

# FULL RESERVE STUDY

## Silver Valley Condominium, Inc.



**Munroe Falls, Ohio**

**April 14, 2016**



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# Reserve Study Update

May 19, 2016

The Reserve Study for Silver Valley Condominium, Inc.

Was submitted on .....May 19, 2016

To maintain the most accurate and cost-effective replacement schedule and funding plan for your property elements, this study should be updated on or about .....**Second Quarter, 2018**  
...but no later than.....**Second Quarter, 2019**

As a valued client, we are pleased to offer a future reserve study update with site visit for.....**\$3,700**

For a Reserve Study Update with Site visit as noted above.

**This future update fee is based on the same property components that were contained in your last Reserve Advisors' reserve study or update. We are pleased to include property additions for an additional fee.**

To initiate your Reserve Study Update, please sign this authorization and fax or mail to the number below. Upon receipt of this authorization we will contact you to schedule your site visit and invoice for the Reserve Study Update Service.

Sign this contract below and fax to **414-272-3663**. Or mail to  
Reserve Advisors, Inc.  
735 N. Water St., Suite 175  
Milwaukee, WI 53202

Delivery options for your Reserve Study Update Report, Please check one of the following:

- 1-Full color printed copy PLUS Electronic Report, FREE
- 2-Full color printed copies PLUS Electronic Report, \$100

**For: Reserve Advisors, Inc.**

Signature:  \_\_\_\_\_

Jacquie Martin  
Director of Client Services - Great Lakes  
Region  
Jacque@reserveadvisors.com  
Ref. # 081012  
(800) 221-9882

**For Silver Valley Condominium, Inc.**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

**Agent or Manager:** Renee Hambach

**Management Firm:** Associated Property Management



Long-term thinking. Everyday commitment.



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## 1. RESERVE STUDY EXECUTIVE SUMMARY

**Client:** Silver Valley Condominium, Inc. (Silver Valley)

**Location:** Munroe Falls, Ohio

**Reference:** 081012

**Property Basics:** Silver Valley Condominium, Inc. is a townhome style development of 111 units in 22 buildings. The exteriors of the buildings comprise asphalt shingle roofs, stucco walls and vinyl siding. The buildings were built from 1983 to 1987. The development contains concrete flatwork, a pond and timber retaining walls.

**Reserve Components Identified:** 25 Reserve Components.

**Inspection Date:** April 14, 2016. We conducted the original inspection on March 19, 2010.

**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 2034 due to replacement of asphalt shingle roofs.

**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
- 1.35% annual rate of return on invested reserves
- 2.5% future Inflation Rate for estimating Future Replacement Costs

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

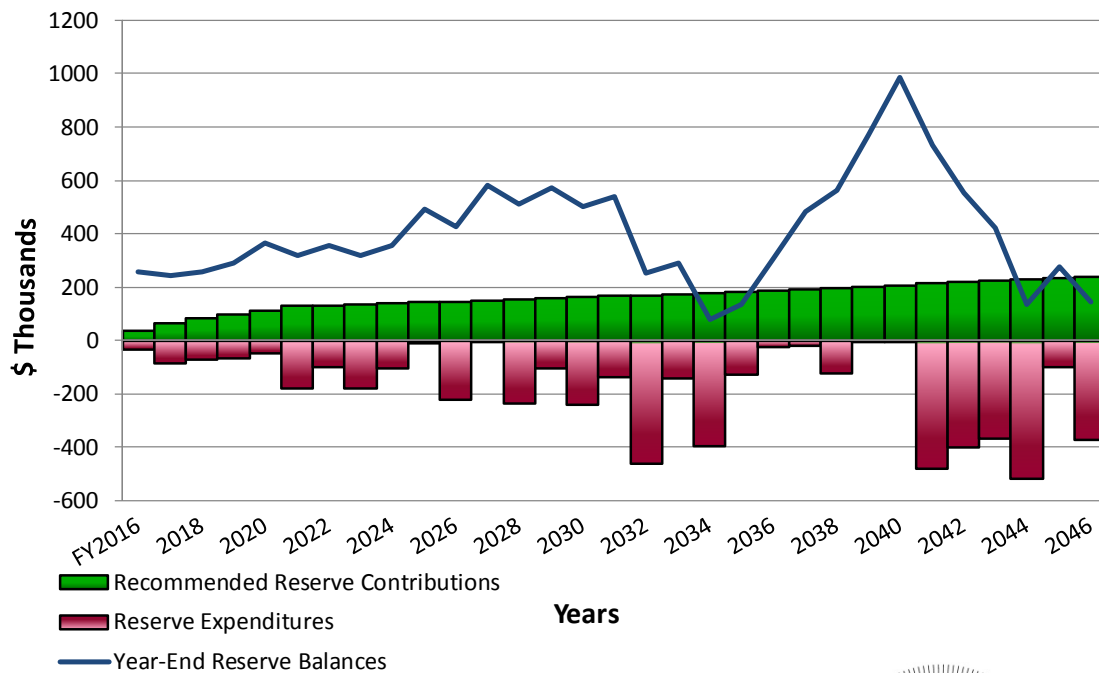
**Cash Status of Reserve Fund:** \$246,163 as of March 31, 2016.

