LEVEL 2 REPLACEMENT RESERVE REPORT FY 2021
A SAMPLE HIGH RISE

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millerdodson

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REPLACEMENT RESERVE REPORT

A SAMPLE HIGH RISE

Dallas, Texas
December 23, 2020
Revised December 28, 2020

Description. This Sample High Rise is a Residential Condominium, located in Dallas, Texas. Constructed in 2010, the the condominium consists of a 42 level High Rise Building containing 496 units.

This Reserve Study includes the following four separate budget entities to which the Reserve Funds are allocated:

- General Common Elements
- Garage
- Residential Common Elements
- Skyclub

The survey examined all common elements of the property, including:

- Sidewalks
- Fencing, Site Lighting, and Mailbox Clusters
- Waterlines and Sanitary Lines
- Exterior Main Pool and Exterior Spa
- Building Exteriors, Interiors, and Systems

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 FY 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.

Purpose. The purpose of this Replacement Reserve Study is to provide A Sample High Rise (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. The alternative Component Method of funding is provided in the Appendix.

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 23, 2020 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.

Current Funding. This reserve study has been prepared for Fiscal Year 2021 covering the period from January 1, 2021 to December 31, 2021. The Replacement Reserves deposit as of January 1, 2021 and the current annual funding for reserves are reported to be:

	% of funds	Balances as of 12/31/2020	2020 Planned Contribution
GCE - General Common Element	21.00%	$343,247	$22,236
Garage	8.50%	$138,933	$54,936
RCE - Residential Common Element	68.80%	$1,124,541	$179,988
SkyClub	1.70%	$27,787	$4,452
Totals	100.0%	$1,634,508	$261,612

The balance and contribution figures have been supplied by the managing agent and 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.

Acknowledgment. Miller+Dodson Associates would like to acknowledge the assistance and input of the Community Manager, who provided very helpful insight into the current operations of the property.

Respectfully Submitted,

millerdodson
CAPITAL RESERVE CONSULTANTS

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EXECUTIVE SUMMARY

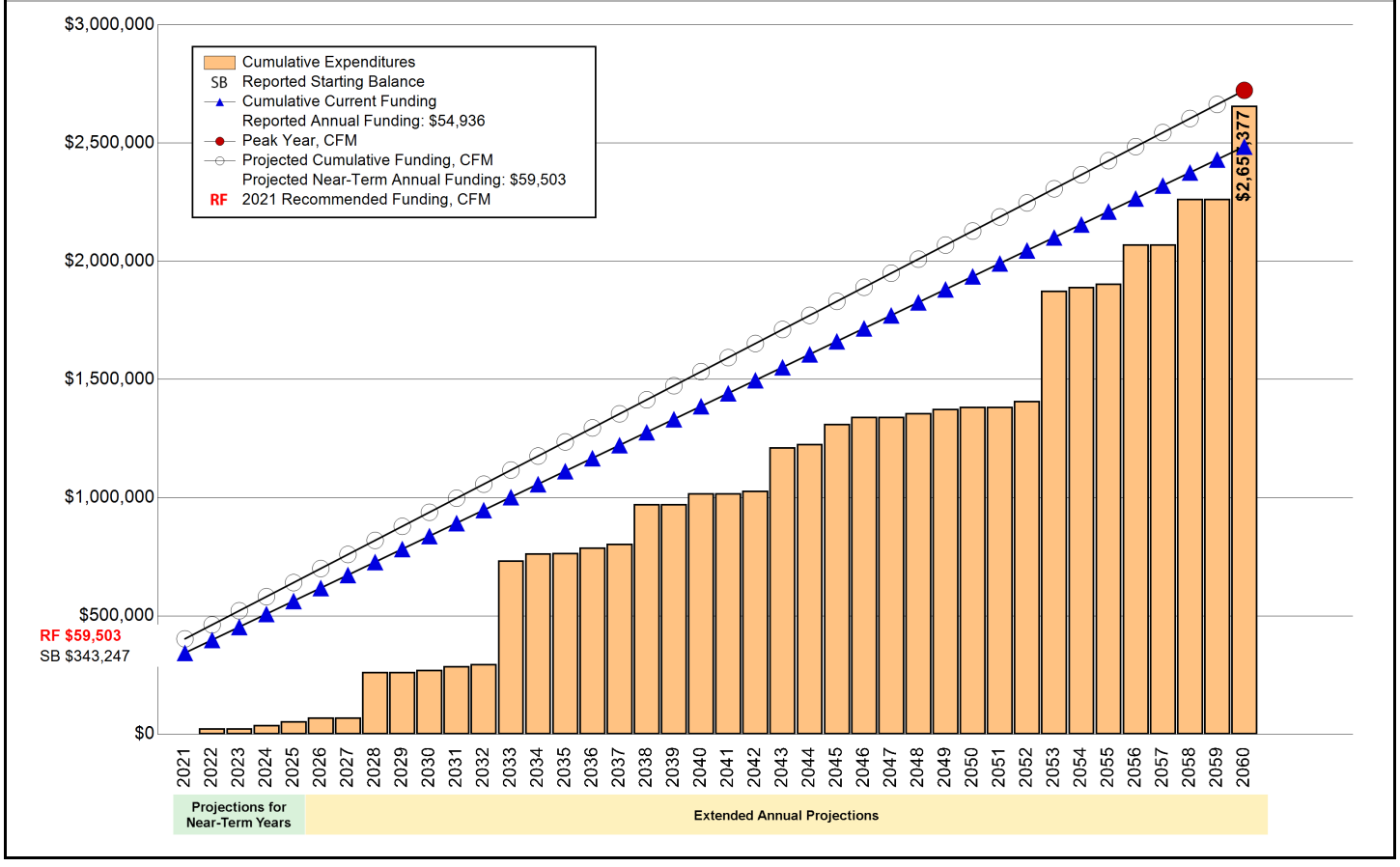
The A Sample High Rise - General Common Elements Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 30 Projected Replacements identified in the Replacement Reserve Inventory.

$59,503 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2021**
$10.00 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.

A Sample High Rise - General Common Elements reports a Starting Balance of $343,247 and Annual Funding totaling $54,936. The reported Current Annual Funding of $54,936 is inadequate to fund projected replacements starting in 2060. See Page A.3 for a more detailed evaluation.

#1 - Cumulative Replacement Reserve Funding and Expenditures Graph



The Association should raise their Annual Funding to the General Common Elements Reserves from the current Reserves funding of $54,936 to the Recommended Replacement Reserve Funding of $59,503.

REPLACEMENT RESERVE ANALYSIS - GENERAL INFORMATION

The A Sample High Rise - General Common Elements 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.

2021 **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, 2021.

40 Years **STUDY PERIOD**

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

$343,247 **STARTING BALANCE**

The Association reports Replacement Reserves on Deposit totaling $343,247 at the start of the Study Year.

Level Two **LEVEL OF SERVICE**

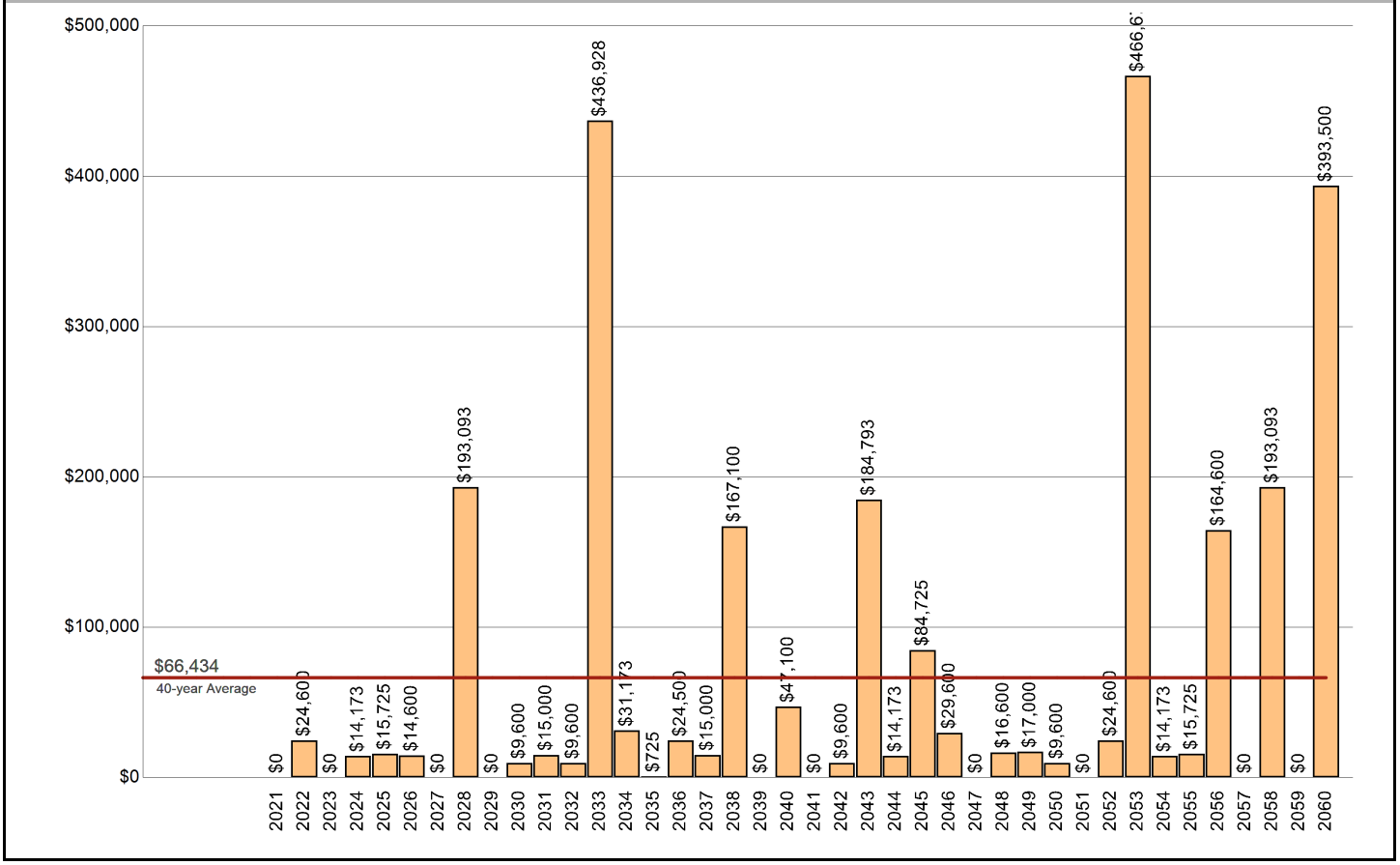
The Replacement Reserve Inventory has been developed in compliance with the National Reserve Study Standards for a Level Two Study, as defined by the Community Associations Institute (CAI).

$2,657,377 **REPLACEMENT RESERVE INVENTORY - PROJECTED REPLACEMENTS**

The A Sample High Rise - General Common Elements Replacement Reserve Inventory identifies 30 items that will require periodic replacement, that are to be funded from Replacement Reserves. We estimate the cost of these replacements will be $2,657,377 over the 40-year Study Period. The Projected Replacements are divided into 4 major categories starting on Page B.3. Pages B.1-B.2 provide detailed information on the Replacement Reserve Inventory.

#2 - Annual Expenditures for Projected Replacements Graph

This graph shows annual expenditures for Projected Replacements over the 40-year Study Period. The red line shows the average annual expenditure of $66,434. Section C provides a year by year Calendar of these expenditures.



UPDATING

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 $2,657,377 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.

#3 - Table of Annual Expenditures and Current Funding Data - Years 1 through 40

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$343,247									
Projected Replacements		($24,600)		($14,173)	($15,725)	($14,600)		($193,093)		($9,600)
Annual Deposit	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936
End of Year Balance	$398,183	$428,519	$483,455	$524,218	$563,429	$603,765	$658,701	$520,544	$575,480	$620,816
Cumulative Expenditures		($24,600)	($24,600)	($38,773)	($54,498)	($69,098)	($69,098)	($262,191)	($262,191)	($271,791)
Cumulative Receipts	$398,183	$453,119	$508,055	$562,991	$617,927	$672,863	$727,799	$782,735	$837,671	$892,607
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements	($15,000)	($9,600)	($436,928)	($31,173)	($725)	($24,500)	($15,000)	($167,100)		($47,100)
Annual Deposit	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936
End of Year Balance	$660,752	$706,088	$324,096	$347,859	$402,070	$432,506	$472,442	$360,278	$415,214	$423,050
Cumulative Expenditures	($286,791)	($296,391)	($733,319)	($764,492)	($765,217)	($789,717)	($804,717)	($971,817)	($971,817)	($1,018,917)
Cumulative Receipts	$947,543	$1,002,479	$1,057,415	$1,112,351	$1,167,287	$1,222,223	$1,277,159	$1,332,095	$1,387,031	$1,441,967
Year	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements		($9,600)	($184,793)	($14,173)	($84,725)	($29,600)		($16,600)	($17,000)	($9,600)
Annual Deposit	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936
End of Year Balance	$477,986	$523,322	$393,465	$434,228	$404,439	$429,775	$484,711	$523,047	$560,983	$606,319
Cumulative Expenditures	($1,018,917)	($1,028,517)	($1,213,310)	($1,227,483)	($1,312,208)	($1,341,808)	($1,341,808)	($1,358,408)	($1,375,408)	($1,385,008)
Cumulative Receipts	$1,496,903	$1,551,839	$1,606,775	$1,661,711	$1,716,647	$1,771,583	$1,826,519	$1,881,455	$1,936,391	$1,991,327
Year	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**
Projected Replacements		($24,600)	($466,678)	($14,173)	($15,725)	($164,600)		($193,093)		($393,500)
Annual Deposit	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936	$54,936
End of Year Balance	$661,255	$691,591	$279,850	$320,613	$359,824	$250,160	$305,096	$166,938	$221,874	($116,690)
Cumulative Expenditures	($1,385,008)	($1,409,608)	($1,876,285)	($1,890,458)	($1,906,183)	($2,070,783)	($2,070,783)	($2,263,877)	($2,263,877)	($2,657,377)
Cumulative Receipts	$2,046,263	$2,101,199	$2,156,135	$2,211,071	$2,266,007	$2,320,943	$2,375,879	$2,430,815	$2,485,751	$2,540,687

EVALUATION OF CURRENT FUNDING

The evaluation of Current Funding (Starting Balance of $343,247 & annual funding of $54,936), 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 30 Projected Replacements identified in the Replacement Reserve Inventory and that the Association will continue Annual Funding of $54,936 throughout the 40-year Study Period.

Annual Funding of $54,936 is approximately 92 percent of the $59,503 recommended Annual Funding calculated by the Cash Flow Method for 2021, the Study Year.

The progression and effect of continued Current Annual Funding coupled with this studies Projected Replacements over the Study Period are evaluated in Table 3 above. Maintaining Current Annual Funding may result in inadequate End of Year Balances, noted in red.

See the Executive Summary for the Current Funding Statement.

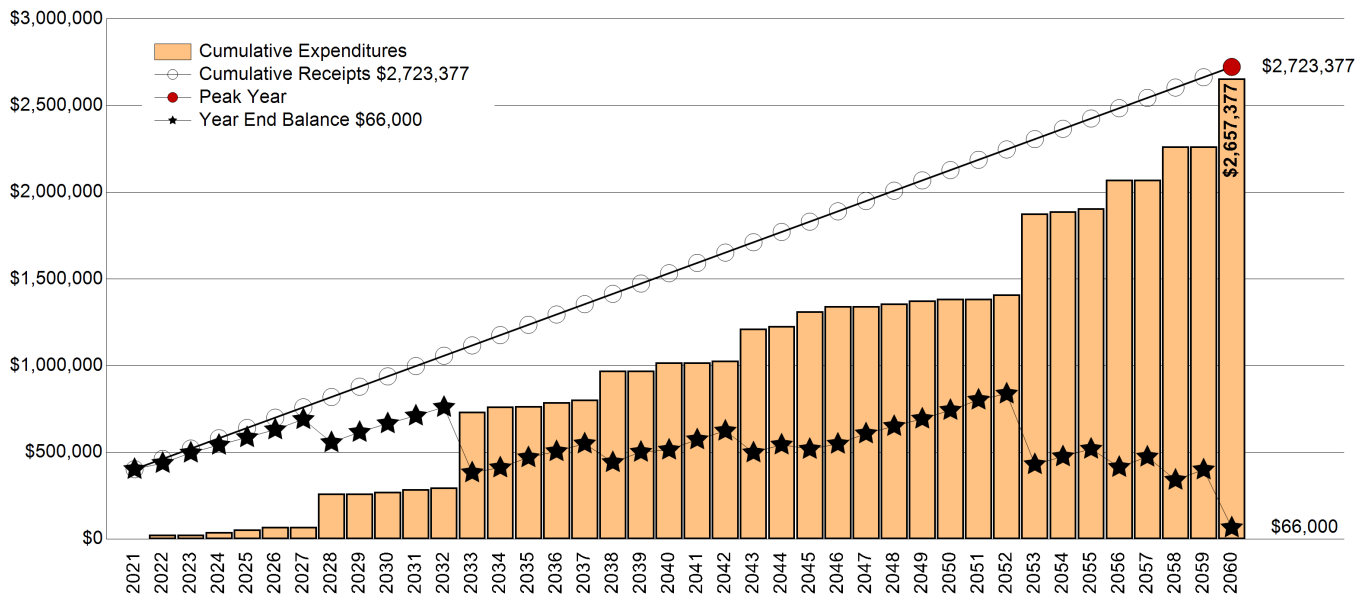
CASH FLOW METHOD FUNDING

$59,503 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR 2021**
$10.00 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 2060 with Replacement Reserves on Deposit dropping to the Minimum Balance after the completion of $2,657,377 of replacements from 2021 to 2060. Recommended funding is anticipated to decline in 2061. Peak Years are identified in Chart 4 and Table 5.
- Minimum Balance. The calculations assume a Minimum Balance of $66,000 will always be held in reserve, which is calculated by rounding the 12-month 40-year average annual expenditure of $66,434 as shown on Graph #2.
- Cash Flow Method Study Period. Cash Flow Method calculates funding for $2,657,377 of expenditures over the 40-year Study Period. It does not include funding for any projects beyond 2060 and in 2060, the end of year balance will always be the Minimum Balance.

#4 - Cash Flow Method - Graph of Cumulative Receipts and Expenditures - Years 1 through 40



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

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$343,247									
Projected Replacements		($24,600)		($14,173)	($15,725)	($14,600)		($193,093)		($9,600)
Annual Deposit	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503
End of Year Balance	$402,750	$437,653	$497,157	$542,487	$586,265	$631,168	$690,672	$557,082	$616,585	$666,488
Cumulative Expenditures		($24,600)	($24,600)	($38,773)	($54,498)	($69,098)	($69,098)	($262,191)	($262,191)	($271,791)
Cumulative Receipts	$402,750	$462,253	$521,757	$581,260	$640,763	$700,266	$759,770	$819,273	$878,776	$938,279

Year	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Projected Replacements	($15,000)	($9,600)	($436,928)	($31,173)	($725)	($24,500)	($15,000)	($167,100)		($47,100)
Annual Deposit	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503
End of Year Balance	$710,991	$760,895	$383,470	$411,801	$470,579	$505,582	$550,085	$442,489	$501,992	$514,395
Cumulative Expenditures	($286,791)	($296,391)	($733,319)	($764,492)	($765,217)	($789,717)	($804,717)	($971,817)	($971,817)	($1,018,917)
Cumulative Receipts	$997,783	$1,057,286	$1,116,789	$1,176,292	$1,235,796	$1,295,299	$1,354,802	$1,414,305	$1,473,809	$1,533,312

Year	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Projected Replacements		($9,600)	($184,793)	($14,173)	($84,725)	($29,600)		($16,600)	($17,000)	($9,600)
Annual Deposit	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503
End of Year Balance	$573,898	$623,802	$498,512	$543,842	$518,620	$548,523	$608,027	$650,930	$693,433	$743,336
Cumulative Expenditures	($1,018,917)	($1,028,517)	($1,213,310)	($1,227,483)	($1,312,208)	($1,341,808)	($1,341,808)	($1,358,408)	($1,375,408)	($1,385,008)
Cumulative Receipts	$1,592,815	$1,652,318	$1,711,822	$1,771,325	$1,830,828	$1,890,331	$1,949,834	$2,009,338	$2,068,841	$2,128,344

Year	2051	2052	2053	2054	2055	2056	2057	2058	2059	1st Peak - 2060
Projected Replacements		($24,600)	($466,678)	($14,173)	($15,725)	($164,600)		($193,093)		($393,500)
Annual Deposit	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503	$59,503
End of Year Balance	$802,840	$837,743	$430,569	$475,899	$519,677	$414,580	$474,083	$340,494	$399,997	$66,000
Cumulative Expenditures	($1,385,008)	($1,409,608)	($1,876,285)	($1,890,458)	($1,906,183)	($2,070,783)	($2,070,783)	($2,263,877)	($2,263,877)	($2,657,377)
Cumulative Receipts	$2,187,847	$2,247,351	$2,306,854	$2,366,357	$2,425,860	$2,485,364	$2,544,867	$2,604,370	$2,663,873	$2,723,377

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.

$59,503 **2021 - CASH FLOW METHOD RECOMMENDED FUNDING**

The 2021 Study Year calculations have been made using current replacement costs (see Page B.2), modified by the Analyst for any project specific conditions.

$60,872 **2022 - INFLATION ADJUSTED FUNDING**

A new analysis calculates the 2022 funding based on three assumptions:

- Replacement Reserves on Deposit totaling $402,750 on January 1, 2022.
- No Expenditures from Replacement Reserves in 2021.
- Construction Cost Inflation of 2.30 percent in 2021.

The $60,872 inflation adjusted funding in 2022 is a 2.29 percent increase over the non-inflation adjusted funding of $59,503.

$62,272 **2023 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $379,796 on January 1, 2023.
- All 2022 Projected Replacements listed on Page C.2 accomplished at a cost to Replacement Reserves less than $24,948.
- Construction Cost Inflation of 2.30 percent in 2022.

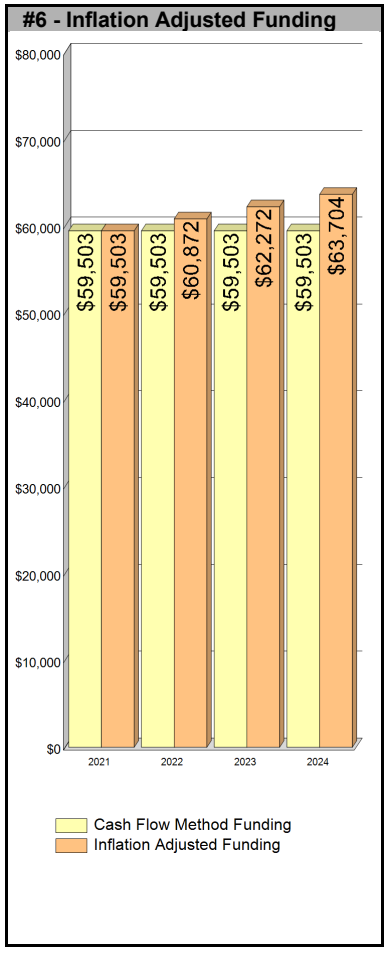
The $62,272 inflation adjusted funding in 2023 is a 4.65 percent increase over the non-inflation adjusted funding of $59,503.

$63,704 **2024 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $407,052 on January 1, 2024.
- No Expenditures from Replacement Reserves in 2023.
- Construction Cost Inflation of 2.30 percent in 2023.

The $63,704 inflation adjusted funding in 2024 is a 7.05 percent increase over the non-inflation adjusted funding of $59,503.



Year Five 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 2022, 2023 and 2024 inflation-adjusted funding calculations above, the 2.30 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 2021, based on a 1.00 percent interest rate, we estimate the Association may earn $3,730 on an average balance of $372,999, $3,913 on an average balance of $391,273 in 2022, and $3,934 on $393,424 in 2023. The Association may elect to attribute 100 percent of the earned interest to Reserves, resulting in a reduction in the 2021 funding from $59,503 to $55,773 (a 6.26 percent reduction), $60,872 to $56,959 in 2022 (a 6.42 percent reduction), and $62,272 to $58,338 in 2023 (a 6.31 percent reduction).

REPLACEMENT RESERVE STUDY - SUPPLEMENTAL COMMENTS

- The Cash Flow Method calculates the minimum annual funding necessary to prevent Replacement Reserves from dropping below the Minimum Balance, as defined on Page A4. Failure to fund at least the recommended levels may result in funding not being available for the Projected Replacements listed in the Replacement Reserve Inventory.
- The accuracy of the Replacement Reserve Analysis is dependent upon expenditures from Replacement Reserves being made ONLY for the 30 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.

REPLACEMENT RESERVE INVENTORY
GENERAL INFORMATION

A Sample High Rise - General Common Elements - Replacement Reserve Inventory identifies 30 Projected Replacements.

