



Sample Reserve Study

Acme City, USA

Level I Full Reserve Study (With Site-Visit)

Fiscal Year: 2022

Report#: Sample

Version: Final

Reserve Data Analyst, Inc.

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Sample Reserve Study Introduction

Thank you for utilizing the services of Reserve Data Analyst for your reserve study. We strive to create a comprehensive report that can be utilized for your budgeting needs. If there are any questions, concerns, corrections, or revisions needed please do not hesitate to call or email us. While this study does have some explanations of the methodology used, we have kept it to a minimum for brevity. More detailed explanations of methodology & concepts are explained in our Reserve Study Guidebook available at the following link:



www.reservedataanalyst.com/guidebook

The recommendations for the allocation rates of the different funding models are only for the beginning year of this reserve study; all future years are projections which are educated guesses and have numerous assumptions (e.g., inflation, proper maintenance, proper installation, known reserve account balances, etc.) built into the models. The further out in time a reader of the study goes, the less reliable the projections are likely to be. Note that therefore the recommendations for the first fiscal year in the study are based on current cost and current useful life estimates levels as opposed to future cost and future useful life projections.

From year to year the recommendations of the reserve analyst will typically change (sometimes significantly) based on variables such as what projects have been done, what projects has been deferred, changes to the allocation rate, changes to the starting balance, changes to the component list, actual inflation rate figure (versus projections), maintenance or lack of maintenance of components, etc. Annual updates to the study help to incorporate change to these variables as they occur so changes to the recommendations are less significant than if updates are done infrequently.

There are a couple of tips to consider that will help you both navigate this study and understand the different sections within the study:

- ❏ **Study Navigation** - To navigate this study more easily, we recommend printing out the Table of Contents page at the beginning of the study and the Component Index pages at the rear of the study. We have found it easiest for most readers to have the PDF of this study open on their computer while referring to the printed-out Table of Contents and Component Index pages.

Within this reserve study you will find:

- ❏ A list of common questions that a typical reader of our reserve study will have, as well as links to additional information on the topics: (*Reserve Study Knowledge Base*)
- ❏ A list of the site and building components that are reportedly the Client's responsibility along with their respective costs and quantity: (*The Component List*)
- ❏ A timeline of the estimated dates that we recommend funds be allocated to the repair/replacement project. (*Projected Expenditures Report*)
- ❏ Various funding models with different goals in mind. (*Summary and Projections for each Funding Model*)

Sample Reserve Study Executive Summary

Name	Sample Reserve Study
Location	Acme City, USA
Contributing Members	5
Base Year / Age	January 1, 2002
Fiscal Year Ends	December 31, 2022

Level of Service	Level I Full Reserve Study (With Site-Visit)
Prepared for Fiscal Year	2022
Last On-Site Inspection Date	October 14, 2021
Inflation Rate for Projections	3.00%
*Interest Rate for Projections	1.00%
*Tax Rate on Interest Earned	30.0%
Funding Plan Method	Inflation Adjusted Pooled Cash Flow Method

Reserve Account Summary

Current Percent Funded <small>(as of January 1, 2022)</small> <div style="font-size: 2em; font-weight: bold;">48%</div> <div style="display: flex; justify-content: space-around; font-size: 0.8em;"> 0-30% Low 30-70% Fair 70-100% Good </div>	Fiscal Year Beginning Fully Funded Balance	\$18,738
	*Estimated FY Start Balance	\$9,000
	Total Reserve Account Surplus or (Deficit)	(9,738)
	Avg. Surplus or (Deficit) Per Contributing Member	(1,948)
	*Current Annual Reserve Allocation Rate	\$1,050 per year
	*Approved Special Assessments	None in fiscal year 2022.
	*Approved Loans	None in fiscal year 2022.

5-Year Summary - Annual Reserve Allocation Rates & Year End % Funded

	100% Funding Model		Recommended Funding Model		Baseline Funding Model		**Current Funding Model		
2022	\$11,513	100%	\$2,265	29%	\$1,459	23%	\$1,050	19%	2022
2023	\$1,917	100%	\$2,333	41%	\$1,503	30%	\$1,081	24%	2023
2024	\$2,013	101%	\$2,403	50%	\$1,548	35%	\$1,114	28%	2024
2025	\$2,113	101%	\$2,475	58%	\$1,594	40%	\$1,147	31%	2025
2026	\$2,219	101%	\$2,549	63%	\$1,642	43%	\$1,182	32%	2026
		<i>Account is at least 100% funded each year.</i>		<i>Achieve 100% funded within the timeframe of this study.</i>		<i>Reserve account above \$0 within timeframe of study.</i>		<i>Current allocation rate has been supplied by the Client.</i>	

* Data supplied by the Client, assumed to be correct and not independently verified.

**Any negative percent funded shown is for visual representation of deficiency.

Sample Reserve Study

Reserve Study Knowledge Base

What is a Reserve Study?

A reserve study is a budgeting tool that can be utilized to make more informed budgeting decisions regarding a reserve account, it is an independent assessment of the adequacy of the reserve account balance and allocation rate utilizing a mathematical formula known as the “Percent Funded” calculation.

The Reserve Analyst develops funding models that:

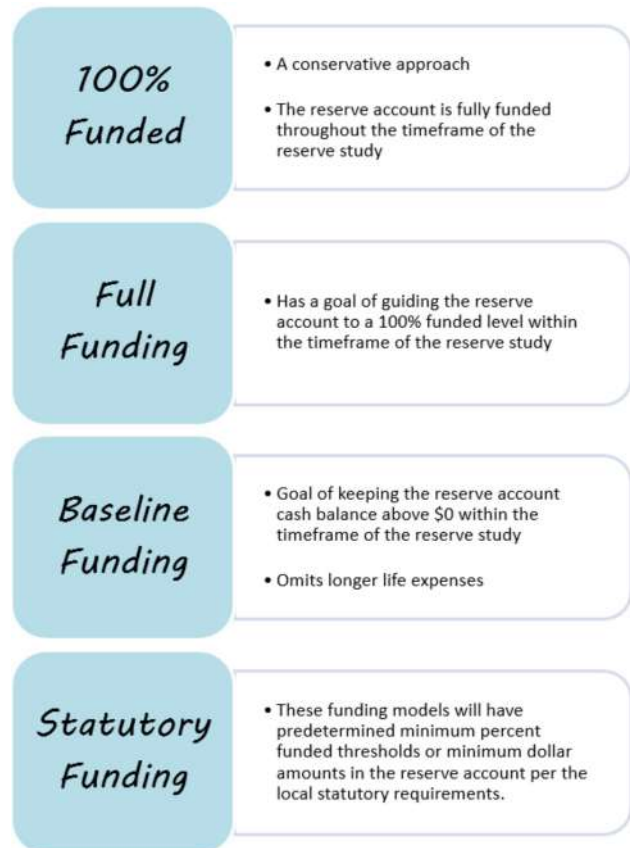
- Distribute the costs as fairly as possible over time
- Have stable budgets over time (i.e., limiting large fluctuations from one year to the next)
- Limit the risk for reliance on emergency financing or having to defer overdue projects

A Reserve Study is an independent assessment of the reserve account and is not the Budget

The reserve study is not the budget, and it should not be revised to just reflect the budgeting decisions of the Client. An example of this is to push off overdue projects that the Client may not have the funds to complete. The reserve study should reflect the replacement dates of the components utilizing average useful lives and average costs for these projects; the useful lives can be updated to reflect actual on-site conditions as the components age. Should the Client decide to defer projects that appear to be overdue this is simply a budgeting decision that carries its own risk.

How Much Should We Reserve?

There is no right or wrong answer to the question of “How Much Should We Reserve?” as the reserve contributions in all the funding models in this study are based on different funding goals. It is more appropriate to consider the risk levels associated with different funding models as each Client has different risk tolerances and challenges in enacting whatever funding model is most appropriate to them. In our opinion any funding model that projects the reserve account balance to dip to zero would not be appropriate or fiscally responsible as future emergency financing or deferring projects are typically the outcome. Below are some of the more common funding models utilized:



Sample Reserve Study

Reserve Study Knowledge Base

About Percent Funded

Percent funded is a calculation of how much is in the reserve account versus an ideal amount known as the Fully Funded Balance. The different risk levels associated with the levels of funding are explained in more depth below.



The below video link explains the Percent Funded calculation in more detail:



www.reservedataanalyst.com/pf

About the Fully Funded Balance

The Fully Funded balance is a mathematical calculation that represents the accrued deterioration of a component or a group of components at a specific point in time. It is an answer to the question of “How much should be in a reserve account at a specific point in time?” When the reserve account balance is the same as the Fully Funded Balance the reserve account is considered Fully Funded (100% Funded) at that specific point in time.

The below video link provides a more in-depth explanation of the Fully Funded balance:



www.reservedataanalyst.com/ffb

Calculating Inflation in the Reserve Study

Inflationary factors impact the project costs over time and are the main driving force that must be overcome with diligent and steadfast budgeting towards reserves. Due to the compounding impact of inflation on costs, in a relatively short period of time, a reserve account can become severely underfunded if it is not considered in the budgeting scenarios. Follow the below link to learn more about how we calculate inflationary factors (escalation of the prices) in the reserve study and some of the tools we use in the process:



www.reservedataanalyst.com/inf

Sample Reserve Study Reserve Study Knowledge Base

Component Useful Life Estimates

The useful life of components in the reserve study are predominantly based on our experiences with many different types of organizations and their respective repair and replacement cycles with building and site components. In addition to our own experiences working with many organizations over the years there is ample data available online regarding useful life estimates of building and site components. It is important to note that the estimates in the reserve study are based on averages and are not specific to any one property. Follow the below link to view some of the various useful life tables that we utilize:



www.reservedataanalyst.com/ul

Determining Component Project Costs

We utilize many sources for determining what is an appropriate component project cost in the reserve study. These can include:

- Client invoices, bids, estimates
- Our in-house database that is based on the collection of many Client invoices, bids, and estimates
- Cost manuals that, when used correctly, are very accurate for average cost figures

It's important to understand that unless we are provided actual project costs based on a client invoice/bid or estimate we utilize average costs figures that are not specific to any one Client. In the bidding process you will find that there is a ...

... large difference in price from one vendor to the next for a variety of reasons. We aim to be in the middle of these estimates unless we have Client data to incorporate into the reserve study. Future costs (projections) for the component expenses are simply inflated from current cost based on the inflation assumption in the reserve study. It is important to remember that our current recommendations are based on current project costs and not the inflated number that is utilized in the projections portion of the reserve study. The below link goes into this topic in more detail:



www.reservedataanalyst.com/cost

National Reserve Study Standards

There are two recognized organizations that dictate national reserve study standards in the industry. The Community Association's Institute and the Association of Professional Reserve Analysts award designations to those reserve study professionals that meet education & work experience, adhere to the minimum report requirements, complete ongoing continuing education courses, and abide by ethical considerations in the field. The standards for both organizations can be viewed at the links below:



www.reservedataanalyst.com/CAI



www.reservedataanalyst.com/APRA

Sample Reserve Study

Reserve Study Knowledge Base

What Components to Include in the Study?

Reserve expenses for components are major expenses which must be budgeted for in advance to provide the necessary funds in time for their occurrence. Reserve expenses are reasonably predictable both in terms of frequency and cost. They are expenses that when incurred would have a significant impact on the smooth operation of the budgetary process from one year to the next if they were not reserved for in advance.

A common concern when beginning this process is what components are to be included and funded for in the Reserve Study. Nationally recognized CAI Reserve Study Standards as well as APRA Standards of Practice dictate that the reserve components need to meet the following criteria:

- It's not already covered in the Operating Budget
- The component has a limited life expectancy
- The component has a reasonably defined remaining useful life
- As required by local statutes

When to Complete Reserve Projects?

Components should be replaced when they are no longer functioning as designed. This is best determined by your component specific Vendor who can inspect and give their best professional advice on the condition assessment and timeframe on when/what needs to be done. Note that this reserve study is ***not*** a "to do list"; it is a budgeting document with recommendations for when we suggest having the funds allocated towards the projects ...

... If something fails earlier than projected than replace it, if it lasts longer (as determined by your component specific Vendor) then take their advice as they are the professionals in their specific field. Projects should be completed when they need to be completed regardless of our projections in the study. Note that this does not mean it would be appropriate to delay projects simply because funds are not available though as that is a budgeting decision not based on component specific Vendor recommendations. A common issue we see is the delay of projects simply because there is a lack of reserve funds available, only to have a much larger and more expensive project later due to collateral damage (e.g. not replacing a roof in a timely manner, which then leaks and causes siding damage).

Ongoing Component Maintenance

While this reserve study has been developed to disclose and inform the Client of the predictable larger long-term project costs related to site and building components, there is also a need to complete regular inspections and repairs to virtually all components on much shorter cycles. These costs would typically be covered in the annual and ongoing Operating Budget (e.g. roof inspections & repairs, spot painting, sprinkler head replacement, door hardware replacement).

Virtually all the components should receive regular cycles of inspection and repairs by a qualified Vendor. Failure to complete ongoing maintenance typically leads to shorter useful lives and higher costs later. RSMeans provides a free link to common building and site component items to inspect at various corresponding time frames.

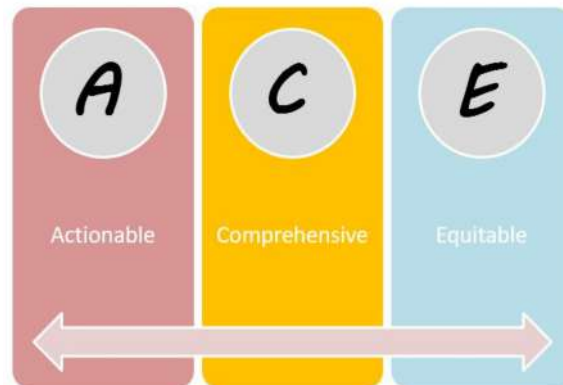


www.reservedataanalyst.com/RMeans

Sample Reserve Study Reserve Study Knowledge Base

You Have a Reserve Study Now What?... Goal Setting

Adequately budgeting for reserves is often one of the more difficult tasks our clients face. Reserve component projects are infrequent and often years down the line, making it very easy to just “deal with it later”. We have found those that are most successful with reserve budgeting goals typically follow some simple rules.



1. Actionable

Is your goal possible within the constraints & limitations of very important but often overlooked factors related to statutory requirements and the governing documents? What may seem very “Reasonable” to the Board may very well be illegal or against the governing documents.

2. Comprehensive

Your goal should be clear and specific, otherwise you won't be able to focus your efforts or feel truly motivated to achieve it. When drafting your goal, try to answer the four "W" questions - What do we want to accomplish? Why is this goal important? Who is involved? When is this goal set to occur?

3. Equitable

Your goal should be reasonable and attainable to be successful. In other words, it should stretch your abilities but remain possible. When you set an achievable goal, you may be able to identify previously overlooked opportunities or resources that can bring you closer to it. This often means that transitioning to a more stable financial track will take years of smaller goals being obtained. Severely underfunded reserve accounts typically develop after many years or decades; it's usually not reasonable for the answers to come quick or easily.



Beware setting reserve budgeting goals that someone else has the ultimate control over (e.g., future Boards). For example, “We’ll plan to start raising the reserve allocation rate in 3 years”. This simply puts the responsibility on someone else and is just another way to “deal with it later”. A future Board may have other ideas entirely or could be dealing with an economic downturn during which times raising the allocation rate is extremely difficult.

Sample Reserve Study Site Plan



Sample Reserve Study Reserve Analyst Comments

Comments on Fully Funded Balance Calculations (Fully Funded Balance Calculation Page)

The Fully Funded balance calculations for each component (age & useful life) have been adjusted if a component has been superseded by another component, received a positive or negative life adjustment, or been phased over a period of time. These adjustments are needed so that the fully funded balance mathematical calculation for each component is accurate and appropriately contributes to the total fully balance calculation (located on the executive summary & projection pages) for all components in this reserve study.

Excluded Components

Unless noted otherwise the below components have been excluded from funding in this reserve study. Note that the inclusion of any of these items later via a revision or update to this study will impact the funding strategies developed by the Reserve Analyst.

Long Life Components

If properly constructed the below components are long life components which, currently, have no predictable useful life, predictable remaining useful life, or predictable associated replacement costs. As these components age and a history of repair/replacement needs becomes evident or there are failures then we suggest reevaluating these systems and have them inspected by qualified vendors. Future updates to the reserve study should be revised accordingly.

1. Concrete Retaining Walls
2. Metal & Concrete Staircase (protected from the elements)
3. Interior Fire & Unit Entry Doors

Not Client's Responsibility

The below components are reportedly not the Client's responsibility per their interpretation of their governing documents. Note that the Reserve Analyst does not interpret governing documents and have excluded items based on the Client's request and their interpretation of their own governing documents. If there is ambiguity or questions as to what specific wording means in the governing documents, we recommend consulting with a qualified and experienced attorney.

1. Utility Main Lines - Utility Companies / City

Operating Account Expense

The below components are reportedly paid from the Operating Account and have not been included in this reserve study.