**Recommended Reserve Funding:** The Association budgeted \$51,816 for Reserve Contributions in 2016. We recommend the Association budget annual phased increases in Reserve Contributions of approximately \$15,700 from 2017 through 2021. Afterwards, the Association should budget gradual annual increases in reserve funding that in part consider the effects of inflation through 2046, the limit of this study's Cash Flow Analysis. The initial adjustment in Reserve Contributions of \$15,684 represents about a seven percent (7.4%) adjustment in the 2016 total Operating Budget of \$211,214. This initial adjustment of \$15,684 is equivalent to an increase of \$11.77 in the monthly contributions per homeowner.

**Certification:** This *Full Reserve Study* exceeds the Community Associations Institute (CAI) and the Association of Professional Reserve Analysts (APRA) standards fulfilling the requirements of a "Level I Full Reserve Study."

### Silver Valley Recommended Reserve Funding Table and Graph

Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)
2017	67,500	242,487	2027	151,100	582,140	2037	193,600	481,804
2018	83,200	255,824	2028	154,900	511,059	2038	198,400	563,444
2019	98,900	290,716	2029	158,800	571,633	2039	203,400	770,494
2020	114,600	363,605	2030	162,800	502,275	2040	208,500	985,340
2021	130,300	317,295	2031	166,900	540,187	2041	213,700	729,457
2022	133,600	354,637	2032	171,100	253,401	2042	219,000	555,061
2023	136,900	316,272	2033	175,400	290,250	2043	224,500	419,617
2024	140,300	355,210	2034	179,800	77,473	2044	230,100	135,671
2025	143,800	494,088	2035	184,300	136,048	2045	235,900	274,703
2026	147,400	428,202	2036	188,900	303,397	2046	241,800	145,929



Respectfully submitted on May 19, 2016 by  
RESERVE ADVISORS, INC.



Alan M. Ebert, PRA<sup>1</sup>, RS<sup>2</sup>, Director of Quality Assurance  
Visual Inspection and Report by: Louise L. Heffernan, RS



<sup>1</sup>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>.

<sup>2</sup> 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. 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

**Silver Valley Condominium, Inc.**

**Munroe Falls, Ohio**

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, April 14, 2016. We conducted the original inspection on March 19, 2010.

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
- **Condition Assessment** - Describes the reserve components, describes our recommendations for repairs or replacement, and includes detailed solutions and procedures for replacements for the benefit of current and future board members
- **Photographs** - Documentation of Condition of various property elements
- **Methodology** - Lists the national standards, methods and procedures used, financial information relied upon for the Financial Analysis of 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



Silver Valley Condominium, Inc. is a townhome style development of 111 units in 22 buildings. The exteriors of the buildings comprise asphalt shingle roofs, stucco walls and vinyl siding. The buildings were built from 1983 to 1987. The development contains concrete flatwork, a pond and timber retaining walls. We identify 25 major reserve components that are likely to require capital repair or replacement during the next 30 years.

