FULL RESERVE STUDY

Whittier Towers Apartments Association, Inc.

Lauderdale By The Sea, Florida
October 11, 2021

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Whittier Towers Apartments Association, Inc.
Lauderdale By The Sea, Florida

Dear Board of Directors of Whittier Towers Apartments Association, Inc.:

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Full Reserve Study* of Whittier Towers Apartments Association, Inc. in Lauderdale By The Sea, Florida and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, October 11, 2021.

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 Whittier Towers Apartments Association, Inc. 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 November 18, 2021 by

Reserve Advisors, LLC

Visual Inspection and Report by: Nicholas M. Johanning, RS[1]
Review by: Nicole L. Lowery, RS, PRA[2], Associate 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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1. RESERVE STUDY EXECUTIVE SUMMARY

Client: Whittier Towers Apartments Association, Inc. (Whittier Towers)
Location: Lauderdale By The Sea, Florida
Reference: 211064

Property Basics: Whittier Towers Apartments Association, Inc. is an apartment style development which consists of 50 units in a three-story building. The building was built in 1966.

Reserve Components Identified: 31 Reserve Components.

Inspection Date: October 11, 2021.

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 2051 due to inspections, paint finishes, waterproof coating and repairs of the concrete balconies, breezeways and exterior wall finishes, and replacement of the concrete bulkhead.

Cash Flow Method: 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
- 0.0% anticipated annual rate of return on invested reserves
- 0.0% future Inflation Rate for estimating Future Replacement Costs

We exclude interest and inflation from our analysis due to recent interpretations of the Florida Administrative code by the Division of Condominiums, Timeshares and Mobile Homes. The Division has opined that any increase in reserve contributions over the length of a cash flow analysis would be considered "balloon payments" and prohibited by the Fla. Admin. Code, Rule 61B-22.0005(3)(b). Nothing in the Code purports to define “balloon payments” in a manner inconsistent with the general understanding of the word, which contemplates a series of smaller payments followed by a significantly larger lump-sum payment. However, the Division maintains their opinion and has cited Associations for non-compliance due to this issue. In order to ensure compliance, the funding plan, contributions and expenditure projections shown in this study exclude any increases due to inflation or adjustments for interest.

Please contact us if you would like us to prepare an alternate funding plan inclusive of these variables for your consideration. However, please note that a cash flow funding plan with any future increases in contributions would not comply with Fla. Admin. Code based on the Division’s recent interpretations.

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

Component Method Funding: In addition to the Reserve Funding Plan, we include a Component Method Reserve Analysis in the Reserve Funding Plan at the request of the Board. This method applies the concept of simple straight line depreciation to determine an annual provision of reserve funding for each common element segregated into separate Reserve Accounts. Simply, the annual provision for reserve funding is the replacement cost of a common element (less any existing reserves) divided by its remaining useful life. Using the same physical data as in the Cash Flow Analysis, the Component Method Reserve Analysis for Whittier Towers

results in a 2022 recommended Reserve Contribution of $139,456. This difference emphasizes our recommendation to fund the Reserve Account using the Cash Flow or "Threshold" method of Reserve Analysis.

If the Association currently calculates reserves based on the Component Method and allocates funds to individual line items, the reclassification of existing funds as pooled reserves would not be allowed unless approved by a majority vote of the owners at a duly called meeting of the Association. In lieu of obtaining a vote of the owners, a Board may vote to fund future reserves based on a pooled analysis. The Association then simply spends the funds in their existing segregated accounts on the initial repair or replacement project for that item. When all of the existing segregated funds in an account are expended, the account is eliminated thus eliminating the need to get an owner vote to reallocate.

Unaudited Cash Status of Reserve Fund:

- $97,998 as of July 31, 2021
- 2021 budgeted Reserve Contributions of $25,108
- A potential deficit in reserves might occur by 2027 based upon continuation of the most recent annual reserve contribution of $25,108 and the identified Reserve Expenditures.

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:

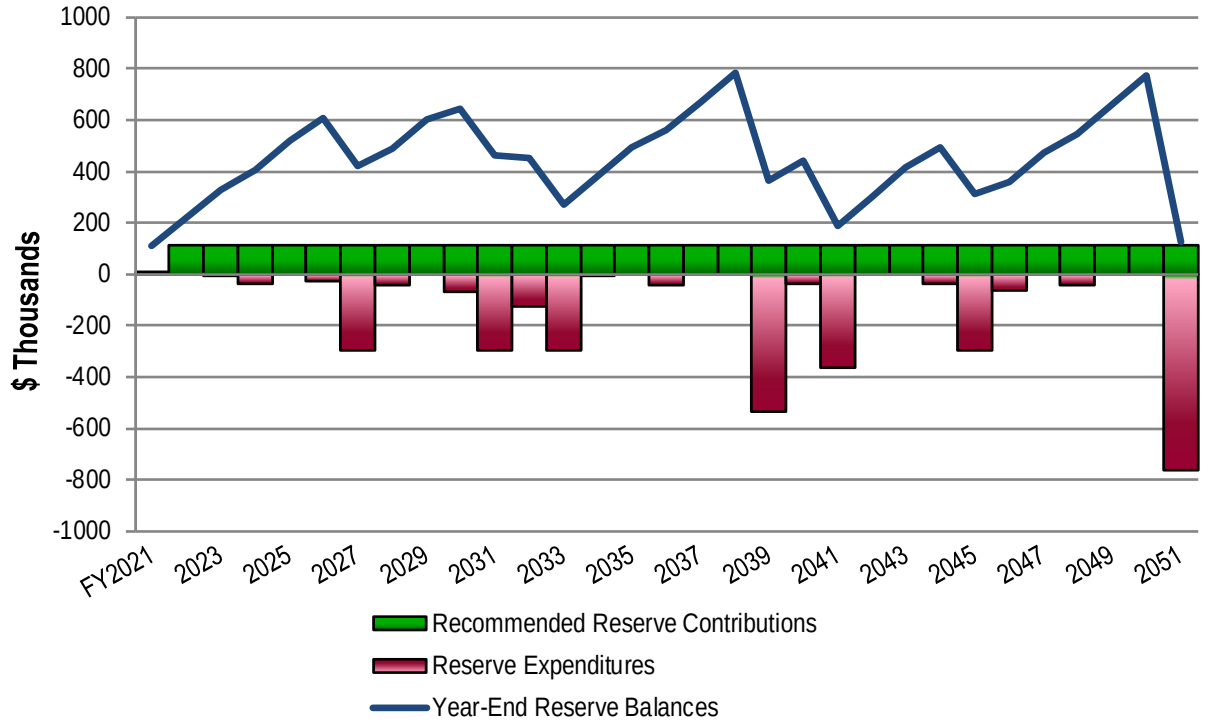
- Systematic replacement of the piping systems to minimize the potential for leaks

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

- Increase to $113,000 in 2022
- Stable contributions of $113,000 through 2051, the limit of this study's Cash Flow Analysis
- Initial adjustment in Reserve Contributions of $87,892 represents an average monthly increase of $146.49 per unit owner and about a twenty percent (20.0%) adjustment in the 2021 total Operating Budget of $438,686.

Whittier Towers
Recommended Reserve Funding Table and Graph

Year	Reserve Contributions ($)	Reserve Balances ($)	Year	Reserve Contributions ($)	Reserve Balances ($)	Year	Reserve Contributions ($)	Reserve Balances ($)
2022	113,000	221,460	2032	113,000	451,610	2042	113,000	302,655
2023	113,000	330,210	2033	113,000	270,610	2043	113,000	415,655
2024	113,000	408,210	2034	113,000	378,610	2044	113,000	493,655
2025	113,000	521,210	2035	113,000	491,610	2045	113,000	312,655
2026	113,000	609,210	2036	113,000	559,610	2046	113,000	361,655
2027	113,000	423,210	2037	113,000	672,610	2047	113,000	474,655
2028	113,000	491,210	2038	113,000	785,610	2048	113,000	547,655
2029	113,000	604,210	2039	113,000	364,690	2049	113,000	660,655
2030	113,000	646,210	2040	113,000	442,690	2050	113,000	773,655
2031	113,000	463,610	2041	113,000	189,655	2051	113,000	125,085



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

Whittier Towers Apartments Association, Inc.

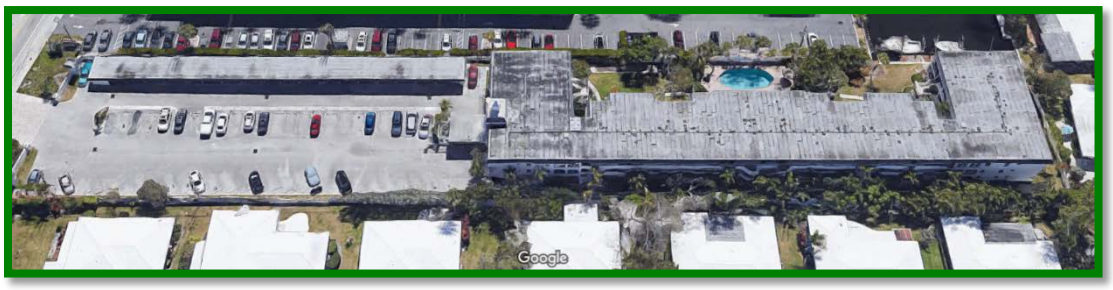
Lauderdale By The Sea, Florida

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, October 11, 2021.