1. Storm Sewer System Maintenance - We recommend setting up an annual contract with a qualified Vendor.
2. Ongoing Landscaping & Tree Care

Comments on Assessment & Disclosure Form

Included in the fee for this reserve study is an Assessment & Disclosure Form which complies with statutory requirements for common interest communities. Please follow the following link to complete the request form on our website: <https://www.reservedataanalyst.com/rad/>

**Sample Reserve Study
The Component List**

Report Date November 27, 2021
 Beginning Fiscal Year January 01, 2022
 Account Number Sample

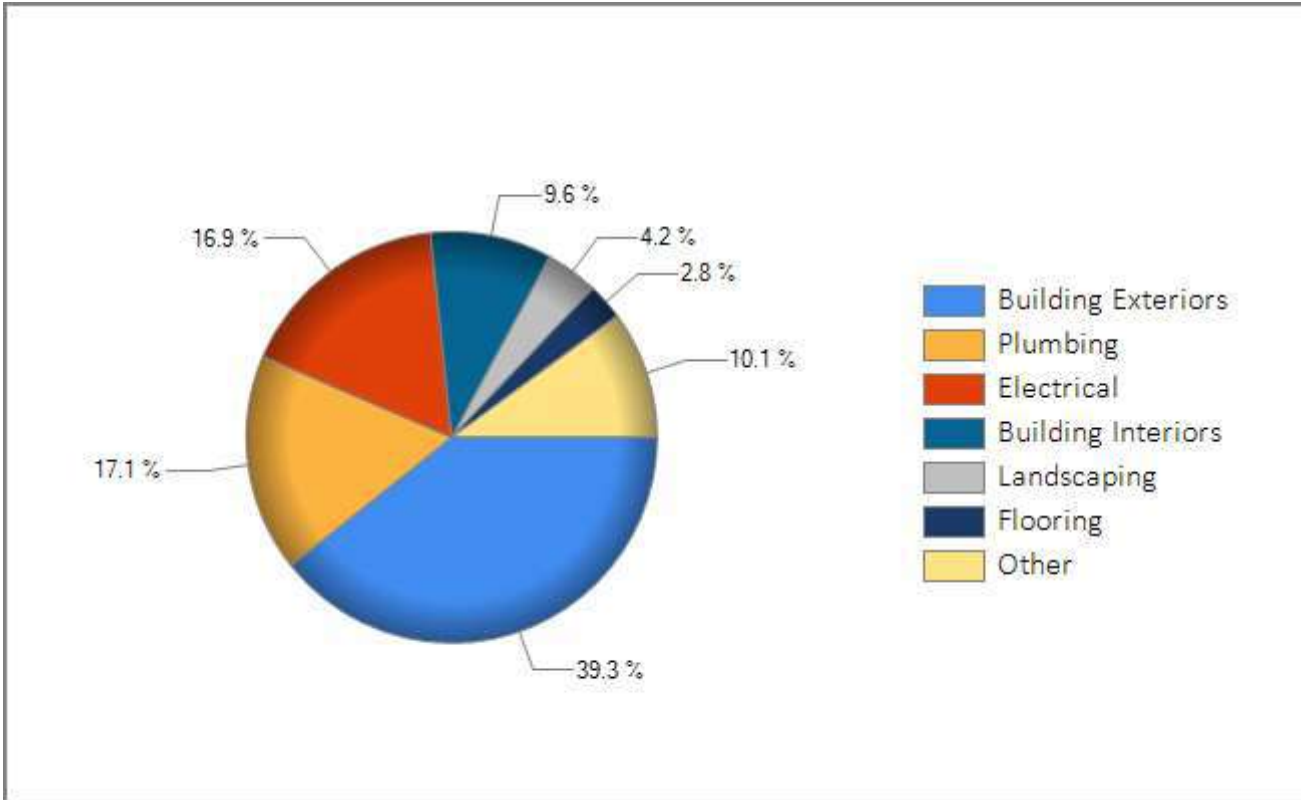
Version Number Final

ID	Description	Aprox. Year In Service	Replacement Year	Useful Life	Adjustment	Remaining Life	Units	Unit Cost & % Replace	Current Cost
Building Exterior Components									
1036	Building Exteriors (metal) - Paint & S...	2002	2027	10	15	5	4,885 sf	1.00	4,885
1037	Building Exteriors (metal) - Replace	2002	2047	45	0	25	4,885 sf	1.00	4,885
1038	Building Exteriors (wood) - 25% Majo...	2020	2050	30	0	28	1,612 sf	1.00 @25.0%	403
1039	Building Exteriors (wood) - 5% Minor...	2012	2022	5	0	0	1,612 sf	1.00 @5.0%	81
1040	Building Exteriors (wood) - Paint & S...	2012	2022	5	0	0	1,612 sf	1.00	1,612
1028	Deck Railings (metal) - Paint	2016	2026	10	0	4	208 lf	1.00	208
1029	Deck Railings (metal) - Replace	2002	2047	45	0	25	68 lf	1.00	68
1012	Decks (composite) - Rebuild	2002	2027	25	0	5	104 sf	1.00	104
1013	Decks (membrane) - Refurbish	2016	2031	15	0	9	208 sf	1.00	208
1014	Decks (membrane) - Topcoat & Non-...	2016	2022	5	0	0	208 sf	1.00	208
1041	Doors (entry/glass) - Paint	2012	2022	10	0	0	13 ea	1.00	13
1016	Doors (ext. solid core w/ glass) - Repl...	2002	2047	45	0	25	4 ea	1.00	4
1047	Doors (ext. solid core) - Replace	2002	2047	45	0	25	9 ea	1.00	9
1017	Doors (garage double) - Replace	2002	2037	35	0	15	2 ea	1.00	2
1046	Doors (garage) - Paint	2012	2022	10	0	0	13 ea	1.00	13
1043	Garage Floor (epoxy coat) - Recoat	2002	2022	20	0	0	841 sf	1.00	841
1049	Gate (pedestrian) - Replace	2002	2047	45	0	25	1 ea	1.00	1
1053	Gutters & Downs. - Replace	2002	2037	35	0	15	276 lf	1.00	276
1024	Lights (ext. fixture) - Replace	2002	2027	25	0	5	20 ea	1.00	20
1050	Lights (ext. security) - Replace	2002	2027	25	0	5	7 ea	1.00	7
1030	Roof (asph.shingle) - Replace	2002	2027	25	0	5	25 sq	1.00	25
1031	Roof (membrane) - Replace	2002	2022	20	0	0	3 sq	1.00	3
1033	Roof Skylights - Replace	2002	2027	25	0	5	8 sf	1.00	8
1052	Staircase & Railings (metal) - Paint	2016	2026	10	0	4	1 total	67.00	67
1055	Staircase Railings (metal) - Replace	2002	2047	45	0	25	66 lf	1.00	66
1035	Windows (vinyl) - Replace	2002	2047	45	0	25	515 sf	1.00	515
	Building Exterior Components - Total:								\$14,532
Building Interior Components									
1048	Doors (int. utility/strg) - Replace	2002	2032	30	0	10	9 ea	1.00	9
1054	Flooring (vinyl sheet) - Replace	2002	2027	25	0	5	12 sy	1.00	12
1044	Interior Surfaces - Paint	2012	2022	10	0	0	2,893 sf	1.00	2,893
1045	Lights (int. flourescent) - Replace	2002	2027	25	0	5	10 ea	1.00	10
1051	Lights (int. simple) - Replace	2002	2027	25	0	5	5 ea	1.00	5
	Building Interior Components - Total:								\$2,929
Electrical / Plumbing / Mechanical / Fire Components									
1007	Backflow Valve (domestic water) - Re...	2002	2027	25	0	5	1 ea	1.00	1
1025	Backflow Valve (fire system) - Replace	2002	2042	40	0	20	2 ea	1.00	2

**Sample Reserve Study
The Component List**

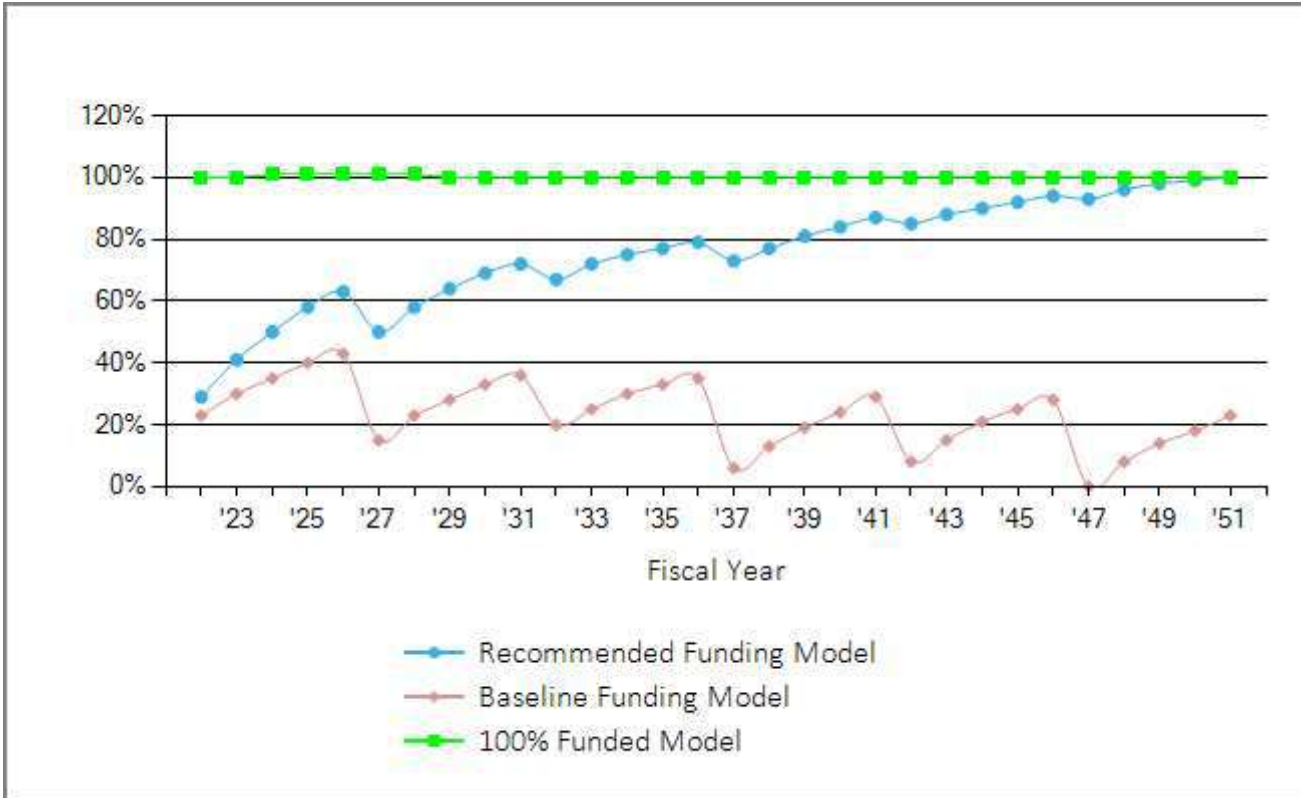
ID	Description	Aprox. Year In Service	Replacement Year	Useful Life	Adjustment	Remaining Life	Units	Unit Cost & % Replace	Current Cost
<i>Electrical / Plumbing / Mechanical / Fire Components continued...</i>									
1015	Door Operators (garage) - Replace	2002	2022	20	0	0	2 ea	1.00	2
1026	Drain/Waste/Supply/Sprinkler/Stand...	2002	2052	50	0	30	5,100 sf	1.00	5,100
1018	Electrical System - Modernize	2002	2052	50	0	30	5,100 sf	1.00	5,100
1019	Entry Access Panel - Replace	2002	2022	20	0	0	1 ea	1.00	1
1020	Fire Annunciation Panel - Replace	2002	2032	30	0	10	1 ea	1.00	1
1021	Fire Control Panel - Replace	2002	2032	30	0	10	1 ea	1.00	1
1022	Fire Peripherals (interior) - Replace	2002	2032	30	0	10	30 ea	1.00	30
1023	Heaters (wall fan) - Replace	2002	2027	25	0	5	1 ea	1.00	1
1027	Hot Water Heaters - Replace	2002	2022	20	0	0	1 total	5.00	5
1008	Sewer Lateral Lines (side sewer) - Re...	2002	2052	50	0	30	35 lf	1.00	35
1009	Water Lateral Lines - Replace	2002	2052	50	0	30	35 lf	1.00	35
Electrical / Plumbing / Mechanical / Fire Components - Total:									\$10,314
Site Components									
1010	Concrete Driveway - Replace	2016	2066	50	0	44	486 sf	1.00	486
1011	Concrete Sidewalks (public) - 15% Re...	2002	2022	5	15	0	304 sf	1.00 @15.0%	46
1002	Concrete Surfaces - 5% Repair	2002	2027	5	20	5	1,247 sf	1.00 @5.0%	62
1042	Fence (wood) - Paint/Stain	2012	2022	5	0	0	275 lf	1.00	275
1003	Fence (wood) - Replace	2002	2022	20	0	0	275 lf	1.00	275
1005	Landscaping - Refurbish	2002	2022	15	0	0	1,260 sf	1.00	1,260
1006	Mailboxes (single) - Replace	2002	2027	25	0	5	5 ea	1.00	5
Site Components - Total:									\$2,409
Total Asset Summary:									\$30,184

Sample Reserve Study Current Cost by Category Chart



The above chart illustrates the current cost breakdown percentage of the Component Categories in this reserve study (highest percentage components listed at top). Special attention should be given to those component categories which take up a bulk of the % of the current cost as these may require significant planning to adequately budget for their replacement. These large expenses may be well into the future during "Peak Year" cycles. Refer to the Cash Flow Projections and the Annual Expenditure Report for the projected timeline of expected expenditures.

Sample Reserve Study Projected Percent Funded Chart



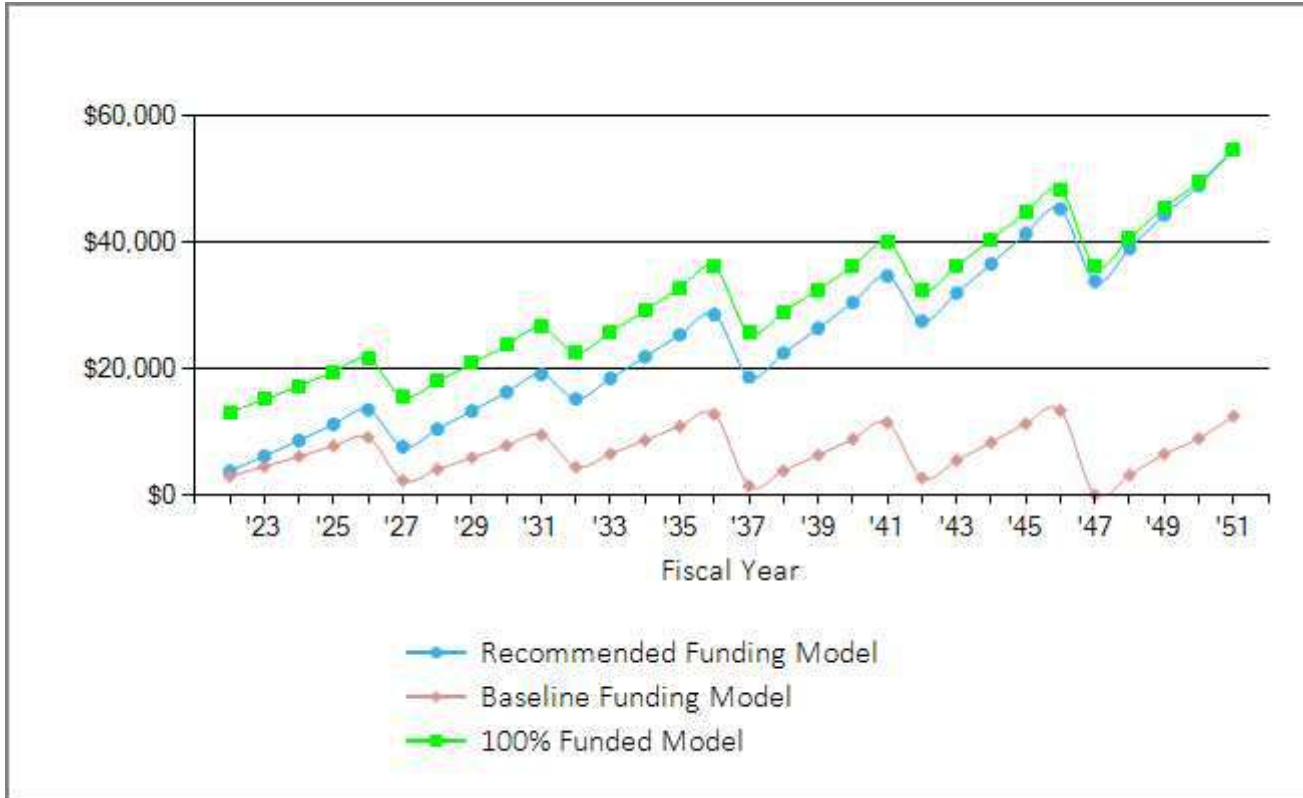
The above chart compares the funding models by the percentage funded levels over the 30-year timeframe of this reserve study, as calculated at the end of each fiscal year.

The Recommended Funding Model increase the Client's reserve account Percent Funded Level to 100% funding within the timeframe of this study. Once this 100% funded level is reached it is a good indicator that the Client is on track to meet its future obligations with minimal risk of reliance on emergency financing or having to defer projects that come due.

The Baseline Funding Model has only a goal of keeping the reserve account cash positive within the timeframe of the reserve study. This model carries significant risk for reliance on emergency financing and/or having to defer projects due to the common occurrence of components failing earlier than projected or costs increasing more rapidly than projected.

The 100% Funded Model assumes the reserve account is an average of 100% Funded in each year of the reserve study. This model minimizes risk for reliance on emergency financing and places the reserve account onto a low risk path for budgeting.

Sample Reserve Study Projected Reserve Account Balance Chart



The chart above compares the annual year-end balance of the reserve account for the respective funding models over the 30 years covered in this reserve study. Projected reserve account balances will see large fluctuations from year to year due to projects occurring in any given year.

**Sample Reserve Study
100% Funded - Summary**

Report Date	November 27, 2021
Account Number	Sample
Version	Final
Budget Year Beginning	January 1, 2022
Budget Year Ending	December 31, 2022
Total Units	5

<i>Report Parameters</i>	
Inflation	3.00%
Annual Contribution Increase	5.00%
Interest Rate on Reserve Deposit	0.70%
Tax Rate Included in Interest Rate	
2022 Beginning Balance	\$9,000

This funding model has a goal of being a minimum of 100% funded, annually, over the timeframe of this reserve study. Allocation rates will fluctuate based on the expenditures projected in any given year. The initial year has a much higher allocation rate than subsequent years as the reserve account is currently underfunded and requires a significant cash injection in the initial fiscal year to elevate the reserve account to a 100% Funded track.

The following page provides the 30-year projections for this funding model.

