



ENGINEERING & CONSULTING

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Full Reserve Study

## Westerley Homeowners Association - Common



Sterling, Virginia

November 2, 2017

Reference Number: 170176



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<b>Reserve Component List</b>									
	Engineering Data Section	Replacement Year (near term in red)	Age (N/A = not available)	Useful Life (years)	Remaining Useful Life (years)	Replacement Cost without Inflation	% Included	\$ Included	Flexibility
<b>Exterior Building Components</b>									
Painting - Clubhouse Exterior	2.431	2020	N/A	7	3	\$2,300	100%	\$2,300	firm
Roof - Shingles, Gutters and Downspouts	2.441	2020	original	18	3	\$5,000	100%	\$5,000	firm
Exterior Renovation	2.761	2032	original	35	15	\$18,800	100%	\$18,800	deferrable
Windows and Doors	2.981	2032	original	35	15	\$10,000	100%	\$10,000	deferrable
<b>Interior Building Components</b>									
Cabinets and Countertops	3.301	2023	original	25	6	\$5,000	100%	\$5,000	deferrable
Locker Room Fixtures (1)	3.501	2023	original	25	6	\$18,000	100%	\$18,000	deferrable
Painting - Pool House Interior	3.601	2023	N/A	10	6	\$2,400	100%	\$2,400	discretionary
Tile - Pool House Interior	3.781	2046	2016	30	29	\$19,000	100%	\$19,000	deferrable
<b>Site Components</b>									
Bulletin Board	6.007	2037	2017	20	20	\$1,200	100%	\$1,200	deferrable
Fences - Ponds	6.281	2022	original	25	5	\$15,000	100%	\$15,000	deferrable
Fences - Southern Oaks Terrace (painting)	6.282	2019	N/A	7	2	\$17,000	100%	\$17,000	firm
Fences - Southern Oaks Terrace (replacement)	6.282	2026	original	25	9	\$47,000	100%	\$47,000	deferrable
Fences - Perimeter	6.283	2022	original	25	5	\$55,000	100%	\$55,000	deferrable
Irrigation System (1)	6.521	2037	original	40	20	\$41,000	100%	\$41,000	discretionary
Light Poles and Fixtures	6.601	2022	original	25	5	\$1,300	100%	\$1,300	deferrable
Monument Renovation (1)	6.631	2022	original	25	5	\$5,100	100%	\$5,100	deferrable
Pavement - Crack Repair, Patch and Stripe	6.641	2018	N/A	4	1	\$1,100	100%	\$1,100	firm
Pavement Mill and Overlay - Pool House Parking (1)	6.661	2022	original	25	5	\$11,000	100%	\$11,000	deferrable
Pavement Replacement - Pool House Parking (1)	6.663	2047	2022	25	30	\$22,000	100%	\$22,000	deferrable
Pavement - Walking Paths (remaining)	6.701	2022	original	N/A	5	\$8,000	18%	\$1,466	deferrable
Pavement - Walking Paths (subsequent)	6.701	2036	2016	20	19	\$8,000	100%	\$8,000	deferrable
Pavers	6.721	2027	original	30	10	\$10,800	100%	\$10,800	deferrable
Playground Equipment	6.761	2024	original	25	7	\$29,000	100%	\$29,000	deferrable
Retaining Wall - Masonry (1)	6.901	2047	original	50	30	\$13,000	100%	\$13,000	deferrable
<b>Pool Components</b>									
Pool Cover	8.051	2018	N/A	12	1	\$6,400	100%	\$6,400	deferrable
Pool Deck Renovation	8.101	2024	original	12	7	\$6,600	100%	\$6,600	deferrable
Pool Fence	8.201	2022	original	25	5	\$6,200	100%	\$6,200	deferrable
Pool Finish - Plaster	8.301	2024	N/A	12	7	\$48,600	100%	\$48,600	deferrable
Pool Furniture	8.401	2019	N/A	10	2	\$25,600	100%	\$25,600	deferrable
Pool Mechanical Equipment - Pumps (1)	8.501	2024	N/A	15	7	\$6,400	100%	\$6,400	deferrable
Pool Mechanical Equipment - Filters	8.501	2025	2010	15	8	\$6,200	100%	\$6,200	deferrable

**Westerley Homeowners Association - Common**

**Property and Service Summary**

**Location:** Sterling, Virginia  
**Property type:** common amenity  
**Number of units:** 313 (123 single family and 190 townhomes)  
**Year of construction:** 1997  
**Date of inspection:** November 2, 2017  
**Type of service:** reserve study  
**Level of service:** Full Study  
**Length of analysis:** 30 years  
**Features:** pool, pool house, parking area, playground, fences



pool house



pool and pool house



playground



parking area



## Property Engineering Review

During our inspection of your property, we identify the following repairs and improvements that the property should consider:

**Actionable recommendations - near term actions on these items will minimize future costs and maintain the comfort and security (See “Pages with Engineering Data” for more information where applicable):**

We observed overgrown brush at the masonry retaining wall at the Backwater pond. Overgrown tree roots can cause damage to the retaining wall. We recommend trimming back the brush and removing trees growing too close to the wall.



**Green ideas - Opportunities for energy efficiency and best practices for sustainability. Acting on these recommendations will provide significant cost savings (See “Pages with Engineering Data” for more information where applicable):**

Consider the following efficiencies for the locker rooms: Install motion sensors on room light switches to minimize fixture operation. Motion sensing light switches are inexpensive: <http://www.homedepot.com/b/Electrical-Dimmers-Switches-Outlets-Motion-Sensors/N-5yc1vZc32r/Ntk-Extended/Ntt-light+switch?Ntx=mode+matchpartialmax&NCNI-5>. Replace faucets with automatic shut offs to use up to 70% less water. Automatic shut offs also minimize the spreading of germs. Install low flow aerators on faucets to use approximately 30% less water.

For water conservation, the property could consider replacing the existing irrigation system rain sensors with smart controllers that utilizes weather-based scheduling, suspends irrigation during rain, measures instantaneous rainfall data, determines effective rainfall, calculates a net replacement value and provides zone-specific water calculations.

The property could consider the installation of solar lights to illuminate the monument. The following website provides solar lights for monuments: [www.emberled.com](http://www.emberled.com).

Determine if the mix and mill process for repaving is appropriate for the property. This process reuses the milled pavement in the overlay thereby minimizing waste.

The pool pumps operate at a constant speed. When replacement comes due, replace the pool pumps with variable speed drives to minimize operational costs, provide a constant pressure and maximize the useful life of the pumps. Preventing too high flow rates will also ensure proper filtration and minimize damage to filters.

**Engineering solutions - reference this information for proper scope of work and best outcome on upcoming projects (See “Pages with Engineering Data” for more information where applicable):**

To preserve the base and defer the need for the more costly total replacement method of repaving, mill and overlay the pavement with the onset of deterioration.

The scope of this reserve study is 30 years. Asphalt pavement lasts approximately 25 years. After near term milling and overlaying of the asphalt pavement, the property should plan for total replacement of the pavement approximately 25 years later. This process of repaving includes removing the existing pavement, regrading and augmenting the base, and installing 3 inches of new pavement in a minimum of two lifts to ensure proper compaction.

The property recently replaced the walking path pavement along Southern Oaks Terrace. It is our opinion that the pavement was installed satisfactorily. We did observe minor cracks in the pavement near tree roots. This is typical of walking path pavement in that the base isn't as hardy as street pavement and is more easily damaged by tree roots. Removal of the trees to prevent this damage is not likely as it would take away from the charm of the paths. Removing the tree roots would likely damage the tree. Instead, the property should plan for periodic repairs to the pavement at tree roots and other areas of deterioration.

Implementation of these repairs and improvements could increase the useful life of the components, minimize operating costs and provide guidance at the time of component replacement.

## Reserve Study Overview

This reserve study is a *physical and financial analysis* of your property that determines what components of your property will eventually require either major repairs or restoration, or complete replacement. Large, one-time contributions (special assessments) for these projects can be eliminated with development of a *reserve* through relatively smaller annual contributions. The physical analysis determines the existing quantities, conditions, useful lives and costs of the components. The financial analysis determines the existing financial situation of your property and the reserves necessary to offset the future expenses.

### Reserve Component

Components in this reserve study meet the following requirements:

- responsibility of the property
- limited useful life expectancy
- predictable *remaining* useful life expectancy
- above a minimum threshold cost

Components that do not fulfill the above requirements are not included in this study.

### 30 Year Analysis

The analysis for this reserve study encompasses the next 30 years. The components of the property age each year. Those who enjoy the use of each component are financially responsible for what they enjoyed. This length of an analysis is necessary to analyze the aging of nearly all the major components of the property. The expectation is not that the current Residents, Board of Directors and/or Management will be present at the property in 30 years. Rather, the future analysis aids in determining the most accurate *current* contribution for the aging components.

### Funding Method

The funding method of this reserve study utilizes the *cash flow method*. With the cash flow method, contributions to the reserve fund are designed to offset variable annual expenditures. We experiment with different contribution scenarios until an ideal scenario is discovered to offset reserve expenditures. All expenses and contributions are *pooled* together. Our experience indicates that the cash flow method typically results in lower overall contributions than the *component method*, which typically segregates funds.

### Funding Goal

The funding goal of this reserve study is to maintain a reserve balance above a minimum *threshold* during the years of major expenditures. We assume a contingency reserve balance of not less than

*approximately* ten percent (10%) of the expenditures in the **threshold funding year** (The year the reserve balance is at its lowest point. See Funding Plan Page 1.401 for the identification of this year). The property can determine if they prefer a higher or lower contingency.

The ideal situation is when the threshold funding year is in the last year of the analysis. This provides the maximum amount of time that the property can save up for major expenses. A critical situation is when the threshold funding year is in the first few years of the analysis. This situation requires major initial reserve contributions to offset near term expenditures.

### **Funding**

This reserve study assumes an ideal situation where all future costs are offset by annual contributions to the reserve fund. *We understand that this is not always possible.* Our experience suggests that major projects are funded through multiple means such as partially through the reserve fund and partial through either additional assessments or bank loans. The specific funding of the projects is determined by the property at the time of the event (this is not something we can forecast). The goal of the property should be to follow the recommended funding plan outlined in this reserve study. If the recommended reserve contributions are not feasible as determined by the Board of Director's judgment, this reserve study should then be used, at a minimum, to justify the need for an *increase* over the *current* reserve fund contribution.

### **Flexibility**

The time of replacement for each component involves a varying degree of deduction. To help understand the criticality of each replacement time, we provide the following replacement flexibility guide:

**firm** - Replacement time has little, if any, flexibility. Deferring the replacement time would have an adverse effect on the property.