- PROJECTED REPLACEMENTS. 30 of the items 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 $1,499,074. Cumulative Replacements totaling $2,657,377 are scheduled in the Replacement Reserve Inventory over the 40-year Study Period.

  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. 10 of the items included 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 30 items included in the A Sample High Rise - General Common Elements Replacement Reserve Inventory are divided into 4 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 FY 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 30 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.

- REVIEW OF EXPENDITURES. This Replacement Reserve Study should be reviewed by an accounting professional representing the Association prior to implementation.

- 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.

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	Concrete Sealant - entry drive (1st lvl)	sf	5,380	$0.85	10	3	$4,573
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
	Concrete flatwork (6%)						EXCLUDED
						Replacement Costs - Page Subtotal	$4,573

COMMENTS

- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board
- Concrete flatwork (6%) - [12/28/2020] excluded per board

EXTERIOR ITEMS
PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
2	Roof, EPDM	sf	20,230	$19.25	20	12	$389,428
3	Glass curtainwall replacement (0.05%)	sf	116	$50.00	2	1	$5,800
4	Glass curtainwall replacement (1.5%)	sf	38	$100.00	2	1	$3,800
5	Decorative Metal Panels - seal replacement	sf	17,696	$5.25	15	7	$92,904
6	FRC Panels - seal replacement	sf	6,392	$6.35	15	7	$40,589
7	Main entrance doors	pr	8	$2,500.00	25	17	$20,000
8	Exterior doors, glass & aluminum	ea	6	$1,650.00	25	15	$9,900
9	Exterior doors, metal, sgl	ea	96	$900.00	25	17	$86,400
10	Exterior doors, metal, dbl	ea	5	$1,250.00	25	17	$6,250
11	Overhead door with opener	ea	2	$12,750.00	20	12	$25,500
12	Overhead door with opener - large	ea	1	$22,500.00	20	19	$22,500
13	Lights, artwork, colored w/controls	ls	1	$5,000.00	10	5	$5,000

Replacement Costs - Page Subtotal $708,071

COMMENTS

- Item #3: Glass curtainwall replacement (0.05%) - Model for the glass curtain wall assumes 1/2% of the window system will fail and be replaced every 5 years. Maintenance team should keep track of each failed window system so the actual replacements can be tracked against this model and model can be adjusted accordingly.

INTERIOR 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	Lobby tile floor tuckpoint (5%)	sf	100	$7.25	10	4	$725
15	Lobby tile floor replace	sf	2,000	$42.00	30	24	$84,000
16	Bathroom Renovation, 1st Floor Lobby	ls	1	$3,600.00	20	12	$3,600
17	Lighting, general fixtures	ea	49	$150.00	25	17	$7,350
18	Lighting, interior	ea	40	$175.00	20	12	$7,000
19	Lighting, exterior	ea	22	$200.00	20	12	$4,400

Replacement Costs - Page Subtotal $107,075

COMMENTS

BUILDING SYSTEMS - MECHANICAL SYSTEMS

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
20	Fire pump, 250 hp	ea	1	$26,500.00	40	32	$26,500
21	Fire pump controller	ls	1	$10,250.00	40	32	$10,250
22	Dry sprinkler system compressor	ea	1	$1,300.00	30	22	$1,300
23	Sprinkler Heads	ea	6,720	$32.50	50	39	$218,400

Replacement Costs - Page Subtotal $256,450

COMMENTS

BUILDING SYSTEMS - ELECTRICAL SYSTEMS

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
24	Primary switchgear	ls	1	$143,000.00	50	39	$143,000
25	Fire panel	ls	1	$37,500.00	25	17	$37,500
26	Security system	ls	1	$35,000.00	15	7	$35,000
27	Video Camera System	ls	1	$15,000.00	3	1	$15,000
28	Generator, whole building	ea	1	$150,000.00	45	35	$150,000
29	Electric Meter, control system (billing)	ls	1	$7,000.00	15	12	$7,000
30	Water Meter, control system (billing)	ls	1	$2,000.00	15	13	$2,000

Replacement Costs - Page Subtotal $389,500

COMMENTS

VALUATION EXCLUSIONS

Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Property identification signage						EXCLUDED
	Miscellaneous signage						EXCLUDED
	House bid						EXCLUDED
	Fire extinguisher cabinet						EXCLUDED
	Signage						EXCLUDED

VALUATION EXCLUSIONS

Comments

- 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.

- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

LONG-LIFE EXCLUSIONS
Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Building foundation(s)						EXCLUDED
	Concrete floor slabs (interior)						EXCLUDED
	Wall, floor, and roof structure						EXCLUDED
	Common element electrical services						EXCLUDED
	Electrical wiring						EXCLUDED
	Water piping at common facilities						EXCLUDED
	Waste piping at common facilities						EXCLUDED
	Gas services at common facilities						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 ($)	NEL	REL	REPLACEMENT COST ($)
	Building interior above the 1st floor						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
	Unit interior						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 ($)	NEL	REL	REPLACEMENT COST ($)
	Cable TV systems and structures						EXCLUDED
	Telephone cables and structures						EXCLUDED
	Gas mains and meters						EXCLUDED
	Water 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 ($)	NEL	REL	REPLACEMENT COST ($)
	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.

PROJECTED ANNUAL REPLACEMENTS
GENERAL INFORMATION

CALENDAR OF ANNUAL REPLACEMENTS. The 30 Projected Replacements in the A Sample High Rise - General Common Elements 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

- 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.
- 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.
- 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.

PROJECTED REPLACEMENTS

Item	2021 - Study Year	$
No Scheduled Replacements		

Item	2022 - YEAR 1	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
27	Video Camera System	$15,000
Total Scheduled Replacements		$24,600

Item	2023 - YEAR 2	$
No Scheduled Replacements		

Item	2024 - YEAR 3	$
1	Concrete Sealant - entry drive (1st lvl)	$4,573
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
Total Scheduled Replacements		$14,173

Item	2025 - YEAR 4	$
14	Lobby tile floor tuckpoint (5%)	$725
27	Video Camera System	$15,000
Total Scheduled Replacements		$15,725

Item	2026 - YEAR 5	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
13	Lights, artwork, colored w/controls	$5,000
Total Scheduled Replacements		$14,600

Item	2027 - YEAR 6	$
No Scheduled Replacements		

Item	2028 - YEAR 7	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
5	Decorative Metal Panels - seal replacement	$92,904
6	FRC Panels - seal replacement	$40,589
26	Security system	$35,000
27	Video Camera System	$15,000
Total Scheduled Replacements		$193,093

PROJECTED REPLACEMENTS

Item	2029 - YEAR 8	$
No Scheduled Replacements		

Item	2030 - YEAR 9	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
Total Scheduled Replacements		$9,600

Item	2031 - YEAR 10	$
27	Video Camera System	$15,000
Total Scheduled Replacements		$15,000

Item	2032 - YEAR 11	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
Total Scheduled Replacements		$9,600

Item	2033 - YEAR 12	$
2	Roof, EPDM	$389,428
11	Overhead door with opener	$25,500
16	Bathroom Renovation, 1st Floor Lobby	$3,600
18	Lighting, interior	$7,000
19	Lighting, exterior	$4,400
29	Electric Meter, control system (billing)	$7,000
Total Scheduled Replacements		$436,928

Item	2034 - YEAR 13	$
1	Concrete Sealant - entry drive (1st lvl)	$4,573
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
27	Video Camera System	$15,000
30	Water Meter, control system (billing)	$2,000
Total Scheduled Replacements		$31,173

Item	2035 - YEAR 14	$
14	Lobby tile floor tuckpoint (5%)	$725
Total Scheduled Replacements		$725

Item	2036 - YEAR 15	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
8	Exterior doors, glass & aluminum	$9,900
13	Lights, artwork, colored w/controls	$5,000
Total Scheduled Replacements		$24,500

PROJECTED REPLACEMENTS

Item	2037 - YEAR 16	$
27	Video Camera System	$15,000
	Total Scheduled Replacements	$15,000

Item	2038 - YEAR 17	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
7	Main entrance doors	$20,000
9	Exterior doors, metal, sgl	$86,400
10	Exterior doors, metal, dbl	$6,250
17	Lighting, general fixtures	$7,350
25	Fire panel	$37,500
	Total Scheduled Replacements	$167,100

Item	2039 - YEAR 18	$
	No Scheduled Replacements	

Item	2040 - YEAR 19	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
12	Overhead door with opener - large	$22,500
27	Video Camera System	$15,000
	Total Scheduled Replacements	$47,100

Item	2041 - YEAR 20	$
	No Scheduled Replacements	

Item	2042 - YEAR 21	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
	Total Scheduled Replacements	$9,600

Item	2043 - YEAR 22	$
5	Decorative Metal Panels - seal replacement	$92,904
6	FRC Panels - seal replacement	$40,589
22	Dry sprinkler system compressor	$1,300
26	Security system	$35,000
27	Video Camera System	$15,000
	Total Scheduled Replacements	$184,793

Item	2044 - YEAR 23	$
1	Concrete Sealant - entry drive (1st lvl)	$4,573
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
	Total Scheduled Replacements	$14,173

PROJECTED REPLACEMENTS

Item	2045 - YEAR 24	$
14	Lobby tile floor tuckpoint (5%)	$725
15	Lobby tile floor replace	$84,000
	Total Scheduled Replacements	$84,725

Item	2046 - YEAR 25	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
13	Lights, artwork, colored w/controls	$5,000
27	Video Camera System	$15,000
	Total Scheduled Replacements	$29,600

Item	2047 - YEAR 26	$
	No Scheduled Replacements	

Item	2048 - YEAR 27	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
29	Electric Meter, control system (billing)	$7,000
	Total Scheduled Replacements	$16,600

Item	2049 - YEAR 28	$
27	Video Camera System	$15,000
30	Water Meter, control system (billing)	$2,000
	Total Scheduled Replacements	$17,000

Item	2050 - YEAR 29	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
	Total Scheduled Replacements	$9,600

Item	2051 - YEAR 30	$
	No Scheduled Replacements	

Item	2052 - YEAR 31	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
27	Video Camera System	$15,000
	Total Scheduled Replacements	$24,600

PROJECTED REPLACEMENTS

Item	2053 - YEAR 32	$
2	Roof, EPDM	$389,428
11	Overhead door with opener	$25,500
16	Bathroom Renovation, 1st Floor Lobby	$3,600
18	Lighting, interior	$7,000
19	Lighting, exterior	$4,400
20	Fire pump, 250 hp	$26,500
21	Fire pump controller	$10,250
	Total Scheduled Replacements	$466,678

Item	2054 - YEAR 33	$
1	Concrete Sealant - entry drive (1st lvl)	$4,573
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
	Total Scheduled Replacements	$14,173

Item	2055 - YEAR 34	$
14	Lobby tile floor tuckpoint (5%)	$725
27	Video Camera System	$15,000
	Total Scheduled Replacements	$15,725

Item	2056 - YEAR 35	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
13	Lights, artwork, colored w/controls	$5,000
28	Generator, whole building	$150,000
	Total Scheduled Replacements	$164,600

Item	2057 - YEAR 36	$
	No Scheduled Replacements	

Item	2058 - YEAR 37	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
5	Decorative Metal Panels - seal replacement	$92,904
6	FRC Panels - seal replacement	$40,589
26	Security system	$35,000
27	Video Camera System	$15,000
	Total Scheduled Replacements	$193,093

Item	2059 - YEAR 38	$
	No Scheduled Replacements	

Item	2060 - YEAR 39	$
3	Glass curtainwall replacement (0.05%)	$5,800
4	Glass curtainwall replacement (1.5%)	$3,800
12	Overhead door with opener - large	$22,500
23	Sprinkler Heads	$218,400
24	Primary switchgear	$143,000
	Total Scheduled Replacements	$393,500

CONDITION ASSESSMENT

General Comments. Miller+Dodson Associates conducted a Reserve Study at A Sample High Rise - General Common Elements in December 2020. A Sample High Rise - General Common Elements is in generally excellent condition for a residential condominium constructed between 2008-2010. A review of the Replacement Reserve Inventory will show that we are anticipating most of the components achieving their normal economic lives.

General Common Element (GCE) - This area picks up both the owners of residential units and the commercial properties on the first floor. Included are the entire exterior envelope, glass skin, roof, and exterior doors on the first floor. Also included are the fire suppression and detection systems, security system, and the main electrical switchgear which includes the building's back-up generator.

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.

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.

EXTERIOR ITEMS

BUILDING EXTERIORS

Roofing. The roof is an elastomeric flat roofing system and is generally in excellent condition. Flat roofing systems can have a variety of configurations that will greatly affect the cost of replacement including insulation, ballast, the height of the building, and the density of installed mechanical equipment. Flat roofing systems typically have a useful life of 15 to 20 years. It was assumed the new roofing materials could be brought in sizes and quantities to utilize multiple trips on elevator #4.

As roofing systems age, periodic inspections are recommended and repair work may be required. In order to obtain the maximum useful life possible, we recommend performing routine inspections and cleanings at a decreasing interval as the roof ages. Access, inspection, and repair work should be performed by contractors and personnel who are experienced in the types of roofing used for the facility.

For additional information on roofs and maintenance of the roof, please the appropriate links on our website at http://mdareserves.com/resources/links/building-exterior.

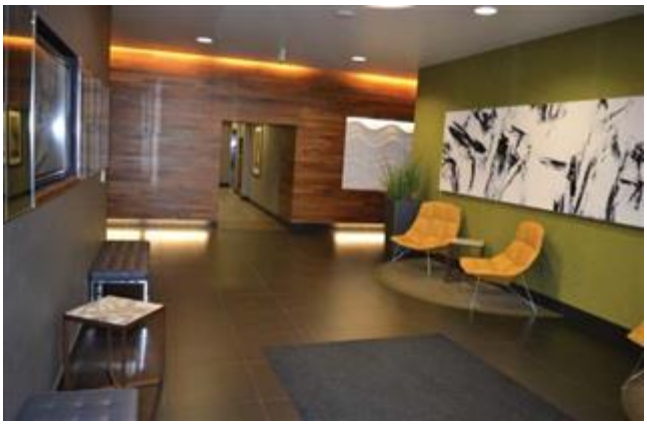
Glass Window Walls. The window systems form a “curtain wall” of glass as they are the predominant feature of the building exterior. The glass panels will experience cracking or seal failure throughout the building life, with seal failure the more frequent occurrence. Since the glass failures will happen periodically over time, the study assumes that .05 of 1% of the glass surface will fail and need replacement during a 2 year period except for the end of hallway glass which is modeled at 1.5% every 2 years. It is possible that the glass may fail at a much faster rate during some periods or at a much slower rate altogether. Since this is a very expensive feature it is important to keep track of the amount of glass replacement and compare the rate to the rate assumed in this reserve model.

Glass Sliding Glass Doors. The sliding glass doors have some of the same features and failure problems and the glass exterior, but they also fail at the track system which allows them to move and operate. The study assumes that ten percent of the sliding glass doors will fail and be replaced in 5-year intervals.

FRC and Metal Panels. The concrete and metal panels that cover parts of the building exterior are long-life items that the study assumes are the life of the building. The seals that provide weatherproofing for these panels do deteriorate and fail. It is assumed the seals will require replacement every 15 years.

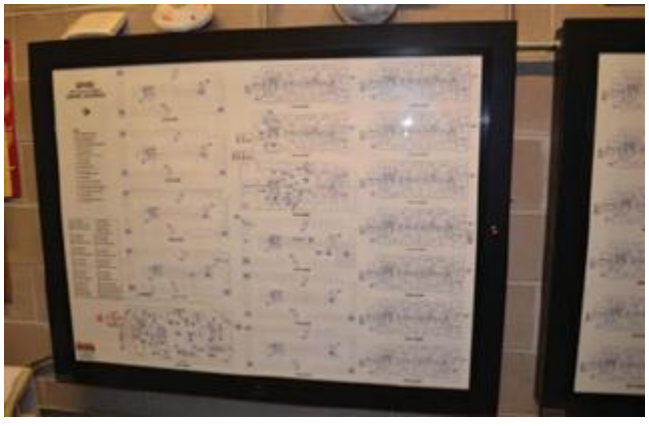
INTERIOR ITEMS

Tile Floors. Tile floors are found in the 1st floor and 9th-floor lobbies and in the elevator lobbies on the 1stthrough 9th floors. Tile flooring and walls can also be found in the common restrooms. These floors walls have an extended life but may need occasional regrouting of joints. Full replacement has been included to allow for replacement due to failure or to allow for changes in the décor.



BUILDING SYSTEMS

Fire Protection Systems. The building fire protection system consists of a dry pipe system for the 8 floor parking structure and a wet pipe system for the residential heated spaces. The system is feed from the city water supply which is supplemented by a fire pump to increase distribution pressures. The two main items included in the reserve study are the fire pump and the sprinkler heads. The fire pump is a pump and motor assembly and will wear out like any motor does; it just lasts longer because it is operated less frequently. The sprinkler heads are replaced at 50 years in the study because NFPA 13 requires the sprinkler heads to be replaced new every 50 years.



Emergency Backup Generator. The property has a Cummins generator for backup of essential emergency systems. The generator is new and in excellent condition. The Facility Manager operates the generator weekly to ensure it is in operation in case of emergency.

Electrical Switchgear. There is switchgear for distribution 480v power throughout the entire building on the1st floor and there are also power distribution panels for 120/208v power to the residential floors and for 480vpower in the penthouse for mechanical equipment. The switchgear has a long life but changes in equipment technology can result in the inability of obtaining replacement parts and subsequently to switchgear must be replaced. History in this area shows that in about 30 years the distribution breakers will require power panel replacements and the switchgear will require replacement in 50 years.

Electrical Transformers. Transformers are used to reduce the 480v power throughout the building to120/208v. These transformers experience the majority of failures due to overheating, so with electrical room cooling, this failure timeframe should be extended. The study assumes the transformers will last for 30 years before replacement.

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 elements of the property to ascertain the remaining useful life and the replacement costs of these common elements. 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

EXECUTIVE SUMMARY

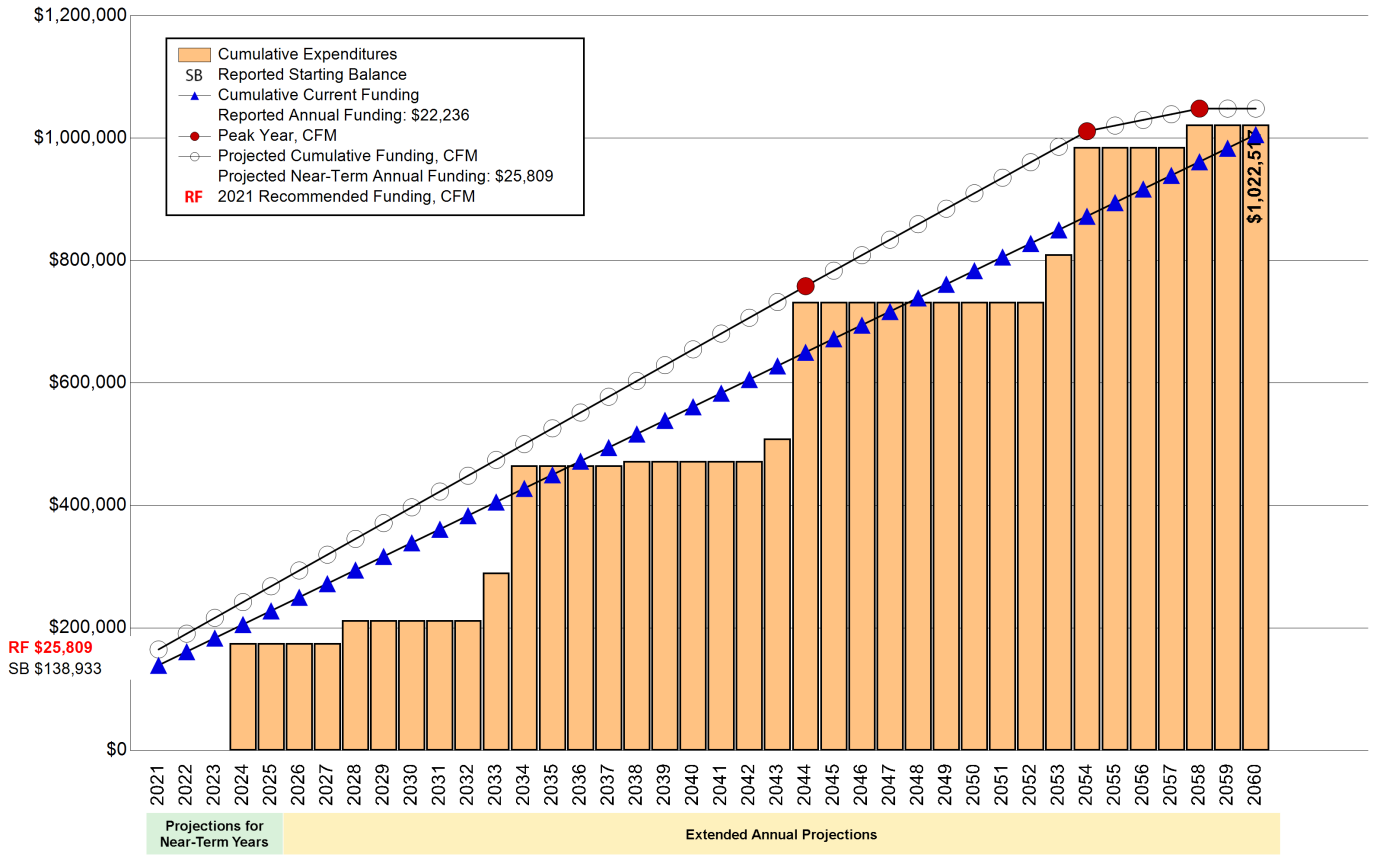
The Sample High Rise - Garage Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 6 Projected Replacements identified in the Replacement Reserve Inventory.

$25,809 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2021**
$4.34 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.

Sample High Rise - Garage reports a Starting Balance of $138,933 and Annual Funding totaling $22,236. The reported Current Annual Funding of $22,236 is inadequate to fund projected replacements starting in 2034. See Page A1.3 for a more detailed evaluation.

#1 - Cumulative Replacement Reserve Funding and Expenditures Graph



The Association should raise their Annual Funding to the Garage Reserves from the current Reserve funding of $22,236 to the Recommended Replacement Reserve Funding of $25,809.

REPLACEMENT RESERVE ANALYSIS - GENERAL INFORMATION

The Sample High Rise - Garage 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.

2021 **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, 2021.

40 Years **STUDY PERIOD**

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

$138,933 **STARTING BALANCE**

The Association reports Replacement Reserves on Deposit totaling $138,933 at the start of the Study Year.

Level Two **LEVEL OF SERVICE**

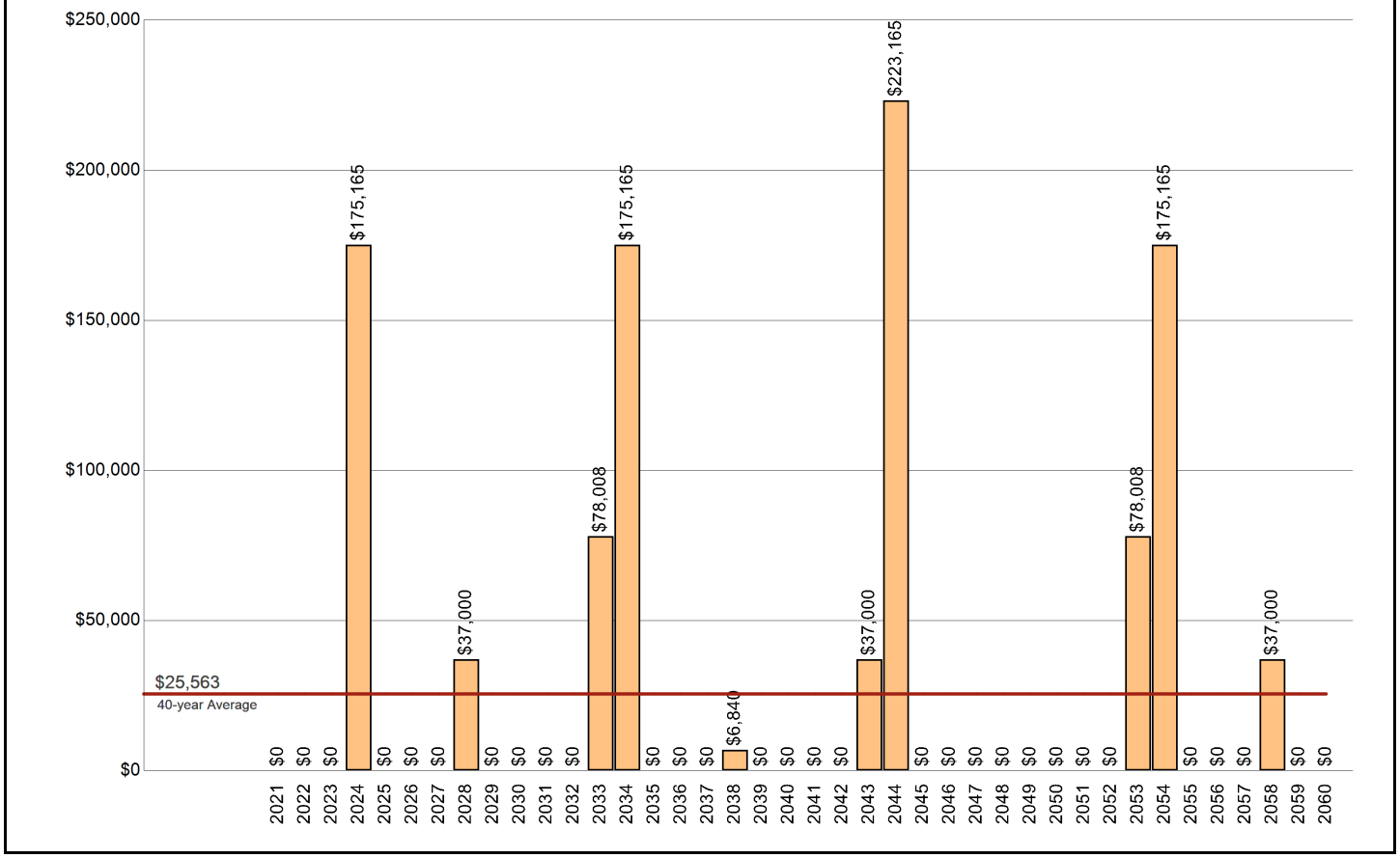
The Replacement Reserve Inventory has been developed in compliance with the National Reserve Study Standards for a Level Two Study, as defined by the Community Associations Institute (CAI).

