement at the end of Section D, Condition Assessment. Although the code compliance of various building systems and components is not considered part of this replacement reserve study, certain observed conditions of concern have been included for the benefit of the Association.

**REPLACEMENT RESERVE ANALYSIS - GENERAL INFORMATION**

The Charlestowne Village Replacement Reserve Analysis calculations of recommended funding of Replacement Reserves by the Cash Flow Method (CFM) and the evaluation of the Current Funding are based upon the same Study Year, Study Period, Beginning Balance, Replacement Reserve Inventory and Level of Service.

**2022 | STUDY YEAR**

The Association reports that their accounting year begins on January 1, and the Study Year, the first year evaluated by the Replacement Reserve Analysis, begins on January 1, 2022.

**40 Years | STUDY PERIOD**

The Replacement Reserve Analysis evaluates the funding of Replacement Reserves over a 40-year Study Period

**\$608,000 | STARTING BALANCE**

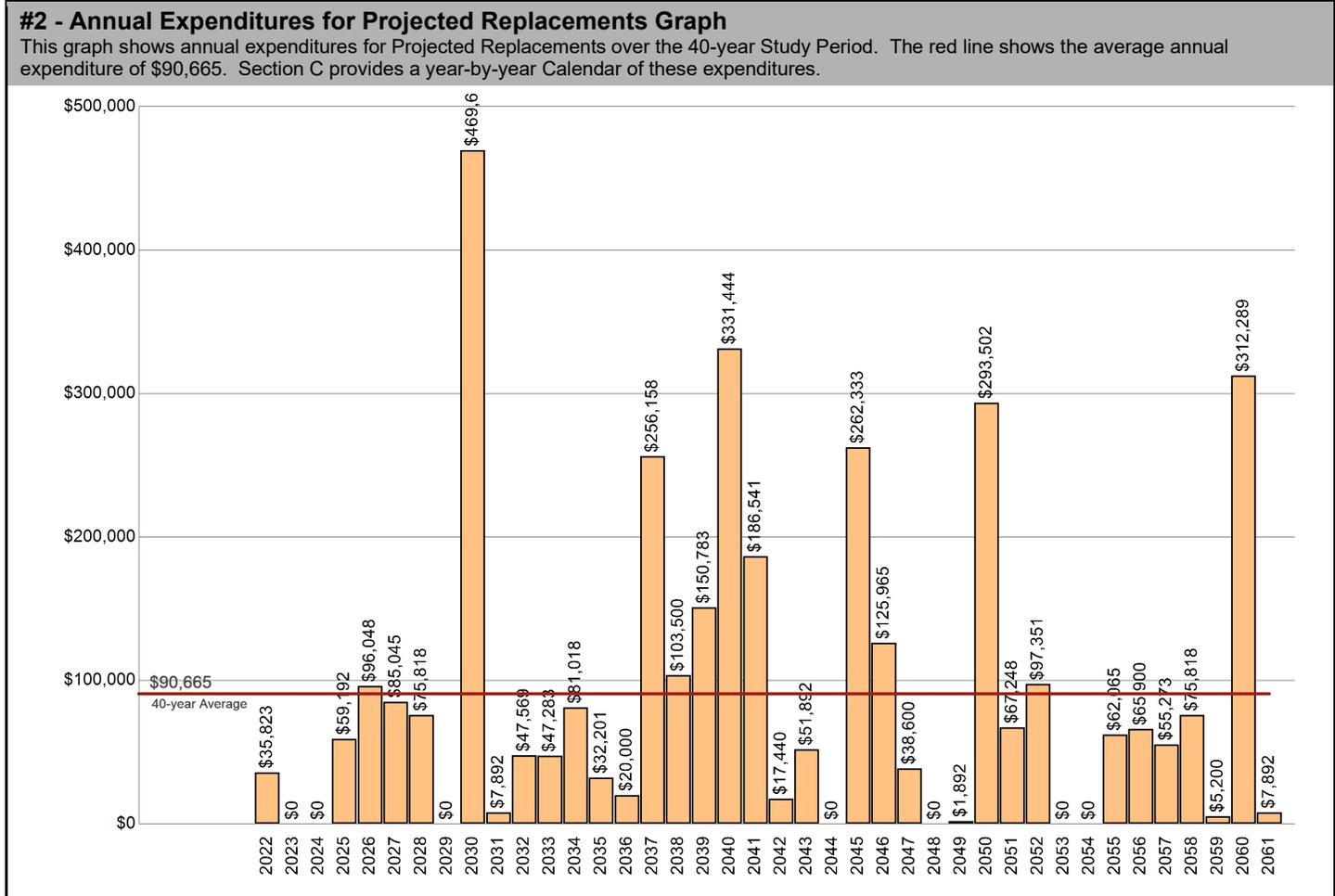
The Association reports Replacement Reserves on Deposit totaling \$608,000 at the start of the Study Year.

**Level Two | LEVEL OF SERVICE**

The Replacement Reserve Inventory has been developed in compliance with the National Reserve Study Standards for a Level Two Study, as defined by the Community Associations Institute (CAI).

**\$3,626,605 | REPLACEMENT RESERVE INVENTORY - PROJECTED REPLACEMENTS**

The Charlestowne Village Replacement Reserve Inventory identifies 67 items that will require periodic replacement, which are to be funded from Replacement Reserves. We estimate the cost of these replacements will be \$3,626,605 over the 40-year Study Period. The Projected Replacements are divided into 5 major categories starting on Page B.3. Pages B.1-B.2 provide detailed information on the Replacement Reserve Inventory.



**UPDATING OF THE FUNDING PLAN**

The Association has a responsibility to review the Funding Plan annually. The review should include a comparison and evaluation of actual reserve funding with recommended levels shown on Page A.4 and A.5. The Projected Replacements listed on Page C.2 should be compared with any replacements accomplished and funded from Replacement Reserves. Discrepancies should be evaluated and if necessary, the Reserve Study should be updated or a new study commissioned. We recommend annual increases in replacement reserve funding to account for the impact of inflation. Inflation Adjusted Funding is discussed on Page A.5.

**UPDATING OF THE REPLACEMENT RESERVE STUDY**

At a minimum, the Replacement Reserve Study should be professionally updated every three to five years or after completion of a major replacement project. Updating should also be considered if during the annual review of the Funding Plan, discrepancies are noted between projected and actual reserve funding or replacement costs. Updating may also be necessary if there is a meaningful discrepancy between the actual inflation rate and the inflation rate used for the Inflation Adjusted Funding of Replacement Reserves on Page A.5.

**ANNUAL EXPENDITURES AND CURRENT FUNDING**

The annual expenditures that comprise the \$3,626,605 of Projected Expenditures over the 40-year Study Period and the impact of the Association continuing to fund Replacement Reserves at the current level are detailed in Table 3.

<b>#3 - Table of Annual Expenditures and Current Funding Data - Years 1 through 40</b>										
Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Starting Balance	\$608,000									
Projected Replacements	(\$35,823)			(\$59,192)	(\$96,048)	(\$85,045)	(\$75,818)		(\$469,632)	(\$7,892)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$699,177	\$826,177	\$953,177	\$1,020,985	\$1,051,938	\$1,093,893	\$1,145,076	\$1,272,076	\$929,444	\$1,048,552
Cumulative Expenditures	(\$35,823)	(\$35,823)	(\$35,823)	(\$95,015)	(\$191,062)	(\$276,107)	(\$351,924)	(\$351,924)	(\$821,556)	(\$829,448)
Cumulative Receipts	\$735,000	\$862,000	\$989,000	\$1,116,000	\$1,243,000	\$1,370,000	\$1,497,000	\$1,624,000	\$1,751,000	\$1,878,000
Year	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Projected Replacements	(\$47,569)	(\$47,283)	(\$81,018)	(\$32,201)	(\$20,000)	(\$256,158)	(\$103,500)	(\$150,783)	(\$331,444)	(\$186,541)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$1,127,983	\$1,207,700	\$1,253,683	\$1,348,481	\$1,455,481	\$1,326,323	\$1,349,823	\$1,326,040	\$1,121,595	\$1,062,055
Cumulative Expenditures	(\$877,017)	(\$924,300)	(\$1,005,317)	(\$1,037,519)	(\$1,057,519)	(\$1,313,677)	(\$1,417,177)	(\$1,567,960)	(\$1,899,405)	(\$2,085,945)
Cumulative Receipts	\$2,005,000	\$2,132,000	\$2,259,000	\$2,386,000	\$2,513,000	\$2,640,000	\$2,767,000	\$2,894,000	\$3,021,000	\$3,148,000
Year	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Projected Replacements	(\$17,440)	(\$51,892)		(\$262,333)	(\$125,965)	(\$38,600)	(\$1,892)	(\$293,502)	(\$67,248)	
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$1,171,615	\$1,246,723	\$1,373,723	\$1,238,390	\$1,239,425	\$1,327,825	\$1,454,825	\$1,579,933	\$1,413,431	\$1,473,183
Cumulative Expenditures	(\$2,103,385)	(\$2,155,277)	(\$2,155,277)	(\$2,417,610)	(\$2,543,575)	(\$2,582,175)	(\$2,582,175)	(\$2,584,067)	(\$2,877,569)	(\$2,944,817)
Cumulative Receipts	\$3,275,000	\$3,402,000	\$3,529,000	\$3,656,000	\$3,783,000	\$3,910,000	\$4,037,000	\$4,164,000	\$4,291,000	\$4,418,000
Year	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061
Projected Replacements	(\$97,351)			(\$62,065)	(\$65,900)	(\$55,273)	(\$75,818)	(\$5,200)	(\$312,289)	(\$7,892)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$1,502,832	\$1,629,832	\$1,756,832	\$1,821,766	\$1,882,866	\$1,954,594	\$2,005,776	\$2,127,576	\$1,942,287	\$2,061,395
Cumulative Expenditures	(\$3,042,168)	(\$3,042,168)	(\$3,042,168)	(\$3,104,234)	(\$3,170,134)	(\$3,225,406)	(\$3,301,224)	(\$3,306,424)	(\$3,618,713)	(\$3,626,605)
Cumulative Receipts	\$4,545,000	\$4,672,000	\$4,799,000	\$4,926,000	\$5,053,000	\$5,180,000	\$5,307,000	\$5,434,000	\$5,561,000	\$5,688,000

**EVALUATION OF CURRENT FUNDING**

The evaluation of Current Funding (Starting Balance of \$608,000 & annual funding of \$127,000) is done in today's dollars with no adjustments for inflation or interest earned on Replacement Reserves. The evaluation assumes Replacement Reserves will only be used for the 67 Projected Replacements identified in the Replacement Reserve Inventory and that the Association will continue Annual Funding of \$127,000 throughout the 40-year Study Period.

Annual Funding of \$127,000 is approximately 156 percent of the \$81,457 recommended Annual Funding calculated by the Cash Flow Method for 2022, the Study Year.

See the Executive Summary for the Current Funding Statement.

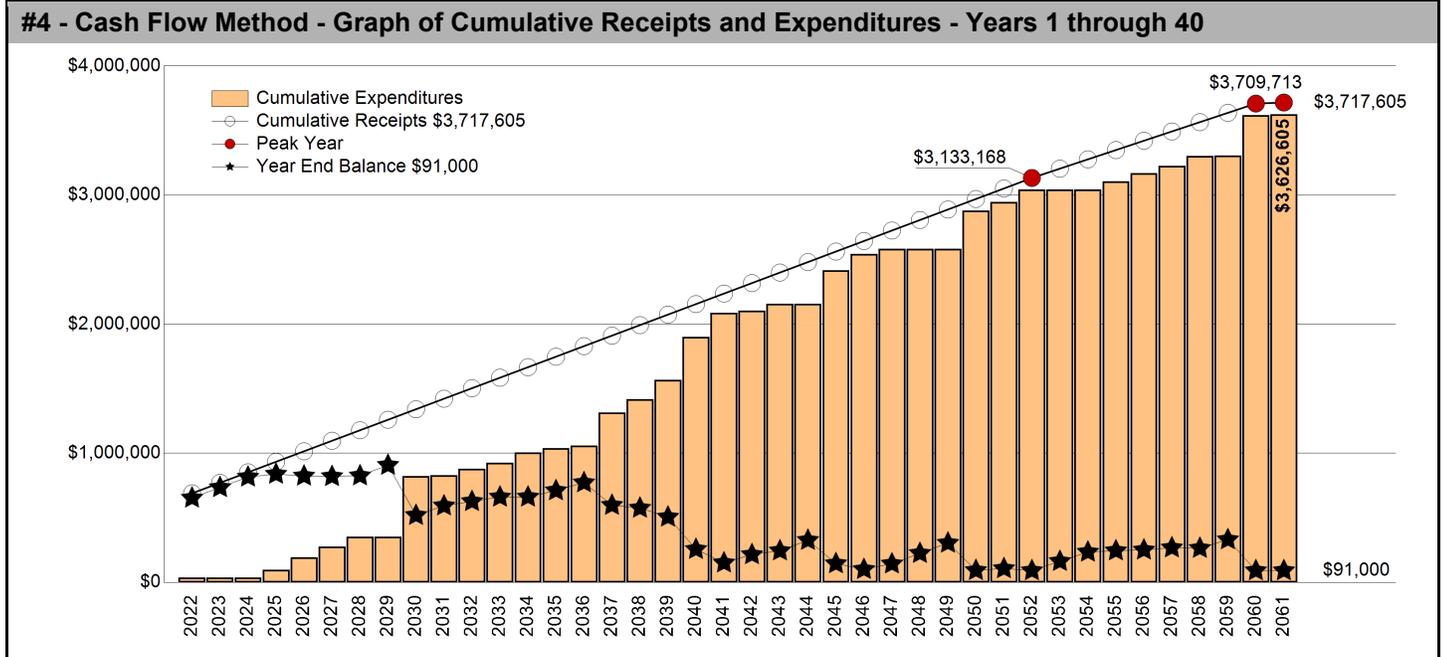
# CASH FLOW METHOD FUNDING

## \$81,457 RECOMMENDED REPLACEMENT RESERVE FUNDING FOR 2022

\$41.14 Per unit (average), minimum monthly funding of Replacement Reserves

Recommended Replacement Reserve Funding has been calculated using the Cash Flow Method (also called the Straight Line or Threshold Method). This method calculates a constant annual funding between peaks in cumulative expenditures, while maintaining a Minimum Balance (threshold) in the Peak Years.

- Peak Years.** The First Peak Year occurs in 2052 with Replacement Reserves on Deposit dropping to the Minimum Balance after the completion of \$3,042,168 of replacements from 2022 to 2052. Recommended funding is anticipated to decline in 2053. Peak Years are identified in Chart 4 and Table 5.
- Threshold (Minimum Balance).** The calculations assume a Minimum Balance of \$91,000 will always be held in reserve, which is calculated by rounding the 12-month 40-year average annual expenditure of \$90,665 as shown on Graph #2.
- Cash Flow Method Study Period.** Cash Flow Method calculates funding for \$3,626,605 of expenditures over the 40-year Study Period. It does not include funding for any projects beyond 2061 and in 2061, the end of year balance will always be the Minimum Balance.



Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Starting Balance	\$608,000									
Projected Replacements	(\$35,823)			(\$59,192)	(\$96,048)	(\$85,045)	(\$75,818)		(\$469,632)	(\$7,892)
Annual Deposit	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457
End of Year Balance	\$653,634	\$735,091	\$816,548	\$838,814	\$824,223	\$820,635	\$826,275	\$907,732	\$519,557	\$593,122
Cumulative Expenditures	(\$35,823)	(\$35,823)	(\$35,823)	(\$95,015)	(\$191,062)	(\$276,107)	(\$351,924)	(\$351,924)	(\$821,556)	(\$829,448)
Cumulative Receipts	\$689,457	\$770,914	\$852,371	\$933,828	\$1,015,285	\$1,096,742	\$1,178,199	\$1,259,656	\$1,341,113	\$1,422,570
Year	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Projected Replacements	(\$47,569)	(\$47,283)	(\$81,018)	(\$32,201)	(\$20,000)	(\$256,158)	(\$103,500)	(\$150,783)	(\$331,444)	(\$186,541)
Annual Deposit	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457
End of Year Balance	\$627,010	\$661,185	\$661,624	\$710,880	\$772,337	\$597,636	\$575,592	\$506,266	\$256,279	\$151,195
Cumulative Expenditures	(\$877,017)	(\$924,300)	(\$1,005,317)	(\$1,037,519)	(\$1,057,519)	(\$1,313,677)	(\$1,417,177)	(\$1,567,960)	(\$1,899,405)	(\$2,085,945)
Cumulative Receipts	\$1,504,027	\$1,585,484	\$1,666,941	\$1,748,399	\$1,829,856	\$1,911,313	\$1,992,770	\$2,074,227	\$2,155,684	\$2,237,141
Year	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Projected Replacements	(\$17,440)	(\$51,892)		(\$262,333)	(\$125,965)	(\$38,600)		(\$1,892)	(\$293,502)	(\$67,248)
Annual Deposit	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457	\$81,457
End of Year Balance	\$215,212	\$244,777	\$326,234	\$145,359	\$100,851	\$143,708	\$225,165	\$304,730	\$92,685	\$106,894
Cumulative Expenditures	(\$2,103,385)	(\$2,155,277)	(\$2,155,277)	(\$2,417,610)	(\$2,543,575)	(\$2,582,175)	(\$2,582,175)	(\$2,584,067)	(\$2,877,569)	(\$2,944,817)
Cumulative Receipts	\$2,318,598	\$2,400,055	\$2,481,512	\$2,562,969	\$2,644,426	\$2,725,883	\$2,807,340	\$2,888,797	\$2,970,254	\$3,051,711
Year	1st Peak - 2052	2053	2054	2055	2056	2057	2058	2059	2nd Peak - 2060	3rd Peak - 2061
Projected Replacements	(\$97,351)			(\$62,065)	(\$65,900)	(\$55,273)	(\$75,818)	(\$5,200)	(\$312,289)	(\$7,892)
Annual Deposit	\$81,457	\$72,068	\$72,068	\$72,068	\$72,068	\$72,068	\$72,068	\$72,068	\$72,068	\$7,892
End of Year Balance	\$91,000	\$163,068	\$235,136	\$245,139	\$251,307	\$268,102	\$264,353	\$331,221	\$91,000	\$91,000
Cumulative Expenditures	(\$3,042,168)	(\$3,042,168)	(\$3,042,168)	(\$3,104,234)	(\$3,170,134)	(\$3,225,406)	(\$3,301,224)	(\$3,306,424)	(\$3,618,713)	(\$3,626,605)
Cumulative Receipts	\$3,133,168	\$3,205,236	\$3,277,304	\$3,349,372	\$3,421,440	\$3,493,508	\$3,565,577	\$3,637,645	\$3,709,713	\$3,717,605

## INFLATION ADJUSTED FUNDING

The Cash Flow Method calculations on Page A4 have been done in today's dollars with no adjustment for inflation. At Miller+Dodson, we believe that long-term inflation forecasting is effective at demonstrating the power of compounding, not at calculating appropriate funding levels for Replacement Reserves. We have developed this proprietary model to estimate the short-term impact of inflation on Replacement Reserve funding.

### **\$81,457** 2022 - CASH FLOW METHOD RECOMMENDED FUNDING

The 2022 Study Year calculations have been made using current replacement costs (see Page B.2), modified by the Analyst for any project specific conditions.

### **\$86,344** 2023 - INFLATION ADJUSTED FUNDING

A new analysis calculates the 2023 funding based on three assumptions:

- Replacement Reserves on Deposit totaling \$653,634 on January 1, 2023.
- All 2022 Projected Replacements listed on Page C.2 accomplished at a cost to Replacement Reserves less than \$35,823.
- Construction Cost Inflation of 6.00 percent in 2022.

The \$86,344 inflation adjusted funding in 2023 is a 5.99 percent increase over the non-inflation adjusted funding of \$81,457.

### **\$91,525** 2024 - INFLATION ADJUSTED FUNDING

A new analysis calculates the 2024 funding based on three assumptions:

- Replacement Reserves on Deposit totaling \$691,327 on January 1, 2024.
- No Expenditures from Replacement Reserves in 2023.
- Construction Cost Inflation of 6.00 percent in 2023.

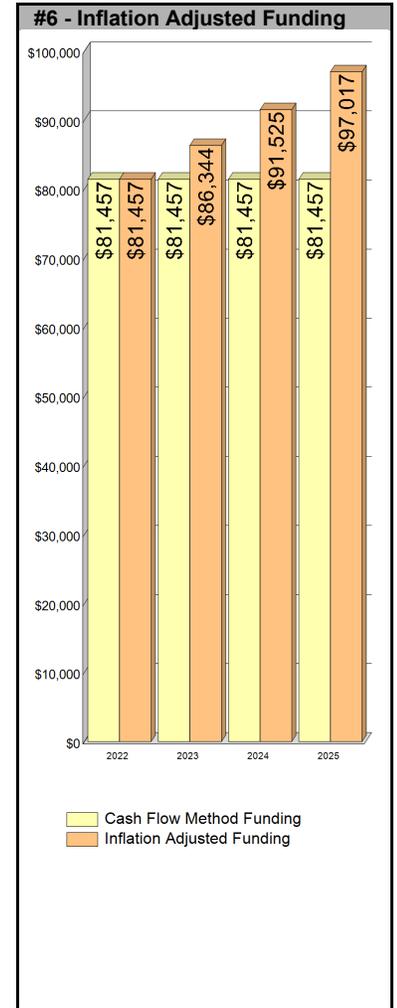
The \$91,525 inflation adjusted funding in 2024 is a 12.35 percent increase over the non-inflation adjusted funding of \$81,457.

### **\$97,017** 2025 - INFLATION ADJUSTED FUNDING

A new analysis calculates the 2025 funding based on three assumptions:

- Replacement Reserves on Deposit totaling \$701,378 on January 1, 2025.
- No Expenditures from Replacement Reserves in 2024.
- Construction Cost Inflation of 6.00 percent in 2024.

The \$97,017 inflation adjusted funding in 2025 is a 19.10 percent increase over the non-inflation adjusted funding of \$81,457.



### Year Four and Beyond

The inflation-adjusted funding calculations outlined above are not intended to be a substitute for periodic evaluation of common elements by an experienced Reserve Analyst. Industry Standards, lender requirements, and many state and local statutes require a Replacement Reserve Study to be professionally updated every 3 to 5 years.

### Inflation Adjustment

Prior to approving a budget based upon the 2023, 2024 and 2025 inflation-adjusted funding calculations above, the 6.00 percent base rate of inflation used in our calculations should be compared to rates published by the Bureau of Labor Statistics. If there is a significant discrepancy (over 1 percentage point), contact Miller+Dodson Associates prior to using the Inflation Adjusted Funding.

### Interest on Reserves

The recommended funding calculations do not account for interest earned on Replacement Reserves. In 2022, based on a 1.00 percent interest rate, we estimate the Association may earn \$6,308 on an average balance of \$630,817, \$6,725 on an average balance of \$672,481 in 2023, and \$6,964 on \$696,352 in 2024. The Association may elect to attribute 100 percent of the earned interest to Reserves, resulting in a reduction in the 2022 funding from \$81,457 to \$75,149 (a 7.74 percent reduction), \$86,344 to \$79,620 in 2023 (a 7.78 percent reduction), and \$91,525 to \$84,562 in 2024 (a 7.60 percent reduction).

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## SECTION B - REPLACEMENT RESERVE INVENTORY

- **PROJECTED REPLACEMENTS.** Charlestowne Village - Replacement Reserve Inventory identifies 67 items which are Projected Replacements, and the periodic replacements of these items are scheduled for funding from Replacement Reserves. The Projected Replacements have an estimated one-time replacement cost of \$1,706,177. Cumulative Replacements totaling \$3,626,605 are scheduled in the Replacement Reserve Inventory over the 40-year Study Period. Cumulative Replacements include those components that are replaced more than once during the period of the study.

Projected Replacements are the replacement of commonly-owned physical assets that require periodic replacement and whose replacement is to be funded from Replacement Reserves.

- **EXCLUDED ITEMS.** Some of the items contained in the Replacement Reserve Inventory are 'Excluded Items'. Multiple categories of items are typically excluded from funding by Replacement Reserves, including but not limited to:

**Tax Code.** The United States Tax Code grants very favorable tax status to Replacement Reserves, conditioned on expenditures being made within certain guidelines. These guidelines typically exclude maintenance activities, minor repairs, and capital improvements.

**Value.** Items with a replacement cost of less than \$1000 and/or a normal economic life of less than 3 years are typically excluded from funding from Replacement Reserves. This exclusion should reflect the Association policy on the administration of Replacement Reserves. If the Association has selected an alternative level, it will be noted in the Replacement Reserve Inventory - General Comments on Page B.2.

**Long-lived Items.** Items are excluded from the Replacement Reserve Inventory when items are properly maintained and are assumed to have a life equal to the property.

**Unit improvements.** Items owned by a single unit and where the items serve a single unit are generally assumed to be the responsibility of that unit, not the Association.

**Other non-common improvements.** Items owned by the local government, public and private utility companies, the United States Postal Service, Master Associations, state and local highway authorities, etc., may be installed on property that is owned by the Association. These types of items are generally not the responsibility of the Association and are excluded from the Replacement Reserve Inventory.