**deferrable** - Replacement time has limited flexibility. Continually deferring the replacement time would eventually have an adverse effect on the property and raise aesthetic concerns.

**discretionary** - Replacement time has flexibility. Continually deferring the replacement time would either raise aesthetic concerns or the component does not affect the functionality of the property.

### **Reserve Study Requirements**

Property Declarations occasionally define reserve study requirements. The state legislature may also define reserve study requirements. The following is a link to state reserve study requirements (the property should be aware more recent or pending legislation may exist since the date of this report):

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+55-514.1>

It is our intention that this reserve study complies with these requirements. The property should consult with their attorney on discrepancies between reserve study requirements. Contact us for any revision necessary to the reserve study to fulfill these requirements.

### **Cost estimates**

We obtain the cost estimates for replacements from the following sources:

- published sources (*RS Means* based on standard union labor rate)
- historical costs
- proprietary information

Our estimates are not guarantees of actual replacement costs. We base our estimates on our calculation of expected market rate for your specific location and specific situation. Multiple contractor bids will result in multiple cost estimates. *Multiple* contractor estimates will inevitably vary from our *single* estimate. If the property receives an estimate that is higher than the estimate in this reserve study, the property should use this study as a tool to negotiate a lower cost. If the property receives an estimate that is lower than the estimate in this reserve study - congratulations! You have received an estimate that is below the expected market rate. The property should verify the scope of work in the contractor's estimate is similar to what is noted on the Engineering Data page (Engineering Data pages are all the data pages subsequent to "Limiting Conditions", Page 1.701).

### **Long Lived Components**

There exists components at the property that will not require replacement during the 30 year analysis. Although these long lived components will eventually require replacement, they do not fall within the scope of the analysis. Periodic updates of the study will eventually include their replacement. Frequent updates of the study will ensure the property has up to 30 years to plan for their eventual replacement. The following is a list of **common** long lived components for the property:

- electrical systems
- foundations
- pipes within the building walls and subsurface
- pool structure and deck
- structural frames



### **Operating Budget**

The operating budget provides funds necessary for the daily operation of the property. In general, the operating budget includes expenses that repeat from year to year, such as administrative expenses and cleaning. All the property components require maintenance. *This reserve study does not include maintenance costs that would traditionally fall under an operating budget.* We assume the property will fund normal annual maintenance through the operating budget. We also assume that the property will fund replacement of components below an estimated minimum threshold cost of

\$1,000

through the operating budget. The following is a list of components that we assume the property will fund through the operating budget:

- landscape
- mulch at playground
- pond maintained by the association
- valves

The items in the list above have a minimal (if any) impact on our recommended reserve fund contribution. If the property chooses to fund these expenses through reserves, updates of this reserve study would account for these expenses.

### **Responsibility of Others**

We were informed that there are components within the property that are the responsibility of others. The following components are neither the responsibility of the property nor the homeowners:

- individual homes and lots
- ponds
- streets

### **Additional Assessments**

The objective of properly planned operating budgets and reserve contributions is to avoid additional assessments. However, additional assessments are necessary for unplanned costs such as code change requirements, unobservable conditions, property improvements, etc. *We do not* recommend the property fund these expenses through reserves. The property should consult with an attorney to determine if the property Bylaws have a provision for these types of expenses.

### **Definitions and Supporting Information**

Community Associations Institute (CAI) and the Association of Professional Reserve Analysts (APRA) are national organizations that provide requirements for reserve studies. The property should refer to these

organizations for reserve study definitions and supporting information. The following are links to these organizations:

<http://www.caionline.org>

<http://www.apra-usa.com/>

### **Reserve Fund Status**

On the basis of our experience, knowledge and expertise and the findings from our visit in November 2017 and the property's known status at that time, we find that the current reserve contributions are excessive. If the property were to continue with the 2018 reserve contribution of \$39,500 for the next 30 years, the reserve balance would never go negative. We estimate that the compounded inflation in 2047 will be 264.9%. Since the inflated values of replacement more than double but contributions remain the same, we conclude that current homeowners are overpaying. Ideally, reserve contributions should increase annually by construction inflation, currently estimated at 3.3%. Our goal in creating the funding plan is to find a reserve contribution for 2019 that with annual increases based on construction inflation will not allow the reserve balance to go negative through 2047. We found that with a contribution of \$25,000 in 2019 followed by annual inflationary increases the reserve balance will not go negative through 2047. It is our expert opinion that this type of funding plan is fair to both current and future homeowners. See Funding Plan Page 1.401 for our complete recommended reserve funding plan.

### **Updates**

The reserve study is a static snap shot in time based on the date of the inspection. However, costs, inflation rates, interest rates and weather conditions are dynamic in that they are always changing. This necessitates periodic *updates* of the reserve study. An update is less costly than the original reserve study since there is less labor involved in gathering information on your property. We suggest updating the reserve study every three to six years. Factors that can determine when an update should occur are an upcoming major project, completion of a major project, major change to the property, known change

in the interest and/or inflation rates compared to the last reserve study, etc. Please contact us for a reserve study update proposal when necessary.

Sincerely,



Justin J. Maier, RS  
Partner  
Superior Reserve Engineering & Consulting  
justin@superiorreserve.com  
888-688-4560  
Report submitted on: November 16, 2017



## Recommended Reserve Funding Plan

### Westerley Homeowners Association - Common

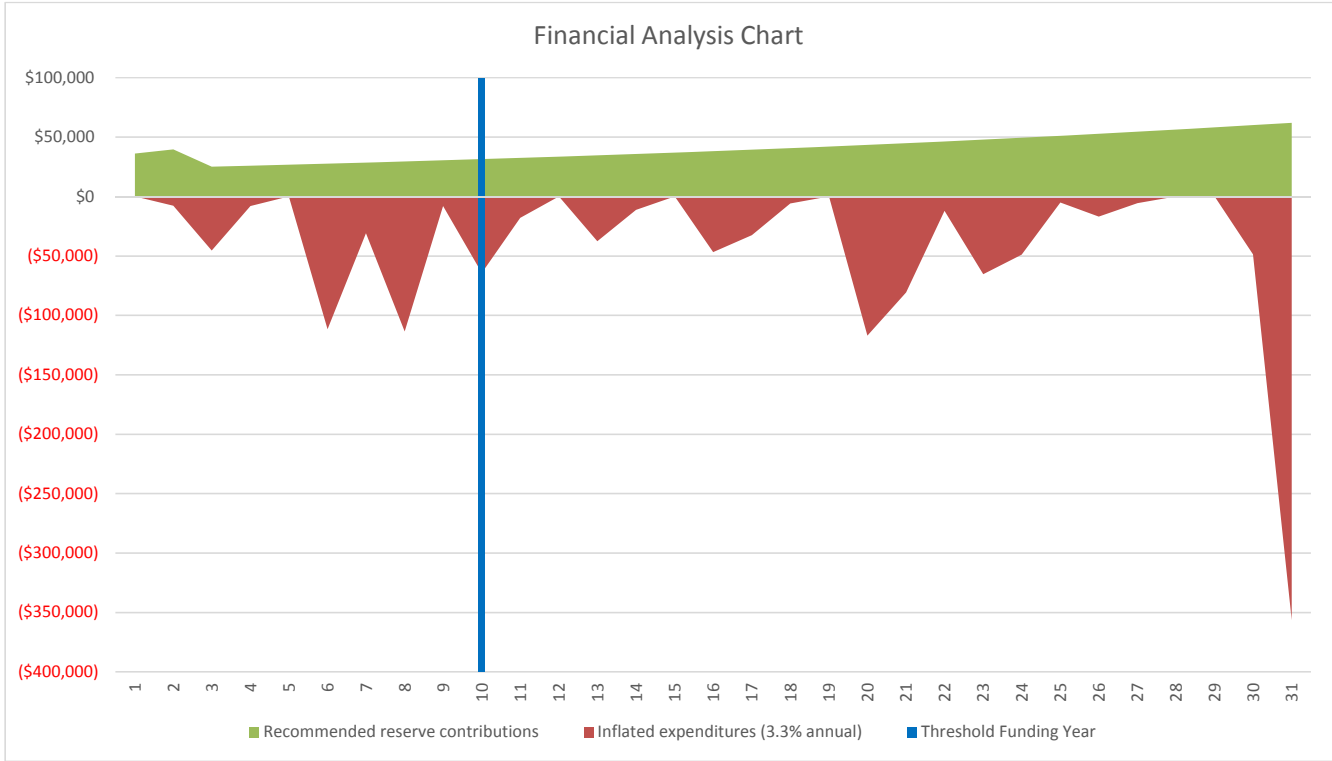
Year	Inflated expenditures (3.3% annual)	Recommended reserve contributions	Ending reserve balance	Average \$ per home per month (313 homes)	\$ increase per month from previous year	% increase from previous year
2017*	\$0	\$36,000	\$162,196	\$9.58	-	-
2018*	(\$7,748)	\$39,500	\$196,086	\$10.52	\$0.93	9.7%
2019	(\$45,458)	\$25,000	\$177,858	\$6.66	-\$3.86	-36.7%
2020	(\$8,047)	\$25,800	\$197,852	\$6.87	\$0.21	3.2%
2021	\$0	\$26,700	\$227,086	\$7.11	\$0.24	3.5%
2022	(\$111,822)	\$27,600	\$145,084	\$7.35	\$0.24	3.4%
2023	(\$30,863)	\$28,500	\$144,448	\$7.59	\$0.24	3.3%
2024	(\$113,718)	\$29,400	\$61,357	\$7.83	\$0.24	3.2%
2025	(\$8,039)	\$30,400	\$84,588	\$8.09	\$0.27	3.4%
**2026	(\$64,424)	\$31,400	<u>\$52,381</u>	\$8.36	\$0.27	3.3%
2027	(\$18,125)	\$32,400	\$67,370	\$8.63	\$0.27	3.2%
2028	\$0	\$33,500	\$101,879	\$8.92	\$0.29	3.4%
2029	(\$37,796)	\$34,600	\$99,886	\$9.21	\$0.29	3.3%
2030	(\$11,438)	\$35,700	\$125,492	\$9.50	\$0.29	3.2%
2031	\$0	\$36,900	\$164,119	\$9.82	\$0.32	3.4%
2032	(\$46,870)	\$38,100	\$157,265	\$10.14	\$0.32	3.3%
2033	(\$32,614)	\$39,400	\$165,979	\$10.49	\$0.35	3.4%
2034	(\$5,905)	\$40,700	\$202,976	\$10.84	\$0.35	3.3%
2035	\$0	\$42,000	\$247,664	\$11.18	\$0.35	3.2%
2036	(\$117,118)	\$43,400	\$176,476	\$11.55	\$0.37	3.3%
2037	(\$80,783)	\$44,800	\$142,395	\$11.93	\$0.37	3.2%
2038	(\$12,062)	\$46,300	\$178,547	\$12.33	\$0.40	3.3%
2039	(\$65,367)	\$47,800	\$163,017	\$12.73	\$0.40	3.2%
2040	(\$48,955)	\$49,400	\$165,421	\$13.15	\$0.43	3.3%
2041	(\$5,013)	\$51,000	\$213,669	\$13.58	\$0.43	3.2%
2042	(\$16,888)	\$52,700	\$252,260	\$14.03	\$0.45	3.3%
2043	(\$5,582)	\$54,400	\$304,398	\$14.48	\$0.45	3.2%
2044	\$0	\$56,200	\$364,588	\$14.96	\$0.48	3.3%
2045	\$0	\$58,100	\$427,412	\$15.47	\$0.51	3.4%
2046	(\$48,715)	\$60,000	\$443,894	\$15.97	\$0.51	3.3%
2047	(\$356,496)	\$62,000	\$152,957	\$16.51	\$0.53	3.3%

\* reserve contributions are budgeted

\*\*2026 is the THRESHOLD FUNDING YEAR (the year the reserve balance is at its lowest point)



### Westerley Homeowners Association - Common



# 30 Year Expenditure Summary

These summary pages depict the INFLATED reserve expenses during the next 30 years. The costs on these pages SHOULD NOT be compared to current bid costs as these costs are inflated.

