Homeowners Association of Twin Mill Farms

July 29, 2024 • Fort Worth, TX

FULL RESERVE STUDY

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Corporate Office
Reserve Advisors, LLC
735 N. Water Street, Suite 175
Milwaukee, WI 53202

Homeowners Association of Twin Mill Farms
Fort Worth, Texas

Dear Board of Directors of Homeowners Association of Twin Mill Farms:

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Full Reserve Study* of Homeowners Association of Twin Mill Farms in Fort Worth, Texas and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, July 29, 2024.

This *Full Reserve Study exceeds* the Association of Professional Reserve Analysts (APRA) standards fulfilling the requirements of a "Level I Full Reserve Study."

An ongoing review by the Board and an Update of this Reserve Study are necessary to ensure an equitable funding plan since a Reserve Study is a snapshot in time. We recommend the Board budget for an Update to this Reserve Study in two- to three-years. We look forward to continuing to help Homeowners Association of Twin Mill Farms plan for a successful future.

As part of our long-term thinking and everyday commitment to our clients, we are available to answer any questions you may have regarding this study.

Respectfully submitted on August 21, 2024 by

Reserve Advisors, LLC

Visual Inspection and Report by: Mitchell D. Korn, Engineer
Review by: Keary D. Wass, RS[1], Quality Assurance Engineer
Alan M. Ebert, RS, PRA[2], Director of Quality Assurance

1 RS (Reserve Specialist) is the reserve provider professional designation of the Community Associations Institute (CAI) representing America's more than 300,000 condominium, cooperative and homeowners associations.
2 PRA (Professional Reserve Analyst) is the professional designation of the Association of Professional Reserve Analysts. Learn more about APRA at http://www.apra-usa.com.

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Table of Contents

1. RESERVE STUDY EXECUTIVE SUMMARY

Client: Homeowners Association of Twin Mill Farms (Homeowners Association of)
Location: Fort Worth, Texas
Reference: 230798

Property Basics: Homeowners Association of Twin Mill Farms is responsible for the common elements shared by 911 single family homes. The community was built from 2005 to 2020.

Reserve Components Identified: 23 Reserve Components.

Inspection Date: July 29, 2024.

Funding Goal: The Funding Goal of this Reserve Study is to maintain reserves above an adequate, not excessive threshold during one or more years of significant expenditures. Our recommended Funding Plan recognizes this threshold funding year in 2045 due to the replacement of the irrigation system.

Methodology: We use the Cash Flow Method to compute the Reserve Funding Plan. This method offsets future variable Reserve Expenditures with existing and future stable levels of reserve funding. Our application of this method also considers:

- Current and future local costs of replacement
- 2.0% anticipated annual rate of return on invested reserves
- 3.5% future Inflation Rate for estimating Future Replacement Costs

Sources for *Local* Costs of Replacement: Our proprietary database, historical costs and published sources, i.e., R.S. Means, Incorporated.

Unaudited Cash Status of Reserve Fund:

- $310,906 as of August 1, 2024
- 2024 budgeted Reserve Contributions of $50,000

Project Prioritization: We note anticipated Reserve Expenditures for the next 30 years in the ***Reserve Expenditures*** tables and include a ***Five-Year Outlook*** table following the ***Reserve Funding Plan*** in Section 3. We recommend the Association prioritize the following projects in the next five years based on the conditions identified:

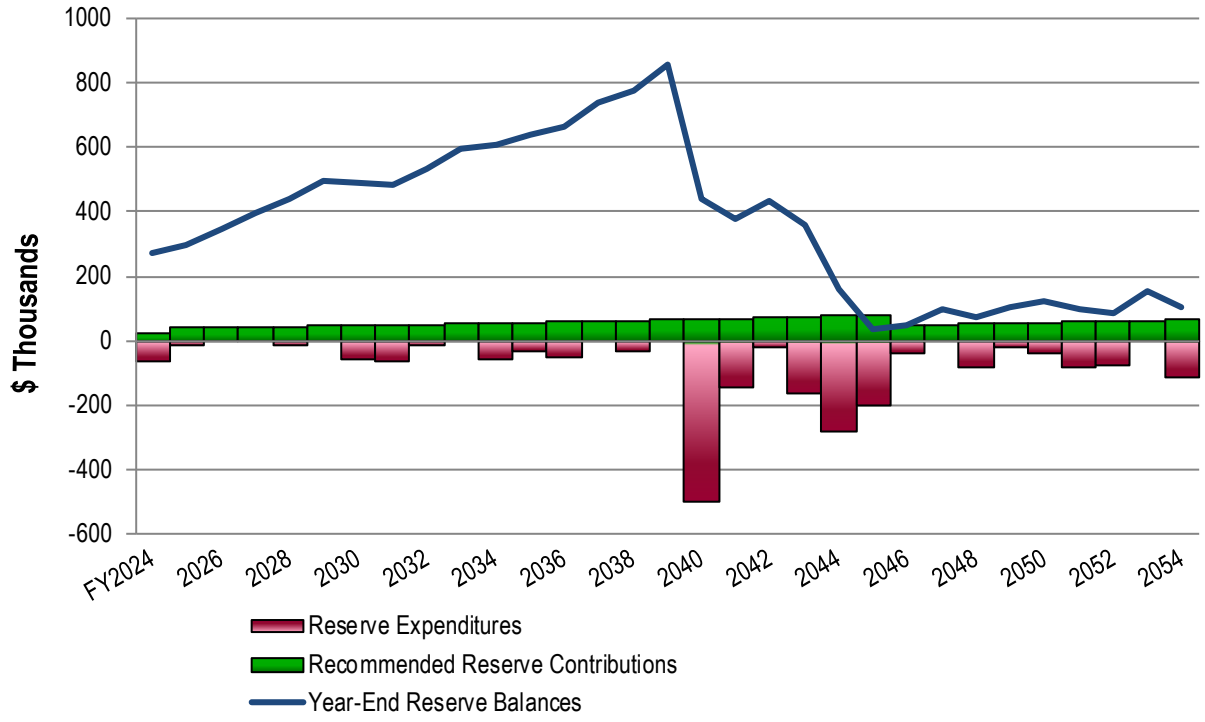
- Replacement of the pool plaster and tile
- Replacement of the vinyl perimeter fences
- Repairs to the masonry retaining walls
- Repairs to the concrete pool deck

Recommended Reserve Funding: We recommend the following in order to achieve a stable and equitable Cash Flow Methodology Funding Plan:

- We recommend the Association adopt a reserve budget of $40,000 in 2025
- Inflationary increases from 2026 through 2045
- Decrease to $49,000 by 2046 due to fully funding for replacement of the irrigation system
- Inflationary increases thereafter through 2054, the limit of this study's Cash Flow Analysis
- 2025 Reserve Contribution of $40,000 is equivalent to an average monthly contribution of $3.66 per owner.

Homeowners Association of
Recommended Reserve Funding Table and Graph

Year	Reserve Contributions ($)	Reserve Balances ($)	Year	Reserve Contributions ($)	Reserve Balances ($)	Year	Reserve Contributions ($)	Reserve Balances ($)
2025	40,000	299,319	2035	56,400	640,179	2045	79,500	37,003
2026	41,400	347,119	2036	58,400	661,602	2046	49,000	48,267
2027	42,800	397,289	2037	60,400	735,838	2047	50,700	100,439
2028	44,300	438,388	2038	62,500	778,530	2048	52,500	72,912
2029	45,900	493,515	2039	64,700	859,448	2049	54,300	105,344
2030	47,500	490,103	2040	67,000	441,730	2050	56,200	121,970
2031	49,200	484,833	2041	69,300	374,913	2051	58,200	100,604
2032	50,900	532,771	2042	71,700	436,068	2052	60,200	87,732
2033	52,700	596,653	2043	74,200	356,626	2053	62,300	152,410
2034	54,500	606,273	2044	76,800	157,117	2054	64,500	106,472



2. RESERVE STUDY REPORT

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Full Reserve Study* of

Homeowners Association of Twin Mill Farms

Fort Worth, Texas

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, July 29, 2024.

We present our findings and recommendations in the following report sections and spreadsheets:

- **Identification of Property -** Segregates all property into several areas of responsibility for repair or replacement
- **Reserve Expenditures -** Identifies reserve components and related quantities, useful lives, remaining useful lives and future reserve expenditures during the next 30 years
- **Reserve Funding Plan -** Presents the recommended Reserve Contributions and year-end Reserve Balances for the next 30 years
- **Five-Year Outlook -** Identifies reserve components and anticipated reserve expenditures during the first five years
- **Reserve Component Detail -** Describes the reserve components, includes photographic documentation of the condition of various property elements, describes our recommendations for repairs or replacement, and includes detailed solutions and procedures for replacements for the benefit of current and future board members
- **Methodology -** Lists the national standards, methods and procedures used to develop the Reserve Study
- **Definitions -** Contains definitions of terms used in the Reserve Study, consistent with national standards
- **Professional Service Conditions -** Describes Assumptions and Professional Service Conditions
- **Credentials and Resources**

IDENTIFICATION OF PROPERTY

Our investigation includes Reserve Components or property elements as set forth in your Declaration or which were identified as part of your request for proposed services. The Expenditure tables in Section 3 list the elements contained in this study. Our analysis begins by segregating the property elements into several areas of responsibility for repair and replacement.