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. 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 Unit 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 the Board. These classes of property include:

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

We advise the Board 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. The Reserve Study identifies Reserve Components as set forth in your Declaration or which were identified as part of your request for proposed services. Reserve Components are defined by CAI as property elements with:

- Whittier Towers responsibility
- Limited useful life expectancies
- Predictable remaining useful life expectancies
- Replacement cost above a minimum threshold

Long-Lived Property Elements may not have predictable Remaining Useful Lives or their replacement may occur beyond the 30-year scope of the 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. We identify the following Long-Lived Property Elements as excluded from the 30-year Reserve Expenditures at this time:

- Balconies and Breezeways, Railings, Aluminum, Replacement (2021)
- Doors, Lobby, Replacement (2021)
- Electrical Systems, Common (2015)
- Foundations
- Irrigation System, Replacement (2021)
- Mailboxes, Lobby, Replacement (2021)
- Pipes, Subsurface Utilities
- Structural Frames

Lobby entrance door overview

Mailboxes overview

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. For purposes of calculating appropriate Reserve Contributions, we identify the following list of Operating Budget Funded Repairs and Replacements:

- General Maintenance to the Common Elements
- Expenditures less than $5,000 (These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.)
- Air Handling Unit, Heat Pump, Lobby
- Asphalt Pavement, Crack Repair, Patch and Seal Coat
- Concrete Curbs
- Concrete Sidewalks
- Doors, Exterior, Miscellaneous
- Fences, Aluminum, Privacy
- Fence, Chain Link, Trash
- Fire Extinguishers
- Irrigation System, Controls and Maintenance
- Landscape
- Light Poles and Fixtures, Courtyard and Pool Area
- Lobby, Interim Paint Finishes and Furnishing Replacements
- Paint Finishes, Touch Up

- Pipes, Common, Interim Repairs and Waste Rodding
- Pumps
- Security System
- Signage, Entrance Monument, Renovation
- Valves, Small Diameter (We assume replacement as needed in lieu of an aggregate replacement of all small diameter valves as a single event.)
- Other Repairs normally funded through the Operating Budget

Lobby air handling unit heat pump overview

Concrete sidewalk overview

Aluminum privacy fence overview

Security system overview

Certain items have been designated as the responsibility of the unit owners to repair or replace at their cost. Property Maintained by Unit Owners, including items billed back to Unit Owners, relates to unit:

- Electrical Systems (Including Circuit Protection Panels)
- Heating, Ventilating and Air Conditioning (HVAC) Units
- Interiors
- Pipes (Within Units)

- Water Heaters
- Windows and Doors

Certain items have been designated as the responsibility of others to repair or replace. Property Maintained by Others relates to:

- Fence, Vinyl, North and West Perimeter (Neighboring Association)

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
- 2021 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 2021 to 2036

RESERVE EXPENDITURES

Whittier Towers
Apartments Association, Inc.
Lauderdale By The Sea, Florida

Explanatory Notes:

1) 0.0% is the estimated Inflation Rate; see Executive Summary for details.

2) FY2021 is Fiscal Year beginning January 1, 2021 and ending December 31, 2021.

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years Useful	Remaining	Costs, $ Unit (2021)	Per Phase (2021)	Total (2021)	Percentage of Future Expenditures	RUL = 0 FY2021	1 2022	2 2023	3 2024	4 2025	5 2026	6 2027	7 2028	8 2029	9 2030	10 2031	11 2032	12 2033	13 2034	14 2035	15 2036
				Exterior Building Elements																							
1.060	9,950	9,950	Square Feet	Balconies and Breezeways, Concrete, Repairs and Waterproof Coating Applications	2031	8 to 12	10	18.00	179,100	179,100	15.9%											179,100					
1.100	1,350	1,350	Linear Feet	Balconies, Railings, Aluminum, Paint Finishes and Capital Repairs	2041	15 to 20	20	24.50	33,075	33,075	1.0%																
1.240	1,250	1,250	Linear Feet	Gutters and Downspouts, Metal	2051	20 to 30	30	9.00	11,250	11,250	0.3%																
1.260	90	90	Each	Light Fixtures, Breezeway (Incl. Carport Light Fixtures)	2046	to 25	25	200.00	18,000	18,000	0.5%																
1.400	4,120	4,120	Square Feet	Roof, Flat, Carport	2039	15 to 20	18	9.00	37,080	37,080	1.1%																
1.401	18,440	18,440	Square Feet	Roof, Flat, Main Building	2039	15 to 20	18	11.00	202,840	202,840	6.0%																
1.460	45	45	Squares	Roofs, Metal, Mansard	2051	to 30	30	1,500.00	67,500	67,500	2.0%																
1.660	24,500	24,500	Square Feet	Walls, Concrete, Inspections, Paint Finishes and Restorations	2027	5 to 7	6	12.00	294,000	294,000	43.6%							294,000						294,000		
				Interior Building Elements																							
2.100	1	1	Each	Elevator Cab Finishes	2026	to 20	5	15,000.00	15,000	15,000	0.9%						15,000										
2.600	1	1	Allowance	Lobby, Renovation (Incl. Office and Rest Room)	2041	to 20	20	27,000.00	27,000	27,000	0.8%																
				Building Services Elements																							
3.195	1	1	Each	Compressor	2028	to 30	7	10,000.00	10,000	10,000	0.3%								10,000								
3.265	1	1	Each	Cooling Tower, Replacement	2030	25 to 35	9	71,000.00	71,000	71,000	2.1%										71,000						
3.320	1	1	Each	Elevator, Hydraulic, Pump and Controls	2032	to 25	11	64,000.00	64,000	64,000	1.9%												64,000				
3.330	1	1	Each	Elevator, Hydraulic, Cylinder	2032	to 40	11	26,000.00	26,000	26,000	0.8%												26,000				
3.560	1	1	Allowance	Life Safety System, Control Panel and Emergency Devices	2041	to 25	20	17,000.00	17,000	17,000	0.5%																
3.600	50	5	Units	Pipes, Building Heating and Cooling, Partial	2024	to 80+	3 to 30+	2,500.00	12,500	125,000	2.6%				12,500				12,500				12,500				12,500
3.605	50	5	Units	Pipes, Domestic Water, Waste and Vent, Partial	2024	to 80+	3 to 30+	4,500.00	22,500	225,000	4.7%				22,500				22,500				22,500				22,500
				Property Site Elements																							
4.040	2,560	2,560	Square Yards	Asphalt Pavement, Mill and Overlay	2041	15 to 20	20	16.50	42,240	42,240	1.3%																
4.100	6	6	Each	Catch Basins, Inspections and Capital Repairs	2041	15 to 20	20	650.00	3,900	3,900	0.1%																
4.560	7	7	Each	Light Poles and Fixtures	2046	to 25	25	3,000.00	21,000	21,000	0.6%																
4.620	4,400	4,400	Square Feet	Pavers, Masonry	2041	15 to 20	20	6.30	27,720	27,720	0.8%																
				Pool Elements																							
6.200	1,700	1,700	Square Feet	Deck, Pavers	2051	15 to 20	30	6.30	10,710	10,710	0.3%																
6.400	310	310	Linear Feet	Fences, Vinyl (Incl. Perimeter Fence)	2031	to 25	10	50.00	15,500	15,500	0.5%											15,500					
6.500	2	1	Allowance	Furniture, Phased (Incl. Site Furniture)	2026	to 10	5 to 10	10,000.00	10,000	20,000	1.8%						10,000					10,000					10,000
6.600	2	1	Allowance	Mechanical Equipment, Phased	2027	to 15	6 to 13	5,000.00	5,000	10,000	0.6%							5,000						5,000			
6.800	500	500	Square Feet	Pool Finish, Plaster	2041	8 to 12	20	20.00	10,000	10,000	0.6%																
6.801	90	90	Linear Feet	Pool Finish, Tile	2051	15 to 25	30	45.00	4,050	4,050	0.1%																
6.900	500	500	Square Feet	Structure and Deck, Total Replacement	2031	to 60	10	160.00	80,000	80,000	2.4%											80,000					
				Marina Elements																							
8.100	100	100	Linear Feet	Bulkhead, Concrete, Inspections and Capital Repairs	2031	10 to 15	10	110.00	11,000	11,000	0.7%											11,000					
8.105	100	100	Linear Feet	Bulkhead, Concrete, Replacement	2051	to 35	30	1,500.00	150,000	150,000	4.4%																
8.400	780	780	Square Feet	Docks and Pilings, Composite and Wood	2051	to 30	30	32.00	24,960	24,960	0.7%																
		1	Allowance	Reserve Study Update with Site Visit	2023	2	2	4,250.00	4,250	4,250	0.1%			4,250													
				Anticipated Expenditures, By Year ($3,373,375 over 30 years)								0	0	4,250	35,000	0	25,000	299,000	45,000	0	71,000	295,600	125,000	294,000	5,000	0	45,000