1.403



## Westerley Homeowners Association - Common

Fiscal year	2017	2018	2019	2020	2021	2022	2023	2024
Construction inflation rate	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
Compounded construction inflation	100.0%	103.3%	106.7%	110.2%	113.9%	117.6%	121.5%	125.5%
Beginning balance (September 30, 2017)	\$153,110	\$162,196	\$196,086	\$177,858	\$197,852	\$227,086	\$145,084	\$144,448
Inflated expenditures (3.3% annual)	\$0	(\$7,748)	(\$45,458)	(\$8,047)	\$0	(\$111,822)	(\$30,863)	(\$113,718)
Recommended reserve contributions (remaining 2017 contribution)	\$9,000	\$39,500	\$25,000	\$25,800	\$26,700	\$27,600	\$28,500	\$29,400
Earned interest (1.2% PROJECTED yield rate)	\$86	\$2,137	\$2,230	\$2,241	\$2,534	\$2,220	\$1,727	\$1,227
Ending reserve balance	\$162,196	\$196,086	\$177,858	\$197,852	\$227,086	\$145,084	\$144,448	\$61,357

## Reserve Component List

### Exterior Building Components

Painting - Clubhouse Exterior	2,535
Roof - Shingles, Gutters and Downspouts	5,512
Exterior Renovation	
Windows and Doors	

### Interior Building Components

Cabinets and Countertops	6,075
Locker Room Fixtures (1)	21,871
Painting - Pool House Interior	2,916
Tile - Pool House Interior	

### Site Components

Bulletin Board	
Fences - Ponds	17,644
Fences - Southern Oaks Terrace (painting)	18,141
Fences - Southern Oaks Terrace (replacement)	
Fences - Perimeter	64,694
Irrigation System (1)	
Light Poles and Fixtures	1,529
Monument Renovation (1)	5,999
Pavement - Crack Repair, Patch and Stripe	1,136
Pavement Mill and Overlay - Pool House Parking (1)	12,939
Pavement Replacement - Pool House Parking (1)	
Pavement - Walking Paths (remaining)	1,725
Pavement - Walking Paths (subsequent)	
Pavers	
Playground Equipment	36,400
Retaining Wall - Masonry (1)	

### Pool Components

Pool Cover	6,611
Pool Deck Renovation	8,284
Pool Fence	7,293
Pool Finish - Plaster	61,001
Pool Furniture	27,317
Pool Mechanical Equipment - Pumps (1)	8,033
Pool Mechanical Equipment - Filters	

# 30 Year Expenditure Summary

These summary pages depict the INFLATED reserve expenses during the next 30 years. The costs on these pages SHOULD NOT be compared to current bid costs as these costs are inflated.

1.403



## Westerley Homeowners Association - Common

		threshold funding year						
Fiscal year	2025	2026	2027	2028	2029	2030	2031	2032
Construction inflation rate	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
Compounded construction inflation	129.7%	133.9%	138.4%	142.9%	147.6%	152.5%	157.5%	162.7%
Beginning balance (September 30, 2017)	\$61,357	\$84,588	\$52,381	\$67,370	\$101,879	\$99,886	\$125,492	\$164,119
Inflated expenditures (3.3% annual)	(\$8,039)	(\$64,424)	(\$18,125)	\$0	(\$37,796)	(\$11,438)	\$0	(\$46,870)
Recommended reserve contributions (remaining 2017 contribution)	\$30,400	\$31,400	\$32,400	\$33,500	\$34,600	\$35,700	\$36,900	\$38,100
Earned interest (1.2% PROJECTED yield rate)	\$870	\$817	\$714	\$1,009	\$1,203	\$1,344	\$1,727	\$1,917
Ending reserve balance	\$84,588	\$52,381	\$67,370	\$101,879	\$99,886	\$125,492	\$164,119	\$157,265

## Reserve Component List

### Exterior Building Components

Painting - Clubhouse Exterior			3,182					
Roof - Shingles, Gutters and Downspouts								
Exterior Renovation								30,596
Windows and Doors								16,274

### Interior Building Components

Cabinets and Countertops								
Locker Room Fixtures (1)								
Painting - Pool House Interior								
Tile - Pool House Interior								

### Site Components

Bulletin Board								
Fences - Ponds								
Fences - Southern Oaks Terrace (painting)								
Fences - Southern Oaks Terrace (replacement)		62,951						
Fences - Perimeter								
Irrigation System (1)								
Light Poles and Fixtures								
Monument Renovation (1)								
Pavement - Crack Repair, Patch and Stripe		1,473				1,678		
Pavement Mill and Overlay - Pool House Parking (1)								
Pavement Replacement - Pool House Parking (1)								
Pavement - Walking Paths (remaining)								
Pavement - Walking Paths (subsequent)								
Pavers			14,943					
Playground Equipment								
Retaining Wall - Masonry (1)								

### Pool Components

Pool Cover						9,761		
Pool Deck Renovation								
Pool Fence								
Pool Finish - Plaster								
Pool Furniture					37,796			
Pool Mechanical Equipment - Pumps (1)								
Pool Mechanical Equipment - Filters	8,039							

Costs plus Inflation

# 30 Year Expenditure Summary

These summary pages depict the INFLATED reserve expenses during the next 30 years. The costs on these pages SHOULD NOT be compared to current bid costs as these costs are inflated.

1.403



## Westerley Homeowners Association - Common

Fiscal year	2033	2034	2035	2036	2037	2038	2039	2040
Construction inflation rate	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
Compounded construction inflation	168.1%	173.7%	179.4%	185.3%	191.4%	197.7%	204.3%	211.0%
Beginning balance (September 30, 2017)	\$157,265	\$165,979	\$202,976	\$247,664	\$176,476	\$142,395	\$178,547	\$163,017
Inflated expenditures (3.3% annual)	(\$32,614)	(\$5,905)	\$0	(\$117,118)	(\$80,783)	(\$12,062)	(\$65,367)	(\$48,955)
Recommended reserve contributions (remaining 2017 contribution)	\$39,400	\$40,700	\$42,000	\$43,400	\$44,800	\$46,300	\$47,800	\$49,400
Earned interest (1.2% PROJECTED yield rate)	\$1,928	\$2,201	\$2,688	\$2,530	\$1,902	\$1,914	\$2,037	\$1,959
Ending reserve balance	\$165,979	\$202,976	\$247,664	\$176,476	\$142,395	\$178,547	\$163,017	\$165,421

## Reserve Component List

### Exterior Building Components

Painting - Clubhouse Exterior	3,994	
Roof - Shingles, Gutters and Downspouts		9,887
Exterior Renovation		
Windows and Doors		

### Interior Building Components

Cabinets and Countertops		
Locker Room Fixtures (1)		
Painting - Pool House Interior	4,035	
Tile - Pool House Interior		

### Site Components

Bulletin Board		2,297
Fences - Ponds		
Fences - Southern Oaks Terrace (painting)	28,579	35,872
Fences - Southern Oaks Terrace (replacement)		
Fences - Perimeter		
Irrigation System (1)		78,486
Light Poles and Fixtures		
Monument Renovation (1)		
Pavement - Crack Repair, Patch and Stripe	1,910	2,175
Pavement Mill and Overlay - Pool House Parking (1)		
Pavement Replacement - Pool House Parking (1)		
Pavement - Walking Paths (remaining)		
Pavement - Walking Paths (subsequent)		14,825
Pavers		
Playground Equipment		
Retaining Wall - Masonry (1)		

### Pool Components

Pool Cover		
Pool Deck Renovation		12,231
Pool Fence		
Pool Finish - Plaster		90,062
Pool Furniture		52,293
Pool Mechanical Equipment - Pumps (1)		13,073
Pool Mechanical Equipment - Filters		13,083

Costs plus Inflation



# 30 Year Expenditure Summary

These summary pages depict the INFLATED reserve expenses during the next 30 years. The costs on these pages SHOULD NOT be compared to current bid costs as these costs are inflated.