Our process of identification helps assure that future boards and the management team understand whether reserves, the operating budget or Owners fund certain replacements and assists in preparation of the annual budget. We derive these segregated classes of property from our review of the information provided by the Association and through conversations with Management and the Board. These classes of property include:

- Reserve Components
- Long-Lived Property Elements
- Operating Budget Funded Repairs and Replacements
- Property Maintained by Owners
- Property Maintained by Others

We advise the Board to conduct an annual review of these classes of property to confirm its policy concerning the manner of funding, i.e., from reserves or the operating budget. Reserve Components are defined by CAI as property elements with:

- Homeowners Association of responsibility
- Limited useful life expectancies
- Predictable remaining useful life expectancies
- Replacement cost above a minimum threshold

The following tables depict the items excluded from the Reserve Expenditure plan:

Excluded Components

for
Homeowners Association of
Twin Mill Farms
Fort Worth, Texas

Operating Budget Components

Repairs normally funded through the Operating Budget and Expenditures less than $2,500 (These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.)

The operating budget provides money for the repair and replacement of certain Reserve Components. The Association may develop independent criteria for use of operating and reserve funds.

- Concrete, Parking Lot, Striping
- Irrigation System, Controls and Maintenance
- Landscape
- Paint Finishes, Touch Up
- Signage, Interim Repairs

Long-Lived Components

These elements may not have predictable Remaining Useful Lives or their replacement may occur beyond the scope of this study. The operating budget should fund infrequent repairs. Funding untimely or unexpected replacements from reserves will necessitate increases to Reserve Contributions. Periodic updates of this Reserve Study will help determine the merits of adjusting the Reserve Funding Plan.	Useful Life	Estimated Cost
• Electrical System, Pool House	Indeterminate	N/A
• Foundation, Pool House	Indeterminate	N/A
• Pipes, Interior Building, Domestic Water, Sanitary Waste, Pool House	Indeterminate	N/A
• Pool Deck and Structure	to 60	$650,000
• Structural Frame, Pool House	Indeterminate	N/A
• Windmill	Indeterminate	N/A

Owners Responsibility Components

Certain items have been designated as the responsibility of the Owners to repair or replace at their cost, including items billed back.

- Fences, Wood
- Homes and Lots

Excluded Components

for

Homeowners Association of

Twin Mill Farms

Fort Worth, Texas

Others Responsibility Components
Certain items have been designated as the responsibility of Others to repair or replace.
• Concrete Walking Path, Along Twin Mills Boulevard[1]
• Pipes, Subsurface Utilities[1]
• Playground Equipment, Threshing Drive[1]
• Street System[1]
[1] City of Forth Wroth

3. RESERVE EXPENDITURES and FUNDING PLAN

The tables following this introduction present:

Reserve Expenditures

- Line item numbers
- Total quantities
- Quantities replaced per phase (in a single year)
- Reserve component inventory
- Estimated first year of event (i.e., replacement, application, etc.)
- Life analysis showing
  - useful life
  - remaining useful life
- 2024 local cost of replacement
  - Per unit
  - Per phase
  - Replacement of total quantity
- Percentage of future expenditures anticipated during the next 30 years
- Schedule of estimated future costs for each reserve component including inflation

Reserve Funding Plan

- Reserves at the beginning of each year
- Total recommended reserve contributions
- Estimated interest earned from invested reserves
- Anticipated expenditures by year
- Anticipated reserves at year end
- Predicted reserves based on current funding level

Five-Year Outlook

- Line item numbers
- Reserve component inventory of only the expenditures anticipated to occur within the first five years
- Schedule of estimated future costs for each reserve component anticipated to occur within the first five years

The purpose of a Reserve Study is to provide an opinion of reasonable annual Reserve Contributions. Prediction of exact timing and costs of minor Reserve Expenditures typically will not significantly affect the 30-year cash flow analysis. Adjustments to the times and/or costs of expenditures may not always result in an adjustment in the recommended Reserve Contributions.

Financial statements prepared by your association, by you or others might rely in part on information contained in this section. For your convenience, we have provided an electronic data file containing the tables of ***Reserve Expenditures*** and ***Reserve Funding Plan***.

Years 2024 to 2039

RESERVE EXPENDITURES

Homeowners Association of
Twin Mill Farms
Fort Worth, Texas

Explanatory Notes:
1) **3.5% is the estimated Inflation Rate for estimating Future Replacement Costs.**
2) **FY2024 is Fiscal Year beginning January 1, 2024 and ending December 31, 2024.**

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years Useful	Remaining	Unit (2024)	Costs, $ Per Phase (2024)	Total (2024)	Percentage of Future Expenditures	RUL = 0 FY2024	1 2025	2 2026	3 2027	4 2028	5 2029	6 2030	7 2031	8 2032	9 2033	10 2034	11 2035	12 2036	13 2037	14 2038	15 2039
				Property Site Elements																							
4.125	8,100	410	Square Feet	Concrete Sidewalk and Parking Area, Partial	2025	to 65	1 to 30+	12.00	4,920	97,200	**2.3%**		5,092					6,048					7,183				
4.260	1,080	1,080	Linear Feet	Fence, Vinyl	2031	15 to 20	7	25.00	27,000	27,000	**4.7%**								34,352								
4.420	252,000	84,000	Square Feet	Irrigation System, Phased	2043	to 40+	19 to 21	1.00	84,000	252,000	**23.2%**																
4.560	3	3	Each	Light Poles and Fixtures, Solar Light At East Entrance	2030	to 25	6	2,200.00	6,600	6,600	**0.4%**							8,113									
4.630	2	2	Each	Pergolas, Wood	2030	to 25	6	5,570.00	11,140	11,140	**0.6%**							13,694									
4.640	2,030	2,030	Linear Feet	Perimeter Walls, Panelized Masonry, Inspections and Partial Replacements	2030	to 40	6	6.00	12,180	12,180	**2.1%**							14,972									
4.641	2,030	2,030	Linear Feet	Perimeter Walls, Panelized Masonry, Replacement	2040	to 35	16	125.00	253,750	253,750	**20.3%**																
4.660	1	1	Allowance	Playground Equipment, East Side Of Property	2041	15 to 20	17	69,000.00	69,000	69,000	**5.7%**																
4.733	50	50	Linear Feet	Railing, Steel (2025 Recommended)	2025	to 35	1	54.00	2,700	2,700	**0.3%**		1,800														
4.740	3,620	3,620	Square Feet	Retaining Wall, Masonry, Inspection and Capital Repairs	2031	10 to 15	7	5.00	18,100	18,100	**2.8%**								23,028								
4.800	1	1	Allowance	Signage, Renovation	2032	15 to 20	8	7,100.00	7,100	7,100	**1.3%**									9,349							
4.820	2	1	Allowance	Site Furniture, Phased	2031	15 to 25	7 to 17	5,300.00	5,300	10,600	**1.4%**								6,743								
				Pool House Elements																							
5.310	1	1	Allowance	Exterior Renovation (2024 Budgeted)	2024	to 20	0	5,000.00	5,000	5,000	**0.7%**	5,000															
5.580	1	1	Allowance	Rest Room, Renovation (2024 Budgeted)	2024	to 25	0	14,500.00	14,500	14,500	**1.0%**	4,200						17,824									
5.600	11	11	Squares	Roof, Asphalt Shingles (Incl. Gutters and Downspouts)	2041	15 to 20	17	550.00	6,050	6,050	**0.5%**																
5.720	1	1	Allowance	Security System	2038	10 to 15	14	21,500.00	21,500	21,500	**4.2%**															34,802	
				Pool Elements																							
6.200	5,960	5,960	Square Feet	Concrete Deck, Inspections, Partial Replacements and Repairs	2025	8 to 12	1	1.50	8,940	8,940	**1.9%**		9,253										13,052				
6.395	400	400	Linear Feet	Fence, Steel, Paint Finishes (2024 Budgeted)	2024	6 to 8	0	7.00	2,800	2,800	**0.6%**	2,700								3,687							
6.400	400	400	Linear Feet	Fence, Steel, Replacement	2040	to 35	16	64.00	25,600	25,600	**2.0%**																
6.500	1	1	Allowance	Furniture	2036	to 12	12	33,000.00	33,000	33,000	**5.8%**													49,865			
6.600	2	1	Allowance	Mechanical Equipment, Phased	2028	to 15	4 to 11	10,000.00	10,000	20,000	**3.2%**					11,475							14,600				
6.800	3,660	3,660	Square Feet	Pool Finishes, Plaster (2024 Budgeted)	2024	8 to 12	0	11.00	40,260	40,260	**13.4%**	40,260										56,791					
6.801	320	320	Linear Feet	Pool Finishes, Tile (2024 Budgeted)	2024	15 to 25	0	38.00	12,160	12,160	**1.7%**	12,160															
				Anticipated Expenditures, By Year ($2,166,335 over 30 years)								64,320	16,145	0	0	11,475	0	60,651	64,123	13,036	0	56,791	34,835	49,865	0	34,802	0