RESERVE EXPENDITURES

Whittier Towers
Apartments Association, Inc.
Lauderdale By The Sea, Florida

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years Useful	Remaining	Costs, $ Unit (2021)	Per Phase (2021)	Total (2021)	Percentage of Future Expenditures	16 2037	17 2038	18 2039	19 2040	20 2041	21 2042	22 2043	23 2044	24 2045	25 2046	26 2047	27 2048	28 2049	29 2050	30 2051
				Exterior Building Elements																						
1.060	9,950	9,950	Square Feet	Balconies and Breezeways, Concrete, Repairs and Waterproof Coating Applications	2031	8 to 12	10	18.00	179,100	179,100	15.9%					179,100										179,100
1.100	1,350	1,350	Linear Feet	Balconies, Railings, Aluminum, Paint Finishes and Capital Repairs	2041	15 to 20	20	24.50	33,075	33,075	1.0%					33,075										
1.240	1,250	1,250	Linear Feet	Gutters and Downspouts, Metal	2051	20 to 30	30	9.00	11,250	11,250	0.3%															11,250
1.260	90	90	Each	Light Fixtures, Breezeway (Incl. Carport Light Fixtures)	2046	to 25	25	200.00	18,000	18,000	0.5%										18,000					
1.400	4,120	4,120	Square Feet	Roof, Flat, Carport	2039	15 to 20	18	9.00	37,080	37,080	1.1%			37,080												
1.401	18,440	18,440	Square Feet	Roof, Flat, Main Building	2039	15 to 20	18	11.00	202,840	202,840	6.0%			202,840												
1.460	45	45	Squares	Roofs, Metal, Mansard	2051	to 30	30	1,500.00	67,500	67,500	2.0%															67,500
1.660	24,500	24,500	Square Feet	Walls, Concrete, Inspections, Paint Finishes and Restorations	2027	5 to 7	6	12.00	294,000	294,000	43.6%			294,000						294,000						294,000
				Interior Building Elements																						
2.100	1	1	Each	Elevator Cab Finishes	2026	to 20	5	15,000.00	15,000	15,000	0.9%										15,000					
2.600	1	1	Allowance	Lobby, Renovation (Incl. Office and Rest Room)	2041	to 20	20	27,000.00	27,000	27,000	0.8%					27,000										
				Building Services Elements																						
3.195	1	1	Each	Compressor	2028	to 30	7	10,000.00	10,000	10,000	0.3%															
3.265	1	1	Each	Cooling Tower, Replacement	2030	25 to 35	9	71,000.00	71,000	71,000	2.1%															
3.320	1	1	Each	Elevator, Hydraulic, Pump and Controls	2032	to 25	11	64,000.00	64,000	64,000	1.9%															
3.330	1	1	Each	Elevator, Hydraulic, Cylinder	2032	to 40	11	26,000.00	26,000	26,000	0.8%															
3.560	1	1	Allowance	Life Safety System, Control Panel and Emergency Devices	2041	to 25	20	17,000.00	17,000	17,000	0.5%					17,000										
3.600	50	5	Units	Pipes, Building Heating and Cooling, Partial	2024	to 80+	3 to 30+	2,500.00	12,500	125,000	2.6%				12,500				12,500				12,500			
3.605	50	5	Units	Pipes, Domestic Water, Waste and Vent, Partial	2024	to 80+	3 to 30+	4,500.00	22,500	225,000	4.7%				22,500				22,500				22,500			
				Property Site Elements																						
4.040	2,560	2,560	Square Yards	Asphalt Pavement, Mill and Overlay	2041	15 to 20	20	16.50	42,240	42,240	1.3%					42,240										
4.100	6	6	Each	Catch Basins, Inspections and Capital Repairs	2041	15 to 20	20	650.00	3,900	3,900	0.1%					3,900										
4.560	7	7	Each	Light Poles and Fixtures	2046	to 25	25	3,000.00	21,000	21,000	0.6%										21,000					
4.620	4,400	4,400	Square Feet	Pavers, Masonry	2041	15 to 20	20	6.30	27,720	27,720	0.8%					27,720										
				Pool Elements																						
6.200	1,700	1,700	Square Feet	Deck, Pavers	2051	15 to 20	30	6.30	10,710	10,710	0.3%															10,710
6.400	310	310	Linear Feet	Fences, Vinyl (Incl. Perimeter Fence)	2031	to 25	10	50.00	15,500	15,500	0.5%															
6.500	2	1	Allowance	Furniture, Phased (Incl. Site Furniture)	2026	to 10	5 to 10	10,000.00	10,000	20,000	1.8%					10,000					10,000					10,000
6.600	2	1	Allowance	Mechanical Equipment, Phased	2027	to 15	6 to 13	5,000.00	5,000	10,000	0.6%					5,000							5,000			
6.800	500	500	Square Feet	Pool Finish, Plaster	2041	8 to 12	20	20.00	10,000	10,000	0.6%					10,000										10,000
6.801	90	90	Linear Feet	Pool Finish, Tile	2051	15 to 25	30	45.00	4,050	4,050	0.1%															4,050
6.900	500	500	Square Feet	Structure and Deck, Total Replacement	2031	to 60	10	160.00	80,000	80,000	2.4%															
				Marina Elements																						
8.100	100	100	Linear Feet	Bulkhead, Concrete, Inspections and Capital Repairs	2031	10 to 15	10	110.00	11,000	11,000	0.7%					11,000										
8.105	100	100	Linear Feet	Bulkhead, Concrete, Replacement	2051	to 35	30	1,500.00	150,000	150,000	4.4%															150,000
8.400	780	780	Square Feet	Docks and Pilings, Composite and Wood	2051	to 30	30	32.00	24,960	24,960	0.7%															24,960
		1	Allowance	Reserve Study Update with Site Visit	2023	2	2	4,250.00	4,250	4,250	0.1%															
				Anticipated Expenditures, By Year ($3,373,375 over 30 years)								0	0	533,920	35,000	366,035	0	0	35,000	294,000	64,000	0	40,000	0	0	761,570

RESERVE FUNDING PLAN

CASH FLOW ANALYSIS
Whittier Towers
Apartments Association, Inc.
Lauderdale By The Sea, Florida

Individual Reserve Budgets & Cash Flows for the Next 30 Years

		FY2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Reserves at Beginning of Year	*(Note 1)*	97,998	108,460	221,460	330,210	408,210	521,210	609,210	423,210	491,210	604,210	646,210	463,610	451,610	270,610	378,610	491,610
Total Recommended Reserve Contributions	*(Note 2)*	10,462	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000
Estimated Interest Earned, During Year	*(Note 3)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anticipated Expenditures, By Year		0	0	(4,250)	(35,000)	0	(25,000)	(299,000)	(45,000)	0	(71,000)	(295,600)	(125,000)	(294,000)	(5,000)	0	(45,000)
Anticipated Reserves at Year End		$108,460	$221,460	$330,210	$408,210	$521,210	$609,210	$423,210	$491,210	$604,210	$646,210	$463,610	$451,610	$270,610	$378,610	$491,610	$559,610
Predicted Reserves based on 2021 funding level of:	$25,108	108,460	133,568	154,426	144,534	169,642	169,750	(104,142)	(124,034)								

(continued)

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

	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Reserves at Beginning of Year	559,610	672,610	785,610	364,690	442,690	189,655	302,655	415,655	493,655	312,655	361,655	474,655	547,655	660,655	773,655
Total Recommended Reserve Contributions	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000	113,000
Estimated Interest Earned, During Year	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anticipated Expenditures, By Year	0	0	(533,920)	(35,000)	(366,035)	0	0	(35,000)	(294,000)	(64,000)	0	(40,000)	0	0	(761,570)
Anticipated Reserves at Year End	$672,610	$785,610	$364,690	$442,690	$189,655	$302,655	$415,655	$493,655	$312,655	$361,655	$474,655	$547,655	$660,655	$773,655	$125,085

(NOTES 4&5)

Explanatory Notes:

1) Year 2021 starting reserves are as of July 31, 2021; FY2021 starts January 1, 2021 and ends December 31, 2021.
2) Reserve Contributions for 2021 are the remaining budgeted 5 months; 2022 is the first year of recommended contributions.
3) 0.0% is the estimated annual rate of return on invested reserves; see Executive Summary for details
4) Accumulated year 2051 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

Whittier Towers
Apartments Association, Inc.
Lauderdale By The Sea, Florida

Line Item	Reserve Component Inventory	RUL = 0 FY2021	1 2022	2 2023	3 2024	4 2025	5 2026
	Interior Building Elements						
2.100	Elevator Cab Finishes						15,000
	Building Services Elements						
3.600	Pipes, Building Heating and Cooling, Partial				12,500		
3.605	Pipes, Domestic Water, Waste and Vent, Partial				22,500		
	Pool Elements						
6.500	Furniture, Phased (Incl. Site Furniture)						10,000
	Reserve Study Update with Site Visit			4,250			
	Anticipated Expenditures, By Year ($3,373,375 over 30 years)	0	0	4,250	35,000	0	25,000

COMPONENT METHOD RESERVE ANALYSIS

for

Whittier Towers

Apartments Association, Inc.