- **CATEGORIES.** The 67 items included in the Charlestowne Village Replacement Reserve Inventory are divided into 5 major categories. Each category is printed on a separate page, beginning on page B.3.
- **LEVEL OF SERVICE.** This Replacement Reserve Inventory has been developed in compliance with the standards established for a Level 2 Update, as defined by the National Reserve Study Standards, established in 1998 by Community Associations Institute, which states:

*This study has been performed as a Level 2 Update with Site Visit/On-Site Review as defined by the Community Associations Institute's, National Reserve Study Standards. As such, the component inventory is based on the study that was performed by Miller+Dodson in 2018. This inventory was adjusted to reflect changes provided by the Community Manager and/or the Board of Directors, or adjustments made based on the site visit and visual assessment performed by the Analyst. The analysis, including fund status and funding plan, is developed from the adjusted inventory.*

## REPLACEMENT RESERVE INVENTORY - GENERAL INFORMATION (CONT'D)

- **INVENTORY DATA.** Each of the 67 Projected Replacements listed in the Replacement Reserve Inventory includes the following data:
  - Item Number.** The Item Number is assigned sequentially and is intended for identification purposes only.
  - Item Description.** We have identified each item included in the Inventory. Additional information may be included in the Comments section at the bottom of each page of the Inventory.
  - Units.** We have used standard abbreviations to identify the number of units including SF-square feet, LF-lineal feet, SY-square yard, LS-lump sum, EA-each, and PR-pair. Non-standard abbreviations are noted in the Comments section at the bottom of the page.
  - Number of Units.** The methods used to develop the quantities are discussed in "Level of Service" above.
  - Unit Replacement Cost.** We use four sources to develop the unit cost data shown in the Inventory; actual replacement cost data provided by the client, information provided by local contractors and suppliers, industry standard estimating manuals, and a cost database we have developed based upon our detailed interviews with contractors and service providers who are specialists in their respective lines of work.
  - Normal Economic Life (Years).** The number of years that a new and properly installed item should be expected to remain in service.
  - Remaining Economic Life (Years).** The estimated number of years before an item will need to be replaced. In "normal" conditions, this could be calculated by subtracting the age of the item from the Normal Economic Life of the item, but only rarely do physical assets age "normally". Some items may have longer or shorter lives depending on many factors such as environment, initial quality of the item, maintenance, etc.
  - Total Replacement Cost.** This is calculated by multiplying the Unit Replacement Cost by the Number of Units.
- **PARTIAL FUNDING.** Items may have been included in the Replacement Reserve Inventory at less than 100 percent of their full quantity and/or replacement cost. This is done on items that will never be replaced in their entirety, but which may require periodic replacements over an extended period of time. The assumptions that provide the basis for any partial funding are noted in the Comments section.
- **REMAINING ECONOMIC LIFE GREATER THAN 40 YEARS.** The calculations do not include funding for initial replacements beyond 40 years. These replacements are included in this Study for tracking and evaluation. They should be included for funding in future Studies when they enter the 40-year window.
- **ACCURACY OF THE ANALYSIS.** The accuracy of the Replacement Reserve Analysis is dependent upon expenditures from Replacement Reserves being made ONLY for the 67 Projected Replacements specifically listed in the Replacement Reserve Inventory. The inclusion/exclusion of items from the Replacement Reserve Inventory is discussed on Page B.1.

SITE ITEMS PROJECTED REPLACEMENTS					NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
1	Entrance monument, repoint masonry	sf	116	\$8.50	10	8	\$986
2	Entrance monument, composite sign	sf	40	\$130.00	25	12	\$5,200
3	Asphalt pavement, mill and overlay,	sf	10,000	\$2.00	20	18	\$20,000
4	Asphalt pavement, mill and overlay,	sf	80,688	\$2.00	20	8	\$161,376
5	Asphalt pavement, seal coat	sf	90,688	\$0.22	5	3	\$19,951
6	Asphalt pavement, crack sealing	lf	5,000	\$2.45	5	3	\$12,250
7	Asphalt Speed Bump	lf	150	\$14.60	5	5	\$2,190
8	Parking lot striping	sf	90,688	\$0.05	6	5	\$4,534
Replacement Costs - Page Subtotal							\$226,488

COMMENTS
<ul style="list-style-type: none"> <li>We have assumed that the Association will replace the asphalt pavement by the installation of a 2-inch-thick overlay. The pavement will need to be milled prior to the installation of the overlay. Milling and the cost of minor repairs (5 to 10 percent of the total area) to the base materials and bearing soils beneath the pavement are included in the cost shown above.</li> <li>Seal coating or rejuvenation has been shown to extend service life of asphalt if performed at an early stage, once asphalt has fully cured and then cyclically thereafter. This is the best practice to extend life of the asphalt pavement. The Unit Cost includes crack sealing, and line/curb painting. The Asphalt paving industries recommendation/best practice is to sealcoat approximately one (1) year after the mill and overlay is performed. One (1) year allows the excess oils in the paving mixture to "weather off". Sealing the following year locks in the remaining essential oils that keep the pavement pliable. Cyclical reapplication of the sealcoat, approximately every five (5) years, will keep those oils in expanding its useful life.</li> <li>For concrete components and other roadway shoulder work, we have assumed that the Association will conduct concrete component replacement projects in conjunction with asphalt pavement, other concrete, or rights-of-way replacement projects.</li> <li>Item #1: Entrance monument, repoint masonry - Segmental block retaining wall at monument sign included under item #12.</li> <li>Item #3: Asphalt pavement, mill and overlay, - Includes asphalt mill and overlay at areas re-worked in 2020.</li> <li>Item #4: Asphalt pavement, mill and overlay, - Includes all other asphalt areas excluding areas included in item #3.</li> <li>Item #5: Asphalt pavement, seal coat - Includes areas re-sealed in 2020.</li> <li>Item #6: Asphalt pavement, crack sealing - Includes crack sealing performed in 2020.</li> <li>Item #7: Asphalt Speed Bump - Includes speed bumps installed in 2020.</li> </ul>

SITE ITEMS - (cont.)				NEL- Normal Economic Life (yrs)		REL- Remaining Economic Life (yrs)	
PROJECTED REPLACEMENTS							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
<b>Continued</b>							
9	Concrete curb and gutter, barrier (6%)	lf	330	\$35.50	6	5	\$11,715
10	Concrete flatwork (6%)	sf	1,471	\$10.85	6	5	\$15,960
11	Concrete trash corral pads (6%)	sf	260	\$12.80	6	5	\$3,328
12	Concrete steps (6%)	ft	90	\$74.50	6	5	\$6,705
13	Wheel stops, concrete	ea	18	\$100.00	20	5	\$1,800
Replacement Costs - Page Subtotal							\$39,508

COMMENTS
<ul style="list-style-type: none"> <li>We have assumed that the Association will replace the asphalt pavement by the installation of a 2-inch-thick overlay. The pavement will need to be milled prior to the installation of the overlay. Milling and the cost of minor repairs (5 to 10 percent of the total area) to the base materials and bearing soils beneath the pavement are included in the cost shown above.</li> <li>Seal coating or rejuvenation has been shown to extend service life of asphalt if performed at an early stage, once asphalt has fully cured and then cyclically thereafter. This is the best practice to extend life of the asphalt pavement. The Unit Cost includes crack sealing, and line/curb painting. The Asphalt paving industries recommendation/best practice is to sealcoat approximately one (1) year after the mill and overlay is performed. One (1) year allows the excess oils in the paving mixture to "weather off". Sealing the following year locks in the remaining essential oils that keep the pavement pliable. Cyclical reapplication of the sealcoat, approximately every five (5) years, will keep those oils in expanding its useful life.</li> <li>For concrete components and other roadway shoulder work, we have assumed that the Association will conduct concrete component replacement projects in conjunction with asphalt pavement, other concrete, or rights-of-way replacement projects.</li> <li>Item #10: Concrete flatwork (6%) - Concrete Sidewalks, including lead walks to units.</li> <li>Item #11: Concrete trash corral pads (6%) - Concrete flatwork at trash areas, and entrance slabs at laundry rooms and storage rooms.</li> </ul>

SITE ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
14	Retaining wall, PTL (6%)	sf	120	\$39.75	6	6	\$4,770	
15	Retaining wall, segmental block (reset)	sf	2,082	\$47.00	10	8	\$97,854	
16	Retaining wall, brick, repoint (6%)	sf	370	\$9.50	6	6	\$3,515	
17	Metal railing, steel/wrought iron	lf	1,630	\$58.50	50	15	\$95,355	
18	Fence, vinyl 2-rail and post	ft	110	\$18.20	40	8	\$2,002	
19	Fence, 4' galvanized chain link	ft	193	\$12.50	30	8	\$2,413	
20	Fence, 6' PTL, wood board-on-board	lf	654	\$23.20	20	10	\$15,173	
21	Fence, PTL, wood board @ trash enclosures	ea	15	\$1,500.00	20	3	\$22,500	
22	Stormwater management (10% allowance)	ls	1	\$20,000.00	10	4	\$20,000	
23	Security light, building mounted	ea	102	\$450.00	15	4	\$45,900	
24	Flood light, ground mounted	ea	1	\$195.00	10	8	\$195	
Replacement Costs - Page Subtotal							\$309,676	

COMMENTS
<ul style="list-style-type: none"> <li>Comprehensive drawings detailing the components of the systems listed above were not available for our review. We have included the estimated cost of the systems based upon our experience with other similar communities. We have assumed that 10 percent of the system(s) will require replacement. In the future, this assumption and the estimated costs should be adjusted based upon the community's actual experience as is feasible.</li> <li>Item #15: Retaining wall, segmental block (reset) - Includes segmental block retaining wall along Lakecrest Drive and at monument sign.</li> <li>Item #17: Metal railing, steel/wrought iron - Includes handrails at all stairways as well as guard rails at retaining walls.</li> <li>Item #18: Fence, vinyl 2-rail and post - Vinyl fence along Lakecrest Drive and up into parking area at units 7748-7938.</li> <li>Item #19: Fence, 4' galvanized chain link - Chain link fence at the south property line at Lakecrest Drive.</li> <li>Item #20: Fence, 6' PTL, wood board-on-board - Wood Board fence at southwest property line. The wood board fence at the play area is included under the recreation items.</li> <li>Item #22: Stormwater management (10% allowance) - Allowance to address storm water problems in the vicinity of the storage/maintenance building as reported by the Association. Also includes repairs to downspout drainage problems.</li> <li>Item #24: Flood light, ground mounted - Ground-mounted light at monument sign.</li> </ul>

RECREATION ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs)	REL- Remaining Economic Life (yrs)	
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
25	Tot lot, border PLT	lf	211	\$11.85	15	none	\$2,500	
26	Tot lot surfacing, wood mulch (3")	sf	1,720	\$1.10	3	none	\$1,892	
27	Wood steps, railroad ties	lf	16	\$39.40	15	none	\$630	
28	Fence, 4' PTL, wood rail and batten	lf	112	\$23.20	20	3	\$2,598	
29	Tot lot, MP structure, 1 platform and 1 slide (small)	ea	2	\$13,250.00	15	8	\$26,500	
30	Tot lot swing, 3 seat	ea	1	\$2,550.00	15	10	\$2,550	
31	Trash can coated metal (32 gal. wood slat)	ea	1	\$890.00	10	8	\$890	
32	Bench, coated metal w/metal supports (7')	ea	1	\$1,300.00	15	10	\$1,300	
33	Picnic table (PTL wood table and bench)	ea	2	\$520.00	15	none	\$1,040	
34	Picnic table (metal)	ea	1	\$1,000.00	15	10	\$1,000	
Replacement Costs - Page Subtotal							\$40,901	

**COMMENTS**

- Tot lots and tot lot equipment should be evaluated annually by a playground safety specialist for compliance with the Consumer Product Safety Commission, Handbook for Public Playground Safety. Defects should be corrected immediately to protect the users of the facilities from potential injury and the Association from potential liability for those injuries.

EXTERIOR ITEMS				NEL- Normal Economic Life (yrs)		REL- Remaining Economic Life (yrs)			
PROJECTED REPLACEMENTS									
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)		
35	Roofing, asphalt shingles, includes flashings, drip	sf	17,000	\$5.00	25	15	\$85,000		
36	Roofing, asphalt shingles	sf	17,000	\$5.00	25	16	\$85,000		
37	Roofing, asphalt shingles	sf	17,000	\$5.00	25	17	\$85,000		
38	Roofing, asphalt shingles	sf	17,000	\$5.00	25	18	\$85,000		
39	Roofing, asphalt shingles	sf	17,000	\$5.00	25	19	\$85,000		
40	Roofing, asphalt shingles, maintenance building	sf	530	\$5.00	25	19	\$2,650		
41	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	15	\$9,050		
42	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	16	\$9,050		
43	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	17	\$9,050		
44	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	18	\$9,050		
45	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	19	\$9,050		
46	Gutter and downspouts, 5" aluminum, maintenance	lf	72	\$7.20	30	19	\$518		
47	Vinyl Exterior Shutter	pr	70	\$135.00	30	16	\$9,450		
48	Vinyl Exterior Shutter	pr	70	\$135.00	30	17	\$9,450		
49	Vinyl Exterior Shutter	pr	70	\$135.00	30	18	\$9,450		
50	Vinyl Exterior Shutter	pr	70	\$135.00	30	19	\$9,450		
51	Vinyl Exterior Shutter	pr	70	\$135.00	30	20	\$9,450		
Replacement Costs - Page Subtotal							\$520,670		

COMMENTS									
<ul style="list-style-type: none"> <li>Item #35: Roofing, asphalt shingles, includes flashings, drip edge, ice shield - Asphalt shingle roof for three buildings each year for five years. Includes trash enclosure roof.</li> <li>Item #41: Gutter and downspouts, 5" aluminum - Aluminum gutter and downspout for three buildings each year for five years. Assume this work will track with roof replacement.</li> <li>Item #47: Vinyl Exterior Shutter - Aluminum gutter and downspout for three buildings each year for five years.</li> </ul>									

EXTERIOR ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
52	Window, bay or bow	ea	25	\$2,000.00	40	21	\$50,000	
53	Siding and trim, vinyl, standard (including door trim)	sf	720	\$7.80	35	10	\$5,616	
54	Siding and trim, vinyl, standard, maintenance	sf	800	\$7.80	35	10	\$6,240	
55	Soffit and trim, vinyl (allowance)	ea	15	\$900.00	35	10	\$13,500	
56	Concrete patio at grade (6%)	sf	400	\$12.60	6	5	\$5,040	
57	Concrete balcony, structural repair (6%)	sf	530	\$123.85	6	6	\$65,641	
58	Metal railing, steel/wrought iron	lf	1,000	\$58.50	50	15	\$58,500	
59	Privacy screen, PTL	lf	500	\$11.60	15	5	\$5,800	
60	Door, steel, flush (3' X 6'8")	ea	31	\$960.00	25	none	\$29,760	
Replacement Costs - Page Subtotal							\$240,097	

COMMENTS
<ul style="list-style-type: none"> <li>Item #52: Window, bay or bow - Includes replacement for bay window units only. All other windows are excluded by the Association.</li> <li>Item #55: Soffit and trim, vinyl (allowance) - Includes roof soffits and soffits below certain balconies.</li> <li>Item #56: Concrete patio at grade (6%) - Concrete slab-on-grade patios at individual townhouse units.</li> <li>Item #57: Concrete balcony, structural repair (6%) - Elevated concrete balconies at individual townhouse units. Miller Dodson strongly recommends that the Association retain the services of a Structural Engineer to conduct thorough and periodic evaluations of the building structure, the balconies, and any other structural features of the community.</li> <li>Item #58: Metal railing, steel/wrought iron - Includes guard rails at elevated balconies.</li> <li>Item #59: Privacy screen, PTL - Treated wood privacy screens at certain individual units.</li> <li>Item #60: Door, steel, flush (3' X 6'8") - Steel doors and frames to community laundry rooms and storage rooms.</li> </ul>

INTERIOR ITEMS				NEL- Normal Economic Life (yrs)		REL- Remaining Economic Life (yrs)		
PROJECTED REPLACEMENTS								
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
61	Flooring, vinyl tile	sf	6,216	\$4.50	14	5	\$27,972	
62	Ceiling, suspended	sf	6,216	\$4.85	20	4	\$30,148	
63	Interior lighting, general	ea	133	\$105.00	21	8	\$13,965	
Replacement Costs - Page Subtotal							\$72,085	

COMMENTS
<ul style="list-style-type: none"> <li>Item #61: Flooring, vinyl tile - Includes vinyl flooring at community laundry rooms and combination laundry room/storage rooms.</li> <li>Item #62: Ceiling, suspended - Includes suspended ceilings at community laundry rooms. The combination laundry room storage rooms have gypsum board ceilings which are excluded.</li> <li>Item #63: Interior lighting, general - Includes ceiling lighting at community laundry rooms and storage rooms.</li> </ul>

<b>BUILDING SYSTEMS</b>						<b>NEL- Normal Economic Life (yrs)</b>		
<b>PROJECTED REPLACEMENTS</b>						<b>REL- Remaining Economic Life (yrs)</b>		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
64	Water heater, commercial gas (80 gal.)	ea	15	\$8,750.00	15	8	\$131,250	
65	Electric panels and breakers	ls	1	\$119,502.00	50	47	\$119,502	
66	Domestic water main (10% allowance)	ft	1	\$3,000.00	10	9	\$3,000	
67	Sanitary main (10% allowance)	ls	1	\$3,000.00	10	9	\$3,000	
Replacement Costs - Page Subtotal							\$256,752	

<b>COMMENTS</b>
<ul style="list-style-type: none"> <li>Item #64: Water heater, commercial gas (80 gal.) - REL based upon heater replacement 8 years ago according to the Association.</li> <li>Item #65: Electric panels and breakers - Cost based upon invoice for replacement of 110 panels in 2019.</li> </ul>

VALUATION EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Mailboxes						EXCLUDED
	Bollard/access control devices						EXCLUDED
	BBQ						EXCLUDED
	Tennis court posts and nets						EXCLUDED
	Fire extinguisher cabinet						EXCLUDED
	Sprinkler head						EXCLUDED
	Emergency lighting, exit light, etc.						EXCLUDED
	Interior doors						EXCLUDED
	Window unit						EXCLUDED
	Electric heaters						EXCLUDED

VALUATION EXCLUSIONS
Comments
<ul style="list-style-type: none"> <li>Valuation Exclusions. For ease of administration of the Replacement Reserves and to reflect accurately how Replacement Reserves are administered, items with a dollar value less than \$1000 have not been scheduled for funding from Replacement Reserve. Examples of items excluded by Replacement Reserves by this standard are listed above.</li> <li>The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.</li> </ul>

LONG-LIFE EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Bridge structure and foundations						EXCLUDED
	Building foundation(s)						EXCLUDED
	Wall, floor, and roof structure						EXCLUDED
	Fire protection/security systems						EXCLUDED
	Electrical wiring						EXCLUDED
	Gas services at common facilities						EXCLUDED
	Trash chute						EXCLUDED
	Stainless steel pool fixtures						EXCLUDED

**LONG-LIFE EXCLUSIONS**  
Comments

- Long Life Exclusions. Components that when properly maintained, can be assumed to have a life equal to the property as a whole, are normally excluded from the Replacement Reserve Inventory. Examples of items excluded from funding by Replacement Reserves by this standard are listed above.
- Exterior masonry is generally assumed to have an unlimited economic life, but periodic repointing is required, and we have included this for funding in the Replacement Reserve Inventory.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

UNIT IMPROVEMENTS EXCLUSIONS								
Excluded Items								
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
	Domestic water pipes serving one unit							EXCLUDED
	Sanitary sewers serving one unit							EXCLUDED
	Electrical wiring serving one unit							EXCLUDED
	Cable TV service serving one unit							EXCLUDED
	Telephone service serving one unit							EXCLUDED
	Gas service serving one unit							EXCLUDED
	Driveway on an individual lot							EXCLUDED
	Apron on an individual lot							EXCLUDED
	Curb & gutter on an individual lot							EXCLUDED
	Dock on an individually lot							EXCLUDED
	Unit doors							EXCLUDED
	Unit skylights							EXCLUDED
	Unit mailbox							EXCLUDED
	Unit interior							EXCLUDED
	Unit HVAC system							EXCLUDED

**UNIT IMPROVEMENTS EXCLUSIONS**  
Comments

- Unit improvement Exclusions. We understand that the elements of the project that relate to a single unit are the responsibility of that unit owner. Examples of items excluded from funding by Replacement Reserves by this standard are listed above.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

UTILITY EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Electric transformers						EXCLUDED
	Cable TV systems and structures						EXCLUDED
	Telephone cables and structures						EXCLUDED
	Gas mains and meters						EXCLUDED

UTILITY EXCLUSIONS
Comments
<ul style="list-style-type: none"> <li>Utility Exclusions. Many improvements owned by utility companies 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 items excluded from funding Replacement Reserves by this standard are listed above.</li> <li>The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.</li> </ul>

MAINTENANCE AND REPAIR EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Landscaping and site grading						EXCLUDED
	Interior painting						EXCLUDED
	Janitorial service						EXCLUDED
	Repair services						EXCLUDED
	Partial replacements						EXCLUDED
	Capital improvements						EXCLUDED

MAINTENANCE AND REPAIR EXCLUSIONS
Comments
<ul style="list-style-type: none"> <li>Maintenance activities, one-time-only repairs, and capital improvements. These activities are NOT appropriately funded from Replacement Reserves. The inclusion of such component in the Replacement Reserve Inventory could jeopardize the special tax status of ALL Replacement Reserves, exposing the Association to significant tax liabilities. We recommend that the Board of Directors discuss these exclusions and Revenue Ruling 75-370 with a Certified Public Accountant.</li> <li>Examples of items excluded from funding by Replacement Reserves are listed above. The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.</li> </ul>

GOVERNMENT EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Government, roadways and parking						EXCLUDED
	Government, sidewalks and curbs						EXCLUDED
	Government, lighting						EXCLUDED
	Government, stormwater mgmt.						EXCLUDED
	Government, ponds						EXCLUDED
	Government, mailboxes						EXCLUDED

**GOVERNMENT EXCLUSIONS**  
Comments

- Government Exclusions. We have assumed that some of the improvements installed on property owned by the Association will be maintained by the state, county, or local government, or other association or other responsible entity. Examples of items excluded from funding by Replacement Reserves by this standard are listed above.
- Excluded rights-of-way, including adjacent properties and adjacent roadways.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

IRRIGATION SYSTEM EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Subsurface irrigation pipe						EXCLUDED
	Subsurface irrigation valve						EXCLUDED
	Subsurface irrigation control wiring						EXCLUDED
	Irrigation control system						EXCLUDED
	Irrigation system electrical service						EXCLUDED
	Irrigation system enclosures						EXCLUDED

**IRRIGATION SYSTEM EXCLUSIONS**  
Comments

- Irrigation System Exclusions. We have assumed that the maintenance, repair, and periodic replacement of the components of the extensive irrigation systems at the property will not be funded from Replacement Reserves. These systems should be inspected each spring when the systems are brought online and again each fall when they are winterized. Repair(s) and or replacement(s) should be made in conjunction with these semiannual inspections.

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## SECTION C - CALENDAR OF PROJECTED ANNUAL REPLACEMENTS

**GENERAL STATEMENT.** The 67 Projected Replacements in the Charlestowne Village Replacement Reserve Inventory whose replacement is scheduled to be funded from Replacement Reserves are broken down on a year-by-year basis, beginning on Page C.2.

### REPLACEMENT RESERVE ANALYSIS AND INVENTORY POLICIES, PROCEDURES, AND ADMINISTRATION

- **REVIEW OF THE REPLACEMENT RESERVE STUDY.** For this study to be effective, it should be reviewed by the Board of Directors, those responsible for the management of the items included in the Replacement Reserve Inventory, and the accounting professionals employed by the Association.
- **REVISIONS.** Revisions will be made to the Replacement Reserve Analysis and Replacement Reserve Inventory in accordance with the written instructions of the Board of Directors. No additional charge is incurred for the first revision if requested in writing within three months of the date of the Replacement Reserve Study. It is our policy to provide revisions in electronic (Adobe PDF) format only. We acknowledge that there are instances in which multiple revisions are necessary. However, unnecessary multiple revisions drain on our time and manpower resources. Therefore, Miller Dodson will exercise its sole discretion as to whether additional charges are incurred.
- **TAX CODE.** The United States Tax Code grants favorable tax status to a common interest development (CID) meeting certain guidelines for their Replacement Reserve. If a CID files their taxes as a 'Corporation' on Form 1120 (IRC Section 277), these guidelines typically require maintenance activities, partial replacements, minor replacements, capital improvements, and one-time only replacements to be excluded from Reserves. A CID cannot co-mingle planning for maintenance activities with capital replacement activities in the Reserves (Revenue Ruling 75-370). Funds for maintenance activities and capital replacements activities must be held in separate accounts. If a CID files taxes as an "Exempt Homeowners Association" using Form 1120H (IRC Section 528), the CID does not have to segregate these activities. However, because the CID may elect to change their method of filing from year to year within the Study Period, we advise using the more restrictive approach. We further recommend that the CID consult with their Accountant and consider creating separate and independent accounts and reserves for large maintenance items, such as painting.
- **CONFLICT OF INTEREST.** Neither Miller - Dodson Associates nor the Reserve Analyst has any prior or existing relationship with this Association which would represent a real or perceived conflict of interest.
- **RELIANCE ON DATA PROVIDED BY THE CLIENT.** Information provided by an official representative of the Association regarding financial, physical conditions, quality, or historical issues is deemed reliable.
- **INTENT.** This Replacement Reserve Study is a reflection of the information provided by the Association and the visual evaluations of the Analyst. It has been prepared for the sole use of the Association and is not for the purpose of performing an audit, quality/forensic analyses, or background checks of historical records.
- **PREVIOUS REPLACEMENTS.** Information provided to Miller - Dodson Associates regarding prior replacements is considered to be accurate and reliable. Our visual evaluation is not a project audit or quality inspection.
- **EXPERIENCE WITH FUTURE REPLACEMENTS.** The Calendar of Annual Projected Replacements, lists replacements we have projected to occur over the Study Period, begins on Page C2. Actual experience in replacing the items may differ significantly from the cost estimates and time frames shown 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 items may function normally during our visual evaluation and then fail without notice.