RESERVE EXPENDITURES

Homeowners Association of Twin Mill Farms

Fort Worth, Texas

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years Useful	Remaining	Costs, $ Unit (2024)	Per Phase (2024)	Total (2024)	Percentage of Future Expenditures	16 2040	17 2041	18 2042	19 2043	20 2044	21 2045	22 2046	23 2047	24 2048	25 2049	26 2050	27 2051	28 2052	29 2053	30 2054
				Property Site Elements																						
4.125	8,100	410	Square Feet	Concrete Sidewalk and Parking Area, Partial	2025	to 65	1 to 30+	12.00	4,920	97,200	**2.3%**	8,531					10,132				12,034				
4.260	1,080	1,080	Linear Feet	Fence, Vinyl	2031	15 to 20	7	25.00	27,000	27,000	**4.7%**											68,352			
4.420	252,000	84,000	Square Feet	Irrigation System, Phased	2043	to 40+	19 to 21	1.00	84,000	252,000	**23.2%**				161,490	167,142	172,992									
4.560	3	3	Each	Light Poles and Fixtures, Solar Light At East Entrance	2030	to 25	6	2,200.00	6,600	6,600	**0.4%**															
4.630	2	2	Each	Pergolas, Wood	2030	to 25	6	5,570.00	11,140	11,140	**0.6%**															
4.640	2,030	2,030	Linear Feet	Perimeter Walls, Panelized Masonry, Inspections and Partial Replacements	2030	to 40	6	6.00	12,180	12,180	**2.1%**											29,792				
4.641	2,030	2,030	Linear Feet	Perimeter Walls, Panelized Masonry, Replacement	2040	to 35	16	125.00	253,750	253,750	**20.3%**	439,999														
4.660	1	1	Allowance	Playground Equipment, East Side Of Property	2041	15 to 20	17	69,000.00	69,000	69,000	**5.7%**		123,833													
4.733	50	50	Linear Feet	Railing, Steel (2025 Recommended)	2025	to 35	1	54.00	2,700	2,700	**0.3%**	4,682														
4.740	3,620	3,620	Square Feet	Retaining Wall, Masonry, Inspection and Capital Repairs	2031	10 to 15	7	5.00	18,100	18,100	**2.8%**							38,580								
4.800	1	1	Allowance	Signage, Renovation	2032	15 to 20	8	7,100.00	7,100	7,100	**1.3%**													18,603		
4.820	2	1	Allowance	Site Furniture, Phased	2031	15 to 25	7 to 17	5,300.00	5,300	10,600	**1.4%**		9,512										13,417			
				Pool House Elements																						
5.310	1	1	Allowance	Exterior Renovation (2024 Budgeted)	2024	to 20	0	5,000.00	5,000	5,000	**0.7%**					9,949										
5.580	1	1	Allowance	Rest Room, Renovation (2024 Budgeted)	2024	to 25	0	14,500.00	14,500	14,500	**1.0%**															
5.600	11	11	Squares	Roof, Asphalt Shingles (Incl. Gutters and Downspouts)	2041	15 to 20	17	550.00	6,050	6,050	**0.5%**		10,858													
5.720	1	1	Allowance	Security System	2038	10 to 15	14	21,500.00	21,500	21,500	**4.2%**													56,334		
				Pool Elements																						
6.200	5,960	5,960	Square Feet	Concrete Deck, Inspections, Partial Replacements and Repairs	2025	8 to 12	1	1.50	8,940	8,940	**1.9%**						18,411									
6.395	400	400	Linear Feet	Fence, Steel, Paint Finishes (2024 Budgeted)	2024	6 to 8	0	7.00	2,800	2,800	**0.6%**									6,393						
6.400	400	400	Linear Feet	Fence, Steel, Replacement	2040	to 35	16	64.00	25,600	25,600	**2.0%**	44,390														
6.500	1	1	Allowance	Furniture	2036	to 12	12	33,000.00	33,000	33,000	**5.8%**									75,350						
6.600	2	1	Allowance	Mechanical Equipment, Phased	2028	to 15	4 to 11	10,000.00	10,000	20,000	**3.2%**			18,575							23,632					
6.800	3,660	3,660	Square Feet	Pool Finishes, Plaster (2024 Budgeted)	2024	8 to 12	0	11.00	40,260	40,260	**13.4%**					80,109										113,002
6.801	320	320	Linear Feet	Pool Finishes, Tile (2024 Budgeted)	2024	15 to 25	0	38.00	12,160	12,160	**1.7%**					24,196										
				Anticipated Expenditures, By Year ($2,166,335 over 30 years)								497,602	144,202	18,575	161,490	281,396	201,536	38,580	0	81,743	23,632	41,826	81,770	74,937	0	113,002

RESERVE FUNDING PLAN

CASH FLOW ANALYSIS
Homeowners Association of
Twin Mill Farms
Fort Worth, Texas

Individual Reserve Budgets & Cash Flows for the Next 30 Years

		FY2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Reserves at Beginning of Year	*(Note 1)*	310,906	269,829	299,319	347,119	397,289	438,388	493,515	490,103	484,833	532,771	596,653	606,273	640,179	661,602	735,838	778,530
Total Recommended Reserve Contributions	*(Note 2)*	**20,833**	**40,000**	**41,400**	**42,800**	**44,300**	**45,900**	**47,500**	**49,200**	**50,900**	**52,700**	**54,500**	**56,400**	**58,400**	**60,400**	**62,500**	**64,700**
Estimated Interest Earned, During Year	*(Note 3)*	2,410	5,635	6,400	7,370	8,274	9,227	9,739	9,653	10,075	11,182	11,910	12,341	12,889	13,836	14,994	16,218
Anticipated Expenditures, By Year		(64,320)	(16,145)	0	0	(11,475)	0	(60,651)	(64,123)	(13,036)	0	(56,791)	(34,835)	(49,865)	0	(34,802)	0
Anticipated Reserves at Year End		$269,829	$299,319	$347,119	$397,289	$438,388	$493,515	$490,103	$484,833	$532,771	$596,653	$606,273	$640,179	$661,602	$735,838	$778,530	$859,448

(continued)

Individual Reserve Budgets & Cash Flows for the Next 30 Years, Continued

	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054
Reserves at Beginning of Year	859,448	441,730	374,913	436,068	356,626	157,117	37,003	48,267	100,439	72,912	105,344	121,970	100,604	87,732	152,410
Total Recommended Reserve Contributions	**67,000**	**69,300**	**71,700**	**74,200**	**76,800**	**79,500**	**49,000**	**50,700**	**52,500**	**54,300**	**56,200**	**58,200**	**60,200**	**62,300**	**64,500**
Estimated Interest Earned, During Year	12,883	8,086	8,030	7,848	5,087	1,922	844	1,472	1,716	1,765	2,251	2,204	1,865	2,378	2,563
Anticipated Expenditures, By Year	(497,602)	(144,202)	(18,575)	(161,490)	(281,396)	(201,536)	(38,580)	0	(81,743)	(23,632)	(41,826)	(81,770)	(74,937)	0	(113,002)
Anticipated Reserves at Year End	$441,730	$374,913	$436,068	$356,626	$157,117	$37,003 *(NOTE 5)*	$48,267	$100,439	$72,912	$105,344	$121,970	$100,604	$87,732	$152,410	$106,472 *(NOTE 4)*

Explanatory Notes:

1) Year 2024 starting reserves are as of August 1, 2024; FY2024 starts January 1, 2024 and ends December 31, 2024.
2) Reserve Contributions for 2024 are the remaining budgeted 5 months; 2025 is the first year of recommended contributions.
3) **2.0%** is the estimated annual rate of return on invested reserves; 2024 is a partial year of interest earned.
4) Accumulated year 2054 ending reserves consider the age, size, overall condition and complexity of the property.
5) Threshold Funding Year (reserve balance at critical point).

*Refer to the Reserve Expenditures pages for the full list of reserve elements

FIVE-YEAR OUTLOOK

Homeowners Association of Twin Mill Farms
Fort Worth, Texas

Line Item	Reserve Component Inventory	RUL = 0 FY2024	1 2025	2 2026	3 2027	4 2028	5 2029
	Property Site Elements						
4.125	Concrete Sidewalk and Parking Area, Partial		5,092				
4.733	Railing, Steel (2025 Recommended)		1,800				
	Pool House Elements						
5.310	Exterior Renovation (2024 Budgeted)	5,000					
5.580	Rest Room, Renovation (2024 Budgeted)	4,200					
	Pool Elements						
6.200	Concrete Deck, Inspections, Partial Replacements and Repairs		9,253				
6.395	Fence, Steel, Paint Finishes (2024 Budgeted)	2,700					
6.600	Mechanical Equipment, Phased					11,475	
6.800	Pool Finishes, Plaster (2024 Budgeted)	40,260					
6.801	Pool Finishes, Tile (2024 Budgeted)	12,160					
	Anticipated Expenditures, By Year ($2,166,335 over 30 years)	64,320	16,145	0	0	11,475	0

4. RESERVE COMPONENT DETAIL

The Reserve Component Detail of this *Full Reserve Study* includes enhanced solutions and procedures for select significant components. This section describes the Reserve Components, documents specific problems and condition assessments, and may include detailed solutions and procedures for necessary capital repairs and replacements for the benefit of current and future board members. We advise the Board use this information to help define the scope and procedures for repair or replacement when soliciting bids or proposals from contractors. *However, the Report in whole or part is not and should not be used as a design specification or design engineering service*.