Our investigation includes Reserve Components or property elements as set forth in your Declaration. 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 Homeowners 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 Homeowners
- 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:

- Silver Valley responsibility
- Limited useful life expectancies
- Predictable remaining useful life expectancies
- Replacement cost above a minimum threshold

Long-Lived Property Elements do not have predictable Remaining Useful Lives. 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 reserve funding at this time.

- Electrical Systems
- Foundations
- Railings, Metal (2015-2016)
- Structural Frames

The operating budget provides money for the repair and replacement of certain Reserve Components. Operating Budget Funded Repairs and Replacements relate to:

- General Maintenance to the Common Elements
- Expenditures less than \$3,000 Excluding Asphalt Pavement Street, Mulberry Lane, Mill and Overlay (These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.)
- Asphalt Pavement Street, Mulberry Lane, Crack Repair and Patch
- Catch Basins, Landscape
- Concrete Sidewalks, Common, Partial Replacements
- Decorative Masonry, Free Standing Walls, Inspections and Repairs
- Fence, Wood, Stain Applications and Partial Replacements
- Guard Rails
- Gutters and Downspouts, Inspections and Debris Removal
- Joint Sealant, Concrete Streets
- Landscape, Maintenance
- Mailboxes, Paint Finish Applications
- Meter Boxes
- Paint Finishes, Touch Up
- Pond, Aerator
- Retaining Wall, Stone, Resetting and Capital Repairs
- Signage, Traffic
- Storm Water Management System, Rip Rap, Augmentation and Maintenance
- Other Repairs normally funded through the Operating Budget

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

- Balconies and Decks
- Electrical Systems
- Garage Doors
- Heating, Ventilating and Air Conditioning (HVAC) Units
- Interiors
- Light Fixtures, Exterior
- Patios
- Pipes, Interior Building, Water and Sewer
- Stoops
- Windows and Doors

Certain items have been designated as the responsibility of others to repair or replace.

Property Maintained by Others relates to:

- Asphalt Pavement Street, Mulberry Lane (Neighboring Association funds 70% of maintenance and replacement costs)

- Fence, Wood Rail, Southeast Property Perimeter (Falls River Condominium Association)
- Pond and Recreational Area, Southwest Property Perimeter (Silver Valley Homeowner's Association)
- Pond, Mulberry Lane (Shared 50% with Neighboring Association)
- Retaining Wall, Masonry, Southeast Property Perimeter (Falls River Condominium Association)
- Street Systems, Silver Valley Boulevard and Damon Drive (Municipality)



### 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
- Unit cost of replacement
- 2016 local cost of replacement
- Total future costs of replacement anticipated during the next 30 years
- Schedule of estimated future costs for each reserve component including inflation