1.403



## Westerley Homeowners Association - Common

Fiscal year	2041	2042	2043	2044	2045	2046	2047
Construction inflation rate	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
Compounded construction inflation	218.0%	225.2%	232.6%	240.3%	248.2%	256.4%	264.9%
Beginning balance (September 30, 2017)	\$165,421	\$213,669	\$252,260	\$304,398	\$364,588	\$427,412	\$443,894
Inflated expenditures (3.3% annual)	(\$5,013)	(\$16,888)	(\$5,582)	\$0	\$0	(\$48,715)	(\$356,496)
Recommended reserve contributions (remaining 2017 contribution)	\$51,000	\$52,700	\$54,400	\$56,200	\$58,100	\$60,000	\$62,000
Earned interest (1.2% PROJECTED yield rate)	\$2,261	\$2,779	\$3,320	\$3,990	\$4,724	\$5,197	\$3,560
Ending reserve balance	\$213,669	\$252,260	\$304,398	\$364,588	\$427,412	\$443,894	\$152,957

## Reserve Component List

### Exterior Building Components

Painting - Clubhouse Exterior	5,013
Roof - Shingles, Gutters and Downspouts	
Exterior Renovation	
Windows and Doors	

### Interior Building Components

Cabinets and Countertops	
Locker Room Fixtures (1)	
Painting - Pool House Interior	5,582
Tile - Pool House Interior	48,715

### Site Components

Bulletin Board	
Fences - Ponds	39,728
Fences - Southern Oaks Terrace (painting)	45,026
Fences - Southern Oaks Terrace (replacement)	
Fences - Perimeter	145,671
Irrigation System (1)	
Light Poles and Fixtures	3,443
Monument Renovation (1)	13,508
Pavement - Crack Repair, Patch and Stripe	2,477
Pavement Mill and Overlay - Pool House Parking (1)	
Pavement Replacement - Pool House Parking (1)	58,268
Pavement - Walking Paths (remaining)	
Pavement - Walking Paths (subsequent)	
Pavers	
Playground Equipment	
Retaining Wall - Masonry (1)	34,431

### Pool Components

Pool Cover	14,411
Pool Deck Renovation	
Pool Fence	16,421
Pool Finish - Plaster	
Pool Furniture	
Pool Mechanical Equipment - Pumps (1)	
Pool Mechanical Equipment - Filters	

Costs plus Inflation



# 2017

## Hybrid Reserve Expenditures and Funding Plan

January 1, 2017 through December 31, 2017

Year of forecast:	0
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2017:	100.0%

Unaudited, provided, beginning reserve balance as of September 30, 2017: \$153,110

Budgeted reserve contribution (3 remaining months of \$36,000 contribution): + \$9,000

Estimated interest earned (3 months of remaining interest at 0.2% yield rate): + \$86

**Total remaining contributions: = \$9,086**

### Westerley Homeowners Association - Common

## 2017 Expenditures

<b>Flexibility</b>	<b>Engineering Data Section</b>
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Total expenditures:	\$0
	Ending reserve balance: <u>\$162,196</u>



# 2018

## Hybrid Reserve Expenditures and Funding Plan

January 1, 2018 through December 31, 2018

Year of forecast: 1  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2018: 103.3%

Beginning reserve balance: \$162,196

Budgeted reserve contribution: + \$39,500

Estimated interest earned (1.2% PROJECTED yield rate): + \$2,137

**Total contributions: = \$41,637**

### Westerley Homeowners Association - Common

### 2018 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pavement - Crack Repair, Patch and Stripe	firm	6.641	(\$1,136)
Pool Cover	deferrable	8.051	(\$6,611)
<b>Total expenditures:</b>			<b>(\$7,748)</b>
		Ending reserve balance:	\$196,086



# 2019

## Hybrid Reserve Expenditures and Funding Plan

January 1, 2019 through December 31, 2019

Year of forecast: 2  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2019: 106.7%

Beginning reserve balance: \$196,086

Recommended reserve contribution: + \$25,000  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,230

**Total contributions: = \$27,230**

### Westerley Homeowners Association - Common

### 2019 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Fences - Southern Oaks Terrace (painting)	firm	6.282	(\$18,141)
Pool Furniture	deferrable	8.401	(\$27,317)
<b>Total expenditures:</b>			<b>(\$45,458)</b>
		Ending reserve balance:	<u>\$177,858</u>

**2020****Hybrid Reserve Expenditures and Funding Plan**

January 1, 2020 through December 31, 2020

Year of forecast:	3
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2020:	110.2%

Beginning reserve balance: \$177,858

Recommended reserve contribution: + \$25,800

Estimated interest earned (1.2% PROJECTED yield rate): + \$2,241

**Total contributions: = \$28,041****Westerley Homeowners Association - Common****2020 Expenditures (inflated)**

	<b>Flexibility</b>	<b>Engineering Data Section</b>	
Painting - Clubhouse Exterior	firm	2.431	(\$2,535)
Roof - Shingles, Gutters and Downspouts	firm	2.441	(\$5,512)
<b>Total expenditures:</b>			<b>(\$8,047)</b>
		<b>Ending reserve balance:</b>	<b><u>\$197,852</u></b>



## 2021

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2021 through December 31, 2021

Year of forecast: 4  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2021: 113.9%

Beginning reserve balance: \$197,852

Recommended reserve contribution: + \$26,700  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,534

**Total contributions: = \$29,234**

Westerley Homeowners Association - Common

### 2021 Expenditures (inflated)

Total expenditures:

Flexibility	Engineering Data Section	
		\$0
	Ending reserve balance:	<u>\$227,086</u>



## 2022

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2022 through December 31, 2022

Year of forecast: 5  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2022: 117.6%

Beginning reserve balance: \$227,086

Recommended reserve contribution: + \$27,600  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,220

**Total contributions: = \$29,820**

#### Westerley Homeowners Association - Common

### 2022 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Fences - Ponds	deferrable	6.281	(\$17,644)
Fences - Perimeter	deferrable	6.283	(\$64,694)
Light Poles and Fixtures	deferrable	6.601	(\$1,529)
Monument Renovation (1)	deferrable	6.631	(\$5,999)
Pavement Mill and Overlay - Pool House Parking (1)	deferrable	6.661	(\$12,939)
Pavement - Walking Paths (remaining)	deferrable	6.701	(\$1,725)
Pool Fence	deferrable	8.201	(\$7,293)
<b>Total expenditures:</b>			<b>(\$111,822)</b>
		Ending reserve balance:	<u>\$145,084</u>



## 2023

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2023 through December 31, 2023

Year of forecast:	6
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2023:	121.5%

Beginning reserve balance: \$145,084

Recommended reserve contribution: + \$28,500  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,727

**Total contributions: = \$30,227**

#### Westerley Homeowners Association - Common

### 2023 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Cabinets and Countertops	deferrable	3.301	(\$6,075)
Locker Room Fixtures (1)	deferrable	3.501	(\$21,871)
Painting - Pool House Interior	discretionary	3.601	(\$2,916)
<b>Total expenditures:</b>			<b>(\$30,863)</b>
		Ending reserve balance:	<u>\$144,448</u>





## 2024

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2024 through December 31, 2024

Year of forecast: 7  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2024: 125.5%

Beginning reserve balance: \$144,448

Recommended reserve contribution: + \$29,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,227

**Total contributions: = \$30,627**

#### Westerley Homeowners Association - Common

### 2024 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Playground Equipment	deferrable	6.761	(\$36,400)
Pool Deck Renovation	deferrable	8.101	(\$8,284)
Pool Finish - Plaster	deferrable	8.301	(\$61,001)
Pool Mechanical Equipment - Pumps (1)	deferrable	8.501	(\$8,033)
<b>Total expenditures:</b>			<b>(\$113,718)</b>
		Ending reserve balance:	<u>\$61,357</u>



## 2025

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2025 through December 31, 2025

Year of forecast: 8  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2025: 129.7%

Beginning reserve balance: \$61,357

Recommended reserve contribution: + \$30,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$870

**Total contributions: = \$31,270**

#### Westerley Homeowners Association - Common

### 2025 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pool Mechanical Equipment - Filters	deferrable	8.501	(\$8,039)
<b>Total expenditures:</b>			<b>(\$8,039)</b>
		Ending reserve balance:	<u>\$84,588</u>



## 2026 (Threshold)

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2026 through December 31, 2026

Year of forecast: 9  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2026 (Threshold): 133.9%

Beginning reserve balance: \$84,588

Recommended reserve contribution: + \$31,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$817

**Total contributions: = \$32,217**

#### Westerley Homeowners Association - Common

### 2026 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Fences - Southern Oaks Terrace (replacement)	deferrable	6.282	(\$62,951)
Pavement - Crack Repair, Patch and Stripe	firm	6.641	(\$1,473)
<b>Total expenditures:</b>			<b>(\$64,424)</b>
		Ending reserve balance:	<u>\$52,381</u>



## 2027

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2027 through December 31, 2027

Year of forecast: 10  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2027: 138.4%

Beginning reserve balance: \$52,381

Recommended reserve contribution: + \$32,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$714

**Total contributions: = \$33,114**

#### Westerley Homeowners Association - Common

### 2027 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Painting - Clubhouse Exterior	firm	2.431	(\$3,182)
Pavers	deferrable	6.721	(\$14,943)
<b>Total expenditures:</b>			<b>(\$18,125)</b>
		Ending reserve balance:	<u>\$67,370</u>



## 2028

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2028 through December 31, 2028

Year of forecast: 11  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2028: 142.9%

Beginning reserve balance: \$67,370

Recommended reserve contribution: + \$33,500  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,009

**Total contributions: = \$34,509**

Westerley Homeowners Association - Common  
**2028 Expenditures (inflated)**

Total expenditures:

Flexibility	Engineering Data Section	
		\$0
	Ending reserve balance:	<u>\$101,879</u>



## 2029

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2029 through December 31, 2029

Year of forecast: 12  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2029: 147.6%

Beginning reserve balance: \$101,879

Recommended reserve contribution: + \$34,600  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,203

**Total contributions: = \$35,803**

#### Westerley Homeowners Association - Common

### 2029 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pool Furniture	deferrable	8.401	(\$37,796)
<b>Total expenditures:</b>			<b>(\$37,796)</b>
		Ending reserve balance:	<u>\$99,886</u>



## 2030

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2030 through December 31, 2030

Year of forecast: 13  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2030: 152.5%

Beginning reserve balance: \$99,886

Recommended reserve contribution: + \$35,700  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,344

**Total contributions: = \$37,044**

#### Westerley Homeowners Association - Common

### 2030 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pavement - Crack Repair, Patch and Stripe	firm	6.641	(\$1,678)
Pool Cover	deferrable	8.051	(\$9,761)
<b>Total expenditures:</b>			<b>(\$11,438)</b>
		Ending reserve balance:	<u>\$125,492</u>







## 2032

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2032 through December 31, 2032

Year of forecast: 15  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2032: 162.7%

Beginning reserve balance: \$164,119

Recommended reserve contribution: + \$38,100  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,917

**Total contributions: = \$40,017**

#### Westerley Homeowners Association - Common

### 2032 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Exterior Renovation	deferrable	2.761	(\$30,596)
Windows and Doors	deferrable	2.981	(\$16,274)
<b>Total expenditures:</b>			<b>(\$46,870)</b>
		Ending reserve balance:	<u>\$157,265</u>



# 2033

## Hybrid Reserve Expenditures and Funding Plan

January 1, 2033 through December 31, 2033

Year of forecast:	16
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2033:	168.1%

Beginning reserve balance: \$157,265

Recommended reserve contribution: + \$39,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,928

**Total contributions: = \$41,328**

### Westerley Homeowners Association - Common

### 2033 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Painting - Pool House Interior	discretionary	3.601	(\$4,035)
Fences - Southern Oaks Terrace (painting)	firm	6.282	(\$28,579)
<b>Total expenditures:</b>			<b>(\$32,614)</b>
		Ending reserve balance:	<u>\$165,979</u>