Lauderdale By The Sea, Florida

Line Item	Total Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Replacement	Life Analysis, Years Useful	Life Analysis, Years Remaining[3]	Unit Cost, $	2021 Cost of Replacement, $	Jul 31, 2021 Estimated Balance, $	2021 Budgeted Contributions, $	2021 Remaining Contributions, $	2021 Remaining Expenditures, $	Jan 1, 2022 Projected Balance, $	Unfunded Residual Balance, $	2022 Recommended Contribution, $	Reserve Category
			Exterior Building Elements													
1.060	9,950	Square Feet	Balconies and Breezeways, Concrete, Repairs and Waterproof Coating Applications	2031	8 to 12	10	18.00	179,100	35,179	0	0	0	35,179	143,921	14,392	Concrete/Cement
1.100	1,350	Linear Feet	Balconies, Railings, Aluminum, Paint Finishes and Capital Repairs	2041	15 to 20	20	24.50	33,075	0	0	0	0	0	33,075	1,654	Other
1.240	1,250	Linear Feet	Gutters and Downspouts, Metal	2051	20 to 30	30	9.00	11,250	0	0	0	0	0	11,250	375	Roof
1.260	90	Each	Light Fixtures, Breezeway (Incl. Carport Light Fixtures)	2046	to 25	25	200.00	18,000	0	0	0	0	0	18,000	720	Other
1.400	4,120	Square Feet	Roof, Flat, Carport	2039	15 to 20	18	9.00	37,080	0	0	0	0	0	37,080	2,060	Roof
1.401	18,440	Square Feet	Roof, Flat, Main Building	2039	15 to 20	18	11.00	202,840	956	11,475	4,781	0	5,737	197,103	10,950	Roof
1.460	45	Squares	Roofs, Metal, Mansard	2051	to 30	30	1,500.00	67,500	0	0	0	0	0	67,500	2,250	Roof
1.660	24,500	Square Feet	Walls, Concrete, Inspections, Paint Finishes and Restorations	2027	5 to 7	6	12.00	294,000	12,295	4,192	1,747	0	14,042	279,958	46,660	Painting
			Interior Building Elements													
2.100	1	Each	Elevator Cab Finishes	2026	to 20	5	15,000.00	15,000	15,000	0	0	0	15,000	0	0	Elevator
2.600	1	Allowance	Lobby, Renovation (Incl. Office and Rest Room)	2041	to 20	20	27,000.00	27,000	0	0	0	0	0	27,000	1,350	Other
			Building Services Elements													
3.195	1	Each	Compressor	2028	to 30	7	10,000.00	10,000	10,000	0	0	0	10,000	0	0	Lift Station
3.265	1	Each	Cooling Tower, Replacement	2030	25 to 35	9	71,000.00	71,000	0	0	0	0	0	71,000	7,889	Other
3.320	1	Each	Elevator, Hydraulic, Pump and Controls	2032	to 25	11	64,000.00	64,000	4,593	6,608	2,753	0	7,346	56,654	5,150	Elevator
3.330	1	Each	Elevator, Hydraulic, Cylinder	2032	to 40	11	26,000.00	26,000	0	0	0	0	0	26,000	2,364	Elevator
3.560	1	Allowance	Life Safety System, Control Panel and Emergency Devices	2041	to 25	20	17,000.00	17,000	0	0	0	0	0	17,000	850	Other
3.600	50	Units	Pipes, Building Heating and Cooling, Partial	2024	to 80+	21	2,500.00	125,000	0	0	0	0	0	125,000	5,952	Other
3.605	50	Units	Pipes, Domestic Water, Waste and Vent, Partial	2024	to 80+	21	4,500.00	225,000	0	0	0	0	0	225,000	10,714	Other
			Property Site Elements													
4.040	2,560	Square Yards	Asphalt Pavement, Mill and Overlay	2041	15 to 20	20	16.50	42,240	9,341	1,540	642	0	9,983	32,257	1,613	Paving
4.100	6	Each	Catch Basins, Inspections and Capital Repairs	2041	15 to 20	20	650.00	3,900	0	0	0	0	0	3,900	195	Paving
4.560	7	Each	Light Poles and Fixtures	2046	to 25	25	3,000.00	21,000	0	0	0	0	0	21,000	840	Other
4.620	4,400	Square Feet	Pavers, Masonry	2041	15 to 20	20	6.30	27,720	0	0	0	0	0	27,720	1,386	Other

COMPONENT METHOD RESERVE ANALYSIS

for

Whittier Towers

Apartments Association, Inc.

Lauderdale By The Sea, Florida

Line Item	Total Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Replacement	Life Analysis, Years Useful	Life Analysis, Years Remaining[3]	Unit Cost, $	2021 Cost of Replacement, $	Jul 31, 2021 Estimated Balance, $	2021 Budgeted Contributions, $	2021 Remaining Contributions, $	2021 Remaining Expenditures, $	Jan 1, 2022 Projected Balance, $	Unfunded Residual Balance, $	2022 Recommended Contribution, $	Reserve Category
			Pool Elements													
6.200	1,700	Square Feet	Deck, Pavers	2051	15 to 20	30	6.30	10,710	0	0	0	0	0	10,710	357	Pool
6.400	310	Linear Feet	Fences, Vinyl (Incl. Perimeter Fence)	2031	to 25	10	50.00	15,500	0	0	0	0	0	15,500	1,550	Pool
6.500	2	Allowance	Furniture (Incl. Site Furniture)	2026	to 10	7	10,000.00	20,000	7,820	1,293	539	0	8,359	11,641	1,663	Pool
6.600	2	Allowance	Mechanical Equipment	2027	to 15	9	5,000.00	10,000	0	0	0	0	0	10,000	1,111	Pool
6.800	500	Square Feet	Pool Finish, Plaster	2041	8 to 12	20	20.00	10,000	0	0	0	0	0	10,000	500	Pool
6.801	90	Linear Feet	Pool Finish, Tile	2051	15 to 25	30	45.00	4,050	0	0	0	0	0	4,050	135	Pool
6.900	500	Square Feet	Structure and Deck, Total Replacement	2031	to 60	10	160.00	80,000	0	0	0	0	0	80,000	8,000	Pool
			Marina Elements													
8.100	100	Linear Feet	Bulkhead, Concrete, Inspections and Capital Repairs	2031	10 to 15	10	110.00	11,000	2,814	0	0	0	2,814	8,186	819	Dock
8.105	100	Linear Feet	Bulkhead, Concrete, Replacement	2051	to 35	30	1,500.00	150,000	0	0	0	0	0	150,000	5,000	Dock
8.400	780	Square Feet	Docks and Pilings, Composite and Wood	2051	to 30	30	32.00	24,960	0	0	0	0	0	24,960	832	Dock
	1	Allowance	Reserve Study Update with Site Visit	2023	2	2	4,250.00	4,250	0	0	0	0	0	4,250	2,125	Other
									$97,998 (Note 1)	$25,108	$10,462 (Note 2)	$0	$108,460	$1,749,715	$139,456	

Explanatory Notes:

1) Year 2021 starting reserves are as of July 31, 2021; FY2021 starts January 1, 2021 and ends December 31, 2021.

2) Reserve Contributions for 2021 are the remaining budgeted 5 months; 2022 is the first year of recommended contributions.

3) Our estimates of remaining useful life reflect averages for phased projects. The estimated first year of replacement indicates the year of the initial phase.

COMPONENT METHOD SUMMARY

for
Whittier Towers
Apartments Association, Inc.
Lauderdale By The Sea, Florida

Existing Reserve Categories	Life Analysis, Years Useful	Years Remaining	2021 Cost of Replacement, $	Jan 1, 2022 Projected Balance, $	2022 Recommended Contribution, $
Paving	15 to 20	20	$46,140	$9,983	$1,808
Roof	15 to 30	18 to 30	$318,670	$5,737	$15,635
Elevator	to 40	5 to 11	$105,000	$22,346	$7,514
Pool	8 to 60	7 to 30	$150,260	$8,359	$13,316
Painting	5 to 7	6	$294,000	$14,042	$46,660
Lift Station	to 30	7	$10,000	$10,000	$0
Concrete/Cement	8 to 12	10	$179,100	$35,179	$14,392
Dock	10 to 35	10 to 30	$185,960	$2,814	$6,651
Subtotal			**$1,289,130**	**$108,460**	**$105,975**
Other (Currently Unfunded)	2 to 80	9 to 25	$569,045	$0	$33,480
Grand Total			**$1,858,175**	**$108,460**	**$139,456**

Explanatory Notes:

1) We allocate the existing Interest Reserve Funds to Reserve Components associated with the Elevator Reserve Funds.

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*.

Exterior Building Elements

East facing front elevation

South facing side elevation

West facing side elevation

North facing side elevation

West facing rear elevation

Carport front elevation

Balconies and Breezeways, Concrete

Line Item: 1.060

Quantity: Approximately 9,950 square feet of horizontal surface area at the balconies, breezeways and staircases. These components comprise reinforced concrete with a waterproof coating.

History: The coating application and repairs were applied in 2021

Condition: Good overall

Concrete balconies overview

Concrete breezeway overview

Concrete staircase overview

Concrete breezeway underside

Useful Life: Capital repairs including a close-up visual inspection, patching of delaminated concrete, routing and filling of cracked concrete, and waterproof coating applications every 8- to 12-years.

Component Detail Notes: A waterproof coating application minimizes storm water penetration into the concrete and therefore minimizes future concrete deterioration. *Failure to maintain a waterproof coating on the balconies will result in increased concrete repairs and replacements as the balconies age*. Capital repairs may also include replacement of the caulked joint between the balcony and the building, and repair or replacement of the metal railings and railing fastener attachments 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. Our cost includes the following activities per event:

- Partial depth replacement of up to one percent (1%) of the concrete topsides, edges and undersides
- Crack repairs as necessary
- Repairs to the railings as necessary
- Replacement of perimeter sealants as needed
- Application of a waterproof coating (Urethane based elastomeric)
- Paint applications to the undersides

Balconies and Breezeways, Railings, Aluminum

Line Item: 1.100

Quantity: 1,350 linear feet at the balconies, breezeways and staircases

History: Replaced in 2021

Condition: Good overall

Aluminum railings overview

Aluminum railings overview

Useful Life: Replacement up to every 40 years and paint finishes and capital repairs every 15- to 20-years.

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. Based on the age and condition of the aluminum railings we do not anticipate replacement over the next 30 years.

Gutters and Downspouts, Metal

Line Item: 1.240

Quantity: Approximately 1,250 linear feet of metal small and large capacity seamless gutters and small and large capacity downspouts

History: Replaced in 2021

Condition: Good overall

Metal gutter and downspout assembly

Metal gutter and downspout assembly

Useful Life: 20- to 30-years

Component Detail Notes: The size of the gutter is determined by the roof's watershed area, a roof pitch factor and the rainfall intensity number of the Association's region. We recommend sloping gutters 1/16 inch per linear foot and providing fasteners a maximum of every three feet.