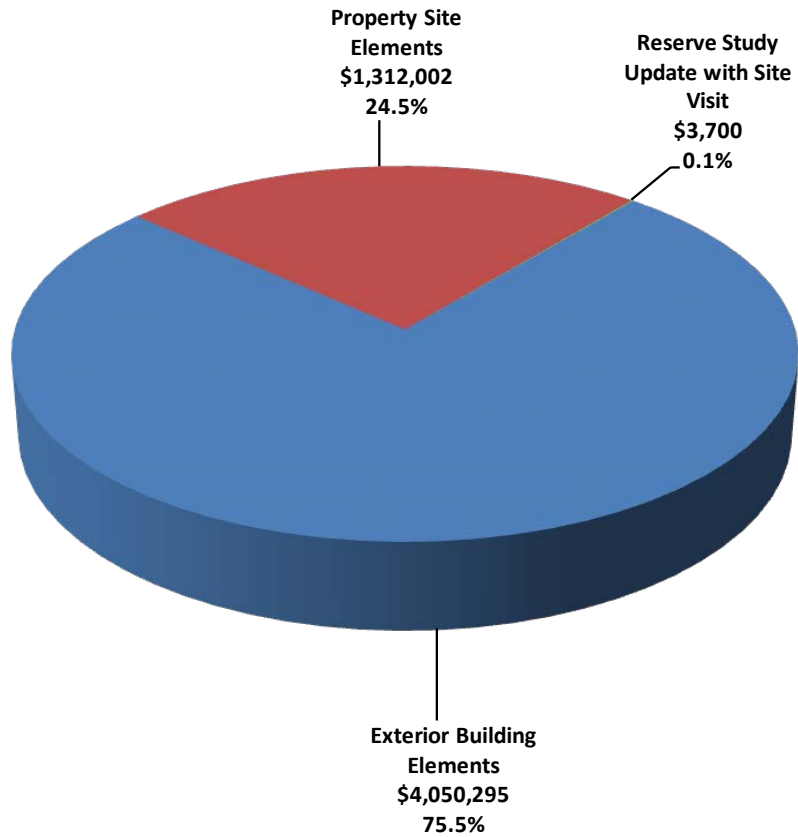
#### **Reserve Funding Plan**

- 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

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*.

The following chart illustrates the relative importance of the categories noted in *Reserve Expenditures* and relative funding during the next 30 years.

**Silver Valley**  
Future Expenditures Relative Cost Illustration



RESERVE EXPENDITURES

Silver Valley Condominium, Inc. Munroe Falls, Ohio

Explanatory Notes:

1) 2.5% is the estimated future Inflation Rate for estimating Future Replacement Costs.

2) FY2016 is Fiscal Year beginning January 1, 2016 and ending December 31, 2016.

Table with columns: Line Item, Total Quantity, Per Phase Quantity, Units, Reserve Component Inventory, Estimated 1st Year of Event, Life Analysis (Useful, Remaining), Unit Cost, Percentage Ownership, Costs (\$ Per Phase, Total, 30-Year Total), and years 1-15 (FY2016-2031).

Property Site Elements

Table with columns: Line Item, Total Quantity, Per Phase Quantity, Units, Reserve Component Inventory, Estimated 1st Year of Event, Life Analysis (Useful, Remaining), Unit Cost, Percentage Ownership, Costs (\$ Per Phase, Total, 30-Year Total), and years 1-15 (FY2016-2031).

1 Allowance Reserve Study Update with Site Visit

Anticipated Expenditures, By Year

\$5,365,997 31,500 84,411 73,204 67,672 46,098 181,175 100,763 179,763 105,864 10,616 219,470 3,936 233,311 105,485 239,358 135,977