# 2034

## Hybrid Reserve Expenditures and Funding Plan

January 1, 2034 through December 31, 2034

Year of forecast: 17  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2034: 173.7%

Beginning reserve balance: \$165,979

Recommended reserve contribution: + \$40,700  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,201

**Total contributions: = \$42,901**

### Westerley Homeowners Association - Common

### 2034 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Painting - Clubhouse Exterior	firm	2.431	(\$3,994)
Pavement - Crack Repair, Patch and Stripe	firm	6.641	(\$1,910)
<b>Total expenditures:</b>			<b>(\$5,905)</b>
		Ending reserve balance:	<u>\$202,976</u>



## 2035

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2035 through December 31, 2035

Year of forecast: 18  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2035: 179.4%

Beginning reserve balance: \$202,976

Recommended reserve contribution: + \$42,000  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,688

**Total contributions: = \$44,688**

Westerley Homeowners Association - Common

### 2035 Expenditures (inflated)

Flexibility      Engineering Data  
 Section

Total expenditures:

\$0

Ending reserve balance: \$247,664



## 2036

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2036 through December 31, 2036

Year of forecast: 19  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2036: 185.3%

Beginning reserve balance: \$247,664

Recommended reserve contribution: + \$43,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,530

**Total contributions: = \$45,930**

#### Westerley Homeowners Association - Common

### 2036 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pavement - Walking Paths (subsequent)	deferrable	6.701	(\$14,825)
Pool Deck Renovation	deferrable	8.101	(\$12,231)
Pool Finish - Plaster	deferrable	8.301	(\$90,062)
<b>Total expenditures:</b>			<b>(\$117,118)</b>
		Ending reserve balance:	<u>\$176,476</u>



## 2037

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2037 through December 31, 2037

Year of forecast:	20
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2037:	191.4%

Beginning reserve balance: \$176,476

Recommended reserve contribution: + \$44,800  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,902

**Total contributions: = \$46,702**

#### Westerley Homeowners Association - Common

### 2037 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Bulletin Board	deferrable	6.007	(\$2,297)
Irrigation System (1)	discretionary	6.521	(\$78,486)
<b>Total expenditures:</b>			<b>(\$80,783)</b>
		Ending reserve balance:	<u>\$142,395</u>



## 2038

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2038 through December 31, 2038

Year of forecast: 21  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2038: 197.7%

Beginning reserve balance: \$142,395

Recommended reserve contribution: + \$46,300  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,914

**Total contributions: = \$48,214**

#### Westerley Homeowners Association - Common

### 2038 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Roof - Shingles, Gutters and Downspouts	firm	2.441	(\$9,887)
Pavement - Crack Repair, Patch and Stripe	firm	6.641	(\$2,175)
<b>Total expenditures:</b>			<b>(\$12,062)</b>
		Ending reserve balance:	<u>\$178,547</u>



## 2039

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2039 through December 31, 2039

Year of forecast:	22
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2039:	204.3%

Beginning reserve balance: \$178,547

Recommended reserve contribution: + \$47,800  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,037

**Total contributions: = \$49,837**

#### Westerley Homeowners Association - Common

### 2039 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pool Furniture	deferrable	8.401	(\$52,293)
Pool Mechanical Equipment - Pumps (1)	deferrable	8.501	(\$13,073)
<b>Total expenditures:</b>			<b>(\$65,367)</b>
		Ending reserve balance:	<u>\$163,017</u>





## 2040

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2040 through December 31, 2040

Year of forecast: 23  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2040: 211.0%

Beginning reserve balance: \$163,017

Recommended reserve contribution: + \$49,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$1,959

**Total contributions: = \$51,359**

#### Westerley Homeowners Association - Common

### 2040 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Fences - Southern Oaks Terrace (painting)	firm	6.282	(\$35,872)
Pool Mechanical Equipment - Filters	deferrable	8.501	(\$13,083)
<b>Total expenditures:</b>			<b>(\$48,955)</b>
		Ending reserve balance:	<u>\$165,421</u>



## 2041

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2041 through December 31, 2041

Year of forecast: 24  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2041: 218.0%

Beginning reserve balance: \$165,421

Recommended reserve contribution: + \$51,000  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,261

**Total contributions: = \$53,261**

#### Westerley Homeowners Association - Common

### 2041 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Painting - Clubhouse Exterior	firm	2.431	(\$5,013)
<b>Total expenditures:</b>			<b>(\$5,013)</b>
		Ending reserve balance:	<u>\$213,669</u>



## 2042

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2042 through December 31, 2042

Year of forecast: 25  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2042: 225.2%

Beginning reserve balance: \$213,669

Recommended reserve contribution: + \$52,700  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$2,779

**Total contributions: = \$55,479**

#### Westerley Homeowners Association - Common

### 2042 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Pavement - Crack Repair, Patch and Stripe	firm	6.641	(\$2,477)
Pool Cover	deferrable	8.051	(\$14,411)
<b>Total expenditures:</b>			<b>(\$16,888)</b>
		Ending reserve balance:	<u>\$252,260</u>



## 2043

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2043 through December 31, 2043

Year of forecast: 26  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2043: 232.6%

Beginning reserve balance: \$252,260

Recommended reserve contribution: + \$54,400  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$3,320

**Total contributions: = \$57,720**

#### Westerley Homeowners Association - Common

### 2043 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Painting - Pool House Interior	discretionary	3.601	(\$5,582)
<b>Total expenditures:</b>			<b>(\$5,582)</b>
		Ending reserve balance:	<u>\$304,398</u>



## 2044

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2044 through December 31, 2044

Year of forecast: 27  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2044: 240.3%

Beginning reserve balance: \$304,398

Recommended reserve contribution: + \$56,200  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$3,990

**Total contributions: = \$60,190**

Westerley Homeowners Association - Common

### 2044 Expenditures (inflated)

Flexibility      Engineering Data  
                                  Section

Total expenditures:

\$0

Ending reserve balance: \$364,588



## 2045

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2045 through December 31, 2045

Year of forecast:	28
Annual CONSTRUCTION inflation rate:	3.3%
Compounded CONSTRUCTION inflation in 2045:	248.2%

Beginning reserve balance: \$364,588

Recommended reserve contribution: + \$58,100

Estimated interest earned (1.2% PROJECTED yield rate): + \$4,724

**Total contributions: = \$62,824**

Westerley Homeowners Association - Common  
**2045 Expenditures (inflated)**

Total expenditures:

Flexibility	Engineering Data Section	
		\$0
	Ending reserve balance:	<u>\$427,412</u>



## 2046

### Hybrid Reserve Expenditures and Funding Plan

January 1, 2046 through December 31, 2046

Year of forecast: 29  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2046: 256.4%

Beginning reserve balance: \$427,412

Recommended reserve contribution: + \$60,000  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$5,197

**Total contributions: = \$65,197**

#### Westerley Homeowners Association - Common

### 2046 Expenditures (inflated)

Tile - Pool House Interior

Flexibility	Engineering Data Section	
deferrable	3.781	(\$48,715)

Total expenditures:

(\$48,715)

Ending reserve balance: \$443,894



# 2047

## Hybrid Reserve Expenditures and Funding Plan

January 1, 2047 through December 31, 2047

Year of forecast: 30  
 Annual CONSTRUCTION inflation rate: 3.3%  
 Compounded CONSTRUCTION inflation in 2047: 264.9%

Beginning reserve balance: \$443,894

Recommended reserve contribution: + \$62,000  
 Estimated interest earned (1.2% PROJECTED yield rate): + \$3,560

**Total contributions: = \$65,560**

### Westerley Homeowners Association - Common

### 2047 Expenditures (inflated)

	Flexibility	Engineering Data Section	
Fences - Ponds	deferrable	6.281	(\$39,728)
Fences - Southern Oaks Terrace (painting)	firm	6.282	(\$45,026)
Fences - Perimeter	deferrable	6.283	(\$145,671)
Light Poles and Fixtures	deferrable	6.601	(\$3,443)
Monument Renovation (1)	deferrable	6.631	(\$13,508)
Pavement Replacement - Pool House Parking (1)	deferrable	6.663	(\$58,268)
Retaining Wall - Masonry (1)	deferrable	6.901	(\$34,431)
Pool Fence	deferrable	8.201	(\$16,421)
<b>Total expenditures:</b>			<b>(\$356,496)</b>
		Ending reserve balance:	<u>\$152,957</u>









WESTERLEY HOMEOWNERS ASSOCIATION  
B A L A N C E S H E E T

September 2017

	OPERATING	RESERVE	TOTAL
<b>LIABILITIES</b>			
2010 ACCOUNTS PAYABLE	79,275.64		79,275.64
2020 ACCRUED ESTIMATED EXPENSES	1,166.67		1,166.67
2130 PREPAID ASSESSMENTS	10,446.80		10,446.80
2139 PRIOR OWNER CREDITS	1,000.95		1,000.95
	91,890.06	0.00	91,890.06
<b>RESTRICTED EQUITY - RESERVES</b>			
2209 RESERVES - SEALCOATING TOWNHOME		2,149.51	2,149.51
2215 RESERVES - INTEREST		1,012.81	1,012.81
2268 RESERVES - SINGLE FAMILY		79,833.00	79,833.00
2270 RESERVES - COMMON RESERVES		153,110.48	153,110.48
2272 RESERVES - TOWNHOUSE		330,035.32	330,035.32
2306 RESERVES - STORM & DROUGHT		11,511.00	11,511.00
2345 RESERVES - SNOW REMOVAL		12,954.60	12,954.60
SPENT FROM RESERVES			
2470 RESERVES - COMMON RESERVES		(2,686.77)	(2,686.77)
	0.00	587,919.95	587,919.95
<b>OPERATING EQUITY</b>			
2650 PRIOR YEAR SURPLUS (DEFICIT)	69,870.47		69,870.47
2670 CURRENT YEAR SURPLUS (DEFICIT)	(10,289.20)		(10,289.20)
	59,581.27	0.00	59,581.27
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>151,471.33</b>	<b>587,919.95</b>	<b>739,391.28</b>

## Summary of Qualifications

Justin J. Maier, P.E., RS  
Partner

### Services

Justin J. Maier is a partner and co-founder of Superior Reserve Engineering and Consulting. Justin J. Maier provides *expert* reserve and transition studies, and critical property reviews. Properties that have benefited from his experience include townhome associations, condominium associations, planned unit developments, marinas, resorts, hotels, churches and country clubs. These properties vary from complex high rise buildings to vintage buildings of historical significance. He has provided these services to *more than 1,600* properties throughout the United States and worldwide.