**PROJECTED REPLACEMENTS**

Item	2022 - Study Year	\$	Item	2023 - YEAR 1	\$
25	Tot lot, border PLT	\$2,500			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
27	Wood steps, railroad ties	\$630			
33	Picnic table (PTL wood table and bench)	\$1,040			
60	Door, steel, flush (3' X 6'8")	\$29,760			
Total Scheduled Replacements		\$35,823	No Scheduled Replacements		

Item	2024 - YEAR 2	\$	Item	2025 - YEAR 3	\$	
			5	Asphalt pavement, seal coat	\$19,951	
			6	Asphalt pavement, crack sealing	\$12,250	
			21	Fence, PTL, wood board @ trash enclosures	\$22,500	
			26	Tot lot surfacing, wood mulch (3")	\$1,892	
			28	Fence, 4' PTL, wood rail and batten	\$2,598	
No Scheduled Replacements			Total Scheduled Replacements			\$59,192

Item	2026 - YEAR 4	\$	Item	2027 - YEAR 5	\$	
22	Stormwater management (10% allowance)	\$20,000	7	Asphalt Speed Bump	\$2,190	
23	Security light, building mounted	\$45,900	8	Parking lot striping	\$4,534	
62	Ceiling, suspended	\$30,148	9	Concrete curb and gutter, barrier (6%)	\$11,715	
			10	Concrete flatwork (6%)	\$15,960	
			11	Concrete trash corral pads (6%)	\$3,328	
			12	Concrete steps (6%)	\$6,705	
			13	Wheel stops, concrete	\$1,800	
			56	Concrete patio at grade (6%)	\$5,040	
			59	Privacy screen, PTL	\$5,800	
			61	Flooring, vinyl tile	\$27,972	
Total Scheduled Replacements		\$96,048	Total Scheduled Replacements			\$85,045

**PROJECTED REPLACEMENTS**

2028 - YEAR 6			2029 - YEAR 7		
Item		\$	Item		\$
14	Retaining wall, PTL (6%)	\$4,770			
16	Retaining wall, brick, repoint (6%)	\$3,515			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
57	Concrete balcony, structural repair (6%)	\$65,641			
Total Scheduled Replacements		\$75,818	No Scheduled Replacements		

2030 - YEAR 8			2031 - YEAR 9		
Item		\$	Item		\$
1	Entrance monument, repoint masonry	\$986	26	Tot lot surfacing, wood mulch (3")	\$1,892
4	Asphalt pavement, mill and overlay,	\$161,376	66	Domestic water main (10% allowance)	\$3,000
5	Asphalt pavement, seal coat	\$19,951	67	Sanitary main (10% allowance)	\$3,000
6	Asphalt pavement, crack sealing	\$12,250			
15	Retaining wall, segmental block (reset)	\$97,854			
18	Fence, vinyl 2-rail and post	\$2,002			
19	Fence, 4' galvanized chain link	\$2,413			
24	Flood light, ground mounted	\$195			
29	Tot lot, MP structure, 1 platform and 1 slide (small)	\$26,500			
31	Trash can coated metal (32 gal. wood slat)	\$890			
63	Interior lighting, general	\$13,965			
64	Water heater, commercial gas (80 gal.)	\$131,250			
Total Scheduled Replacements		\$469,632	Total Scheduled Replacements \$7,892		

2032 - YEAR 10			2033 - YEAR 11		
Item		\$	Item		\$
7	Asphalt Speed Bump	\$2,190	8	Parking lot striping	\$4,534
20	Fence, 6' PTL, wood board-on-board	\$15,173	9	Concrete curb and gutter, barrier (6%)	\$11,715
30	Tot lot swing, 3 seat	\$2,550	10	Concrete flatwork (6%)	\$15,960
32	Bench, coated metal w/metal supports (7')	\$1,300	11	Concrete trash corral pads (6%)	\$3,328
34	Picnic table (metal)	\$1,000	12	Concrete steps (6%)	\$6,705
53	Siding and trim, vinyl, standard (including door trim)	\$5,616	56	Concrete patio at grade (6%)	\$5,040
54	Siding and trim, vinyl, standard, maintenance building	\$6,240			
55	Soffit and trim, vinyl (allowance)	\$13,500			
Total Scheduled Replacements		\$47,569	Total Scheduled Replacements \$47,283		

**PROJECTED REPLACEMENTS**

2034 - YEAR 12			2035 - YEAR 13		
Item		\$	Item		\$
2	Entrance monument, composite sign	\$5,200	5	Asphalt pavement, seal coat	\$19,951
14	Retaining wall, PTL (6%)	\$4,770	6	Asphalt pavement, crack sealing	\$12,250
16	Retaining wall, brick, repoint (6%)	\$3,515			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
57	Concrete balcony, structural repair (6%)	\$65,641			
Total Scheduled Replacements		\$81,018	Total Scheduled Replacements		\$32,201

2036 - YEAR 14			2037 - YEAR 15		
Item		\$	Item		\$
22	Stormwater management (10% allowance)	\$20,000	7	Asphalt Speed Bump	\$2,190
			17	Metal railing, steel/wrought iron	\$95,355
			25	Tot lot, border PLT	\$2,500
			26	Tot lot surfacing, wood mulch (3")	\$1,892
			27	Wood steps, railroad ties	\$630
			33	Picnic table (PTL wood table and bench)	\$1,040
			35	Roofing, asphalt shingles, includes flashings, drip edge,	\$85,000
			41	Gutter and downspouts, 5" aluminum	\$9,050
			58	Metal railing, steel/wrought iron	\$58,500
Total Scheduled Replacements		\$20,000	Total Scheduled Replacements		\$256,158

2038 - YEAR 16			2039 - YEAR 17		
Item		\$	Item		\$
36	Roofing, asphalt shingles	\$85,000	8	Parking lot striping	\$4,534
42	Gutter and downspouts, 5" aluminum	\$9,050	9	Concrete curb and gutter, barrier (6%)	\$11,715
47	Vinyl Exterior Shutter	\$9,450	10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			37	Roofing, asphalt shingles	\$85,000
			43	Gutter and downspouts, 5" aluminum	\$9,050
			48	Vinyl Exterior Shutter	\$9,450
			56	Concrete patio at grade (6%)	\$5,040
Total Scheduled Replacements		\$103,500	Total Scheduled Replacements		\$150,783

**PROJECTED REPLACEMENTS**

Item	2040 - YEAR 18	\$	Item	2041 - YEAR 19	\$
1	Entrance monument, repoint masonry	\$986	23	Security light, building mounted	\$45,900
3	Asphalt pavement, mill and overlay,	\$20,000	39	Roofing, asphalt shingles	\$85,000
5	Asphalt pavement, seal coat	\$19,951	40	Roofing, asphalt shingles, maintenance building	\$2,650
6	Asphalt pavement, crack sealing	\$12,250	45	Gutter and downspouts, 5" aluminum	\$9,050
14	Retaining wall, PTL (6%)	\$4,770	46	Gutter and downspouts, 5" aluminum, maintenance	\$518
15	Retaining wall, segmental block (reset)	\$97,854	50	Vinyl Exterior Shutter	\$9,450
16	Retaining wall, brick, repoint (6%)	\$3,515	61	Flooring, vinyl tile	\$27,972
24	Flood light, ground mounted	\$195	66	Domestic water main (10% allowance)	\$3,000
26	Tot lot surfacing, wood mulch (3")	\$1,892	67	Sanitary main (10% allowance)	\$3,000
31	Trash can coated metal (32 gal. wood slat)	\$890			
38	Roofing, asphalt shingles	\$85,000			
44	Gutter and downspouts, 5" aluminum	\$9,050			
49	Vinyl Exterior Shutter	\$9,450			
57	Concrete balcony, structural repair (6%)	\$65,641			
Total Scheduled Replacements		\$331,444	Total Scheduled Replacements		\$186,541

Item	2042 - YEAR 20	\$	Item	2043 - YEAR 21	\$
7	Asphalt Speed Bump	\$2,190	26	Tot lot surfacing, wood mulch (3")	\$1,892
51	Vinyl Exterior Shutter	\$9,450	52	Window, bay or bow	\$50,000
59	Privacy screen, PTL	\$5,800			
Total Scheduled Replacements		\$17,440	Total Scheduled Replacements		\$51,892

Item	2044 - YEAR 22	\$	Item	2045 - YEAR 23	\$
			5	Asphalt pavement, seal coat	\$19,951
			6	Asphalt pavement, crack sealing	\$12,250
			8	Parking lot striping	\$4,534
			9	Concrete curb and gutter, barrier (6%)	\$11,715
			10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			21	Fence, PTL, wood board @ trash enclosures	\$22,500
			28	Fence, 4' PTL, wood rail and batten	\$2,598
			29	Tot lot, MP structure, 1 platform and 1 slide (small)	\$26,500
			56	Concrete patio at grade (6%)	\$5,040
			64	Water heater, commercial gas (80 gal.)	\$131,250
No Scheduled Replacements			Total Scheduled Replacements		\$262,333



**PROJECTED REPLACEMENTS**

Item	2052 - YEAR 30	\$	Item	2053 - YEAR 31	\$
7	Asphalt Speed Bump	\$2,190			
14	Retaining wall, PTL (6%)	\$4,770			
16	Retaining wall, brick, repoint (6%)	\$3,515			
20	Fence, 6' PTL, wood board-on-board	\$15,173			
25	Tot lot, border PLT	\$2,500			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
27	Wood steps, railroad ties	\$630			
33	Picnic table (PTL wood table and bench)	\$1,040			
57	Concrete balcony, structural repair (6%)	\$65,641			
Total Scheduled Replacements		\$97,351	No Scheduled Replacements		

Item	2054 - YEAR 32	\$	Item	2055 - YEAR 33	\$
No Scheduled Replacements			5	Asphalt pavement, seal coat	\$19,951
			6	Asphalt pavement, crack sealing	\$12,250
			26	Tot lot surfacing, wood mulch (3")	\$1,892
			61	Flooring, vinyl tile	\$27,972
No Scheduled Replacements			Total Scheduled Replacements		\$62,065

Item	2056 - YEAR 34	\$	Item	2057 - YEAR 35	\$
22	Stormwater management (10% allowance)	\$20,000	7	Asphalt Speed Bump	\$2,190
23	Security light, building mounted	\$45,900	8	Parking lot striping	\$4,534
			9	Concrete curb and gutter, barrier (6%)	\$11,715
			10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			56	Concrete patio at grade (6%)	\$5,040
			59	Privacy screen, PTL	\$5,800
Total Scheduled Replacements		\$65,900	Total Scheduled Replacements		\$55,273

**PROJECTED REPLACEMENTS**

Item	2058 - YEAR 36	\$	Item	2059 - YEAR 37	\$
14	Retaining wall, PTL (6%)	\$4,770	2	Entrance monument, composite sign	\$5,200
16	Retaining wall, brick, repoint (6%)	\$3,515			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
57	Concrete balcony, structural repair (6%)	\$65,641			
Total Scheduled Replacements		\$75,818	Total Scheduled Replacements		\$5,200

Item	2060 - YEAR 38	\$	Item	2061 - YEAR 39	\$
1	Entrance monument, repoint masonry	\$986	26	Tot lot surfacing, wood mulch (3")	\$1,892
3	Asphalt pavement, mill and overlay,	\$20,000	66	Domestic water main (10% allowance)	\$3,000
5	Asphalt pavement, seal coat	\$19,951	67	Sanitary main (10% allowance)	\$3,000
6	Asphalt pavement, crack sealing	\$12,250			
15	Retaining wall, segmental block (reset)	\$97,854			
19	Fence, 4' galvanized chain link	\$2,413			
24	Flood light, ground mounted	\$195			
29	Tot lot, MP structure, 1 platform and 1 slide (small)	\$26,500			
31	Trash can coated metal (32 gal. wood slat)	\$890			
64	Water heater, commercial gas (80 gal.)	\$131,250			
Total Scheduled Replacements		\$312,289	Total Scheduled Replacements		\$7,892

Item	2062 (beyond study period)	\$	Item	2063 (beyond study period)	\$
7	Asphalt Speed Bump	\$2,190	8	Parking lot striping	\$4,534
30	Tot lot swing, 3 seat	\$2,550	9	Concrete curb and gutter, barrier (6%)	\$11,715
32	Bench, coated metal w/metal supports (7')	\$1,300	10	Concrete flatwork (6%)	\$15,960
34	Picnic table (metal)	\$1,000	11	Concrete trash corral pads (6%)	\$3,328
35	Roofing, asphalt shingles, includes flashings, drip edge,	\$85,000	12	Concrete steps (6%)	\$6,705
			36	Roofing, asphalt shingles	\$85,000
			56	Concrete patio at grade (6%)	\$5,040
Total Scheduled Replacements		\$92,040	Total Scheduled Replacements		\$132,283

## SECTION D - CONDITION ASSESSMENT

**General Comments.** MillerDodson Associates conducted a Reserve Study at Charlestowne Village in December 2021. Charlestowne Village is in generally mixed condition for a residential condominium constructed in 1964. A review of the Replacement Reserve Inventory will show that we are anticipating most of the components achieving their normal economic lives.

The following comments pertain to the larger, more significant components in the Replacement Reserve Inventory and to those items that are unique or deserving of attention because of their condition or the manner in which they have been treated in the Replacement Reserve Analysis or Inventory.

**IMPORTANT NOTE:** This Condition Assessment is based upon visual and apparent conditions of the common elements of the community which were observed by the Reserve Analyst at the time of the site visit. This Condition Assessment does not constitute, nor is it a substitute for, a professional Structural Evaluation of the buildings, amenities, or systems.

### General Condition Statements.

**Excellent.** 100% to 90% of Normal Economic Life expected, with no appreciable wear or defects.

**Good.** 90% to 60% of Normal Economic Life expected, minor wear or cosmetic defects found. Normal maintenance should be expected. If performed properly, normal maintenance may increase the useful life of a component. Otherwise, the component is wearing normally.

**Fair.** 60% to 30% of Normal Economic Life expected, moderate wear with defects found. Repair actions should be taken to extend the life of the component or to correct repairable defects and distress. Otherwise, the component is wearing normally.

**Marginal.** 30% to 10% of Normal Economic Life expected, with moderate to significant wear or distress found. Repair actions are expected to be cost-effective for localized issues, but normal wear and use are evident. The component is reaching the end of the Normal Economic Life.

**Poor.** 10% to 0% of Normal Economic Life expected, with significant distress and wear. Left unattended, additional damage to underlying structures is likely to occur. Further maintenance is unlikely to be cost-effective.

### SITE ITEMS

**Entry Monument and Signage.** The Association maintains an entry monument constructed of a masonry base with a composite sign panel mounted between two masonry piers. This sign appears to be in good condition and well maintained.

We recommend re-pointing and replacement of defective areas of the masonry as needed. The Association may want to consider applying a coating of Siloxane or other appropriate breathable sealants to mitigate water penetration and further degradation of the masonry work.

Community signage including stop, speed, street, and other miscellaneous signs are not considered in this study and should be replaced using other funds.

**Asphalt Pavement.** The Association is responsible for the roadways and parking areas within the community. Other roadways are maintained by the City, County, or other municipality. In general, the Association's asphalt pavements are in fair condition. Asphalt overlay and sealing work completed in 2020 indicate that the Association is working to keep all asphalt surfaces in serviceable condition.

The report segregates asphalt mill and overlay at areas re-worked in 2020 from the remainder of the asphalt areas not recently re-worked, with appropriate remaining economic life factors assigned to each.



The Association maintains an inventory of asphalt pavement along the following streets and areas:

Street Name	sf
Prince James Court (drive and parking areas)	54580
Parking area off Prince James Way (Units 8040-8046)	2140
Parking area off Lakecrest Drive (Units 8016-8038)	3990
Parking area off Lakecrest Drive (Units 7940-8014)	3990
Parking area off Lakecrest Drive (Units 7724-7938)	25980



The Defects noted include the following:

- **Open Cracks.** There are multiple locations where open cracks are allowing water to penetrate to the asphalt base and the bearing soils beneath. Over time, water will erode the base and accelerate the deterioration of the asphalt pavement. If cracks extend to the base and bearing materials, remove the damaged areas, and replace defective materials. As a part of normal maintenance, clean and fill all other cracks.
- **Alligatoring.** There are multiple locations where the asphalt has developed a pattern of cracking known as alligatoring. The primary cause of alligatoring is an unstable base. Once these cracks extend through the asphalt, they will allow water to penetrate to the base, accelerating the rate of deterioration, and eventually leading to potholes. The only solution is to remove the defective asphalt, compact the base, and install new base materials and asphalt.
- **Improper Grading.** The asphalt pavement is not properly graded, resulting in the ponding of water, most notable at the area in front of the storage/maintenance building. Proper grading of the asphalt pavement will require replacing portions of the asphalt. It may also require resetting improperly sloped curb and gutter segments that are not conveying water to the stormwater management system. If ponding is left unattended it can result in unsafe travel areas, by creating conditions for hydroplaning and pockets of ice to form.
- **Depressions.** There are areas where the asphalt surface is depressed due to deformation in the surface or underlying layers. These depressions may continue to grow with exposure to traffic. Water ponding is evident in several of these areas. Repair of these areas will require the removal of the asphalt and base material and reinstallation, by compacting the new base material and resurfacing with asphalt.

- **Wheel Rutting.** Depressions along the wheel lines extend along portions of the roadway. Repair of these areas will require full-depth and full-width pavement replacement. Wheel rutting, if left unattended can adversely affect vehicle steering.
- **Shoving.** Occurring at locations of sharp braking or turning. The primary cause of this defect is from large truck traffic. If addressed early, surface milling and overlay using a stiffer topcoat of asphalt paving shoving can be mitigated.
- **Tree Root Damage.** This is known as Heaving, there are locations where tree roots caused heaving in the pavement surface. The repair of these areas requires the removal of the asphalt and the tree roots, then replenish and re-compact the base material and resurface the asphalt. Root trimming can also be an effective way to control this defect.
- **Edge Cracking.** Sections of the asphalt pavement have developed cracks along the pavement edges due to improper confinement. Installation of curbs or installation of a compacted gravel shoulder at the time of an overlay project can address this defect.
- **Reflective Cracking.** The asphalt pavement has a significant number of reflective cracks. Reflective cracks occur when placing a new asphalt overlay over and existing cracked pavement. With time and movement, existing cracks will migrate through the new asphalt. Installing a bridging membrane or fabric at the time of overlay can control reflective cracking.

A more detailed summary of pavement distress can be found at <http://www.asphaltinstitute.org/engineering/maintenance-and-rehabilitation/pavement-distress-summary/>.



As a rule of thumb, asphalt should be overlaid when approximately 5% of the surface area is cracked or otherwise deteriorated. The normal service life of asphalt pavement is typically 18 to 20 years.

In an effort to maintain the condition of the pavement throughout the community and ensure the longest life of the asphalt, we recommend the Association adopt a systematic and comprehensive maintenance program that includes:

- **Cleaning.** Long-term exposure to oil or gas breaks down asphalt. Because this asphalt pavement is generally not used for long-term parking, it is unlikely that frequent cleaning will be necessary. When necessary, spill areas should be cleaned or patched if deterioration has penetrated the asphalt. This is a maintenance activity, and we have assumed that it will not be funded from Reserves.
- **Crack Repair.** All cracks should be repaired with an appropriate compound to prevent water infiltration through the asphalt into the base. This repair should be done annually. Crack repair is normally considered a maintenance activity and is not funded from Reserves. Areas of extensive cracking or deterioration that cannot be made watertight should be cut out and patched.
- **Seal Coating.** The asphalt should be seal coated every five to seven years. For this maintenance, activity to be effective in extending the life of the asphalt, cleaning, and crack repair should be performed first.

The pricing used is based on recent contracts for a two-inch overlay, which reflects the current local market for this work.

For seal coating, several different products are available. The older, more traditional seal coating product is paint. They coat the surface of the asphalt, and they are minimally effective. However, the newer coating materials, such as those from Total Asphalt Management, Asphalt Restoration Technologies, Inc., and others, are penetrating. They are engineered, so to speak, to 'remoisturize' the pavement. Asphalt pavement is intended to be flexible. Over time, the volatile chemicals in the pavement dry, the pavement becomes brittle, and degradation follows in the forms of cracking and potholes. Remoisturizing the pavement can return its flexibility and extend the life of the pavement.

**Concrete Work.** The concrete work includes the community sidewalks, lead walks, stairs, stoops, patios, curbs, and gutter as well as other miscellaneous flat-work. We have modeled for curb replacement when the asphalt pavement is overlaid. The overall condition of the concrete work varies from recently replaced to concrete work which has cracked, settled, and spalled. Many instances of tripping hazards have been noted and it is recommended that these areas be promptly replaced. Another potentially hazardous condition is the undermining of concrete stairs and walks due to erosion by stormwater and improperly installed drain leaders. The recent replacement of concrete slabs and stairs indicates the Association is continually working to correct deficiencies such as those noted.



The standards we use for recommending replacement are as follows:

- Trip hazard, ½ inch height difference.
- Severe cracking.
- Severe spalling and scale.
- Uneven riser heights on steps.
- Steps with risers in excess of 8¼ inches.





Because it is highly unlikely that all of the concrete components will fail and require replacement in the period of the study, we have programmed funds for the replacement of these inventories and spread the funds over an extended timeframe to reflect the incremental nature of this work.

**Retaining Walls.** The Association maintains a range of retaining wall types, including treated wood, segmental block, poured concrete, and brick masonry.

The treated wood retaining walls located throughout the property are mostly in poor condition with numerous instances of rotting and loose connections noted.



The segmental block walls, at two locations along the property line adjacent to Lakecrest Drive, are in good general condition with minor maintenance required to extend their economic life.

The poured concrete retaining walls, located along concrete stairways and adjacent to certain sidewalk areas, are in good general condition with minor cracking noted.





The brick retaining walls are primarily located at the below-grade access ways to the laundry rooms and storage rooms at either end of each of 12 buildings and at one end of three buildings. The condition of these walls varies from good to poor, with the primary deficiencies being loose and missing mortar, loose and missing brickwork, loose and deteriorating brickwork at metal railing bases, through-wall cracking, and deterioration of surface parging.

Retaining walls, in general, are designed to provide slope stabilization and soil retention by means of a structural system. Typically, walls that are three feet high or more require some level of design.

The movement and displacement of any retaining wall is a sign of general settlement or failure. This typically is in the form of leaning and bowing and can involve the entire wall or localized sections of the wall. Typically, these types of movements are gradual and may require the replacement of the wall. The movement of retaining walls located near other buildings or structures may negatively affect the stability of the adjacent structure. These conditions can become extremely costly if not properly identified, monitored, and addressed.

**Wood.** Wood retaining walls will experience rot and decay over time and partial replacement of defective wooden members is often possible in the early stages of decay. Eventually, however, these walls will require replacement. Wood retaining walls can have a useful life of 25 to 35 years.

**Brick, Stone, and Concrete Block.** Brick, stone, concrete block masonry walls can have an extended useful life of 40 years or more, and if stable, may only require periodic re-pointing and localized repair. Repoint is the process of raking out defective masonry joints and tooling new mortar into the joints. Properly mortared and tooled joints will repel the weather and keep water from penetrating the wall. Siloxane or other breathable sealants should be considered to provide additional protection to the wall from water penetration. This study assumes that re-pointing will be performed incrementally as needed to maintain the life of the wall.

**Segmental Block.** Segmental block retaining walls can have an extended useful life, and if stable, are likely to only require localized resetting of displaced blocks, typically near the top of the wall. This study assumes that resetting will be performed incrementally as needed.

**Poured Concrete.** Poured concrete retaining walls can have an extended useful life of 60 years or more, and if stable, may only require periodic localized repair. Siloxane or other breathable sealants should be considered to provide additional protection to the wall from water penetration. This study assumes that concrete repairs will be performed incrementally as needed.

Retaining wall replacement can be costly, and early planning on the part of the Association can help to reduce the impact of this work on the community's budget in the future. We, therefore, recommend having a Professional Engineer inspect the walls and develop preliminary replacement alternatives and recommendations based on the site conditions, replacement costs, and recommended replacement wall types. This information can then be incorporated into future updates to the Reserve Study.

**Metal Hand Railing and Guardrails.** The Association maintains metal handrails, guardrails, and railing posts that are embedded in concrete or masonry, throughout the community. These handrails include free-standing rail systems, railings mounted to walls along stairways, guardrails at the top perimeter of retaining walls, and guard rails at the edges of the elevated balcony structures. These railings are generally in good condition and appear to be well-maintained by the Association although a number of deficiencies are noted. Most deficiencies are associated with the stability of the post bases mounted in the brick masonry retaining walls due to either rust corrosion or loose and broken brick. These conditions could compromise the stability of the associated railing system thereby creating a potential hazard.



It is noted that as the condition of the railings at the elevated balconies was assessed by inspection from the ground level only, the actual condition of these railings has not been determined. As noted for the concrete balcony structures, it is recommended that the Association retain the services of a structural engineer to perform a comprehensive inspection of the elevated deck structures, including the guardrails. and their support systems in order to establish their structural integrity.



As part of normal maintenance, we recommend the following:

- Lift or remove ornamental base covers, if applicable.
- Remove existing caulk completely.
- Fully clean, prime, and paint all posts, rails, and pickets.
- Apply an appropriate caulk around each post base.
- Tool and shape caulking to shed water from the post.
- Reinstall base covers, and seal and paint all joints.

Railings can have an extended useful life if these simple maintenance activities are performed regularly. If left unattended, the pressure from expansive post rust can crack and damage the supporting materials.

**Fencing.** The Association maintains board-on-board wood, vinyl, and chain-link fencing at various locations throughout the community.



The wood board-on-board fencing is located along portions of the southwest property line, around the play area, at the trash enclosures at each of the 15 buildings, and at privacy fences at certain individual townhouse units. The condition of these various fences varies from good to poor, with rotten components, loose fence posts, and out of plumb sections of fencing noted

The chain-link fence is located at the south property line of the community adjacent to Lakecrest Drive. This fence appears to be in good condition.

The vinyl 2-rail and post fence is located along Lakecrest Drive and runs up the drive to the parking area at units 7748-7938. This fence appears to be in generally good condition.



Fencing systems have a large number of configurations and finishes that can usually be repaired as a maintenance activity by replacing individual components as they become damaged or weathered.