### RESERVE EXPENDITURES

Silver Valley  
Condominium, Inc.  
Munroe Falls, Ohio

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years		Unit Cost, \$	Percentage Ownership	Costs, \$			16 2032	17 2033	18 2034	19 2035	20 2036	21 2037	22 2038	23 2039	24 2040	25 2041	26 2042	27 2043	28 2044	29 2045	30 2046
						Useful	Remaining			Per Phase (2016)	Total (2016)	30-Year Total (Inflated)															
<b>Exterior Building Elements</b>																											
1.140	44	9 Each		Chimney Caps, Metal, 2006-2014, Phased	2030	to 25	14 to 22	550.00	100%	4,950	24,200	37,748	7,348		7,720		8,111		7,575								
1.180	67	17 Each		Chimney Caps, Metal, Remaining Original, Phased	2017	to 25	1 to 4	550.00	100%	9,350	36,850	110,073									17,334	17,768	18,212	17,569			
1.240	9,000	2,250 Linear Feet		Gutters and Downspouts, Aluminum, 2012-2015, Phased	2031	to 25	15 to 18	12.00	100%	27,000	108,000	162,381	40,082	41,084	42,111												
1.241	9,000	2,250 Linear Feet		Gutters and Downspouts, Aluminum, Remaining Original, Phased	2021	to 25	5 to 8	12.00	100%	27,000	108,000	334,712									50,056	51,308	52,591	53,905			
1.243	765	765 Linear Feet		Railings and Gates, Metal, Paint Finishes and Capital Repairs	2029	6 to 8	13	12.00	100%	9,180	9,180	46,860						15,419							18,786		
1.244	665	665 Linear Feet		Railings and Gates, Metal, Replacement, Remaining Original	2021	to 35	5	53.00	100%	35,245	35,245	39,876															
1.280	1,825	365 Squares		Roofs, Asphalt Shingles, 2006-2014, Phased	2026	15 to 20	10 to 18	370.00	100%	135,050	675,250	1,239,715	200,482		210,632											283,277	
1.580	300	60 Each		Skylights, 2006-2014, Phased	2026	to 20	10 to 18	440.00	100%	26,400	132,000	242,344	39,191		41,175											55,376	
1.600	1	1 Allowance		Staircases, Inspections and Partial Replacements (2016 is Budgeted)	2016	to 65	0	7,000.00	100%	7,000	7,000	81,650				11,470						12,978				14,683	
1.860	111	28 Unit		Walls, Soffit and Fascia, Aluminum, Paint Finishes, Phased	2021	8 to 10	5 to 8	850.00	100%	23,588	94,350	252,675	35,016	35,891	36,788												
1.861	111	28 Unit		Walls, Stucco, Paint Finishes and Capital Repairs (Incl. Sealants), Phased	2021	8 to 10	5 to 8	1,200.00	100%	33,300	133,200	613,080	49,434	50,670	51,937							61,736	63,280	64,862	66,483		
1.920	77,000	19,250 Square Feet		Walls, Vinyl Siding (Incl. Soffit and Fascia), Phased	2041	to 40	25 to 28	6.00	100%	115,500	462,000	889,181									214,131	219,484	224,971	230,595			
<b>Property Site Elements</b>																											
4.040	650	650 Square Yards		Asphalt Pavement Street, Mulberry Lane, Mill and Overlay	2018	15 to 20	2	17.00	30%	3,315	3,315	3,483															
4.045	650	650 Square Yards		Asphalt Pavement Street, Mulberry Lane, Total Replacement	2038	15 to 20	22	29.50	30%	5,753	5,753	9,903					9,903										
4.100	20	7 Each		Catch Basins, Inspections and Capital Repairs, Phased	2023	15 to 20	7 to 30+	800.00	100%	5,600	16,000	32,433				7,674						10,382					
4.120	38,700	1,660 Square Feet		Concrete Driveways, Partial	2023	to 65	7 to 30+	12.00	100%	19,920	464,400	223,550	29,571			31,845		34,294				36,931			39,770		
4.180	75,500	3,235 Square Feet		Concrete Streets (2016-2017 are Budgeted), Partial	2016	to 55	0 to 30+	12.00	100%	38,820	906,000	471,653	57,629			62,060		66,831				71,970			77,504		
4.285	210	210 Linear Feet		Fence, Wood	2028	15 to 20	12	43.00	100%	9,030	9,030	12,144															
4.500	1	1 Allowance		Landscape, Partial Replacements	2017	to 1	1	3,000.00	100%	3,000	3,000	135,002	4,454	4,565	4,679	4,796	4,916	5,039	5,165	5,294	5,426	5,562	5,701	5,843	5,989	6,139	6,293
4.560	31	31 Each		Light Poles and Fixtures	2021	to 25	5	1,000.00	100%	31,000	31,000	98,513														63,439	
4.600	13	13 Each		Mailbox Stations	2020	to 25	4	1,800.00	100%	23,400	23,400	70,296										44,467					
4.650	1	1 Allowance		Pipes, Subsurface Utilities, Partial	2035	to 85+	19	13,000.00	100%	13,000	13,000	46,736				20,782									25,954		
4.710	525	525 Linear Feet		Pond, Shoreline Maintenance	2020	to 15	4	25.00	50%	6,563	6,563	30,995		9,986												13,765	
4.763	2,970	990 Square Feet		Retaining Walls, Timber (Replace with Masonry), Phased	2017	15 to 20	1 to 3	51.00	100%	50,490	151,470	159,170															
4.800	1	1 Allowance		Signage, Property and Unit Identification, Renovation	2025	15 to 20	9	5,500.00	100%	5,500	5,500	18,124														11,255	
		1 Allowance		Reserve Study Update with Site Visit	2018	2	2	3,700.00	100%	3,700	3,700	3,700															
												<b>Anticipated Expenditures, By Year</b>															
												\$5,365,997	463,207	142,196	395,042	127,157	24,497	20,458	123,768	5,294	5,426	481,080	402,008	366,479	517,769	99,619	373,394