Property Site Elements

Concrete, Sidewalk and Parking Area

Line Item: 4.125

Quantity: Approximately 2,300 square feet of concrete sidewalks at the common areas and a sidewalk leading to the school on Corn Field Drive. They are also responsible for approximately 5,800 square feet of concrete parking area at the pool.

History and Condition: Good to fair overall with isolated cracks evident. The Association notes the striping was redone in 2024

Concrete cracks

Concrete curb cracks

Concrete Parking Lot

Concrete sidewalk

Sidewalk cracks

Sidewalk cracks

Useful Life: Up to 65 years although interim deterioration of areas is common

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
  - Inspect and repair major cracks, spalls and trip hazards
  - Mark with orange safety paint prior to replacement or repair
  - Repair or perform concrete leveling in areas in immediate need of repair or possible safety hazard

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We estimate that up to 2,460 square feet of concrete flatwork, or thirty percent (30%) of the total, will require replacement during the next 30 years. We recommend the Association fund for land markings through the operating budget.

Fence, Vinyl

Line Item: 4.260

Quantity: 1,080 linear feet at the perimeters

History: Original

Condition: Good to fair overall with periodic damage evident.

Vinyl fence

Vinyl fence damage

Vinyl fence damage

Vinyl fence

Useful Life: 15- to 20-years

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
  - Inspect and repair loose panels, and damage
  - Repair leaning sections and clear vegetation from fence areas which could cause damage

- Periodically clean vinyl fence as needed

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Irrigation System

Line Item: 4.420

Quantity: Approximately 252,000 square feet at the common areas and along the city maintained walking path

History: Original; the Association notes they have performed major repairs in recent years due to lack of maintenance. They also note the city is currently in the process of performing a large-scale landscaping renovation project at the walking path. Once this is completed, the Association notes they are planning to install a French drain but the cost and timing is currently unknown.

Condition: Satisfactory operational condition and Management and the Board do not report any deficiencies

Useful Life: Up to and sometimes beyond 40 years

Component Detail Notes: Irrigation systems typically include the following components:

- Electronic controls (timer)
- Impact rotors
- Network of supply pipes
- Pop-up heads
- Valves

Homeowners Association of should anticipate interim and partial replacements of the system network supply pipes and other components as normal maintenance to maximize the useful life of the irrigation system. The Association should fund these ongoing seasonal repairs through the operating budget.

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Semi-annually:
  - Conduct seasonal repairs which includes valve repairs, controller repairs, partial head replacements and pipe repairs
  - Blow out irrigation water lines and drain building exterior faucets each fall if applicable

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Light Poles and Fixtures

Line Item: 4.560

Quantity: Three steel poles with LED light fixtures at the east entrance and the parking lot

History: Original

Condition: Good to fair overall

Light poles and fixtures

Light pole and fixtures at east entrance

Useful Life: Up to 25 years

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- As-needed:
    - Inspect and repair broken or dislodged fixtures, and leaning or damaged poles
    - Replaced burned out bulbs as needed

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Pergola, Wood, Pool

Line Item: 4.630

Quantity: One pergola at the pool and one at the playground

History: Original

Condition: Good to fair overall with isolated pergola damage

Pergola

Pergola at playground

Pergola damage

Useful Life: Up to 25 years with periodic maintenance

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
  - Inspect for wood deterioration, and loose or missing fasteners
- Every three years:
  - Power wash with algaecide and application of sealer/stain

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We recommend the Association budget for paint applications and repairs through the operating budget.

Perimeter Walls, Panelized Masonry

Line Item: 4.640 and 4.641

Quantity: Approximately 12,170 square feet of surface area and approximately 2,030 linear feet

History: Original

Condition: Good to fair overall with isolated mortar cracks and mortar deterioration evident.

Panelized masonry perimeter wall overview

Wall mortar deterioration at west perimeter

Wall cracks

Wall mortar deterioration

Wall cracks

Wall mortar deterioration

Useful Life: Up to every 40 years

Component Detail Notes: These walls comprise brick masonry panels with a thickness of one brick and do not utilize a foundation for support. Rather, the panels are supported internally with ladder wire and externally by traditional masonry columns. These types of walls are prone to damage primarily as a result of water infiltration due to precipitation or errant spray from irrigation systems. Water infiltration within the panels or columns results in deterioration of the internal metal support wire. Sag, cracks, spalls and mortar deterioration are evidence of water infiltration and the likely need to replace the panels. Therefore, we anticipate a significantly shorter useful life when compared to typical brick masonry walls.

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- As-needed:
    - Inspect for significant damage or spalling, numerous locations of mortar deterioration and excessive efflorescence. If these conditions exist, perform near term repairs and remediation, utilizing reserve funds if project scope warrants.
    - Ensure irrigation heads are directed away from the walls and tree roots do not undermine the support columns

Priority/Criticality: Not recommended to defer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our cost for inspections and partial replacements includes for repointing of up to five percent (5%) and replacement of up to one percent (1%).

Playground Equipment

Line Item: 4.660

Quantity: Playground equipment includes the following elements:

- Playsets and swings
- Wood surface

History: Original to construction in 2020.

Condition: Good to fair overall

Playground equipment

Playground equipment

Playground shade structure

Useful Life: 15- to 20-years

Component Detail Notes: Safety is the major purpose for maintaining playground equipment. We recommend an annual inspection of the playground equipment to identify and repair as normal maintenance loose connections and fasteners or damaged elements. We suggest the Association learn more about the specific requirements of

playground equipment at PlaygroundSafety.org. We recommend the use of a specialist for the design or replacement of the playground equipment environment.

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
    - Inspect and repair loose connections and fasteners or damaged elements
    - Inspect for safety hazards and adequate coverage of ground surface cover

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We include an allowance in the unit cost for replacement of the safety surface and border.

Railing, Steel

Line Item: 4.733

Quantity: Approximately 50 linear feet

History: The railing is original

Condition: The railing is in good to fair overall condition with damage evident. We recommend performing repairs in the near term to fix the broken rail to avoid potential injuries from occurring.

Metal railing

Broken railing

Useful Life: Up to 35 years for replacement

Component Detail Notes: Steel components at grade and key structural connections are especially prone to failure if not thoroughly maintained. Secure and rust free fasteners and connections will prevent premature deterioration. Preparation of the steel before application of the paint finish is critical to maximize the useful life of the finish.

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
    - Inspect for damage, and excessive finish deterioration or corrosion
    - Test security of railings and inspect connection fasteners

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Retaining Wall, Masonry

Line Item: 4.740

Quantity: 3,620 square feet under the wood fences along Park Drive

History: Original

Condition: Good to fair overall with isolated cracks evident.

Masonry retaining wall

Wall mortar cracks

Masonry retaining wall

Masonry retaining wall

Useful Life: Masonry retaining walls have indeterminate useful lives. However, we recommend the Association plan for inspections and capital repairs every 10- to 15-years to forestall deterioration.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our cost includes an allowance for an inspection, partial resetting and replacement of up to ten percent (10%). Updates of this Reserve Study will continue to monitor the rate of deterioration and incorporate any available inspection reports.

Signage

Line Item: 4.800

Quantity: The Association is responsible for three property identification signs comprised of the following elements:

- Letters
- Masonry
- Masonry tower
- Metal Sign

History: Original

Condition: Good to fair overall

Entrance monument

Masonry tower

Masonry tower

Entrance monument

Useful Life: 15- to 20-years

Component Detail Notes: Community signage contributes to the overall aesthetic appearance of the property to owners and potential buyers. Renovation or replacement of community signs is often predicated upon the desire to "update" the perceived identity of the community rather than for utilitarian concerns. Therefore, the specific times for replacement or renovation are discretionary.

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
    - Inspect and repair damage, vandalism and loose components
    - Verify lighting is working properly
    - Touch-up paint finish applications if applicable

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our cost for renovation includes repairs to the masonry and replacement of the remaining components listed above.

Site Furniture

Line Item: 4.820

Quantity:

- Benches
- Picnic tables
- Trash receptacles
- Dog waste stations
- Grill

History: Original

Condition: Good to fair overall

Site furniture

Site furniture

Useful Life: 15- to 25-years

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We depict replacement in a phased manner.

Pool House Elements

Exterior Renovations

Line Item: 5.310

Quantity: The building exterior comprises:

- Approximately 1,300 square feet of brick
- Approximately 330 square feet of fiber cement siding

History: Original; the Association notes they are planning to paint the fiber cement siding in the fall of 2024 but have not received any bids.