Protection from string machine damage during lawn maintenance can extend the useful life of some fence types. Protection from this type of damage is typically provided by applying herbicides around post bases or installing protective sheathing.

Pressure treated wood fencing should be cleaned and sealed every year or two. Typically the least cost fencing option, this type of fence can last 15 to 20 years if maintained properly.

Vinyl fencing made of 100% virgin material can last 30 to 35 years, and periodic cleaning will keep the fence looking attractive. Vinyl components with ticker walls can provide a longer useful life.

Chain link fencing can have a useful life of 40 years or more. Periodic weed control may be required to protect and maintain the fence.

The Association maintains steel fence posts and fasteners that are embedded in concrete or masonry.

As part of normal maintenance, we recommend the following:

- Lift or remove ornamental base covers, if applicable
- Remove existing caulk completely
- Clean, prime, and paint all posts
- Apply an appropriate caulk around each post base
- Tool and shape caulking to shed water from post
- Reinstall base covers, and seal and paint all joints

Fence posts can have an extended useful life if these simple maintenance activities are performed. If left unattended, the pressure from expansive post rust can crack and damage the supporting material.

**Site Lighting.** The Association is responsible for the operation of the facility's wall-mounted security lighting as well as the ground-mounted light at the monument sign. These lights appear to be in serviceable condition although the proper operation of this lighting has not been verified.

During the site inspection, it was noted that several of these lights were operating during daylight conditions suggesting improper light controller operation.



When a whole-scale lighting replacement project is called for, we recommend consulting with a lighting design expert. Many municipalities have design codes, guidelines, and restrictions when it comes to exterior illumination.

Additionally, new technology such as LED and LIFI, among others, is considered. The Association should consider factors such as environmental sustainability, longevity, and cost when they look at the replacement of their lighting.

## RECREATION ITEMS

**Tot Lots.** The community maintains a tot lot which includes two play structures and a three-seat swing. The play surface is comprised of two levels connected by a treated wood stair. The play surface is of wood chips surrounded by a treated wood border. The play area is enclosed on one side by the board-on-board fence at the property line (included under the Site Items) and on two sides by a wood rail and batten fence, portions of which are attached to the treated wood border. The remaining side of the play area is open.

The play structures are in generally good condition with minor wear and a few loose connections noted. The play surface and wood border, including the steps, have reached the end of their economic life and need to be replaced.

Although the wood rail and batten fence and stair rail are in fair condition any repair or replacement of these items would need to be coordinated with the replacement of the wood border to which they are attached.



There is a metal picnic table and a metal bench located at the Tot Lot, both of which are in good serviceable condition. Two wood picnic tables located elsewhere are in poor condition and need to be replaced.



The safety of each individual piece of playground equipment, as well as the layout of the entire play area, should be considered when evaluating a playground for safety. The installation and maintenance of the protective surfacing under and around all equipment is crucial. Please note that the evaluation of the equipment and these facilities for safety is beyond the scope of this work.

Information for playground design and safety can be found in the "Public Playground Safety Handbook", U.S. Consumer Product Safety Commission (Pub Number 325). For a link to this handbook, please see our website at [www.mdareserves.com/resources/links/recreation](http://www.mdareserves.com/resources/links/recreation).

Our estimates for playground equipment are based on comparing photos of the existing equipment with equipment of a similar size in manufacturers' catalogs. We use the pricing that is quoted by manufacturers for comparable equipment and added an additional 30% for the disposal of the old equipment and installation of new equipment.

## EXTERIOR ITEMS

**Building Roofing.** The roofs at all 15 townhouse buildings, the storage/maintenance building, and at each trash enclosure are covered with shingles. According to the Association, these roofs have been replaced with 25-year fiberglass shingles within the last 8 years, with the latest of this replacement completed last year. According to Association documentation, the re-roofing included replacement of ridge vents, vent pipe flashing, aluminum flashing (as necessary), and drip edge flashing. Based upon an inspection of the roof surfaces from ground level, it appears that all roof surfaces and flashings are in good condition, with exceptions noted.

There are roof areas that have become discolored where downspouts from upper roof surfaces discharge onto lower roof surfaces. Although this is unsightly, the performance of the roof surface itself does not appear to be compromised. Organic growth noted on some lower roof surface areas, if not checked, may result in accelerated degradation of these surfaces. Finally, areas are noted where sheet metal counter flashing is excessively deflected from the adjacent roof surface which may allow for the intrusion of water into the roof surface and adjacent wall area.

The 19-year remaining economic life of the roofing is based upon the estimated 25-year warranty minus the eight years which have elapsed since the installation of the initial re-roofing. The future re-roofing of three buildings each is modeled over a five-year period.



Asphalt shingle roofs can have a useful life of 20 to 50 years depending on the weight and quality of the shingle. Weathered, curled, and missing shingles are all indications that the shingles may be nearing the end of their useful life.

Annual inspections are recommended, with cleaning, repair, and mitigation of vegetation performed as needed. Access, inspection, and repair work should be performed by contractors and personnel with the appropriate access equipment who are experienced in the types of roofing used for the facility.

**Gutters and Downspouts.** The buildings have aluminum gutter and downspout roof drainage systems. At those areas where there are two roof levels, the upper roof surfaces drain via downspouts which discharge onto the lower surface. All other downspouts either drain to splash blocks at the ground surface, directly to grade, or are connected to below-grade drainage systems. The Association reports that gutters and downspouts replacement, where necessary, occurred as part of the building re-roofing process.

In general, the gutter and downspout systems appear to be functioning in an acceptable manner, although instances of loose connections, bent downspouts, loose flashing, and deterioration of joint sealant are noted. In addition, at locations where splash blocks are not present or where the connection of downspouts to the below-grade drainage piping is loose, erosion is noted. This erosion, if left unchecked, could cause damage to building foundations over time. Finally, there are locations where the water discharge from downspouts at upper roof areas appears to discharge over lower roof areas with such force as to overflow the lower gutter. This overflow could have undesirable effects on the wall and ground surfaces below.





A gutter and downspout system will remove rainwater from the area of the building's roof, siding, and foundation, protect the exterior surfaces from water damage. Gutters should run the full length of all drip edges of the building's roof. Even with full gutters, it is important to inspect the function of the gutters during heavy rain to identify any deficiencies. It may be necessary to periodically adjust the slope of sections, repair connections, replace hangers, and install shrouds to the gutter system. Downspouts should be securely attached to the side of the structure. Any broken straps should be replaced. The area of the outlet should be inspected to promote run-off in the desired direction. Long straight runs should have an elbow at the bottom. Splash blocks should be installed to fray the water out-letting from the downspout.

It is recommended that all gutters be cleaned at least twice each year. If there are a large number of trees located close to a building, consider installing a gutter debris shield that will let water into the gutters but will filter out leaves, twigs, and other debris.

It is also recommended that the discharge from the downspouts be extended at least ten feet away from the foundations.

**Bay Window and Doors.** The Association is responsible for the common bay windows and for the exterior doors located at each laundry room and storage room. The individual owners are responsible for all other windows and doors attributed to their unit.

The bay windows appear to be in good serviceable condition. Most of the metal doors to the laundry and storage areas exhibit deterioration in the form of rust, particularly at the lower parts of the metal frames in contact with the concrete slab. In some cases, this deterioration has advanced to the degree that the integrity of the door and frame system is compromised. The remaining economic life of these doors and frames has been adjusted to accommodate this condition.



For Associations where the unit owner is responsible for the replacement of their own windows and exterior doors, we recommend for the Association consider offering the unit owners an option to have their replacements performed in conjunction with the Association's work. This can be performed either by a separate agreement between the unit owner and the Association's selected contractor or by back charging the unit owner.

Window and door units play an integral part in a facility's overall comfort, efficiency, and energy use. The quality of the installed units and the care taken in their installation and maintenance are major factors in their effectiveness and useful life. These units can have a useful life of 20 to 35 years or more depending on their use and other factors mentioned above.



In general, we recommend coordinating the replacement of these units with other exterior work, such as siding and roof replacements. The weather tightness of the building envelope often requires transitional flashing and caulking that should be performed in coordination with each other. Warranties and advantages in 'economy of scale' can often result in lower overall replacement costs and results that are more reliable. Lastly, coordinated replacements offer the opportunity to correct initial construction defects and improve the effectiveness of details with improved construction techniques and materials.

**Siding and Trim.** The Association maintains the exterior siding and trim at both the townhouse buildings and the storage/maintenance building. In general the siding and trim are in fair condition, with loose sections and discoloration due to organic growth noted.



Vinyl/Aluminum Siding and Trim can have an extended useful life if not damaged by impact, heat, or other physical reasons. However, the coatings and finishes typically have a useful life and over time begin to weather, chalk, and show their age. For these reasons, we have modeled for the replacement of the siding and trim every 25 years.

Synthetic products are used in decorative architectural details. Often these are made of Polyvinyl-chloride or (PVC). PVC is known to have degradation problems with sunlight and in particular, ultraviolet radiation. These products come from the manufacturer with several coats of primer, and painting after installation is required. Following the manufacturer's recommendations for cleaning, painting, and caulking, we expect this product to have a useful life of 40 years or more.

**Concrete Balconies.** The Association maintains the concrete balconies at each of the 15 townhouse buildings. Two types of balcony structures were observed, self-supporting slabs and slabs supported by a metal deck and steel beam and column system. The condition of these balconies, as assessed from the ground level, appears to be generally good, this includes the concrete slabs (visible areas of the bottom surfaces and at the edges), supporting steel column structures, and the wrought iron guard rails. The condition of the balcony surfaces has not been verified.

Based upon casual observation of the visible parts of the decks from the ground it appears that these deck structures exhibit a normal aging process, with some cracking and initial concrete degradation, as well as areas of previous repair noted. However, a detailed observation of the deck structures, guardrails, connections, and other appurtenances has not been made. As it is not the intent of this report to assess the structural integrity of these deck structures, it is recommended that the Association retain the services of a structural engineer to perform a comprehensive inspection of the elevated deck structures and their support systems in order to establish their structural integrity.



We noted no major defects which appear to be significant, although cracking in the concrete decks near support structures, cracks in supporting brick masonry, and spalling of brick at balcony bearing locations is noted. These defects should be closely monitored to determine if any of these conditions worsen over time.

MillerDodson strongly recommends that the Association retain the services of a Structural Engineer to conduct thorough and periodic evaluations of the building structure, the balconies, and any other structural features of the community.



Concrete balconies are prone to deterioration due to their exposure to the elements. This deterioration begins within the concrete and slowly progresses to the surface. By the time it becomes visible, the damage has been done, and an expensive and extensive remedial action is typically required.

The leading cause of concrete balcony deterioration is the corrosion of the embedded reinforcing steel. Water penetrates the concrete surface or enters the concrete through penetrations such as railing mounting holes, and when water meets the reinforcing steel, corrosion results. As the steel corrodes, it expands, putting pressure on the surrounding concrete. This pressure will eventually result in cracks, delamination, and spalling. The rate of corrosion is influenced by such factors as the thickness and density of the concrete, the rate of water infiltration, and the installation of carpet or other water-retaining materials on the balcony's surface.

We recommend for the Association implement an annual inspection and power-washing program. Installation of carpet or other water trapping coverings should be prohibited, and potted plants should be placed on raised feet to allow for proper air circulation and drying.

Additionally, we recommend the application of appropriate sealants or coatings to the top surface and exposed edges of the concrete deck, as well as re-caulking all railing post mounted into the deck slab. The underside of the concrete deck should be left untreated or treated with a breathable finish to allow entrapped moisture to escape.

Please note that your State or local jurisdiction may have specific requirements for deck and balcony inspections, such as the recently enacted Maryland HB 947 (Jonathan's Law). This level of inspection is beyond the scope of work for this Reserve Study.

## INTERIOR ITEMS

**Flooring, Vinyl Tile.** The Association maintains the vinyl tile flooring at the common laundry rooms and at those area where the laundry rooms and the storage rooms are located in the same space. The floors in the separate storage rooms are painted concrete and are excluded from the study.

The vinyl flooring tile condition varies from good to rather poor. The latter being the result of the intrusion of water into a few of these rooms, which is causing these tiles to buckle and discolor. Tiles that have become loose have the potential to become tripping hazards. It appears that some type of drainage system has been installed in a few of these spaces in order to divert surface water to sump pits. In some cases, the covers to the sump pit are incorrectly installed which may present a hazard.



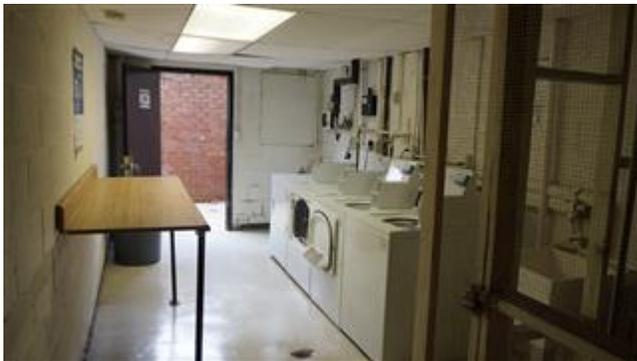
**Ceiling Tile.** The Association maintains suspended acoustical tile ceilings at the common laundry rooms. The ceilings at those areas where the laundry rooms and the storage rooms are located in the same space and at the separate storage rooms are of painted gypsum board and are excluded from the study.

The condition of these ceilings ranges from fair to poor, as numerous instances of loose, missing, stained, and damaged ceiling panels is noted.



It is important that the integrity of these ceilings tile be maintained as it helps to insulate the above spaces to protect piping installed above the tile. Any gaps or missing tile will allow cold air to penetrate the space above the tile, increasing heat loss from the conditioned space increasing the chances of freezing the piping above the tile. We recommend that the tile be inspected in the fall and after any work is completed in the space above the tile.

**Interior Lighting:** The Association maintains the interior lighting at the laundry rooms and storage rooms. At the individual laundry rooms, this lighting consists of 2x4 lay-in fluorescent fixtures. At those areas where the laundry rooms and the storage rooms are located in the same space and at the separate storage rooms, the lighting consists of various types, including surface-mounted 2x4 fluorescent lights, incandescent lights, and LED lights.



The condition of these light fixtures ranges from good to poor, as some fixtures appear to be newer or have been retrofitted with LED luminaries while others are in poor condition with inoperative luminaries and stained diffusers noted.



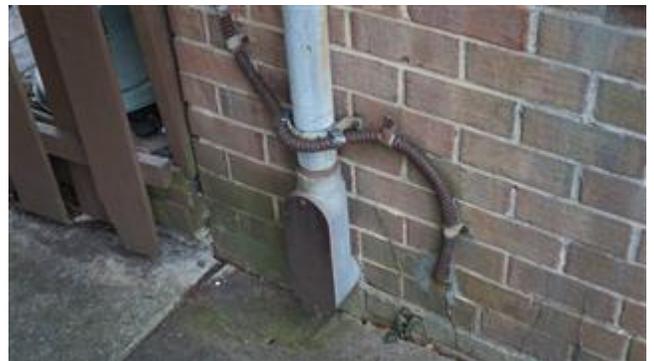


## BUILDING SYSTEMS

**Building Electrical Service.** The Association maintains the main switchgear at each of the 15 townhouse buildings, as well as the individual distribution panels at each of the 165 units. According to the Association, all electrical panels within all units and in the common areas were replaced in 2019. As a result, it is assumed that all of these replaced systems are in good condition. Stickers visible on some of these panels indicate that they have passed inspection by the authority having jurisdiction.



Other components of the overall electrical systems at the buildings appear to be in rather a poor condition. Conditions such as rusting box covers, rusting conduit (some at the exterior), exposed wiring with what appears to be damaged insulation, and improper wiring methods such as cords to sump pumps plugged into what appears to be non-GFI receptacles, were observed. It is recommended that these items be inspected by a licensed electrician to determine if there are any life safety issues associated with these conditions.



Other than the items indicated above, transformers and meters and if protected from water damage or overloading, interior electrical systems within a building, including feed lines and switchgear, are considered long-life components, and unless otherwise noted, are excluded from this study.

In order to maintain this equipment properly, periodic tightening of all connections is recommended every three to five years. Insurance policies in some cases may have specific requirements regarding the tightening of electrical connections. It is also recommended that outlets, sockets, switches, and minor fixtures be replaced at a maximum of every 30 years.

Replacement of these smaller components, unless otherwise identified, is considered incidental to refurbishment or is considered a Valuation Exclusion.

**Electrical Distribution Panels.** As indicated, the building electrical distribution panels located throughout the facility have been replaced in 2019. For the purposes of this study, it is assumed that these panels have a rated service life of 50 years or more.

**Electrical Switchgear.** The primary electrical switchgear dates to the original construction of the building. Electrical switchgear has a rated service life of 50 years or more. Electrical switchgear requires ongoing maintenance for proper operation and reliability.

**Underground Utilities.** The Association is responsible for underground domestic water and sanitary sewer line maintenance and replacement. The condition of these underground systems has not been verified.

Engineering drawings were not used in the determination of these underground components. Instead, we have provided an estimate of the approximate replacement costs based on our experience with other facilities of similar size and configuration. The inspection and evaluation of underground lines and structures is beyond the scope of work for this study.

**Code Compliance Comments.** Although the code compliance of various building systems and components is not considered part of this replacement reserve study, there are certain observed conditions that are of concern.

The most notable condition is the many instances where the gypsum board ceilings in various storage rooms have been removed (for what appears to be the installation of piping and/or mechanical venting systems) and not replaced. This has left the above-ceiling space open to the storage room thereby exposing the floor structure of the residential units above. If, as is likely, these ceilings form part of a fire-rated floor-ceiling assembly between the storage areas and the residential units above, the lack of integrity of these systems (due to the missing gypsum board finish) could present a life-safety concern in the event of a fire. It is recommended that the Association have a qualified building inspector render an expert opinion regarding this condition.



Another item of concern is the lack of handrails at certain stair structures at the site, including steps to concrete stoops at individual units. It is recommended that the Association consider the installation of handrails at these locations, particularly when these stairs are replaced as a part of on-going maintenance activities.



Also noted is the presence of spalling of the brick face at exterior building walls indicating water intrusion into the brick surface and freezing. Other evidence of deterioration in these building walls is loose and missing mortar at brick joints and the discoloration of the brick due to organic growth. Wall areas where brick has been replaced and re-pointed suggest that this is an ongoing issue. Settlement cracking noted at certain interior concrete masonry walls at laundry/storage rooms combined with settlement cracking at concrete slabs exterior to these rooms suggest settlement issues perhaps related to stormwater management problems. It is recommended that these issues be further examined by a qualified building inspector.



**Finally, certain observed utility conditions of concern include missing covers at communication systems boxes within the building common areas as well as at outside yard areas. It is recommended that these be repaired to avoid any possible hazardous conditions.**

This Condition Assessment is based upon our visual survey of the property. The sole purpose of the visual survey was an evaluation of the common and limited common elements of the property to ascertain their remaining useful life and replacement cost. Our evaluation assumed that all components met building code requirements in force at the time of construction. Our visual survey was conducted with care by experienced persons, but no warranty or guarantee is expressed or implied.

End of Condition Assessment

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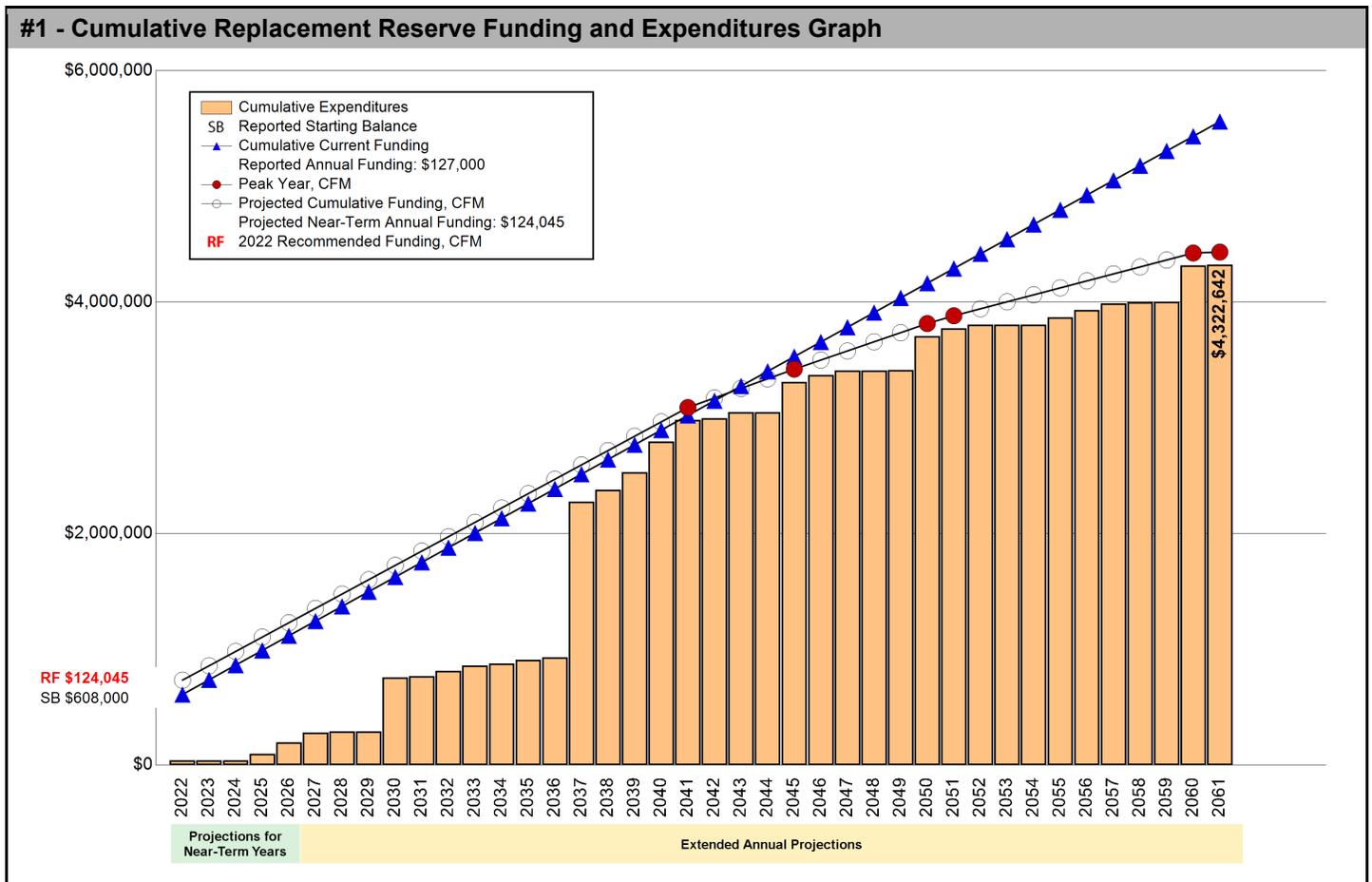
## SECTION A - FINANCIAL ANALYSIS

The Charlestowne Village - Balcony Scenario Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 67 Projected Replacements identified in the Replacement Reserve Inventory.

**\$124,045** RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2022  
 \$62.65 Per unit (average), minimum monthly funding of Replacement Reserves

We recommend the Association adopt a Replacement Reserve Funding Plan based on the annual funding recommendation above. Inflation adjusted funding for subsequent years is shown on Page A1.5.

Charlestowne Village - Balcony Scenario reports a Starting Balance of \$608,000 and Annual Funding totaling \$127,000, which adequately funds projected replacements for the near-term years. See Page A1.3 for a more detailed evaluation.



**REPLACEMENT RESERVE ANALYSIS - GENERAL INFORMATION**

The Charlestowne Village - Balcony Scenario Replacement Reserve Analysis calculations of recommended funding of Replacement Reserves by the Cash Flow Method (CFM) and the evaluation of the Current Funding are based upon the same Study Year, Study Period, Beginning Balance, Replacement Reserve Inventory and Level of Service.

**2022 | STUDY YEAR**

The Association reports that their accounting year begins on January 1, and the Study Year, the first year evaluated by the Replacement Reserve Analysis, begins on January 1, 2022.