<i>Full Funding Model 30 Year Summary of Calculations</i>	
Required Annual Contribution	\$11,512.71
Average Net Annual Interest Earned	<u> \$90.90</u>
Total Annual Allocation to Reserves	\$11,603.61

Sample Reserve Study
100% Funded - Year End Projections

Begining Balance: \$9,000

Year	Asset Cost	Inflation Rate	Reserve Allocation	Allocation % Change	Net Interest	Projected Expenditures	Year End Acct. Balance	Year End FFB	Year End % Funded
2022	30,184	3.0%	11,513		91	7,527	13,076	13,076	100%
2023	31,089	3.0%	1,917	-83.34%	105		15,098	15,044	100%
2024	32,022	3.0%	2,013	5.00%	120		17,231	17,118	101%
2025	32,982	3.0%	2,113	5.00%	135		19,480	19,303	101%
2026	33,972	3.0%	2,219	5.00%	150	310	21,539	21,284	101%
2027	34,991	3.0%	2,330	5.00%	107	8,540	15,436	15,262	101%
2028	36,041	3.0%	2,447	5.00%	125		18,008	17,918	101%
2029	37,122	3.0%	2,626	7.33%	144		20,779	20,721	100%
2030	38,236	3.0%	2,757	5.00%	165		23,701	23,675	100%
2031	39,383	3.0%	2,895	5.00%	184	271	26,509	26,509	100%
2032	40,564	3.0%	2,900	0.17%	157	7,047	22,519	22,519	100%
2033	41,763	3.0%	3,044	4.94%	179		25,742	25,742	100%
2034	43,016	3.0%	3,193	4.90%	203		29,138	29,138	100%
2035	44,306	3.0%	3,349	4.87%	227		32,715	32,715	100%
2036	45,636	3.0%	3,502	4.55%	251	416	36,051	36,051	100%
2037	47,005	3.0%	2,972	-15.14%	178	13,565	25,636	25,636	100%
2038	48,415	3.0%	3,117	4.90%	201		28,955	28,955	100%
2039	49,867	3.0%	3,269	4.86%	226		32,449	32,449	100%
2040	51,363	3.0%	3,427	4.83%	251		36,127	36,127	100%
2041	52,904	3.0%	3,591	4.80%	278		39,997	39,997	100%
2042	54,491	3.0%	3,502	-2.48%	225	11,412	32,312	32,312	100%
2043	56,126	3.0%	3,673	4.87%	252		36,237	36,236	100%
2044	57,810	3.0%	3,851	4.83%	281		40,368	40,368	100%
2045	59,544	3.0%	4,036	4.80%	311		44,714	44,714	100%
2046	61,330	3.0%	4,206	4.21%	336	982	48,274	48,274	100%
2047	63,170	3.0%	4,031	-4.15%	251	16,398	36,159	36,159	100%
2048	65,065	3.0%	4,228	4.88%	283		40,670	40,670	100%
2049	67,017	3.0%	4,433	4.85%	316		45,419	45,419	100%
2050	69,028	3.0%	4,626	4.34%	344	922	49,466	49,466	100%
2051	71,099	3.0%	4,848	4.79%	380		54,694	54,694	100%

**Sample Reserve Study
Recommended Funding - Summary**

Report Date	November 27, 2021
Account Number	Sample
Version	Final
Budget Year Beginning	January 1, 2022
Budget Year Ending	December 31, 2022
Total Units	5

Report Parameters	
Inflation	3.00%
Annual Contribution Increase	3.00%
Interest Rate on Reserve Deposit	0.70%
Tax Rate Included in Interest Rate	
2022 Beginning Balance	\$9,000

We have developed a funding plan which will help steer the reserve account into a high funded range within the 30-year timeframe of this reserve study. This Recommended Funding Model requires the Client to allocate the recommended allocation amount into the reserve account with annual increases thereafter. In the following pages you will find the recommended allocation rates to the reserve account, annual projected expenditures and the percent funded of the reserve account if following this Recommended Funding Model.

This Recommended Funding Plan Considers 4 Basic Principles:

1. There are adequate reserves when needed.
2. The budget should remain stable but increasing to offset inflationary factors.
3. The costs are fairly distributed over time.
4. The funding plan must allow the Client to be fiscally responsible.

Note that the Recommended Model is not a low risk, no risk or ideal model to follow. It simply has a goal of having the reserve account reach 100% funded by the end of a 30-year time period. In this reserve study the model's initial years remain in a "Low" funded range with a high risk for reliance on special assessments and or loans should something occur that is not projected (e.g., very high inflation of project costs, components failing earlier than projected, etc.). An "ideal" model to follow would be the 100% funded model as this model has the reserve account funded to a 100% funded level each year of the study and there would be low risk for reliance on special assessments and/or loans even if unexpected occurrences came to fruition.

The following page provides the 30-year projections for this funding model.

Recommended Funding Model Summary of Calculations	
Required Annual Contribution	\$2,265.00
Average Net Annual Interest Earned	<u>\$26.16</u>
Total Annual Allocation to Reserves	\$2,291.16

Sample Reserve Study
Recommended Funding - Year End Projections

Beginning Balance: \$9,000

Year	Asset Cost	Inflation Rate	Reserve Allocation	Allocation % Change	Net Interest	Projected Expenditures	Year End Acct. Balance	Year End FFB	Year End % Funded
2022	30,184	3.0%	2,265		26	7,527	3,764	13,076	29%
2023	31,089	3.0%	2,333	3.00%	43		6,140	15,044	41%
2024	32,022	3.0%	2,403	3.00%	60		8,602	17,118	50%
2025	32,982	3.0%	2,475	3.00%	78		11,155	19,303	58%
2026	33,972	3.0%	2,549	3.00%	94	310	13,488	21,284	63%
2027	34,991	3.0%	2,626	3.00%	53	8,540	7,627	15,262	50%
2028	36,041	3.0%	2,705	3.00%	72		10,404	17,918	58%
2029	37,122	3.0%	2,786	3.00%	92		13,282	20,721	64%
2030	38,236	3.0%	2,869	3.00%	113		16,264	23,675	69%
2031	39,383	3.0%	2,955	3.00%	133	271	19,081	26,509	72%
2032	40,564	3.0%	3,044	3.00%	106	7,047	15,184	22,519	67%
2033	41,763	3.0%	3,135	3.00%	128		18,447	25,742	72%
2034	43,016	3.0%	3,229	3.00%	152		21,828	29,138	75%
2035	44,306	3.0%	3,326	3.00%	176		25,331	32,715	77%
2036	45,636	3.0%	3,426	3.00%	198	416	28,539	36,051	79%
2037	47,005	3.0%	3,529	3.00%	130	13,565	18,633	25,636	73%
2038	48,415	3.0%	3,635	3.00%	156		22,423	28,955	77%
2039	49,867	3.0%	3,744	3.00%	183		26,350	32,449	81%
2040	51,363	3.0%	3,856	3.00%	211		30,418	36,127	84%
2041	52,904	3.0%	3,972	3.00%	241		34,630	39,997	87%
2042	54,491	3.0%	4,091	3.00%	191	11,412	27,500	32,312	85%
2043	56,126	3.0%	4,214	3.00%	222		31,936	36,236	88%
2044	57,810	3.0%	4,340	3.00%	254		36,530	40,368	90%
2045	59,544	3.0%	4,470	3.00%	287		41,287	44,714	92%
2046	61,330	3.0%	4,604	3.00%	314	982	45,224	48,274	94%
2047	63,170	3.0%	4,742	3.00%	235	16,398	33,803	36,159	93%
2048	65,065	3.0%	4,885	3.00%	271		38,959	40,670	96%
2049	67,017	3.0%	5,031	3.00%	308		44,298	45,419	98%
2050	69,028	3.0%	5,182	3.00%	340	922	48,898	49,466	99%
2051	71,099	3.0%	5,338	3.00%	380		54,615	54,694	100%

Sample Reserve Study
 Acme City, USA
Alternate Recommended Model - Higher Annual % Increase - Summary

Report Date	November 27, 2021
Account Number	Sample
Version	Final
Budget Year Beginning	January 1, 2022
Budget Year Ending	December 31, 2022
Total Units	5

Report Parameters	
Inflation	3.00%
Interest Rate on Reserve Deposit	0.70%
Tax Rate Included in Interest Rate	
2022 Beginning Balance	\$9,000

This funding model has been included as an alternative to the regular Recommended Model (which utilizes an annual reserve contribution percentage increase rate that is similar to the inflation rate used in this study). This alternative model has a goal of reaching 100% funded by the end of a 30-year time period but starts with the Current Model's reserve contribution rate and increases at a significantly higher annual percentage increase (to the reserve contribution rate) until the reserve account reaches the 100% funded level by the end of the 30-year time period of this study.

It is important to note that there is not necessarily a right or wrong funding model as mathematically it is a sliding scale between the reserve contribution rate and the annual increases percent (i.e., a higher initial annual reserve contribution rate will require a lower annual percentage increase and vice versa - a lower initial annual reserve contribution rate will require a higher annual percentage increase rate to the model to meet the same goal, in this case to be 100% funded by the end of a 30 year time period).

Difficulties to following a model with a higher annual percentage increase can include limitations on the percentage increase outlined in the governing documents, limitations on the percentage increase outlined in statutory laws, difficulties in following the model with changing Boards, and getting a community to agree to a higher increase to the reserve contribution rate, and correspondingly the HOA Dues, for an extended period of time.

The following page provides the 30-year projections for this funding model.

Higher Annual % Allocation Model Summary of Calculations	
Required Annual Contribution	\$1,050.00
<i>\$210.00 per unit annually</i>	
Average Net Annual Interest Earned	<u>\$17.66</u>
Total Annual Allocation to Reserves	<u>\$1,067.66</u>
<i>\$213.53 per unit annually</i>	

Sample Reserve Study
Alternate Recommended Model - Higher Annual % Increase - Year End Projections

Begining Balance: \$9,000

Year	Asset Cost	Inflation Rate	Reserve Allocation	Allocation % Change	Net Interest	Projected Expenditures	Year End Acct. Balance	Year End FFB	Year End % Funded
2022	30,184	3.0%	1,050		18	7,527	2,540	13,076	19%
2023	31,089	3.0%	1,155	10.00%	26		3,721	15,044	25%
2024	32,022	3.0%	1,271	10.00%	35		5,027	17,118	29%
2025	32,982	3.0%	1,398	10.00%	45		6,469	19,303	34%
2026	33,972	3.0%	1,537	10.00%	54	310	7,751	21,284	36%
2027	34,991	3.0%	1,691	10.00%	6	8,540	908	15,262	6%
2028	36,041	3.0%	1,805	6.75%	19		2,733	17,918	15%
2029	37,122	3.0%	1,927	6.75%	33		4,692	20,721	23%
2030	38,236	3.0%	2,057	6.75%	47		6,797	23,675	29%
2031	39,383	3.0%	2,196	6.75%	61	271	8,782	26,509	33%
2032	40,564	3.0%	2,344	6.75%	29	7,047	4,108	22,519	18%
2033	41,763	3.0%	2,502	6.75%	46		6,657	25,742	26%
2034	43,016	3.0%	2,671	6.75%	65		9,393	29,138	32%
2035	44,306	3.0%	2,852	6.75%	86		12,331	32,715	38%
2036	45,636	3.0%	3,044	6.75%	105	416	15,064	36,051	42%
2037	47,005	3.0%	3,250	6.75%	33	13,565	4,782	25,636	19%
2038	48,415	3.0%	3,469	6.75%	58		8,309	28,955	29%
2039	49,867	3.0%	3,703	6.75%	84		12,096	32,449	37%
2040	51,363	3.0%	3,953	6.75%	112		16,161	36,127	45%
2041	52,904	3.0%	4,220	6.75%	143		20,524	39,997	51%
2042	54,491	3.0%	4,505	6.75%	95	11,412	13,712	32,312	42%
2043	56,126	3.0%	4,809	6.75%	130		18,651	36,236	51%
2044	57,810	3.0%	5,133	6.75%	166		23,950	40,368	59%
2045	59,544	3.0%	5,480	6.75%	206		29,636	44,714	66%
2046	61,330	3.0%	5,850	6.75%	242	982	34,746	48,274	72%
2047	63,170	3.0%	6,245	6.75%	172	16,398	24,765	36,159	68%
2048	65,065	3.0%	6,666	6.75%	220		31,651	40,670	78%
2049	67,017	3.0%	7,116	6.75%	271		39,039	45,419	86%
2050	69,028	3.0%	7,597	6.75%	320	922	46,033	49,466	93%
2051	71,099	3.0%	8,109	6.75%	379		54,522	54,694	100%

**Sample Reserve Study
Baseline Funding - Summary**

Report Date	November 27, 2021
Account Number	Sample
Version	Final
Budget Year Beginning	January 1, 2022
Budget Year Ending	December 31, 2022
Total Units	5

Report Parameters	
Inflation	3.00%
Annual Contribution Increase	3.00%
Interest Rate on Reserve Deposit	0.70%
Tax Rate Included in Interest Rate	
2022 Beginning Balance	\$9,000

The Baseline Funding Model is considered a bare minimum approach which has a goal of keeping the reserve account balance above \$0 within the 30-year timeframe of this reserve study and *does not* take into consideration projected expenses that fall outside of the 30-year timeframe of the reserve study (i.e. longer life components are simply ignored).

This funding model carries a higher risk for reliance on emergency financing specifically in years when large component expenses occur earlier than projected or costs see significant increases. Additionally, in the future when longer life components come into the 30-year timeframe of future reserve studies their projected expenditures will have a significant impact on the allocation requirements to keep the reserve account cash positive going forward.

Should the Client have an interest in not funding longer life component projects (i.e. projects that are set to occur after the 30 year projections in this study) at this time then we suggest setting a goal of at least funding to the Baseline Funding Model which has the goal of only staying cash positive for the 30 year time-frame of the projections in this study.

The following page provides the 30-year projections for this funding model.

Baseline Threshold Funding Model Summary of Calculations	
Required Annual Contribution	\$1,458.88
Average Net Annual Interest Earned	<u>\$20.52</u>
Total Annual Allocation to Reserves	\$1,479.40

Sample Reserve Study
Baseline Funding - Year End Projections

Beginning Balance: \$9,000

Year	Asset Cost	Inflation Rate	Reserve Allocation	Allocation % Change	Net Interest	Projected Expenditures	Year End Acct. Balance	Year End FFB	Year End % Funded
2022	30,184	3.0%	1,459		21	7,527	2,952	13,076	23%
2023	31,089	3.0%	1,503	3.00%	31		4,486	15,044	30%
2024	32,022	3.0%	1,548	3.00%	42		6,076	17,118	35%
2025	32,982	3.0%	1,594	3.00%	54		7,724	19,303	40%
2026	33,972	3.0%	1,642	3.00%	63	310	9,120	21,284	43%
2027	34,991	3.0%	1,691	3.00%	16	8,540	2,287	15,262	15%
2028	36,041	3.0%	1,742	3.00%	28		4,057	17,918	23%
2029	37,122	3.0%	1,794	3.00%	41		5,892	20,721	28%
2030	38,236	3.0%	1,848	3.00%	54		7,795	23,675	33%
2031	39,383	3.0%	1,904	3.00%	66	271	9,493	26,509	36%
2032	40,564	3.0%	1,961	3.00%	31	7,047	4,437	22,519	20%
2033	41,763	3.0%	2,019	3.00%	45		6,502	25,742	25%
2034	43,016	3.0%	2,080	3.00%	60		8,642	29,138	30%
2035	44,306	3.0%	2,142	3.00%	75		10,860	32,715	33%
2036	45,636	3.0%	2,207	3.00%	89	416	12,739	36,051	35%
2037	47,005	3.0%	2,273	3.00%	10	13,565	1,458	25,636	6%
2038	48,415	3.0%	2,341	3.00%	27		3,825	28,955	13%
2039	49,867	3.0%	2,411	3.00%	44		6,280	32,449	19%
2040	51,363	3.0%	2,484	3.00%	61		8,825	36,127	24%
2041	52,904	3.0%	2,558	3.00%	80		11,463	39,997	29%
2042	54,491	3.0%	2,635	3.00%	19	11,412	2,705	32,312	8%
2043	56,126	3.0%	2,714	3.00%	38		5,457	36,236	15%
2044	57,810	3.0%	2,795	3.00%	58		8,310	40,368	21%
2045	59,544	3.0%	2,879	3.00%	78		11,268	44,714	25%
2046	61,330	3.0%	2,966	3.00%	93	982	13,344	48,274	28%
2047	63,170	3.0%	3,055	3.00%		16,398	1	36,159	0%
2048	65,065	3.0%	3,146	3.00%	22		3,169	40,670	8%
2049	67,017	3.0%	3,241	3.00%	45		6,455	45,419	14%
2050	69,028	3.0%	3,338	3.00%	62	922	8,933	49,466	18%
2051	71,099	3.0%	3,438	3.00%	87		12,457	54,694	23%

**Sample Reserve Study
Current Funding - Summary**

Report Date	November 27, 2021
Account Number	Sample
Version	Final
Budget Year Beginning	January 1, 2022
Budget Year Ending	December 31, 2022
Total Units	5

Report Parameters	
Inflation	3.00%
Annual Contribution Increase	3.00%
Interest Rate on Reserve Deposit	0.70%
Tax Rate Included in Interest Rate	
2022 Beginning Balance	\$9,000

The Current Funding Model is based on the reserve allocation data supplied by the Client; it has not been independently verified and is assumed to be correct.

The following page provides the 30-year projections for this funding model. It is assumed the reserve allocation rate will have annual increases to offset inflationary factors.