### Prior Experience

Prior to co-founding Superior Reserve with Nik J. Clark, Mr. Maier had conducted reserve and transitions studies with Reserve Advisors for 14 years. During this time, he was the Director of Product Development where he oversaw the development, improvement and production efficiency of reserve and transition studies for the firm. He was the leading producer of reserve and transition studies. Mr. Maier was instrumental in improving the quality of reports both in content, clarity and appearance. Reserve Advisors experienced tremendous success based on the standard of reserve and transition study quality that he implemented.

Mr. Maier was a structural engineer for Wausau Window and Wall Systems. There he analyzed stresses in horizontal and vertical components of aluminum frame curtain wall window systems in projects throughout the United States for both wind pressure and suction loads. He was involved in field work to correct improperly installed system components.

Mr. Maier was an Assistant Engineer for Crest Consulting Engineers. His services required on-site field investigation of architectural and structural failures, analysis of the preexisting design and conditions, and determination of the design shortfalls or owner modifications that caused the failures. He designed remedial repairs, produced cost estimates for the repairs, prepared the specifications and oversaw the implementation of the repairs.

### Expert Witness

Through the expert witness of Mr. Maier, the Villages at Cumberland Trail in Columbus, Ohio and The Retreat Homeowners Association in Indianapolis, Indiana were able to successfully negotiate a settlement for their construction defects.

### Education

Milwaukee School of Engineering (MSOE)

### Professional Affiliations

Professional Engineer (P.E.) - licenses held in WI, IL, OH, NY, TX, DC, VA, MD, MI, MN, PA  
Reserve Specialist (RS) - credential awarded by Community Association's Institute (CAI)  
Certified Pool / Spa Operator - issued by the National Swimming Pool Foundation

## **Terms, Conditions and Limitations**

- 1) Superior Reserve Engineering & Consulting (SREC) will perform a visual inspection of the property. While due diligence will be exercised during the onsite inspection, we make no representations regarding latent or hidden defects not observable from a visual inspection. We do not conduct invasive or destructive testing nor provide an exhaustive review of building code compliance. Material testing, core sampling, performance testing of building or site elements and equipment is not part of the scope of work.
- 2) Our opinions of estimated costs and remaining useful lives are not a guarantee of the actual costs of replacement, a warranty of the common elements or other property elements, or a guarantee of remaining useful lives.
- 3) SREC may rely on information provided to us, by the client named in this contract, in our report. We assume information provided to us by the client to be correct and assume no liability for the accuracy of information provided to us by the client. You agree to indemnify and hold us 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 as 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.
- 4) Our Reserve Study Report in whole or part is not and cannot be used as a design specification, design engineering services or an appraisal.
- 5) Substances such as asbestos, urea-formaldehyde foam insulation, other chemicals, toxic wastes, environmental mold or other potentially hazardous materials could, if present, adversely affect the validity of this study. Unless otherwise stated in this report, the existence of hazardous substance, that may or may not be present on or in the property, was not considered. Our opinions are predicated on the assumption that there are no hazardous materials on or in the property. We assume no responsibility for any such conditions. We are not qualified to detect such substances, quantify the impact, or develop the remedial cost.
- 6) In the event of errors in our report, SREC's liability is limited to the cost of this study.

**Painting - Clubhouse Exterior**

**Material to paint:** wood

**Overall condition:** fair

**Specific condition:** multiple paint layers, trim deterioration and peeling paint

**Current total cost:** **\$2,300**

**Cost per home:** \$7

**Assumptions:** two coats (primer for bare areas and paint)

**Operating expenses:** touch up painting

**Components to paint:** wood trim  
wood fascia  
doors

**Components to replace:** wood trim (5%)



wood trim with deterioration



wood trim with peeling paint



wood trim



void in trim allows for insects/pests



**Roof - Shingles, Gutters and Downspouts**

**Material:** asphalt shingles

**Roof composition:** three tab shingles  
Boston style ridge shingles  
enclosed half weaved valleys  
lack metal drip edge (note 1)  
ridge vents (adequate)  
rubber and plastic flashing at vent pipes

**Overall condition:** fair

**Specific condition:** weathered shingles

**Roof pitch (average):** 7:12

**Quantity in squares(note 2):** 10

**Cost (\$/square):** \$520

**Current total cost:** **\$5,000**

**Operating expenses:** semi annual inspections and repairs

**Anticipated expenses:** total removal of existing roofing (note 3)  
sheathing replacement contingency (5%)  
metal drip edge at roof perimeters  
lead boot flashing at waste pipes  
#15 felt underlayment  
Class A 240-260 pounds/square shingles  
rooftop ventilation  
bathroom vents discharge through roofs  
replace gutters and downspouts (200 l.f.)



weathered shingles



enclosed half weaved valleys



gutter interior



downspout discharge

(note 1) Metal flashing at the perimeter of the roof that directs water away from the structure. The absence of this roofing component increases the likelihood of water infiltration.

(note 2) One square equals 100 square feet.

(note 3) Benefits of total replacement (rather than overlay/shingle over) include: 1) replacement of deteriorated sheathing, and proper flashing at penetrations and roof perimeters 2) ensuring the new shingles will lay properly 3) ensuring the useful life of the new shingles will not be diminished due to continued deterioration of underlying shingles 4) cost of removal will not be deferred to future budgets



**Exterior Renovation**

<b>Material:</b>	vinyl
<b>Profile:</b>	Dutch lap
<b>J channel (note 1):</b>	exists at windows, doors and other penetrations (proper)
<b>Gap between siding &amp; roof:</b>	does not exist (note 2)
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	trim deterioration, weathered siding and soffit deterioration
<b>Quantity (square feet):</b>	1,000
<b>Current total cost:</b>	<b>\$18,800</b>
<b>Cost per home:</b>	\$60
<b>Painting:</b>	see Page 2.431
<b>Anticipated costs:</b>	remove siding, trim, soffit and fascia install building paper (note 3) replacement with .042-inch thick vinyl siding replace gable vents replace soffit and fascia replace lights replace shutters replace trim



vinyl siding with Dutch lap profile



vinyl siding



lighting



deterioration of soffit

(note 1) Trim that conceals the thermal expansion and contraction of siding at end joints. Caulk would typically fail at these locations due to the excessive movement of the siding.

(note 2) The siding at the pol house is in direct contact with the roof. This condition impedes drainage and makes replacement of the shingles more difficult. The Vinyl Siding Institute recommends a 1/2" gap at these locations. It is our opinion that repairs to these conditions are not necessary at this time. Future repairs and replacement should following the guidelines set by the Vinyl Siding Institute: <http://www.vinylsiding.org>

(note 3) Siding is an exterior cladding that is not watertight. Water-vapor permeable building paper is necessary to prevent water from contacting sheathing and interior finishes. Lack of building paper will result in water penetration and deterioration of building substrate.

**Windows and Doors**

<b>Characteristics:</b>	vinyl window frames wood door frames dual pane glass sweep-type weatherstripping double hung windows screens hinged doors decorative muntins
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	minor weathering
<b>Quantity (square feet):</b>	200
<b>Quantity (each):</b>	14
<b>Cost (\$/square foot):</b>	\$50
<b>Average cost (\$/each):</b>	\$700
<b>Current total cost:</b>	<b>\$10,000</b>
<b>Cost per home:</b>	\$32
<b>Coordinate with:</b>	exterior renovation
<b>Operating expenses:</b>	replacement of hardware, clearing of weep holes



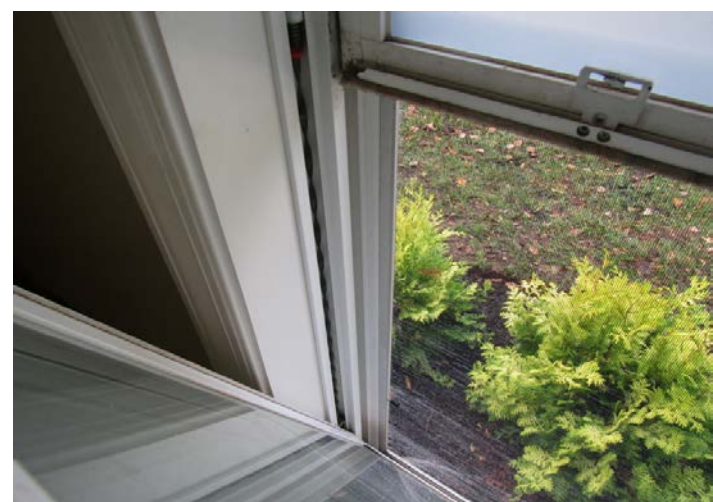
vinyl frame, dual pane glass, double hung window with decorative muntins



wood entrance doors



vinyl frame window



double hung window



**Cabinets and Countertops**

**Overall condition:** good to fair

**Specific condition:** minor wear

**Current total cost:** \$5,000

**Cost per home:** \$16

**Anticipated expenses:** countertops (18 linear feet)  
cabinets (14 linear feet)



countertop



cabinets and countertop



countertop

**Locker Room Fixtures**

<b>Overall condition:</b>	fair
<b>Specific condition:</b>	normal wear
<b>Average light level (lux):</b>	210 (200 is ideal)
<b>Faucet hot water temp. (°F):</b>	winterized
<b>Current total cost:</b>	<b>\$18,000</b>
<b>Cost per home:</b>	\$58
<b>Anticipated expenses:</b>	toilets (3 each) metal partitions (3 each) sinks and faucets (4 each) shower cubicles (4 each) drinking fountains (1 each) urinals (1 each) electric and plumbing allowance benches lockers

Green ideas: Consider the following efficiencies for the locker rooms: Install motion sensors on room light switches to minimize fixture operation. Motion sensing light switches are inexpensive: <http://www.homedepot.com/b/Electrical-Dimmers-Switches-Outlets-Motion-Sensors/N-5yc1vZc32r/Ntk-Extended/Ntt-light+switch?Ntx=mode+matchpartialmax&NCNI-5>. Replace faucets with automatic shut offs to use up to 70% less water. Automatic shut offs also minimize the spreading of germs. Install low flow aerators on faucets to use approximately 30% less water.