Downspouts can drain 100 square feet of roof area per one square inch of downspout cross sectional area. We recommend the use of downspout extensions and splash blocks at the downspout discharge to direct storm water away from the foundations.

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

- Semi-annually:
  - Clean out debris and leaves that collect in the gutters
  - Repair and refasten any loose gutter fasteners
  - Repair and seal any leaking seams or end caps
  - Verify downspouts discharge away from foundations

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 Fixtures

Line Item: 1.260

Quantity: Approximately 90 breezeway and carport ceiling light fixtures

History: Replaced in 2021

Condition: Good overall

Breezeway ceiling light fixture overview

Breezeway wall light fixture overview

Useful Life: Up to 25 years

Priority/Criticality: Per Board discretion

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

- As-needed:
    - Replace burned out bulbs at common fixtures as needed
    - Inspect and repair broken or dislodged fixtures
    - Ensure a waterproof seal between the fixture and building exists

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

Roofs, Flat

Line Items: 1.400 and 1.401

Quantity: 4,120 square feet at the carport and 18,440 square feet at the main building

History: Replaced in 2021

Condition: The flat roofs are reported to be in satisfactory condition and The Board does not report a history of leaks.

Useful Life: 15- to 20-years

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:

- Semi-annually:
    - Note drainage issues with water ponding after 48 hours of rainfall event. Verify scuppers and drains are free of debris. Replace damaged or missing drain covers.
    - Inspect perimeter flashing for loose fasteners, deflections, and sealant damage
    - Verify membrane surface is free of ruptures or damage, and areas of extensive blistering or bubbling
    - Remove oil spills or contaminants from mechanical equipment
    - In areas of possible foot traffic, remove any sharp debris or trash and note areas of crushed insulation
    - If frequency of leaks increase or location of water infiltration is unknown, we recommend the consideration of a thermal image inspection

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.

Roofs, Metal

Line Item: 1.460

Quantity: 45 *squares*[1] of metal mansard roofs at the carport, main building and entrance signage

History: Replaced in 2021

Condition: Good overall

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

Metal mansard roof overview

Useful Life: Up to 30 years

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 fasteners
    - Implement repairs as needed if issues are reoccurring
    - Ensure proper ventilation and verify vents are clear of debris and not blocked from attic insulation
    - Clear valleys of debris
    - Periodic cleaning at areas with organic growth

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.

Walls, Concrete

Line Item: 1.660

Quantity: Approximately 24,500 square feet of concrete structural members and facade with a coating application. This quantity includes the carport, entrance signage walls and south perimeter wall.

History: The Association last completed a major concrete facade restoration in 2021

Conditions: The façade and the coating are in good overall condition with isolated coating finish deterioration evident.

Coating finish deterioration

Coating finish deterioration

Coating finish deterioration

Coating finish deterioration

Carport concrete façade

South perimeter wall concrete façade

Useful Life: We recommend concrete facade inspections, paint finishes and repairs every five- to seven-years.

Component Detail Notes: Periodic liquid-applied coatings serve to inhibit deterioration of the exterior concrete. Coatings on concrete must allow entrained moisture in the concrete to migrate to the concrete surface and evaporate. A non-permeable coating traps this moisture and increases concrete spalling and eventual degradation of the coating.

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 work per repair event:

- Complete inspection
- Paint finish applications
- Partial depth replacement of up to one percent (1%) of the concrete (The exact amount of area in need of replacement will be discretionary based on the actual future conditions and the desired appearance.)
- Crack repairs to up to three percent (3%) of the concrete
- Engineering fees
- Scaffolding

The exact costs will vary based on the conditions at the time of the project and the results of the physical inspection prior to the repairs.

Interior Building Elements

Elevator Cab Finishes

Line Item: 2.100

Quantity: One elevator; the cab finishes consist of:

- Rubber floor coverings
- Wood wall coverings
- Metal ceiling finishes

History: Unknown

Condition: Good to fair overall

Elevator cab finishes

Elevator cab finishes

Useful Life: Up to 20 years

Priority/Criticality: Per Board discretion

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

Lobby

Line Item: 2.600

Quantity: Whittier Towers maintains a common lobby which includes an office and rest room. The common lobby components include:

- Tile floor coverings
- Tile wall coverings in the rest room
- Paint finishes on the walls and ceilings
- Plumbing fixtures
- Furnishings
- Light fixtures

History: The lobby was renovated in 2021

Condition: Good overall

Lobby overview

Lobby overview

Office overview

Rest room overview

Useful Life: Renovation 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. We recommend the Association fund partial renovations and interim furnishing replacements through the operating budget as needed.

Building Services Elements

Compressor

Line Item: 3.195

Quantity: One each

History: Unknown with a history of ongoing repairs and upgrades reported

Condition: Reported satisfactory

Compressor overview

Useful Life: Up to 30 years

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.

Cooling Tower

Line Item: 3.265

Quantity: One cooling tower

History: Unknown

Condition: Reported satisfactory without operational deficiencies

Cooling tower

Useful Life: Replacement every 25- to 35-years

Component Detail Notes: Proper maintenance includes the following:

- Keeping all areas free of debris and build-up
- Effective water treatment program
- Seasonal testing of valves and controls for proper operation
- Inspection, adjustment and repairs of mechanical components as recommended by the manufacturer
- Annual inspection of components for corrosion or decay
- Capital repairs every 10- to 15-years

Capital repairs include a complete inspection of the cooling tower, pumps, motor drives and controls, replacement of the fill media, spray nozzles and any corroded areas, application of an internal protective coating and structural repairs. In addition, capital repairs may include partial or complete replacement of the motors, pumps, controls and valves.

Preventative Maintenance Notes: We recommend the Association obtain and adhere to the manufacturer's recommended maintenance plan. We also recommend the Association maintain a maintenance contract with a qualified professional. 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:

- Daily:
    - Routine visual and audial assessments to determine if any unusual noises or vibrations are coming from the unit
    - Check basin water and operating oil levels and adjust as needed
    - Check surroundings and ensure paths to the cooling tower are clear of obstructions and trip hazards
- Weekly:
    - Inspect air inlet louvers/shields for blockages
    - Check for water leakage

- Monthly:
    - Inspect for fill media for displacement, damage, dry spots and obstructions. Dry spots may indicate cracks or clogs with the spray nozzles.
    - Check oil seals and oil static levels
    - Check make-up valve, bleed rate and belt condition
    - Conduct water treatment analysis
- Quarterly:
    - Inspect cold water basin and spray nozzles
    - Inspect the fill media for scale buildups. Descaling will increase energy conservations.
    - Flush water distribution system, drain basin and piping
    - Adjust belt tension
    - Lubricate fan shaft bearings and motor base
    - Check motor voltage and current
    - Clean fan motor exterior
    - Check fan drain holes for obstructions
    - Check fan clearance and balance
- Annually:
    - Complete inspection of components for corrosion or decay
    - Check drive alignment
    - Coat steel shafts with corrosion inhibitor as needed
    - Pressure wash components including fill and basin
- Seasonal
    - Drain and sanitize

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.

Elevator, Hydraulic

Line Items: 3.320 and 3.330

Quantity: One *Motion Control Engineering (MCE)* hydraulic passenger elevator

History: Components are at an unknown age

Condition: Reported satisfactory and service interruptions are reportedly infrequent.

Pump housing

Useful Life: Pumps and controls have a useful life of up to 25 years. Cylinders have a useful life of up to 40 years.

Component Detail Notes: Major components in a hydraulic elevator system include the pump, controls, cylinder, fluid reservoir and a valve between the cylinder and reservoir. Once activated by the elevator controls, the pump forces hydraulic fluid from the reservoir into the cylinder. The piston within the cylinder rises lifting the elevator cab. The elevator cab lowers at a controlled rate when the controls open the valve.

Preventative Maintenance Notes: We recommend the Association obtain and adhere to the manufacturer's recommended maintenance plan. We also recommend the Association maintain a maintenance contract with a qualified professional. 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:

- Ongoing:
  - Maintain a maintenance contract with a qualified professional for the elevator(s) and follow the manufacturer's specific recommended maintenance plan adhering to local, state, and/or federal inspection guidelines
- As-needed:
  - Keep an accurate log of all repairs and inspection dates
  - Inspect and adjust misaligned door operators
  - Check for oil leaks or stains near the pump housing and confirm oil levels are adequate
  - Clear and remove any items located in the elevator machine room(s) not associated with the elevator components (These rooms should never be used for storage)
  - Lubricate the hydraulic cylinders
  - Inspect electrical components for signs of overheating or failure
  - Inspect spring buffers in elevator pit for signs of corrosion or loose attachments

- Ensure air temperature and humidity of machine/pump housing room meets the designated specified range for proper operation
- Ensure all call buttons are in working condition
- Check elevator cabs for leveling accuracy to prevent tripping hazards

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 anticipate the following hydraulic elevator system components will require replacement:

- Cab control panel
- Door operator
- Hallway panels/buttons
- Microprocessor based controller
- Pump (Power Unit) (20-HP)

These costs may vary based on the desired scope of the actual replacements, changes in technology and requirements of local codes or ordinances at the actual times of replacements. However, we judge our estimated costs sufficient to budget appropriate reserves at this time. The Association should require the contractor to verify that elevator component replacements include all of the necessary features for the latest in elevator code compliance.