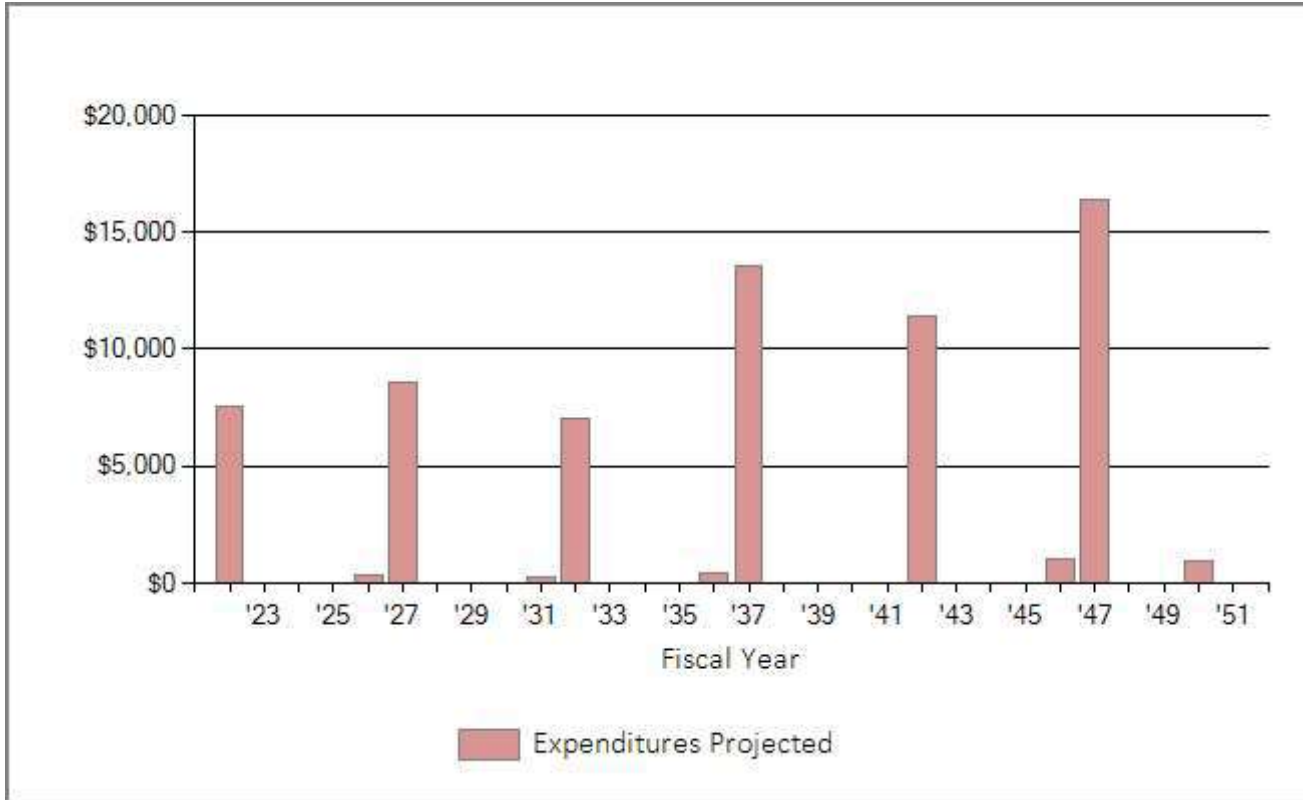
Current Assessment Funding Model Summary of Calculations	
Required Annual Contribution	\$1,050.00
Average Net Annual Interest Earned	<u>\$17.66</u>
Total Annual Allocation to Reserves	\$1,067.66

Sample Reserve Study
Current Funding - Year End Projections

Begining Balance: \$9,000

Year	Asset Cost	Inflation Rate	Reserve Allocation	Allocation % Change	Net Interest	Projected Expenditures	Year End Acct. Balance	Year End FFB	Year End % Funded
2022	30,184	3.0%	1,050		18	7,527	2,540	13,076	19%
2023	31,089	3.0%	1,082	3.00%	25		3,647	15,044	24%
2024	32,022	3.0%	1,114	3.00%	33		4,795	17,118	28%
2025	32,982	3.0%	1,147	3.00%	42		5,984	19,303	31%
2026	33,972	3.0%	1,182	3.00%	48	310	6,904	21,284	32%
2027	34,991	3.0%	1,217	3.00%		8,540	-419	15,262	
2028	36,041	3.0%	1,254	3.00%	6		841	17,918	5%
2029	37,122	3.0%	1,291	3.00%	15		2,147	20,721	10%
2030	38,236	3.0%	1,330	3.00%	24		3,502	23,675	15%
2031	39,383	3.0%	1,370	3.00%	32	271	4,632	26,509	17%
2032	40,564	3.0%	1,411	3.00%		7,047	-1,003	22,519	
2033	41,763	3.0%	1,453	3.00%	3		453	25,742	2%
2034	43,016	3.0%	1,497	3.00%	14		1,964	29,138	7%
2035	44,306	3.0%	1,542	3.00%	25		3,530	32,715	11%
2036	45,636	3.0%	1,588	3.00%	33	416	4,736	36,051	13%
2037	47,005	3.0%	1,636	3.00%		13,565	-7,193	25,636	
2038	48,415	3.0%	1,685	3.00%			-5,508	28,955	
2039	49,867	3.0%	1,735	3.00%			-3,773	32,449	
2040	51,363	3.0%	1,788	3.00%			-1,985	36,127	
2041	52,904	3.0%	1,841	3.00%			-144	39,997	
2042	54,491	3.0%	1,896	3.00%		11,412	-9,660	32,312	
2043	56,126	3.0%	1,953	3.00%			-7,706	36,236	
2044	57,810	3.0%	2,012	3.00%			-5,694	40,368	
2045	59,544	3.0%	2,072	3.00%			-3,622	44,714	
2046	61,330	3.0%	2,134	3.00%		982	-2,469	48,274	
2047	63,170	3.0%	2,198	3.00%		16,398	-16,668	36,159	
2048	65,065	3.0%	2,264	3.00%			-14,404	40,670	
2049	67,017	3.0%	2,332	3.00%			-12,072	45,419	
2050	69,028	3.0%	2,402	3.00%		922	-10,591	49,466	
2051	71,099	3.0%	2,474	3.00%			-8,117	54,694	

Sample Reserve Study Projected Expenditures Chart



The above chart provides a visual of the reserve account projected expenditures over the 30 years covered in this study. We suggest making a note of large expenditure years (peak years) when there will be significant projected expenditures related to one or more component projects that will require repair/replacement. These large but infrequent component expenses during “peak” years are typically the most difficult to budget for as they are often overlooked or ignored due to the perception that the expenses are far in the future and there will be time to budget for them later.

**Sample Reserve Study
Projected Expenditures Report**

Description	Expenditures
Replacement Year 2022	
1039 Building Exteriors (wood) - 5% Minor Repair	81
1040 Building Exteriors (wood) - Paint & Seal	1,612
1011 Concrete Sidewalks (public) - 15% Repair	46
1014 Decks (membrane) - Topcoat & Non-skid	208
1015 Door Operators (garage) - Replace	2
1041 Doors (entry/glass) - Paint	13
1046 Doors (garage) - Paint	13
1019 Entry Access Panel - Replace	1
1042 Fence (wood) - Paint/Stain	275
1003 Fence (wood) - Replace	275
1043 Garage Floor (epoxy coat) - Recoat	841
1027 Hot Water Heaters - Replace	5
1044 Interior Surfaces - Paint	2,893
1005 Landscaping - Refurbish	1,260
1031 Roof (membrane) - Replace	3
Total for 2022	\$7,527
 <i>No Replacement in 2023</i>	
<i>No Replacement in 2024</i>	
<i>No Replacement in 2025</i>	
 Replacement Year 2026	
1028 Deck Railings (metal) - Paint	234
1052 Staircase & Railings (metal) - Paint	75
Total for 2026	\$310
 Replacement Year 2027	
1007 Backflow Valve (domestic water) - Replace	1
1036 Building Exteriors (metal) - Paint & Seal	5,663
1039 Building Exteriors (wood) - 5% Minor Repair	93
1040 Building Exteriors (wood) - Paint & Seal	1,869
1011 Concrete Sidewalks (public) - 15% Repair	53
1002 Concrete Surfaces - 5% Repair	72
1012 Decks (composite) - Rebuild	121
1014 Decks (membrane) - Topcoat & Non-skid	241

**Sample Reserve Study
Projected Expenditures Report**

Description	Expenditures
Replacement Year 2027 continued...	
1042 Fence (wood) - Paint/Stain	319
1054 Flooring (vinyl sheet) - Replace	14
1023 Heaters (wall fan) - Replace	1
1024 Lights (ext. fixture) - Replace	23
1050 Lights (ext. security) - Replace	8
1045 Lights (int. flourescent) - Replace	12
1051 Lights (int. simple) - Replace	6
1006 Mailboxes (single) - Replace	6
1030 Roof (asph.shingle) - Replace	29
1033 Roof Skylights - Replace	9
Total for 2027	\$8,540
 <i>No Replacement in 2028</i>	
<i>No Replacement in 2029</i>	
<i>No Replacement in 2030</i>	
 Replacement Year 2031	
1013 Decks (membrane) - Refurbish	271
Total for 2031	\$271
 Replacement Year 2032	
1039 Building Exteriors (wood) - 5% Minor Repair	108
1040 Building Exteriors (wood) - Paint & Seal	2,166
1011 Concrete Sidewalks (public) - 15% Repair	61
1002 Concrete Surfaces - 5% Repair	84
1014 Decks (membrane) - Topcoat & Non-skid	280
1041 Doors (entry/glass) - Paint	17
1046 Doors (garage) - Paint	17
1048 Doors (int. utility/strg) - Replace	12
1042 Fence (wood) - Paint/Stain	370
1020 Fire Annunciation Panel - Replace	1
1021 Fire Control Panel - Replace	1
1022 Fire Peripherals (interior) - Replace	40
1044 Interior Surfaces - Paint	3,888
Total for 2032	\$7,047

**Sample Reserve Study
Projected Expenditures Report**

Description	Expenditures
<i>No Replacement in 2033</i>	
<i>No Replacement in 2034</i>	
<i>No Replacement in 2035</i>	
Replacement Year 2036	
1028 Deck Railings (metal) - Paint	315
1052 Staircase & Railings (metal) - Paint	101
Total for 2036	\$416
Replacement Year 2037	
1036 Building Exteriors (metal) - Paint & Seal	7,611
1039 Building Exteriors (wood) - 5% Minor Repair	126
1040 Building Exteriors (wood) - Paint & Seal	2,511
1011 Concrete Sidewalks (public) - 15% Repair	71
1002 Concrete Surfaces - 5% Repair	97
1014 Decks (membrane) - Topcoat & Non-skid	324
1017 Doors (garage double) - Replace	3
1042 Fence (wood) - Paint/Stain	428
1053 Gutters & Downs. - Replace	430
1005 Landscaping - Refurbish	1,963
Total for 2037	\$13,565
<i>No Replacement in 2038</i>	
<i>No Replacement in 2039</i>	
<i>No Replacement in 2040</i>	
<i>No Replacement in 2041</i>	
Replacement Year 2042	
1025 Backflow Valve (fire system) - Replace	4
1039 Building Exteriors (wood) - 5% Minor Repair	146
1040 Building Exteriors (wood) - Paint & Seal	2,911
1011 Concrete Sidewalks (public) - 15% Repair	82
1002 Concrete Surfaces - 5% Repair	113
1014 Decks (membrane) - Topcoat & Non-skid	376
1015 Door Operators (garage) - Replace	4
1041 Doors (entry/glass) - Paint	23

**Sample Reserve Study
Projected Expenditures Report**

Description	Expenditures
<i>Replacement Year 2042 continued...</i>	
1019 Entry Access Panel - Replace	2
1042 Fence (wood) - Paint/Stain	497
1003 Fence (wood) - Replace	497
1043 Garage Floor (epoxy coat) - Recoat	1,519
1027 Hot Water Heaters - Replace	9
1044 Interior Surfaces - Paint	5,225
1031 Roof (membrane) - Replace	5
Total for 2042	\$11,412
 <i>No Replacement in 2043</i>	
<i>No Replacement in 2044</i>	
<i>No Replacement in 2045</i>	
 Replacement Year 2046	
1028 Deck Railings (metal) - Paint	423
1013 Decks (membrane) - Refurbish	423
1052 Staircase & Railings (metal) - Paint	136
Total for 2046	\$982
 Replacement Year 2047	
1037 Building Exteriors (metal) - Replace	10,228
1039 Building Exteriors (wood) - 5% Minor Repair	169
1040 Building Exteriors (wood) - Paint & Seal	3,375
1011 Concrete Sidewalks (public) - 15% Repair	95
1002 Concrete Surfaces - 5% Repair	131
1029 Deck Railings (metal) - Replace	142
1014 Decks (membrane) - Topcoat & Non-skid	436
1016 Doors (ext. solid core w/ glass) - Replace	8
1047 Doors (ext. solid core) - Replace	19
1042 Fence (wood) - Paint/Stain	576
1049 Gate (pedestrian) - Replace	2
1055 Staircase Railings (metal) - Replace	138
1035 Windows (vinyl) - Replace	1,078
Total for 2047	\$16,398

**Sample Reserve Study
Projected Expenditures Report**

Description	Expenditures
<i>No Replacement in 2048</i>	
<i>No Replacement in 2049</i>	
Replacement Year 2050	
1038 Building Exteriors (wood) - 25% Major Repair	922
Total for 2050	<u>\$922</u>
<i>No Replacement in 2051</i>	

**Sample Reserve Study
Spreadsheet - Component Expenditures**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning Balance	9,000	3,764	6,140	8,602	11,155	13,488	7,627	10,404	13,282	16,264
Annual Reserve Account Contribution	2,265	2,333	2,403	2,475	2,549	2,626	2,705	2,786	2,869	2,955
Interest Earned	26	43	60	78	94	53	72	92	113	133
Expenditures	7,527				310	8,540				271
Fully Funded Balance	13,076	15,044	17,118	19,303	21,284	15,262	17,918	20,721	23,675	26,509
Percent Funded	29%	41%	50%	58%	63%	50%	58%	64%	69%	72%
Ending Reserve Account Balance	3,764	6,140	8,602	11,155	13,488	7,627	10,404	13,282	16,264	19,081

ID Description

1007 Backflow Valve (domestic water) - Replace										1
1025 Backflow Valve (fire system) - Replace										
1036 Building Exteriors (metal) - Paint & Seal							5,663			
1037 Building Exteriors (metal) - Replace										
1038 Building Exteriors (wood) - 25% Major Repair										
1039 Building Exteriors (wood) - 5% Minor Repair	81						93			
1040 Building Exteriors (wood) - Paint & Seal	1,612						1,869			
1010 Concrete Driveway - Replace										
1011 Concrete Sidewalks (public) - 15% Repair	46						53			
1002 Concrete Surfaces - 5% Repair							72			
1028 Deck Railings (metal) - Paint					234					
1029 Deck Railings (metal) - Replace										
1012 Decks (composite) - Rebuild							121			
1013 Decks (membrane) - Refurbish										271
1014 Decks (membrane) - Topcoat & Non-skid	208						241			
1015 Door Operators (garage) - Replace	2									
1041 Doors (entry/glass) - Paint	13									
1016 Doors (ext. solid core w/ glass) - Replace										
1047 Doors (ext. solid core) - Replace										
1017 Doors (garage double) - Replace										
1046 Doors (garage) - Paint	13									
1048 Doors (int. utility/strg) - Replace										
1026 Drain/Waste/Supply/Sprinkler/Standpipe Lin..										
1018 Electrical System - Modernize										

**Sample Reserve Study
Spreadsheet - Component Expenditures**

ID Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1019 Entry Access Panel - Replace	1									
1042 Fence (wood) - Paint/Stain	275					319				
1003 Fence (wood) - Replace	275									
1020 Fire Annunciation Panel - Replace										
1021 Fire Control Panel - Replace										
1022 Fire Peripherals (interior) - Replace										
1054 Flooring (vinyl sheet) - Replace						14				
1043 Garage Floor (epoxy coat) - Recoat	841									
1049 Gate (pedestrian) - Replace										
1053 Gutters & Downs. - Replace										
1023 Heaters (wall fan) - Replace						1				
1027 Hot Water Heaters - Replace	5									
1044 Interior Surfaces - Paint	2,893									
1005 Landscaping - Refurbish	1,260									
1024 Lights (ext. fixture) - Replace						23				
1050 Lights (ext. security) - Replace						8				
1045 Lights (int. flourescent) - Replace						12				
1051 Lights (int. simple) - Replace						6				
1006 Mailboxes (single) - Replace						6				
1030 Roof (asph.shingle) - Replace						29				
1031 Roof (membrane) - Replace	3									
1033 Roof Skylights - Replace						9				
1008 Sewer Lateral Lines (side sewer) - Replace										
1052 Staircase & Railings (metal) - Paint					75					
1055 Staircase Railings (metal) - Replace										
1009 Water Lateral Lines - Replace										
1035 Windows (vinyl) - Replace										
Year Total:	7,527				310	8,540				271

**Sample Reserve Study
Spreadsheet - Component Expenditures**

	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Beginning Balance	19,081	15,184	18,447	21,828	25,331	28,539	18,633	22,423	26,350	30,418
Annual Reserve Account Contribution	3,044	3,135	3,229	3,326	3,426	3,529	3,635	3,744	3,856	3,972
Interest Earned	106	128	152	176	198	130	156	183	211	241
Expenditures	7,047				416	13,565				
Fully Funded Balance	22,519	25,742	29,138	32,715	36,051	25,636	28,955	32,449	36,127	39,997
Percent Funded	67%	72%	75%	77%	79%	73%	77%	81%	84%	87%
Ending Reserve Account Balance	15,184	18,447	21,828	25,331	28,539	18,633	22,423	26,350	30,418	34,630

ID Description

1007	Backflow Valve (domestic water) - Replace									
1025	Backflow Valve (fire system) - Replace									
1036	Building Exteriors (metal) - Paint & Seal					7,611				
1037	Building Exteriors (metal) - Replace									
1038	Building Exteriors (wood) - 25% Major Repair									
1039	Building Exteriors (wood) - 5% Minor Repair	108				126				
1040	Building Exteriors (wood) - Paint & Seal	2,166				2,511				
1010	Concrete Driveway - Replace									
1011	Concrete Sidewalks (public) - 15% Repair	61				71				
1002	Concrete Surfaces - 5% Repair	84				97				
1028	Deck Railings (metal) - Paint				315					
1029	Deck Railings (metal) - Replace									
1012	Decks (composite) - Rebuild									
1013	Decks (membrane) - Refurbish									
1014	Decks (membrane) - Topcoat & Non-skid	280				324				
1015	Door Operators (garage) - Replace									
1041	Doors (entry/glass) - Paint	17								
1016	Doors (ext. solid core w/ glass) - Replace									
1047	Doors (ext. solid core) - Replace									
1017	Doors (garage double) - Replace					3				
1046	Doors (garage) - Paint	17								
1048	Doors (int. utility/strg) - Replace	12								
1026	Drain/Waste/Supply/Sprinkler/Standpipe Lin..									
1018	Electrical System - Modernize									