**40 Years | STUDY PERIOD**

The Replacement Reserve Analysis evaluates the funding of Replacement Reserves over a 40-year Study Period

**\$608,000 | STARTING BALANCE**

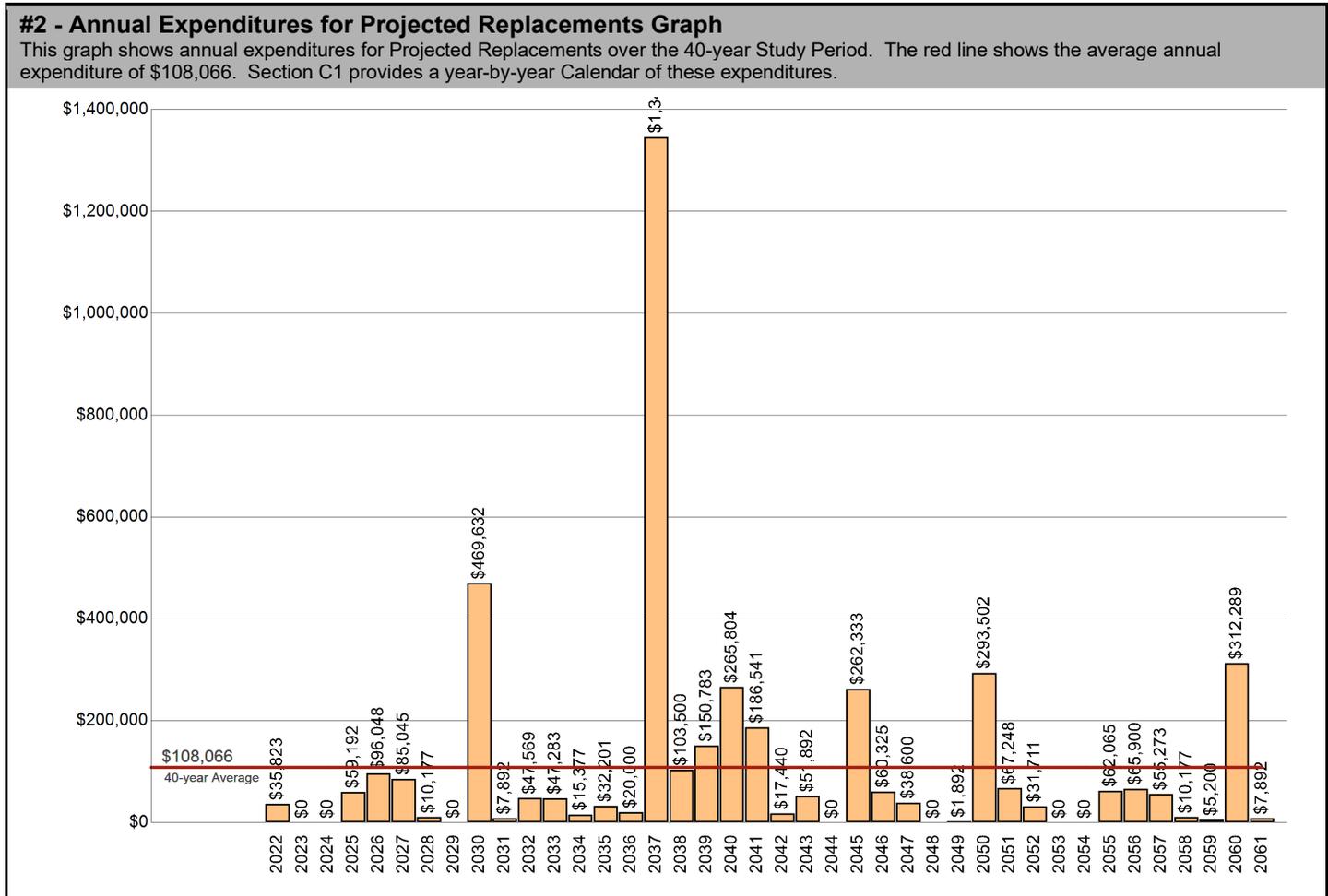
The Association reports Replacement Reserves on Deposit totaling \$608,000 at the start of the Study Year.

**Level Two | LEVEL OF SERVICE**

The Replacement Reserve Inventory has been developed in compliance with the National Reserve Study Standards for a Level Two Study, as defined by the Community Associations Institute (CAI).

**\$4,322,642 | REPLACEMENT RESERVE INVENTORY - PROJECTED REPLACEMENTS**

The Charlestowne Village - Balcony Scenario Replacement Reserve Inventory identifies 67 items that will require periodic replacement, which are to be funded from Replacement Reserves. We estimate the cost of these replacements will be \$4,322,642 over the 40-year Study Period. The Projected Replacements are divided into 5 major categories starting on Page B1.3. Pages B1.1-B1.2 provide detailed information on the Replacement Reserve Inventory.



**UPDATING OF THE FUNDING PLAN**

The Association has a responsibility to review the Funding Plan annually. The review should include a comparison and evaluation of actual reserve funding with recommended levels shown on Page A1.4 and A1.5. The Projected Replacements listed on Page C1.2 should be compared with any replacements accomplished and funded from Replacement Reserves. Discrepancies should be evaluated and if necessary, the Reserve Study should be updated or a new study commissioned. We recommend annual increases in replacement reserve funding to account for the impact of inflation. Inflation Adjusted Funding is discussed on Page A1.5.

**UPDATING OF THE REPLACEMENT RESERVE STUDY**

At a minimum, the Replacement Reserve Study should be professionally updated every three to five years or after completion of a major replacement project. Updating should also be considered if during the annual review of the Funding Plan, discrepancies are noted between projected and actual reserve funding or replacement costs. Updating may also be necessary if there is a meaningful discrepancy between the actual inflation rate and the inflation rate used for the Inflation Adjusted Funding of Replacement Reserves on Page A1.5.

**ANNUAL EXPENDITURES AND CURRENT FUNDING**

The annual expenditures that comprise the \$4,322,642 of Projected Expenditures over the 40-year Study Period and the impact of the Association continuing to fund Replacement Reserves at the current level are detailed in Table 3.

<b>#3 - Table of Annual Expenditures and Current Funding Data - Years 1 through 40</b>										
Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Starting Balance	\$608,000									
Projected Replacements	(\$35,823)			(\$59,192)	(\$96,048)	(\$85,045)	(\$10,177)		(\$469,632)	(\$7,892)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$699,177	\$826,177	\$953,177	\$1,020,985	\$1,051,938	\$1,093,893	\$1,210,716	\$1,337,716	\$995,084	\$1,114,192
Cumulative Expenditures	(\$35,823)	(\$35,823)	(\$35,823)	(\$95,015)	(\$191,062)	(\$276,107)	(\$286,284)	(\$286,284)	(\$755,916)	(\$763,808)
Cumulative Receipts	\$735,000	\$862,000	\$989,000	\$1,116,000	\$1,243,000	\$1,370,000	\$1,497,000	\$1,624,000	\$1,751,000	\$1,878,000
Year	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Projected Replacements	(\$47,569)	(\$47,283)	(\$15,377)	(\$32,201)	(\$20,000)	(\$1,346,038)	(\$103,500)	(\$150,783)	(\$265,804)	(\$186,541)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$1,193,623	\$1,273,341	\$1,384,964	\$1,479,762	\$1,586,762	\$367,724	\$391,224	\$367,441	\$228,637	\$169,096
Cumulative Expenditures	(\$811,377)	(\$858,659)	(\$874,036)	(\$906,238)	(\$926,238)	(\$2,272,276)	(\$2,375,776)	(\$2,526,559)	(\$2,792,363)	(\$2,978,904)
Cumulative Receipts	\$2,005,000	\$2,132,000	\$2,259,000	\$2,386,000	\$2,513,000	\$2,640,000	\$2,767,000	\$2,894,000	\$3,021,000	\$3,148,000
Year	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Projected Replacements	(\$17,440)	(\$51,892)		(\$262,333)	(\$60,325)	(\$38,600)	(\$1,892)		(\$293,502)	(\$67,248)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$278,656	\$353,764	\$480,764	\$345,432	\$412,107	\$500,507	\$627,507	\$752,615	\$586,113	\$645,865
Cumulative Expenditures	(\$2,996,344)	(\$3,048,236)	(\$3,048,236)	(\$3,310,568)	(\$3,370,893)	(\$3,409,493)	(\$3,409,493)	(\$3,411,385)	(\$3,704,887)	(\$3,772,135)
Cumulative Receipts	\$3,275,000	\$3,402,000	\$3,529,000	\$3,656,000	\$3,783,000	\$3,910,000	\$4,037,000	\$4,164,000	\$4,291,000	\$4,418,000
Year	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061
Projected Replacements	(\$31,711)			(\$62,065)	(\$65,900)	(\$55,273)	(\$10,177)	(\$5,200)	(\$312,289)	(\$7,892)
Annual Deposit	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000	\$127,000
End of Year Balance	\$741,154	\$868,154	\$995,154	\$1,060,089	\$1,121,189	\$1,192,916	\$1,309,739	\$1,431,539	\$1,246,250	\$1,365,358
Cumulative Expenditures	(\$3,803,846)	(\$3,803,846)	(\$3,803,846)	(\$3,865,911)	(\$3,931,811)	(\$3,987,084)	(\$3,997,261)	(\$4,002,461)	(\$4,314,750)	(\$4,322,642)
Cumulative Receipts	\$4,545,000	\$4,672,000	\$4,799,000	\$4,926,000	\$5,053,000	\$5,180,000	\$5,307,000	\$5,434,000	\$5,561,000	\$5,688,000

**EVALUATION OF CURRENT FUNDING**

The evaluation of Current Funding (Starting Balance of \$608,000 & annual funding of \$127,000) is done in today's dollars with no adjustments for inflation or interest earned on Replacement Reserves. The evaluation assumes Replacement Reserves will only be used for the 67 Projected Replacements identified in the Replacement Reserve Inventory and that the Association will continue Annual Funding of \$127,000 throughout the 40-year Study Period.

Annual Funding of \$127,000 is approximately 102 percent of the \$124,045 recommended Annual Funding calculated by the Cash Flow Method for 2022, the Study Year.

See the Executive Summary for the Current Funding Statement.

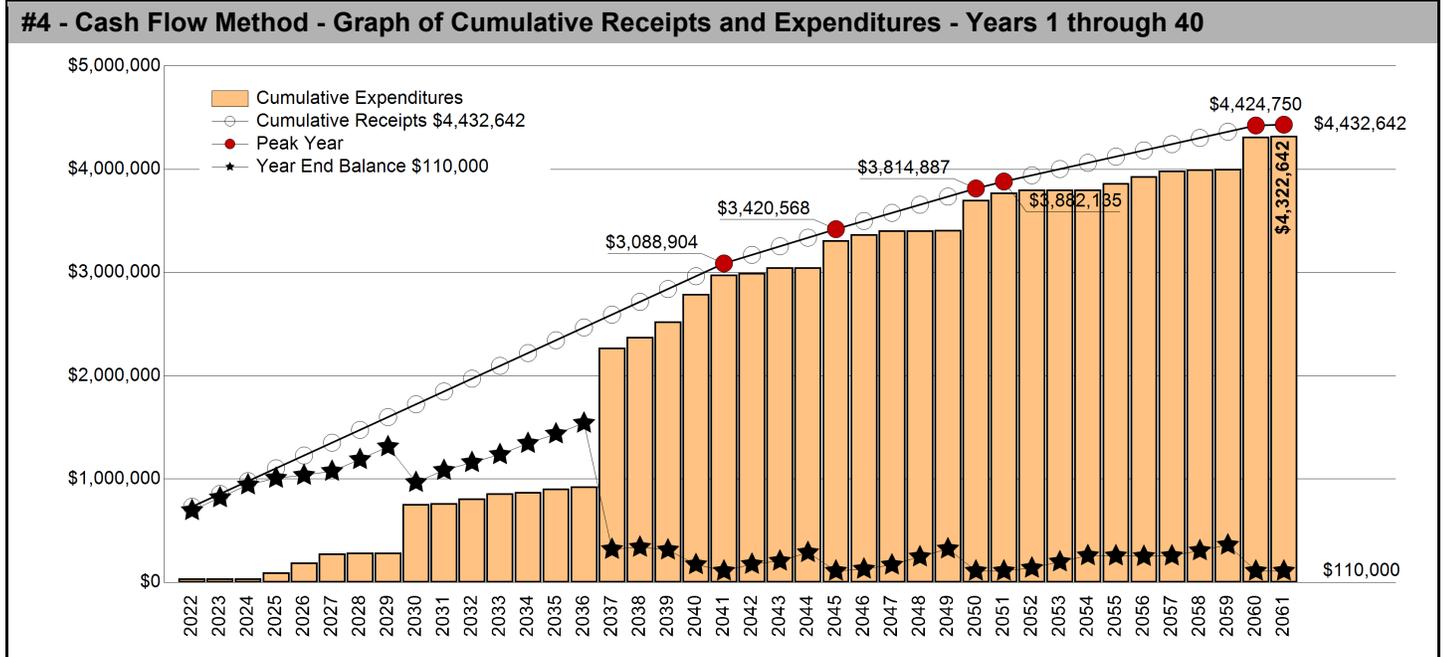
# CASH FLOW METHOD FUNDING

## \$124,045 RECOMMENDED REPLACEMENT RESERVE FUNDING FOR 2022

\$62.65 Per unit (average), minimum monthly funding of Replacement Reserves

Recommended Replacement Reserve Funding has been calculated using the Cash Flow Method (also called the Straight Line or Threshold Method). This method calculates a constant annual funding between peaks in cumulative expenditures, while maintaining a Minimum Balance (threshold) in the Peak Years.

- Peak Years.** The First Peak Year occurs in 2041 with Replacement Reserves on Deposit dropping to the Minimum Balance after the completion of \$2,978,904 of replacements from 2022 to 2041. Recommended funding is projected to decline from \$124,045 in 2041 to \$82,916 in 2042. Peak Years are identified in Chart 4 and Table 5.
- Threshold (Minimum Balance).** The calculations assume a Minimum Balance of \$110,000 will always be held in reserve, which is calculated by rounding the 12-month 40-year average annual expenditure of \$108,066 as shown on Graph #2.
- Cash Flow Method Study Period.** Cash Flow Method calculates funding for \$4,322,642 of expenditures over the 40-year Study Period. It does not include funding for any projects beyond 2061 and in 2061, the end of year balance will always be the Minimum Balance.



### #5 - Cash Flow Method - Table of Receipts & Expenditures - Years 1 through 40

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Starting Balance	\$608,000									
Projected Replacements	(\$35,823)			(\$59,192)	(\$96,048)	(\$85,045)	(\$10,177)		(\$469,632)	(\$7,892)
Annual Deposit	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045
End of Year Balance	\$696,222	\$820,268	\$944,313	\$1,009,166	\$1,037,164	\$1,076,164	\$1,190,033	\$1,314,078	\$968,491	\$1,084,644
Cumulative Expenditures	(\$35,823)	(\$35,823)	(\$35,823)	(\$95,015)	(\$191,062)	(\$276,107)	(\$286,284)	(\$286,284)	(\$755,916)	(\$763,808)
Cumulative Receipts	\$732,045	\$856,090	\$980,136	\$1,104,181	\$1,228,226	\$1,352,271	\$1,476,316	\$1,600,362	\$1,724,407	\$1,848,452
Year	2032	2033	2034	2035	2036	2037	2038	2039	2040	1st Peak - 2041
Projected Replacements	(\$47,569)	(\$47,283)	(\$15,377)	(\$32,201)	(\$20,000)	(\$1,346,038)	(\$103,500)	(\$150,783)	(\$265,804)	(\$186,541)
Annual Deposit	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045	\$124,045
End of Year Balance	\$1,161,121	\$1,237,883	\$1,346,551	\$1,438,395	\$1,542,440	\$320,447	\$340,992	\$314,254	\$172,496	\$110,000
Cumulative Expenditures	(\$811,377)	(\$858,659)	(\$874,036)	(\$906,238)	(\$926,238)	(\$2,272,276)	(\$2,375,776)	(\$2,526,559)	(\$2,792,363)	(\$2,978,904)
Cumulative Receipts	\$1,972,497	\$2,096,542	\$2,220,588	\$2,344,633	\$2,468,678	\$2,592,723	\$2,716,768	\$2,840,814	\$2,964,859	\$3,088,904
Year	2042	2043	2044	2nd Peak - 2045	2046	2047	2048	2049	3rd Peak - 2050	4th Peak - 2051
Projected Replacements	(\$17,440)	(\$51,892)		(\$262,333)	(\$60,325)	(\$38,600)		(\$1,892)	(\$293,502)	(\$67,248)
Annual Deposit	\$82,916	\$82,916	\$82,916	\$82,916	\$78,864	\$78,864	\$78,864	\$78,864	\$78,864	\$67,248
End of Year Balance	\$175,476	\$206,500	\$289,416	\$110,000	\$128,539	\$168,803	\$247,667	\$324,639	\$110,000	\$110,000
Cumulative Expenditures	(\$2,996,344)	(\$3,048,236)	(\$3,048,236)	(\$3,310,568)	(\$3,370,893)	(\$3,409,493)	(\$3,409,493)	(\$3,411,385)	(\$3,704,887)	(\$3,772,135)
Cumulative Receipts	\$3,171,820	\$3,254,736	\$3,337,652	\$3,420,568	\$3,499,432	\$3,578,296	\$3,657,160	\$3,736,024	\$3,814,887	\$3,882,135
Year	2052	2053	2054	2055	2056	2057	2058	2059	5th Peak - 2060	6th Peak - 2061
Projected Replacements	(\$31,711)			(\$62,065)	(\$65,900)	(\$55,273)	(\$10,177)	(\$5,200)	(\$312,289)	(\$7,892)
Annual Deposit	\$60,291	\$60,291	\$60,291	\$60,291	\$60,291	\$60,291	\$60,291	\$60,291	\$60,291	\$7,892
End of Year Balance	\$138,580	\$198,870	\$259,161	\$257,386	\$251,777	\$256,794	\$306,908	\$361,998	\$110,000	\$110,000
Cumulative Expenditures	(\$3,803,846)	(\$3,803,846)	(\$3,803,846)	(\$3,865,911)	(\$3,931,811)	(\$3,987,084)	(\$3,997,261)	(\$4,002,461)	(\$4,314,750)	(\$4,322,642)
Cumulative Receipts	\$3,942,426	\$4,002,716	\$4,063,007	\$4,123,297	\$4,183,588	\$4,243,878	\$4,304,169	\$4,364,459	\$4,424,750	\$4,432,642

## INFLATION ADJUSTED FUNDING

The Cash Flow Method calculations on Page A4 have been done in today's dollars with no adjustment for inflation. At Miller+Dodson, we believe that long-term inflation forecasting is effective at demonstrating the power of compounding, not at calculating appropriate funding levels for Replacement Reserves. We have developed this proprietary model to estimate the short-term impact of inflation on Replacement Reserve funding.

### **\$124,045** 2022 - CASH FLOW METHOD RECOMMENDED FUNDING

The 2022 Study Year calculations have been made using current replacement costs (see Page B1.2), modified by the Analyst for any project specific conditions.

### **\$129,007** 2023 - INFLATION ADJUSTED FUNDING

A new analysis calculates the 2023 funding based on three assumptions:

- Replacement Reserves on Deposit totaling \$696,222 on January 1, 2023.
- All 2022 Projected Replacements listed on Page C1.2 accomplished at a cost to Replacement Reserves less than \$35,823.
- Construction Cost Inflation of 4.00 percent in 2022.

The \$129,007 inflation adjusted funding in 2023 is a 4.00 percent increase over the non-inflation adjusted funding of \$124,045.

### **\$134,167** 2024 - INFLATION ADJUSTED FUNDING

A new analysis calculates the 2024 funding based on three assumptions:

- Replacement Reserves on Deposit totaling \$736,872 on January 1, 2024.
- No Expenditures from Replacement Reserves in 2023.
- Construction Cost Inflation of 4.00 percent in 2023.

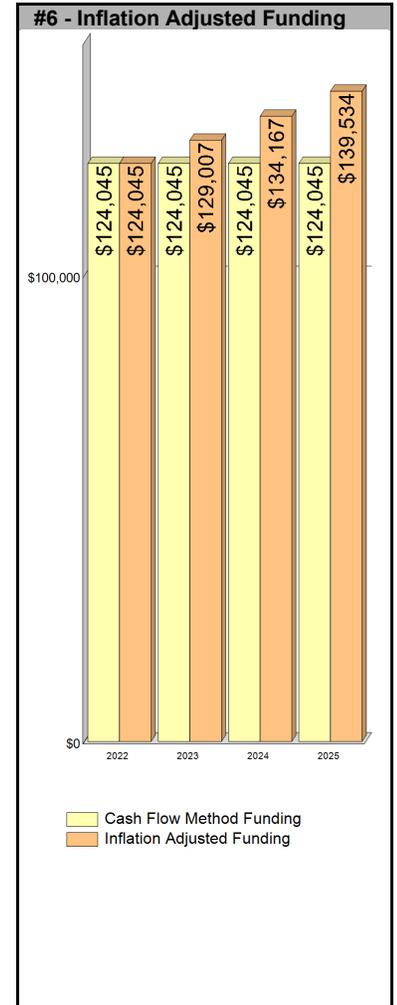
The \$134,167 inflation adjusted funding in 2024 is a 8.16 percent increase over the non-inflation adjusted funding of \$124,045.

### **\$139,534** 2025 - INFLATION ADJUSTED FUNDING

A new analysis calculates the 2025 funding based on three assumptions:

- Replacement Reserves on Deposit totaling \$750,579 on January 1, 2025.
- No Expenditures from Replacement Reserves in 2024.
- Construction Cost Inflation of 4.00 percent in 2024.

The \$139,534 inflation adjusted funding in 2025 is a 12.48 percent increase over the non-inflation adjusted funding of \$124,045.



### Year Four and Beyond

The inflation-adjusted funding calculations outlined above are not intended to be a substitute for periodic evaluation of common elements by an experienced Reserve Analyst. Industry Standards, lender requirements, and many state and local statutes require a Replacement Reserve Study to be professionally updated every 3 to 5 years.

### Inflation Adjustment

Prior to approving a budget based upon the 2023, 2024 and 2025 inflation-adjusted funding calculations above, the 4.00 percent base rate of inflation used in our calculations should be compared to rates published by the Bureau of Labor Statistics. If there is a significant discrepancy (over 1 percentage point), contact Miller+Dodson Associates prior to using the Inflation Adjusted Funding.

### Interest on Reserves

The recommended funding calculations do not account for interest earned on Replacement Reserves. In 2022, based on a 1.00 percent interest rate, we estimate the Association may earn \$6,521 on an average balance of \$652,111, \$7,165 on an average balance of \$716,547 in 2023, and \$7,437 on \$743,725 in 2024. The Association may elect to attribute 100 percent of the earned interest to Reserves, resulting in a reduction in the 2022 funding from \$124,045 to \$117,524 (a 5.25 percent reduction), \$129,007 to \$121,842 in 2023 (a 5.55 percent reduction), and \$134,167 to \$126,730 in 2024 (a 5.54 percent reduction).

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## SECTION B - REPLACEMENT RESERVE INVENTORY

- **PROJECTED REPLACEMENTS.** Charlestowne Village - Balcony Scenario - Replacement Reserve Inventory identifies 67 items which are Projected Replacements, and the periodic replacements of these items are scheduled for funding from Replacement Reserves. The Projected Replacements have an estimated one-time replacement cost of \$2,730,417. Cumulative Replacements totaling \$4,322,642 are scheduled in the Replacement Reserve Inventory over the 40-year Study Period. Cumulative Replacements include those components that are replaced more than once during the period of the study.

Projected Replacements are the replacement of commonly-owned physical assets that require periodic replacement and whose replacement is to be funded from Replacement Reserves.

- **EXCLUDED ITEMS.** Some of the items contained in the Replacement Reserve Inventory are 'Excluded Items'. Multiple categories of items are typically excluded from funding by Replacement Reserves, including but not limited to:

**Tax Code.** The United States Tax Code grants very favorable tax status to Replacement Reserves, conditioned on expenditures being made within certain guidelines. These guidelines typically exclude maintenance activities, minor repairs, and capital improvements.

**Value.** Items with a replacement cost of less than \$1000 and/or a normal economic life of less than 3 years are typically excluded from funding from Replacement Reserves. This exclusion should reflect the Association policy on the administration of Replacement Reserves. If the Association has selected an alternative level, it will be noted in the Replacement Reserve Inventory - General Comments on Page B1.2.

**Long-lived Items.** Items are excluded from the Replacement Reserve Inventory when items are properly maintained and are assumed to have a life equal to the property.

**Unit improvements.** Items owned by a single unit and where the items serve a single unit are generally assumed to be the responsibility of that unit, not the Association.

**Other non-common improvements.** Items owned by the local government, public and private utility companies, the United States Postal Service, Master Associations, state and local highway authorities, etc., may be installed on property that is owned by the Association. These types of items are generally not the responsibility of the Association and are excluded from the Replacement Reserve Inventory.

- **CATEGORIES.** The 67 items included in the Charlestowne Village - Balcony Scenario Replacement Reserve Inventory are divided into 5 major categories. Each category is printed on a separate page, beginning on page B1.3.
- **LEVEL OF SERVICE.** This Replacement Reserve Inventory has been developed in compliance with the standards established for a Level 2 Update, as defined by the National Reserve Study Standards, established in 1998 by Community Associations Institute, which states:

*This study has been performed as a Level 2 Update with Site Visit/On-Site Review as defined by the Community Associations Institute's, National Reserve Study Standards. As such, the component inventory is based on the study that was performed by Miller+Dodson in 2018. This inventory was adjusted to reflect changes provided by the Community Manager and/or the Board of Directors, or adjustments made based on the site visit and visual assessment performed by the Analyst. The analysis, including fund status and funding plan, is developed from the adjusted inventory.*

## REPLACEMENT RESERVE INVENTORY - GENERAL INFORMATION (CONT'D)

- **INVENTORY DATA.** Each of the 67 Projected Replacements listed in the Replacement Reserve Inventory includes the following data:
  - Item Number.** The Item Number is assigned sequentially and is intended for identification purposes only.
  - Item Description.** We have identified each item included in the Inventory. Additional information may be included in the Comments section at the bottom of each page of the Inventory.
  - Units.** We have used standard abbreviations to identify the number of units including SF-square feet, LF-lineal feet, SY-square yard, LS-lump sum, EA-each, and PR-pair. Non-standard abbreviations are noted in the Comments section at the bottom of the page.
  - Number of Units.** The methods used to develop the quantities are discussed in "Level of Service" above.
  - Unit Replacement Cost.** We use four sources to develop the unit cost data shown in the Inventory; actual replacement cost data provided by the client, information provided by local contractors and suppliers, industry standard estimating manuals, and a cost database we have developed based upon our detailed interviews with contractors and service providers who are specialists in their respective lines of work.
  - Normal Economic Life (Years).** The number of years that a new and properly installed item should be expected to remain in service.
  - Remaining Economic Life (Years).** The estimated number of years before an item will need to be replaced. In "normal" conditions, this could be calculated by subtracting the age of the item from the Normal Economic Life of the item, but only rarely do physical assets age "normally". Some items may have longer or shorter lives depending on many factors such as environment, initial quality of the item, maintenance, etc.
  - Total Replacement Cost.** This is calculated by multiplying the Unit Replacement Cost by the Number of Units.
- **PARTIAL FUNDING.** Items may have been included in the Replacement Reserve Inventory at less than 100 percent of their full quantity and/or replacement cost. This is done on items that will never be replaced in their entirety, but which may require periodic replacements over an extended period of time. The assumptions that provide the basis for any partial funding are noted in the Comments section.
- **REMAINING ECONOMIC LIFE GREATER THAN 40 YEARS.** The calculations do not include funding for initial replacements beyond 40 years. These replacements are included in this Study for tracking and evaluation. They should be included for funding in future Studies when they enter the 40-year window.
- **ACCURACY OF THE ANALYSIS.** The accuracy of the Replacement Reserve Analysis is dependent upon expenditures from Replacement Reserves being made ONLY for the 67 Projected Replacements specifically listed in the Replacement Reserve Inventory. The inclusion/exclusion of items from the Replacement Reserve Inventory is discussed on Page B1.1.