$1,022,517 **REPLACEMENT RESERVE INVENTORY - PROJECTED REPLACEMENTS**

The Sample High Rise - Garage Replacement Reserve Inventory identifies 6 items that will require periodic replacement, that are to be funded from Replacement Reserves. We estimate the cost of these replacements will be $1,022,517 over the 40-year Study Period. The Projected Replacements are divided into 1 major categories starting on Page B1.3. Pages B1.1-B1.2 provide detailed information on the Replacement Reserve Inventory.

#2 - Annual Expenditures for Projected Replacements Graph

This graph shows annual expenditures for Projected Replacements over the 40-year Study Period. The red line shows the average annual expenditure of $66,434. Section C1 provides a year by year Calendar of these expenditures.



UPDATING

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 $1,022,517 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.

#3 - Table of Annual Expenditures and Current Funding Data - Years 1 through 40

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$138,933									
Projected Replacements				($175,165)				($37,000)		
Annual Deposit	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236
End of Year Balance	$161,169	$183,405	$205,641	$52,712	$74,948	$97,184	$119,420	$104,656	$126,892	$149,128
Cumulative Expenditures				($175,165)	($175,165)	($175,165)	($175,165)	($212,165)	($212,165)	($212,165)
Cumulative Receipts	$161,169	$183,405	$205,641	$227,877	$250,113	$272,349	$294,585	$316,821	$339,057	$361,293
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements			($78,008)	($175,165)				($6,840)		
Annual Deposit	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236
End of Year Balance	$171,364	$193,600	$137,828	($15,101)	$7,135	$29,371	$51,607	$67,003	$89,239	$111,475
Cumulative Expenditures	($212,165)	($212,165)	($290,173)	($465,338)	($465,338)	($465,338)	($465,338)	($472,178)	($472,178)	($472,178)
Cumulative Receipts	$383,529	$405,765	$428,001	$450,237	$472,473	$494,709	$516,945	$539,181	$561,417	$583,653
Year	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements			($37,000)	($223,165)						
Annual Deposit	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236
End of Year Balance	$133,711	$155,947	$141,183	($59,747)	($37,511)	($15,275)	$6,961	$29,197	$51,433	$73,669
Cumulative Expenditures	($472,178)	($472,178)	($509,178)	($732,344)	($732,344)	($732,344)	($732,344)	($732,344)	($732,344)	($732,344)
Cumulative Receipts	$605,889	$628,125	$650,361	$672,597	$694,833	$717,069	$739,305	$761,541	$783,777	$806,013
Year	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**
Projected Replacements			($78,008)	($175,165)				($37,000)		
Annual Deposit	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236	$22,236
End of Year Balance	$95,905	$118,141	$62,370	($90,560)	($68,324)	($46,088)	($23,852)	($38,616)	($16,380)	$5,856
Cumulative Expenditures	($732,344)	($732,344)	($810,351)	($985,517)	($985,517)	($985,517)	($985,517)	($1,022,517)	($1,022,517)	($1,022,517)
Cumulative Receipts	$828,249	$850,485	$872,721	$894,957	$917,193	$939,429	$961,665	$983,901	$1,006,137	$1,028,373

EVALUATION OF CURRENT FUNDING

The evaluation of Current Funding (Starting Balance of $138,933 & annual funding of $22,236), 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 6 Projected Replacements identified in the Replacement Reserve Inventory and that the Association will continue Annual Funding of $22,236 throughout the 40-year Study Period.

Annual Funding of $22,236 is approximately 86 percent of the $25,809 recommended Annual Funding calculated by the Cash Flow Method for 2021, the Study Year.

The progression and effect of continued Current Annual Funding coupled with this studies Projected Replacements over the Study Period are evaluated in Table 3 above. Maintaining Current Annual Funding may result in inadequate End of Year Balances, noted in red.

See the Executive Summary for the Current Funding Statement.

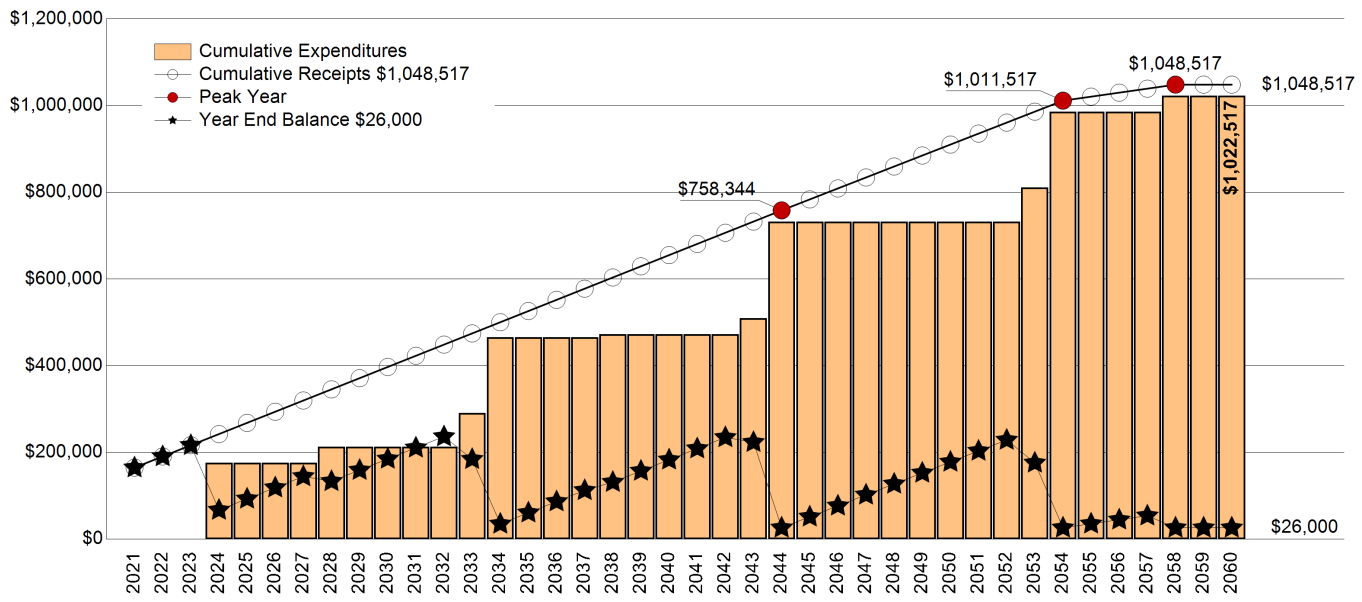
CASH FLOW METHOD FUNDING

$25,809 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR 2021**
$4.34 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 2044 with Replacement Reserves on Deposit dropping to the Minimum Balance after the completion of $732,344 of replacements from 2021 to 2044. Recommended funding is anticipated to decline in 2045. Peak Years are identified in Chart 4 and Table 5.
- Minimum Balance. The calculations assume a Minimum Balance of $26,000 will always be held in reserve, which is calculated by rounding the 12-month 40-year average annual expenditure of $25,563 as shown on Graph #2.
- Cash Flow Method Study Period. Cash Flow Method calculates funding for $1,022,517 of expenditures over the 40-year Study Period. It does not include funding for any projects beyond 2060 and in 2060, the end of year balance will always be the Minimum Balance.

#4 - Cash Flow Method - Graph of Cumulative Receipts and Expenditures - Years 1 through 40



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

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$138,933									
Projected Replacements				($175,165)				($37,000)		
Annual Deposit	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809
End of Year Balance	$164,742	$190,551	$216,359	$67,003	$92,811	$118,620	$144,429	$133,238	$159,047	$184,855
Cumulative Expenditures				($175,165)	($175,165)	($175,165)	($175,165)	($212,165)	($212,165)	($212,165)
Cumulative Receipts	$164,742	$190,551	$216,359	$242,168	$267,977	$293,786	$319,594	$345,403	$371,212	$397,021
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements			($78,008)	($175,165)				($6,840)		
Annual Deposit	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809	$25,809
End of Year Balance	$210,664	$236,473	$184,274	$34,918	$60,726	$86,535	$112,344	$131,313	$157,122	$182,930
Cumulative Expenditures	($212,165)	($212,165)	($290,173)	($465,338)	($465,338)	($465,338)	($465,338)	($472,178)	($472,178)	($472,178)
Cumulative Receipts	$422,830	$448,638	$474,447	$500,256	$526,065	$551,874	$577,682	$603,491	$629,300	$655,109
Year	**2041**	**2042**	**2043**	**1st Peak - 2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements			($37,000)	($223,165)						
Annual Deposit	$25,809	$25,809	$25,809	$25,809	$25,317	$25,317	$25,317	$25,317	$25,317	$25,317
End of Year Balance	$208,739	$234,548	$223,357	$26,000	$51,317	$76,635	$101,952	$127,269	$152,586	$177,904
Cumulative Expenditures	($472,178)	($472,178)	($509,178)	($732,344)	($732,344)	($732,344)	($732,344)	($732,344)	($732,344)	($732,344)
Cumulative Receipts	$680,917	$706,726	$732,535	$758,344	$783,661	$808,978	$834,296	$859,613	$884,930	$910,248
Year	**2051**	**2052**	**2053**	**2nd Peak - 2054**	**2055**	**2056**	**2057**	**3rd Peak - 2058**	**2059**	**2060**
Projected Replacements			($78,008)	($175,165)				($37,000)		
Annual Deposit	$25,317	$25,317	$25,317	$25,317	$9,250	$9,250	$9,250	$9,250		
End of Year Balance	$203,221	$228,538	$175,848	$26,000	$35,250	$44,500	$53,750	$26,000	$26,000	$26,000
Cumulative Expenditures	($732,344)	($732,344)	($810,351)	($985,517)	($985,517)	($985,517)	($985,517)	($1,022,517)	($1,022,517)	($1,022,517)
Cumulative Receipts	$935,565	$960,882	$986,200	$1,011,517	$1,020,767	$1,030,017	$1,039,267	$1,048,517	$1,048,517	$1,048,517

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.

$25,809 **2021 - CASH FLOW METHOD RECOMMENDED FUNDING**

The 2021 Study Year calculations have been made using current replacement costs (see Page B1.2), modified by the Analyst for any project specific conditions.

$26,402 **2022 - INFLATION ADJUSTED FUNDING**

A new analysis calculates the 2022 funding based on three assumptions:

- Replacement Reserves on Deposit totaling $164,742 on January 1, 2022.
- No Expenditures from Replacement Reserves in 2021.
- Construction Cost Inflation of 2.30 percent in 2021.

The $26,402 inflation adjusted funding in 2022 is a 2.30 percent increase over the non-inflation adjusted funding of $25,809.

$27,010 **2023 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $166,074 on January 1, 2023.
- No Expenditures from Replacement Reserves in 2022.
- Construction Cost Inflation of 2.30 percent in 2022.

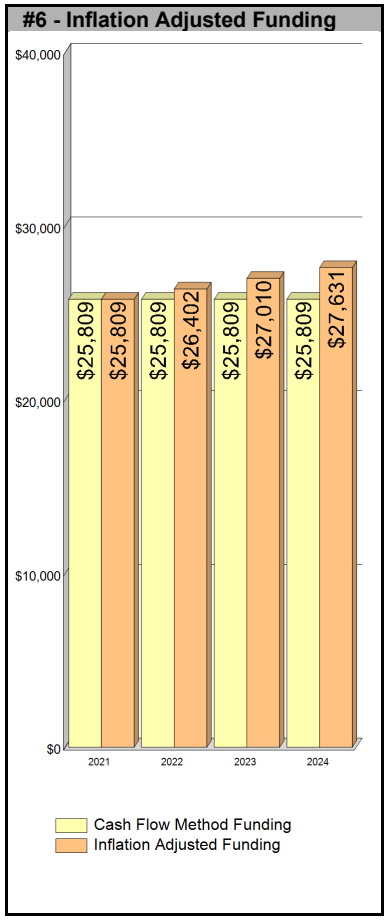
The $27,010 inflation adjusted funding in 2023 is a 4.65 percent increase over the non-inflation adjusted funding of $25,809.

$27,631 **2024 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $172,069 on January 1, 2024.
- No Expenditures from Replacement Reserves in 2023.
- Construction Cost Inflation of 2.30 percent in 2023.

The $27,631 inflation adjusted funding in 2024 is a 7.05 percent increase over the non-inflation adjusted funding of $25,809.



Year Five 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 2022, 2023 and 2024 inflation-adjusted funding calculations above, the 2.30 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 2021, based on a 1.00 percent interest rate, we estimate the Association may earn $1,518 on an average balance of $151,837, $1,654 on an average balance of $165,408 in 2022, and $1,691 on $169,071 in 2023. The Association may elect to attribute 100 percent of the earned interest to Reserves, resulting in a reduction in the 2021 funding from $25,809 to $24,290 (a 5.88 percent reduction), $26,402 to $24,748 in 2022 (a 6.26 percent reduction), and $27,010 to $25,319 in 2023 (a 6.25 percent reduction).

REPLACEMENT RESERVE STUDY - SUPPLEMENTAL COMMENTS

- The Cash Flow Method calculates the minimum annual funding necessary to prevent Replacement Reserves from dropping below the Minimum Balance, as defined on Page A4. Failure to fund at least the recommended levels may result in funding not being available for the Projected Replacements listed in the Replacement Reserve Inventory.
- The accuracy of the Replacement Reserve Analysis is dependent upon expenditures from Replacement Reserves being made ONLY for the 6 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.

REPLACEMENT RESERVE INVENTORY
GENERAL INFORMATION

Sample High Rise - Garage - Replacement Reserve Inventory identifies 6 Projected Replacements.

- PROJECTED REPLACEMENTS. 6 of the items 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 $345,013. Cumulative Replacements totaling $1,022,517 are scheduled in the Replacement Reserve Inventory over the 40-year Study Period.

  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. None of the items included 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 6 items included in the Sample High Rise - Garage Replacement Reserve Inventory are divided into 1 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 . 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 6 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.

- REVIEW OF EXPENDITURES. This Replacement Reserve Study should be reviewed by an accounting professional representing the Association prior to implementation.

- 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.

PARKING GARAGE
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	Concrete Sealant - garage floor	sf	206,077	$0.85	10	3	$175,165
2	Overhead door with opener	ea	2	$16,000.00	15	7	$32,000
3	Security Gate Arms, motor & controls	ea	2	$2,500.00	15	7	$5,000
4	Suspended Ceiling	sf	17,335	$4.50	20	12	$78,008
5	Lighting, general fixtures	ea	320	$150.00	25	23	$48,000
6	Exit Signage, LED	ea	72	$95.00	25	17	$6,840

Replacement Costs - Page Subtotal $345,013

COMMENTS

VALUATION EXCLUSIONS

Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	House bib						EXCLUDED
	Property identification signage						EXCLUDED
	Miscellaneous signage						EXCLUDED
	Fire extinguisher cabinet						EXCLUDED
	Signage						EXCLUDED

VALUATION EXCLUSIONS

Comments

- 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.

- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

LONG-LIFE EXCLUSIONS
Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Building foundation(s)						EXCLUDED
	Concrete floor slabs (interior)						EXCLUDED
	Wall, floor, and roof structure						EXCLUDED
	Common element electrical services						EXCLUDED
	Electrical wiring						EXCLUDED
	Water piping at common facilities						EXCLUDED
	Waste piping at common facilities						EXCLUDED
	Gas services at common facilities						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 ($)	NEL	REL	REPLACEMENT COST ($)
	All areas of building outside garage						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.

MAINTENANCE AND REPAIR EXCLUSIONS

Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Striping of parking spaces						EXCLUDED
	Numbering of parking spaces						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.

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PROJECTED ANNUAL REPLACEMENTS
GENERAL INFORMATION

CALENDAR OF ANNUAL REPLACEMENTS. The 6 Projected Replacements in the Sample High Rise - Garage 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

- 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.
- 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.
- 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.

PROJECTED REPLACEMENTS

Item	2021 - Study Year	$
No Scheduled Replacements		

Item	2022 - YEAR 1	$
No Scheduled Replacements		

Item	2023 - YEAR 2	$
No Scheduled Replacements		

Item	2024 - YEAR 3	$
1	Concrete Sealant - garage floor	$175,165
Total Scheduled Replacements		$175,165

Item	2025 - YEAR 4	$
No Scheduled Replacements		

Item	2026 - YEAR 5	$
No Scheduled Replacements		

Item	2027 - YEAR 6	$
No Scheduled Replacements		

Item	2028 - YEAR 7	$
2	Overhead door with opener	$32,000
3	Security Gate Arms, motor & controls	$5,000
Total Scheduled Replacements		$37,000

Item	2029 - YEAR 8	$
No Scheduled Replacements		

Item	2030 - YEAR 9	$
No Scheduled Replacements		

PROJECTED REPLACEMENTS

Item	2031 - YEAR 10	$
No Scheduled Replacements		

Item	2032 - YEAR 11	$
No Scheduled Replacements		

Item	2033 - YEAR 12	$
4	Suspended Ceiling	$78,008
Total Scheduled Replacements		$78,008

Item	2034 - YEAR 13	$
1	Concrete Sealant - garage floor	$175,165
Total Scheduled Replacements		$175,165

Item	2035 - YEAR 14	$
No Scheduled Replacements		

Item	2036 - YEAR 15	$
No Scheduled Replacements		

Item	2037 - YEAR 16	$
No Scheduled Replacements		

Item	2038 - YEAR 17	$
6	Exit Signage, LED	$6,840
Total Scheduled Replacements		$6,840

Item	2039 - YEAR 18	$
No Scheduled Replacements		

Item	2040 - YEAR 19	$
No Scheduled Replacements		

PROJECTED REPLACEMENTS

Item	2041 - YEAR 20	$

No Scheduled Replacements

Item	2042 - YEAR 21	$

No Scheduled Replacements

Item	2043 - YEAR 22	$
2	Overhead door with opener	$32,000
3	Security Gate Arms, motor & controls	$5,000
	Total Scheduled Replacements	$37,000

Item	2044 - YEAR 23	$
1	Concrete Sealant - garage floor	$175,165
5	Lighting, general fixtures	$48,000
	Total Scheduled Replacements	$223,165

Item	2045 - YEAR 24	$

No Scheduled Replacements

Item	2046 - YEAR 25	$

No Scheduled Replacements

Item	2047 - YEAR 26	$

No Scheduled Replacements

Item	2048 - YEAR 27	$

No Scheduled Replacements

Item	2049 - YEAR 28	$

No Scheduled Replacements

Item	2050 - YEAR 29	$

No Scheduled Replacements

PROJECTED REPLACEMENTS

Item	2051 - YEAR 30	$

No Scheduled Replacements

Item	2052 - YEAR 31	$

No Scheduled Replacements

Item	2053 - YEAR 32	$
4	Suspended Ceiling	$78,008
Total Scheduled Replacements		$78,008

Item	2054 - YEAR 33	$
1	Concrete Sealant - garage floor	$175,165
Total Scheduled Replacements		$175,165

Item	2055 - YEAR 34	$

No Scheduled Replacements

Item	2056 - YEAR 35	$

No Scheduled Replacements

Item	2057 - YEAR 36	$

No Scheduled Replacements

Item	2058 - YEAR 37	$
2	Overhead door with opener	$32,000
3	Security Gate Arms, motor & controls	$5,000
Total Scheduled Replacements		$37,000

Item	2059 - YEAR 38	$

No Scheduled Replacements

Item	2060 - YEAR 39	$

No Scheduled Replacements

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EXECUTIVE SUMMARY

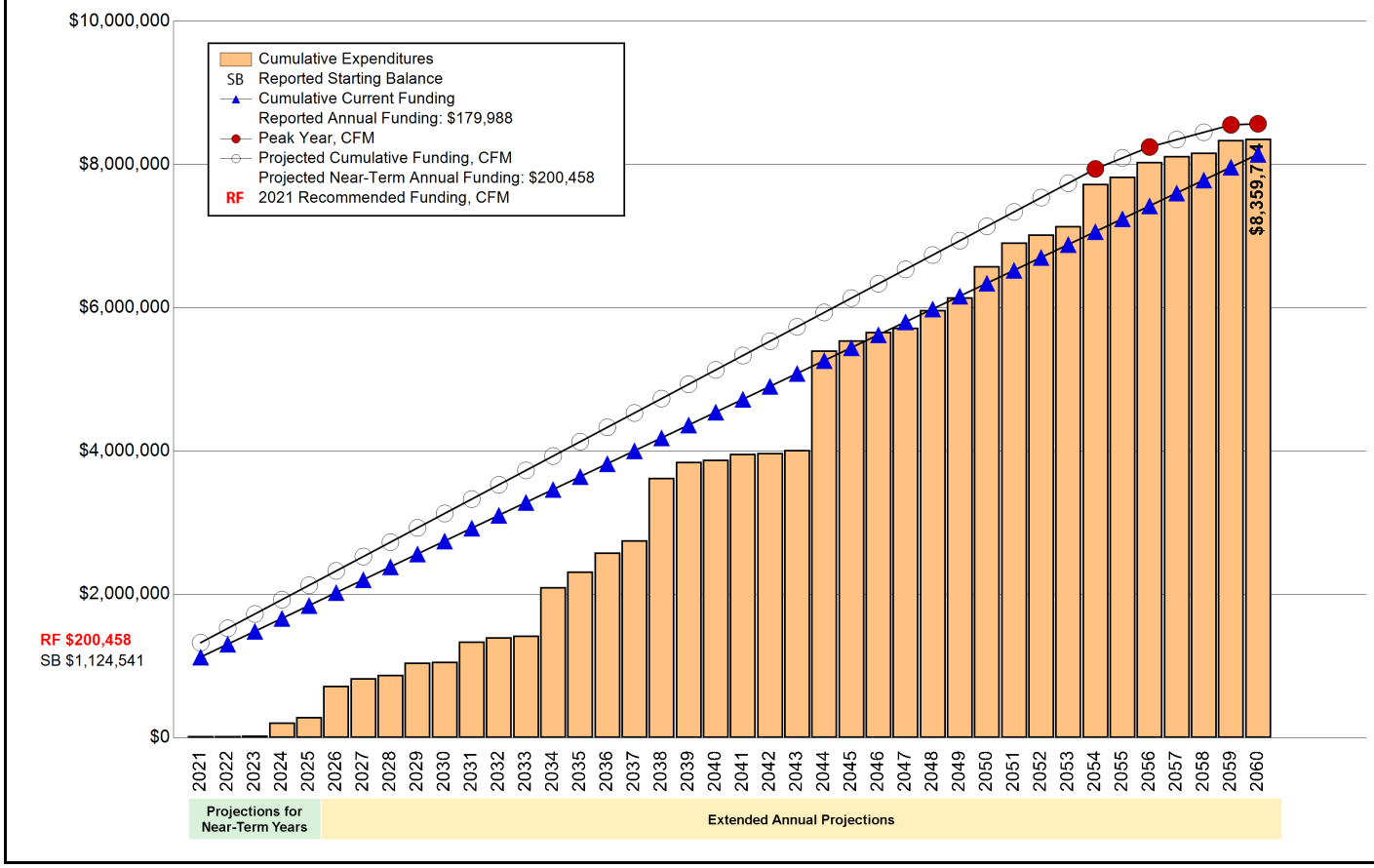
The Sample High Rise - Residential Common Elements Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 164 Projected Replacements identified in the Replacement Reserve Inventory.