locker room sinks



plumbing fixture



plumbing fixture



metal partitions

**Painting - Pool House Interior**

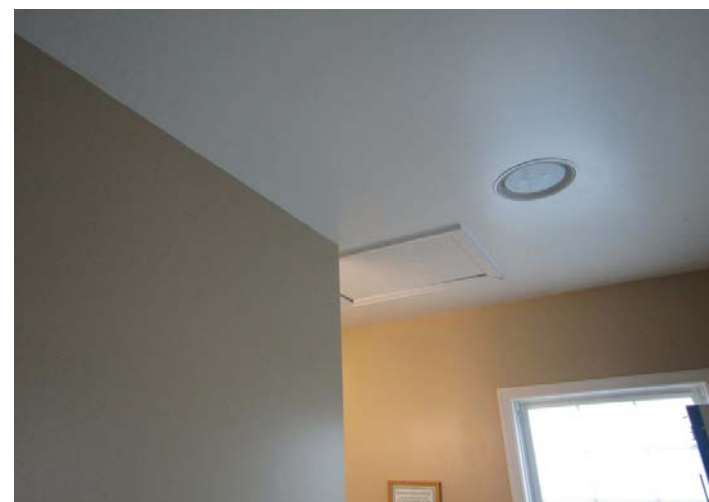
<b>Location:</b>	pool house interior
<b>Surfaces:</b>	walls, ceilings and trim
<b>Color scheme:</b>	two tone
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	minor scuffs
<b>Quantity (square feet):</b>	3,000
<b>Cost (\$/square foot):</b>	\$0.80
<b>Current total cost:</b>	<b>\$2,400</b>
<b>Cost per home:</b>	\$8
<b>Operating expenses:</b>	interim paint touch ups and wall repairs
<b>Assumptions:</b>	two coats of paint



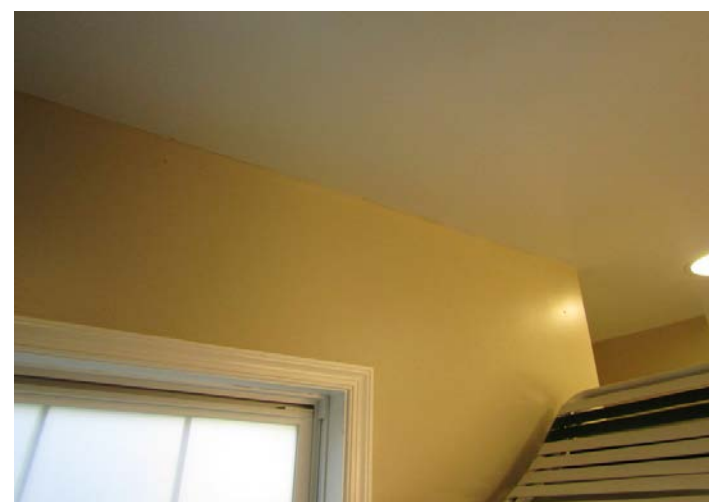
two tone paint finish typical of the pool house interior



Painted surfaces



Painted surfaces



Painted surfaces

**Tile - Pool House Interior**

**Location:** pool house interior

**Tile size:** 12 inch by 24 inch

**Floor to wall transition:** tile

**Overall condition:** good

**Specific condition:** no visible deterioration

**Quantity (square yards):** 90

**Cost (\$/square yard):** \$210

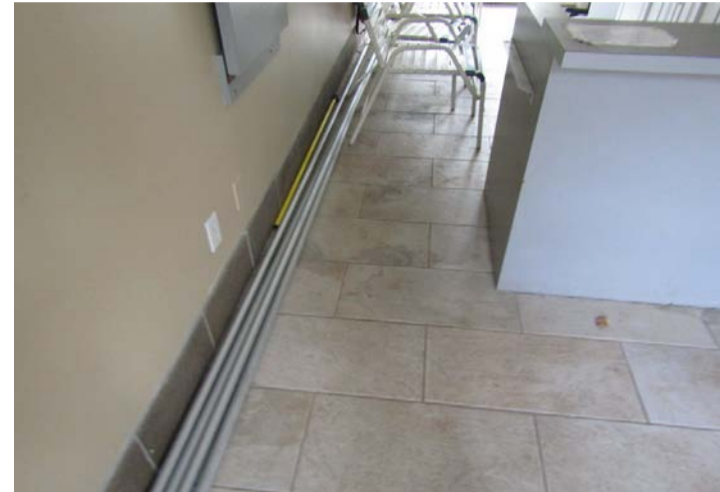
**Current total cost:** **\$19,000**

**Cost per home:** \$61

**Operating expenses:** regrouting



12 inch by 24 inch tile typical of the pool house interior with tile transition at floor to wall



tile in pool house



tile in pool house



**Bulletin Board**

**Overall condition:** good

**Specific condition:** recent restoration

**Location:** pool house

**Current total cost:** **\$1,200**

**Cost per home:** \$4

**Operating expenses:** painting



bulletin board



framing

**Fences - Ponds**

<b>Material:</b>	wood 2 rail
<b>Locations:</b>	ponds
<b>Fence profile:</b>	split rail
<b>Overall condition:</b>	fair
<b>Specific condition:</b>	weathered wood, limited rot, limited damage and leaning sections
<b>Quantity (linear feet):</b>	700
<b>Cost (\$/linear foot):</b>	\$22
<b>Current total cost:</b>	<b>\$15,000</b>
<b>Cost per home:</b>	\$48
<b>Assumptions:</b>	open rail, rustic, No. 1 cedar, 2 rails, 3' high



split rail wood fence typical of ponds



leaning fence



isolated picket damage at Backwater



leaning section and repair to post rot



**Fences - Southern Oaks Terrace**

<b>Material:</b>	wood (pine)
<b>Locations:</b>	Southern Oaks Terrace
<b>Fence profile:</b>	shadowbox
<b>Picket fastener type:</b>	nails
<b>Post type:</b>	wood
<b>Frame connection type:</b>	toe-nailed
<b>Overall condition:</b>	fair
<b>Specific condition:</b>	weathered wood, limited loose sections and loose nails
<b>Quantity (linear feet):</b>	1,100
<b>Cost to paint (\$/foot):</b>	\$16
<b>Current paint cost (2 coats):</b>	<b>\$17,000</b>
<b>Cost to paint per home:</b>	\$54
<b>Assumptions:</b>	two coats (primer for bare areas and paint)
<b>Cost to replace (\$/foot):</b>	\$43
<b>Current replacement cost:</b>	<b>\$47,000</b>
<b>Cost to replace per home:</b>	\$150
<b>Assumptions:</b>	pine construction, posts set in concrete



shadowbox wood fence at Southern Oaks Terrace



wood fence



weathered wood

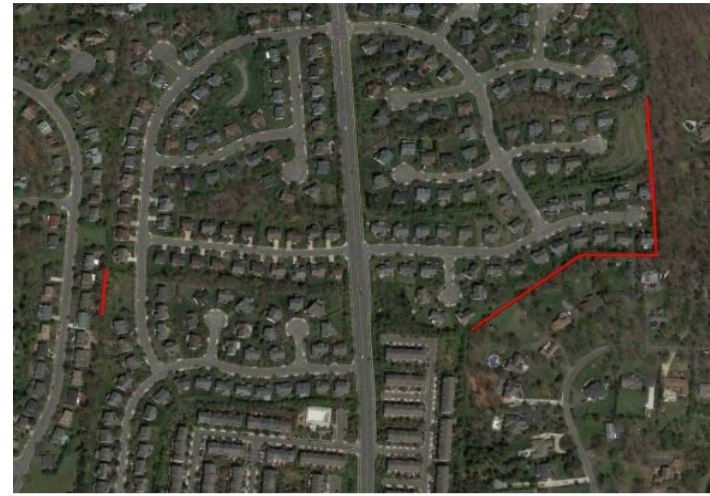


loose section



**Fences - Perimeter**

<b>Material:</b>	wood (pine)
<b>Locations:</b>	perimeter
<b>Fence profile:</b>	shadowbox
<b>Picket fastener type:</b>	nails
<b>Post type:</b>	wood
<b>Frame connection type:</b>	nailed
<b>Overall condition:</b>	fair
<b>Specific condition:</b>	weathered and isolated loose pickets
<b>Quantity (linear feet):</b>	1,700
<b>Cost (\$/linear foot):</b>	\$32
<b>Current total cost:</b>	<b>\$55,000</b>
<b>Cost per home:</b>	\$176
<b>Operating expenses:</b>	painting (if desired)
<b>Assumptions:</b>	pine construction, posts set in concrete



locations of perimeter fences



wood fence at east property line



wood fence at east property line



wood fence at Backwater pond



**Irrigation System**

**Locations served:** along Augusta and pool house

**Operational condition:** satisfactory

**Specific condition:** no known deficiencies

**Water source:** municipality

**Control panel location:** pool mechanical room

**Control panel manufacturer:** *Hunter*

**Irrigated acreage:** 0.8

**Area (square feet):** 34,000

**Cost (\$/square foot):** \$1.20

**Current total cost:** **\$41,000**

**Cost per home:** \$131

**Operating expenses:** interim component and small section replacements

**Anticipated costs:** pipes  
heads  
valves  
control panels  
rain sensors

**Green ideas:** For water conservation, the property could consider replacing the existing irrigation system rain sensors with smart controllers that utilizes weather-based scheduling, suspends irrigation during rain, measures instantaneous rainfall data, determines effective rainfall, calculates a net replacement value and provides zone-specific water calculations.



irrigation system head



irrigation system head



control panel



rain sensor

**Light Poles and Fixtures**

<b>Pole material:</b>	metal
<b>Quantity of poles (each):</b>	2
<b>Pole height (feet):</b>	8
<b>Fixture material:</b>	globe
<b>Quantity of fixtures (each):</b>	2
<b>Overall condition:</b>	fair
<b>Specific condition:</b>	weathering
<b>Location:</b>	pool house
<b>Average cost (\$/each):</b>	\$700
<b>Current total cost:</b>	<b>\$1,300</b>
<b>Cost per home:</b>	\$4
<b>Assumptions:</b>	reuse of existing subterranean electrical supply wiring and footings
<b>Operating expenses:</b>	painting, bulb replacement



metal light pole with globe light fixture



**Monument Renovation**

**Materials:** masonry and wood

**Location:** Augusta and Route 7

**Overall condition:** good to fair

**Specific condition:** weathered wood

**Current total cost:** **\$5,100**

**Cost per home:** \$16

**Operating expenses:** painting

**Anticipated costs:** masonry repairs  
fences  
landscape

Green ideas: The property could consider the installation of solar lights to illuminate the monument. The following website provides solar lights for monuments: [www.emberled.com](http://www.emberled.com)