Condition: Good to fair overall condition with finish deterioration evident

Masonry walls overview

Masonry walls overview

Fiber cement siding overview

Finish deterioration

Useful Life: Up to every 20 years

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Complete renovations should include the following:

- Inspection of the brick veneer including partial repointing of up to five percent (5%)
- Application of paint finish including partial replacement of up to one percent (1%) of the fiber cement siding

Rest Rooms

Line Item: 5.580

Quantity: The rest room components include:

- Concrete floor coverings
- Paint finishes at the walls
- Paint finishes at the ceilings
- Light fixtures
- Plumbing fixtures

History: The flooring was replaced, and the walls were painted in 2022. The Association notes they are planning to replace the partitions in both bathrooms this fall after the pool season is completed.

Condition: Good to fair overall with no significant deterioration evident.

Rest room overview

Rest room overview

Drinking fountain

Useful Life: Renovation up to every 25 years

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Roof, Asphalt Shingles

Line Item: 5.600

Quantity: Approximately 11 *squares* [1]

History: Replaced in 2021

Condition: Good to fair overall with no significant deterioration evident from our visual inspection from the ground. Management and the Board do not report a history of leaks.

Roof overview

Roof overview

[1] We quantify the roof area in squares where one square is equal to 100 square feet of surface area.

Useful Life: Every 15- to 20-years

Component Detail Notes: Contractors use one of two methods for replacement of sloped roofs, either an overlayment or a tear-off. Overlayment is the application of new shingles over an existing roof. However, there are many disadvantages to overlayment including hidden defects of the underlying roof system, absorption of more heat resulting in accelerated deterioration of the new and old shingles, and an uneven visual appearance. Therefore, we recommend only the tear-off method of replacement. The tear-off method of replacement includes removal of the existing shingles, flashings if required and underlayments.

Preventative Maintenance Notes: We recommend the Association maintain a service and inspection contract with a qualified professional and record all documentation of repairs conducted. We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
    - Record any areas of water infiltration, flashing deterioration, damage or loose shingles
    - Implement repairs as needed if issues are reoccurring
    - Trim tree branches that are near or in contact with roof
- As-needed:
    - Ensure proper ventilation and verify vents are clear of debris and not blocked from attic insulation

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Security System

Line Item: 5.720

Quantity: Homeowners Association of utilizes the following security system components:

- Automated proximity reader system (3 access points)
- Cameras (7)
- Multiplexer (1)
- Recorder (1)

History: Upgraded in 2024

Condition: Reported satisfactory without operational deficiencies

Card reader

Security system camera

Security system camera

Useful Life: 10- to 15-years

Preventative Maintenance Notes: We recommend the Association obtain and adhere to the manufacturer's recommended maintenance plan. The required preventative maintenance may vary in frequency and scope based on the unit's age, operational condition, or changes in technology. We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Monthly:
  - Check cameras for proper focus, fields of view are unobstructed and camera and lenses are clean and dust-free
  - Check recording equipment for proper operation
  - Verify monitors are free from distortion with correct brightness and contrast
- Annually:
  - Check exposed wiring and cables for wear, proper connections and signal transmission
  - Check power connections, and if applicable, functionality of battery power supply systems

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our cost is based on information provided by the Association. The Association should anticipate replacement of all of the security system components per event.

Pool Elements

Concrete Deck

Line Item: 6.200

Quantity: 5,960 square feet

History: Original

Condition: Fair overall with periodic cracks and coping damage evident.

Concrete cracks

Concrete cracks

Concrete cracks

Concrete cracks

Concrete cracks

Useful Life: The useful life of a concrete pool deck is up to 60 years or more with timely repairs. We recommend the Association conduct inspections, partial replacements and repairs to the deck every 8- to 12-years.

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Semi-annually:
  - Inspect and repair large cracks, trip hazards, and possible safety hazards
  - Inspect and repair pool coping for cracks, settlement, heaves or sealant deterioration
  - Repair concrete spalling
  - Schedule periodic pressure cleanings as needed

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We recommend the Association budget for the following per event:

- Selective cut out and replacements of up to ten percent (10%) of concrete
- Crack repairs as needed
- Mortar joint repairs
- Caulk replacement

Fence, Steel

Line Item: 6.395 and 6.400

Quantity: 400 linear feet

History: Original; the Association notes they are planning to repaint the fence in the fall of 2024 for $2,700

Condition: The fence is in good to fair overall condition and the paint finishes are in fair overall condition with periodic finish fade and rust evident.

Fence finish deterioration

Fence picket damage

Steel pool fence

Fence rust

Useful Life: Up to 35 years for replacement and every 6- to 8-years for paint finish application

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Annually:
    - Inspect and repair loose fasteners or sections, and damage
    - Repair leaning sections and clear vegetation from fence areas which could cause damage

Priority/Criticality: Not recommended to defer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Furniture

Line Item: 6.500

Quantity: The pool furniture includes the following:

- Chairs
- Lounges
- Tables
- Ladders and life safety equipment

History: Replaced in 2024 and was paid for prior to our inspection

Condition: Good overall

Pool furniture overview

Pool furniture overview

Outdoor shower

Pool furniture

Useful Life: Up to 12 years

Priority/Criticality: Per Board discretion

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our cost is based on information provided by the Association. We recommend interim re-strapping, refinishing, cushion replacements, reupholstering and other repairs to the furniture as normal maintenance to maximize its useful life.

Mechanical Equipment

Line Item: 6.600

Quantity: The mechanical equipment includes the following:

- Controls
- Electrical panel
- Interconnected pipe, fittings and valves
- Pumps and filters

History: Varied ages; the Association notes that the sand filters were replaced in recent years.

Condition: Reported satisfactory without operational deficiencies

Pool mechanical equipment

Useful Life: Up to 15 years

Preventative Maintenance Notes: The status of preventative maintenance was unavailable to us during our inspection. We recommend the Association maintain a maintenance contract with a qualified professional and follow the manufacturer's specific recommended maintenance and local, state and/or federal inspection guidelines.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the *Reserve Expenditures* table in Section 3. Failure of the pool mechanical equipment as a single event is unlikely. Therefore, we include replacement of up to fifty percent (50%) of the equipment per event. We consider interim replacement of motors and minor repairs as normal maintenance.

Pool Finishes, Plaster and Tile

Line Items: 6.800 and 6.801

Quantity: 3,660 square feet of plaster based on the horizontal surface area and approximately 320 linear feet of tile

History: Both the plaster and tile are original; the Association notes they are planning to replace the pool plaster and tile this fall and are currently pursuing updated bids.

Condition: Fair to poor overall with periodic cracks evident.

Pool plaster overview

Plaster cracks

Plaster repairs

Pool plaster overview

Useful Life: 8- to 12-years for the plaster and 15- to 25-years for the tile

Preventative Maintenance Notes: We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Semi-annually:
  - Inspect and patch areas of significant plaster delamination, coping damage and structure cracks
  - Inspect main drain connection and anti-entrapment covers, pressure test circulation piping and valves
  - Test handrails and safety features for proper operation

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We recommend the Association budget for full tile replacement every other plaster replacement event. Removal and replacement of the finish provides the opportunity to inspect the pool structures and to allow for partial repairs

of the underlying concrete surfaces as needed. To maintain the integrity of the pool structures, we recommend the Association budget for the following:

- Removal and replacement of the plaster finishes
- Partial replacements of the scuppers and coping as needed
- Replacement of tiles as needed
- Replacement of joint sealants as needed
- Concrete structure repairs as needed

Reserve Study Update

An ongoing review by the Board and an Update of this Reserve Study are necessary to ensure an equitable funding plan since a Reserve Study is a snapshot in time. Many variables change after the study is conducted that may result in significant overfunding or underfunding the reserve account. Variables that may affect the Reserve Funding Plan include, but are not limited to:

- Deferred or accelerated capital projects based on Board discretion
- Changes in the interest rates on reserve investments
- Changes in the *local* construction inflation rate
- Additions and deletions to the Reserve Component Inventory
- The presence or absence of maintenance programs
- Unusually mild or extreme weather conditions
- Technological advancements

Periodic updates incorporate these variable changes since the last Reserve Study or Update. We recommend the Board budget for an Update to this Reserve Study every three years. Budgeting for an Update demonstrates the Board's objective to continue fulfilling its fiduciary responsibility to maintain the commonly owned property and to fund reserves appropriately.

5. METHODOLOGY

Reserves for replacement are the amounts of money required for future expenditures to repair or replace Reserve Components that wear out before the entire facility or project wears out. Reserving funds for future repair or replacement of the Reserve Components is also one of the most reliable ways of protecting the value of the property's infrastructure and marketability.