**Sample Reserve Study
Spreadsheet - Component Expenditures**

ID	Description	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
1019	Entry Access Panel - Replace										
1042	Fence (wood) - Paint/Stain	370					428				
1003	Fence (wood) - Replace										
1020	Fire Annunciation Panel - Replace	1									
1021	Fire Control Panel - Replace	1									
1022	Fire Peripherals (interior) - Replace	40									
1054	Flooring (vinyl sheet) - Replace										
1043	Garage Floor (epoxy coat) - Recoat										
1049	Gate (pedestrian) - Replace										
1053	Gutters & Downs. - Replace						430				
1023	Heaters (wall fan) - Replace										
1027	Hot Water Heaters - Replace										
1044	Interior Surfaces - Paint	3,888									
1005	Landscaping - Refurbish						1,963				
1024	Lights (ext. fixture) - Replace										
1050	Lights (ext. security) - Replace										
1045	Lights (int. flourescent) - Replace										
1051	Lights (int. simple) - Replace										
1006	Mailboxes (single) - Replace										
1030	Roof (asph.shingle) - Replace										
1031	Roof (membrane) - Replace										
1033	Roof Skylights - Replace										
1008	Sewer Lateral Lines (side sewer) - Replace										
1052	Staircase & Railings (metal) - Paint					101					
1055	Staircase Railings (metal) - Replace										
1009	Water Lateral Lines - Replace										
1035	Windows (vinyl) - Replace										
Year Total:		7,047				416	13,565				

**Sample Reserve Study
Spreadsheet - Component Expenditures**

	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Beginning Balance	34,630	27,500	31,936	36,530	41,287	45,224	33,803	38,959	44,298	48,898
Annual Reserve Account Contribution	4,091	4,214	4,340	4,470	4,604	4,742	4,885	5,031	5,182	5,338
Interest Earned	191	222	254	287	314	235	271	308	340	380
Expenditures	11,412				982	16,398			922	
Fully Funded Balance	32,312	36,236	40,368	44,714	48,274	36,159	40,670	45,419	49,466	54,694
Percent Funded	85%	88%	90%	92%	94%	93%	96%	98%	99%	100%
Ending Reserve Account Balance	27,500	31,936	36,530	41,287	45,224	33,803	38,959	44,298	48,898	54,615

ID Description

1007	Backflow Valve (domestic water) - Replace									
1025	Backflow Valve (fire system) - Replace	4								
1036	Building Exteriors (metal) - Paint & Seal									
1037	Building Exteriors (metal) - Replace					10,228				
1038	Building Exteriors (wood) - 25% Major Repair								922	
1039	Building Exteriors (wood) - 5% Minor Repair	146				169				
1040	Building Exteriors (wood) - Paint & Seal	2,911				3,375				
1010	Concrete Driveway - Replace									
1011	Concrete Sidewalks (public) - 15% Repair	82				95				
1002	Concrete Surfaces - 5% Repair	113				131				
1028	Deck Railings (metal) - Paint				423					
1029	Deck Railings (metal) - Replace					142				
1012	Decks (composite) - Rebuild									
1013	Decks (membrane) - Refurbish				423					
1014	Decks (membrane) - Topcoat & Non-skid	376				436				
1015	Door Operators (garage) - Replace	4								
1041	Doors (entry/glass) - Paint	23								
1016	Doors (ext. solid core w/ glass) - Replace					8				
1047	Doors (ext. solid core) - Replace					19				
1017	Doors (garage double) - Replace									
1046	Doors (garage) - Paint									
1048	Doors (int. utility/strg) - Replace									
1026	Drain/Waste/Supply/Sprinkler/Standpipe Lin..									
1018	Electrical System - Modernize									

**Sample Reserve Study
Spreadsheet - Component Expenditures**

ID Description	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
1019 Entry Access Panel - Replace	2									
1042 Fence (wood) - Paint/Stain	497					576				
1003 Fence (wood) - Replace	497									
1020 Fire Annunciation Panel - Replace										
1021 Fire Control Panel - Replace										
1022 Fire Peripherals (interior) - Replace										
1054 Flooring (vinyl sheet) - Replace										
1043 Garage Floor (epoxy coat) - Recoat	1,519									
1049 Gate (pedestrian) - Replace						2				
1053 Gutters & Downs. - Replace										
1023 Heaters (wall fan) - Replace										
1027 Hot Water Heaters - Replace	9									
1044 Interior Surfaces - Paint	5,225									
1005 Landscaping - Refurbish										
1024 Lights (ext. fixture) - Replace										
1050 Lights (ext. security) - Replace										
1045 Lights (int. flourescent) - Replace										
1051 Lights (int. simple) - Replace										
1006 Mailboxes (single) - Replace										
1030 Roof (asph.shingle) - Replace										
1031 Roof (membrane) - Replace	5									
1033 Roof Skylights - Replace										
1008 Sewer Lateral Lines (side sewer) - Replace										
1052 Staircase & Railings (metal) - Paint					136					
1055 Staircase Railings (metal) - Replace						138				
1009 Water Lateral Lines - Replace										
1035 Windows (vinyl) - Replace						1,078				
Year Total:	11,412				982	16,398			922	

Sample Reserve Study
Fully Funded Balance Calculations (Beginning Fiscal Year)

Asset ID	Description	Current Cost	x	Age	/	Useful Life	=	Fully Funded
Building Exterior Components								
1036	Building Exteriors (metal) - P...	\$4,885	x	20	/	25	=	\$3,908
1037	Building Exteriors (metal) - R...	\$4,885	x	20	/	45	=	\$2,171
1038	Building Exteriors (wood) - 2...	\$403	x	2	/	30	=	\$27
1039	Building Exteriors (wood) - 5...	\$81	x	5	/	5	=	\$81
1040	Building Exteriors (wood) - P...	\$1,612	x	5	/	5	=	\$1,612
1028	Deck Railings (metal) - Paint	\$208	x	6	/	10	=	\$125
1029	Deck Railings (metal) - Replace	\$68	x	20	/	45	=	\$30
1012	Decks (composite) - Rebuild	\$104	x	20	/	25	=	\$83
1013	Decks (membrane) - Refurbish	\$208	x	6	/	15	=	\$83
1014	Decks (membrane) - Topcoat...	\$208	x	5	/	5	=	\$208
1041	Doors (entry/glass) - Paint	\$13	x	10	/	10	=	\$13
1016	Doors (ext. solid core w/ glas...	\$4	x	20	/	45	=	\$2
1047	Doors (ext. solid core) - Repl...	\$9	x	20	/	45	=	\$4
1017	Doors (garage double) - Repl...	\$2	x	20	/	35	=	\$1
1046	Doors (garage) - Paint	\$13	x	10	/	10	=	\$13
1043	Garage Floor (epoxy coat) - R...	\$841	x	20	/	20	=	\$841
1049	Gate (pedestrian) - Replace	\$1	x	20	/	45	=	\$0
1053	Gutters & Downs. - Replace	\$276	x	20	/	35	=	\$158
1024	Lights (ext. fixture) - Replace	\$20	x	20	/	25	=	\$16
1050	Lights (ext. security) - Replace	\$7	x	20	/	25	=	\$6
1030	Roof (asph.shingle) - Replace	\$25	x	20	/	25	=	\$20
1031	Roof (membrane) - Replace	\$3	x	20	/	20	=	\$3
1033	Roof Skylights - Replace	\$8	x	20	/	25	=	\$6
1052	Staircase & Railings (metal) - ...	\$67	x	6	/	10	=	\$40
1055	Staircase Railings (metal) - R...	\$66	x	20	/	45	=	\$29
1035	Windows (vinyl) - Replace	\$515	x	20	/	45	=	\$229
Building Exterior Components - Total:								\$9,710
Building Interior Components								
1048	Doors (int. utility/strg) - Repl...	\$9	x	20	/	30	=	\$6
1054	Flooring (vinyl sheet) - Replace	\$12	x	20	/	25	=	\$10
1044	Interior Surfaces - Paint	\$2,893	x	10	/	10	=	\$2,893
1045	Lights (int. flourescent) - Rep...	\$10	x	20	/	25	=	\$8
1051	Lights (int. simple) - Replace	\$5	x	20	/	25	=	\$4
Building Interior Components - Total:								\$2,921

Sample Reserve Study
Fully Funded Balance Calculations (Beginning Fiscal Year)

Asset ID	Description	Current Cost	x	Age	/	Useful Life	=	Fully Funded
Electrical / Plumbing / Mechanical / Fire Components								
1007	Backflow Valve (domestic wa...	\$1	x	20	/	25	=	\$1
1025	Backflow Valve (fire system) ...	\$2	x	20	/	40	=	\$1
1015	Door Operators (garage) - Re...	\$2	x	20	/	20	=	\$2
1026	Drain/Waste/Supply/Sprinkl...	\$5,100	x	20	/	50	=	\$2,040
1018	Electrical System - Modernize	\$5,100	x	20	/	50	=	\$2,040
1019	Entry Access Panel - Replace	\$1	x	20	/	20	=	\$1
1020	Fire Annunciation Panel - Re...	\$1	x	20	/	30	=	\$1
1021	Fire Control Panel - Replace	\$1	x	20	/	30	=	\$1
1022	Fire Peripherals (interior) - R...	\$30	x	20	/	30	=	\$20
1023	Heaters (wall fan) - Replace	\$1	x	20	/	25	=	\$1
1027	Hot Water Heaters - Replace	\$5	x	20	/	20	=	\$5
1008	Sewer Lateral Lines (side se...	\$35	x	20	/	50	=	\$14
1009	Water Lateral Lines - Replace	\$35	x	20	/	50	=	\$14
Electrical / Plumbing / Mechanical / Fire Components - Total:								\$4,140
Site Components								
1010	Concrete Driveway - Replace	\$486	x	6	/	50	=	\$58
1011	Concrete Sidewalks (public) -...	\$46	x	20	/	20	=	\$46
1002	Concrete Surfaces - 5% Repair	\$62	x	20	/	25	=	\$50
1042	Fence (wood) - Paint/Stain	\$275	x	5	/	5	=	\$275
1003	Fence (wood) - Replace	\$275	x	20	/	20	=	\$275
1005	Landscaping - Refurbish	\$1,260	x	15	/	15	=	\$1,260
1006	Mailboxes (single) - Replace	\$5	x	20	/	25	=	\$4
Site Components - Total:								\$1,968
Total Asset Summary:								\$18,738

Sample Reserve Study About the Component Detail Reports Section

In the following Component Details Section of this reserve study you will find each component that has been listed within the Component List. This section has more detailed information for each component and reviewing it will often answer questions that arise regarding specific components within this reserve study. Below you will find an explanation of what and where this information is located.

1
Elevated Walkways/Hallways- Topcoat- 2019

	Asset ID	1055	1,340 sf	@ \$4.75
			Asset Cost	\$6,365.00
			Percent Replacement	100%
			Future Cost	\$6,365.00

2

	Category	Decks/Porches/Patios
	Placed in Service	June 2012
	Useful Life	5
	Replacement Year	2019
	Remaining Life	0

4



5

This elastomeric surface type (at elevated walkways, covered staircases and covered hallways) needs to be top coated periodically for waterproof integrity, protection of surrounding structure and appearance. As routine maintenance, we strongly suggest annual professional inspections, with cleaning and repair as needed. Clean with mild solution such as TSP; bleach can be added if mold/mildew becomes a problem. Plan for regular intervals of professional maintenance top coating at the interval indicated.

1. Component Name and next Replacement Year as well as a unique Asset ID to cross reference with other sections within this reserve study.
2. This area has the category of the component, estimated placed in-service date (when last installed), the estimated useful life of the component (estimate of how long the component will last), the next replacement year in this reserve study and the remaining useful life (how many years before replacement is estimated to occur).
3. The area has the total measurement/unit count of the component, the cost per unit, the total asset cost (unit count X unit cost), the percent replacement (amount funded to be replaced in a cycle), and the future cost (estimated cost at the next replacement date).
4. Pictures of the component are included for Level I studies unless the Client has requested fewer pages in the study in which case we will omit them.
5. Specific comments about this component which can include explanations for adjustments to the useful life, phasing, maintenance of the component, Vendor recommendations, etc.

**Sample Reserve Study
Component Detail Reports**

Building Exteriors (metal) - Paint & Seal

		4,885 sf	@ \$1.00
Asset ID	1036	Asset Actual Cost	\$4,885.00
Building Exterior Components		Percent Replacement	100%
	Building Exteriors	Future Cost	\$5,663.05
Placed in Service	January 2002		
Useful Life	10		
Adjustment	15		
Replacement Year	2027		
Remaining Life	5		



Exterior paint appears to be deteriorating at a rate typical of its age. As routine maintenance, inspect regularly and touch up/repair locally as needed using operating funds. Removal and replacement of sealants where applicable with high quality product is important part of surface preparation. Repair areas as needed prior to painting.

To retain the aesthetic appeal and marketability of the building we recommend budgeting for painting of metal exterior surfaces after 25 years of age when metal will typically have faded and become chalky. Once the manufacture's paint has been coated we recommend budgeting for paint cycles of every 10 years thereafter as new site installed coatings will not typically last as long as the initial manufacturer's coating.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Building Exteriors (metal) - Replace

		4,885 sf	@ \$1.00
Asset ID	1037	Asset Actual Cost	\$4,885.00
Building Exterior Components		Percent Replacement	100%
	Building Exteriors	Future Cost	\$10,228.10
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



Metal siding appear to be deteriorating at a rate typical of its age. This component is included for replacement of the metal siding which will eventually deteriorate even though it is considered a long life exterior product; additionally, the underlying WRB (water resistant barrier / weather resistant barrier) will deteriorate and need replacement along with the siding. Larger replacement project should be anticipated and appropriately budgeted for.

Note that cost estimate does not take into account any underlying rot/mold issues that may be present and in need of repair before new siding can be installed.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Building Exteriors (wood) - 25% Major Repair

		1,612 sf	@ \$1.00
Asset ID	1038	Asset Actual Cost	\$403.00
Building Exterior Components		Percent Replacement	25%
	Building Exteriors	Future Cost	\$922.03
Placed in Service	January 2020		
Useful Life	30		
Replacement Year	2050		
Remaining Life	28		



Exterior wood building surfaces appear to be deteriorating at a rate typical of their age. This component is included for replacement of the wood siding and trim which will deteriorate and need replacement along with the underlying weather resistant barrier.

Regular paint cycles and sealing (caulking) where necessary will maximize the useful life of this component as paint/sealing prevents moisture intrusion.

Note that cost estimate does not take into account any underlying rot/mold issues that may be present and in need of repair before new siding can be installed.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Building Exteriors (wood) - 5% Minor Repair

		1,612 sf	@ \$1.00
Asset ID	1039	Asset Actual Cost	\$80.60
Building Exterior Components		Percent Replacement	5%
	Building Exteriors	Future Cost	\$80.60
Placed in Service	June 2012		
Useful Life	5		
Replacement Year	2022		
Remaining Life	0		



Exterior wood building surfaces appear to be deteriorating at a rate typical of their age. This component is included for replacement of the wood siding and trim which will deteriorate and need replacement along with the underlying weather resistant barrier.

Regular paint cycles and sealing (caulking) where necessary will maximize the useful life of this component as paint/sealing prevents moisture intrusion.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Building Exteriors (wood) - Paint & Seal

		1,612 sf	@ \$1.00
Asset ID	1040	Asset Actual Cost	\$1,612.00
Building Exterior Components		Percent Replacement	100%
	Building Exteriors	Future Cost	\$1,612.00
Placed in Service	June 2012		
Useful Life	5		
Replacement Year	2022		
Remaining Life	0		



Exterior paint appears to be deteriorating at a rate typical of its age. As routine maintenance, inspect regularly and touch up/repair locally as needed using operating funds. Typical paint cycles for wood surfaces are between five to seven years depending upon surface preparation, material quality, application methods, site and weather conditions. Removal and replacement of sealants where applicable with high quality product is important part of surface preparation. Repair areas as needed prior to painting.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Deck Railings (metal) - Paint

		208 lf	@ \$1.00
Asset ID	1028	Asset Actual Cost	\$208.00
Building Exterior Components	Railings	Percent Replacement	100%
		Future Cost	\$234.11
Placed in Service	June 2016		
Useful Life	10		
Replacement Year	2026		
Remaining Life	4		



These metal rails should be inspected and monitored rails for safety, touch up paint annually & repair as needed from operating budget.

Manufacture's initial coating will typically last longer than subsequent coats of paint which we recommend budgeting for at 10 year cycles after these reach 15 years of age.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Deck Railings (metal) - Replace

		68 lf	@ \$1.00
Asset ID	1029	Asset Actual Cost	\$68.00
Building Exterior Components	Railings	Percent Replacement	100%
		Future Cost	\$142.38
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



Appear to be deteriorating at a rate typical of its age. As part of ongoing maintenance program, inspect regularly for any damage/deterioration and repair promptly as needed from operating budget. Clean regularly for appearance, maximum design life and to ensure adequate footing.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Decks (composite) - Rebuild

		104 sf	@ \$1.00
Asset ID	1012	Asset Actual Cost	\$104.00
Building Exterior Components		Percent Replacement	100%
	Deck Systems	Future Cost	\$120.56
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



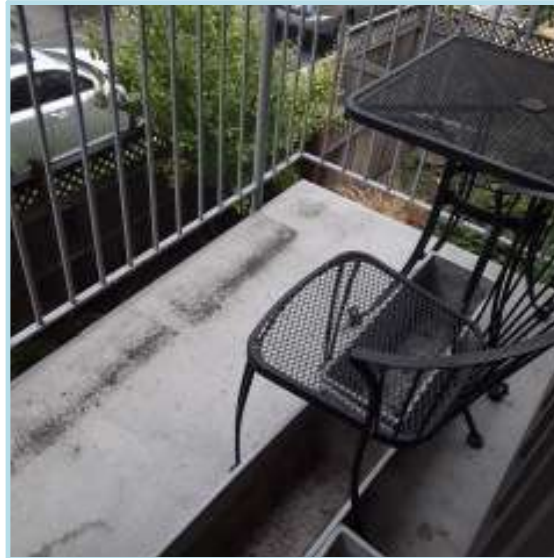
Composite decks appear to be deteriorating at a rate typical of their age. As part of ongoing maintenance program, inspect regularly for any damage/deterioration and repair promptly as needed from operating budget. Clean regularly for appearance, maximum design life and to ensure adequate footing. We recommend budgeting for full replacement of these exposed decks due to constant exposure to the elements.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Decks (membrane) - Refurbish

		208 sf	@ \$1.00
Asset ID	1013	Asset Actual Cost	\$208.00
Building Exterior Components		Percent Replacement	100%
	Deck Systems	Future Cost	\$271.39
Placed in Service	June 2016		
Useful Life	15		
Replacement Year	2031		
Remaining Life	9		



Resurfacing & refurbishing the decks involves removing the waterproof deck system and installing a new system, making any necessary repairs to the beams and sheathing. Local repairs to the deck sheathing and supports beams would also be included in this project as-needed and have been considered in this cost estimate.