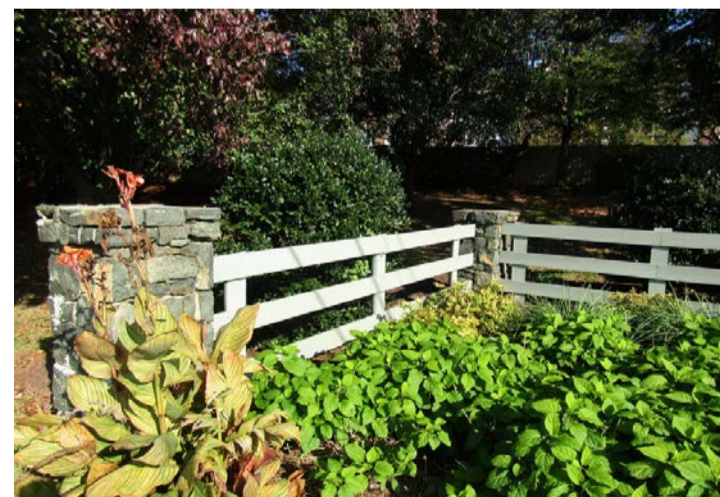
monument



wood fence



wood fence



wood fence



**Pavement - Crack Repair, Patch and Stripe**

<b>Locations:</b>	pool house parking, walking paths
<b>Overall condition:</b>	fair
<b>Specific condition:</b>	cracks and minor settlement
<b>Quantity (square yards):</b>	1,000
<b>Total cost (\$/square yard):</b>	\$1.10
<b>Crack repair &amp; patch cost:</b>	<b>\$1,100</b>
<b>Total cost per home:</b>	\$4
<b>Assumptions:</b>	repair all open cracks and patch deteriorated pavement
<b>Anticipated costs:</b>	crack repair patch (1%) stripe parking areas repairs to catch basins (1 each)



crack repairs at parking area



open cracks



repaired pavement



walking path pavement



**Pavement Mill and Overlay - Pool House Parking**

<b>Material:</b>	asphalt
<b>Location:</b>	pool house parking
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	cracks and minor settlement
<b>Typical traffic type:</b>	residential vehicles
<b>Quantity (square yards):</b>	600
<b>Quantity of catch basins:</b>	1
<b>Square yards of pavement per catch basin:</b>	600 (reasonable amount of pavement per drain)
<b>Repaving method:</b>	mill and overlay
<b>Cost (\$/square yard):</b>	\$19
<b>Current total cost:</b>	<b>\$11,000</b>
<b>Cost per home:</b>	\$35
<b>Anticipated costs:</b>	mill (grind off) 2 inches of all pavement overlay 2 inches of new pavement repairs to base pavement (10%) repairs to catch basin (1 each) replace concrete curbs and gutters (10%)

**Green ideas:** Determine if the mix and mill process for repaving is appropriate for the property. This process reuses the milled pavement in the overlay thereby minimizing waste.

**Engineering solutions:** To preserve the base and defer the need for the more costly total replacement method of repaving, mill and overlay the pavement with the onset of deterioration.



asphalt pavement at pool house parking



pavement repairs



open joints at crack repairs



pavement overview



**Pavement Replacement - Pool House Parking**

<b>Material:</b>	asphalt
<b>Location:</b>	pool house parking
<b>Typical traffic type:</b>	residential vehicles
<b>Quantity (square yards):</b>	600
<b>Quantity of catch basins:</b>	1
<b>Square yards of pavement per catch basin:</b>	600 (reasonable amount of pavement per drain)
<b>Repaving method:</b>	replacement
<b>Cost (\$/square yard):</b>	\$36
<b>Current total cost:</b>	<b>\$22,000</b>
<b>Cost per home:</b>	\$70
<b>Anticipated costs:</b>	remove pavement, regrade & augment base install 3 inches of new pavement repairs to catch basin (1 each) replace concrete curbs and gutters (10%)

Engineering solutions: The scope of this reserve study is 30 years. Asphalt pavement lasts approximately 25 years. After near term milling and overlaying of the asphalt pavement, the property should plan for total replacement of the pavement approximately 25 years later. This process of repaving includes removing the existing pavement, regrading and augmenting the base, and installing 3 inches of new pavement in a minimum of two lifts to ensure proper compaction.



asphalt pavement at pool house parking



pavement repairs



open joints at crack repairs



pavement overview



**Pavement - Walking Paths**

<b>Material:</b>	asphalt
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	new pavement and original pavement
<b>Locations:</b>	Southern Oaks Terrace, corner of Vermont Maple Terrace
<b>Length (linear feet):</b>	1,300 (0.2 miles)
<b>Quantity (square yards):</b>	400
<b>Repaving method:</b>	total replacement
<b>Cost (\$/square yard):</b>	\$19
<b>Current total cost:</b>	<b>\$8,000</b>
<b>Cost per home:</b>	\$26
<b>Anticipated expenses:</b>	remove existing pavement augment stone base install 1.5" of new pavement

Engineering solutions: The property recently replaced the walking path pavement along Southern Oaks Terrace. It is our opinion that the pavement was installed satisfactorily. We did observe minor cracks in the pavement near tree roots. This is typical of walking path pavement in that the base isn't as hardy as street pavement and is more easily damaged by tree roots. Removal of the trees to prevent this damage is not likely as it would take away from the charm of the paths. Removing the tree roots would likely damage the tree. Instead, the property should plan for periodic repairs to the pavement at tree roots and other areas of deterioration.



original walking path



original pavement



newer pavement



minor crack in newer pavement at tree roots



**Pavers**

**Material:** masonry  
**Installation method:** dry set  
**Pattern:** basketweave  
**Location:** playground  
**Quantity (square feet):** 600  
**Overall condition:** good to fair  
**Specific condition:** isolated trip hazards  
**Cost (\$/square foot):** \$18  
**Current total cost:** **\$10,800**  
**Cost per home:** \$35  
**Operating expenses:** interim resetting, partial replacements



basketweave pattern dry set masonry pavers



pavers



pavers leading to playground



isolated trip hazard



**Playground Equipment**

**Playground quantity (each):** 1

**Materials:** metal and plastic

**Manufacturer:** *Playworld Systems*

**Play surface condition:** height of surface at reasonable level for safe play

**Overall condition:** good to fair

**Specific condition:** weathering and loose borders

**Current total cost:** **\$29,000**

**Cost per home:** \$93

**Operating expenses:** play surface maintenance

**Equipment included:** decks  
steps  
activity panels  
slides  
ladders  
swings  
picnic tables  
border



playground equipment



picnic tables



loose border



swings



**Retaining Wall - Masonry**

<b>Material:</b>	masonry
<b>Size of blocks (inches):</b>	8 by 16
<b>Drainage system:</b>	does not exist to relieve hydrostatic pressure
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	weathering, overgrown brush and deterioration
<b>Location:</b>	Backwater pond
<b>Number of walls (each):</b>	1
<b>Length (linear feet):</b>	100
<b>Quantity (square feet):</b>	400
<b>Cost (\$/square foot):</b>	\$32
<b>Current total cost:</b>	<b>\$13,000</b>
<b>Cost per home:</b>	\$42
<b>Operating expenses:</b>	resetting of loose blocks
<b>Anticipated costs:</b>	remove wall install new wall install drainage system backfill with non-compressing fill

**Actionable recommendations:** We observed overgrown brush at the masonry retaining wall at the Backwater pond. Overgrown tree roots can cause damage to the retaining wall. We recommend trimming back the brush and removing trees growing too close to the wall.



masonry retaining wall



block deterioration



overgrown brush



**Pool Cover**

**Material:** mesh  
**Manufacturer:** *Merlin*  
**Overall condition:** **poor**  
**Specific condition:** tears  
**Quantity (square feet):** 3,600  
**Cost (\$/square foot):** \$1.80  
**Current total cost:** **\$6,400**  
**Cost per home:** \$20



pool cover



tears in cover



pool cover



tears

**Pool Deck Renovation**

<b>Deck material:</b>	concrete
<b>Transition at deck and pool:</b>	coping
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	minor cracks
<b>Deck area (square feet):</b>	4,700
<b>Current total cost:</b>	<b>\$6,600</b>
<b>Cost per home:</b>	\$21
<b>Operating expenses:</b>	interim repairs, marking of trip hazards
<b>Anticipated expenses:</b>	partial replacement of deck (5%) deck crack repairs caulk deck joints coping replacement (5%)



minor cracks in concrete



repaired crack



cracked concrete



minor crack



**Pool Fence**

<b>Material:</b>	chain link
<b>Chain link mesh spacing:</b>	1.25 inches (ideal)
<b>Location:</b>	pool and playground
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	warped webbing and finish deterioration
<b>Quantity (linear feet):</b>	500
<b>Cost (\$/linear foot):</b>	\$12
<b>Current total cost:</b>	<b>\$6,200</b>
<b>Cost per home:</b>	\$20
<b>Operating expenses:</b>	painting
<b>Assumptions:</b>	schedule 20, vinyl coated 11 gage wire, 1-5/8" post 10' on center, 1-3/8" top rail, 2" corner posts, galvanized steel



chain link fence



pool fence



warped webbing



finish deterioration



**Pool Finish - Plaster**

<b>Finish type:</b>	plaster
<b>Horizontal surface area (square feet):</b>	3,600
<b>Pool capacity (gallons):</b>	110,000
<b>Minimum pool depth (feet):</b>	3 feet 6 inches <i>(does not comply w/ standard 3 feet 0 inches - no action is necessary at this time)</i>
<b>Surface water removal type:</b>	skimmers
<b>Overall condition:</b>	good to fair
<b>Specific condition:</b>	minor discoloration
<b>Cost (\$/square foot):</b>	\$14
<b>Current total cost:</b>	<b>\$48,600</b>
<b>Cost per home:</b>	\$155
<b>Operating expenses:</b>	interim painting if desired
<b>Anticipated expenses:</b>	removal of the existing finish install new plaster light replacement skimmer repairs



plaster finish



plaster pool finish



pool finish



pool finish



**Pool Furniture**

**Overall condition:** fair

**Specific condition:** finish wear and damaged straps

**Current total cost:** \$25,600

**Cost per home:** \$82

**Furniture includes:** metal frame lounges  
metal frame tables  
metal frame chairs  
umbrellas  
trash receptacles



lounges



lounges



chairs



finish wear

**Pool Mechanical Equipment**

<b>Filter pressure (psi):</b>	0 (winterized)
<b>Overall condition:</b>	satisfactory
<b>Specific condition:</b>	no known deficiencies
<b>Current total cost (note 1):</b>	<b>\$12,600</b>
<b>Cost per home:</b>	\$40
<b>Operating expenses:</b>	interim pump rebuilding, filter media replacement, water treatment equipment, electrical panel and valves
<b>Equipment:</b>	pump less than 5 HP (1) pump 5 HP or greater (1) filters (4)

Green ideas: The pool pumps operate at a constant speed. When replacement comes due, replace the pool pumps with variable speed drives to minimize operational costs, provide a constant pressure and maximize the useful life of the pumps. Preventing too high flow rates will also ensure proper filtration and minimize damage to filters.



filters



filter



smaller pump



larger pump

(note 1) Replacement of all the pool mechanical equipment during a single event is unlikely. Instead, we assume periodic partial replacements.