# RESERVE FUNDING PLAN

## CASH FLOW ANALYSIS

Silver Valley  
Condominium, Inc.  
Munroe Falls, Ohio

### Individual Reserve Budgets & Cash Flows for the Next 30 Years

	FY2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Reserves at Beginning of Year (Note 1)	246,163	256,055	242,487	255,824	290,716	363,605	317,295	354,637	316,272	355,210	494,088	428,202	582,140	511,059	571,633	502,275
Total Recommended Reserve Contributions (Note 2)	38,862	67,500	83,200	98,900	114,600	130,300	133,600	136,900	140,300	143,800	147,400	151,100	154,900	158,800	162,800	166,900
Plus Estimated Interest Earned, During Year (Note 3)	2,530	3,343	3,341	3,664	4,387	4,565	4,505	4,498	4,502	5,694	6,184	6,774	7,330	7,259	7,200	6,989
Less Anticipated Expenditures, By Year	(31,500)	(84,411)	(73,204)	(67,672)	(46,098)	(181,175)	(100,763)	(179,763)	(105,864)	(10,616)	(219,470)	(3,936)	(233,311)	(105,485)	(239,358)	(135,977)
Anticipated Reserves at Year End	<u>\$256,055</u>	<u>\$242,487</u>	<u>\$255,824</u>	<u>\$290,716</u>	<u>\$363,605</u>	<u>\$317,295</u>	<u>\$354,637</u>	<u>\$316,272</u>	<u>\$355,210</u>	<u>\$494,088</u>	<u>\$428,202</u>	<u>\$582,140</u>	<u>\$511,059</u>	<u>\$571,633</u>	<u>\$502,275</u>	<u>\$540,187</u>

(continued)

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

	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Reserves at Beginning of Year	540,187	253,401	290,250	77,473	136,048	303,397	481,804	563,444	770,494	985,340	729,457	555,061	419,617	135,671	274,703
Total Recommended Reserve Contributions	171,100	175,400	179,800	184,300	188,900	193,600	198,400	203,400	208,500	213,700	219,000	224,500	230,100	235,900	241,800
Plus Estimated Interest Earned, During Year	5,321	3,645	2,465	1,432	2,946	5,265	7,008	8,944	11,772	11,497	8,612	6,535	3,723	2,751	2,820
Less Anticipated Expenditures, By Year	(463,207)	(142,196)	(395,042)	(127,157)	(24,497)	(20,458)	(123,768)	(5,294)	(5,426)	(481,080)	(402,008)	(366,479)	(517,769)	(99,619)	(373,394)
Anticipated Reserves at Year End	<u>\$253,401</u>	<u>\$290,250</u>	<u>\$77,473</u>	<u>\$136,048</u>	<u>\$303,397</u>	<u>\$481,804</u>	<u>\$563,444</u>	<u>\$770,494</u>	<u>\$985,340</u>	<u>\$729,457</u>	<u>\$555,061</u>	<u>\$419,617</u>	<u>\$135,671</u>	<u>\$274,703</u>	<u>\$145,929</u>

(NOTE 5)

(NOTE 4)

### Explanatory Notes:

- 1) Year 2016 starting reserves are as of March 31, 2016; FY2016 starts January 1, 2016 and ends December 31, 2016.
- 2) Reserve Contributions for 2016 are the remaining budgeted 9 months; 2017 is the first year of recommended contributions.
- 3) 1.35% is the estimated annual rate of return on invested reserves; 2016 is a partial year of interest earned.
- 4) Accumulated year 2046 ending reserves consider the need to fund for replacement of the asphalt shingle roofs shortly after 2046, and the age, size, overall condition and complexity of the property.
- 5) Threshold Funding Year (reserve balance at critical point).