$200,458 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2021**
$33.68 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 A2.5.

Sample High Rise - Residential Common Elements reports a Starting Balance of $1,124,541 and Annual Funding totaling $179,988. The reported Current Annual Funding of $179,988 is inadequate to fund projected replacements starting in 2044. See Page A2.3 for a more detailed evaluation.

#1 - Cumulative Replacement Reserve Funding and Expenditures Graph



The Association should raise their Annual Funding to the Residential Common Elements Reserves from the current Reserve funding of $179,988 to the Recommended Replacement Reserve Funding of $200,458.

REPLACEMENT RESERVE ANALYSIS - GENERAL INFORMATION

The Sample High Rise - Residential Common Elements 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.

2021 **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, 2021.

40 Years **STUDY PERIOD**

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

$1,124,541 **STARTING BALANCE**

The Association reports Replacement Reserves on Deposit totaling $1,124,541 at the start of the Study Year.

Level Two **LEVEL OF SERVICE**

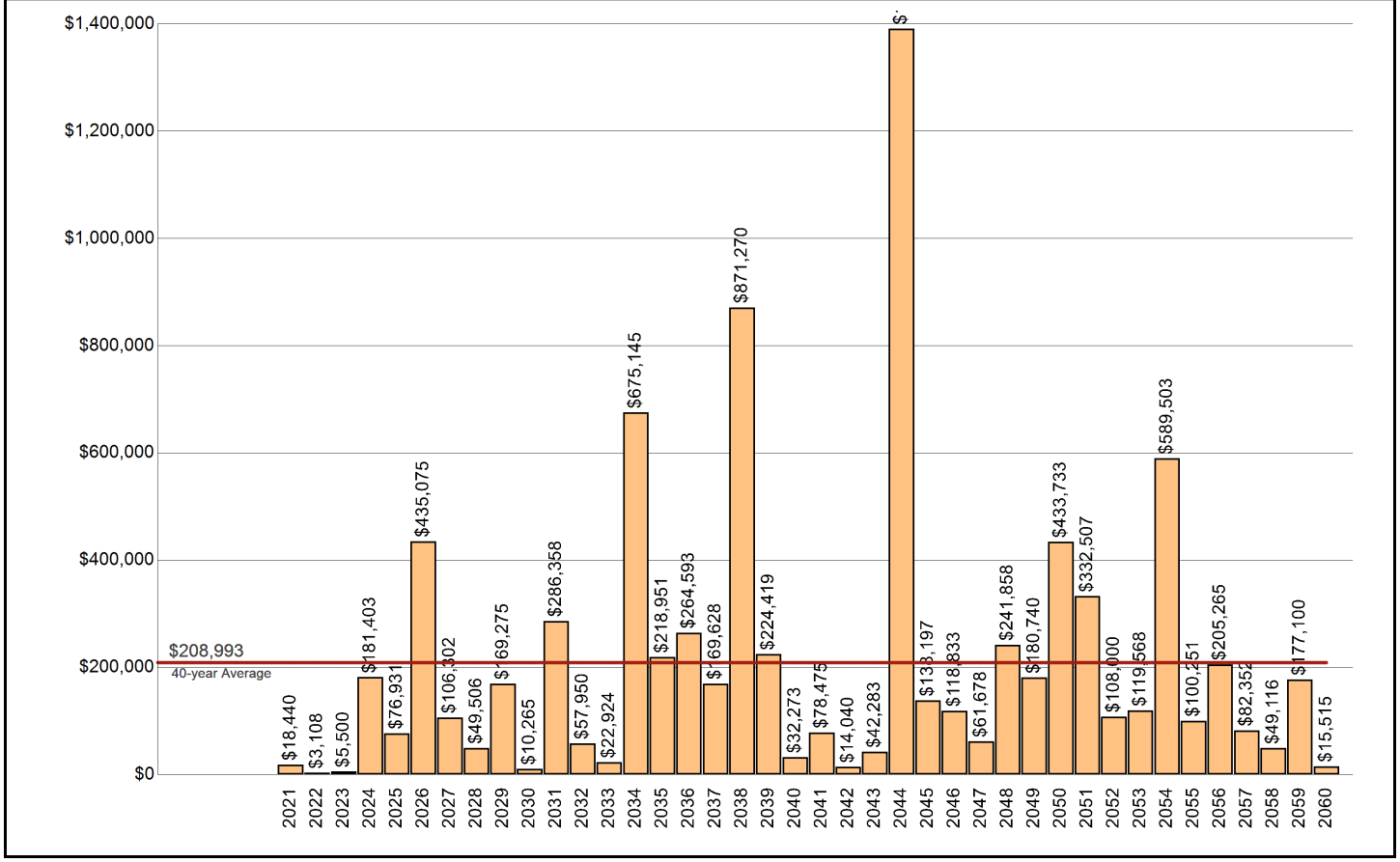
The Replacement Reserve Inventory has been developed in compliance with the National Reserve Study Standards for a Level Two Study, as defined by the Community Associations Institute (CAI).

$8,359,714 **REPLACEMENT RESERVE INVENTORY - PROJECTED REPLACEMENTS**

The Sample High Rise - Residential Common Elements Replacement Reserve Inventory identifies 164 items that will require periodic replacement, that are to be funded from Replacement Reserves. We estimate the cost of these replacements will be $8,359,714 over the 40-year Study Period. The Projected Replacements are divided into 4 major categories starting on Page B2.3. Pages B2.1-B2.2 provide detailed information on the Replacement Reserve Inventory.

#2 - Annual Expenditures for Projected Replacements Graph

This graph shows annual expenditures for Projected Replacements over the 40-year Study Period. The red line shows the average annual expenditure of $66,434. Section C2 provides a year by year Calendar of these expenditures.



UPDATING

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 A2.4 and A2.5. The Projected Replacements listed on Page C2.2 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 A2.5.

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 A2.5.

ANNUAL EXPENDITURES AND CURRENT FUNDING

The annual expenditures that comprise the $8,359,714 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.

#3 - Table of Annual Expenditures and Current Funding Data - Years 1 through 40

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$1,124,541									
Projected Replacements	($18,440)	($3,108)	($5,500)	($181,403)	($76,931)	($435,075)	($106,302)	($49,506)	($169,275)	($10,265)
Annual Deposit	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988
End of Year Balance	$1,286,089	$1,462,970	$1,637,458	$1,636,043	$1,739,100	$1,484,013	$1,557,699	$1,688,182	$1,698,895	$1,868,618
Cumulative Expenditures	($18,440)	($21,548)	($27,048)	($208,451)	($285,381)	($720,456)	($826,758)	($876,264)	($1,045,539)	($1,055,804)
Cumulative Receipts	$1,304,529	$1,484,517	$1,664,505	$1,844,493	$2,024,481	$2,204,469	$2,384,457	$2,564,445	$2,744,433	$2,924,421
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements	($286,358)	($57,950)	($22,924)	($675,145)	($218,951)	($264,593)	($169,628)	($871,270)	($224,419)	($32,273)
Annual Deposit	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988
End of Year Balance	$1,762,248	$1,884,286	$2,041,350	$1,546,193	$1,507,231	$1,422,626	$1,432,986	$741,705	$697,274	$844,989
Cumulative Expenditures	($1,342,161)	($1,400,111)	($1,423,035)	($2,098,180)	($2,317,131)	($2,581,723)	($2,751,351)	($3,622,621)	($3,847,040)	($3,879,312)
Cumulative Receipts	$3,104,409	$3,284,397	$3,464,385	$3,644,373	$3,824,361	$4,004,349	$4,184,337	$4,364,325	$4,544,313	$4,724,301
Year	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements	($78,475)	($14,040)	($42,283)	($1,391,391)	($138,197)	($118,833)	($61,678)	($241,858)	($180,740)	($433,733)
Annual Deposit	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988
End of Year Balance	$946,502	$1,112,450	$1,250,156	$38,753	$80,544	$141,699	$260,009	$198,139	$197,387	($56,358)
Cumulative Expenditures	($3,957,787)	($3,971,827)	($4,014,110)	($5,405,501)	($5,543,698)	($5,662,530)	($5,724,208)	($5,966,066)	($6,146,806)	($6,580,539)
Cumulative Receipts	$4,904,289	$5,084,277	$5,264,265	$5,444,253	$5,624,241	$5,804,229	$5,984,217	$6,164,205	$6,344,193	$6,524,181
Year	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**
Projected Replacements	($332,507)	($108,000)	($119,568)	($589,503)	($100,251)	($205,265)	($82,352)	($49,116)	($177,100)	($15,515)
Annual Deposit	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988	$179,988
End of Year Balance	($208,876)	($136,888)	($76,468)	($485,983)	($406,245)	($431,522)	($333,886)	($203,014)	($200,126)	($35,653)
Cumulative Expenditures	($6,913,045)	($7,021,045)	($7,140,613)	($7,730,116)	($7,830,366)	($8,035,631)	($8,117,983)	($8,167,099)	($8,344,199)	($8,359,714)
Cumulative Receipts	$6,704,169	$6,884,157	$7,064,145	$7,244,133	$7,424,121	$7,604,109	$7,784,097	$7,964,085	$8,144,073	$8,324,061

EVALUATION OF CURRENT FUNDING

The evaluation of Current Funding (Starting Balance of $1,124,541 & annual funding of $179,988), 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 164 Projected Replacements identified in the Replacement Reserve Inventory and that the Association will continue Annual Funding of $179,988 throughout the 40-year Study Period.

Annual Funding of $179,988 is approximately 90 percent of the $200,458 recommended Annual Funding calculated by the Cash Flow Method for 2021, the Study Year.

The progression and effect of continued Current Annual Funding coupled with this studies Projected Replacements over the Study Period are evaluated in Table 3 above. Maintaining Current Annual Funding may result in inadequate End of Year Balances, noted in red.

See the Executive Summary for the Current Funding Statement.

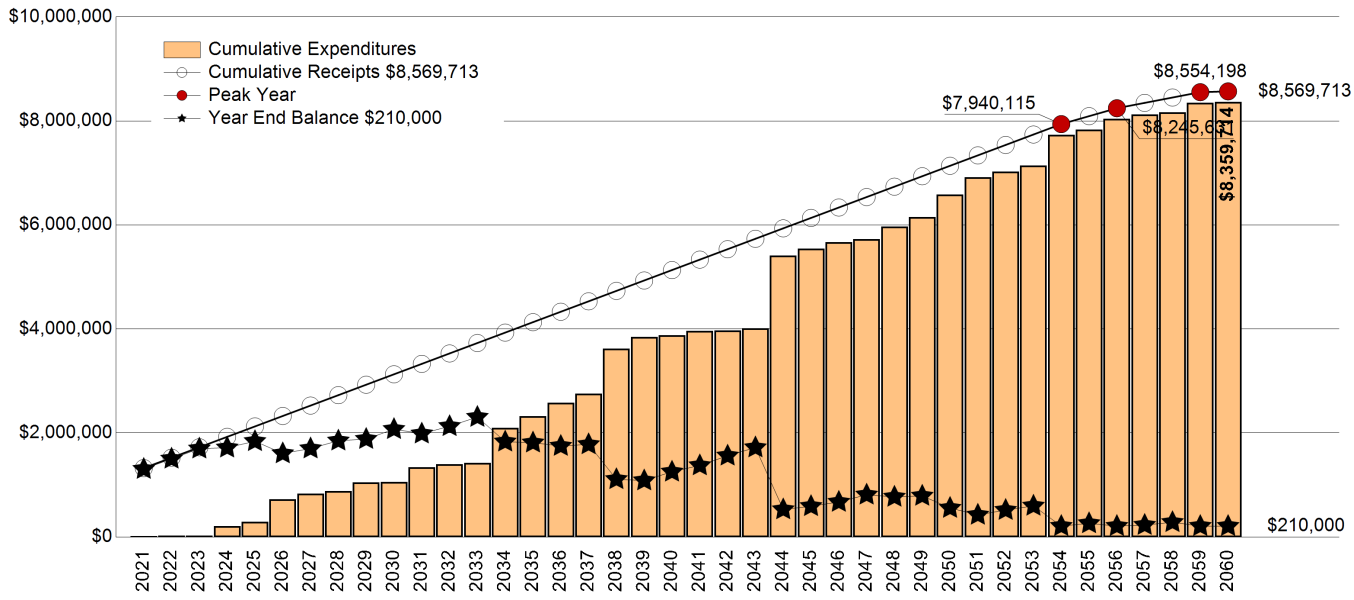
CASH FLOW METHOD FUNDING

$200,458 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR 2021**
$33.68 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 2054 with Replacement Reserves on Deposit dropping to the Minimum Balance after the completion of $7,730,116 of replacements from 2021 to 2054. Recommended funding is anticipated to decline in 2055. Peak Years are identified in Chart 4 and Table 5.
- Minimum Balance. The calculations assume a Minimum Balance of $210,000 will always be held in reserve, which is calculated by rounding the 12-month 40-year average annual expenditure of $208,993 as shown on Graph #2.
- Cash Flow Method Study Period. Cash Flow Method calculates funding for $8,359,714 of expenditures over the 40-year Study Period. It does not include funding for any projects beyond 2060 and in 2060, the end of year balance will always be the Minimum Balance.

#4 - Cash Flow Method - Graph of Cumulative Receipts and Expenditures - Years 1 through 40



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

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$1,124,541									
Projected Replacements	($18,440)	($3,108)	($5,500)	($181,403)	($76,931)	($435,075)	($106,302)	($49,506)	($169,275)	($10,265)
Annual Deposit	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458
End of Year Balance	$1,306,559	$1,503,910	$1,698,868	$1,717,923	$1,841,450	$1,606,833	$1,700,990	$1,851,942	$1,883,125	$2,073,318
Cumulative Expenditures	($18,440)	($21,548)	($27,048)	($208,451)	($285,381)	($720,456)	($826,758)	($876,264)	($1,045,539)	($1,055,804)
Cumulative Receipts	$1,324,999	$1,525,457	$1,725,915	$1,926,373	$2,126,831	$2,327,289	$2,527,748	$2,728,206	$2,928,664	$3,129,122
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements	($286,358)	($57,950)	($22,924)	($675,145)	($218,951)	($264,593)	($169,628)	($871,270)	($224,419)	($32,273)
Annual Deposit	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458
End of Year Balance	$1,987,419	$2,129,927	$2,307,461	$1,832,774	$1,814,282	$1,750,147	$1,780,977	$1,110,166	$1,086,205	$1,254,390
Cumulative Expenditures	($1,342,161)	($1,400,111)	($1,423,035)	($2,098,180)	($2,317,131)	($2,581,723)	($2,751,351)	($3,622,621)	($3,847,040)	($3,879,312)
Cumulative Receipts	$3,329,580	$3,530,038	$3,730,496	$3,930,954	$4,131,412	$4,331,870	$4,532,328	$4,732,786	$4,933,244	$5,133,702
Year	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements	($78,475)	($14,040)	($42,283)	($1,391,391)	($138,197)	($118,833)	($61,678)	($241,858)	($180,740)	($433,733)
Annual Deposit	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458	$200,458
End of Year Balance	$1,376,374	$1,562,792	$1,720,967	$530,034	$592,295	$673,921	$812,701	$771,301	$791,019	$557,745
Cumulative Expenditures	($3,957,787)	($3,971,827)	($4,014,110)	($5,405,501)	($5,543,698)	($5,662,530)	($5,724,208)	($5,966,066)	($6,146,806)	($6,580,539)
Cumulative Receipts	$5,334,161	$5,534,619	$5,735,077	$5,935,535	$6,135,993	$6,336,451	$6,536,909	$6,737,367	$6,937,825	$7,138,283
Year	**2051**	**2052**	**2053**	**1st Peak - 2054**	**2055**	**2nd Peak - 2056**	**2057**	**2058**	**3rd Peak - 2059**	**4th Peak - 2060**
Projected Replacements	($332,507)	($108,000)	($119,568)	($589,503)	($100,251)	($205,265)	($82,352)	($49,116)	($177,100)	($15,515)
Annual Deposit	$200,458	$200,458	$200,458	$200,458	$152,758	$152,758	$102,856	$102,856	$102,856	$15,515
End of Year Balance	$425,696	$518,154	$599,045	$210,000	$262,507	$210,000	$230,504	$284,244	$210,000	$210,000
Cumulative Expenditures	($6,913,045)	($7,021,045)	($7,140,613)	($7,730,116)	($7,830,366)	($8,035,631)	($8,117,983)	($8,167,099)	($8,344,199)	($8,359,714)
Cumulative Receipts	$7,338,741	$7,539,199	$7,739,657	$7,940,115	$8,092,873	$8,245,631	$8,348,487	$8,451,343	$8,554,198	$8,569,713

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.

$200,458 **2021 - CASH FLOW METHOD RECOMMENDED FUNDING**

The 2021 Study Year calculations have been made using current replacement costs (see Page B2.2), modified by the Analyst for any project specific conditions.

$205,069 **2022 - INFLATION ADJUSTED FUNDING**

A new analysis calculates the 2022 funding based on three assumptions:

- Replacement Reserves on Deposit totaling $1,306,559 on January 1, 2022.
- All 2021 Projected Replacements listed on Page C2.2 accomplished at a cost to Replacement Reserves less than $18,440.
- Construction Cost Inflation of 2.30 percent in 2021.

The $205,069 inflation adjusted funding in 2022 is a 2.30 percent increase over the non-inflation adjusted funding of $200,458.

$209,785 **2023 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $1,328,817 on January 1, 2023.
- All 2022 Projected Replacements listed on Page C2.2 accomplished at a cost to Replacement Reserves less than $3,151.
- Construction Cost Inflation of 2.30 percent in 2022.

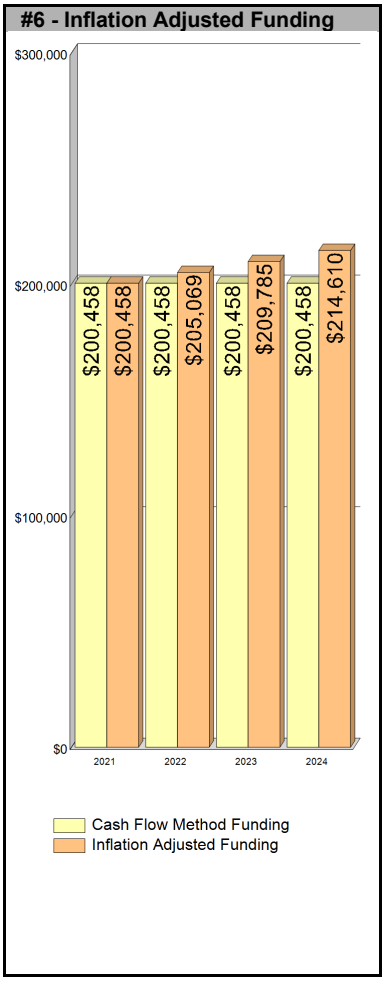
The $209,785 inflation adjusted funding in 2023 is a 4.65 percent increase over the non-inflation adjusted funding of $200,458.

$214,610 **2024 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $1,343,865 on January 1, 2024.
- No Expenditures from Replacement Reserves in 2023.
- Construction Cost Inflation of 2.30 percent in 2023.

The $214,610 inflation adjusted funding in 2024 is a 7.05 percent increase over the non-inflation adjusted funding of $200,458.



Year Five 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 2022, 2023 and 2024 inflation-adjusted funding calculations above, the 2.30 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 2021, based on a 1.00 percent interest rate, we estimate the Association may earn $12,156 on an average balance of $1,215,550, $13,177 on an average balance of $1,317,688 in 2022, and $13,363 on $1,336,341 in 2023. The Association may elect to attribute 100 percent of the earned interest to Reserves, resulting in a reduction in the 2021 funding from $200,458 to $188,303 (a 6.06 percent reduction), $205,069 to $191,892 in 2022 (a 6.42 percent reduction), and $209,785 to $196,422 in 2023 (a 6.37 percent reduction).

REPLACEMENT RESERVE STUDY - SUPPLEMENTAL COMMENTS

- The Cash Flow Method calculates the minimum annual funding necessary to prevent Replacement Reserves from dropping below the Minimum Balance, as defined on Page A4. Failure to fund at least the recommended levels may result in funding not being available for the Projected Replacements listed in the Replacement Reserve Inventory.
- The accuracy of the Replacement Reserve Analysis is dependent upon expenditures from Replacement Reserves being made ONLY for the 164 Projected Replacements specifically listed in the Replacement Reserve Inventory. The inclusion/exclusion of items from the Replacement Reserve Inventory is discussed on Page B2.1.

REPLACEMENT RESERVE INVENTORY
GENERAL INFORMATION

Sample High Rise - Residential Common Elements - Replacement Reserve Inventory identifies 164 Projected Replacements.

- PROJECTED REPLACEMENTS. 164 of the items 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 $4,051,121. Cumulative Replacements totaling $8,359,714 are scheduled in the Replacement Reserve Inventory over the 40-year Study Period.

  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. None of the items included 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 B2.2.

  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 164 items included in the Sample High Rise - Residential Common Elements Replacement Reserve Inventory are divided into 4 major categories. Each category is printed on a separate page, beginning on page B2.3.

- 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 . 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 164 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.

- REVIEW OF EXPENDITURES. This Replacement Reserve Study should be reviewed by an accounting professional representing the Association prior to implementation.

- 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.

EXTERIOR ITEMS
PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
1	Storefront Doors, 9th & 10th floors	ea	7	$1,200.00	20	13	$8,400
2	Sliding Glass Doors to Balconies (10%)	ea	48	$1,050.00	5	8	$50,400
3	Balcony railing (25%)	lf	2,460	$80.00	35	27	$196,800

Replacement Costs - Page Subtotal $255,600

COMMENTS

INTERIOR ITEMS - COMMON AREA, ALL FLOORS

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
4	Hallway Carpet (20%)	sf	7,456	$5.50	10	3	$41,008
5	Hallway Carpet (20%)	sf	7,456	$5.50	10	4	$41,008
6	Hallway Carpet (20%)	sf	7,456	$5.50	10	5	$41,008
7	Hallway Carpet (20%)	sf	7,456	$5.50	10	6	$41,008
8	Hallway Carpet (20%)	sf	7,456	$5.50	10	7	$41,008
9	Mailroom, Carpet	sf	454	$5.50	10	3	$2,497
10	Tile Floor, tuckpoint, 5%	sf	264	$7.50	10	3	$1,980
11	Tile Floor, replace	sf	5,287	$42.00	30	23	$222,054
12	Hallway Wall Covering, w/base & signs (20%)	sf	20,170	$5.25	15	13	$105,893
13	Hallway Wall Covering, w/base & signs (20%)	sf	20,170	$5.25	15	14	$105,893
14	Hallway Wall Covering, w/base & signs (20%)	sf	20,170	$5.25	15	15	$105,893
15	Hallway Wall Covering, w/base & signs (20%)	sf	20,170	$5.25	15	16	$105,893
16	Hallway Wall Covering, w/base & signs (20%)	sf	20,170	$5.25	15	17	$105,893
17	Hallway Suspended Ceiling	sf	2,376	$4.50	30	23	$10,692
18	Hallway Lighting, 25%	ea	240	$150.00	10	13	$36,000
19	Exit Signs, LED	ea	132	$90.00	25	18	$11,880
20	Flat Screen TVs, wall mounted (25%)	ea	10	$550.00	2	none	$5,500
21	Hallway Artwork	ea	66	$250.00	12	5	$16,500
22	Wood Doors, with hardware, 25%	ea	134	$825.00	10	13	$110,550
23	HM Doors, single	ea	137	$725.00	30	23	$99,325
24	HM Doors, double	ea	2	$1,200.00	30	23	$2,400
				Replacement Costs - Page Subtotal			$1,253,881

COMMENTS

INTERIOR ITEMS - COMMON AREA, ALL FLOORS - (cont.)

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	Lighting, elevator lobby, 1st-8th floors	ea	186	$150.00	25	18	$27,900
26	Mailboxes, 10 unit high, single wide	ea	2	$1,100.00	25	18	$2,200
27	Mailboxes, 10 unit high, double wide	ea	26	$1,650.00	25	18	$42,900
28	Mailboxes, 2 unit large boxes	ea	11	$550.00	25	18	$6,050
29	Parcel collector, 9th floor	ls	1	$34,000.00	25	24	$34,000
30	Stair light fixtures	ea	84	$125.00	25	18	$10,500
31	Chain Link Fence Storage, repair	ea	525	$80.00	20	13	$42,000

Replacement Costs - Page Subtotal $165,550

COMMENTS

- Item #31: Chain Link Fence Storage, repair - Chain Link Fence Storage - The repair for each storage area would be the door hinges and lock arm, as these moving parts will fail through usage and time.