SITE ITEMS					NEL- Normal Economic Life (yrs)		REL- Remaining Economic Life (yrs)	
PROJECTED REPLACEMENTS								
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
1	Entrance monument, repoint masonry	sf	116	\$8.50	10	8	\$986	
2	Entrance monument, composite sign	sf	40	\$130.00	25	12	\$5,200	
3	Asphalt pavement, mill and overlay,	sf	10,000	\$2.00	20	18	\$20,000	
4	Asphalt pavement, mill and overlay,	sf	80,688	\$2.00	20	8	\$161,376	
5	Asphalt pavement, seal coat	sf	90,688	\$0.22	5	3	\$19,951	
6	Asphalt pavement, crack sealing	lf	5,000	\$2.45	5	3	\$12,250	
7	Asphalt Speed Bump	lf	150	\$14.60	5	5	\$2,190	
8	Parking lot striping	sf	90,688	\$0.05	6	5	\$4,534	
9	Concrete curb and gutter, barrier (6%)	lf	330	\$35.50	6	5	\$11,715	
10	Concrete flatwork (6%)	sf	1,471	\$10.85	6	5	\$15,960	
11	Concrete trash corral pads (6%)	sf	260	\$12.80	6	5	\$3,328	
12	Concrete steps (6%)	ft	90	\$74.50	6	5	\$6,705	
13	Wheel stops, concrete	ea	18	\$100.00	20	5	\$1,800	
Replacement Costs - Page Subtotal							\$265,996	

COMMENTS
<ul style="list-style-type: none"> <li>Item #1: Entrance monument, repoint masonry - Segmental block retaining wall at monument sign included under item #12.</li> <li>Item #3: Asphalt pavement, mill and overlay, - Includes asphalt mill and overlay at areas re-worked in 2020.</li> <li>Item #4: Asphalt pavement, mill and overlay, - Includes all other asphalt areas excluding areas included in item #3.</li> <li>Item #5: Asphalt pavement, seal coat - Includes areas re-sealed in 2020.</li> <li>Item #6: Asphalt pavement, crack sealing - Includes crack sealing performed in 2020.</li> <li>Item #7: Asphalt Speed Bump - Includes speed bumps installed in 2020.</li> <li>Item #10: Concrete flatwork (6%) - Concrete Sidewalks, including lead walks to units.</li> <li>Item #11: Concrete trash corral pads (6%) - Concrete flatwork at trash areas, and entrance slabs at laundry rooms and storage rooms.</li> </ul>

SITE ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
14	Retaining wall, PTL (6%)	sf	120	\$39.75	6	6	\$4,770	
15	Retaining wall, segmental block (reset)	sf	2,082	\$47.00	10	8	\$97,854	
16	Retaining wall, brick, repoint (6%)	sf	370	\$9.50	6	6	\$3,515	
17	Metal railing, steel/wrought iron	lf	1,630	\$58.50	50	15	\$95,355	
18	Fence, vinyl 2-rail and post	ft	110	\$18.20	40	8	\$2,002	
19	Fence, 4' galvanized chain link	ft	193	\$12.50	30	8	\$2,413	
20	Fence, 6' PTL, wood board-on-board	lf	654	\$23.20	20	10	\$15,173	
21	Fence, PTL, wood board @ trash enclosures	ea	15	\$1,500.00	20	3	\$22,500	
22	Stormwater management (10% allowance)	ls	1	\$20,000.00	10	4	\$20,000	
23	Security light, building mounted	ea	102	\$450.00	15	4	\$45,900	
24	Flood light, ground mounted	ea	1	\$195.00	10	8	\$195	
Replacement Costs - Page Subtotal							\$309,676	

COMMENTS
<ul style="list-style-type: none"> <li>Item #15: Retaining wall, segmental block (reset) - Includes segmental block retaining wall along Lakecrest Drive and at monument sign.</li> <li>Item #17: Metal railing, steel/wrought iron - Includes handrails at all stairways as well as guard rails at retaining walls.</li> <li>Item #18: Fence, vinyl 2-rail and post - Vinyl fence along Lakecrest Drive and up into parking area at units 7748-7938.</li> <li>Item #19: Fence, 4' galvanized chain link - Chain link fence at the south property line at Lakecrest Drive.</li> <li>Item #20: Fence, 6' PTL, wood board-on-board - Wood Board fence at southwest property line. The wood board fence at the play area is included under the recreation items.</li> <li>Item #22: Stormwater management (10% allowance) - Allowance to address storm water problems in the vicinity of the storage/maintenance building as reported by the Association. Also includes repairs to downspout drainage problems.</li> <li>Item #24: Flood light, ground mounted - Ground-mounted light at monument sign.</li> </ul>

RECREATION ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs)	REL- Remaining Economic Life (yrs)	
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
25	Tot lot, border PLT	lf	211	\$11.85	15	none	\$2,500	
26	Tot lot surfacing, wood mulch (3")	sf	1,720	\$1.10	3	none	\$1,892	
27	Wood steps, railroad ties	lf	16	\$39.40	15	none	\$630	
28	Fence, 4' PTL, wood rail and batten	lf	112	\$23.20	20	3	\$2,598	
29	Tot lot, MP structure, 1 platform and 1 slide (small)	ea	2	\$13,250.00	15	8	\$26,500	
30	Tot lot swing, 3 seat	ea	1	\$2,550.00	15	10	\$2,550	
31	Trash can coated metal (32 gal. wood slat)	ea	1	\$890.00	10	8	\$890	
32	Bench, coated metal w/metal supports (7')	ea	1	\$1,300.00	15	10	\$1,300	
33	Picnic table (PTL wood table and bench)	ea	2	\$520.00	15	none	\$1,040	
34	Picnic table (metal)	ea	1	\$1,000.00	15	10	\$1,000	
Replacement Costs - Page Subtotal							\$40,901	

COMMENTS

EXTERIOR ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
35	Roofing, asphalt shingles, includes flashings, drip	sf	17,000	\$5.00	25	15	\$85,000	
36	Roofing, asphalt shingles	sf	17,000	\$5.00	25	16	\$85,000	
37	Roofing, asphalt shingles	sf	17,000	\$5.00	25	17	\$85,000	
38	Roofing, asphalt shingles	sf	17,000	\$5.00	25	18	\$85,000	
39	Roofing, asphalt shingles	sf	17,000	\$5.00	25	19	\$85,000	
40	Roofing, asphalt shingles, maintenance building	sf	530	\$5.00	25	19	\$2,650	
41	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	15	\$9,050	
42	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	16	\$9,050	
43	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	17	\$9,050	
44	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	18	\$9,050	
45	Gutter and downspouts, 5" aluminum	lf	1,257	\$7.20	30	19	\$9,050	
46	Gutter and downspouts, 5" aluminum, maintenance	lf	72	\$7.20	30	19	\$518	
47	Vinyl Exterior Shutter	pr	70	\$135.00	30	16	\$9,450	
48	Vinyl Exterior Shutter	pr	70	\$135.00	30	17	\$9,450	
49	Vinyl Exterior Shutter	pr	70	\$135.00	30	18	\$9,450	
50	Vinyl Exterior Shutter	pr	70	\$135.00	30	19	\$9,450	
51	Vinyl Exterior Shutter	pr	70	\$135.00	30	20	\$9,450	
Replacement Costs - Page Subtotal							\$520,670	

COMMENTS
<ul style="list-style-type: none"> <li>Item #35: Roofing, asphalt shingles, includes flashings, drip edge, ice shield - Asphalt shingle roof for three buildings each year for five years. Includes trash enclosure roof.</li> <li>Item #41: Gutter and downspouts, 5" aluminum - Aluminum gutter and downspout for three buildings each year for five years. Assume this work will track with roof replacement.</li> <li>Item #47: Vinyl Exterior Shutter - Aluminum gutter and downspout for three buildings each year for five years.</li> </ul>

EXTERIOR ITEMS PROJECTED REPLACEMENTS						NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
52	Window, bay or bow	ea	25	\$2,000.00	40	21	\$50,000	
53	Siding and trim, vinyl, standard (including door trim)	sf	720	\$7.80	35	10	\$5,616	
54	Siding and trim, vinyl, standard, maintenance	sf	800	\$7.80	35	10	\$6,240	
55	Soffit and trim, vinyl (allowance)	ea	15	\$900.00	35	10	\$13,500	
56	Concrete patio at grade (6%)	sf	400	\$12.60	6	5	\$5,040	
57	Concrete Balcony, cast-in-place concrete	sf	8,800	\$123.85	60	15	\$1,089,880	
58	Metal railing, steel/wrought iron	lf	1,000	\$58.50	50	15	\$58,500	
59	Privacy screen, PTL	lf	500	\$11.60	15	5	\$5,800	
60	Door, steel, flush (3' X 6'8")	ea	31	\$960.00	25	none	\$29,760	
Replacement Costs - Page Subtotal								\$1,264,336

COMMENTS
<ul style="list-style-type: none"> <li>Item #52: Window, bay or bow - Includes replacement for bay window units only. All other windows are excluded by the Association.</li> <li>Item #55: Soffit and trim, vinyl (allowance) - Includes roof soffits and soffits below certain balconies.</li> <li>Item #56: Concrete patio at grade (6%) - Concrete slab-on-grade patios at individual townhouse units.</li> <li>Item #57: Concrete Balcony, cast-in-place concrete - Elevated concrete balconies at individual townhouse units. MillerDodson strongly recommends that the Association retain the services of a Structural Engineer to conduct thorough and periodic evaluations of the building structure, the balconies, and any other structural features of the community.</li> <li>Item #58: Metal railing, steel/wrought iron - Includes guard rails at elevated balconies.</li> <li>Item #59: Privacy screen, PTL - Treated wood privacy screens at certain individual units.</li> <li>Item #60: Door, steel, flush (3' X 6'8") - Steel doors and frames to community laundry rooms and storage rooms.</li> </ul>

INTERIOR ITEMS				NEL- Normal Economic Life (yrs)		REL- Remaining Economic Life (yrs)		
PROJECTED REPLACEMENTS								
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
61	Flooring, vinyl tile	sf	6,216	\$4.50	14	5	\$27,972	
62	Ceiling, suspended	sf	6,216	\$4.85	20	4	\$30,148	
63	Interior lighting, general	ea	133	\$105.00	21	8	\$13,965	
Replacement Costs - Page Subtotal							\$72,085	

COMMENTS
<ul style="list-style-type: none"> <li>Item #61: Flooring, vinyl tile - Includes vinyl flooring at community laundry rooms and combination laundry room/storage rooms.</li> <li>Item #62: Ceiling, suspended - Includes suspended ceilings at community laundry rooms. The combination laundry room storage rooms have gypsum board ceilings which are excluded.</li> <li>Item #63: Interior lighting, general - Includes ceiling lighting at community laundry rooms and storage rooms.</li> </ul>

BUILDING SYSTEMS PROJECTED REPLACEMENTS					NEL- Normal Economic Life (yrs) REL- Remaining Economic Life (yrs)		
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
64	Water heater, commercial gas (80 gal.)	ea	15	\$8,750.00	15	8	\$131,250
65	Electric panels and breakers	ls	1	\$119,502.00	50	47	\$119,502
66	Domestic water main (10% allowance)	ft	1	\$3,000.00	10	9	\$3,000
67	Sanitary main (10% allowance)	ls	1	\$3,000.00	10	9	\$3,000
Replacement Costs - Page Subtotal							\$256,752

COMMENTS
<ul style="list-style-type: none"> <li>Item #64: Water heater, commercial gas (80 gal.) - REL based upon heater replacement 8 years ago according to the Association.</li> <li>Item #65: Electric panels and breakers - Cost based upon invoice for replacement of 110 panels in 2019.</li> </ul>

VALUATION EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Mailboxes						EXCLUDED
	Bollard/access control devices						EXCLUDED
	BBQ						EXCLUDED
	Tennis court posts and nets						EXCLUDED
	Fire extinguisher cabinet						EXCLUDED
	Sprinkler head						EXCLUDED
	Emergency lighting, exit light, etc.						EXCLUDED
	Interior doors						EXCLUDED
	Window unit						EXCLUDED
	Electric heaters						EXCLUDED

VALUATION EXCLUSIONS
Comments
<ul style="list-style-type: none"> <li>Valuation Exclusions. For ease of administration of the Replacement Reserves and to reflect accurately how Replacement Reserves are administered, items with a dollar value less than \$1000 have not been scheduled for funding from Replacement Reserve. Examples of items excluded by Replacement Reserves by this standard are listed above.</li> <li>The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.</li> </ul>

LONG-LIFE EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Bridge structure and foundations						EXCLUDED
	Building foundation(s)						EXCLUDED
	Wall, floor, and roof structure						EXCLUDED
	Fire protection/security systems						EXCLUDED
	Electrical wiring						EXCLUDED
	Gas services at common facilities						EXCLUDED
	Trash chute						EXCLUDED
	Stainless steel pool fixtures						EXCLUDED

**LONG-LIFE EXCLUSIONS**  
 Comments

- Long Life Exclusions. Components that when properly maintained, can be assumed to have a life equal to the property as a whole, are normally excluded from the Replacement Reserve Inventory. Examples of items excluded from funding by Replacement Reserves by this standard are listed above.
- Exterior masonry is generally assumed to have an unlimited economic life, but periodic repointing is required, and we have included this for funding in the Replacement Reserve Inventory.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

UNIT IMPROVEMENTS EXCLUSIONS								
Excluded Items								
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
	Domestic water pipes serving one unit							EXCLUDED
	Sanitary sewers serving one unit							EXCLUDED
	Electrical wiring serving one unit							EXCLUDED
	Cable TV service serving one unit							EXCLUDED
	Telephone service serving one unit							EXCLUDED
	Gas service serving one unit							EXCLUDED
	Driveway on an individual lot							EXCLUDED
	Apron on an individual lot							EXCLUDED
	Curb & gutter on an individual lot							EXCLUDED
	Dock on an individually lot							EXCLUDED
	Unit doors							EXCLUDED
	Unit skylights							EXCLUDED
	Unit mailbox							EXCLUDED
	Unit interior							EXCLUDED
	Unit HVAC system							EXCLUDED

**UNIT IMPROVEMENTS EXCLUSIONS**

**Comments**

- Unit improvement Exclusions. We understand that the elements of the project that relate to a single unit are the responsibility of that unit owner. Examples of items excluded from funding by Replacement Reserves by this standard are listed above.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

UTILITY EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Electric transformers						EXCLUDED
	Cable TV systems and structures						EXCLUDED
	Telephone cables and structures						EXCLUDED
	Gas mains and meters						EXCLUDED

**UTILITY EXCLUSIONS**  
 Comments

- Utility Exclusions. Many improvements owned by utility companies 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 items excluded from funding Replacement Reserves by this standard are listed above.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

MAINTENANCE AND REPAIR EXCLUSIONS								
Excluded Items								
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)	
	Landscaping and site grading							EXCLUDED
	Interior painting							EXCLUDED
	Janitorial service							EXCLUDED
	Repair services							EXCLUDED
	Partial replacements							EXCLUDED
	Capital improvements							EXCLUDED

**MAINTENANCE AND REPAIR EXCLUSIONS**

**Comments**

- Maintenance activities, one-time-only repairs, and capital improvements. These activities are NOT appropriately funded from Replacement Reserves. The inclusion of such component in the Replacement Reserve Inventory could jeopardize the special tax status of ALL Replacement Reserves, exposing the Association to significant tax liabilities. We recommend that the Board of Directors discuss these exclusions and Revenue Ruling 75-370 with a Certified Public Accountant.
- Examples of items excluded from funding by Replacement Reserves are listed above. The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

GOVERNMENT EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Government, roadways and parking						EXCLUDED
	Government, sidewalks and curbs						EXCLUDED
	Government, lighting						EXCLUDED
	Government, stormwater mgmt.						EXCLUDED
	Government, ponds						EXCLUDED
	Government, mailboxes						EXCLUDED

**GOVERNMENT EXCLUSIONS**  
 Comments

- Government Exclusions. We have assumed that some of the improvements installed on property owned by the Association will be maintained by the state, county, or local government, or other association or other responsible entity. Examples of items excluded from funding by Replacement Reserves by this standard are listed above.
- Excluded rights-of-way, including adjacent properties and adjacent roadways.
- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

IRRIGATION SYSTEM EXCLUSIONS							
Excluded Items							
ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NEL	REL	REPLACEMENT COST (\$)
	Subsurface irrigation pipe						EXCLUDED
	Subsurface irrigation valve						EXCLUDED
	Subsurface irrigation control wiring						EXCLUDED
	Irrigation control system						EXCLUDED
	Irrigation system electrical service						EXCLUDED
	Irrigation system enclosures						EXCLUDED

**IRRIGATION SYSTEM EXCLUSIONS**  
 Comments

- Irrigation System Exclusions. We have assumed that the maintenance, repair, and periodic replacement of the components of the extensive irrigation systems at the property will not be funded from Replacement Reserves. These systems should be inspected each spring when the systems are brought online and again each fall when they are winterized. Repair(s) and or replacement(s) should be made in conjunction with these semiannual inspections.

## SECTION C - CALENDAR OF PROJECTED ANNUAL REPLACEMENTS

**GENERAL STATEMENT.** The 67 Projected Replacements in the Charlestowne Village - Balcony Scenario Replacement Reserve Inventory whose replacement is scheduled to be funded from Replacement Reserves are broken down on a year-by-year basis, beginning on Page C1.2.

### REPLACEMENT RESERVE ANALYSIS AND INVENTORY POLICIES, PROCEDURES, AND ADMINISTRATION

- **REVIEW OF THE REPLACEMENT RESERVE STUDY.** For this study to be effective, it should be reviewed by the Board of Directors, those responsible for the management of the items included in the Replacement Reserve Inventory, and the accounting professionals employed by the Association.
- **REVISIONS.** Revisions will be made to the Replacement Reserve Analysis and Replacement Reserve Inventory in accordance with the written instructions of the Board of Directors. No additional charge is incurred for the first revision if requested in writing within three months of the date of the Replacement Reserve Study. It is our policy to provide revisions in electronic (Adobe PDF) format only. We acknowledge that there are instances in which multiple revisions are necessary. However, unnecessary multiple revisions drain on our time and manpower resources. Therefore, Miller Dodson will exercise its sole discretion as to whether additional charges are incurred.
- **TAX CODE.** The United States Tax Code grants favorable tax status to a common interest development (CID) meeting certain guidelines for their Replacement Reserve. If a CID files their taxes as a 'Corporation' on Form 1120 (IRC Section 277), these guidelines typically require maintenance activities, partial replacements, minor replacements, capital improvements, and one-time only replacements to be excluded from Reserves. A CID cannot co-mingle planning for maintenance activities with capital replacement activities in the Reserves (Revenue Ruling 75-370). Funds for maintenance activities and capital replacements activities must be held in separate accounts. If a CID files taxes as an "Exempt Homeowners Association" using Form 1120H (IRC Section 528), the CID does not have to segregate these activities. However, because the CID may elect to change their method of filing from year to year within the Study Period, we advise using the more restrictive approach. We further recommend that the CID consult with their Accountant and consider creating separate and independent accounts and reserves for large maintenance items, such as painting.
- **CONFLICT OF INTEREST.** Neither Miller - Dodson Associates nor the Reserve Analyst has any prior or existing relationship with this Association which would represent a real or perceived conflict of interest.
- **RELIANCE ON DATA PROVIDED BY THE CLIENT.** Information provided by an official representative of the Association regarding financial, physical conditions, quality, or historical issues is deemed reliable.
- **INTENT.** This Replacement Reserve Study is a reflection of the information provided by the Association and the visual evaluations of the Analyst. It has been prepared for the sole use of the Association and is not for the purpose of performing an audit, quality/forensic analyses, or background checks of historical records.
- **PREVIOUS REPLACEMENTS.** Information provided to Miller - Dodson Associates regarding prior replacements is considered to be accurate and reliable. Our visual evaluation is not a project audit or quality inspection.
- **EXPERIENCE WITH FUTURE REPLACEMENTS.** The Calendar of Annual Projected Replacements, lists replacements we have projected to occur over the Study Period, begins on Page C2. Actual experience in replacing the items may differ significantly from the cost estimates and time frames shown 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 items may function normally during our visual evaluation and then fail without notice.

**PROJECTED REPLACEMENTS**

Item	2022 - Study Year	\$	Item	2023 - YEAR 1	\$
25	Tot lot, border PLT	\$2,500			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
27	Wood steps, railroad ties	\$630			
33	Picnic table (PTL wood table and bench)	\$1,040			
60	Door, steel, flush (3' X 6'8")	\$29,760			
Total Scheduled Replacements		\$35,823	No Scheduled Replacements		

Item	2024 - YEAR 2	\$	Item	2025 - YEAR 3	\$
No Scheduled Replacements			5	Asphalt pavement, seal coat	\$19,951
			6	Asphalt pavement, crack sealing	\$12,250
			21	Fence, PTL, wood board @ trash enclosures	\$22,500
			26	Tot lot surfacing, wood mulch (3")	\$1,892
			28	Fence, 4' PTL, wood rail and batten	\$2,598
No Scheduled Replacements			Total Scheduled Replacements		\$59,192

Item	2026 - YEAR 4	\$	Item	2027 - YEAR 5	\$
22	Stormwater management (10% allowance)	\$20,000	7	Asphalt Speed Bump	\$2,190
23	Security light, building mounted	\$45,900	8	Parking lot striping	\$4,534
62	Ceiling, suspended	\$30,148	9	Concrete curb and gutter, barrier (6%)	\$11,715
			10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			13	Wheel stops, concrete	\$1,800
			56	Concrete patio at grade (6%)	\$5,040
			59	Privacy screen, PTL	\$5,800
			61	Flooring, vinyl tile	\$27,972
Total Scheduled Replacements		\$96,048	Total Scheduled Replacements		\$85,045

**PROJECTED REPLACEMENTS**

2028 - YEAR 6			2029 - YEAR 7		
Item		\$	Item		\$
14	Retaining wall, PTL (6%)	\$4,770			
16	Retaining wall, brick, repoint (6%)	\$3,515			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
Total Scheduled Replacements		\$10,177	No Scheduled Replacements		

2030 - YEAR 8			2031 - YEAR 9		
Item		\$	Item		\$
1	Entrance monument, repoint masonry	\$986	26	Tot lot surfacing, wood mulch (3")	\$1,892
4	Asphalt pavement, mill and overlay,	\$161,376	66	Domestic water main (10% allowance)	\$3,000
5	Asphalt pavement, seal coat	\$19,951	67	Sanitary main (10% allowance)	\$3,000
6	Asphalt pavement, crack sealing	\$12,250			
15	Retaining wall, segmental block (reset)	\$97,854			
18	Fence, vinyl 2-rail and post	\$2,002			
19	Fence, 4' galvanized chain link	\$2,413			
24	Flood light, ground mounted	\$195			
29	Tot lot, MP structure, 1 platform and 1 slide (small)	\$26,500			
31	Trash can coated metal (32 gal. wood slat)	\$890			
63	Interior lighting, general	\$13,965			
64	Water heater, commercial gas (80 gal.)	\$131,250			
Total Scheduled Replacements		\$469,632	Total Scheduled Replacements \$7,892		

2032 - YEAR 10			2033 - YEAR 11		
Item		\$	Item		\$
7	Asphalt Speed Bump	\$2,190	8	Parking lot striping	\$4,534
20	Fence, 6' PTL, wood board-on-board	\$15,173	9	Concrete curb and gutter, barrier (6%)	\$11,715
30	Tot lot swing, 3 seat	\$2,550	10	Concrete flatwork (6%)	\$15,960
32	Bench, coated metal w/metal supports (7')	\$1,300	11	Concrete trash corral pads (6%)	\$3,328
34	Picnic table (metal)	\$1,000	12	Concrete steps (6%)	\$6,705
53	Siding and trim, vinyl, standard (including door trim)	\$5,616	56	Concrete patio at grade (6%)	\$5,040
54	Siding and trim, vinyl, standard, maintenance building	\$6,240			
55	Soffit and trim, vinyl (allowance)	\$13,500			
Total Scheduled Replacements		\$47,569	Total Scheduled Replacements \$47,283		

**PROJECTED REPLACEMENTS**

Item	2034 - YEAR 12	\$	Item	2035 - YEAR 13	\$
2	Entrance monument, composite sign	\$5,200	5	Asphalt pavement, seal coat	\$19,951
14	Retaining wall, PTL (6%)	\$4,770	6	Asphalt pavement, crack sealing	\$12,250
16	Retaining wall, brick, repoint (6%)	\$3,515			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
Total Scheduled Replacements		\$15,377	Total Scheduled Replacements		\$32,201

Item	2036 - YEAR 14	\$	Item	2037 - YEAR 15	\$
22	Stormwater management (10% allowance)	\$20,000	7	Asphalt Speed Bump	\$2,190
			17	Metal railing, steel/wrought iron	\$95,355
			25	Tot lot, border PLT	\$2,500
			26	Tot lot surfacing, wood mulch (3")	\$1,892
			27	Wood steps, railroad ties	\$630
			33	Picnic table (PTL wood table and bench)	\$1,040
			35	Roofing, asphalt shingles, includes flashings, drip edge,	\$85,000
			41	Gutter and downspouts, 5" aluminum	\$9,050
			57	Concrete Balcony, cast-in-place concrete	\$1,089,880
			58	Metal railing, steel/wrought iron	\$58,500
Total Scheduled Replacements		\$20,000	Total Scheduled Replacements		\$1,346,038