#### 4. CONDITION ASSESSMENT

The Condition Assessment of this *Full Reserve Study* includes *Enhanced Solutions and Procedures* for select significant components. These narratives describe the Reserve Components, document specific problems and conditions, 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





**Building front elevation style**



**Building front elevation styles**



**Building front elevation style**



**Building side and rear elevation styles**



**Building rear elevation styles**



**Building side and rear elevation styles**

**Chimney Caps, Metal** - Silver Valley maintains 111 metal chimney caps. The Board informs us 44 chimney caps were replaced from 2006 to 2014. These chimney caps are in good to fair condition. The remaining 67 chimney caps are likely original and in fair condition based on our visual inspection from the ground. The Board informs us all chimney caps were visually inspected from 2014 to 2015 and either painted or replaced at this time. We note chimney cap rust.



**Chimney cap rust**

Chimney caps of this type have useful lives of up to 25 years. We recommend the Association anticipate the phased replacement of the 44 chimney caps replaced from 2006 to 2014 beginning by 2030 and concluding by 2038. Based on discussions with the Board and recent repairs, we recommend the Association anticipate the phased replacement of the remaining 67 chimney caps and related flashing beginning in 2017 and concluding by 2020. Subsequent phased replacement is likely beginning by 2041 and concluding by 2044. We depict this information on Line Items 1.140 and 1.180 of *Reserve Expenditures*. When applicable, we recommend the Association inspect the condition of the chimney caps concurrent with replacement of the roof systems.

**Gutters and Downspouts, Aluminum** - Approximately 18,000 linear feet of aluminum gutters and downspouts drain storm water from the roofs of Silver Valley. The Board informs us approximately 9,000 linear feet of gutters and downspouts were replaced from 2012 through 2015. These gutters and downspouts are in good to fair overall condition. Approximately 9,000 linear feet of gutters and downspouts are original and in fair condition. The Board informs us the gutters and downspouts were recently inspected and the downspouts were painted in conjunction with stucco paint finish applications. The gutters and downspouts exhibit damage.



**Typical gutter and downspout configuration**



**Downspout damage, minor asphalt shingle granular loss and direct downspout discharge onto asphalt shingle roof**

These gutters and downspouts have a useful life of up to 25 years. We include the following solutions and procedures for gutter and downspout maintenance and replacements for present and future board members.

The most common and economical type of gutter profile is the metal roll-formed seamless K-style. The five-inch wide K-style gutter is standard but six-inch wide K-style gutters should be used on larger roofs. 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. Downspouts should be of the same material as the gutters. We recommend the use of downspout extensions and splash blocks at the downspout discharge to direct storm water away from the foundations. Downspouts that discharge directly onto roofs cause premature deterioration of the roofs due to the high concentration of storm water. We recommend either routing these downspouts directly to the ground, connecting the downspouts to the gutters of the lower roof or distributing the storm water discharge over a large area.

Maintenance of the gutters and downspouts should include semiannual inspections, repairs at seams and fastening points, verification that the downspouts discharge away from foundations and cleaning. More frequent maintenance may be required for gutters and downspouts in areas of concentrated landscape growth. The Association should fund these expenses through the operating budget. A lack of maintenance resulting in misdirected storm water will result in deterioration of soffits, fascia, siding, foundations, and the gutters and downspouts themselves.

The Board informs us the Association recently repaired isolated drainage issues related to improper gutter slope. This work included realignment of isolated sections of the gutters. We recommend the Association budget for the phased replacement of the gutters and downspouts previously replaced from 2012 through 2015 beginning by 2031 and concluding by 2034, in conjunction with stucco paint finish applications. The Association should anticipate phased replacement of the remaining gutters and downspouts beginning by 2021 and concluding by

2024, in conjunction with stucco paint finish applications. A subsequent phased replacement of these gutters and downspouts is likely beginning by 2041 and concluding by 2044. We depict this information on Line Items 1.240 and 1.241 of *Reserve Expenditures*. We base our cost on replacement with .027-inch thick aluminum.