*Cost Source: Client Historical Records – Inflated to Current Estimate

**Sample Reserve Study
Component Detail Reports**

Decks (membrane) - Topcoat & Non-skid

		208 sf	@ \$1.00
Asset ID	1014	Asset Actual Cost	\$208.00
Building Exterior Components		Percent Replacement	100%
	Deck Systems	Future Cost	\$208.00
Placed in Service	June 2016		
Useful Life	5		
Replacement Year	2022		
Remaining Life	0		



This membrane surface with non-skid material needs to be top coated periodically for waterproof integrity, protection of surrounding structure, appearance and non-skid properties. As routine maintenance, we strongly suggest annual professional inspections, with cleaning and repair as needed. Clean with mild solution such as TSP; bleach can be added if mold/mildew becomes a problem. Plan for regular intervals of professional maintenance top coating at the interval indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Doors (entry/glass) - Paint

		13 ea	@ \$1.00
Asset ID	1041	Asset Actual Cost	\$13.00
Building Exterior Components		Percent Replacement	100%
	Doors	Future Cost	\$13.00
Placed in Service	June 2012		
Useful Life	10		
Replacement Year	2022		
Remaining Life	0		



Exterior door paint appears to be deteriorating at a rate typical of its age. As routine maintenance, inspect regularly and touch up locally as needed using operating funds.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Doors (ext. solid core w/ glass) - Replace

		4 ea	@ \$1.00
Asset ID	1016	Asset Actual Cost	\$4.00
Building Exterior Components	Doors	Percent Replacement	100%
		Future Cost	\$8.37
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



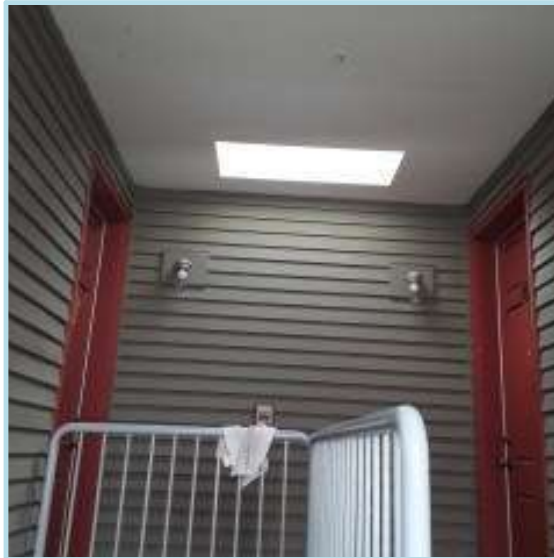
Exterior glass doors at decks appear to be deteriorating at a rate typical of their age. Inspect regularly, repair hardware as needed from maintenance budget. Reserve funding recommended at level indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Doors (ext. solid core) - Replace

		9 ea	@ \$1.00
Asset ID	1047	Asset Actual Cost	\$9.00
Building Exterior Components		Percent Replacement	100%
	Doors	Future Cost	\$18.84
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



Exterior doors appear to be deteriorating at a rate typical of their age. Inspect regularly, repair hardware as needed from maintenance budget. Reserve funding recommended at level indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Doors (garage double) - Replace

		2 ea	@ \$1.00
Asset ID	1017	Asset Actual Cost	\$2.00
Building Exterior Components		Percent Replacement	100%
	Doors	Future Cost	\$3.12
Placed in Service	January 2002		
Useful Life	35		
Replacement Year	2037		
Remaining Life	15		



Garage doors appear to be deteriorating at a rate typical of their age. If not damaged or abused garage doors will last the estimated useful life indicated; repair as needed from operating funds. Clean and paint along with other exterior building surfaces. Best to plan for eventual replacement due to constant usage and wear over time.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Doors (garage) - Paint

		13 ea	@ \$1.00
Asset ID	1046	Asset Actual Cost	\$13.00
Building Exterior Components		Percent Replacement	100%
	Doors	Future Cost	\$13.00
Placed in Service	June 2012		
Useful Life	10		
Replacement Year	2022		
Remaining Life	0		



Exterior door paint appears to be deteriorating at a rate typical of its age. As routine maintenance, inspect regularly and touch up locally as needed using operating funds.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Garage Floor (epoxy coat) - Recoat

		841 sf	@ \$1.00
Asset ID	1043	Asset Actual Cost	\$841.00
Building Exterior Components		Percent Replacement	100%
	Flooring	Future Cost	\$841.00
Placed in Service	January 2002		
Useful Life	20		
Replacement Year	2022		
Remaining Life	0		



The garage coating appears to be deteriorating at a rate typical of its age. As routine maintenance, inspect regularly and touch up/repair locally as needed using operating funds. Typical coating cycles for these surfaces are between four to six years depending upon surface preparation, material quality, application methods, pedestrian traffic volume and site & weather conditions.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Gate (pedestrian) - Replace

		1 ea	@ \$1.00
Asset ID	1049	Asset Actual Cost	\$1.00
Building Exterior Components		Percent Replacement	100%
	Gate Systems	Future Cost	\$2.09
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



Pedestrian gate appears to be deteriorating at a rate typical of its age. Complete touch up paint, maintenance and repairs (paid from Operating Account) to help extend useful life cycles. These types of metal gates are typically durable, however, we recommend setting aside funding for regular intervals of replacement due to constant usage, wear exposure to the elements.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Gutters & Downs. - Replace

		276 lf	@ \$1.00
Asset ID	1053	Asset Actual Cost	\$276.00
Building Exterior Components		Percent Replacement	100%
	Roofing System	Future Cost	\$430.00
Placed in Service	January 2002		
Useful Life	35		
Replacement Year	2037		
Remaining Life	15		



Appear to be deteriorating at a rate typical of their age based our limited scope visual inspection. As routine maintenance, inspect regularly, keep gutters and downspouts free of debris. Repair locally as needed from general operating funds.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Lights (ext. fixture) - Replace

		20 ea	@ \$1.00
Asset ID	1024	Asset Actual Cost	\$20.00
Building Exterior Components		Percent Replacement	100%
	Lighting	Future Cost	\$23.19
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



Exterior lights appear to be deteriorating at a rate typical of their age. Observed during daylight hours; assumed to be in functional operating condition. As routine maintenance, clean by wiping down with an appropriate cleaner, change bulbs and repair as needed. Best to plan for replacement at roughly the time frame indicated for periodic aesthetic updating, cost efficiency and consistent quality/appearance.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Lights (ext. security) - Replace

		7 ea	@ \$1.00
Asset ID	1050	Asset Actual Cost	\$7.00
Building Exterior Components		Percent Replacement	100%
	Lighting	Future Cost	\$8.11
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



Exterior lights appear to be deteriorating at a rate typical of their age. Observed during daylight hours; assumed to be in functional operating condition. As routine maintenance, clean by wiping down with an appropriate cleaner, change bulbs and repair as needed. Best to plan for replacement at roughly the time frame indicated for periodic aesthetic updating, cost efficiency and consistent quality/appearance.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Roof (asph.shingle) - Replace

		25 sq	@ \$1.00
Asset ID	1030	Asset Actual Cost	\$25.00
Building Exterior Components		Percent Replacement	100%
	Roofing System	Future Cost	\$28.98
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



Appears to be deteriorating at a rate typical of its age based on our limited scope visual inspection. As routine maintenance, we recommend professional inspections at least twice annually and after windstorms. Promptly replace any damaged/missing shingles or any other repair needed to ensure waterproof integrity of roof. Keep gutters and downspouts clear and free of debris. Plan for replacement at roughly the time frame indicated. Cost estimates include removal of old roofing materials and replacement of flashing.

1 square (sq) = 100 square feet

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Roof (membrane) - Replace

		3 sq	@ \$1.00
Asset ID	1031	Asset Actual Cost	\$3.00
Building Exterior Components		Percent Replacement	100%
	Roofing System	Future Cost	\$3.00
Placed in Service	January 2002		
Useful Life	20		
Replacement Year	2022		
Remaining Life	0		



Appears to be deteriorating at a rate typical of its age. Assumed to have been correctly installed per manufacturer's specifications, without defect. As routine maintenance, we recommend professional inspections at least twice annually and after wind storms, replacing any damaged or missing sections promptly out of operational/maintenance funds. Ensure positive drainage and ensure adequate waterproofing around drainage areas. Best to plan for replacement of these membranes on the time frame indicated.

Cost estimate includes only replacement of the membrane and not any underlying rot/mold issues that may be present. A common budgeting mistake we see is pushing out the membrane replacement project well past the recommended replacement date only to have a much higher cost related to moisture intrusion issues (e.g., mold, rot) and having to rebuild low slope roofing systems. With proper installation, regular inspections & maintenance and timely replacement (as recommended by the roof Vendor) we do not typically see the need to rebuild low slope roofing systems.

1 square (sq) = 100 square feet

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Roof Skylights - Replace

		8 sf	@ \$1.00
Asset ID	1033	Asset Actual Cost	\$8.00
Building Exterior Components		Percent Replacement	100%
	Roofing System	Future Cost	\$9.27
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



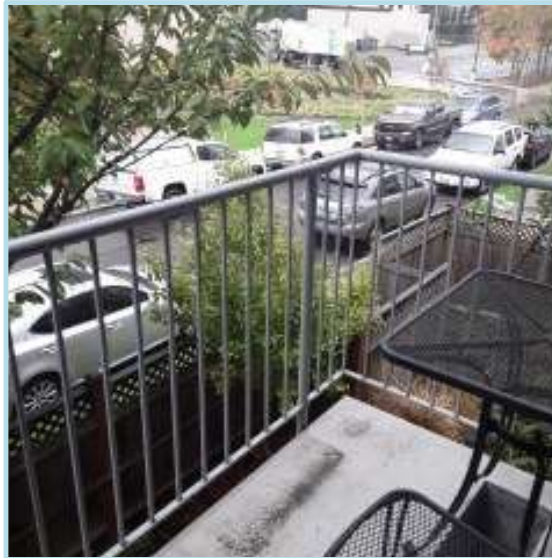
Appear to be deteriorating at a rate typical of their age and no visible leaks readily apparent. No widespread problems indicated. Inspect regularly, repair/replace individually as needed to maintain water proof integrity of building envelope. Best to plan for widespread replacement at the same time as roof cycles to ensure quality weatherproofing is maintained.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Staircase & Railings (metal) - Paint

		1 total	@ \$67.00
Asset ID	1052	Asset Actual Cost	\$67.00
Building Exterior Components	Railings	Percent Replacement	100%
		Future Cost	\$75.41
Placed in Service	June 2016		
Useful Life	10		
Replacement Year	2026		
Remaining Life	4		



These metal rails should be inspected and monitored rails for safety, touch up paint annually & repair as needed from operating budget.

66 - lf of metal railing	@	\$1.00	\$66.00
1 - staircase metal surfaces	@	\$1.00	<u>\$1.00</u>
		Total =	\$67.00

Manufacture's initial coating will typically last longer than subsequent coats of paint which we recommend budgeting for at 10 year cycles after these reach 15 years of age.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Staircase Railings (metal) - Replace

		66 lf	@ \$1.00
Asset ID	1055	Asset Actual Cost	\$66.00
Building Exterior Components		Percent Replacement	100%
	Railings	Future Cost	\$138.19
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



Appear to be deteriorating at a rate typical of its age. As part of ongoing maintenance program, inspect regularly for any damage/deterioration and repair promptly as needed from operating budget. Clean regularly for appearance, maximum design life and to ensure adequate footing.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Windows (vinyl) - Replace

		515 sf	@ \$1.00
Asset ID	1035	Asset Actual Cost	\$515.00
Building Exterior Components	Windows	Percent Replacement	100%
		Future Cost	\$1,078.29
Placed in Service	January 2002		
Useful Life	45		
Replacement Year	2047		
Remaining Life	25		



The vinyl windows appear to be deteriorating at a rate typical of their age. No reported problems such as water intrusion. As routine maintenance, we recommend regular professional inspections and prompt repair as needed to ensure building waterproofing and help prevent structural damage. If properly installed without defect, plan to replace at roughly the time frame indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Doors (int. utility/strg) - Replace

		9 ea	@ \$1.00
Asset ID	1048	Asset Actual Cost	\$9.00
Building Interior Components		Percent Replacement	100%
	Doors	Future Cost	\$12.09
Placed in Service	January 2002		
Useful Life	30		
Replacement Year	2032		
Remaining Life	10		



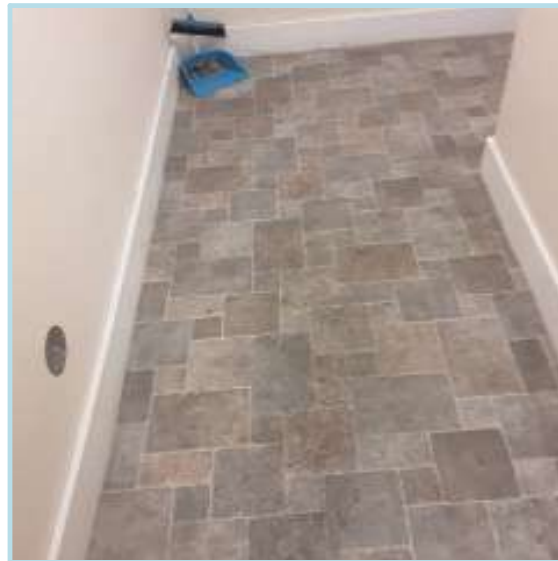
Interior storage/utility doors appear to be deteriorating at a rate typical of their age. Inspect regularly, repair hardware as needed from maintenance budget. Reserve funding recommended at level indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Flooring (vinyl sheet) - Replace

			12 sy	@ \$1.00
Asset ID	1054	Asset Actual Cost		\$12.00
Building Interior Components		Percent Replacement		100%
	Flooring	Future Cost		\$13.91
Placed in Service	January 2002			
Useful Life	25			
Replacement Year	2027			
Remaining Life	5			



Appears to be deteriorating at a rate typical of its age. As part of ongoing maintenance program mop and professionally clean as needed. Plan to replace at the time frame indicated, best timed after repainting. Wide variety of type and quality available; a mid-range funding allowance is factored for planning purposes.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Interior Surfaces - Paint

		2,893 sf	@ \$1.00
Asset ID	1044	Asset Actual Cost	\$2,893.00
Building Interior Components		Percent Replacement	100%
	Building Interiors	Future Cost	\$2,893.00
Placed in Service	June 2012		
Useful Life	10		
Replacement Year	2022		
Remaining Life	0		



Interior paint appears to be deteriorating at a rate typical of its age. Keep touchup paint on site for minor touch ups between the larger repainting projects. Plan to paint these areas on roughly the time frame indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Lights (int. flourescent) - Replace

		10 ea	@ \$1.00
Asset ID	1045	Asset Actual Cost	\$10.00
Building Interior Components		Percent Replacement	100%
	Lighting	Future Cost	\$11.59
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



Interior lights appear to be deteriorating at a rate typical of their age. Observed during daylight hours; assumed to be in functional operating condition. As routine maintenance, clean by wiping down with an appropriate cleaner, change bulbs and repair as needed. Best to plan for replacement at roughly the time frame indicated for periodic aesthetic updating, cost efficiency and consistent quality/appearance.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Lights (int. simple) - Replace

		5 ea	@ \$1.00
Asset ID	1051	Asset Actual Cost	\$5.00
Building Interior Components		Percent Replacement	100%
	Lighting	Future Cost	\$5.80
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



Interior lights appear to be deteriorating at a rate typical of their age. Observed during daylight hours; assumed to be in functional operating condition. As routine maintenance, clean by wiping down with an appropriate cleaner, change bulbs and repair as needed. Best to plan for replacement at roughly the time frame indicated for periodic aesthetic updating, cost efficiency and consistent quality/appearance.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Backflow Valve (domestic water) - Replace

		1 ea	@ \$1.00
Asset ID	1007	Asset Actual Cost	\$1.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Plumbing	Future Cost	\$1.16
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		

Reportedly in functional and in operating condition. As routine maintenance, inspect regularly, test system, repair as needed from operating budget. We recommend funding for this component at the time frame indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Backflow Valve (fire system) - Replace

	Asset ID	1025	2 ea	@ \$1.00
			Asset Actual Cost	\$2.00
Electrical / Plumbing / Mechanical / Fire Components			Percent Replacement	100%
		Plumbing	Future Cost	\$3.61
	Placed in Service	January 2002		
	Useful Life	40		
	Replacement Year	2042		
	Remaining Life	20		



Reportedly in functional and in operating condition. As routine maintenance, inspect regularly, test system, repair as needed from operating budget. We recommend funding for this component at the time frame indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Door Operators (garage) - Replace

		2 ea	@ \$1.00
Asset ID	1015	Asset Actual Cost	\$2.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Mechanical	Future Cost	\$2.00
Placed in Service	January 2002		
Useful Life	20		
Replacement Year	2022		
Remaining Life	0		



Observed to be in functional condition with no evidence of damage or operational problems. As annual maintenance, regular professional inspections, maintenance and local repair as needed is recommended. Plan to replace at typical service life indicated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Drain/Waste/Supply/Sprinkler/Standpipe Lines - Replace

		5,100 sf	@ \$1.00
Asset ID	1026	Asset Actual Cost	\$5,100.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Plumbing	Future Cost	\$12,379.04
Placed in Service	January 2002		
Useful Life	50		
Replacement Year	2052		
Remaining Life	30		

A condition evaluation of these systems is beyond the scope of a Reserve Study. We recommend that a qualified professional be consulted to evaluate these systems and determine the current condition and repair needs. Due to the age of the building and ongoing repair needs, a contingency has been included to supplement the Maintenance/Operating budget for larger repair needs. The repair contingency was determined using the RS Means Square Footage Cost Handbook for plumbing system install costs of similar style of buildings.