Life Safety System

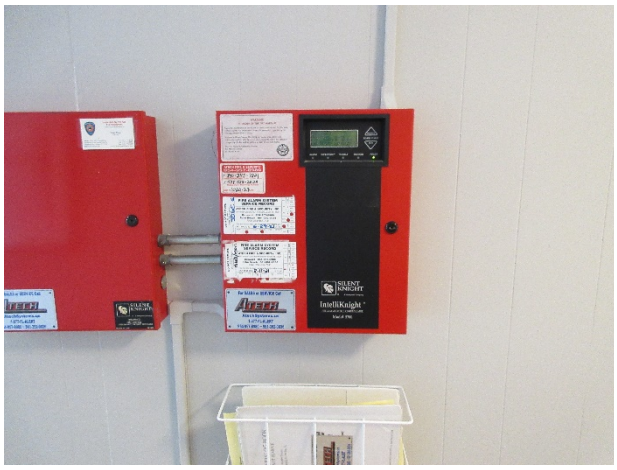
Line Item: 3.560

Quantity: The life safety system at Whittier Towers includes the following components:

- *Silent Knight by Honeywell* control panel
- Emergency light fixtures
- Exit light fixtures
- Pull stations
- Wiring

History: Replaced in 2021

Conditions: Reported satisfactory



Life safety system control panel overview

Life safety system emergency device

Useful Life: Up to 25 years

Preventative Maintenance Notes: We recommend the Association obtain and adhere to the manufacturer's recommended maintenance plan. In accordance with *NFPA 72* (National Fire Alarm and Signaling Code) we also recommend the Association maintain a maintenance contract with a qualified professional. The required preventative maintenance may vary in frequency and scope based on the age of the components, operational condition, or changes in technology. We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Semi-annually:
  - Inspect and test all components and devices, including, but not limited to, control panels, annunciators, detectors, audio/visual fixtures, signal transmitters and magnetic door holders
  - Test backup batteries
- As-needed:
  - Ensure clear line of access to components such as pull stations
  - Ensure detectors are properly positioned and clean of debris

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. Changes in technology or building codes may make a replacement desirable prior to the end of the functional life. Our estimate of future cost considers only that amount necessary to duplicate the same functionality. Local codes or ordinances at the actual time of replacement may require a betterment as compared to the existing system. A betterment could result in a higher, but at this time unknown, cost of replacement.

Pipes

Line Items: 3.600 and 3.605

Quantity: We estimate that each unit has 17 sets of building heating, cooling and condensate pipes and that each unit shares domestic water plumbing pipes for both the kitchen and bathroom with the adjacent unit.

History and Condition:

- Building Heating and Cooling – Original and reported in satisfactory condition
- Domestic Water, Supply and Return – Original and reported in satisfactory condition
- Sanitary Waste Disposal and Vent – Original and reported in satisfactory condition

Component Detail Notes: The Association is responsible for maintenance and replacement of the piping systems arranged in vertical and horizontal segments. These pipes comprise the following:

- Building heating, cooling and condensate
- Domestic cold water
- Domestic hot water supply and return
- Vent plumbing fixtures
- Sanitary waste disposal

The exact locations and conditions of the pipes were not ascertained due to the nature of their location and the non-invasive nature of our inspection. We comment on the respective quantities and conditions of the piping systems in the following sections of this narrative.

Building Heating and Cooling - The building heating and cooling system at Whittier Towers likely utilizes a two-pipe system. The cast iron pipes have a useful life of up to and sometimes beyond 80 years.

Domestic Water - Copper piping is the predominant type of pipe used in new construction for domestic water piping. With low mineral content in the water, the useful life of copper domestic water pipes is up to and sometimes beyond 80 years. However, there is recent evidence that copper piping prematurely develops pinhole leaks.

In the event that numerous pinhole leaks develop or occur throughout the system of pipes, Whittier Towers should also consider “in-place” pipe restoration technology. This process includes drying, sandblasting away interior pipe occlusions and applying an epoxy lining to the interior surfaces of the pipes. Future updates of this study will consider the possibility of the pipe restoration process in lieu of pipe replacement at Whittier Towers. Restoration technology can extend the useful life of a pipe system thus avoiding a system pipe replacement.

Sanitary Waste Disposal and Vent - The cast iron pipes typically deteriorate from the inside out as a result of sewer gases, condensation and rust.

Valves - The piping systems include various valves. Identification of a typical useful life and remaining useful life for individual valves is difficult. Associations typically replace valves on an as needed basis in our experience.

Preventative Maintenance Notes: The required preventative maintenance may vary in frequency and scope based on the building's age and demands of the piping systems. We note the following select recommended preventative maintenance activities to maximize the remaining useful life:

- Quarterly:
  - Inspect all visible piping for corrosion and leaks, including common areas or areas immediately surrounding pipes such as insulation, ceiling tiles or the floor for moisture, water accumulation, mold or mildew
- Annually:
  - Verify system pressure is sufficient
  - Check accessible valves for proper operation
  - Test backflow prevention devices
  - Inspect and obtain certification for pressure relief valves
  - Test drain line flow rates
  - Mechanically or chemically clean sewer lines 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. Our cost assumes replacement of all pipes located within each wall opening, associated branch piping, fittings and minimal interior finishes. However, the cost does not include temporary housing for affected residents, pipes within the units or significant interior finishes.

The Association budgets an amount in the annual operating budget for minor pipe repairs and replacements. We recommend the Association continue to fund interim pipe replacements, prior to more aggregate replacements identified in the following paragraphs, from the operating budget. We also recommend the Association contract for an invasive investigation of the condition of the piping system prior to beginning more aggregate replacements, funded through the operating budget.

We recommend the Association budget the following expenditures:

- Building heating and cooling - Our estimate provides funds to replace approximately seventy percent (70%) of the pipes during the next 30 years.
- Domestic water, waste and vent - Our estimate provides funds to replace approximately seventy percent (70%) of the pipes during the next 30 years.

An invasive analysis of the piping systems will provide various replacement options. Replacement of the systems as an aggregate event will likely require the use of special assessments or loans to fund the replacements.

Although it is likely that the times of replacement and extent of repair costs may vary from the budgetary allowance, Whittier Towers could budget sufficient reserves for the beginning of these pipe replacements and have the opportunity to adjust its future reserves up or down to meet any changes to these budgetary estimates. Updates of this Reserve Study would incorporate changes to budgetary costs through a continued historical analysis of the rate of deterioration and actual pipe replacements to budget sufficient reserves.

We recommend the Association budget for replacement of the following items through the operating budget:

- Replacement of valves on an as-needed basis
- Minor pipe repairs and replacements
- invasive investigation of the condition of the piping system prior to beginning more aggregate replacements
- Rodding of waste pipes

Property Site Elements

Asphalt Pavement, Repaving

Line Item: 4.040

Quantity: Approximately 2,560 square yards

History: Replaced in 2021

Condition: Good overall with minor areas of standing water evident

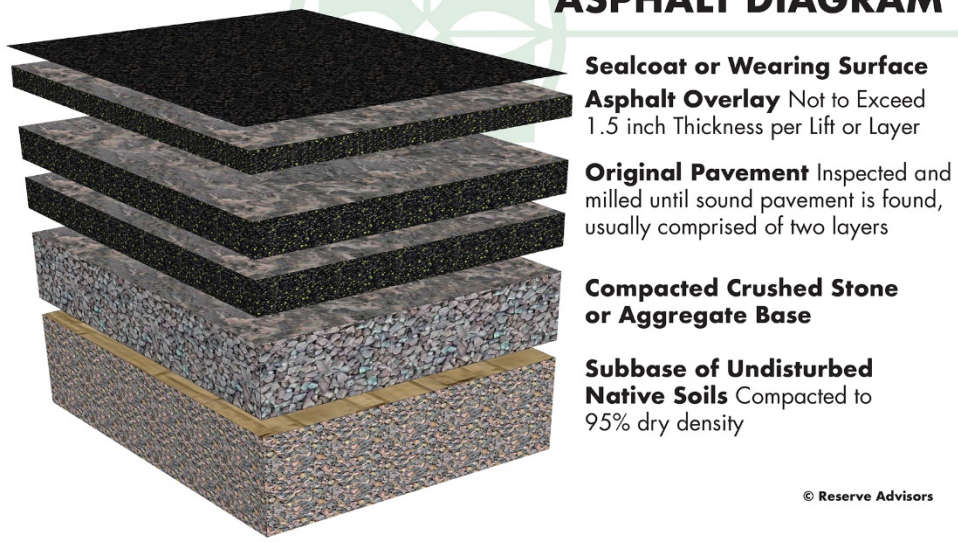
Asphalt pavement overview

Standing water

Standing water

Useful Life: 15- to 20-years with the benefit of timely crack repairs and patching

Component Detail Notes: The initial installation of asphalt uses at least two lifts, or two separate applications of asphalt, over the base course. The first lift is the binder course. The second lift is the wearing course. The wearing course comprises a finer aggregate for a smoother more watertight finish. The following diagram depicts the typical components although it may not reflect the actual configuration at Whittier Towers:



The manner of repaving is either a mill and overlay or total replacement. A mill and overlay is a method of repaving where cracked, worn and failed pavement is mechanically removed or milled until sound pavement is found. A new layer of asphalt is overlaid atop the remaining base course of pavement. Total replacement includes the removal of all existing asphalt down to the base course of aggregate and native soil followed by the

application of two or more new lifts of asphalt. We recommend mill and overlayment on asphalt pavement that exhibits normal deterioration and wear. We recommend total replacement of asphalt pavement that exhibits severe deterioration, inadequate drainage, pavement that has been overlaid multiple times in the past or where the configuration makes overlayment not possible. Based on the apparent visual condition and configuration of the asphalt pavement, we recommend the mill and overlay method of repaving at Whittier Towers.