Homeowners Association of can fund capital repairs and replacements in any combination of the following:

1. Increases in the operating budget during years when the shortages occur
2. Loans using borrowed capital for major replacement projects
3. Level annual reserve assessments annually adjusted upward for inflation to increase reserves to fund the expected major future expenditures
4. Special assessments

We do not advocate special assessments or loans unless near term circumstances dictate otherwise. Although loans provide a gradual method of funding a replacement, the costs are higher than if the Association were to accumulate reserves ahead of the actual replacement. Interest earnings on reserves also accumulate in this process of saving or reserving for future replacements, thereby defraying the amount of gradual reserve collections. We advocate the third method of *Level Monthly Reserve Assessments* with relatively minor annual adjustments. The method ensures that Owners pay their "fair share" of the weathering and aging of the commonly owned property each year. Level reserve assessments preserve the property and enhance the resale value of the homes.

This Reserve Study is in compliance with and exceeds the National standards[1] set forth by the Association of Professional Reserve Analysts (APRA) fulfilling the requirements of a "Level I Full Reserve Study." These standards require a Reserve Component to have a "predictable remaining Useful Life." Estimating Remaining Useful Lives and Reserve Expenditures beyond 30 years is often indeterminate. Long-Lived Property Elements are necessarily excluded from this analysis. We considered the following factors in our analysis:

- The Cash Flow Method to compute, project and illustrate the 30-year Reserve Funding Plan
- Local[2] costs of material, equipment and labor
- Current and future costs of replacement for the Reserve Components
- Costs of demolition as part of the cost of replacement
- Local economic conditions and a historical perspective to arrive at our estimate of long-term future inflation for construction costs in Fort Worth, Texas at an annual inflation rate[3]. Isolated or regional markets of greater

[1] Identified in the APRA "Standards - Terms and Definitions" and the CAI "Terms and Definitions".
[2] See Credentials for additional information on our use of published sources of cost data.
[3] Derived from Marshall & Swift, historical costs and the Bureau of Labor Statistics.

construction (development) activity may experience slightly greater rates of inflation for both construction materials and labor.

- The past and current maintenance practices of Homeowners Association of and their effects on remaining useful lives
- Financial information provided by the Association pertaining to the cash status of the reserve fund and budgeted reserve contribution
- The anticipated effects of appreciation of the reserves over time in accord with a return or yield on investment of your cash equivalent assets. (We did not consider the costs, if any, of Federal and State Taxes on income derived from interest and/or dividend income).
- The Funding Plan excludes necessary operating budget expenditures. It is our understanding that future operating budgets will provide for the ongoing normal maintenance of Reserve Components.

Updates to this Reserve Study will continue to monitor historical facts and trends concerning the external market conditions.

6. CREDENTIALS

HISTORY AND DEPTH OF SERVICE

Founded in 1991, Reserve Advisors is the leading provider of reserve studies, insurance appraisals, developer turnover transition studies, expert witness services, and other engineering consulting services. Clients include community associations, resort properties, hotels, clubs, non-profit organizations, apartment building owners, religious and educational institutions, and office/commercial building owners in 48 states, Canada and throughout the world.

The **architectural engineering consulting firm** was formed to take a leadership role in helping fiduciaries, boards, and property managers manage their property like a business with a long-range master plan known as a Reserve Study.

Reserve Advisors employs the **largest staff of Reserve Specialists** with bachelor's degrees in engineering dedicated to Reserve Study services. Our founders are also founders of Community Associations Institute's (CAI) Reserve Committee that developed national standards for reserve study providers. One of our founders is a Past President of the Association of Professional Reserve Analysts (APRA). Our vast experience with a variety of building types and ages, on-site examination and historical analyses are keys to determining accurate remaining useful life estimates of building components.

No Conflict of Interest - As consulting specialists, our **independent opinion** eliminates any real or perceived conflict of interest because we do not conduct or manage capital projects.

TOTAL STAFF INVOLVEMENT

Several staff members participate in each assignment. The responsible advisor involves the staff through a Team Review, exclusive to Reserve Advisors, and by utilizing the experience of other staff members, each of whom has served hundreds of clients. We conduct Team Reviews, an internal quality assurance review of each assignment, including: the inspection; building component costing; lifing; and technical report phases of the assignment. Due to our extensive experience with building components, we do not have a need to utilize subcontractors.

OUR GOAL

To help our clients fulfill their fiduciary responsibilities to maintain property in good condition.

VAST EXPERIENCE WITH A VARIETY OF BUILDINGS

Reserve Advisors has conducted reserve studies for a multitude of different communities and building types. We've analyzed thousands of buildings, from as small as a 3,500-square foot day care center to a 2,600,000-square foot 98-story highrise. We also routinely inspect buildings with various types of mechanical systems such as simple electric heat, to complex systems with air handlers, chillers, boilers, elevators, and life safety and security systems.

We're familiar with all types of building exteriors as well. Our well-versed staff regularly identifies optimal repair and replacement solutions for such building exterior surfaces such as adobe, brick, stone, concrete, stucco, EIFS, wood products, stained glass and aluminum siding, and window wall systems.

OLD TO NEW

Reserve Advisors' experience includes ornate and vintage buildings as well as modern structures. Our specialists are no strangers to older buildings. We're accustomed to addressing the unique challenges posed by buildings that date to the 1800's. We recognize and consider the methods of construction employed into our analysis. We recommend appropriate replacement programs that apply cost effective technologies while maintaining a building's character and appeal.

MITCHELL D. KORN
Responsible Advisor

CURRENT CLIENT SERVICES

Mitchell D. Korn, an engineer, is an advisor for Reserve Advisors. Mr. Korn is responsible for the inspection and analysis of the condition of clients' property, and recommending engineering solutions to prolong the lives of the components. He also forecasts capital expenditures for the repair and/or replacement of the property components and prepares technical reports on assignments. He is responsible for conducting Life Cycle Cost Analysis and Capital Replacement Forecast services and the preparation of Reserve Study Reports for condominiums, townhomes and homeowners associations.

The following is a partial list of clients served by Mr. Korn demonstrating his breadth of experiential knowledge of community associations in construction and related buildings systems.

Hollyhock Residential Association, Inc. This single family home community contains 648 single family homes was built in 2015 and is located in Frisco, Texas. Features of this community include an extensive amenity area which includes a swimming pool and splash pad, clubhouse with a fully equipped exercise room, multiple playgrounds, masonry retaining walls, and a panelized masonry perimeter wall.

Post Oak Townhomes A townhome community in San Antonio, Texas containing 28 units in six buildings. The townhomes consist of stone masonry, fiber cement siding, thermoplastic flat roofs, and asphalt shingle roofs. The features of this community include a swimming pool, a private asphalt driveway, masonry and timber retaining walls, concrete flatwork, and wood perimeter fences.

Stonebriar Homeowners Association, Inc. A prestigious single family home gated community built in 1989 that contains over 600 homes located in Frisco, Texas. Features of this community include extensive concrete streets and related infrastructure, masonry and panelized masonry perimeter walls, and multiple ponds.

Bordeaux Village Homeowners Association, Inc. A classically styled 1950's condominium development in Dallas, Texas containing 210 units in 18 buildings. The townhomes consist of stone masonry, fiber cement siding, and asphalt shingle roofs. The features of this community include wood decks with privacy fencing, a swimming pool, a clubhouse, a wood perimeter fence, and private concrete driveways with covered parking areas.

PRIOR RELEVANT EXPERIENCE

Before joining Reserve Advisors, Mr. Korn completed his bachelor's degree in mechanical engineering at Iowa State University. During his summers, he worked with the lead engineer and maintenance team at a dairy production plant where he oversaw the design of new custom safety equipment for the various production lines. Following the completion of his studies, he worked as a project manager in the retail displays industry.

EDUCATION

Iowa State University - B.S. Mechanical Engineering

KEARY D. WASS, PE, RS
West Quality Assurance Engineer

CURRENT CLIENT SERVICES

Keary D. Wass, a Civil Engineer, is the Director of Product Development for Reserve Advisors. Mr. Wass has been with Reserve Advisors since 2014 and is responsible for the inspection and analysis of the condition of clients' property, and recommending engineering solutions to prolong the lives of the components. He also forecasts capital expenditures for the repair and/or replacement of the property components and prepares technical reports on assignments. He is responsible for conducting Life Cycle Cost Analysis and Capital Replacement Forecast services and the preparation of Reserve Study Reports for apartments, high rises, condominiums, townhomes and homeowners associations. Mr. Wass frequently serves as the Quality Assurance Review Coordinator for all types of developments.

The following is a partial list of clients served by Keary Wass demonstrating his breadth of experiential knowledge of community associations in construction and related buildings systems.

Frisco Stonewater Crossing Homeowners Association is a 243 unit homeowners association located in Frisco, Texas. This development boasts an impressive in-ground pool, pool house and large playground. It also has two ponds surrounded by decorative concrete retaining walls.

1301 Canyon Condominium Association is a 31 unit mixed use midrise condominium building located in Boulder, Colorado. This building comprises of a shared underground parking structure, hydraulic elevators and building mechanical systems. The Association maintains the common area hallways and flat roof system.

311 Superior Homeowners' Association is a 33 unit mixed use midrise condominium building located in Duluth, Minnesota. Located in downtown Duluth, this building comprises of on-grade and elevated parking structures, lobbies, flat roofs, building mechanical systems, elevators and common area hallways.