The useful life for fire plumbing piping is often reported to be between 45 and 60 years but we recommend having the funds available for this component project before 60 years of age as it has been our experience that rarely do these systems last past 60 years. Once a widespread replacement plan is implemented the reserve study will need to be adjusted to reflect scheduled repairs.

[This component is for the common drain, waste and supply lines that service more than one unit.](#)

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Electrical System - Modernize

		5,100 sf	@ \$1.00
Asset ID	1018	Asset Actual Cost	\$5,100.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Electrical	Future Cost	\$12,379.04
Placed in Service	January 2002		
Useful Life	50		
Replacement Year	2052		
Remaining Life	30		



A condition evaluation of these systems is beyond the scope of a Reserve Study. We recommend that a qualified professional be consulted to evaluate these systems and determine the current condition and repair/modernization needs. The cost estimate was determined using the RS Means Square Footage Cost Handbook for electrical system install costs of similar style of buildings and which is in line with our experience with other similar sized buildings. Once a widespread replacement plan is implemented the reserve study will need to be adjusted to reflect scheduled modernization costs to elements of the system such as the switchgear, control panels, controllers, transformers, feeders, etc. Note that this component is not an estimate to rewire the whole building which is not typically needed if the electrical wiring was appropriately installed. The cost estimate does not include rewiring the building as wiring is typically considered a component which will last the life of the building if appropriately installed.

Typically, if installed per architectural specifications and local building codes, there is no predictable time frame for large scale replacement due to failure, but these systems become outdated over time and do not meet the needs of the building & new technologies which require more modern electrical systems to function adequately and safely.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Entry Access Panel - Replace

		1 ea	@ \$1.00
Asset ID	1019	Asset Actual Cost	\$1.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Security/Communication	Future Cost	\$1.00
Placed in Service	January 2002		
Useful Life	20		
Replacement Year	2022		
Remaining Life	0		



Reportedly in operational condition. We recommend professional inspections and maintenance. Wipe down surfaces periodically with an appropriate cleaner, being careful to avoid control buttons. Plan for replacement at the typical life expectancy interval indicated, due to constant usage and exposure to weather elements.

Note that this component is only for replacement of the entry access panel. Should there be a desire or need to rewire the whole system at a later date (typically to upgrade to a more advanced system) the total cost can be incorporated into future reserve studies after a bid is obtained.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Fire Annunciation Panel - Replace

		1 ea	@ \$1.00
Asset ID	1020	Asset Actual Cost	\$1.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Fire Systems	Future Cost	\$1.34
Placed in Service	January 2002		
Useful Life	30		
Replacement Year	2032		
Remaining Life	10		



Reportedly operational and inspected annually. Regular testing and inspection indicated. No known problems at this time. Fire panels may last for extended period barring unforeseen electrical event. In our experience, however, design obsolescence, parts availability and code/ technology advances dictate the need to plan for periodic replacement.

This cost estimate does not include rewiring of the system which can be very costly should it be required due to code compliance issues. We suggest ongoing consultation with the Vendor so that future code compliance and ongoing industry equipment/parts alterations can be budgeted for in advance of system failures.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Fire Control Panel - Replace

		1 ea	@ \$1.00
Asset ID	1021	Asset Actual Cost	\$1.00
Electrical / Plumbing / Mechanical / Fire Components	Fire Systems	Percent Replacement	100%
		Future Cost	\$1.34
Placed in Service	January 2002		
Useful Life	30		
Replacement Year	2032		
Remaining Life	10		



Reportedly operational and inspected annually. Regular testing and inspection indicated. No known problems at this time. Fire control panels may last for extended period barring unforeseen electrical event. In our experience, however, design obsolescence, parts availability and code/ technology advances dictate the need to plan for periodic replacement.

This cost estimate does not include rewiring of the system which can be very costly should it be required due to code compliance issues. We suggest ongoing consultation with the Vendor so that future code compliance and ongoing industry equipment/parts alterations can be budgeted for in advance of system failures.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Fire Peripherals (interior) - Replace

		30 ea	@ \$1.00
Asset ID	1022	Asset Actual Cost	\$30.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Fire Systems	Future Cost	\$40.32
Placed in Service	January 2002		
Useful Life	30		
Replacement Year	2032		
Remaining Life	10		



This component is for the replacement of the interior peripherals (pull stations, strobes, sensors, horns, detectors) at the time frame indicated. This cost estimate does not include rewiring of the system which can be very costly should it be required due to code compliance issues. We suggest ongoing consultation with the Vendor so that future code compliance can be budgeted for in advance of system failures.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Heaters (wall fan) - Replace

			1 ea	@ \$1.00
	Asset ID	1023	Asset Actual Cost	\$1.00
Electrical / Plumbing / Mechanical / Fire Components			Percent Replacement	100%
		Mechanical	Future Cost	\$1.16
	Placed in Service	January 2002		
	Useful Life	25		
	Replacement Year	2027		
	Remaining Life	5		



Wall heater are reportedly in functional condition. We recommend funding for replacement of this component at the timeframe indicated as these types of wall heaters will typically fail at roughly the timeframe estimated.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Hot Water Heaters - Replace

		1 total	@ \$5.00
Asset ID	1027	Asset Actual Cost	\$5.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Mechanical	Future Cost	\$5.00
Placed in Service	January 2002		
Useful Life	20		
Replacement Year	2022		
Remaining Life	0		



Hot water heaters/tanks are assumed to be in operation condition. We recommend budgeting for replacement at the timeframe indicated and before total failure which can lead to damage if a leak develops. Annual inspections by a qualified professional suggested.

1 - 30 gallon hot water heater	@	\$1.00	\$1.00
4 - 50 gallon hot water heaters	@	\$1.00	<u>\$4.00</u>
		Total =	\$5.00

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Sewer Lateral Lines (side sewer) - Replace		35 lf	@ \$1.00
Asset ID	1008	Asset Actual Cost	\$35.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Plumbing	Future Cost	\$84.95
Placed in Service	January 2002		
Useful Life	50		
Replacement Year	2052		
Remaining Life	30		

Sewer lateral lines (piping connecting buildings to the main line also known as side sewer) on site are reportedly functioning as designed. We recommend budgeting for sewer lateral line replacement at the timeframe indicated due to the the likelihood that these lines will require replacement at approximately the timeframe indicated per our experiences with similar style pipes.

A condition evaluation of these systems is beyond the scope of a Reserve Study. We recommend that a qualified professional be consulted to evaluate these systems, after 30 years of age, to determine the condition and repair needs. Once a widespread replacement plan is implemented the reserve study will need to be adjusted to reflect scheduled repairs.

[No as-builts have been provided of the lateral line locations or quantity; we have made an assumption regarding the linear feet based on the location of the nearby road.](#)

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Water Lateral Lines - Replace

		35 lf	@ \$1.00
Asset ID	1009	Asset Actual Cost	\$35.00
Electrical / Plumbing / Mechanical / Fire Components		Percent Replacement	100%
	Plumbing	Future Cost	\$84.95
Placed in Service	January 2002		
Useful Life	50		
Replacement Year	2052		
Remaining Life	30		

Water lateral lines (piping between main lines and the buildings) on site are reportedly functioning as designed. We recommend budgeting for water lateral line replacement at the timeframe indicated due to the age of the piping and the likelihood that these lines will require replacement at approximately the timeframe indicated per our experiences with similar style pipes.

A condition evaluation of these systems is beyond the scope of a Reserve Study. We recommend that a qualified professional be consulted to evaluate these systems, after 30 years of age to determine the condition and repair needs. Once a widespread replacement plan is implemented the reserve study will need to be adjusted to reflect scheduled repairs.

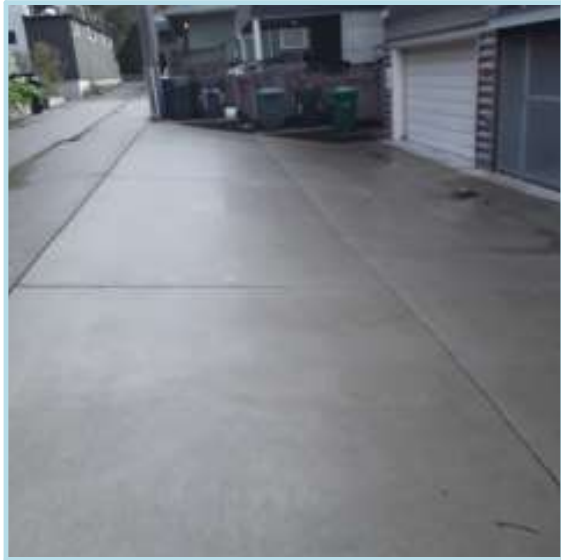
[No as-builts have been provided of the lateral line locations or quantity; we have made an assumption regarding the linear feet based on the location of the nearby road.](#)

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Concrete Driveway - Replace

		486 sf	@ \$1.00
Asset ID	1010	Asset Actual Cost	\$486.00
	Site Components	Percent Replacement	100%
	Concrete Surfaces	Future Cost	\$1,784.32
Placed in Service	June 2016		
Useful Life	50		
Replacement Year	2066		
Remaining Life	44		



This component is for the replacement of the concrete driveway surfaces which was reportedly replaced in 2016. No widespread damage or deterioration noted at time of site visit. We recommend repairing trip hazards immediately to limit liability.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Concrete Sidewalks (public) - 15% Repair

		304 sf	@ \$1.00
Asset ID	1011	Asset Actual Cost	\$45.60
	Site Components	Percent Replacement	15%
	Concrete Surfaces	Future Cost	\$45.60
Placed in Service	January 2002		
Useful Life	5		
Adjustment	15		
Replacement Year	2022		
Remaining Life	0		



Repair contingency for the concrete public sidewalks. Amount and cycle to be reviewed annually. Several trip hazards and cracks noted during the site inspection. We recommend repairing trip hazards immediately to limit liability.

The City has determined that the public sidewalks are the responsibility of the adjacent lot owner.

This component has been set to cycle at 5 year increments after 20 years of age, typically when we see concrete surfaces requiring periodic repairs due to vehicle damage, root intrusion and deterioration.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Concrete Surfaces - 5% Repair

		1,247 sf	@ \$1.00
Asset ID	1002	Asset Actual Cost	\$62.35
	Site Components	Percent Replacement	5%
	Concrete Surfaces	Future Cost	\$72.28
Placed in Service	January 2002		
Useful Life	5		
Adjustment	20		
Replacement Year	2027		
Remaining Life	5		



Repair contingency for the concrete surfaces on site. Amount and cycle to be reviewed annually. No widespread damage or deterioration noted at time of site visit. We recommend repairing trip hazards immediately to limit liability.

This component has been set to cycle at 5 year increments after 25 years of age, typically when we see concrete surfaces requiring periodic repairs due to damage, root intrusion and deterioration.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Fence (wood) - Paint/Stain

		275 lf	@ \$1.00
Asset ID	1042	Asset Actual Cost	\$275.00
	Site Components	Percent Replacement	100%
	Fencing	Future Cost	\$275.00
Placed in Service	June 2012		
Useful Life	5		
Replacement Year	2022		
Remaining Life	0		



Regular sealer applications (stain/paint, etc.) on the timeline indicated are strongly recommended for appearance and protection of wood fencing. Remove any contact with ground and surrounding landscape and sprinkler patterns, repair as needed and clean prior to sealer application. Life of finish will vary depending upon surface preparation, material quality, application method and weather conditions.

Cost estimate assumes both sides of the fence will be coated to adequately protect from the elements.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Fence (wood) - Replace

		275 lf	@ \$1.00
Asset ID	1003	Asset Actual Cost	\$275.00
	Site Components	Percent Replacement	100%
	Fencing	Future Cost	\$275.00
Placed in Service	January 2002		
Useful Life	20		
Replacement Year	2022		
Remaining Life	0		



Wood fencing appears to be deteriorating at a rate typical of its age. As routine maintenance, inspect regularly for any damage, repair as needed. Avoid contact with ground and surrounding vegetation. Regular cycles of stain/paint will help to maintain appearance and maximize life. Plan to replace at roughly the time frame indicated.

There is no paint or stain present on the fence at this time. We assume the Client would like to let the wood surfaces age naturally with no paint/stain. We have taken this into account in the useful life of this component; bare wood typically does not last as long as painted wood surfaces however the cost of painting over time is also not incurred.

*Cost Source: Client Historical Records – Inflated to Current Estimate

**Sample Reserve Study
Component Detail Reports**

Landscaping - Refurbish

		1,260 sf	@ \$1.00
Asset ID	1005	Asset Actual Cost	\$1,260.00
	Site Components	Percent Replacement	100%
	Landscaping	Future Cost	\$1,260.00
Placed in Service	January 2002		
Useful Life	15		
Replacement Year	2022		
Remaining Life	0		



Although ongoing maintenance is funded from the Operating Account, this component may be utilized for setting aside funds for larger expenses that do not occur on an annual basis, such as: weed barrier replacement, large scale plantings, common area drainage projects, resodding lawn areas, landscape improvement projects, etc.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

**Sample Reserve Study
Component Detail Reports**

Mailboxes (single) - Replace

		5 ea	@ \$1.00
Asset ID	1006	Asset Actual Cost	\$5.00
	Site Components	Percent Replacement	100%
	Mailboxes	Future Cost	\$5.80
Placed in Service	January 2002		
Useful Life	25		
Replacement Year	2027		
Remaining Life	5		



Appears to be deteriorating at a rate typical of its age based on our visual inspection of this component. As routine maintenance, inspect regularly, clean by wiping down for appearance, change lock cylinders, lubricate hinges and repair as needed from operating budget. Best to plan for total replacement at roughly the time frame indicated due to constant usage and wear over time.

*Cost Source: Reserve Data Analyst In-House Research & Cost Records

Sample Reserve Study

Definitions, Disclosure & Calculations Appendixes

Definitions Index

Abbreviations

ea = each	FY = fiscal year	If or lin ft = lineal feet	ls = lump sum
RL = remaining life	sf or sq ft = square feet	sy or sq yd= square yard	
UL = useful life	100 sq ft = 1 square)	% = percent	

1. **Allocation %**
A percentage of the total Reserve Allocation. See - Calculations Appendix
2. **Allocation Increase Rate**
Expressed as a percentage rate that reflects the increase of a given year's Reserve Allocation over the previous year's Reserve Allocation and utilized only in the Cash Flow Analysis.
3. **Base Year**
The year in which the governing documents were recorded and/or the buildings constructed (average year may be used for phases built over a period) and utilized to determine the approximate complex age. This parameter is provided for information only.
4. **Common Interest Development (CID)**
Defined by shared property and restrictions in the deed on use of the property. A CID is governed by a mandatory Association of homeowners which administers the property and enforces its restrictions. The following are two typical CID subdivision types:
 - Condominium- In general, the recorded owner has title to the unit (or airspace). They are typically responsible for the interior of their individual unit/garage, all utilities that service their unit and any exclusive use common area associated with their unit.
 - Planned Development- In general, the recorded owner has title to the lot. They are typically responsible for the maintenance and repair of any structure or improvement located on their respective lot.

**Note- CIDs & subdivision types are general and may not apply or may vary, based on your local.*

5. **Component Inventory**
The task of selecting and quantifying reserve items. This task can be accomplished through on-site visual observations, review of association design and organizational documents, review of established association precedents, and discussion with appropriate association representatives.
6. **Condition Assessment**
The task of evaluating the current condition of the component based on observed or reported characteristics and normal documented in the field report for a Level 1 or Level 2 Reserve Study.
7. **Contingency Rate**
Expressed as a percentage rate that reflects a factor added to the unit cost to prepare for an event that is liable to occur, but not with certainty.

8. **Current Cost**
The current fiscal year's estimated cost to maintain, replace, repair, or restore a reserve component to its original functional condition. Sources utilized to obtain estimates may include: the association, its contractors, other contractors, specialists and independent consultants, the State department of Real Estate (or other state department as applicable), construction pricing and estimating manuals, and the preparer's own experience and/or database of costs formulated in the preparation of other reserve study reports. See - Calculations Appendix.
9. **Disbursement / Expenditures**
The funds expected to be paid or expended from the Reserve Balance.
10. **Extended Cost**
See - Calculations Appendix.
11. **Fiscal Year (FY)**
A twelve-month period for which an organization plans the use of its funds. There are two distinct types:
 - Calendar Fiscal Year (ends December 31)
 - Non-Calendar Fiscal Year (does not end December 31)
12. **Full Funded Balance (FFB)**
Total Accrued Depreciation. An indicator against which the FY Start Balance can be compared. The balance that is in direct proportion to the fraction of life "used up" of the cost. See - Calculations Appendix.
13. **Funding Goal**
Independent of methodology utilized, the following represents the basic categories of funding plan goals:
 - Baseline Funding- Maintaining a Net Reserve Balance above zero for length of the study.
 - Full Funding- Maintaining a Reserve Balance at or near Percent Funded of 100%.
 - Statutory Funding- Maintaining a specified Reserve Balance/Percent Funded per statutes.
 - Threshold Funding- Establishing and maintaining a set predetermined Reserve Balance or Percent Funded.
14. **Funding Method (or Funding Plan)**
An Association's plan to provide income to the reserve fund to offset expected disbursements from that fund. The following represents two (2) basic methodologies used to fund reserves:
 - Cash Flow Method- A method of developing a reserve funding plan where allocations to the reserve fund are designed to offset the variable annual expenditures from the reserve fund. Different reserve funding plans are tested against the anticipated schedule of reserve expenses until the desired funding goal is achieved.
 - Component Method- The component method develops a reserve-funding plan where the total contribution is based on the sum of contributions for individual components. The component method is the more conservative (typically higher reserve account balance) of the two funding options and assures that the association will achieve and maintain an ideal level of reserves over time. This method also allows for computations on individual components in the analysis. However, this method has also limitations with respects to variations in actual useful life of components and is much more time intensive to accurately follow this funding strategy.