Item	2038 - YEAR 16	\$	Item	2039 - YEAR 17	\$
36	Roofing, asphalt shingles	\$85,000	8	Parking lot striping	\$4,534
42	Gutter and downspouts, 5" aluminum	\$9,050	9	Concrete curb and gutter, barrier (6%)	\$11,715
47	Vinyl Exterior Shutter	\$9,450	10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			37	Roofing, asphalt shingles	\$85,000
			43	Gutter and downspouts, 5" aluminum	\$9,050
			48	Vinyl Exterior Shutter	\$9,450
			56	Concrete patio at grade (6%)	\$5,040
Total Scheduled Replacements		\$103,500	Total Scheduled Replacements		\$150,783

**PROJECTED REPLACEMENTS**

Item	2040 - YEAR 18	\$	Item	2041 - YEAR 19	\$
1	Entrance monument, repoint masonry	\$986	23	Security light, building mounted	\$45,900
3	Asphalt pavement, mill and overlay,	\$20,000	39	Roofing, asphalt shingles	\$85,000
5	Asphalt pavement, seal coat	\$19,951	40	Roofing, asphalt shingles, maintenance building	\$2,650
6	Asphalt pavement, crack sealing	\$12,250	45	Gutter and downspouts, 5" aluminum	\$9,050
14	Retaining wall, PTL (6%)	\$4,770	46	Gutter and downspouts, 5" aluminum, maintenance	\$518
15	Retaining wall, segmental block (reset)	\$97,854	50	Vinyl Exterior Shutter	\$9,450
16	Retaining wall, brick, repoint (6%)	\$3,515	61	Flooring, vinyl tile	\$27,972
24	Flood light, ground mounted	\$195	66	Domestic water main (10% allowance)	\$3,000
26	Tot lot surfacing, wood mulch (3")	\$1,892	67	Sanitary main (10% allowance)	\$3,000
31	Trash can coated metal (32 gal. wood slat)	\$890			
38	Roofing, asphalt shingles	\$85,000			
44	Gutter and downspouts, 5" aluminum	\$9,050			
49	Vinyl Exterior Shutter	\$9,450			
Total Scheduled Replacements		\$265,804	Total Scheduled Replacements		\$186,541

Item	2042 - YEAR 20	\$	Item	2043 - YEAR 21	\$
7	Asphalt Speed Bump	\$2,190	26	Tot lot surfacing, wood mulch (3")	\$1,892
51	Vinyl Exterior Shutter	\$9,450	52	Window, bay or bow	\$50,000
59	Privacy screen, PTL	\$5,800			
Total Scheduled Replacements		\$17,440	Total Scheduled Replacements		\$51,892

Item	2044 - YEAR 22	\$	Item	2045 - YEAR 23	\$
			5	Asphalt pavement, seal coat	\$19,951
			6	Asphalt pavement, crack sealing	\$12,250
			8	Parking lot striping	\$4,534
			9	Concrete curb and gutter, barrier (6%)	\$11,715
			10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			21	Fence, PTL, wood board @ trash enclosures	\$22,500
			28	Fence, 4' PTL, wood rail and batten	\$2,598
			29	Tot lot, MP structure, 1 platform and 1 slide (small)	\$26,500
			56	Concrete patio at grade (6%)	\$5,040
			64	Water heater, commercial gas (80 gal.)	\$131,250
No Scheduled Replacements			Total Scheduled Replacements		\$262,333

**PROJECTED REPLACEMENTS**

Item	2046 - YEAR 24	\$	Item	2047 - YEAR 25	\$
14	Retaining wall, PTL (6%)	\$4,770	7	Asphalt Speed Bump	\$2,190
16	Retaining wall, brick, repoint (6%)	\$3,515	13	Wheel stops, concrete	\$1,800
22	Stormwater management (10% allowance)	\$20,000	30	Tot lot swing, 3 seat	\$2,550
26	Tot lot surfacing, wood mulch (3")	\$1,892	32	Bench, coated metal w/metal supports (7')	\$1,300
62	Ceiling, suspended	\$30,148	34	Picnic table (metal)	\$1,000
			60	Door, steel, flush (3' X 6'8")	\$29,760
Total Scheduled Replacements		\$60,325	Total Scheduled Replacements		\$38,600

Item	2048 - YEAR 26	\$	Item	2049 - YEAR 27	\$
No Scheduled Replacements			26	Tot lot surfacing, wood mulch (3")	\$1,892
Total Scheduled Replacements			Total Scheduled Replacements		\$1,892

Item	2050 - YEAR 28	\$	Item	2051 - YEAR 29	\$
1	Entrance monument, repoint masonry	\$986	8	Parking lot striping	\$4,534
4	Asphalt pavement, mill and overlay,	\$161,376	9	Concrete curb and gutter, barrier (6%)	\$11,715
5	Asphalt pavement, seal coat	\$19,951	10	Concrete flatwork (6%)	\$15,960
6	Asphalt pavement, crack sealing	\$12,250	11	Concrete trash corral pads (6%)	\$3,328
15	Retaining wall, segmental block (reset)	\$97,854	12	Concrete steps (6%)	\$6,705
24	Flood light, ground mounted	\$195	56	Concrete patio at grade (6%)	\$5,040
31	Trash can coated metal (32 gal. wood slat)	\$890	63	Interior lighting, general	\$13,965
Total Scheduled Replacements		\$293,502	66	Domestic water main (10% allowance)	\$3,000
			67	Sanitary main (10% allowance)	\$3,000
Total Scheduled Replacements		\$293,502	Total Scheduled Replacements		\$67,248

**PROJECTED REPLACEMENTS**

Item	2052 - YEAR 30	\$	Item	2053 - YEAR 31	\$
7	Asphalt Speed Bump	\$2,190			
14	Retaining wall, PTL (6%)	\$4,770			
16	Retaining wall, brick, repoint (6%)	\$3,515			
20	Fence, 6' PTL, wood board-on-board	\$15,173			
25	Tot lot, border PLT	\$2,500			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
27	Wood steps, railroad ties	\$630			
33	Picnic table (PTL wood table and bench)	\$1,040			
Total Scheduled Replacements		\$31,711	No Scheduled Replacements		

Item	2054 - YEAR 32	\$	Item	2055 - YEAR 33	\$
No Scheduled Replacements			5	Asphalt pavement, seal coat	\$19,951
			6	Asphalt pavement, crack sealing	\$12,250
			26	Tot lot surfacing, wood mulch (3")	\$1,892
			61	Flooring, vinyl tile	\$27,972
No Scheduled Replacements			Total Scheduled Replacements		\$62,065

Item	2056 - YEAR 34	\$	Item	2057 - YEAR 35	\$
22	Stormwater management (10% allowance)	\$20,000	7	Asphalt Speed Bump	\$2,190
23	Security light, building mounted	\$45,900	8	Parking lot striping	\$4,534
			9	Concrete curb and gutter, barrier (6%)	\$11,715
			10	Concrete flatwork (6%)	\$15,960
			11	Concrete trash corral pads (6%)	\$3,328
			12	Concrete steps (6%)	\$6,705
			56	Concrete patio at grade (6%)	\$5,040
			59	Privacy screen, PTL	\$5,800
Total Scheduled Replacements		\$65,900	Total Scheduled Replacements		\$55,273

**PROJECTED REPLACEMENTS**

Item	2058 - YEAR 36	\$	Item	2059 - YEAR 37	\$
14	Retaining wall, PTL (6%)	\$4,770	2	Entrance monument, composite sign	\$5,200
16	Retaining wall, brick, repoint (6%)	\$3,515			
26	Tot lot surfacing, wood mulch (3")	\$1,892			
Total Scheduled Replacements		\$10,177	Total Scheduled Replacements		\$5,200

Item	2060 - YEAR 38	\$	Item	2061 - YEAR 39	\$
1	Entrance monument, repoint masonry	\$986	26	Tot lot surfacing, wood mulch (3")	\$1,892
3	Asphalt pavement, mill and overlay,	\$20,000	66	Domestic water main (10% allowance)	\$3,000
5	Asphalt pavement, seal coat	\$19,951	67	Sanitary main (10% allowance)	\$3,000
6	Asphalt pavement, crack sealing	\$12,250			
15	Retaining wall, segmental block (reset)	\$97,854			
19	Fence, 4' galvanized chain link	\$2,413			
24	Flood light, ground mounted	\$195			
29	Tot lot, MP structure, 1 platform and 1 slide (small)	\$26,500			
31	Trash can coated metal (32 gal. wood slat)	\$890			
64	Water heater, commercial gas (80 gal.)	\$131,250			
Total Scheduled Replacements		\$312,289	Total Scheduled Replacements		\$7,892

Item	2062 (beyond study period)	\$	Item	2063 (beyond study period)	\$
7	Asphalt Speed Bump	\$2,190	8	Parking lot striping	\$4,534
30	Tot lot swing, 3 seat	\$2,550	9	Concrete curb and gutter, barrier (6%)	\$11,715
32	Bench, coated metal w/metal supports (7')	\$1,300	10	Concrete flatwork (6%)	\$15,960
34	Picnic table (metal)	\$1,000	11	Concrete trash corral pads (6%)	\$3,328
35	Roofing, asphalt shingles, includes flashings, drip edge,	\$85,000	12	Concrete steps (6%)	\$6,705
			36	Roofing, asphalt shingles	\$85,000
			56	Concrete patio at grade (6%)	\$5,040
Total Scheduled Replacements		\$92,040	Total Scheduled Replacements		\$132,283

## SECTION D - CONDITION ASSESSMENT

**General Comments.** Miller+Dodson Associates conducted a Reserve Study at Charlestowne Village - Balcony Scenario in December 2021. Charlestowne Village - Balcony Scenario is in generally ??? condition for a residential condominium constructed in 1964. A review of the Replacement Reserve Inventory will show that we are anticipating most of the components achieving their normal economic lives.

The following comments pertain to the larger, more significant components in the Replacement Reserve Inventory and to those items that are unique or deserving of attention because of their condition or the manner in which they have been treated in the Replacement Reserve Analysis or Inventory.

**IMPORTANT NOTE:** This Condition Assessment is based upon visual and apparent conditions of the common elements of the community which were observed by the Reserve Analyst at the time of the site visit. This Condition Assessment does not constitute, nor is it a substitute for, a professional Structural Evaluation of the buildings, amenities, or systems.

### General Condition Statements.

**Excellent.** 100% to 90% of Normal Economic Life expected, with no appreciable wear or defects.

**Good.** 90% to 60% of Normal Economic Life expected, minor wear or cosmetic defects found. Normal maintenance should be expected. If performed properly, normal maintenance may increase the useful life of a component. Otherwise, the component is wearing normally.

**Fair.** 60% to 30% of Normal Economic Life expected, moderate wear with defects found. Repair actions should be taken to extend the life of the component or to correct repairable defects and distress. Otherwise, the component is wearing normally.

**Marginal.** 30% to 10% of Normal Economic Life expected, with moderate to significant wear or distress found. Repair actions are expected to be cost-effective for localized issues, but normal wear and use are evident. The component is reaching the end of the Normal Economic Life.

**Poor.** 10% to 0% of Normal Economic Life expected, with significant distress and wear. Left unattended, additional damage to underlying structures is likely to occur. Further maintenance is unlikely to be cost-effective.

### SITE ITEMS

**Entry Monument and Signage.** The Association maintains an entry monument constructed of a masonry base with a composite sign panel mounted between two masonry piers. This sign appears to be in good condition and well maintained.

We recommend re-pointing and replacement of defective areas of the masonry as needed. The Association may want to consider applying a coating of Siloxane or other appropriate breathable sealants to mitigate water penetration and further degradation of the masonry work.

Community signage including stop, speed, street, and other miscellaneous signs are not considered in this study and should be replaced using other funds.

**Asphalt Pavement.** The Association is responsible for the roadways and parking areas within the community. Other roadways are maintained by the City, County, or other municipality. In general, the Association's asphalt pavements are in fair condition. Asphalt overlay and sealing work completed in 2020 indicate that the Association is working to keep all asphalt surfaces in serviceable condition.

The report segregates asphalt mill and overlay at areas re-worked in 2020 from the remainder of the asphalt areas not recently re-worked, with appropriate remaining economic life factors assigned to each.



The Association maintains an inventory of asphalt pavement along the following streets and areas:

Street Name	sf
Prince James Court (drive and parking areas)	54580
Parking area off Prince James Way (Units 8040-8046)	2140
Parking area off Lakecrest Drive (Units 8016-8038)	3990
Parking area off Lakecrest Drive (Units 7940-8014)	3990
Parking area off Lakecrest Drive (Units 7724-7938)	25980



The Defects noted include the following:

- Open Cracks.** There are multiple locations where open cracks are allowing water to penetrate to the asphalt base and the bearing soils beneath. Over time, water will erode the base and accelerate the deterioration of the asphalt pavement. If cracks extend to the base and bearing materials, remove the damaged areas, and replace defective materials. As a part of normal maintenance, clean and fill all other cracks.
- Alligatoring.** There are multiple locations where the asphalt has developed a pattern of cracking known as alligatoring. The primary cause of alligatoring is an unstable base. Once these cracks extend through the asphalt, they will allow water to penetrate to the base, accelerating the rate of deterioration, and eventually leading to potholes. The only solution is to remove the defective asphalt, compact the base, and install new base materials and asphalt.
- Improper Grading.** The asphalt pavement is not properly graded, resulting in the ponding of water, most notable at the area in front of the storage/maintenance building. Proper grading of the asphalt pavement will require replacing portions of the asphalt. It may also require resetting improperly sloped curb and gutter segments that are not conveying water to the stormwater management system. If ponding is left unattended it can result in unsafe travel areas, by creating conditions for hydroplaning and pockets of ice to form.
- Depressions.** There are areas where the asphalt surface is depressed due to deformation in the surface or underlying layers. These depressions may continue to grow with exposure to traffic. Water ponding is evident in several of these areas. Repair of these areas will require the removal of the asphalt and base material and reinstallation, by compacting the new base material and resurfacing with asphalt.

- **Wheel Rutting.** Depressions along the wheel lines extend along portions of the roadway. Repair of these areas will require full-depth and full-width pavement replacement. Wheel rutting, if left unattended can adversely affect vehicle steering.
- **Shoving.** Occurring at locations of sharp braking or turning. The primary cause of this defect is from large truck traffic. If addressed early, surface milling and overlay using a stiffer topcoat of asphalt pavement shoving can be mitigated.
- **Tree Root Damage.** This is known as Heaving, there are locations where tree roots caused heaving in the pavement surface. The repair of these areas requires the removal of the asphalt and the tree roots, then replenish and re-compact the base material and resurface the asphalt. Root trimming can also be an effective way to control this defect.
- **Edge Cracking.** Sections of the asphalt pavement have developed cracks along the pavement edges due to improper confinement. Installation of curbs or installation of a compacted gravel shoulder at the time of an overlay project can address this defect.
- **Reflective Cracking.** The asphalt pavement has a significant number of reflective cracks. Reflective cracks occur when placing a new asphalt overlay over and existing cracked pavement. With time and movement, existing cracks will migrate through the new asphalt. Installing a bridging membrane or fabric at the time of overlay can control reflective cracking.

A more detailed summary of pavement distress can be found at <http://www.asphaltinstitute.org/engineering/maintenance-and-rehabilitation/pavement-distress-summary/>.



As a rule of thumb, asphalt should be overlaid when approximately 5% of the surface area is cracked or otherwise deteriorated. The normal service life of asphalt pavement is typically 18 to 20 years.

In an effort to maintain the condition of the pavement throughout the community and ensure the longest life of the asphalt, we recommend the Association adopt a systematic and comprehensive maintenance program that includes:

- **Cleaning.** Long-term exposure to oil or gas breaks down asphalt. Because this asphalt pavement is generally not used for long-term parking, it is unlikely that frequent cleaning will be necessary. When necessary, spill areas should be cleaned or patched if deterioration has penetrated the asphalt. This is a maintenance activity, and we have assumed that it will not be funded from Reserves.
- **Crack Repair.** All cracks should be repaired with an appropriate compound to prevent water infiltration through the asphalt into the base. This repair should be done annually. Crack repair is normally considered a maintenance activity and is not funded from Reserves. Areas of extensive cracking or deterioration that cannot be made watertight should be cut out and patched.
- **Seal Coating.** The asphalt should be seal coated every five to seven years. For this maintenance, activity to be effective in extending the life of the asphalt, cleaning, and crack repair should be performed first.

The pricing used is based on recent contracts for a two-inch overlay, which reflects the current local market for this work.

For seal coating, several different products are available. The older, more traditional seal coating product is paint. They coat the surface of the asphalt, and they are minimally effective. However, the newer coating materials, such as those from Total Asphalt Management, Asphalt Restoration Technologies, Inc., and others, are penetrating. They are engineered, so to speak, to 'remoisturize' the pavement. Asphalt pavement is intended to be flexible. Over time, the volatile chemicals in the pavement dry, the pavement becomes brittle, and degradation follows in the forms of cracking and potholes. Remoisturizing the pavement can return its flexibility and extend the life of the pavement.

**Concrete Work.** The concrete work includes the community sidewalks, lead walks, stairs, stoops, patios, curbs, and gutter as well as other miscellaneous flatwork. We have modeled for curb replacement when the asphalt pavement is overlaid. The overall condition of the concrete work varies from recently replaced to concrete work which has cracked, settled, and spalled. Many instances of tripping hazards have been noted and it is recommended that these areas be promptly replaced. Another potentially hazardous condition is the undermining of concrete stairs and walks due to erosion by stormwater and improperly installed drain leaders. The recent replacement of concrete slabs and stairs indicates the Association is continually working to correct deficiencies such as those noted.



The standards we use for recommending replacement are as follows:

- Trip hazard, ½ inch height difference.
- Severe cracking.
- Severe spalling and scale.
- Uneven riser heights on steps.
- Steps with risers in excess of 8¼ inches.





Because it is highly unlikely that all of the concrete components will fail and require replacement in the period of the study, we have programmed funds for the replacement of these inventories and spread the funds over an extended timeframe to reflect the incremental nature of this work.

**Retaining Walls.** The Association maintains a range of retaining wall types, including treated wood, segmental block, poured concrete, and brick masonry.

The treated wood retaining walls located throughout the property are mostly in poor condition with numerous instances of rotting and loose connections noted.



The segmental block walls, at two locations along the property line adjacent to Lakecrest Drive, are in good general condition with minor maintenance required to extend their economic life.

The poured concrete retaining walls, located along concrete stairways and adjacent to certain sidewalk areas, are in good general condition with minor cracking noted.



The brick retaining walls are primarily located at the below-grade accessways to the laundry rooms and storage rooms at either end of each of 12 buildings and at one end of three buildings. The condition of these walls varies from good to poor, with the primary deficiencies being loose and missing mortar, loose and missing brickwork, loose and deteriorating brickwork at metal railing bases, through-wall cracking, and deterioration of surface parging.



Retaining walls, in general, are designed to provide slope stabilization and soil retention by means of a structural system. Typically, walls that are three feet high or more require some level of design.

The movement and displacement of any retaining wall is a sign of general settlement or failure. This typically is in the form of leaning and bowing and can involve the entire wall or localized sections of the wall. Typically, these types of movements are gradual and may require the replacement of the wall. The movement of retaining walls located near other buildings or structures may negatively affect the stability of the adjacent structure. These conditions can become extremely costly if not properly identified, monitored, and addressed.

**Wood.** Wood retaining walls will experience rot and decay over time and partial replacement of defective wooden members is often possible in the early stages of decay. Eventually, however, these walls will require replacement. Wood retaining walls can have a useful life of 25 to 35 years.

**Brick, stone, and concrete block.** Brick, stone, concrete block masonry walls can have an extended useful life of 40 years or more, and if stable, may only require periodic repointing and localized repair. Repoint is the process of raking out defective masonry joints and tooling new mortar into the joints. Properly mortared and tooled joints will repel the weather and keep water from penetrating the wall. Siloxane or other breathable sealants should be considered to provide additional protection to the wall from water penetration. This study assumes that repointing will be performed incrementally as needed to maintain the life of the wall.

**Segmental block.** Segmental block retaining walls can have an extended useful life, and if stable, are likely to only require localized resetting of displaced blocks, typically near the top of the wall. This study assumes that resetting will be performed incrementally as needed.

**Poured concrete.** Poured concrete retaining walls can have an extended useful life of 60 years or more, and if stable, may only require periodic localized repair. Siloxane or other breathable sealants should be considered to provide additional protection to the wall from water penetration. This study assumes that concrete repairs will be performed incrementally as needed.

Retaining wall replacement can be costly, and early planning on the part of the Association can help to reduce the impact of this work on the community's budget in the future. We, therefore, recommend having a Professional Engineer inspect the walls and develop preliminary replacement alternatives and recommendations based on the site conditions, replacement costs, and recommended replacement wall types. This information can then be incorporated into future updates to the Reserve Study.

**Metal Hand Railing and Guardrails.** The Association maintains metal handrails, guardrails, and railing posts that are embedded in concrete or masonry, throughout the community. These handrails include free-standing rail systems, railings mounted to walls along stairways, guardrails at the top perimeter of retaining walls, and guard rails at the edges of the elevated balcony structures. These railings are generally in good condition and appear to be well-maintained by the Association although a number of deficiencies are noted. Most deficiencies are associated with the stability of the post bases mounted in the brick masonry retaining walls due to either rust corrosion or loose and broken brick. These conditions could compromise the stability of the associated railing system thereby creating a potential hazard.



It is noted that as the condition of the railings at the elevated balconies was assessed by inspection from the ground level only, the actual condition of these railings has not been determined. As noted for the concrete balcony structures, it is recommended that the Association retain the services of a structural engineer to perform a comprehensive inspection of the elevated deck structures, including the guardrails. and their support systems in order to establish their structural integrity.



As part of normal maintenance, we recommend the following:

- Lift or remove ornamental base covers, if applicable.
- Remove existing caulk completely.
- Fully clean, prime, and paint all posts, rails, and pickets.
- Apply an appropriate caulk around each post base.
- Tool and shape caulking to shed water from the post.
- Reinstall base covers, and seal and paint all joints.

Railings can have an extended useful life if these simple maintenance activities are performed regularly. If left unattended, the pressure from expansive post rust can crack and damage the supporting materials.

**Fencing.** The Association maintains board-on-board wood, vinyl, and chain-link fencing at various locations throughout the community.

The wood board-on-board fencing is located along portions of the southwest property line, around the play area, at the trash enclosures at each of the 15 buildings, and at privacy fences at certain individual townhouse units. The condition of these various fences varies from good to poor, with rotten components, loose fence posts, and out of plumb sections of fencing noted.



The chain-link fence is located at the south property line of the community adjacent to Lakecrest Drive. This fence appears to be in good condition.

The vinyl 2-rail and post fence is located along Lakecrest Drive and runs up the drive to the parking area at units 7748-7938. This fence appears to be in generally good condition.



Fencing systems have a large number of configurations and finishes that can usually be repaired as a maintenance activity by replacing individual components as they become damaged or weathered.

Protection from string machine damage during lawn maintenance can extend the useful life of some fence types. Protection from this type of damage is typically provided by applying herbicides around post bases or installing protective sheathing.

Pressure treated wood fencing should be cleaned and sealed every year or two. Typically the least cost fencing option, this type of fence can last 15 to 20 years if maintained properly.

Vinyl fencing made of 100% virgin material can last 30 to 35 years, and periodic cleaning will keep the fence looking attractive. Vinyl components with ticker walls can provide a longer useful life.

Chain link fencing can have a useful life of 40 years or more. Periodic weed control may be required to protect and maintain the fence.

The Association maintains steel fence posts and fasteners that are embedded in concrete or masonry.

As part of normal maintenance, we recommend the following:

- Lift or remove ornamental base covers, if applicable
- Remove existing caulk completely
- Clean, prime, and paint all posts
- Apply an appropriate caulk around each post base
- Tool and shape caulking to shed water from post
- Reinstall base covers, and seal and paint all joints

Fence posts can have an extended useful life if these simple maintenance activities are performed. If left unattended, the pressure from expansive post rust can crack and damage the supporting material.

***(Continued Next Page)***

**Site Lighting.** The Association is responsible for the operation of the facility's wall-mounted security lighting as well as the ground-mounted light at the monument sign. These lights appear to be in serviceable condition although the proper operation of this lighting has not been verified.

During the site inspection, it was noted that several of these lights were operating during daylight conditions suggesting improper light controller operation.



When a whole-scale lighting replacement project is called for, we recommend consulting with a lighting design expert. Many municipalities have design codes, guidelines, and restrictions when it comes to exterior illumination.

Additionally, new technology such as LED and LIFI, among others, is considered. The Association should consider factors such as environmental sustainability, longevity, and cost when they look at the replacement of their lighting.

## RECREATION ITEMS

**Tot Lots.** The community maintains a tot lot which includes two play structures and a three-seat swing. The play surface is comprised of two levels connected by a treated wood stair. The play surface is of wood chips surrounded by a treated wood border. The play area is enclosed on one side by the board-on-board fence at the property line (included under the Site Items) and on two sides by a wood rail and batten fence, portions of which are attached to the treated wood border. The remaining side of the play area is open.

The play structures are in generally good condition with minor wear and a few loose connections noted. The play surface and wood border, including the steps, have reached the end of their economic life and need to be replaced.

Although the wood rail and batten fence and stair rail are in fair condition any repair or replacement of these items would need to be coordinated with the replacement of the wood border to which they are attached.



There is a metal picnic table and a metal bench located at the Tot Lot, both of which are in good serviceable condition. Two wood picnic tables located elsewhere are in poor condition and need to be replaced.

The safety of each individual piece of playground equipment, as well as the layout of the entire play area, should be considered when evaluating a playground for safety. The installation and maintenance of the protective surfacing under and around all equipment is crucial. Please note that the evaluation of the equipment and these facilities for safety is beyond the scope of this work.