INTERIOR ITEMS - 1ST FLOOR LOBBY

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
32	Area Rugs	ls	1	$1,800.00	8	4	$1,800
33	Wall Covering	sf	400	$5.25	15	11	$2,100
34	Wall panels, mirror	ls	1	$1,000.00	30	26	$1,000
35	Lounge, furniture, hard goods	ls	1	$13,600.00	21	17	$13,600
36	Artwork	ls	1	$5,300.00	12	8	$5,300
37	Bathroom Renovation, 1st, Men	ls	1	$3,000.00	20	13	$3,000
38	Bathroom Renovation, 1st, Women	ls	1	$3,000.00	20	13	$3,000

Replacement Costs - Page Subtotal $29,800

COMMENTS

INTERIOR ITEMS - 9TH FLOOR LOBBY & LOUNGE

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
39	Lobby, 9th Floor, Tile	sf	374	$42.00	30	3	$15,708
40	Lounge, 9th Floor, Carpet	sf	3,448	$5.50	10	3	$18,964
41	Lounge, Wood Panel Wall	sf	450	$10.50	25	18	$4,725
42	Lobby Front Counter, millwork	ls	1	$1,750.00	21	14	$1,750
43	Lobby, Front Counter, computers	ea	3	$1,200.00	6	5	$3,600
44	Lobby, Front Counter, chairs	ea	2	$525.00	12	9	$1,050
45	Manager Office, furniture	ls	1	$8,000.00	12	10	$8,000
46	Bathroom Renovation, 9th, Men	ls	1	$6,000.00	20	13	$6,000
47	Bathroom Renovation, 9th, Women	ls	1	$6,000.00	20	13	$6,000
48	Bathroom Renovation, fitness	ls	1	$3,300.00	20	13	$3,300
49	Lounge, millwork	ls	1	$4,500.00	24	18	$4,500
50	Lounge, appliances	ls	1	$2,800.00	12	6	$2,800
51	Lounge, pool table	ea	1	$5,500.00	21	15	$5,500
52	Lounge, furniture, soft goods	ls	1	$45,000.00	10	3	$45,000
53	Lounge, furniture, hard goods	ls	1	$20,000.00	21	14	$20,000
54	Lounge, furniture, hard goods	ls	1	$12,000.00	21	18	$12,000
55	Lounge, artwork	ls	1	$1,750.00	12	5	$1,750
56	Lounge, flat screen TVs - (25%)	ea	1	$900.00	2	1	$900
57	Lounge, video projector	ea	1	$1,400.00	8	3	$1,400
58	Lounge, Lighting	ea	53	$150.00	25	18	$7,950

Replacement Costs - Page Subtotal $170,897

COMMENTS

INTERIOR ITEMS - 9TH FLOOR FITNESS CENTER (FC)

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
59	Fitness Center, Carpet	sf	1,120	$5.50	10	3	$6,160
60	Fitness Center, Rubber Flooring	sf	1,250	$13.50	15	10	$16,875
61	Fitness Center, Rubber Flooring (top)	sf	1,000	$10.00	15	10	$10,000
62	FC - treadmills	ea	4	$6,000.00	12	5	$24,000
63	FC - ellipticals	ea	3	$5,200.00	12	5	$15,600
64	FC - exercise bike, upright	ea	1	$2,800.00	12	5	$2,800
65	FC - exercise bike, spin	ea	1	$2,050.00	12	5	$2,050
66	FC - exercise bike, spin	ea	1	$2,050.00	12	9	$2,050
67	FC - stair stepper	ea	1	$2,350.00	12	5	$2,350
68	FC - rowing machine	ea	1	$1,400.00	12	9	$1,400
69	FC - exercise equipment, resistance	ls	1	$42,000.00	24	17	$42,000
70	FC - smith machine	ea	2	$3,400.00	24	17	$6,800
71	FC - weight bench	ea	2	$1,000.00	32	25	$2,000
72	FC - weights	ls	1	$4,500.00	32	25	$4,500
73	FC Mirrors	sf	768	$8.00	24	17	$6,144
74	FC - Chairs, metal	ea	4	$150.00	21	14	$600
75	FC Light Strips	ea	4	$750.00	25	18	$3,000
76	FC Light fixtures	ea	4	$150.00	25	15	$600

Replacement Costs - Page Subtotal $148,929

COMMENTS

- FC - exercise equipment, resistance includes (12) strength equipment items: crunch bench, assisted dip, shoulder press, bicep curl, row/rear deltoid, tricep press, fly, pulldown, chest press, leg extension, seated leg curl, and seated leg press

INTERIOR ITEMS - 10TH FLOOR LOUNGE AREA

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
77	Lounge, 10th floor, carpet	sf	1	$5.50	10	3	$6
78	Lounge, bathroom renovation	ea	2	$3,400.00	20	13	$6,800
79	Lounge, kitchen millwork	ls	1	$3,200.00	24	17	$3,200
80	Lounge, kitchen appliances	ls	1	$1,475.00	12	5	$1,475
81	Lounge, millwork	ls	1	$1,275.00	21	14	$1,275
82	Lounge, furniture, soft goods	ls	1	$4,400.00	10	3	$4,400
83	Lounge, furniture, hard goods	ls	1	$9,875.00	21	14	$9,875
84	Lounge, computers	ea	2	$1,500.00	6	5	$3,000
85	Lounge, flat screen TVs (50%)	ea	1	$1,000.00	4	1	$1,000
86	Lounge, artwork	ls	1	$1,600.00	12	5	$1,600
87	Lounge, lighting	ea	24	$150.00	25	18	$3,600

Replacement Costs - Page Subtotal $36,231

COMMENTS

INTERIOR ITEMS - 10TH FLOOR MEDIA ROOM

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
88	Media Room, 10th floor, carpet	sf	1	$5.50	10	3	$6
89	Media Room, millwork	ls	1	$25.00	21	15	$25
90	Media Room, furniture, soft goods	ls	1	$10,750.00	10	4	$10,750
91	Media Room, furniture, hard goods	ls	1	$825.00	21	15	$825
92	Media Room, video projector	ea	1	$1,425.00	8	3	$1,425
93	Media Room, projector screen	ea	1	$325.00	16	11	$325
94	Media Room, popcorn popper	ea	1	$1,000.00	5	4	$1,000
95	Media Room, artwork	ls	1	$475.00	12	8	$475
96	Media Room, lighting	ea	8	$150.00	25	20	$1,200

Replacement Costs - Page Subtotal $16,031

COMMENTS

BUILDING SYSTEMS - MECHANICAL SYSTEMS

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
97	Cooling Towers, rebuild	ea	2	$90,000.00	12	5	$180,000
98	Cooling Towers, replacement	ea	2	$64,000.00	24	17	$128,000
99	Cooling Towers fan VFDs	ea	2	$8,100.00	12	5	$16,200
100	Rooftop AHU for Corridors, repair	ea	1	$59,000.00	15	5	$59,000
101	Rooftop AHU for Corridors, replace	ea	1	$81,000.00	30	17	$81,000
102	Heating system heat exchangers	ea	2	$23,000.00	24	17	$46,000
103	Heating water pump, 2 hp	ea	2	$5,900.00	24	17	$11,800
104	Condenser water pump, 75 hp	ea	2	$13,000.00	24	17	$26,000
105	Rebuild condenser water pump	ea	2	$6,400.00	12	5	$12,800
106	Replace condenser pump motor, 75 hp	ea	2	$2,800.00	6	5	$5,600
107	Condenser water pump VFDs	ea	2	$8,500.00	12	5	$17,000
108	DHW tanks & heat exchangers	ea	2	$11,800.00	20	13	$23,600
109	Cooling Water treatment system	ls	1	$10,750.00	10	3	$10,750
110	Domestic water booster pumps, 75 hp	ea	2	$19,500.00	20	13	$39,000
111	Rebuild domestic water booster pump	ea	2	$6,400.00	10	3	$12,800
112	Replace water pump motor, 75 hp	ea	2	$8,500.00	6	5	$17,000
113	Domestic water booster pump VFDs	ea	2	$2,800.00	12	11	$5,600
114	Domestic water booster pump control	ls	1	$8,100.00	20	10	$8,100
115	Domestic water booster pumps, 75 hp	ea	2	$19,500.00	20	13	$39,000
116	Rebuild domestic water booster pump	ea	2	$6,400.00	10	3	$12,800
117	Replace motor domestic pump, 75 hp	ea	2	$2,800.00	5	3	$5,600
				Replacement Costs - Page Subtotal			$757,650

COMMENTS

- The cost for the cooling tower replacement is reduced by the amount of the repair cost which will take place at the same time. The replacement cost considers a re-lining of the tower fan sections with all new moving parts as the size and the weight of the entire unit would need to be craned off and then the new craned on.
- The cost for the rooftop AHU replacement is reduced by the amount of the repair cost which will take place at the same time. The replacement cost considers re-skinning of any rusted exterior panels with all new moving parts as the size and the weight of the entire unit would need to be craned off and then the new craned on.
- The building's HVAC system has 14 VAV boxes. We have assumed that one will require replacement every 2 years once they are 20 years old.

BUILDING SYSTEMS - MECHANICAL SYSTEMS - (cont.)

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
118	Domestic water booster pump VFDs	ea	2	$8,500.00	12	11	$17,000
119	Domestic water booster pump control	ls	1	$8,100.00	20	10	$8,100
120	Domestic water pump, 20 hp	ea	1	$6,200.00	24	22	$6,200
121	Domestic water pump, 20 hp rebuild	ea	1	$2,200.00	12	10	$2,200
122	Domestic water pump, 20 hp motor	ea	1	$2,200.00	6	4	$2,200
123	Domestic water pump, 20 hp VFD	ea	1	$2,200.00	12	10	$2,200
124	HW recirculation pump, 9th floor	ea	1	$3,500.00	24	22	$3,500
125	Elevator Equipment HVAC, 4000 cfm	ea	1	$23,750.00	24	17	$23,750
126	1st Floor Lobby FCU HP	ls	1	$3,400.00	20	13	$3,400
127	1st Floor Maint. Shop FCU HP	ls	1	$2,975.00	20	13	$2,975
128	9th Floor FCU Heat Pumps	ls	1	$11,850.00	20	13	$11,850
129	10th Floor FCU Heat Pumps	ls	1	$8,900.00	20	13	$8,900
130	Exhaust Fan, 15hp, large	ea	1	$10,200.00	30	23	$10,200
131	Exhaust Fans, 10hp, medium	ea	7	$6,900.00	30	23	$48,300
132	Exhaust Fans, 7.5hp, small	ea	2	$5,100.00	30	23	$10,200
133	Stairwell heaters, electric, w/fan	ea	13	$450.00	24	17	$5,850

Replacement Costs - Page Subtotal $166,825

COMMENTS

- The cost for the cooling tower replacement is reduced by the amount of the repair cost which will take place at the same time. The replacement cost considers a re-lining of the tower fan sections with all new moving parts as the size and the weight of the entire unit would need to be craned off and then the new craned on.
- The cost for the rooftop AHU replacement is reduced by the amount of the repair cost which will take place at the same time. The replacement cost considers re-skinning of any rusted exterior panels with all new moving parts as the size and the weight of the entire unit would need to be craned off and then the new craned on.
- The building's HVAC system has 14 VAV boxes. We have assumed that one will require replacement every 2 years once they are 20 years old.

BUILDING SYSTEMS - ELEVATORS

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
134	Elevator controls and component replace	ea	4	$25,000.00	25	15	$100,000
135	Elevator cabs & doors, remodel	ea	4	$43,500.00	20	10	$174,000
136	Elevator cab interiors	ea	4	$25,500.00	15	8	$102,000
137	Trash chute doors, set	ea	43	$575.00	25	19	$24,725

Replacement Costs - Page Subtotal $400,725

COMMENTS

- The Association presently has a "premium elevator maintenance contract" which repairs or replaces most major components on the elevators. Recommend the Association continue to maintain the elevators with this "premium contract". If not, then the reserve study should add costs to replace the components covered.

BUILDING SYSTEMS - ELECTRICAL SYSTEMS

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
138	Distribution Switchgear repairs	ea	32	$1,125.00	30	23	$36,000
139	Distribution Transformer, 480v to 208v	ea	17	$23,250.00	30	23	$395,250
140	FCU, heat pump, for electrical rooms	ea	17	$2,550.00	20	23	$43,350
141	Key Trak system	ls	1	$31,500.00	15	10	$31,500

Replacement Costs - Page Subtotal $506,100

COMMENTS

RECREATION ITEMS - SWIMMING POOL

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
142	Concrete, deck, partial repair	sf	100	$13.50	99	none	$1,350
143	Concrete, seal, around pool	sf	5,300	$0.30	10	4	$1,590
144	Swimming pool finish, tuckpointing	sf	1,420	$4.50	7	none	$6,390
145	Swimming pool ceramic tile replace	sf	1,420	$24.00	99	6	$34,080
146	Swimming white coat	sf	1,420	$8.50	10	16	$12,070
147	Swimming pool waterline tile	lf	175	$22.00	10	5	$3,850
148	Spa white coat	sf	190	$8.50	10	9	$1,615
149	Spa waterline tile	lf	36	$22.00	10	5	$792
150	Swimming pool filter	ls	1	$7,800.00	10	4	$7,800
151	Swimming pool valves & plumbing	sf	1,420	$2.25	20	14	$3,195
152	Swimming pool pumps	ea	2	$2,600.00	5	none	$5,200
153	Swimming pool heat exchanger	ea	2	$9,300.00	30	24	$18,600
154	Spa, air pump	ea	1	$1,750.00	6	4	$1,750
155	Recliner Lounge, outdoors	ea	54	$135.00	12	6	$7,290
156	Recliner Lounge, outdoors, replace fabric	ea	54	$106.00	6	6	$5,724
157	Big Wicker Sofa	ea	2	$1,050.00	12	10	$2,100
158	Big Wicker Chairs	ea	9	$825.00	12	10	$7,425
159	Big Wicker, re-cushion	ea	11	$900.00	6	6	$9,900
160	Gas Barbeque Grills	ea	3	$775.00	10	4	$2,325

Replacement Costs - Page Subtotal $133,046

COMMENTS

- The swimming pool inventory includes the spa.

RECREATION ITEMS - FIRE PIT & DOG PARK

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
161	Fire Pit	ea	1	$5,000.00	20	17	$5,000
162	Dog Park, 3rd Floor, carpet	sf	345	$3.50	3	1	$1,208
163	Dog Park, 3rd Floor, glass surround	lf	32	$75.00	35	32	$2,400
164	Dog Park, 3rd Floor, furniture	ls	1	$1,250.00	12	9	$1,250

Replacement Costs - Page Subtotal $9,858

COMMENTS

VALUATION EXCLUSIONS
Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Property identification signage						EXCLUDED
	Miscellaneous signage						EXCLUDED
	Fire extinguisher cabinet						EXCLUDED
	Signage						EXCLUDED
	Interior doors						EXCLUDED

VALUATION EXCLUSIONS
Comments

- 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.

- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

LONG-LIFE EXCLUSIONS
Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Building foundation(s)						EXCLUDED
	Concrete floor slabs (interior)						EXCLUDED
	Wall, floor, and roof structure						EXCLUDED
	Common element electrical services						EXCLUDED
	Electrical wiring						EXCLUDED
	Water piping at common facilities						EXCLUDED
	Waste piping at common facilities						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 ($)	NEL	REL	REPLACEMENT COST ($)
	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
	Unit interior						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 ($)	NEL	REL	REPLACEMENT COST ($)
	Primary electric feeds						EXCLUDED
	Electric transformers						EXCLUDED
	Cable TV systems and structures						EXCLUDED
	Telephone cables and structures						EXCLUDED
	Gas mains and meters						EXCLUDED
	Water 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 ($)	NEL	REL	REPLACEMENT COST ($)
	Striping of parking spaces						EXCLUDED
	Numbering of parking spaces						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 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.

PROJECTED ANNUAL REPLACEMENTS
GENERAL INFORMATION

CALENDAR OF ANNUAL REPLACEMENTS. The 164 Projected Replacements in the Sample High Rise - Residential Common Elements 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 C2.2.

REPLACEMENT RESERVE ANALYSIS AND INVENTORY
POLICIES, PROCEDURES, AND ADMINISTRATION

- 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.
- 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.
- 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.

PROJECTED REPLACEMENTS

Item	2021 - Study Year	$
20	Flat Screen TVs, wall mounted (25%)	$5,500
142	Concrete, deck, partial repair	$1,350
144	Swimming pool finish, tuckpointing	$6,390
152	Swimming pool pumps	$5,200
	Total Scheduled Replacements	$18,440

Item	2022 - YEAR 1	$
56	Lounge, flat screen TVs - (25%)	$900
85	Lounge, flat screen TVs (50%)	$1,000
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$3,108

PROJECTED REPLACEMENTS

Item	2023 - YEAR 2	$
20	Flat Screen TVs, wall mounted (25%)	$5,500
	Total Scheduled Replacements	$5,500

Item	2024 - YEAR 3	$
4	Hallway Carpet (20%)	$41,008
9	Mailroom, Carpet	$2,497
10	Tile Floor, tuckpoint, 5%	$1,980
39	Lobby, 9th Floor, Tile	$15,708
40	Lounge, 9th Floor, Carpet	$18,964
52	Lounge, furniture, soft goods	$45,000
56	Lounge, flat screen TVs - (25%)	$900
57	Lounge, video projector	$1,400
59	Fitness Center, Carpet	$6,160
77	Lounge, 10th floor, carpet	$6
82	Lounge, furniture, soft goods	$4,400
88	Media Room, 10th floor, carpet	$6
92	Media Room, video projector	$1,425
109	Cooling Water treatment system	$10,750
111	Rebuild domestic water booster pump	$12,800
116	Rebuild domestic water booster pump	$12,800
117	Replace motor domestic pump, 75 hp	$5,600
	Total Scheduled Replacements	$181,403

PROJECTED REPLACEMENTS

Item	2025 - YEAR 4	$
5	Hallway Carpet (20%)	$41,008
20	Flat Screen TVs, wall mounted (25%)	$5,500
32	Area Rugs	$1,800
90	Media Room, furniture, soft goods	$10,750
94	Media Room, popcorn popper	$1,000
122	Domestic water pump, 20 hp motor	$2,200
143	Concrete, seal, around pool	$1,590
150	Swimming pool filter	$7,800
154	Spa, air pump	$1,750
160	Gas Barbeque Grills	$2,325
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$76,931

Item	2026 - YEAR 5	$
6	Hallway Carpet (20%)	$41,008
21	Hallway Artwork	$16,500
43	Lobby, Front Counter, computers	$3,600
55	Lounge, artwork	$1,750
56	Lounge, flat screen TVs - (25%)	$900
62	FC - treadmills	$24,000
63	FC - ellipticals	$15,600
64	FC - exercise bike, upright	$2,800
65	FC - exercise bike, spin	$2,050
67	FC - stair stepper	$2,350
80	Lounge, kitchen appliances	$1,475
84	Lounge, computers	$3,000
85	Lounge, flat screen TVs (50%)	$1,000
86	Lounge, artwork	$1,600
97	Cooling Towers, rebuild	$180,000
99	Cooling Towers fan VFDs	$16,200
100	Rooftop AHU for Corridors, repair	$59,000
105	Rebuild condenser water pump	$12,800
106	Replace condenser pump motor, 75 hp	$5,600
107	Condenser water pump VFDs	$17,000
112	Replace water pump motor, 75 hp	$17,000
147	Swimming pool waterline tile	$3,850
149	Spa waterline tile	$792
152	Swimming pool pumps	$5,200
	Total Scheduled Replacements	$435,075

PROJECTED REPLACEMENTS

Item	2027 - YEAR 6	$
7	Hallway Carpet (20%)	$41,008
20	Flat Screen TVs, wall mounted (25%)	$5,500
50	Lounge, appliances	$2,800
145	Swimming pool ceramic tile replace	$34,080
155	Recliner Lounge, outdoors	$7,290
156	Recliner Lounge, outdoors, replace fabric	$5,724
159	Big Wicker, re-cushion	$9,900
	Total Scheduled Replacements	$106,302

Item	2028 - YEAR 7	$
8	Hallway Carpet (20%)	$41,008
56	Lounge, flat screen TVs - (25%)	$900
144	Swimming pool finish, tuckpointing	$6,390
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$49,506

PROJECTED REPLACEMENTS

Item	2029 - YEAR 8	$
2	Sliding Glass Doors to Balconies (10%)	$50,400
20	Flat Screen TVs, wall mounted (25%)	$5,500
36	Artwork	$5,300
95	Media Room, artwork	$475
117	Replace motor domestic pump, 75 hp	$5,600
136	Elevator cab interiors	$102,000
	Total Scheduled Replacements	$169,275

Item	2030 - YEAR 9	$
44	Lobby, Front Counter, chairs	$1,050
56	Lounge, flat screen TVs - (25%)	$900
66	FC - exercise bike, spin	$2,050
68	FC - rowing machine	$1,400
85	Lounge, flat screen TVs (50%)	$1,000
94	Media Room, popcorn popper	$1,000
148	Spa white coat	$1,615
164	Dog Park, 3rd Floor, furniture	$1,250
	Total Scheduled Replacements	$10,265

PROJECTED REPLACEMENTS

Item	2031 - YEAR 10	$
20	Flat Screen TVs, wall mounted (25%)	$5,500
45	Manager Office, furniture	$8,000
60	Fitness Center, Rubber Flooring	$16,875
61	Fitness Center, Rubber Flooring (top)	$10,000
114	Domestic water booster pump control	$8,100
119	Domestic water booster pump control	$8,100
121	Domestic water pump, 20 hp rebuild	$2,200
122	Domestic water pump, 20 hp motor	$2,200
123	Domestic water pump, 20 hp VFD	$2,200
135	Elevator cabs & doors, remodel	$174,000
141	Key Trak system	$31,500
152	Swimming pool pumps	$5,200
154	Spa, air pump	$1,750
157	Big Wicker Sofa	$2,100
158	Big Wicker Chairs	$7,425
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$286,358

Item	2032 - YEAR 11	$
33	Wall Covering	$2,100
43	Lobby, Front Counter, computers	$3,600
56	Lounge, flat screen TVs - (25%)	$900
57	Lounge, video projector	$1,400
84	Lounge, computers	$3,000
92	Media Room, video projector	$1,425
93	Media Room, projector screen	$325
106	Replace condenser pump motor, 75 hp	$5,600
112	Replace water pump motor, 75 hp	$17,000
113	Domestic water booster pump VFDs	$5,600
118	Domestic water booster pump VFDs	$17,000
	Total Scheduled Replacements	$57,950

PROJECTED REPLACEMENTS

Item	2033 - YEAR 12	$
20	Flat Screen TVs, wall mounted (25%)	$5,500
32	Area Rugs	$1,800
156	Recliner Lounge, outdoors, replace fabric	$5,724
159	Big Wicker, re-cushion	$9,900
	Total Scheduled Replacements	$22,924

Item	2034 - YEAR 13	$
1	Storefront Doors, 9th & 10th floors	$8,400
2	Sliding Glass Doors to Balconies (10%)	$50,400
4	Hallway Carpet (20%)	$41,008
9	Mailroom, Carpet	$2,497
10	Tile Floor, tuckpoint, 5%	$1,980
12	Hallway Wall Covering, w/base & signs (20%)	$105,893
18	Hallway Lighting, 25%	$36,000
22	Wood Doors, with hardware, 25%	$110,550
31	Chain Link Fence Storage, repair	$42,000
37	Bathroom Renovation, 1st, Men	$3,000
38	Bathroom Renovation, 1st, Women	$3,000
40	Lounge, 9th Floor, Carpet	$18,964
46	Bathroom Renovation, 9th, Men	$6,000
47	Bathroom Renovation, 9th, Women	$6,000
48	Bathroom Renovation, fitness	$3,300
52	Lounge, furniture, soft goods	$45,000
56	Lounge, flat screen TVs - (25%)	$900
59	Fitness Center, Carpet	$6,160
77	Lounge, 10th floor, carpet	$6
78	Lounge, bathroom renovation	$6,800
82	Lounge, furniture, soft goods	$4,400
85	Lounge, flat screen TVs (50%)	$1,000
88	Media Room, 10th floor, carpet	$6
108	DHW tanks & heat exchangers	$23,600
109	Cooling Water treatment system	$10,750
110	Domestic water booster pumps, 75 hp	$39,000
111	Rebuild domestic water booster pump	$12,800
115	Domestic water booster pumps, 75 hp	$39,000
116	Rebuild domestic water booster pump	$12,800
117	Replace motor domestic pump, 75 hp	$5,600
126	1st Floor Lobby FCU HP	$3,400
127	1st Floor Maint. Shop FCU HP	$2,975
128	9th Floor FCU Heat Pumps	$11,850
129	10th Floor FCU Heat Pumps	$8,900
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$675,145