Sample Reserve Study

Definitions, Disclosure & Calculations Appendixes

15. **Funding Plan**
The combined Funding Method & Funding Goal.
16. **FY End Balance (same as next FY Start Balance)**
The balance in reserves at end of applicable fiscal year. See - Calculations Appendix.
17. **FY Start Balance (same as prior year FY End Balance)**
The balance in reserves at start of applicable fiscal year.
18. **Inflation Rate**
Expressed as a percentage rate that reflects the increase of this year's costs over the previous year's costs. Also known as a 'cost increase factor'.
19. **Interest Earned**
The annual earning of reserve funds that have been deposited into certificates of deposit (CDs), money market accounts or other investment vehicles. See - Calculations Appendix.
20. **Interest Rate**
The ratio of the gain received from an investment and the investment over a period (usually one year), prior to any federal or state-imposed taxes.
21. **Interest Rate (net effective)**
The ratio of the gain received from an investment and the investment over a period (usually one year), after any federal or state-imposed taxes.
22. **Levels of Service**
Level 1 Reserve Study (Full or Comprehensive)- A Reserve Study in which the following five Reserve Study tasks are performed:
- Component Inventory
 - Condition Assessment (based upon on-site visual observations)
 - Life and Valuation Estimates
 - Fund Status
 - Funding Plan
- Level 2 Reserve Study** (Update, With-Site-Visit/On-Site Review)- A Reserve Study update in which the following five tasks are performed:
- Component Inventory (from prior study)
 - Condition Assessment (based upon on-site visual observations)
 - Life and Valuation Estimates
 - Fund Status
 - Funding Plan
- *Note- Updates are reliant on the validity of prior Reserve Studies.
- Level 3 Reserve Study** (Update, No-Site-Visit/Off-Site Review)- A Reserve Study update with no on-site visual observations in which the following three tasks are performed:
- Component Inventory (from prior study)
 - Condition Assessment (based upon on-site visual observations)
 - Life and Valuation Estimates
 - Fund Status
 - Funding Plan
- *Note- Updates are reliant on the validity of prior Reserve Studies.
23. **Percent Funded**
A comparison of the Fully Funded Balance (ideal balance) to the Fiscal Year Actual Start Balance expressed as a percentage and used to provide a 'general indication' of reserve strength. See Calculations Appendix.
24. **Quantity**
The number or amount of a reserve component or subcomponent.
25. **Remaining Life (RL)**
The estimated time, in years, that a reserve component can be expected to continue to serve its intended function.
26. **Replacement %**
A percentage of the total replacement for a reserve component or subcomponent. This parameter is normally 100%.
27. **Reserve Allocation**
The amount to be annually budgeted towards reserves based on a Funding Plan.
28. **Reserve Component (or subcomponent)**
The individual line items in the reserve study, developed or updated in the physical analysis that form the building blocks of the reserve study. They typically are:
- an association responsibility,
 - with limited useful life expectancies,
 - predictable remaining useful life expectancies,
 - above a minimum threshold cost,
 - and, as required by statutes.
29. **Restoration**
Defined as to bring back to an unimpaired or improved condition. General types follow:
- Building- In general, funding utilized to defray the cost (in whole or part) of major building components that are not necessarily included as line items and may include termite treatment.
 - Irrigation System- In general, funding utilized to defray the cost (in whole or part) of sectional irrigation system areas including modernization to improve water management.
 - Landscape- In general, funding utilized to defray the cost (in whole or part) of sectional landscape areas including modernization to improve water conservation & drainage.
30. **Risk Factor (Percent Funded)**
The associated risk of the availability of reserves to fund expenditures by interpreting the Percent Funded parameter as follows:
- 70% and above - LOW
 - 30% to 70% - MODERATE
 - 30% and below - HIGH
- *High risk is associated with a higher risk for reliance on special assessments, loans and litigation.
31. **Unit Cost**
The current fiscal year's estimated cost to maintain, replace, repair, or restore an individual "unit of measure" of a reserve component or subcomponent to its original functional condition.
32. **Unit of Measure**
A system of units used in measuring a reserve component or subcomponent (i.e. each, lineal feet, square feet, etc.).
33. **Useful Life (UL)**
Total Useful Life or Depreciable Life. The estimated time, in years, that a reserve item can be expected to serve its intended function if properly constructed and maintained in its present application or installation.

Sample Reserve Study

Definitions, Disclosure & Calculations Appendixes

Disclosures Index

The below disclosures are in accordance with reserve study standards developed by CAI, APRA and statutory requirements.

1. **Items Beyond the Scope of this Report**

This reserve study has been conducted to outline a financial plan for the proper and adequate budgeting of the Association component repair and/or replacement. This report should not be utilized for any other purpose and should not be considered or deemed appropriate or reliable for, but not limited to, any of the following:

- Building or land appraisals for any purpose
- State or local zoning ordinance violations
- Building code violations
- Soils conditions, soils contamination or geological stability of site
- Engineering analysis or structural stability of site
- Air quality, asbestos, electromagnetic radiation, formaldehyde, lead, mercury, or radon
- Water quality or other environmental hazards
- Invasions by termites and any or all other destroying organisms or insects
- Damage or destruction due to pests, birds, bats or animals to buildings or site
- Adequacy or efficiency of any system or component on site
- Specifically excluded reserve items
- Septic systems and septic tanks
- Buried or concealed portions of swing pools, pool liners, Jacuzzis/spas or similar items
- Items concealed by signs, carpets or other things
- Missing or omitted information supplied by the Association for the purposes of reserve study preparation
- Hidden improvements such as sewer lines, water lines, or other buried or concealed items

2. **Qualifications**

We are a professional business in the market to prepare Reserve Studies. Our Reserve Analysts' are either designated with or working towards the RS and/or PRA designations which are given by the two leading industry organizations which require peer review, continuing education and provide resources to stay on top of industry trends.

3. **Invasive Testing**

Estimated life expectancies and life cycles are based upon conditions that were readily accessible and visible at the time of the site visit. We did not destroy any landscape work, building walls, or perform any methods of intrusive/invasive testing during the site visit. In these cases, information may have been obtained by contacting the contractor or vendor that has worked on the property. The physical analysis performed during this site visit is not intended to be exhaustive in nature and may include representative sampling.

4. **Conflicts of Interests**

As the preparer of this reserve study; the Reserve Analyst certifies that we do not have any vested interests, financial interests, or other interests that would cause a conflict of interest in the preparation of this reserve study.

5. **Representative Sampling**

This study and report is based on observations of the visible and apparent conditions of a reasonable representative sampling of the property's elements at the time of inspection. Although due diligence was performed during the inspection phase, we make no representations regarding latent or concealed defects that may exist. The inspection did not constitute any invasive investigations and was not intended to determine whether applicable building components, systems, or equipment are adequate or in compliance with any specific or commonly accepted design requirement, building code, or specification. Such tasks as material testing, engineering analysis, destructive testing, or performance testing of building systems, components, or equipment are not considered as part of the scope of work, nor are they considered by the reserve study industry standard.

6. **Reliance on Client & Vendor Data Provided**

Information provided to the preparer of a reserve study by an official representative of the association regarding financial, historical, physical, quantitative or reserve project issues will be deemed reliable by the preparer. A reserve study will reflect information provided to the preparer of the reserve study. The total of actual or projected reserves required as presented in the reserve study is based upon information provided that was not audited. A reserve study is not intended to be used to perform an audit, an analysis of quality, a forensic study or a background check of historical records. A site visit conducted in conjunction with a reserve study should not be deemed to be a project audit or quality inspection. The results of this study are based on the independent opinion of the preparer and their experience and research during their career in preparing Reserve Studies. In addition, the opinions of experts on certain components have been gathered through research within their industry and with client's actual vendors. There is no implied warranty or guarantee regarding our life and cost estimates/predictions. There is no implied warranty or guarantee in any of our work product. Our results and findings will vary from another preparer's results and findings. A Reserve Study is necessarily a work in progress and subsequent Reserve Studies will vary from prior studies.

7. **Update to Prior Reserve Studies**

Level II Studies: Quantities of major components as reported in previous reserve studies are deemed to be accurate and reliable. The reserve study relies upon the validity of previous reserve studies. Level III Studies: In addition to the above we have not visited the property when completing a Level III "No Site Visit" study. Therefore, we have not verified the current condition of the common area components. It is assumed all prior study component information related to quantities, condition assessments, useful life and remaining useful life are accurate.

8. **Assumption Regarding Ongoing Maintenance**

The projected life expectancy of the major components and the funding needs of the reserves of the association are based upon the association performing appropriate routine and preventative maintenance for each major component. Failure to perform such maintenance can negatively impact the remaining useful life of the major components.

Sample Reserve Study

Definitions, Disclosure & Calculations Appendixes

9. Assumptions Regarding Defect in Design or Construction

This Reserve Study assumes that all construction assemblies and components identified herein are built properly and are free from defects in materials and/or workmanship. Defects can lead to reduced useful life and premature failure. It was not the intent of this Reserve Study to inspect for or to identify defects. If defects exist, repairs should be made so that the construction components and assemblies at the community reach their full and expected useful lives. We have assumed all components have been properly built and will reach normal, typical life expectancies. In general, a reserve study is not intended to identify or fund for construction defects. We did not and will not look for or identify construction defects during our site visit.

10. Basis of Cost Estimates

Pricing used for the repair or replacement costs indicated in this report are derived from a variety of sources, e.g., recent contractor bids received by subject property HOA or prior clients, construction product vendor catalogs, internet, or national construction cost estimating publishers (RS Means / Marshall & Swift). The material and labor pricing provided are estimates and have been augmented, as necessary, to account for specific site conditions (i.e. material handling, scaffolding, etc.). The total expenses represent a useful guideline whereby reserve funds can be accumulated for future repairs and replacements. The estimated repair and replacement expenses, unless otherwise noted, do not include allowances for architectural, engineering, or permitting fees.

11. Limitations on Report Use

A reserve study is not intended to be used to perform an audit, an analysis of quality, a forensic study or a background check of historical records. A site visit conducted in conjunction with a reserve study should not be deemed to be a project audit or quality inspection. This Reserve Study is provided as an aid for planning purposes and not as an accounting tool. Since it deals with events yet to take place, there is no assurance that the results enumerated within it will, in fact, occur as described. Additionally, other unanticipated expenses may arise that are not included within this reserve study. This reserve study should be reviewed carefully. It may not include all common and limited common element components that will require major maintenance, repair, or replacement in future years, and may not include regular contributions to a reserve account for the cost of such maintenance, repair, or replacement. The failure to include a component in a reserve study, or to provide contributions to a reserve account for a component, may, under some circumstances, require you to pay on demand as a special assessment your share of common expenses for the cost of major maintenance, repair, or replacement of a reserve component.

12. State Specific Disclosures

Washington State

RCW 64.34.382 & WA State RCW 64.38.070

This reserve study includes all aspects required per WA State RCW requirements outlined in the Washington Condominium Act and the Homeowners' Association Act.

This reserve study should be reviewed carefully. It may not include all common and limited common element components that will require major maintenance, repair, or replacement in future years, and may not include regular contributions to a reserve account for the cost of such maintenance, repair, or replacement. The failure to include a component in a reserve study, or to provide contributions to a reserve account for a component, may, under some circumstances, require you to pay on demand as a special assessment your share of common expenses for the cost of major maintenance, repair, or replacement of a reserve component.

Washington State

Disclosures Required by RCW 64.90.550.

This Reserve Study meets all requirements of the Washington Uniform Common Interest Ownership Act.

- a) This Reserve Study was prepared with the assistance of a reserve study professional and that professional was independent;
- b) This Reserve Study includes all information required by RCW 64.90.550 Reserve Study – Contents; and
- c) This reserve study should be reviewed carefully. It may not include all common and limited common element components that will require major maintenance, repair, or replacement in future years, and may not include regular contributions to a reserve account for the cost of such maintenance, repair, or replacement. The failure to include a component in a reserve study, or to provide contributions to a reserve account for a component, may, under some circumstances, require the association to (1) defer major maintenance, repair, or replacement, (2) increase future reserve contributions, (3) borrow funds to pay for major maintenance, repair, or replacement, or (4) impose special assessments for the cost of major maintenance, repair, or replacement.

Sample Reserve Study

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Calculations Index

1. Allocation % =

Reserve Allocation (Component Method) / Total Reserve Allocation (Component Method) x 100

2. Current Cost =

Extended Cost (for a component without subcomponents)
 i. -or-
 Sum of subcomponent Extended Costs (for a component with subcomponents)

3. Extended Cost =

Quantity x Unit Cost x Replacement % x (1+Contingency Rate)

4. FY End Balance (same as Next FY Start Balance) =

Initial or current fiscal year-
 Current Reserve Balance + Interest Earned + Reserve Allocation to Fund + Special Assessment to Fund + Funds Due from Operating - Approved Funds to Disburse - Disbursements

Subsequent fiscal years-
 FY Start Balance + Interest Earned + (Reserve Allocation (from previous year) x (1 + Reserve Allocation Rate) - Disbursements

5. Interest Earned=

Initial fiscal year-
 Current Reserve Balance x (Interest Rate (net effective)/12 x Number of funding months remaining in current fiscal year)

Subsequent fiscal years-
 FY Start Balance x Interest Rate (net effective)
Accumulation Function and Amount Function
<https://www.reservedataanalyst.com/int>

6. Percent Funded =

(Reserve Account Balance / Fully Funded Balance) x 100

7. Reserve Allocation (Component Method) =

Current Cost / Useful Life

8. Fully Funded Balance (FFB) =

Basic Fully Funded

Fully Funded = Age/Useful Life * Cost

Note that "Age" is adjusted for each year of the study (e.g. one year later also equates to an Age which is one year greater). We do not use the age from the first year of the study for future FFB calculations as this would not appropriately address the deterioration of the component over time (i.e. when providing future projections one can make a valid assumption that a component will deteriorate by one year if providing projections for one year later).

Cost (component project cost) is inflated for each year based on an annual inflation rate (compounding) given in this reserve study (e.g. a paint project "cost" may be \$1,000 in Year 1 of the study but will have a "cost" of \$1,030 in Year 2 of the study, and \$1,060.90 in Year 3 of the study, when utilizing an annual 3% inflation rate. Note that we do not use the "cost" (current project cost) from the first year of the study for future year's FFB calculations as this approach does not consider the impact of inflation on the project cost and will usually result in a significantly underfunded reserve account over time. This is also known as the Inflation Adjusted Cost Method

***Unless specifically noted otherwise we have utilized the above FFB formula and methodology in this reserve study.*

Community Association Institute FFB Formula

The Community Association Institute published the below FFB formula to account for inflation and interest earned on deposit ("present value" is based on the current cost only - with no inflation of the project cost) the writers of 'RESERVE FUNDS: How & Why community Associations Invest Assets' published:

$$Basic_FF = (Age / Useful Life) * Present Value$$

$$CAI_FF = Basic_FF$$

$$+ Basic_FF / (1 + interest)^{Remaining Life}$$

$$- Basic_FF / (1 + inflation)^{Remaining Life}$$

More mathematical information can be found at the following link: www.reservedataanalyst.com/math

**Sample Reserve Study
Component Index**

Asset ID	Description	Replacement	Page
Building Exterior Components			
1036	Building Exteriors (metal) - Paint & Seal	2027	42
1037	Building Exteriors (metal) - Replace	2047	43
1038	Building Exteriors (wood) - 25% Major Repair	2050	44
1039	Building Exteriors (wood) - 5% Minor Repair	2022	45
1040	Building Exteriors (wood) - Paint & Seal	2022	46
1028	Deck Railings (metal) - Paint	2026	47
1029	Deck Railings (metal) - Replace	2047	48
1012	Decks (composite) - Rebuild	2027	49
1013	Decks (membrane) - Refurbish	2031	50
1014	Decks (membrane) - Topcoat & Non-skid	2022	51
1041	Doors (entry/glass) - Paint	2022	52
1016	Doors (ext. solid core w/ glass) - Replace	2047	53
1047	Doors (ext. solid core) - Replace	2047	54
1017	Doors (garage double) - Replace	2037	55
1046	Doors (garage) - Paint	2022	56
1043	Garage Floor (epoxy coat) - Recoat	2022	57
1049	Gate (pedestrian) - Replace	2047	58
1053	Gutters & Downs. - Replace	2037	59
1024	Lights (ext. fixture) - Replace	2027	60
1050	Lights (ext. security) - Replace	2027	61
1030	Roof (asph.shingle) - Replace	2027	62
1031	Roof (membrane) - Replace	2022	63
1033	Roof Skylights - Replace	2027	64
1052	Staircase & Railings (metal) - Paint	2026	65
1055	Staircase Railings (metal) - Replace	2047	66
1035	Windows (vinyl) - Replace	2047	67
Building Interior Components			
1048	Doors (int. utility/strg) - Replace	2032	68
1054	Flooring (vinyl sheet) - Replace	2027	69
1044	Interior Surfaces - Paint	2022	70
1045	Lights (int. flourescent) - Replace	2027	71
1051	Lights (int. simple) - Replace	2027	72
Electrical / Plumbing / Mechanical / Fire Components			
1007	Backflow Valve (domestic water) - Replace	2027	73

**Sample Reserve Study
Component Index**

Asset ID	Description	Replacement	Page
<i>Electrical / Plumbing / Mechanical / Fire Components Continued...</i>			
1025	Backflow Valve (fire system) - Replace	2042	74
1015	Door Operators (garage) - Replace	2022	75
1026	Drain/Waste/Supply/Sprinkler/Standpipe Lines - Re..	2052	76
1018	Electrical System - Modernize	2052	77
1019	Entry Access Panel - Replace	2022	78
1020	Fire Annunciation Panel - Replace	2032	79
1021	Fire Control Panel - Replace	2032	80
1022	Fire Peripherals (interior) - Replace	2032	81
1023	Heaters (wall fan) - Replace	2027	82
1027	Hot Water Heaters - Replace	2022	83
1008	Sewer Lateral Lines (side sewer) - Replace	2052	84
1009	Water Lateral Lines - Replace	2052	85
Site Components			
1010	Concrete Driveway - Replace	2066	86
1011	Concrete Sidewalks (public) - 15% Repair	2022	87
1002	Concrete Surfaces - 5% Repair	2027	88
1042	Fence (wood) - Paint/Stain	2022	89
1003	Fence (wood) - Replace	2022	90
1005	Landscaping - Refurbish	2022	91
1006	Mailboxes (single) - Replace	2027	92
	Total Funded Assets	51	
	Total Unfunded Assets	<u>0</u>	
	Total Assets	51	