Information for playground design and safety can be found in the "Public Playground Safety Handbook", U.S. Consumer Product Safety Commission (Pub Number 325). For a link to this handbook, please see our website at [www.mdareserves.com/resources/links/recreation](http://www.mdareserves.com/resources/links/recreation).

Our estimates for playground equipment are based on comparing photos of the existing equipment with equipment of a similar size in manufacturers' catalogs. We use the pricing that is quoted by manufacturers for comparable equipment and added an additional 30% for the disposal of the old equipment and installation of new equipment.

## EXTERIOR ITEMS

**Building Roofing.** The roofs at all 15 townhouse buildings, the storage/maintenance building, and at each trash enclosure are covered with shingles. According to the Association, these roofs have been replaced with 25-year fiberglass shingles within the last 8 years, with the latest of this replacement completed last year. According to Association documentation, the re-roofing included replacement of ridge vents, vent pipe flashing, aluminum flashing (as necessary), and drip edge flashing. Based upon an inspection of the roof surfaces from ground level, it appears that all roof surfaces and flashings are in good condition, with exceptions noted.





There are roof areas that have become discolored where downspouts from upper roof surfaces discharge onto lower roof surfaces. Although this is unsightly, the performance of the roof surface itself does not appear to be compromised. Organic growth noted on some lower roof surface areas, if not checked, may result in accelerated degradation of these surfaces. Finally, areas are noted where sheet metal counter flashing is excessively deflected from the adjacent roof surface which may allow for the intrusion of water into the roof surface and adjacent wall area.

The 19-year remaining economic life of the roofing is based upon the estimated 25-year warranty minus the eight years which have elapsed since the installation of the initial re-roofing. The future re-roofing of three buildings each is modeled over a five-year period.

Asphalt shingle roofs can have a useful life of 20 to 50 years depending on the weight and quality of the shingle. Weathered, curled, and missing shingles are all indications that the shingles may be nearing the end of their useful life.

Annual inspections are recommended, with cleaning, repair, and mitigation of vegetation performed as needed. Access, inspection, and repair work should be performed by contractors and personnel with the appropriate access equipment who are experienced in the types of roofing used for the facility.

**Gutters and Downspouts.** The buildings have aluminum gutter and downspout roof drainage systems. At those areas where there are two roof levels, the upper roof surfaces drain via downspouts which discharge onto the lower surface. All other downspouts either drain to splash blocks at the ground surface, directly to grade, or are connected to below-grade drainage systems. The Association reports that gutters and downspouts replacement, where necessary, occurred as part of the building re-roofing process.

In general, the gutter and downspout systems appear to be functioning in an acceptable manner, although instances of loose connections, bent downspouts, loose flashing, and deterioration of joint sealant are noted. In addition, at locations where splash blocks are not present or where the connection of downspouts to the below-grade drainage piping is loose, erosion is noted. This erosion, if left unchecked, could cause damage to building foundations over time. Finally, there are locations where the water discharge from downspouts at upper roof areas appears to discharge over lower roof areas with such force as to overflow the lower gutter. This overflow could have undesirable effects on the wall and ground surfaces below.





A gutter and downspout system will remove rainwater from the area of the building's roof, siding, and foundation, protect the exterior surfaces from water damage. Gutters should run the full length of all drip edges of the building's roof. Even with full gutters, it is important to inspect the function of the gutters during heavy rain to identify any deficiencies. It may be necessary to periodically adjust the slope of sections, repair connections, replace hangers, and install shrouds to the gutter system. Downspouts should be securely attached to the side of the structure. Any broken straps should be replaced. The area of the outlet should be inspected to promote run-off in the desired direction. Long straight runs should have an elbow at the bottom. Splash blocks should be installed to fray the water out-letting from the downspout.

It is recommended that all gutters be cleaned at least twice each year. If there are a large number of trees located close to a building, consider installing a gutter debris shield that will let water into the gutters but will filter out leaves, twigs, and other debris.

It is also recommended that the discharge from the downspouts be extended at least ten feet away from the foundations.

**Bay Window and Doors.** The Association is responsible for the common bay windows and for the exterior doors located at each laundry room and storage room. The individual owners are responsible for all other windows and doors attributed to their unit.

The bay windows appear to be in good serviceable condition. Most of the metal doors to the laundry and storage areas exhibit deterioration in the form of rust, particularly at the lower parts of the metal frames in contact with the concrete slab. In some cases, this deterioration has advanced to the degree that the integrity of the door and frame system is compromised. The remaining economic life of these doors and frames has been adjusted to accommodate this condition.



For Associations where the unit owner is responsible for the replacement of their own windows and exterior doors, we recommend for the Association consider offering the unit owners an option to have their replacements performed in conjunction with the Association's work. This can be performed either by a separate agreement between the unit owner and the Association's selected contractor or by back charging the unit owner.

Window and door units play an integral part in a facility's overall comfort, efficiency, and energy use. The quality of the installed units and the care taken in their installation and maintenance are major factors in their effectiveness and useful life. These units can have a useful life of 20 to 35 years or more depending on their use and other factors mentioned above.



In general, we recommend coordinating the replacement of these units with other exterior work, such as siding and roof replacements. The weather tightness of the building envelope often requires transitional flashing and caulking that should be performed in coordination with each other. Warranties and advantages in 'economy of scale' can often result in lower overall replacement costs and results that are more reliable. Lastly, coordinated replacements offer the opportunity to correct initial construction defects and improve the effectiveness of details with improved construction techniques and materials.

**Siding and Trim.** The Association maintains the exterior siding and trim at both the townhouse buildings and the storage/maintenance building. In general the siding and trim are in fair condition, with loose sections and discoloration due to organic growth noted.



Vinyl/Aluminum Siding and Trim can have an extended useful life if not damaged by impact, heat, or other physical reasons. However, the coatings and finishes typically have a useful life and over time begin to weather, chalk, and show their age. For these reasons, we have modeled for the replacement of the siding and trim every 25 years.

Synthetic products are used in decorative architectural details. Often these are made of Polyvinyl-chloride or (PVC). PVC is known to have degradation problems with sunlight and in particular, ultraviolet radiation. These products come from the manufacturer with several coats of primer, and painting after installation is required. Following the manufacturer's recommendations for cleaning, painting, and caulking, we expect this product to have a useful life of 40 years or more.

**Concrete Balconies.** The Association maintains the concrete balconies at each of the 15 townhouse buildings. Two types of balcony structures were observed, self-supporting slabs and slabs supported by a metal deck and steel beam and column system. The condition of these balconies, as assessed from the ground level, appears to be generally good, this includes the concrete slabs (visible areas of the bottom surfaces and at the edges), supporting steel column structures, and the wrought iron guard rails. The condition of the balcony surfaces has not been verified.

Based upon casual observation of the visible parts of the decks from the ground it appears that these deck structures exhibit a normal aging process, with some cracking and initial concrete degradation, as well as areas of previous repair noted. However, a detailed observation of the deck structures, guardrails, connections, and other appurtenances has not been made. As it is not the intent of this report to assess the structural integrity of these deck structures, it is recommended that the Association retain the services of a structural engineer to perform a comprehensive inspection of the elevated deck structures and their support systems in order to establish their structural integrity.



We noted no major defects which appear to be significant, although cracking in the concrete decks near support structures, cracks in supporting brick masonry, and spalling of brick at balcony bearing locations is noted. These defects should be closely monitored to determine if any of these conditions worsen over time.

MillerDodson strongly recommends that the Association retain the services of a Structural Engineer to conduct thorough and periodic evaluations of the building structure, the balconies, and any other structural features of the community.



Concrete balconies are prone to deterioration due to their exposure to the elements. This deterioration begins within the concrete and slowly progresses to the surface. By the time it becomes visible, the damage has been done, and expensive remedial action is typically required.

The leading cause of concrete balcony deterioration is the corrosion of the embedded reinforcing steel. Water penetrates the concrete surface or enters the concrete through penetrations such as railing mounting holes, and when water meets the reinforcing steel, corrosion results. As the steel corrodes, it expands, putting pressure on the surrounding concrete. This pressure will eventually result in cracks, delamination, and spalling. The rate of corrosion is influenced by such factors as the thickness and density of the concrete, the rate of water infiltration, and the installation of carpet or other water-retaining materials on the balcony's surface.

We recommend for the Association implement an annual inspection and power-washing program. Installation of carpet or other water trapping coverings should be prohibited, and potted plants should be placed on raised feet to allow for proper air circulation and drying.

Additionally, we recommend the application of appropriate sealants or coatings to the top surface and exposed edges of the concrete deck, as well as recaulking all railing post mounted into the deck slab. The underside of the concrete deck should be left untreated or treated with a breathable finish to allow entrapped moisture to escape.

Please note that your State or local jurisdiction may have specific requirements for deck and balcony inspections, such as the recently enacted Maryland HB 947 (Jonathan's Law). This level of inspection is beyond the scope of work for this Reserve Study.

## INTERIOR ITEMS

**Flooring, Vinyl Tile.** The Association maintains the vinyl tile flooring at the common laundry rooms and at those area where the laundry rooms and the storage rooms are located in the same space. The floors in the separate storage rooms are painted concrete and are excluded from the study.

The vinyl flooring tile condition varies from good to rather poor. The latter being the result of the intrusion of water into a few of these rooms, which is causing these tiles to buckle and discolor. Tiles that have become loose have the potential to become tripping hazards. It appears that some type of drainage system has been installed in a few of these spaces in order to divert surface water to sump pits. In some cases, the covers to the sump pit are incorrectly installed which may present a hazard.



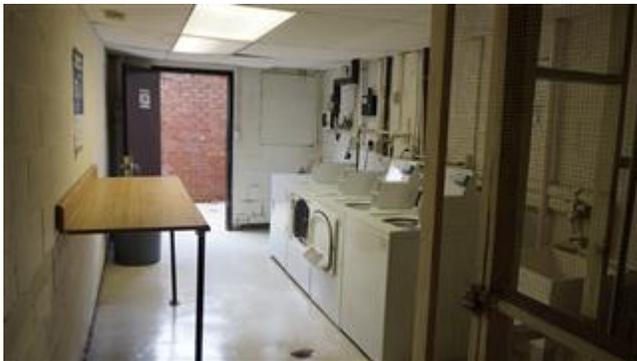
**Ceiling Tile.** The Association maintains suspended acoustical tile ceilings at the common laundry rooms. The ceilings at those areas where the laundry rooms and the storage rooms are located in the same space and at the separate storage rooms are of painted gypsum board and are excluded from the study.

The condition of these ceilings ranges from fair to poor, as numerous instances of loose, missing, stained, and damaged ceiling panels is noted.



It is important that the integrity of these ceilings tile be maintained as it helps to insulate the above spaces to protect piping installed above the tile. Any gaps or missing tile will allow cold air to penetrate the space above the tile, increasing heat loss from the conditioned space increasing the chances of freezing the piping above the tile. We recommend that the tile be inspected in the fall and after any work is completed in the space above the tile.

**Interior Lighting:** The Association maintains the interior lighting at the laundry rooms and storage rooms. At the individual laundry rooms, this lighting consists of 2x4 lay-in fluorescent fixtures. At those areas where the laundry rooms and the storage rooms are located in the same space and at the separate storage rooms, the lighting consists of various types, including surface-mounted 2x4 fluorescent lights, incandescent lights, and LED lights.



The condition of these light fixtures ranges from good to poor, as some fixtures appear to be newer or have been retrofitted with LED luminaires while others are in poor condition with inoperative luminaires and stained diffusers noted.





## BUILDING SYSTEMS

**Building Electrical Service.** The Association maintains the main switchgear at each of the 15 townhouse buildings, as well as the individual distribution panels at each of the 165 units. According to the Association, all electrical panels within all units and in the common areas were replaced in 2019. As a result, it is assumed that all of these replaced systems are in good condition. Stickers visible on some of these panels indicate that they have passed inspection by the authority having jurisdiction.



Other components of the overall electrical systems at the buildings appear to be in rather a poor condition. Conditions such as rusting box covers, rusting conduit (some at the exterior), exposed wiring with what appears to be damaged insulation, and improper wiring methods such as cords to sump pumps plugged into what appears to be non-GFI receptacles, were observed. It is recommended that these items be inspected by a licensed electrician to determine if there are any life safety issues associated with these conditions.



Other than the items indicated above, transformers and meters and if protected from water damage or overloading, interior electrical systems within a building, including feed lines and switchgear, are considered long-life components, and unless otherwise noted, are excluded from this study.

In order to maintain this equipment properly, periodic tightening of all connections is recommended every three to five years. Insurance policies in some cases may have specific requirements regarding the tightening of electrical connections. It is also recommended that outlets, sockets, switches, and minor fixtures be replaced at a maximum of every 30 years.

Replacement of these smaller components, unless otherwise identified, is considered incidental to refurbishment or is considered a Valuation Exclusion.

**Electrical Distribution Panels.** As indicated, the building electrical distribution panels located throughout the facility have been replaced in 2019. For the purposes of this study, it is assumed that these panels have a rated service life of 50 years or more.

**Electrical Switchgear.** The primary electrical switchgear dates to the original construction of the building. Electrical switchgear has a rated service life of 50 years or more. Electrical switchgear requires ongoing maintenance for proper operation and reliability.

**Underground Utilities.** The Association is responsible for underground domestic water and sanitary sewer line maintenance and replacement. The condition of these underground systems has not been verified.

Engineering drawings were not used in the determination of these underground components. Instead, we have provided an estimate of the approximate replacement costs based on our experience with other facilities of similar size and configuration. The inspection and evaluation of underground lines and structures is beyond the scope of work for this study.

Item #57 includes the total quantity of Concrete Balcony (as has been done in the FY 2018 Study) with a corresponding Recommended Funding Level of \$ 124,045.00. I would like some advice concerning the method of handling this Item. Note that the Association has indicated they thought the Recommended Funding Level should be increased from the \$ 105,349.00 figure indicated in the FY 2018 Study. Also, note the added 'Code Compliance' Condition Statement intended to address potential Code Compliance Issues which are not Reserve Items, but Items recommended to be verified by others.

This Condition Assessment is based upon our visual survey of the property. The sole purpose of the visual survey was an evaluation of the common and limited common elements of the property to ascertain their remaining useful life and replacement cost. Our evaluation assumed that all components met building code requirements in force at the time of construction. Our visual survey was conducted with care by experienced persons, but no warranty or guarantee is expressed or implied.

End of Condition Assessment

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## 1. COMMON INTEREST DEVELOPMENTS - AN OVERVIEW

Over the past 40 years, the responsibility for many services, facilities and infrastructure around our homes has shifted from the local government 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, i.e. 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 various components that may include the roads, curbs, sidewalks, playgrounds, streetlights, recreational facilities, and other community facilities and infrastructure.

The growth of Community Associations has been explosive. In 1965, there were only approximately 500 Community Associations in the United States. According to the 1990 U.S. Census, there were roughly 130,000 Community Associations. The Community Associations Institute (CAI), a national trade association, estimates in 2020 that there were more than 350,000 communities with over 75 million residents.

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 issues. Although Community Associations have succeeded in solving many short-term issues, many Associations still fail to properly plan for the significant expenses of replacing community facilities and infrastructure components. When inadequate Replacement Reserve funding results in less than timely replacements of failing components, homeowners are invariably exposed to the burden of special assessments, major increases in Association fees, and often a decline in property values.

## 2. REPLACEMENT RESERVE STUDY

The purpose of a Replacement Reserve Study is to provide the Association with an inventory of the common community facilities and infrastructure components that require periodic major repair or replacement, a general view of the physical condition of these components, and an effective financial plan to fund projected periodic replacements or major repairs. The Replacement Reserve Study consists of the following:

**Replacement Reserve Study Introduction.** The introduction provides a description of the property, an Executive Summary of the Funding Recommendations, Level of Reserve Study service, and a statement of the Purpose of the Replacement Reserve Study. It also lists documents and site evaluations upon which the Replacement Reserve Study is based and provides the Credentials of the Reserve Analyst.

**Section A Replacement Reserve Analysis.** Many components that are owned by the Association have a limited life and require periodic replacement. Therefore, it is essential that the Association have a financial plan that provides funding for the timely replacement of these components in order to protect the safety, appearance, and ultimately, the property value of the home in the community. In conformance with National Reserve Study Standards, a Replacement Reserve Analysis evaluates the current funding of Replacement Reserves as reported by the Association and recommends annual funding of Replacement Reserves using the Threshold Cash Flow Method. See definition below.

**Section B Replacement Reserve Inventory.** The Replacement Reserve Inventory lists the commonly owned components within the community that require periodic replacement using funding from Replacement Reserves. Replacement Reserve Inventory includes estimates of the Normal Economic Life (NEL) and the Remaining Economic Life (REL) for those components whose replacement is scheduled for funding from Replacement Reserves.

The Replacement Reserve Inventory also provides information about those components which are excluded from the Replacement Reserve Inventory and whose replacement is not scheduled for funding from Replacement Reserves.

**Section C Projected Annual Replacements.** The Calendar of Projected Annual Replacements provides a year-by-year listing of the Projected Replacements based on the data in the Replacement Reserve Inventory.

**Section D Condition Assessment.** The observed condition of the major items listed in the Replacement Reserve Inventory are discussed in more detail. The Condition Assessment includes a narrative and photographs that document conditions at the property observed at the time of our visual evaluation.

**The Appendix** is provided as an attachment to the Replacement Reserve Study. Additional attachments may include supplemental photographs to document conditions at the property and additional information specific to the property cited in the Conditions Assessment (i.e. Consumer Product Safety Commission, Handbook for Public Playground Safety, information on segmental retaining walls, manufacturer recommendations for asphalt shingles or siding, etc.).

### 3. METHODS OF ANALYSIS

The Replacement Reserve industry generally recognizes two different methods of accounting for Replacement Reserve Analysis, the Cash Flow Method and the Component Method. Due to the difference in accounting methodologies, these methods lead to different calculated values for the Recommended Annual Funding to the Reserves. A brief description is included below:

**Cash Flow Threshold Method.** This Reserve Study uses the Threshold Cash Flow Method, sometimes referred to as the "Pooling Method." It calculates the minimum constant annual funding to reserves (Minimum Annual Deposit) required to meet projected expenditures without allowing total reserves on hand to fall below the predetermined Minimum Balance, or Threshold, in any year.

**Component Method.** The Component Method of calculating Reserve Funding needs is based upon an older mathematical model. Instead of calculating total funding based on yearly funding requirements, the Component method treats each component as its own "line item" budget that can only be used for that component. As a result, the Component Method is typically more conservative requiring greater Annual Reserve Funding levels.

### 4. REPLACEMENT RESERVE STUDY DATA

**Identification of Reserve Components.** The Reserve Analyst has only two methods of identifying Reserve Components; (1) information provided by the Association and (2) 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 parties responsible for maintaining the community after acceptance of our proposal. Upon submission of the initial Study, the Study should be reviewed by the Board of Directors and the individuals responsible for maintaining the community. We depend upon the Association for correct information, documentation, and drawings. We also look to the Association representative to help us fashion the Reserve Study so that it reflects what the community hopes to accomplish in the coming years.

**Unit Costs.** Unit costs are developed using nationally published standards and estimating guides and are adjusted by state or region. In some instances, recent data received in the course of our work is used to modify these figures. Contractor proposals or actual cost experience may be available as part of the Association records. This is useful information, which should be incorporated into your report. Please bring any such available data to our attention, preferably before the report is commenced.

**Replacement vs. Repair and Maintenance.** A Replacement Reserve Study addresses the required funding for Capital Replacement Expenditures. This should not be confused with operational costs or cost of regular repairs or maintenance.

### 5. DEFINITIONS

**Adjusted Cash Flow Analysis.** Cash flow analysis adjusted to take into account annual cost increases due to inflation and interest earned on invested reserves. In this method, the annual contribution is assumed to grow annually at the inflation rate.

**Annual Deposit if Reserves Were Fully Funded.** Shown on the Summary Sheet A1 in the Component Method summary, this would be the amount of the Annual Deposit needed if the Reserves Currently on Deposit were equal to the Total Current Objective.

**Cash Flow Analysis.** See Cash Flow Threshold Method, above.

**Component Analysis.** See Component Method, above.

**Contingency.** An allowance for unexpected requirements. The "Threshold" used in the Cash Flow Method is a predetermined minimum balance that serves the same purpose as a "contingency." However, IRS Guidelines do not allow for a "contingency" line item in the inventory. Therefore, it is built into the mathematical model as a "Threshold."

**Cyclic Replacement Item.** A component item that typically begins to fail after an initial period (Estimated Initial Replacement), but which will be replaced in increments over a number of years (the Estimated Replacement Cycle). The Reserve Analysis program divides the number of years in the Estimated Replacement Cycle into five equal increments. It then allocates the Estimated Replacement Cost equally over those five increments. (As distinguished from Normal Replacement Items, see below)

**Estimated Normal Economic Life (NEL).** Used in the Normal Replacement Schedules. This represents the industry average number of years that a new item should be expected to last until it has to be replaced. This figure is sometimes modified by climate, region, or original construction conditions.

**Estimated Remaining Economic Life (REL).** Used in the Normal Replacement Schedules. Number of years until the item is expected to need replacement. Normally, this number would be considered to be the difference between the Estimated Economic Life and the age of the item. However, this number must be modified to reflect maintenance practice, climate, original construction and quality, or other conditions. For the purpose of this report, this number is determined by the Reserve Analyst based on the present condition of the item relative to the actual age.

**Minimum Annual Deposit.** Shown on the Summary Sheet A1. The calculated requirement for annual contribution to reserves as calculated by the Cash Flow Method (see above).

**Minimum Balance.** Otherwise referred to as the Threshold, this amount is used in the Cash Flow Threshold Method only. Normally derived using the average annual expenditure over the study period, this is the minimum amount held in reserves in the Peak Year.

**National Reserve Study Standards.** A set of Standards developed by the Community Associations Institute in 1995 (and updated in 2017) which establishes the accepted methods of Reserve Calculation and stipulates what data must be included in the Reserve Study for each component listed in the inventory. These Standards can be found at [CAOnline.org](http://CAOnline.org).

**Normal Replacement Item.** A component of the property that, after an expected economic life, is replaced in its entirety. (As distinguished from Cyclic Replacement Items, see above.)

**Number of Years of the Study.** The numbers 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 item on the schedule, at least once. The Reserve Study must cover a minimum of 20 years to comply with the National Reserve Study Standards. However, your study covers a 40-year period.

**Peak Year.** In the Cash Flow Threshold Method, a year in which the reserves on hand are projected to fall to the established threshold level. See Minimum Balance, above.

**Reserves Currently on Deposit.** Shown on the Summary Sheet A1, this is the amount of accumulated reserves as reported by the Association in the current year.

**Replacement Reserve Study.** An analysis of all of the components of the common property of a Community Association for which replacement should be anticipated within the economic life of the property as a whole. The analysis involves estimation for each component of its Estimated Replacement Cost, Normal Economic Life, and Remaining Economic Life. The objective of the study is to calculate a Recommended Annual Funding to the Association's Replacement Reserve Fund.

**Total Replacement Cost.** Shown on the Summary Sheet A1, this is total of the Estimated Replacement Costs for all items on the schedule if they were to be replaced once.

**Unit Replacement Cost.** Estimated replacement cost for a single unit of a given item on the schedule.

**Unit (of Measure).** Non-standard abbreviations are defined on the page of the Replacement Reserve Inventory where the item appears. The following standard abbreviations are used in this report:

<b>ea</b>	each	<b>ls</b>	lump sum	<b>sy</b>	square yard
<b>ft or lf</b>	linear foot	<b>pr</b>	pair	<b>cy</b>	cubic yard
<b>sf</b>	square foot				

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What is a Reserve Study?  
Who are we?



<https://youtu.be/m4BcOE6q3Aw>

What kind of property uses a Reserve Study?  
Who are our clients?



<https://youtu.be/40SodajTW1q>

Who conducts a Reserve Study?  
Reserve Specialist (RS) what does this mean?



<https://youtu.be/pYSMZ013VjQ>

When should a Reserve Study be updated?  
What are the different types of Reserve Studies?



<https://youtu.be/Qx8WHB9Cgnc>

What's in a Reserve Study and what's out?  
Improvement/Component, what's the difference?



<https://youtu.be/ZfBoAEhtf3E>

What is my role as a Community Manager?  
Will the report help me explain Reserves?



<https://youtu.be/1J2h7FIU3qw>

What is my role as a community Board Member?  
Will a Reserve Study meet my needs?



<https://youtu.be/aARD1B1Oa3o>

Community dues, how can a Reserve Study help?  
Will a study keep my property competitive?



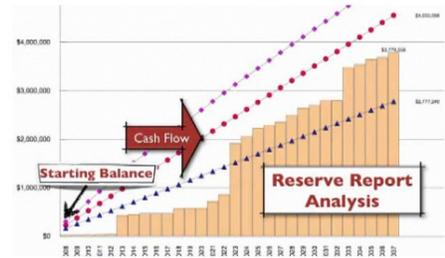
<https://youtu.be/diZfM1IyJYU>

How do I read the report?  
Will I have a say in what the report contains?



<https://youtu.be/qCeVJhFf9ag>

Where do the numbers come from?  
Cumulative expenditures and funding, what?



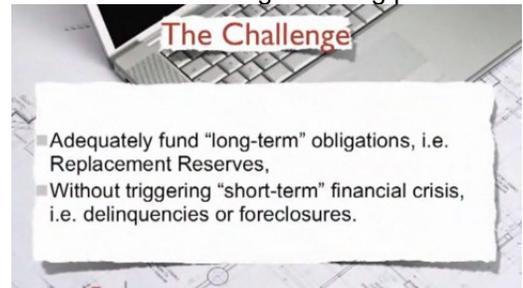
<https://youtu.be/SePdWVDvHWI>

How are interest and inflation addressed?  
Inflation, what should we consider?



<https://youtu.be/W8CDLwRlv68>

A community needs more help, where do we go?  
What is a strategic funding plan?



<https://youtu.be/hIxV9X1tlcA>