PROJECTED REPLACEMENTS

Item	2035 - YEAR 14	$
5	Hallway Carpet (20%)	$41,008
13	Hallway Wall Covering, w/base & signs (20%)	$105,893
20	Flat Screen TVs, wall mounted (25%)	$5,500
42	Lobby Front Counter, millwork	$1,750
53	Lounge, furniture, hard goods	$20,000
74	FC - Chairs, metal	$600
81	Lounge, millwork	$1,275
83	Lounge, furniture, hard goods	$9,875
90	Media Room, furniture, soft goods	$10,750
94	Media Room, popcorn popper	$1,000
143	Concrete, seal, around pool	$1,590
144	Swimming pool finish, tuckpointing	$6,390
150	Swimming pool filter	$7,800
151	Swimming pool valves & plumbing	$3,195
160	Gas Barbeque Grills	$2,325
	Total Scheduled Replacements	$218,951

Item	2036 - YEAR 15	$
6	Hallway Carpet (20%)	$41,008
14	Hallway Wall Covering, w/base & signs (20%)	$105,893
51	Lounge, pool table	$5,500
56	Lounge, flat screen TVs - (25%)	$900
76	FC Light fixtures	$600
89	Media Room, millwork	$25
91	Media Room, furniture, hard goods	$825
134	Elevator controls and component replace	$100,000
147	Swimming pool waterline tile	$3,850
149	Spa waterline tile	$792
152	Swimming pool pumps	$5,200
	Total Scheduled Replacements	$264,593

PROJECTED REPLACEMENTS

Item	2037 - YEAR 16	$
7	Hallway Carpet (20%)	$41,008
15	Hallway Wall Covering, w/base & signs (20%)	$105,893
20	Flat Screen TVs, wall mounted (25%)	$5,500
122	Domestic water pump, 20 hp motor	$2,200
146	Swimming white coat	$12,070
154	Spa, air pump	$1,750
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$169,628

Item	2038 - YEAR 17	$
8	Hallway Carpet (20%)	$41,008
16	Hallway Wall Covering, w/base & signs (20%)	$105,893
21	Hallway Artwork	$16,500
35	Lounge, furniture, hard goods	$13,600
43	Lobby, Front Counter, computers	$3,600
55	Lounge, artwork	$1,750
56	Lounge, flat screen TVs - (25%)	$900
62	FC - treadmills	$24,000
63	FC - ellipticals	$15,600
64	FC - exercise bike, upright	$2,800
65	FC - exercise bike, spin	$2,050
67	FC - stair stepper	$2,350
69	FC - exercise equipment, resistance	$42,000
70	FC - smith machine	$6,800
73	FC Mirrors	$6,144
79	Lounge, kitchen millwork	$3,200
80	Lounge, kitchen appliances	$1,475
84	Lounge, computers	$3,000
85	Lounge, flat screen TVs (50%)	$1,000
86	Lounge, artwork	$1,600
97	Cooling Towers, rebuild	$180,000
98	Cooling Towers, replacement	$128,000
99	Cooling Towers fan VFDs	$16,200
101	Rooftop AHU for Corridors, replace	$81,000
102	Heating system heat exchangers	$46,000
103	Heating water pump, 2 hp	$11,800
104	Condenser water pump, 75 hp	$26,000
105	Rebuild condenser water pump	$12,800
106	Replace condenser pump motor, 75 hp	$5,600
107	Condenser water pump VFDs	$17,000
112	Replace water pump motor, 75 hp	$17,000
125	Elevator Equipment HVAC, 4000 cfm	$23,750
133	Stairwell heaters, electric, w/fan	$5,850
161	Fire Pit	$5,000
	Total Scheduled Replacements	$871,270

PROJECTED REPLACEMENTS

Item	2039 - YEAR 18	$
2	Sliding Glass Doors to Balconies (10%)	$50,400
19	Exit Signs, LED	$11,880
20	Flat Screen TVs, wall mounted (25%)	$5,500
25	Lighting, elevator lobby, 1st-8th floors	$27,900
26	Mailboxes, 10 unit high, single wide	$2,200
27	Mailboxes, 10 unit high, double wide	$42,900
28	Mailboxes, 2 unit large boxes	$6,050
30	Stair light fixtures	$10,500
41	Lounge, Wood Panel Wall	$4,725
49	Lounge, millwork	$4,500
50	Lounge, appliances	$2,800
54	Lounge, furniture, hard goods	$12,000
58	Lounge, Lighting	$7,950
75	FC Light Strips	$3,000
87	Lounge, lighting	$3,600
117	Replace motor domestic pump, 75 hp	$5,600
155	Recliner Lounge, outdoors	$7,290
156	Recliner Lounge, outdoors, replace fabric	$5,724
159	Big Wicker, re-cushion	$9,900
	Total Scheduled Replacements	$224,419

Item	2040 - YEAR 19	$
56	Lounge, flat screen TVs - (25%)	$900
57	Lounge, video projector	$1,400
92	Media Room, video projector	$1,425
94	Media Room, popcorn popper	$1,000
137	Trash chute doors, set	$24,725
148	Spa white coat	$1,615
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$32,273

PROJECTED REPLACEMENTS

Item	2041 - YEAR 20	$
20	Flat Screen TVs, wall mounted (25%)	$5,500
32	Area Rugs	$1,800
36	Artwork	$5,300
95	Media Room, artwork	$475
96	Media Room, lighting	$1,200
100	Rooftop AHU for Corridors, repair	$59,000
152	Swimming pool pumps	$5,200
	Total Scheduled Replacements	$78,475

Item	2042 - YEAR 21	$
44	Lobby, Front Counter, chairs	$1,050
56	Lounge, flat screen TVs - (25%)	$900
66	FC - exercise bike, spin	$2,050
68	FC - rowing machine	$1,400
85	Lounge, flat screen TVs (50%)	$1,000
144	Swimming pool finish, tuckpointing	$6,390
164	Dog Park, 3rd Floor, furniture	$1,250
	Total Scheduled Replacements	$14,040

PROJECTED REPLACEMENTS

Item	2043 - YEAR 22	$
20	Flat Screen TVs, wall mounted (25%)	$5,500
45	Manager Office, furniture	$8,000
120	Domestic water pump, 20 hp	$6,200
121	Domestic water pump, 20 hp rebuild	$2,200
122	Domestic water pump, 20 hp motor	$2,200
123	Domestic water pump, 20 hp VFD	$2,200
124	HW recirculation pump, 9th floor	$3,500
154	Spa, air pump	$1,750
157	Big Wicker Sofa	$2,100
158	Big Wicker Chairs	$7,425
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$42,283

Item	2044 - YEAR 23	$
2	Sliding Glass Doors to Balconies (10%)	$50,400
4	Hallway Carpet (20%)	$41,008
9	Mailroom, Carpet	$2,497
10	Tile Floor, tuckpoint, 5%	$1,980
11	Tile Floor, replace	$222,054
17	Hallway Suspended Ceiling	$10,692
18	Hallway Lighting, 25%	$36,000
22	Wood Doors, with hardware, 25%	$110,550
23	HM Doors, single	$99,325
24	HM Doors, double	$2,400
40	Lounge, 9th Floor, Carpet	$18,964
43	Lobby, Front Counter, computers	$3,600
52	Lounge, furniture, soft goods	$45,000
56	Lounge, flat screen TVs - (25%)	$900
59	Fitness Center, Carpet	$6,160
77	Lounge, 10th floor, carpet	$6
82	Lounge, furniture, soft goods	$4,400
84	Lounge, computers	$3,000
88	Media Room, 10th floor, carpet	$6
106	Replace condenser pump motor, 75 hp	$5,600
109	Cooling Water treatment system	$10,750
111	Rebuild domestic water booster pump	$12,800
112	Replace water pump motor, 75 hp	$17,000
113	Domestic water booster pump VFDs	$5,600
116	Rebuild domestic water booster pump	$12,800
117	Replace motor domestic pump, 75 hp	$5,600
118	Domestic water booster pump VFDs	$17,000
130	Exhaust Fan, 15hp, large	$10,200
131	Exhaust Fans, 10hp, medium	$48,300
132	Exhaust Fans, 7.5hp, small	$10,200
136	Elevator cab interiors	$102,000
138	Distribution Switchgear repairs	$36,000
139	Distribution Transformer, 480v to 208v	$395,250
140	FCU, heat pump, for electrical rooms	$43,350
	Total Scheduled Replacements	$1,391,391

PROJECTED REPLACEMENTS

Item	2045 - YEAR 24	$
5	Hallway Carpet (20%)	$41,008
20	Flat Screen TVs, wall mounted (25%)	$5,500
29	Parcel collector, 9th floor	$34,000
90	Media Room, furniture, soft goods	$10,750
94	Media Room, popcorn popper	$1,000
143	Concrete, seal, around pool	$1,590
150	Swimming pool filter	$7,800
153	Swimming pool heat exchanger	$18,600
156	Recliner Lounge, outdoors, replace fabric	$5,724
159	Big Wicker, re-cushion	$9,900
160	Gas Barbeque Grills	$2,325
	Total Scheduled Replacements	$138,197

Item	2046 - YEAR 25	$
6	Hallway Carpet (20%)	$41,008
56	Lounge, flat screen TVs - (25%)	$900
60	Fitness Center, Rubber Flooring	$16,875
61	Fitness Center, Rubber Flooring (top)	$10,000
71	FC - weight bench	$2,000
72	FC - weights	$4,500
85	Lounge, flat screen TVs (50%)	$1,000
141	Key Trak system	$31,500
147	Swimming pool waterline tile	$3,850
149	Spa waterline tile	$792
152	Swimming pool pumps	$5,200
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$118,833

PROJECTED REPLACEMENTS

Item	2047 - YEAR 26	$
7	Hallway Carpet (20%)	$41,008
20	Flat Screen TVs, wall mounted (25%)	$5,500
33	Wall Covering	$2,100
34	Wall panels, mirror	$1,000
146	Swimming white coat	$12,070
	Total Scheduled Replacements	$61,678

Item	2048 - YEAR 27	$
3	Balcony railing (25%)	$196,800
8	Hallway Carpet (20%)	$41,008
56	Lounge, flat screen TVs - (25%)	$900
57	Lounge, video projector	$1,400
92	Media Room, video projector	$1,425
93	Media Room, projector screen	$325
	Total Scheduled Replacements	$241,858

PROJECTED REPLACEMENTS

Item	2049 - YEAR 28	$
2	Sliding Glass Doors to Balconies (10%)	$50,400
12	Hallway Wall Covering, w/base & signs (20%)	$105,893
20	Flat Screen TVs, wall mounted (25%)	$5,500
32	Area Rugs	$1,800
117	Replace motor domestic pump, 75 hp	$5,600
122	Domestic water pump, 20 hp motor	$2,200
144	Swimming pool finish, tuckpointing	$6,390
154	Spa, air pump	$1,750
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$180,740

Item	2050 - YEAR 29	$
13	Hallway Wall Covering, w/base & signs (20%)	$105,893
21	Hallway Artwork	$16,500
43	Lobby, Front Counter, computers	$3,600
55	Lounge, artwork	$1,750
56	Lounge, flat screen TVs - (25%)	$900
62	FC - treadmills	$24,000
63	FC - ellipticals	$15,600
64	FC - exercise bike, upright	$2,800
65	FC - exercise bike, spin	$2,050
67	FC - stair stepper	$2,350
80	Lounge, kitchen appliances	$1,475
84	Lounge, computers	$3,000
85	Lounge, flat screen TVs (50%)	$1,000
86	Lounge, artwork	$1,600
94	Media Room, popcorn popper	$1,000
97	Cooling Towers, rebuild	$180,000
99	Cooling Towers fan VFDs	$16,200
105	Rebuild condenser water pump	$12,800
106	Replace condenser pump motor, 75 hp	$5,600
107	Condenser water pump VFDs	$17,000
112	Replace water pump motor, 75 hp	$17,000
148	Spa white coat	$1,615
	Total Scheduled Replacements	$433,733

PROJECTED REPLACEMENTS

Item	2051 - YEAR 30	$
14	Hallway Wall Covering, w/base & signs (20%)	$105,893
20	Flat Screen TVs, wall mounted (25%)	$5,500
50	Lounge, appliances	$2,800
114	Domestic water booster pump control	$8,100
119	Domestic water booster pump control	$8,100
135	Elevator cabs & doors, remodel	$174,000
152	Swimming pool pumps	$5,200
155	Recliner Lounge, outdoors	$7,290
156	Recliner Lounge, outdoors, replace fabric	$5,724
159	Big Wicker, re-cushion	$9,900
	Total Scheduled Replacements	$332,507

Item	2052 - YEAR 31	$
15	Hallway Wall Covering, w/base & signs (20%)	$105,893
56	Lounge, flat screen TVs - (25%)	$900
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$108,000

PROJECTED REPLACEMENTS

Item	2053 - YEAR 32	$
16	Hallway Wall Covering, w/base & signs (20%)	$105,893
20	Flat Screen TVs, wall mounted (25%)	$5,500
36	Artwork	$5,300
95	Media Room, artwork	$475
163	Dog Park, 3rd Floor, glass surround	$2,400
	Total Scheduled Replacements	$119,568

Item	2054 - YEAR 33	$
1	Storefront Doors, 9th & 10th floors	$8,400
2	Sliding Glass Doors to Balconies (10%)	$50,400
4	Hallway Carpet (20%)	$41,008
9	Mailroom, Carpet	$2,497
10	Tile Floor, tuckpoint, 5%	$1,980
18	Hallway Lighting, 25%	$36,000
22	Wood Doors, with hardware, 25%	$110,550
31	Chain Link Fence Storage, repair	$42,000
37	Bathroom Renovation, 1st, Men	$3,000
38	Bathroom Renovation, 1st, Women	$3,000
39	Lobby, 9th Floor, Tile	$15,708
40	Lounge, 9th Floor, Carpet	$18,964
44	Lobby, Front Counter, chairs	$1,050
46	Bathroom Renovation, 9th, Men	$6,000
47	Bathroom Renovation, 9th, Women	$6,000
48	Bathroom Renovation, fitness	$3,300
52	Lounge, furniture, soft goods	$45,000
56	Lounge, flat screen TVs - (25%)	$900
59	Fitness Center, Carpet	$6,160
66	FC - exercise bike, spin	$2,050
68	FC - rowing machine	$1,400
77	Lounge, 10th floor, carpet	$6
78	Lounge, bathroom renovation	$6,800
82	Lounge, furniture, soft goods	$4,400
85	Lounge, flat screen TVs (50%)	$1,000
88	Media Room, 10th floor, carpet	$6
108	DHW tanks & heat exchangers	$23,600
109	Cooling Water treatment system	$10,750
110	Domestic water booster pumps, 75 hp	$39,000
111	Rebuild domestic water booster pump	$12,800
115	Domestic water booster pumps, 75 hp	$39,000
116	Rebuild domestic water booster pump	$12,800
117	Replace motor domestic pump, 75 hp	$5,600
126	1st Floor Lobby FCU HP	$3,400
127	1st Floor Maint. Shop FCU HP	$2,975
128	9th Floor FCU Heat Pumps	$11,850
129	10th Floor FCU Heat Pumps	$8,900
164	Dog Park, 3rd Floor, furniture	$1,250
	Total Scheduled Replacements	$589,503

PROJECTED REPLACEMENTS

Item	2055 - YEAR 34	$
5	Hallway Carpet (20%)	$41,008
20	Flat Screen TVs, wall mounted (25%)	$5,500
45	Manager Office, furniture	$8,000
90	Media Room, furniture, soft goods	$10,750
94	Media Room, popcorn popper	$1,000
121	Domestic water pump, 20 hp rebuild	$2,200
122	Domestic water pump, 20 hp motor	$2,200
123	Domestic water pump, 20 hp VFD	$2,200
143	Concrete, seal, around pool	$1,590
150	Swimming pool filter	$7,800
151	Swimming pool valves & plumbing	$3,195
154	Spa, air pump	$1,750
157	Big Wicker Sofa	$2,100
158	Big Wicker Chairs	$7,425
160	Gas Barbeque Grills	$2,325
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$100,251

Item	2056 - YEAR 35	$
6	Hallway Carpet (20%)	$41,008
42	Lobby Front Counter, millwork	$1,750
43	Lobby, Front Counter, computers	$3,600
53	Lounge, furniture, hard goods	$20,000
56	Lounge, flat screen TVs - (25%)	$900
57	Lounge, video projector	$1,400
74	FC - Chairs, metal	$600
81	Lounge, millwork	$1,275
83	Lounge, furniture, hard goods	$9,875
84	Lounge, computers	$3,000
92	Media Room, video projector	$1,425
100	Rooftop AHU for Corridors, repair	$59,000
106	Replace condenser pump motor, 75 hp	$5,600
112	Replace water pump motor, 75 hp	$17,000
113	Domestic water booster pump VFDs	$5,600
118	Domestic water booster pump VFDs	$17,000
144	Swimming pool finish, tuckpointing	$6,390
147	Swimming pool waterline tile	$3,850
149	Spa waterline tile	$792
152	Swimming pool pumps	$5,200
	Total Scheduled Replacements	$205,265

PROJECTED REPLACEMENTS

Item	2057 - YEAR 36	$
7	Hallway Carpet (20%)	$41,008
20	Flat Screen TVs, wall mounted (25%)	$5,500
32	Area Rugs	$1,800
51	Lounge, pool table	$5,500
89	Media Room, millwork	$25
91	Media Room, furniture, hard goods	$825
146	Swimming white coat	$12,070
156	Recliner Lounge, outdoors, replace fabric	$5,724
159	Big Wicker, re-cushion	$9,900
	Total Scheduled Replacements	$82,352

Item	2058 - YEAR 37	$
8	Hallway Carpet (20%)	$41,008
56	Lounge, flat screen TVs - (25%)	$900
85	Lounge, flat screen TVs (50%)	$1,000
161	Fire Pit	$5,000
162	Dog Park, 3rd Floor, carpet	$1,208
	Total Scheduled Replacements	$49,116

PROJECTED REPLACEMENTS

Item	2059 - YEAR 38	$
2	Sliding Glass Doors to Balconies (10%)	$50,400
20	Flat Screen TVs, wall mounted (25%)	$5,500
35	Lounge, furniture, hard goods	$13,600
117	Replace motor domestic pump, 75 hp	$5,600
136	Elevator cab interiors	$102,000
	Total Scheduled Replacements	$177,100

Item	2060 - YEAR 39	$
54	Lounge, furniture, hard goods	$12,000
56	Lounge, flat screen TVs - (25%)	$900
94	Media Room, popcorn popper	$1,000
148	Spa white coat	$1,615
	Total Scheduled Replacements	$15,515

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CONDITION ASSESSMENT

General Comments. Miller+Dodson Associates conducted a Reserve Study at Sample High Rise - Residential Common Elements in December 2020. Sample High Rise - Residential Common Elements is in generally excellent condition for a residential condominium constructed in 2010. A review of the Replacement Reserve Inventory will show that we are anticipating most of the components achieving their normal economic lives.

Residential Common Element (RCE) - This area includes the 9th floor lobby, lounge, and fitness center, restrooms, and mailroom. Also the 10th floor lounge and media room. From the 9th floor to the 42nd floor all hallway finishes are included. Elevator lobbies for the 2nd thru 9th floors are included. On the exterior the sliding doors to balconies, glass exit doors from the 9th and 10th floors, and the pool, spa, fire pit, and charcoal grills on the 9th floor. The 4 elevators, penthouse mechanical equipment, and electrical equipment in electric rooms from the 9th through 43 floors are included.

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.

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.

EXTERIOR ITEMS

Glass Sliding Glass Doors. The sliding glass doors have some of the same features and failure problems and the glass exterior, but they also fail at the track system which allows them to move and operate. The study assumes that ten percent of the sliding glass doors will fail and be replaced in 5-year intervals.

INTERIOR ITEMS

Carpet. Carpet in the common areas is found in the hallways, lounges, media room, and the fitness center. The carpet was installed as large carpet tiles. This does allow for easy replacement should an area be damaged or stained. The carpet will still have a useful life of about 10 years. Since it would be difficult to replace the hallway carpet on 33 floors all in one year this work has been broken into a 5 year period where either 6 or 7 floors would be done in a year and the work would coincide with the fabric wall covering for that floor.

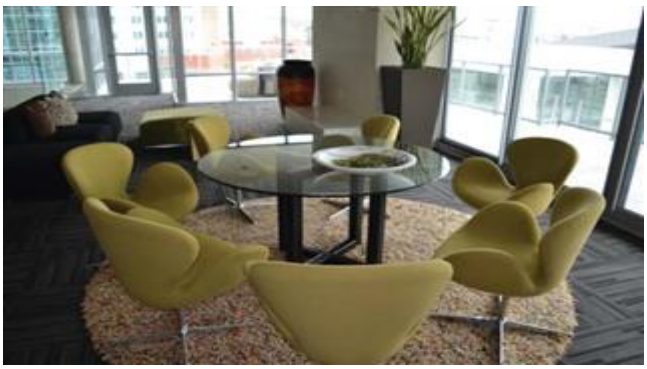
Tile Floors. Tile floors are found in the 9th and 10th floor lobbies and in the elevator lobbies on the 1stthrough 9th floors. Tile flooring and walls can also be found in the common restrooms. These floors have an extended life but may need occasional regrouting of joints. A full replacement has been included to allow for replacement due to failure or to allow for changes in the décor.

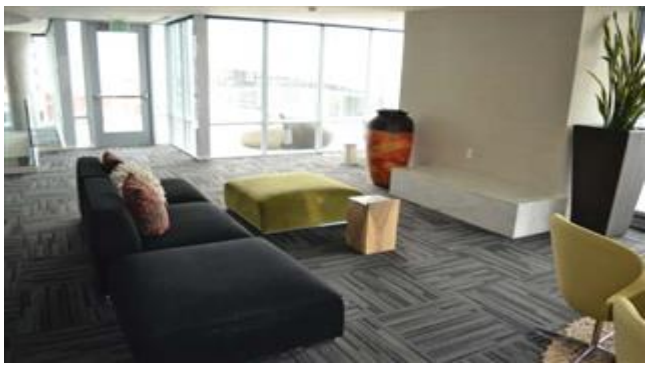
Fabric Wall Covering. All of the hallways have a fabric wall covering material. This material does last longer than paint on the same surface but will require replacement about every 15 years. This replacement will cost more than painting of the same area, so the association should decide when replacement is required if the material should be replaced with painting. This work has also been staggered over a 5 year period to coincide with the carpet replacement.

Furniture. The association has numerous furniture items in the lobbies, lounge areas, media room, and outside pool area. This furniture will require replacement, sometimes from wear and tear failure and sometimes simply for aesthetic reasons.

9th Floor

10th Floor





Fitness Center Equipment. The fitness center is well equipped with quality fitness equipment. There are cardio items like treadmills, bikes, and stair steppers. There are also strength items manufactured by LifeFitness along with weight equipment. All equipment receives monthly maintenance. The cardio equipment will require replacement more frequently because of the moving parts and this has been captured in the study.

BUILDING SYSTEMS

Cooling Towers. There are two cooling towers which are located in the rooftop penthouse area and they supply condenser water to the water cooled heat pump fan coil units throughout the building. This is a very cost effective way for the different residential areas to be in heating or cooling modes at the same time. The cooling towers are very large and it would be very difficult or costly to remove them when they need replacement. Replacement of the cooling towers is needed when the evaporative section becomes so rusted that the surfaces form leakage holes. Instead of replacing the entire cooling tower, large panels can be replaced that form the evaporative section, and couple with a major moving parts overhaul the unit will essentially be new. This is as expensive or even more than a full replacement, but if the unit must be removed from the roof a large crane or helicopter would be required.

Hot Water Systems.

Rooftop AHU. There is a large rooftop air handling unit that heats and cools the building corridors. It utilizes steam for heating and cools through air conditioning compressors and air cooled condensers. These large units will last 20-25 years with a mid-life rebuild and then they are replaced. Because this unit is roof mounted, the same size and weight issues are found as for the cooling towers. The unit will be at the end of life when the cooling section rusts to the point that the panels rust through. Instead of replacement, a major overhaul of all metal panels can be accomplished in conjunction with a mechanical equipment rebuild to keep from needing to remove the unit from the roof.

Exhaust Fans. Numerous large fans provide exhaust from the hallways, elevator shafts, and other common areas. There are also exhaust fans for the public restrooms.

Fan Coil Units. HVAC to the lounges, media center, fitness center, and electrical rooms is provided by multiple heat pump style FCUs. The FCUs are located above the ceiling of all common spaces except the electrical rooms. The FCUs use the condenser water from the cooling towers or flat-plate heat exchangers with an internal DX heating cooling compressor and coil to either heat or cool the space.

Elevators. Since the elevators are being maintained by a “premium” elevator maintenance contract the majority of the major components are replaced under this contract. What remains are items that become obsolete or aesthetic components. The reserve study has left the controls along with the door mechanisms as these become obsolete. Also included are the cab and cab door remodels along with the interiors. These items will wear with use. If the “premium” contract is not continued then additional funding should be added back into the reserve study to cover the cost of the major components. The estimated cost of replacing the elevator components remaining in the study has been developed utilizing R.S. Means Construction Cost Data and through periodic repair quotes. These costs are included to reflect the obsolescence that occurs with elevator systems. Even though the systems may be functioning well at this time, parts for most mechanical control systems are becoming increasingly hard to find. Parts availability becomes a major consideration that forces a replacement decision.