Woods at Elk River Station is a townhome style development comprising of 298 units in 41 buildings located in Elk River, Minnesota. This townhome style development maintains the asphalt shingle roof systems, driveway pavement and siding. Additionally they provide amenities including playground equipment, a community gazebo and a common area pond.

PRIOR RELEVANT EXPERIENCE

Before joining Reserve Advisors, Mr. Wass worked as a civil engineer for a construction engineering firm specializing in the repair and construction of underground structures. He was responsible for soil condition analysis, inspection of existing structures, repair and new construction design, and construction oversight of a variety of municipal and private engineering projects. Mr. Wass attended the University of Minnesota in Minneapolis, Minnesota where he attained his Bachelor of Science degree in Civil Engineering. At the University of Minnesota, Mr. Wass performed undergraduate research in the field of non-destructive testing of rigid pavements.

EDUCATION

University of Minnesota - B.S. Civil Engineering

PROFESSIONAL AFFILIATIONS

Professional Engineer (PE) - Minnesota Board of Architecture, Engineering, Land Surveying Landscape Architecture, Geoscience and Interior Design (AELSLAGID)
Reserve Specialist (RS) - Community Associations Institute

ALAN M. EBERT, P.E., PRA, RS
Director of Quality Assurance

CURRENT CLIENT SERVICES

Alan M. Ebert, a Professional Engineer, is the Director of Quality Assurance for Reserve Advisors. Mr. Ebert is responsible for the management, review and quality assurance of reserve studies. In this role, he assumes the responsibility of stringent report review analysis to assure report accuracy and the best solution for Reserve Advisors' clients.

Mr. Ebert has been involved with thousands of Reserve Study assignments. The following is a partial list of clients served by Alan Ebert demonstrating his breadth of experiential knowledge of community associations in construction and related buildings systems.

Brownsville Winter Haven Located in Brownsville, Texas, this unique homeowners association contains 525 units. The Association maintains three pools and pool houses, a community and management office, landscape and maintenance equipment, and nine irrigation canals with associated infrastructure.

Rosemont Condominiums This unique condominium is located in Alexandria, Virginia and dates to the 1940's. The two mid-rise buildings utilize decorative stone and brick masonry. The development features common interior spaces, multi-level wood balconies and common asphalt parking areas.

Stillwater Homeowners Association Located in Naperville, Illinois, Stillwater Homeowners Association maintains four tennis courts, an Olympic sized pool and an upscale ballroom with commercial-grade kitchen. The community also maintains three storm water retention ponds and a detention basin.

Birchfield Community Services Association This extensive Association comprises seven separate parcels which include 505 townhome and single family homes. This Community Services Association is located in Mt. Laurel, New Jersey. Three lakes, a pool, a clubhouse and management office, wood carports, aluminum siding, and asphalt shingle roofs are a few of the elements maintained by the Association.

Oakridge Manor Condominium Association Located in Londonderry, New Hampshire, this Association includes 104 units at 13 buildings. In addition to extensive roads and parking areas, the Association maintains a large septic system and significant concrete retaining walls.

Memorial Lofts Homeowners Association This upscale high rise is located in Houston, Texas. The 20 luxury units include large balconies and decorative interior hallways. The 10-story building utilizes a painted stucco facade and TPO roof, while an on-grade garage serves residents and guests.

PRIOR RELEVANT EXPERIENCE

Mr. Ebert earned his Bachelor of Science degree in Geological Engineering from the University of Wisconsin-Madison. His relevant course work includes foundations, retaining walls, and slope stability. Before joining Reserve Advisors, Mr. Ebert was an oilfield engineer and tested and evaluated hundreds of oil and gas wells throughout North America.

EDUCATION

University of Wisconsin-Madison - B.S. Geological Engineering

PROFESSIONAL AFFILIATIONS/DESIGNATIONS

Professional Engineering License – Wisconsin, North Carolina, Illinois, Colorado
Reserve Specialist (RS) **-** Community Associations Institute
Professional Reserve Analyst (PRA) **-** Association of Professional Reserve Analysts

RESOURCES

Reserve Advisors utilizes numerous resources of national and local data to conduct its Professional Services. A concise list of several of these resources follows:

Association of Construction Inspectors, (ACI) the largest professional organization for those involved in construction inspection and construction project management. ACI is also the leading association providing standards, guidelines, regulations, education, training, and professional recognition in a field that has quickly become important procedure for both residential and commercial construction, found on the web at www.iami.org.

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE) the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., devoted to the arts and sciences of heating, ventilation, air conditioning and refrigeration; recognized as the foremost, authoritative, timely and responsive source of technical and educational information, standards and guidelines, found on the web at www.ashrae.org. Reserve Advisors actively participates in its local chapter and holds individual memberships.

Community Associations Institute, (CAI) America's leading advocate for responsible communities noted as the only national organization dedicated to fostering vibrant, responsive, competent community associations. Their mission is to assist community associations in promoting harmony, community, and responsible leadership.

Marshall & Swift / Boeckh, (MS/B) the worldwide provider of building cost data, co-sourcing solutions, and estimating technology for the property and casualty insurance industry found on the web at www.marshallswift.com.

R.S. Means CostWorks, North America's leading supplier of construction cost information. As a member of the Construction Market Data Group, Means provides accurate and up-to-date cost information that helps owners, developers, architects, engineers, contractors and others to carefully and precisely project and control the cost of both new building construction and renovation projects found on the web at www.rsmeans.com.

Reserve Advisors' library of numerous periodicals relating to reserve studies, condition analyses, chapter community associations, and historical costs from thousands of capital repair and replacement projects, and product literature from manufacturers of building products and building systems.

7. DEFINITIONS

Definitions are derived from the standards set forth by the Community Associations Institute (CAI) representing America's 305,000 condominium and homeowners associations and cooperatives, and the Association of Professional Reserve Analysts, setting the standards of care for reserve study practitioners.

Cash Flow Method - A method of calculating Reserve Contributions where contributions 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 - A method of developing a Reserve Funding Plan with the total contribution is based on the sum of the contributions for individual components.

Current Cost of Replacement - That amount required today derived from the quantity of a *Reserve Component* and its unit cost to replace or repair a Reserve Component using the most current technology and construction materials, duplicating the productive utility of the existing property at current *local* market prices for *materials*, *labor* and manufactured equipment, contractors' overhead, profit and fees, but without provisions for building permits, overtime, bonuses for labor or premiums for material and equipment. We include removal and disposal costs where applicable.

Fully Funded Balance - The Reserve balance that is in direct proportion to the fraction of life "used up" of the current Repair or Replacement cost similar to Total Accrued Depreciation.

Funding Goal (Threshold) - The stated purpose of this Reserve Study is to determine the adequate, not excessive, minimal threshold reserve balances.

Future Cost of Replacement - *Reserve Expenditure* derived from the inflated current cost of replacement or current cost of replacement as defined above, with consideration given to the effects of inflation on local market rates for materials, labor and equipment.

Long-Lived Property Component - Property component of Homeowners Association of responsibility not likely to require capital repair or replacement during the next 30 years with an unpredictable remaining Useful Life beyond the next 30 years.

Percent Funded - The ratio, at a particular point of time (typically the beginning of the Fiscal Year), of the actual (or projected) Reserve Balance to the Fully Funded Balance, expressed as a percentage.

Remaining Useful Life - The estimated remaining functional or useful time in years of a *Reserve Component* based on its age, condition and maintenance.

Reserve Component - Property elements with: 1) Homeowners Association of responsibility; 2) limited Useful Life expectancies; 3) predictable Remaining Useful Life expectancies; and 4) a replacement cost above a minimum threshold.

Reserve Component Inventory - Line Items in ***Reserve Expenditures*** that identify a *Reserve Component*.

Reserve Contribution - An amount of money set aside or *Reserve Assessment* contributed to a *Reserve Fund* for future *Reserve Expenditures* to repair or replace *Reserve Components*.

Reserve Expenditure - Future Cost of Replacement of a Reserve Component.

Reserve Fund Status - The accumulated amount of reserves in dollars at a given point in time, i.e., at year end.

Reserve Funding Plan - The portion of the Reserve Study identifying the *Cash Flow Analysis* and containing the recommended Reserve Contributions and projected annual expenditures, interest earned and reserve balances.

Reserve Study - A budget planning tool that identifies the current status of the reserve fund and a stable and equitable Funding Plan to offset the anticipated future major common area expenditures.

Useful Life - The anticipated total time in years that a *Reserve Component* is expected to serve its intended function in its present application or installation.

8. PROFESSIONAL SERVICE CONDITIONS

Our Services - Reserve Advisors, LLC ("RA") performs its services as an independent contractor in accordance with our professional practice standards and its compensation is not contingent upon our conclusions. The purpose of our reserve study is to provide a budget planning tool that identifies the current status of the reserve fund, and an opinion recommending an annual funding plan, to create reserves for anticipated future replacement expenditures of the subject property. The purpose of our energy benchmarking services is to track, collect and summarize the subject property's energy consumption over time for your use in comparison with other buildings of similar size and establishing a performance baseline for your planning of long-term energy efficiency goals.