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

- Annually:
    - Inspect for settlement, large cracks and trip hazards, and ensure proper drainage
    - Repair areas which could cause vehicular damage such as potholes
- As needed:
    - Perform crack repairs and patching

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 for milling and overlayment is based on information provided by the Association and includes area patching of up to ten percent (10%).

Catch Basins

Line Item: 4.100

Quantity: Six catch basins[2]

History: Original

Condition: Good overall without settlement visually apparent

[2] We utilize the terminology catch basin to refer to all storm water collection structures including curb inlets.

Catch basins overview

Useful Life: The useful life of catch basins is up to 65 years. However, achieving this useful life usually requires interim capital repairs or partial replacements every 15- to 20-years.

Component Detail Notes: Erosion causes settlement around the collar of catch basins. Left unrepaired, the entire catch basin will shift and need replacement.

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

- Annually:
    - Inspect and repair any settlement and collar cracks
    - Ensure proper drainage and inlets are free of debris
    - If property drainage is not adequate in heavy rainfall events, typically bi-annual cleaning of the catch basins is recommended

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 plan for inspections and capital repairs to the catch basins in conjunction with repaving.

Light Poles and Fixtures

Line Item: 4.560

Quantity: Seven poles with light fixtures

History and Condition: At the time of our inspection the Association was in the process of replacing the light poles and fixtures and we assume them to be in good overall condition at the time of installation.

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.

Pavers, Masonry

Line Item: 4.620

Quantity: 4,400 square feet located throughout the community

History: Replaced in 2021

Condition: Good overall

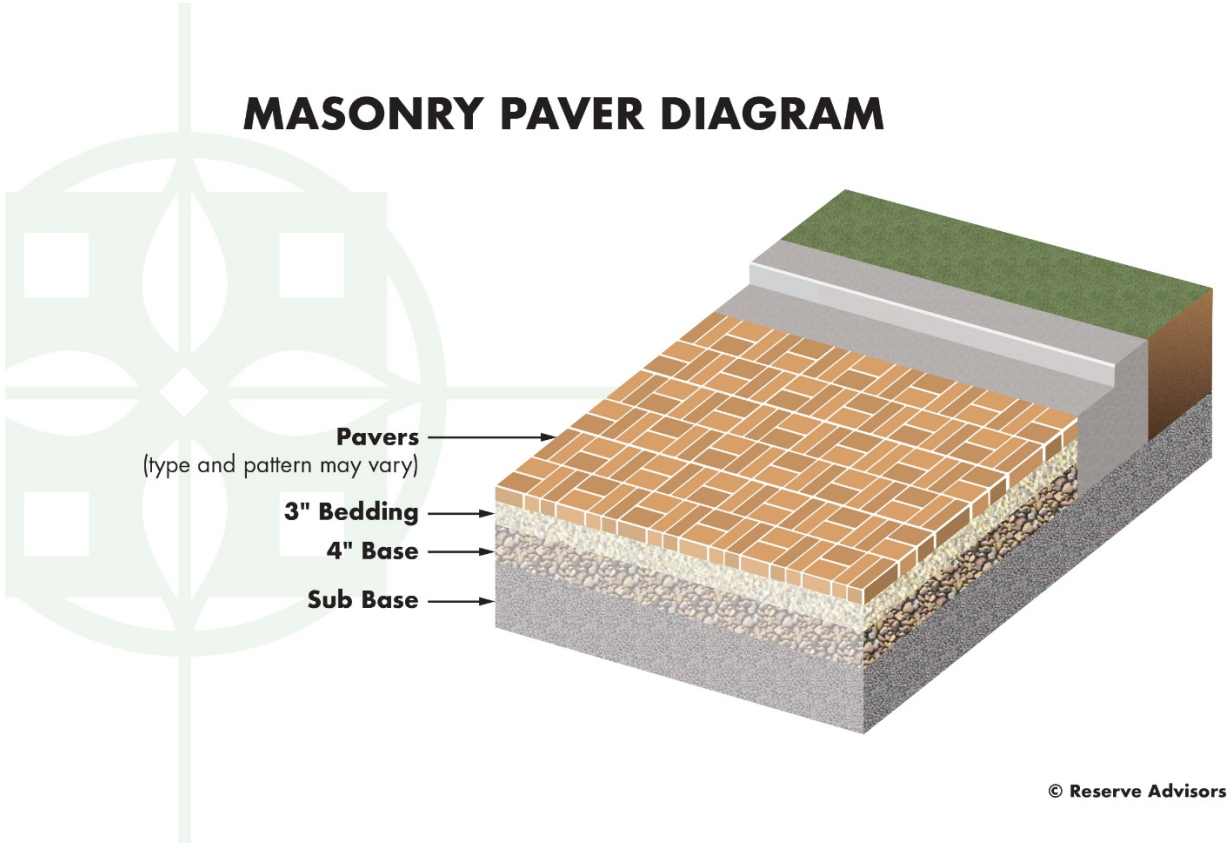
Masonry pavers overview

Masonry pavers overview

Masonry pavers overview

Useful Life: 15- to 20-years

Component Detail Notes: The following diagram depicts the typical components of a masonry paver system although it may not reflect the actual configuration at Whittier Towers:



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

- Annually:
    - Inspect and repair settlement, trip hazards and paver spalls at heavy traffic areas
    - Re-set and/or reseal damaged pavers as necessary
    - Periodically clean and remove overgrown vegetation 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. Our cost is based on information provided by the Association. We suggest the Association conduct interim resetting and replacement of minor areas of pavers as normal maintenance, funded from the operating budget.

Pool Elements

Pool overview

Deck, Pavers

Line Item: 6.200

Quantity: 1,700 square feet

History: The paver deck is at an unknown age and the Association conducted repairs to the pavers in 2021

Condition: Good to fair overall with minor paver settlement evident

Paver settlement

Paver settlement

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 settlement, trip hazards and significant paver spall
  - Reset and/or reseal damaged pavers as necessary
  - Periodically clean and remove overgrown vegetation 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 fund interim inspections, partial replacements and repairs through the operating budget.

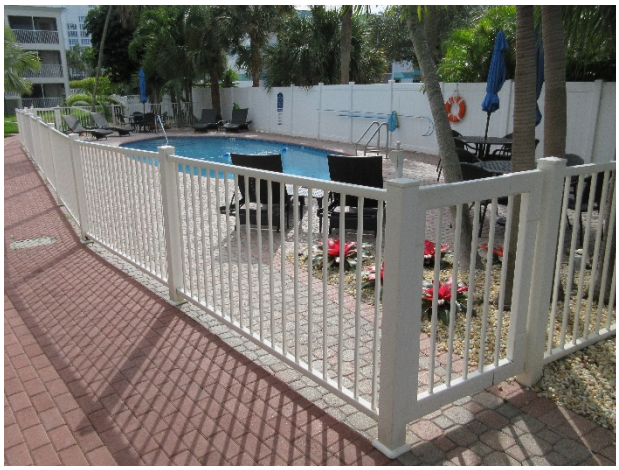
Fences, Vinyl

Line Item: 6.400

Quantity: 310 linear feet. This quantity includes the south perimeter vinyl fence and the fences surrounding the mechanical equipment

History: Unknown

Condition: Good overall



Vinyl fence overview

Vinyl fence overview

Useful Life: Up to 25 years

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 and site furniture includes the following:

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

History: Replaced in 2021

Condition: Good overall

Site furniture overview

Useful Life: Up to 10 years

Priority/Criticality: Per Board discretion

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

- Automatic chlorinator
- Controls
- Filter
- Heater
- Interconnected pipe, fittings and valves
- Pumps
- Electrical panel
- Exhaust fan

History: Various ages with replacements of the pumps and filters in 2021

Condition: Reported satisfactory

Pool mechanical equipment overview

Pool mechanical equipment overview

Useful Life: Up to 15 years

Preventative Maintenance Notes: 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: 500 square feet of plaster based on the horizontal surface area and approximately 90 linear feet of tile

History: The plaster finish and the tile was replaced in 2021

Condition: Good overall

Pool 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 and coping 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

Structure and Deck

Line Item: 6.900

Quantity: 500 square feet of horizontal surface area

History: Original

Conditions: Visually appear in good condition. The concrete floor and walls have a plaster finish. This finish makes it difficult to thoroughly inspect the concrete structure during a noninvasive visual inspection.

Useful Life: Up to 60 years

Component Detail Notes: The need to replace a pool structure depends on the condition of the concrete structure, the condition of the embedded or concealed water circulation piping, possible long term uneven settlement of the structure, and the increasing cost of repair and maintenance. Deterioration of any one of these component systems could result in complete replacement of the pool. For example, deferral of a deteriorated piping system could result in settlement and cracks in the pool structure. This mode of failure is more common as the system ages and deterioration of the piping system goes undetected. For reserve budgeting purposes, we recommend Whittier Towers plan to replace the following components:

- Pool structure
- Subsurface piping

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.

Marina Elements

Bulkhead, Concrete

Line Items: 8.100 and 8.105

Quantity: Approximately 100 linear feet

History: The Association conducted capital repairs to the concrete bulkhead in 2021

Conditions: Good overall

Concrete bulkhead overview

Concrete bulkhead overview

Useful Life: Inspections and capital repairs 10- to 15-years and replacement up to every 35 years

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 and replacement of up to 10 linear feet of bulkheads, or ten percent (10%) of the total.