When this work is ultimately accomplished, the elevators will have to be brought into compliance with the latest safety code requirements. This work typically entails upgrading door operating mechanisms, replacing elevator call systems, and installation of emergency phones. A prudent amount has been included in anticipation of these problems.

Electrical Switchgear. There is switchgear for distribution 480v power throughout the entire building on the1st floor and there are also power distribution panels for 120/208v power to the residential floors and for 480vpower in the penthouse for mechanical equipment. The switchgear has a long life but changes in equipment technology can result in the inability of obtaining replacement parts and subsequently to switchgear must be replaced. History in this area shows that in about 30 years the distribution breakers will require power panel replacements and the switchgear will require replacement in 50 years.

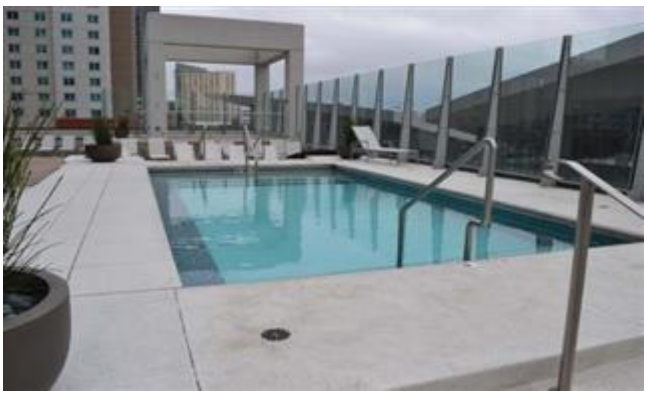
Electrical Transformers. Transformers are used to reduce the 480v power throughout the building to120/208v. These transformers experience the majority of failures due to overheating, so with electrical room cooling this failure timeframe should be extended. The study assumes the transformers will last for 30 years before replacement.

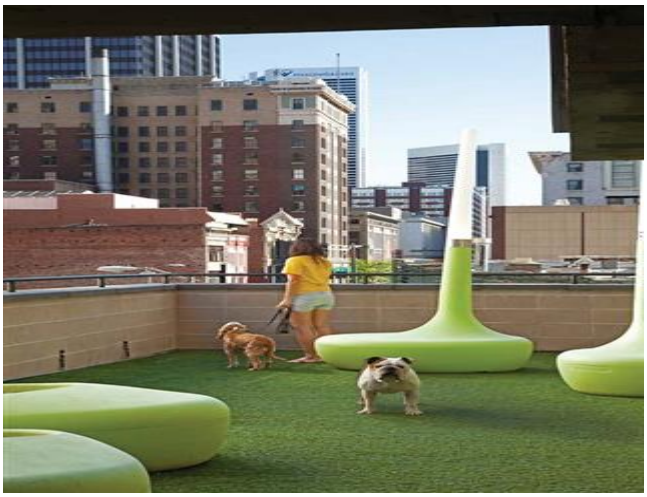
RECREATION ITEMS

Swimming Pool and Spa. The community operates an outdoor pool and spa of concrete construction and concrete deck. Listed below are the major components of the pool facilities:

- Pool Shell. The shell for the swimming pool is incorporated into the 9th floor structure and becomes the ceiling for the 8th floor of the garage. It is not expected the pool shell will require replacement but will see surface refinishing as covered below.
- Pool Deck. The pool has a concrete deck. The deck should have sealant applied similar to the garage floor surface to minimize the potential of cracking and spalling.
- Pool and Spa surface. The pool is coated with glass tiles. The spa was previously coated with glass tiles but the tiles were recently removed and what is commonly referred to as a “white coat” finish was applied, although the actual color is black. The glass tiles have a nice aesthetic appearance but are high maintenance. The study recommends maintaining to the end of their useful life but to replace the pool glass tiles with a quality white coat finish similar to the spa work that was performed. The pool color could be a white or a blue finish. The white coat can achieve a high-quality look but will require only minor tuck-pointing along with a recoating throughout its lifecycle.

- Waterline Tile. The waterline tile is in excellent condition. We have assumed that the waterline tile will be replaced or restored about every 10 years.
- Pump and Filter System. The filter system is in excellent operating condition. We have assumed a service life of 20 years for the filter systems and 10 years for the pumps.





Dog Park.

9th Floor Pool Table.

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 elements of the property to ascertain the remaining useful life and the replacement costs of these common elements. 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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EXECUTIVE SUMMARY

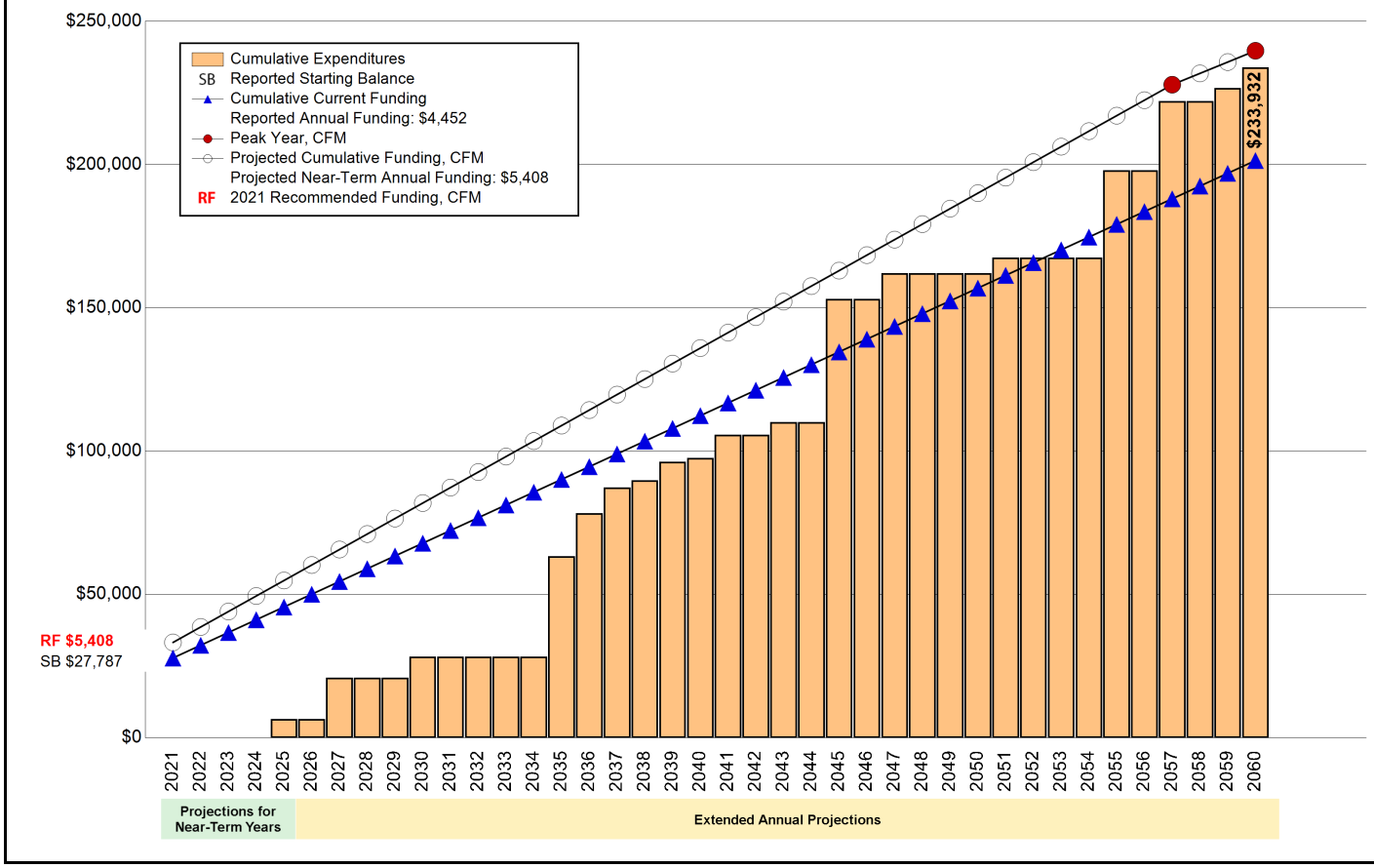
The Sample High Rise - Skyclub Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 21 Projected Replacements identified in the Replacement Reserve Inventory.

$5,408 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2021**
$0.91 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 A3.5.

Sample High Rise - Skyclub reports a Starting Balance of $27,787 and Annual Funding totaling $4,452. The reported Current Annual Funding of $4,452 is inadequate to fund projected replacements starting in 2045. See Page A3.3 for a more detailed evaluation.

#1 - Cumulative Replacement Reserve Funding and Expenditures Graph



The Association should raise their Annual Funding to the Skyclub Reserves from the current Reserves funding of $4,452 to the Recommended Replacement Reserve Funding of $5,408.

REPLACEMENT RESERVE ANALYSIS - GENERAL INFORMATION

The Sample High Rise - Skyclub 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.

2021 **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, 2021.

40 Years **STUDY PERIOD**

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

$27,787 **STARTING BALANCE**

The Association reports Replacement Reserves on Deposit totaling $27,787 at the start of the Study Year.

Level Two **LEVEL OF SERVICE**

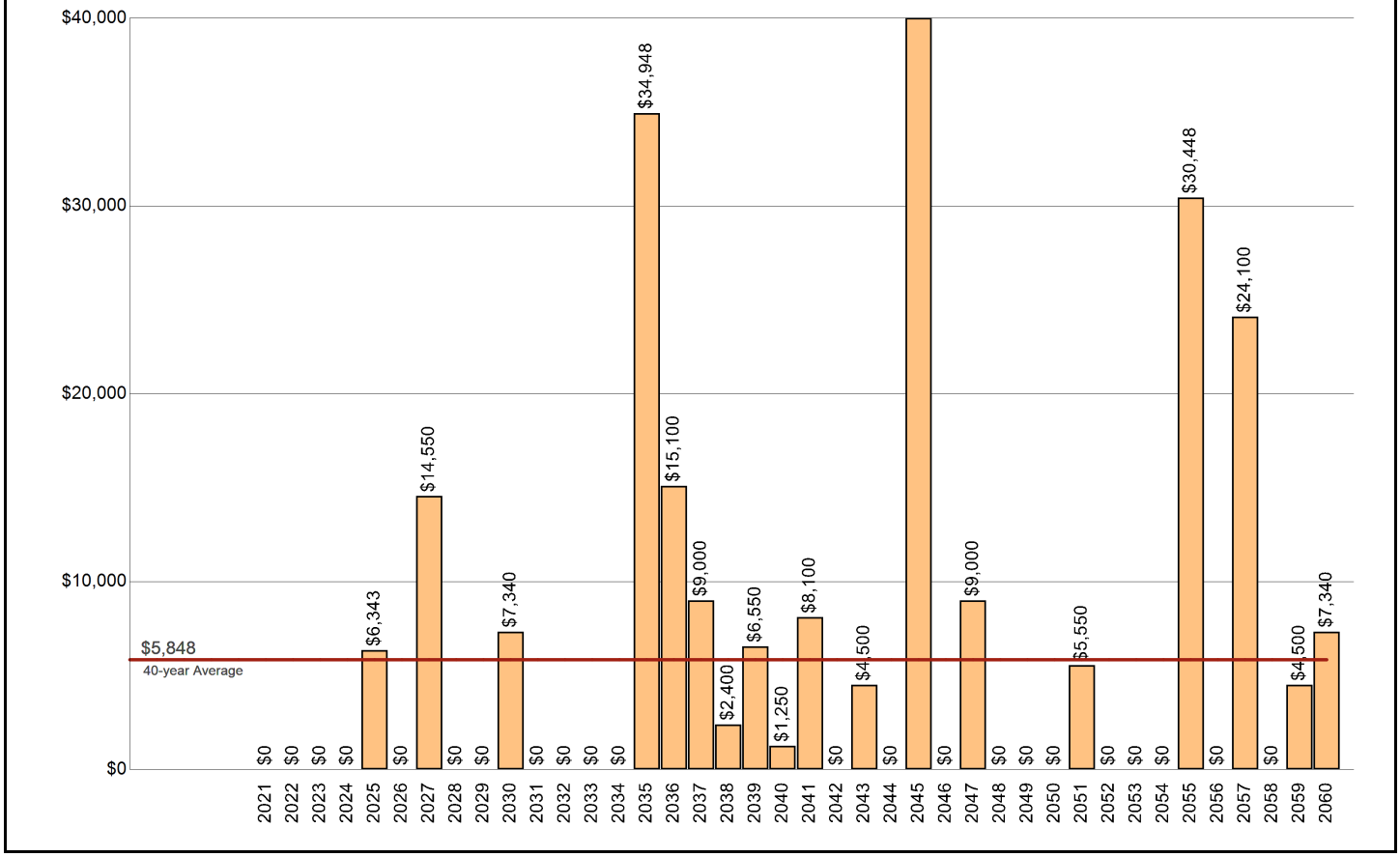
The Replacement Reserve Inventory has been developed in compliance with the National Reserve Study Standards for a Level Two Study, as defined by the Community Associations Institute (CAI).

$233,932 **REPLACEMENT RESERVE INVENTORY - PROJECTED REPLACEMENTS**

The Sample High Rise - Skyclub Replacement Reserve Inventory identifies 21 items that will require periodic replacement, that are to be funded from Replacement Reserves. We estimate the cost of these replacements will be $233,932 over the 40-year Study Period. The Projected Replacements are divided into 1 major categories starting on Page B3.3. Pages B3.1-B3.2 provide detailed information on the Replacement Reserve Inventory.

#2 - Annual Expenditures for Projected Replacements Graph

This graph shows annual expenditures for Projected Replacements over the 40-year Study Period. The red line shows the average annual expenditure of $66,434. Section C3 provides a year by year Calendar of these expenditures.



UPDATING

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 A3.4 and A3.5. The Projected Replacements listed on Page C3.2 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 A3.5.

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 A3.5.

ANNUAL EXPENDITURES AND CURRENT FUNDING

The annual expenditures that comprise the $233,932 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.

#3 - Table of Annual Expenditures and Current Funding Data - Years 1 through 40

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$27,787									
Projected Replacements					($6,343)		($14,550)			($7,340)
Annual Deposit	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452
End of Year Balance	$32,239	$36,691	$41,143	$45,595	$43,705	$48,157	$38,059	$42,511	$46,963	$44,075
Cumulative Expenditures					($6,343)	($6,343)	($20,893)	($20,893)	($20,893)	($28,233)
Cumulative Receipts	$32,239	$36,691	$41,143	$45,595	$50,047	$54,499	$58,951	$63,403	$67,855	$72,307
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements					($34,948)	($15,100)	($9,000)	($2,400)	($6,550)	($1,250)
Annual Deposit	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452
End of Year Balance	$48,527	$52,979	$57,431	$61,883	$31,387	$20,739	$16,191	$18,243	$16,145	$19,347
Cumulative Expenditures	($28,233)	($28,233)	($28,233)	($28,233)	($63,180)	($78,280)	($87,280)	($89,680)	($96,230)	($97,480)
Cumulative Receipts	$76,759	$81,211	$85,663	$90,115	$94,567	$99,019	$103,471	$107,923	$112,375	$116,827
Year	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements	($8,100)		($4,500)		($42,915)		($9,000)			
Annual Deposit	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452
End of Year Balance	$15,699	$20,151	$20,103	$24,555	($13,908)	($9,456)	($14,004)	($9,552)	($5,100)	($648)
Cumulative Expenditures	($105,580)	($105,580)	($110,080)	($110,080)	($152,995)	($152,995)	($161,995)	($161,995)	($161,995)	($161,995)
Cumulative Receipts	$121,279	$125,731	$130,183	$134,635	$139,087	$143,539	$147,991	$152,443	$156,895	$161,347
Year	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**
Projected Replacements	($5,550)				($30,448)		($24,100)		($4,500)	($7,340)
Annual Deposit	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452	$4,452
End of Year Balance	($1,746)	$2,707	$7,159	$11,611	($14,385)	($9,933)	($29,581)	($25,129)	($25,177)	($28,065)
Cumulative Expenditures	($167,545)	($167,545)	($167,545)	($167,545)	($197,992)	($197,992)	($222,092)	($222,092)	($226,592)	($233,932)
Cumulative Receipts	$165,799	$170,251	$174,703	$179,155	$183,607	$188,059	$192,511	$196,963	$201,415	$205,867

EVALUATION OF CURRENT FUNDING

The evaluation of Current Funding (Starting Balance of $27,787 & annual funding of $4,452), 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 21 Projected Replacements identified in the Replacement Reserve Inventory and that the Association will continue Annual Funding of $4,452 throughout the 40-year Study Period.

Annual Funding of $4,452 is approximately 82 percent of the $5,408 recommended Annual Funding calculated by the Cash Flow Method for 2021, the Study Year.

The progression and effect of continued Current Annual Funding coupled with this studies Projected Replacements over the Study Period are evaluated in Table 3 above. Maintaining Current Annual Funding may result in inadequate End of Year Balances, noted in red.

See the Executive Summary for the Current Funding Statement.

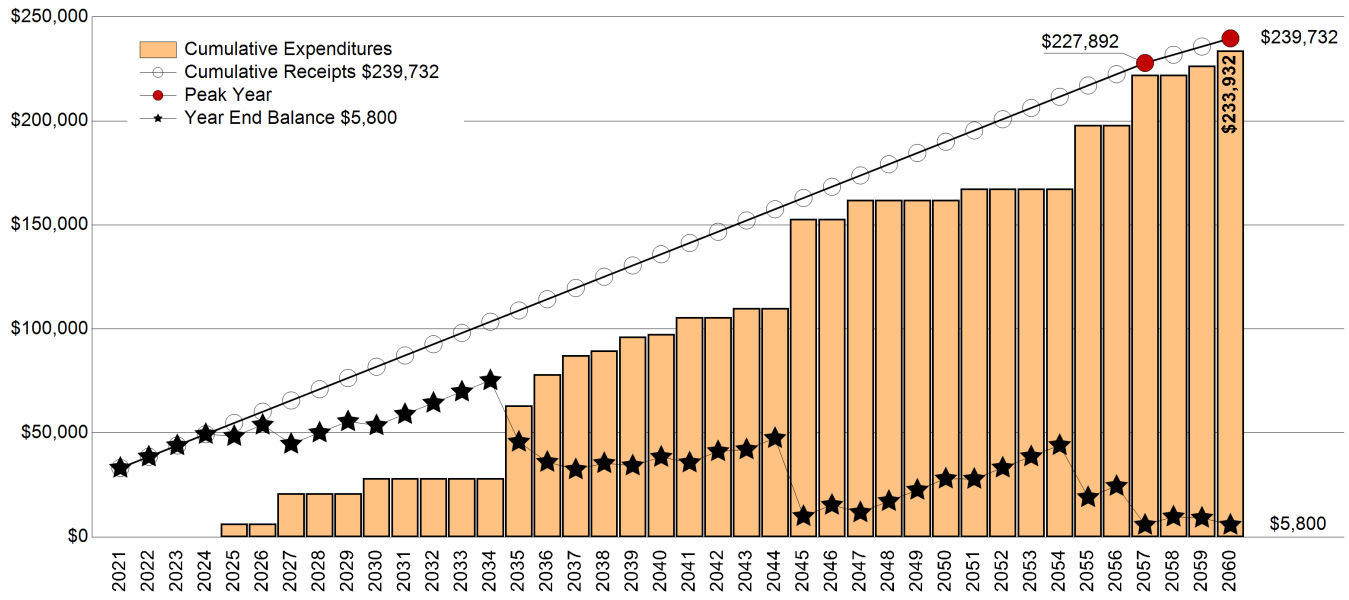
CASH FLOW METHOD FUNDING

$5,408 **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR 2021**
$0.91 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 2057 with Replacement Reserves on Deposit dropping to the Minimum Balance after the completion of $222,092 of replacements from 2021 to 2057. Recommended funding is anticipated to decline in 2058. Peak Years are identified in Chart 4 and Table 5.
- Minimum Balance. The calculations assume a Minimum Balance of $5,800 will always be held in reserve, which is calculated by rounding the 12-month 40-year average annual expenditure of $5,848 as shown on Graph #2.
- Cash Flow Method Study Period. Cash Flow Method calculates funding for $233,932 of expenditures over the 40-year Study Period. It does not include funding for any projects beyond 2060 and in 2060, the end of year balance will always be the Minimum Balance.

#4 - Cash Flow Method - Graph of Cumulative Receipts and Expenditures - Years 1 through 40



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

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Starting Balance	$27,787									
Projected Replacements					($6,343)		($14,550)			($7,340)
Annual Deposit	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408
End of Year Balance	$33,195	$38,603	$44,012	$49,420	$48,486	$53,894	$44,752	$50,160	$55,569	$53,637
Cumulative Expenditures					($6,343)	($6,343)	($20,893)	($20,893)	($20,893)	($28,233)
Cumulative Receipts	$33,195	$38,603	$44,012	$49,420	$54,828	$60,236	$65,645	$71,053	$76,461	$81,869
Year	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Projected Replacements					($34,948)	($15,100)	($9,000)	($2,400)	($6,550)	($1,250)
Annual Deposit	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408
End of Year Balance	$59,045	$64,453	$69,862	$75,270	$45,731	$36,039	$32,447	$35,455	$34,314	$38,472
Cumulative Expenditures	($28,233)	($28,233)	($28,233)	($28,233)	($63,180)	($78,280)	($87,280)	($89,680)	($96,230)	($97,480)
Cumulative Receipts	$87,278	$92,686	$98,094	$103,502	$108,911	$114,319	$119,727	$125,135	$130,544	$135,952
Year	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Projected Replacements	($8,100)		($4,500)		($42,915)		($9,000)			
Annual Deposit	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408
End of Year Balance	$35,780	$41,188	$42,097	$47,505	$9,999	$15,407	$11,815	$17,223	$22,632	$28,040
Cumulative Expenditures	($105,580)	($105,580)	($110,080)	($110,080)	($152,995)	($152,995)	($161,995)	($161,995)	($161,995)	($161,995)
Cumulative Receipts	$141,360	$146,768	$152,177	$157,585	$162,993	$168,401	$173,810	$179,218	$184,626	$190,034
Year	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**1st Peak - 2057**	**2058**	**2059**	**2nd Peak - 2060**
Projected Replacements	($5,550)				($30,448)		($24,100)		($4,500)	($7,340)
Annual Deposit	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$5,408	$3,947	$3,947	$3,947
End of Year Balance	$27,898	$33,306	$38,715	$44,123	$19,084	$24,492	$5,800	$9,747	$9,193	$5,800
Cumulative Expenditures	($167,545)	($167,545)	($167,545)	($167,545)	($197,992)	($197,992)	($222,092)	($222,092)	($226,592)	($233,932)
Cumulative Receipts	$195,443	$200,851	$206,259	$211,667	$217,076	$222,484	$227,892	$231,839	$235,785	$239,732

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.

$5,408 **2021 - CASH FLOW METHOD RECOMMENDED FUNDING**

The 2021 Study Year calculations have been made using current replacement costs (see Page B3.2), modified by the Analyst for any project specific conditions.

$5,533 **2022 - INFLATION ADJUSTED FUNDING**

A new analysis calculates the 2022 funding based on three assumptions:

- Replacement Reserves on Deposit totaling $33,195 on January 1, 2022.
- No Expenditures from Replacement Reserves in 2021.
- Construction Cost Inflation of 2.30 percent in 2021.

The $5,533 inflation adjusted funding in 2022 is a 2.30 percent increase over the non-inflation adjusted funding of $5,408.

$5,660 **2023 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $33,422 on January 1, 2023.
- No Expenditures from Replacement Reserves in 2022.
- Construction Cost Inflation of 2.30 percent in 2022.

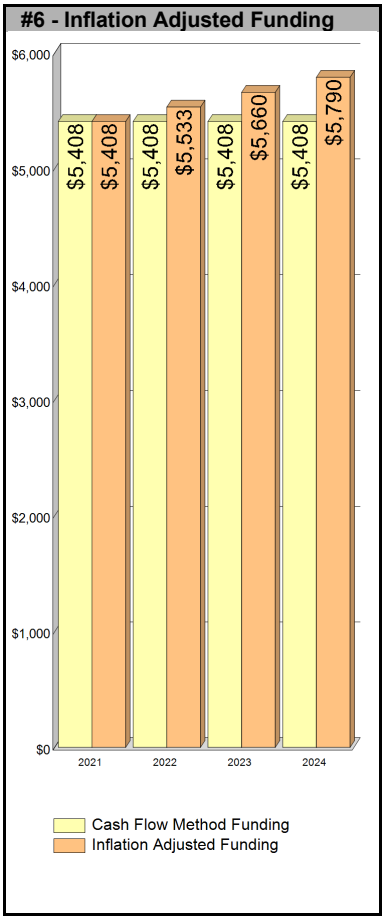
The $5,660 inflation adjusted funding in 2023 is a 4.65 percent increase over the non-inflation adjusted funding of $5,408.