Our inspection and analysis of the subject property is limited to visual observations, is noninvasive and is not meant to nor does it include investigation into statutory, regulatory or code compliance. RA inspects sloped roofs from the ground and inspects flat roofs where safe access (stairs or ladder permanently attached to the structure) is available. Our energy benchmarking services with respect to the subject property is limited to collecting energy and utility data and summarizing such data in the form of an Energy Star Portfolio Manager Report or any other similar report, and hereby expressly excludes any recommendations with respect to the results of such energy benchmarking services or the accuracy of the energy information obtained from utility companies and other third-party sources with respect to the subject property. The reserve report and any energy benchmarking report (i.e., any Energy Star Portfolio Manager Report) (including any subsequent revisions thereto pursuant to the terms hereof, collectively, the "Report") are based upon a "snapshot in time" at the moment of inspection. RA may note visible physical defects in the Report. The inspection is made by employees generally familiar with real estate and building construction. Except to the extent readily apparent to RA, RA cannot and shall not opine on the structural integrity of or other physical defects in the property under any circumstances. Without limitation to the foregoing, RA cannot and shall not opine on, nor is RA responsible for, the property's conformity to specific governmental code requirements for fire, building, earthquake, occupancy or otherwise.

RA is not responsible for conditions that have changed between the time of inspection and the issuance of the Report. RA does not provide invasive testing on any mechanical systems that provide energy to the property, nor can RA opine on any system components that are not easily accessible during the inspection. RA does not investigate, nor assume any responsibility for any existence or impact of any hazardous materials, such as asbestos, urea-formaldehyde foam insulation, other chemicals, toxic wastes, environmental mold or other potentially hazardous materials or structural defects that are latent or hidden defects which may or may not be present on or within the property. RA does not make any soil analysis or geological study as part of its services, nor does RA investigate vapor, water, oil, gas, coal, or other subsurface mineral and use rights or such hidden conditions, and RA assumes no responsibility for any such conditions. The Report contains opinions of estimated replacement costs or deferred maintenance expenses and remaining useful lives, which are neither a guarantee of the actual costs or expenses of replacement or deferred maintenance nor a guarantee of remaining useful lives of any property element.

RA assumes, without independent verification, the accuracy of all data provided to it. Except to the extent resulting from RA's willful misconduct in connection with the performance of its obligations under this agreement, you agree to indemnify, defend, and hold RA and its affiliates, officers, managers, employees, agents, successors and assigns (each, an "RA Party") harmless from and against (and promptly reimburse each RA Party for) any and all losses, claims, actions, demands, judgments, orders, damages, expenses or liabilities, including, without limitation, reasonable attorneys' fees, asserted against or to which any RA Party may become subject in connection with this engagement, including, without limitation, as a result of any false, misleading or incomplete information which RA relied upon that was supplied by you or others under your direction, or which may result from any improper use or reliance on the Report by you or third parties under your control or direction or to whom you provided the Report. NOTWITHSTANDING ANY OTHER PROVISION HEREIN TO THE CONTRARY, THE AGGREGATE LIABILITY (IF ANY) OF RA WITH RESPECT TO THIS AGREEMENT AND RA'S OBLIGATIONS HEREUNDER IS LIMITED TO THE AMOUNT OF THE FEES ACTUALLY RECEIVED BY RA FROM YOU FOR THE SERVICES AND REPORT PERFORMED BY RA UNDER THIS AGREEMENT, WHETHER ARISING IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE. YOUR REMEDIES SET FORTH HEREIN ARE EXCLUSIVE AND ARE YOUR SOLE REMEDIES FOR ANY FAILURE OF RA TO COMPLY WITH ITS OBLIGATIONS HEREUNDER OR OTHERWISE. RA SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, ANY LOST PROFITS AND LOST SAVINGS, LOSS OF USE OR INTERRUPTION OF BUSINESS, HOWEVER CAUSED, WHETHER ARISING IN CONTRACT, TORT (INCLUDING NEGLIGENCE), BREACH OF WARRANTY, STRICT LIABILITY OR OTHERWISE, EVEN IF RA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL RA BE LIABLE FOR THE COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES. RA DISCLAIMS ALL REPRESENTATIONS AND WARRANTIES WHATSOEVER, EXPRESS OR IMPLIED OR OF ANY NATURE, WITH REGARD TO THE SERVICES AND THE REPORT, INCLUDING, WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Report - RA will complete the services in accordance with the Proposal. The Report represents a valid opinion of RA's findings and recommendations with respect to the reserve study and is deemed complete. RA will consider any additional information made available to RA within 6 months of issuing the Report and issue a revised Report based on such additional information if a timely request for a revised Report is made by you. RA retains the right to withhold a revised Report if payment for services was not tendered in a timely manner. All information received by RA and all files, work papers or documents developed by RA during the course of the engagement shall remain the property of

RA and may be used for whatever purpose it sees fit. RA reserves the right to, and you acknowledge and agree that RA may, use any data provided by you in connection with the services, or gathered as a result of providing such services, including in connection with creating and issuing any Report, in a de-identified and aggregated form for RA's business purposes.

Your Obligations - You agree to provide us access to the subject property for an inspection. You agree to provide RA all available, historical and budgetary information, the governing documents, and other information that we request and deem necessary to complete the Report. Additionally, you agree to provide historical replacement schedules, utility bills and historical energy usage files that RA requests and deems necessary to complete the energy benchmarking services, and you agree to provide any utility release(s) reasonably requested by RA permitting RA to obtain any such data and/or information from any utility representative or other third party. You agree to pay actual attorneys' fees and any other costs incurred to collect on any unpaid balance for RA's services.

Use of Our Report and Your Name - Use of the Report is limited to only the purpose stated herein. You acknowledge that RA is the exclusive owner of all intellectual property rights in and relating to the Report. You hereby acknowledge that any use or reliance by you on the Report for any unauthorized purpose is at your own risk and that you will be liable for the consequences of any unauthorized use or distribution of the Report. Use or possession of the Report by any unauthorized third party is prohibited. The Report in whole or in part ***is not and cannot be*** *used as a design specification for design engineering purposes or as an appraisal*. You may show the Report in its entirety to the following third parties: members of your organization (including your directors, officers, tenants and prospective purchasers), your accountants, attorneys, financial institutions and property managers who need to review the information contained herein, and any other third party who has a right to inspect the Report under applicable law including, but not limited, to any government entity or agency, or any utility companies. Without the written consent of RA, you shall not disclose the Report to any other third party. By engaging our services, you agree that the Report contains intellectual property developed (and owned solely) by RA and agree that you will not reproduce or distribute the Report ***to any party that conducts reserve studies without the written consent of RA***.

RA will include (and you hereby agree that RA may include) your name in our client lists. RA reserves the right to use (and you hereby agree that RA may use) property information to obtain estimates of replacement costs, useful life of property elements or otherwise as RA, in its sole discretion, deems appropriate.

Payment Terms, Due Dates and Interest Charges - If reserve study and energy benchmarking services are performed by RA, then the retainer payment is due upon execution of this agreement and prior to the inspection by RA, and any balance is due net 30 days from the Report shipment date. If only energy benchmarking services are performed by RA, then the retainer payment is due upon execution of this agreement and any balance is due net 30 days from the Report shipment date. In any case, any balance remaining 30 days after delivery of the Report shall accrue an interest charge of 1.5% per month. Unless this agreement is earlier terminated by RA in the event you breach or otherwise fail to comply with your obligations under this agreement, RA's obligations under this agreement shall commence on the date you execute and deliver this agreement and terminate on the date that is 6 months from the date of delivery of the Report by RA. Notwithstanding anything herein to the contrary, each provision that by its context and nature should survive the expiration or early termination of this agreement shall so survive, including, without limitation, any provisions with respect to payment, intellectual property rights, limitations of liability and governing law. We reserve the right to limit or decline refunds in our sole discretion. Refunds vary based on the applicable facts and circumstances.

Miscellaneous – Neither party shall be liable for any failures or delays in performance due to fire, flood, strike or other labor difficulty, act of God, act of any governmental authority, riot, embargo, fuel or energy shortage, pandemic, wrecks or delays in transportation, or due to any other cause beyond such party's reasonable control; provided, however, that you shall not be relieved from your obligations to make any payment(s) to RA as and when due hereunder. In the event of a delay in performance due to any such cause, the time for completion or date of delivery will be extended by a period of time reasonably necessary to overcome the effect of such delay. You may not assign or otherwise transfer this agreement, in whole or in part, without the prior written consent of RA. RA may freely assign or otherwise transfer this agreement, in whole or in part, without your prior consent. This agreement shall be governed by the laws of the State of Wisconsin without regard to any principles of conflicts of law that would apply the laws of another jurisdiction. Any dispute with respect to this agreement shall be exclusively venued in Milwaukee County Circuit Court or in the United States District Court for the Eastern District of Wisconsin. Each party hereto agrees and hereby waives the right to a trial by jury in any action, proceeding or claim brought by or on behalf of the parties hereto with respect to any matter related to this agreement.