Docks and Pilings, Composite and Wood

Line Item: 8.400

Quantity: Approximately 780 square feet of composite and wood decking at the dock and seven wood pilings

History: At the time of our inspection the Association was in the process of replacing the wood and composite dock

Condition: Good overall

Wood and composite dock overview

Useful Life: Up to 30 years

Component Detail Notes: The dock sit atop wood pilings. The height of the docks are manually adjustable at the piles to accommodate changes in water levels. Whittier Towers should fund this activity through the operating budget when necessary.

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 estimate of cost is based on information provided by the Association and we recommend Whittier Towers fund interim replacements of utilities prior to replacement of the docks and annual repairs to displaced pilings through the operating budget.

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. The Association can expense the fee for an Update with site visit from the

reserve account. This fee is included in the Reserve Funding Plan. We base this budgetary amount on updating the same property components and quantities of this Reserve Study report. We recommend the Board budget for an Update to this Reserve Study in two- to 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.

Whittier Towers 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 monthly 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 Unit 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 Lauderdale By The Sea, Florida at an annual inflation rate[3]. Isolated or regional

[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.

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

- The past and current maintenance practices of Whittier Towers 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.

NICHOLAS M. JOHANNING, E.I.T., RS
Responsible Advisor

CURRENT CLIENT SERVICES

Nicholas M. Johanning, a Civil Engineer, is an Advisor for Reserve Advisors. Mr. Johanning is responsible for the inspection and analysis of the condition of clients' properties, 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 on townhomes, homeowners associations, planned unit developments and recreational associations.

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

Ranch at Roaring Fork Homeowners Association, Inc. Situated in Carbondale, Colorado, this community features 162 single family homes and 60 units in 14 condominium buildings. The Association features a golf course, water treatment facility and asphalt pavement streets.

Hampden Terrace Homeowners Association Built in 2002, this community of 50 units in seven buildings is located in Aurora, CO. These uniquely shaped buildings feature masonry veneer walls, balconies, patios and asphalt shingle roofs. The property includes concrete access streets and sidewalks, masonry retaining walls and an inviting entrance monument.

Lorian at Prospect Creek Owners Association, Inc. Located in picturesque Mountain Village, Colorado, this condominium style development of 20 units features an outdoor pool, concrete plaza deck and two common underground garages.

The Town Homes at Coal Creek Homeowners Association This townhome style development of 112 units in 29 buildings and is located in Louisville, Colorado. Exterior features of the buildings include stucco wall finishes and asphalt shingle roofs and the site contains a pool, concrete flatwork and asphalt pavement streets.

Cornerstone Lake Condominium Association, Inc. This townhome style development of 122 units in 16 buildings is located in Farmington, Minnesota. Exterior features of the buildings include vinyl siding, brick masonry and asphalt shingle roofs. The site consists of a pond, asphalt pavement, concrete flatwork, vinyl fences and an irrigation system.

Blue Water Keyes Horizontal Property Regime Built in 2006, this 14-story mid-rise in Myrtle Beach, South Carolina includes stucco exterior finishes, a modified bitumen roof, indoor and outdoor poles, and concrete breezeways and balconies. The building also utilizes two elevators, and various pool mechanical equipment, including a dehumidifier.

PRIOR RELEVANT EXPERIENCE

Before joining Reserve Advisors, Mr. Johanning attended the University of Toledo in Toledo, Ohio where he attained his Bachelor of Science degree in Civil Engineering. During his time at the University of Toledo, Mr. Johanning helped his senior design group develop a water reduction plan for the buildings on the University of Toledo's campus. This project included designs for improving fixture efficiencies within selected buildings and estimations of water reduction and financial savings. Mr. Johanning also interned for The Douglas Company and R.A. Plumbing and Heating as an estimating engineer.

EDUCATION

University of Toledo - B.S. Civil Engineering

PROFESSIONAL AFFILIATIONS / DESIGNATIONS

Engineer In Training (E.I.T.) Registration
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

NICOLE L. LOWERY, PRA, RS
Associate Director of Quality Assurance

CURRENT CLIENT SERVICES

Nicole L. Lowery, a Civil Engineer, is an Associate Director of Quality Assurance for Reserve Advisors. Ms. Lowery is responsible for the management, review and quality assurance of reserve studies. In this role, she assumes the responsibility of stringent report review analysis to assure report accuracy and the best solution for Reserve Advisors' clients.

Ms. Lowery has been involved with hundreds of Reserve Study assignments. The following is a partial list of clients served by Nicole Lowery demonstrating her breadth of experiential knowledge of community associations in construction and related buildings systems.

Amelia Surf & Racquet Club This oceanfront condominium community comprises 156 units in three mid rise buildings. This Fernandina Beach, Florida development contains amenities such as clay tennis courts, two pools and boardwalks.

Ten Museum Park This boutique, luxury 50-story high rise building in downtown Miami, Florida consists of 200 condominium units. The amenities comprise six pools including resistance and plunge pools, a full-service spa and a state-of-the-art fitness center. The property also contains a multi-level parking garage.

3 Chisolm Street Homeowners Association This historic Charleston, South Carolina community was constructed in 1929 and 1960 and comprises brick and stucco construction with asphalt shingle and modified bitumen roofs. The unique buildings were originally the Murray Vocational School. The buildings were transformed in 2002 to 27 high-end condominiums. The property includes a courtyard and covered parking garage.

Lakes of Pine Run Condominium Association This condominium community comprises 112 units in 41 buildings of stucco construction with asphalt shingle roofs. Located in Ormond Beach, Florida, it has a domestic water treatment plant and wastewater treatment plant for the residents of the property.

Rivertowne on the Wando Homeowners Association This exclusive river front community is located on the Wando River in Mount Pleasant, South Carolina. This unique Association includes several private docks along the Wando River, a pool and tennis courts for use by its residents.

Biltmore Estates Homeowners Association This private gated community is located in Miramar, Florida, just northwest of Miami, Florida and consists of 128 single family homes. The lake front property maintains a pool, a pool house and private streets.

Bellavista at Miromar Lakes Condominium Association Located in the residential waterfront resort community of Miromar Lakes Beach & Golf Club in Fort Myers, Florida, this property comprises 60 units in 15 buildings. Amenities include a clubhouse and a pool.

PRIOR RELEVANT EXPERIENCE

Before joining Reserve Advisors, Ms. Lowery was a project manager with Kipcon in New Brunswick, New Jersey and the Washington, D.C. Metro area for eight years, where she was responsible for preparing reserve studies and transition studies for community associations. Ms. Lowery successfully completed the bachelors program in Civil Engineering from West Virginia University in Morgantown, West Virginia.

EDUCATION

West Virginia University - B.S. Civil Engineering

PROFESSIONAL AFFILIATIONS / DESIGNATIONS

Reserve Specialist (RS) - Community Associations Institute
Professional Reserves 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 Whittier Towers 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) Whittier Towers 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 property.

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. The report is based upon a "snapshot in time" at the moment of inspection. RA may note visible physical defects in our report. The inspection is made by employees generally familiar with real estate and building construction but in the absence of invasive testing RA cannot opine on, nor is RA responsible for, the structural integrity of the property including its conformity to specific governmental code requirements for fire, building, earthquake, and occupancy, or any physical defects that were not readily apparent during the inspection.

RA is not responsible for conditions that have changed between the time of inspection and the issuance of the report. 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 water, oil, gas, coal, or other subsurface mineral and use rights or such hidden conditions. RA assumes no responsibility for any such conditions. The Report contains opinions of estimated costs and remaining useful lives which are neither a guarantee of the actual costs of replacement nor a guarantee of remaining useful lives of any property element.

RA assumes, without independent verification, the accuracy of all data provided to it. You agree to indemnify and hold RA harmless against and from any and all losses, claims, actions, damages, expenses or liabilities, including reasonable attorneys' fees, to which we may become subject in connection with this engagement, because of any false, misleading or incomplete information which we have relied upon 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. Your obligation for indemnification and reimbursement shall extend to any director, officer, employee, affiliate, or agent of RA. Liability of RA and its employees, affiliates, and agents for errors and omissions, if any, in this work is limited to the amount of its compensation for the work performed in this engagement.

Report - RA completes the services in accordance with the Proposal. The Report represents a valid opinion of RA's findings and recommendations and is deemed complete. RA, however, considers any additional information made available to us within 6 months of issuing the Report if a timely request for a revised Report is made. 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.

Your Obligations - You agree to provide us access to the subject property for an on-site visual 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. 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 this Report is limited to only the purpose stated herein. You hereby acknowledge that any use or reliance by you on the Report for any unauthorized purpose is at your own risk and you shall hold RA harmless from any consequences of such use. Use by any unauthorized third party is unlawful. 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 our Report in its entirety to the following third parties: members of your organization, your accountant, attorney, financial institution and property manager who need to review the information contained herein. Without the written consent of RA, you shall not disclose the Report to any other third party. The Report contains intellectual property developed by RA and ***shall not be reproduced or distributed to any party that conducts reserve studies without the written consent of RA.***

RA will include your name in our client lists. RA reserves the right to 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 - Retainer payment is due upon authorization and prior to inspection. The balance is due net 30 days from the report shipment date. Any balance remaining 30 days after delivery of the Report shall accrue an interest charge of 1.5% per month. Any litigation necessary to collect an unpaid balance shall be venued in Milwaukee County Circuit Court for the State of Wisconsin.