$5,790 **2024 - INFLATION ADJUSTED FUNDING**

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

- Replacement Reserves on Deposit totaling $33,731 on January 1, 2024.
- No Expenditures from Replacement Reserves in 2023.
- Construction Cost Inflation of 2.30 percent in 2023.

The $5,790 inflation adjusted funding in 2024 is a 7.05 percent increase over the non-inflation adjusted funding of $5,408.



Year Five 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 2022, 2023 and 2024 inflation-adjusted funding calculations above, the 2.30 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 2021, based on a 1.00 percent interest rate, we estimate the Association may earn $305 on an average balance of $30,491, $333 on an average balance of $33,309 in 2022, and $336 on $33,576 in 2023. The Association may elect to attribute 100 percent of the earned interest to Reserves, resulting in a reduction in the 2021 funding from $5,408 to $5,103 (a 5.63 percent reduction), $5,533 to $5,200 in 2022 (a 6.02 percent reduction), and $5,660 to $5,324 in 2023 (a 5.93 percent reduction).

REPLACEMENT RESERVE STUDY - SUPPLEMENTAL COMMENTS

- The Cash Flow Method calculates the minimum annual funding necessary to prevent Replacement Reserves from dropping below the Minimum Balance, as defined on Page A4. Failure to fund at least the recommended levels may result in funding not being available for the Projected Replacements listed in the Replacement Reserve Inventory.
- The accuracy of the Replacement Reserve Analysis is dependent upon expenditures from Replacement Reserves being made ONLY for the 21 Projected Replacements specifically listed in the Replacement Reserve Inventory. The inclusion/exclusion of items from the Replacement Reserve Inventory is discussed on Page B3.1.

REPLACEMENT RESERVE INVENTORY
GENERAL INFORMATION

Sample High Rise - Skyclub - Replacement Reserve Inventory identifies 21 Projected Replacements.

- PROJECTED REPLACEMENTS. 21 of the items 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 $113,959. Cumulative Replacements totaling $233,932 are scheduled in the Replacement Reserve Inventory over the 40-year Study Period.

  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. 2 of the items included 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 B3.2.

  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 21 items included in the Sample High Rise - Skyclub Replacement Reserve Inventory are divided into 1 major categories. Each category is printed on a separate page, beginning on page B3.3.

- 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 . 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 21 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.

- REVIEW OF EXPENDITURES. This Replacement Reserve Study should be reviewed by an accounting professional representing the Association prior to implementation.

- 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.

INTERIOR 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	Tile Floor, tuckpoint, 20%	sf	139	$7.50	10	4	$1,043
2	Tile Floor, replace	sf	696	$42.00	30	24	$29,232
	Flooring, wood						EXCLUDED
	Flooring, wood						EXCLUDED
3	Carpet	sf	1,200	$7.50	10	6	$9,000
4	Sliding Glass Doors, single	ea	2	$1,200.00	25	17	$2,400
5	Wood Panels, wall covering	sf	80	$21.00	20	14	$1,680
6	Wood Doors	ea	5	$825.00	20	14	$4,125
7	Throw rugs	sf	248	$5.00	15	9	$1,240
8	Bathroom Renovations	ea	2	$3,600.00	20	14	$7,200
9	Kitchen Renovation	ls	1	$5,500.00	24	18	$5,500
10	Kitchen Appliances	ls	1	$1,050.00	12	6	$1,050
11	Millwork	ls	1	$1,500.00	21	15	$1,500
12	Wine Storage Cabinets	ls	1	$2,600.00	21	15	$2,600
13	Wine Storage Cabinets (new)	ls	1	$2,600.00	21	20	$2,600
14	Window Coverings	ls	1	$6,100.00	15	9	$6,100
15	Furniture, soft goods	ls	1	$5,300.00	10	4	$5,300
16	Furniture, hard goods	ls	1	$11,000.00	21	15	$11,000
17	Pool Table	ea	1	$5,500.00	21	20	$5,500
				Replacement Costs - Page Subtotal			$97,070

COMMENTS

- Flooring, wood - [01/21/2021] excluded per board
- Flooring, wood - [01/21/2021] excluded per board
- Item #13: Wine Storage Cabinets (new) - New Wine Storage Cabinets installed in 2017
- Item #15: Furniture, soft goods - Furniture soft goods include (2) sectional sofas and (6) throw pillows
- Item #16: Furniture, hard goods - Furniture hard goods include (8) swivel chairs, (14) bar stools, (1) wood bench, (3) coffee tables, (5) planters, and (1) wall hung mirror
- Item #17: Pool Table - New game/meeting table installed in 2016.

INTERIOR ITEMS - (cont.)

PROJECTED REPLACEMENTS

NEL- Normal Economic Life (yrs)
REL- Remaining Economic Life (yrs)

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
18	Flat panel TV - 80" screen	ea	1	$4,500.00	8	6	$4,500
19	Heat Pump, 60k BTU	ea	1	$4,800.00	20	14	$4,800
20	Exhaust Fan	ea	1	$1,250.00	25	19	$1,250
21	Recessed ceiling & track lights	ea	42	$150.00	20	14	$6,300

Replacement Costs - Page Subtotal $16,850

COMMENTS

- Item #18: Flat panel TV - 80" screen - New big screen TV was installed in 2016

VALUATION EXCLUSIONS

Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Property identification signage						EXCLUDED
	Miscellaneous signage						EXCLUDED
	Fire extinguisher cabinet						EXCLUDED
	Signage						EXCLUDED
	Interior doors						EXCLUDED

VALUATION EXCLUSIONS

Comments

- 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.

- The list above exemplifies exclusions by the cited standard(s) and is not intended to be comprehensive.

LONG-LIFE EXCLUSIONS
Excluded Items

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST ($)	NEL	REL	REPLACEMENT COST ($)
	Building foundation(s)						EXCLUDED
	Concrete floor slabs (interior)						EXCLUDED
	Wall, floor, and roof structure						EXCLUDED
	Common element electrical services						EXCLUDED
	Electrical wiring						EXCLUDED
	Water piping at common facilities						EXCLUDED
	Waste piping at common facilities						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 ($)	NEL	REL	REPLACEMENT COST ($)
	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
	Unit interior						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 ($)	NEL	REL	REPLACEMENT COST ($)
	Primary electric feeds						EXCLUDED
	Electric transformers						EXCLUDED
	Cable TV systems and structures						EXCLUDED
	Telephone cables and structures						EXCLUDED
	Gas mains and meters						EXCLUDED
	Water 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 ($)	NEL	REL	REPLACEMENT COST ($)
	Striping of parking spaces						EXCLUDED
	Numbering of parking spaces						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 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.

PROJECTED ANNUAL REPLACEMENTS
GENERAL INFORMATION

CALENDAR OF ANNUAL REPLACEMENTS. The 21 Projected Replacements in the Sample High Rise - Skyclub 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 C3.2.

REPLACEMENT RESERVE ANALYSIS AND INVENTORY POLICIES, PROCEDURES, AND ADMINISTRATION

- 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.
- 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.
- 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.

PROJECTED REPLACEMENTS

Item	2021 - Study Year	$

No Scheduled Replacements

Item	2022 - YEAR 1	$

No Scheduled Replacements

Item	2023 - YEAR 2	$

No Scheduled Replacements

Item	2024 - YEAR 3	$

No Scheduled Replacements

Item	2025 - YEAR 4	$
1	Tile Floor, tuckpoint, 20%	$1,043
15	Furniture, soft goods	$5,300
Total Scheduled Replacements		$6,343

Item	2026 - YEAR 5	$

No Scheduled Replacements

Item	2027 - YEAR 6	$
3	Carpet	$9,000
10	Kitchen Appliances	$1,050
18	Flat panel TV - 80" screen	$4,500
Total Scheduled Replacements		$14,550

Item	2028 - YEAR 7	$

No Scheduled Replacements

Item	2029 - YEAR 8	$

No Scheduled Replacements

Item	2030 - YEAR 9	$
7	Throw rugs	$1,240
14	Window Coverings	$6,100
Total Scheduled Replacements		$7,340

PROJECTED REPLACEMENTS

Item	2031 - YEAR 10	$

No Scheduled Replacements

Item	2032 - YEAR 11	$

No Scheduled Replacements

Item	2033 - YEAR 12	$

No Scheduled Replacements

Item	2034 - YEAR 13	$

No Scheduled Replacements

Item	2035 - YEAR 14	$
1	Tile Floor, tuckpoint, 20%	$1,043
5	Wood Panels, wall covering	$1,680
6	Wood Doors	$4,125
8	Bathroom Renovations	$7,200
15	Furniture, soft goods	$5,300
18	Flat panel TV - 80" screen	$4,500
19	Heat Pump, 60k BTU	$4,800
21	Recessed ceiling & track lights	$6,300
Total Scheduled Replacements		$34,948

Item	2036 - YEAR 15	$
11	Millwork	$1,500
12	Wine Storage Cabinets	$2,600
16	Furniture, hard goods	$11,000
Total Scheduled Replacements		$15,100

Item	2037 - YEAR 16	$
3	Carpet	$9,000
Total Scheduled Replacements		$9,000

Item	2038 - YEAR 17	$
4	Sliding Glass Doors, single	$2,400
Total Scheduled Replacements		$2,400

Item	2039 - YEAR 18	$
9	Kitchen Renovation	$5,500
10	Kitchen Appliances	$1,050
Total Scheduled Replacements		$6,550

Item	2040 - YEAR 19	$
20	Exhaust Fan	$1,250
Total Scheduled Replacements		$1,250

PROJECTED REPLACEMENTS

Item	2041 - YEAR 20	$
13	Wine Storage Cabinets (new)	$2,600
17	Pool Table	$5,500
Total Scheduled Replacements		$8,100

Item	2042 - YEAR 21	$
No Scheduled Replacements		

Item	2043 - YEAR 22	$
18	Flat panel TV - 80" screen	$4,500
Total Scheduled Replacements		$4,500

Item	2044 - YEAR 23	$
No Scheduled Replacements		

Item	2045 - YEAR 24	$
1	Tile Floor, tuckpoint, 20%	$1,043
2	Tile Floor, replace	$29,232
7	Throw rugs	$1,240
14	Window Coverings	$6,100
15	Furniture, soft goods	$5,300
Total Scheduled Replacements		$42,915

Item	2046 - YEAR 25	$
No Scheduled Replacements		

Item	2047 - YEAR 26	$
3	Carpet	$9,000
Total Scheduled Replacements		$9,000

Item	2048 - YEAR 27	$
No Scheduled Replacements		

Item	2049 - YEAR 28	$
No Scheduled Replacements		

Item	2050 - YEAR 29	$
No Scheduled Replacements		

PROJECTED REPLACEMENTS

Item	2051 - YEAR 30	$
10	Kitchen Appliances	$1,050
18	Flat panel TV - 80" screen	$4,500
	Total Scheduled Replacements	$5,550

Item	2052 - YEAR 31	$
	No Scheduled Replacements	

Item	2053 - YEAR 32	$
	No Scheduled Replacements	

Item	2054 - YEAR 33	$
	No Scheduled Replacements	

Item	2055 - YEAR 34	$
1	Tile Floor, tuckpoint, 20%	$1,043
5	Wood Panels, wall covering	$1,680
6	Wood Doors	$4,125
8	Bathroom Renovations	$7,200
15	Furniture, soft goods	$5,300
19	Heat Pump, 60k BTU	$4,800
21	Recessed ceiling & track lights	$6,300
	Total Scheduled Replacements	$30,448

Item	2056 - YEAR 35	$
	No Scheduled Replacements	

Item	2057 - YEAR 36	$
3	Carpet	$9,000
11	Millwork	$1,500
12	Wine Storage Cabinets	$2,600
16	Furniture, hard goods	$11,000
	Total Scheduled Replacements	$24,100

Item	2058 - YEAR 37	$
	No Scheduled Replacements	

Item	2059 - YEAR 38	$
18	Flat panel TV - 80" screen	$4,500
	Total Scheduled Replacements	$4,500

Item	2060 - YEAR 39	$
7	Throw rugs	$1,240
14	Window Coverings	$6,100
	Total Scheduled Replacements	$7,340

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CONDITION ASSESSMENT

General Comments. Miller+Dodson Associates conducted a Reserve Study at Sample High Rise - Skyclub in December 2020. Sample High Rise - Skyclub is in generally excellent condition for a residential condominium constructed in 2010. A review of the Replacement Reserve Inventory will show that we are anticipating most of the components achieving their normal economic lives.

SkyClub - For the SkyClub all interior finishes are included to include furniture, pool table, and a flat-screen TV. Sliding glass doors to balconies along with window coverings are included. Renovations to bathrooms and the kitchen area are included. Also included are the mechanical fan coil unit, exhaust fan, and lighting for the Skyclub.

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.

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.

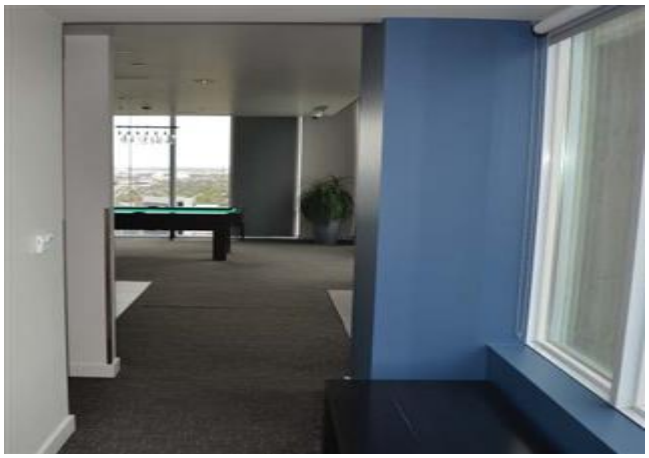
Poor. 10% to 0% of Normal Economic Life expected, with significant distress and wear. Left unattended, additional damage to underlying structures is likely to occur. Further maintenance is unlikely to be cost effective.

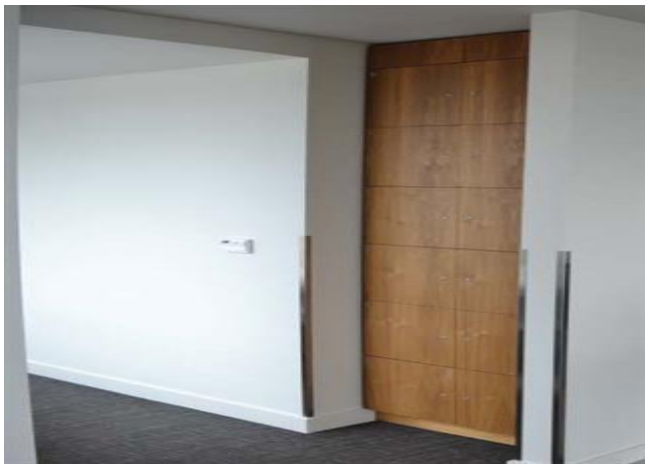
INTERIOR ITEMS

Tile Floors. Tile floors are found on the 1st floor and 9th-floor lobbies and in the elevator lobbies on the 1st through 9th floors. Tile flooring and walls can also be found in the common restrooms. These floors walls have an extended life but may need occasional regrouting of joints. A full replacement has been included to allow for replacement due to failure or to allow for changes in the décor.

Carpet. Carpet in the common areas is found in the hallways, lounges, media room, and the fitness center. The carpet was installed as large carpet tiles. This does allow for easy replacement should an area be damaged or stained. The carpet will still have a useful life of about 10 years. Since it would be difficult to replace the hallway carpet on 33 floors all in one year this work has been broken into a 5 year period where either 6 or 7 floors would be done in a year and the work would coincide with the fabric wall covering for that floor.

Glass Sliding Glass Door. The sliding glass door has some of the same features and failure problems and the glass exterior, but they also fail at the track system which allows them to move and operate. The study assumes that ten percent of the sliding glass doors will fail and be replaced in 5 year intervals.





Fan Coil Units. HVAC to the lounges, media center, fitness center, and electrical rooms is provided by multiple heat pump style FCUs. The FCUs are located above the ceiling of all common spaces except the electrical rooms. The FCUs use the condenser water from the cooling towers or flat-plate heat exchangers with an internal DX heating cooling compressor and coil to either heat or cool the space.

Exhaust Fans. Numerous large fans provide exhaust from the hallways, elevator shafts, and other common areas. There are also exhaust fans for the public restrooms.

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 elements of the property to ascertain the remaining useful life and the replacement costs of these common elements. 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 community facilities and infrastructure around many of 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 500 Community Associations in the United States. According to the 1990 U.S. Census, there were 130,000 Community Associations. The Community Associations Institute (CAI), a national trade association, estimates in 2018 that there were more than 347,000 communities with over 73.5 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 problems. Although Community Associations have succeeded in solving many short-term problems, many Associations have failed to properly plan for the tremendous expenses of replacing community facilities and infrastructure components. When inadequate replacement reserve funding results in less than timely replacements of failing components, home owners are exposed to the burden of special assessments, major increases in Association fees, and 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 replacement, a general view of the condition of these components, and an effective financial plan to fund projected periodic replacements. The Replacement Reserve Study consists of the following:

Replacement Reserve Study Introduction. The introduction provides a description of the property, reviews the intent of the Replacement Reserve Study, and lists documents and site evaluations upon which the Replacement Reserve Study is based.

Section A Replacement Reserve Analysis. Many components owned by the Association have a limited life and require periodic replacement. Therefore, it is essential the Association have a financial plan that provides funding for the timely replacement of these components in order to protect the safety, appearance, and value of the community. In conformance with American Institute of Certified Public Accountant guidelines, a Replacement Reserve Analysis evaluates the current funding of Replacement Reserves as reported by the Association and recommends annual funding of Replacement Reserves by two generally accepted accounting methods; the Cash Flow Method and the Component Method. Miller+Dodson provides a replacement reserve recommendation based on the Cash Flow Method in Section A, and the Component Method in the Appendix of the report.

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.

The Replacement Reserve Inventory also provides information about components excluded from the Replacement Reserve Inventory whose replacement is not scheduled for funding from Replacement Reserves. Replacement Reserve Inventory includes estimates of the normal economic life and the remaining economic life for those components whose replacement is scheduled for funding from Replacement Reserves.

Section C 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. Several of the 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 during 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.). The Appendix also includes the Accounting Summary for the Cash Flow Method and the Component Method.

3. METHODS OF ANALYSIS

The Replacement Reserve industry generally recognizes two different methods of accounting for Replacement Reserve Analysis. Due to the difference in accounting methodologies, these methods lead to different calculated values for the Minimum Annual Contribution to the Reserves. The results of both methods are presented in this report. The Association should obtain the advice of its accounting professional as to which method is more appropriate for the Association. The two methods are:

Cash Flow Method. The Cash Flow Method is sometimes referred to as the "Pooling Method." It calculates the minimum constant annual contribution to reserves (Minimum Annual Deposit) required to meet projected expenditures without allowing total reserves on hand to fall below the specified minimum level in any year.

First, the Minimum Recommended Reserve Level to be Held on Account is determined based on the age, condition, and replacement cost of the individual components. The mathematical model then allocates the estimated replacement costs to the future years in which they are projected to occur. Based on these expenditures, it then calculates the minimum constant yearly contribution (Minimum Annual Deposit) to the reserves necessary to keep the reserve balance at the end of each year above the Minimum Recommended Reserve Level to be Held on Account. The Cash Flow Analysis assumes that the Association will have authority to use all of the reserves on hand for replacements as the need occurs. This method usually results in a Minimum Annual Deposit that is less than that arrived at by the Component Method.

Component Method. This method is a time tested mathematical model developed by HUD in the early 1980s, but has been generally relegated to a few States that require it by law. For the vast majority of Miller+Dodson's clients, this method is not used.

The Component Method treats each item in the replacement schedule as an individual line item budget. Generally, the Minimum Annual Contribution to Reserves is higher when calculated by the Component Method. The mathematical model for this method works as follows:

First, the total Current Objective is calculated, which is the reserve amount that would have accumulated had all of the items on the schedule been funded from initial construction at their current replacement costs. Next, the Reserves Currently on Deposit (as reported by the Association) are distributed to the components in the schedule in proportion to the Current Objective. The Minimum Annual Deposit for each component is equal to the Estimated Replacement Cost, minus the Reserves on Hand, divided by the years of life remaining.

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 individuals responsible for maintaining the community after acceptance of our proposal. After completion of the Study, the Study should be reviewed by the Board of Directors, individuals responsible for maintaining the community, and the Association's accounting professionals. We are dependent upon the Association for correct information, documentation, and drawings.

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 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 Method, above.

Component Analysis. See Component Method, above.

Contingency. An allowance for unexpected requirements. Roughly the same as the Minimum Recommended Reserve Level to be Held on Account used in the Cash Flow Method of analysis.

Critical Year. In the Cash Flow Method, a year in which the reserves on hand are projected to fall to the established minimum level. See Minimum Recommended Reserve Level to be Held on Account.

Current Objective. This is the reserve amount that would have accumulated had the item been funded from initial construction at its current replacement cost. It is equal to the estimated replacement cost divided by the estimated economic life, times the number of years expended (the difference between the Estimated Economic Life and the Estimated Life Left). The Total Current Objective can be thought of as the amount of reserves the Association should now have on hand based on the sum of all of the Current Objectives.

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.

Estimated Initial Replacement. For a Cyclic Replacement Item (see above), the number of years until the replacement cycle is expected to begin. Estimated Replacement Cycle. For a Cyclic Replacement Item, the number of years over which the remainder of the component's replacement occurs.

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 Deposit in the Study Year. Shown on the Summary Sheet A1. The calculated requirement for contribution to reserves in the study year as calculated by the Component Method (see above).

Minimum Balance. Shown on the Summary Sheet A4, this amount is used in the Cash Flow Method only. Normally derived using the average annual expenditure over the study period, this is the minimum amount held in reserves for every year in the study period.

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.)

Normal Replacement Schedules. The list of Normal Replacement Items by category or location. These items appear on pages designated.

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. This study covers a 40-year period.

One Time Deposit Required to Fully Fund Reserves. Shown on the Summary Sheet A1 in the Component Method summary, this is the difference between the Total Current Objective and the Reserves Currently on Deposit.

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.

Reserves on Hand. Shown in the Cyclic Replacement and Normal Replacement Schedules, this is the amount of reserves allocated to each component item in the Cyclic or Normal Replacement schedules. This figure is based on the ratio of Reserves Currently on Deposit divided by the total Current Objective.

Replacement Reserve Study. An analysis of all of the components of the common property of the Association for which a need for replacement should be anticipated within the economic life of the property as a whole. The analysis involves estimation for each component of its estimated Replacement Cost, Estimated Economic Life, and Estimated Life Left. The objective of the study is to calculate a recommended annual contribution 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:

ea	each	**ls**	lump sum	**sy**	square yard
ft or lf	linear foot	**pr**	pair	**cy**	cubic yard
sf	square foot				

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/40SodajTW1g

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

https://youtu.be/pYSMZO13VjQ

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

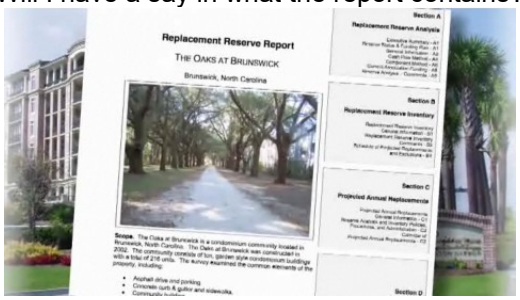
What is my role as a community Board Member?
Will a Reserve Study meet my needs?

https://youtu.be/aARD1B1Oa3o

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

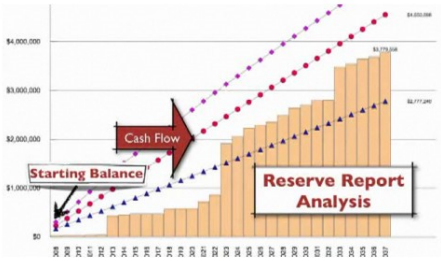
https://youtu.be/diZfM1IyJYU

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?

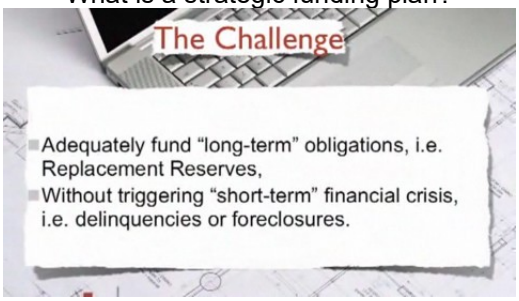


https://youtu.be/SePdwVDvHWI

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

https://youtu.be/W8CDLwRIv68

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



https://youtu.be/hIxV9X1tIcA