**Railings and Gates, Metal** - The Association maintains approximately 765 linear feet of metal gates and railings at various unit entrances. Approximately 100 linear feet of metal gates and railings were replaced in 2015 or will be replaced in 2016. See “**Staircases**” for our inclusion of this cost. The remaining gates and railings are likely original and in fair condition with isolated sections in poor condition. The gates and railings exhibit rust and paint finish deterioration.



**Metal gate overview**



**Significant metal railing rust at Unit 114**



**Wood paint finish deterioration**



**Typical metal railing rust**

Railings of this type have a useful life of up to 35 years with the benefit of periodic maintenance. Periodic maintenance should include applications of a protective paint finish and partial replacement of deteriorated metal every six- to eight-years.

Periodic applications of paint to the metal will maximize the useful life. Preparation of the metal before application of the paint finish is important. The painting contractor should remove all soil, dirt, oil, grease and other foreign materials before application of the paint finish to maximize its useful life. The contractor should also remove paint blisters and rust prior to the paint finish application. We recommend the use of a power wire brush, scraper and/or sander as effective means of removal. The Association should require the application of a primer on bare metal. The primer for metal surfaces should include a rust inhibitor for added protection. We recommend the Association budget for paint applications to the metal gates and railings by 2029 and every eight years thereafter. We anticipate the need to replace the remaining gates and railings replacement by 2021. We do not anticipate the need for replacement of the metal railings and gates replaced in 2015 and 2016. We depict this information on Line Items 1.243 and 1.244 of *Reserve Expenditures*.



**Roofs, Asphalt Shingles** - Approximately 1,825 *squares*<sup>1</sup> of asphalt shingles comprise the roofs of Silver Valley. The roofs were replaced from 2006 through 2014 and are in good to fair overall condition. Our visual inspection from the ground notes sheathing deflection and asphalt shingle lift.



**Asphalt shingle roof overview**



**Asphalt shingle roof overview**



**Minor sheathing deflections near skylight at Unit 76**



**Minor shingle lift near Unit 116**

<sup>1</sup> We quantify the roof area in *squares* where one square is equal to 100 square feet of surface area.



**Minor asphalt shingle lift**



**Minor asphalt shingle lift**

The useful life of asphalt shingle roofs in Munroe Falls is from 15- to 20-years. We include the following solutions and procedures pertaining to the components of an asphalt shingle roof system, times of replacement, recommended method of replacement, and coordination of other related work for the benefit of present and future board members.

Insulation and ventilation are two major components of a sloped roof system. Together, proper insulation and ventilation help to control attic moisture and maintain an energy efficient building. Both insulation and ventilation prevent moisture buildup which can cause wood rot, mold and mildew growth, warp sheathing, deteriorate shingles, and eventually damage building interiors. Sufficient insulation helps to minimize the quantity of moisture that enters the attic spaces and adequate ventilation helps to remove any moisture that enters the attic spaces. These two roof system components also help to reduce the amount of energy that is required to heat and cool a building. Proper attic insulation minimizes heat gain and heat loss between the residential living spaces and attic spaces. This reduces energy consumption year-round. Proper attic ventilation removes excessive heat from attic spaces that can radiate into residential living spaces and cause air conditioners to work harder. Properly installed attic insulation and ventilation work together to maximize the useful life of sloped roof systems.



In addition to moisture control and energy conservation, proper attic insulation and ventilation are essential components to prevent the formation of ice dams. Ice dams occur when warm air accumulates at the peak of an attic while the roof eaves remain cold. Warm air from the attic melts the snow at the ridge of the roof and the water runs down the slope of the roof. At the cold roof eaves, the water refreezes and forms a buildup of snow and ice. This buildup often traps water that can prematurely deteriorate asphalt shingles and ultimately seep under the shingles and cause water damage to the roof deck and building interiors. Proper insulation minimizes the amount of heat that enters attic spaces in the winter and adequate ventilation helps to remove any heat that enters the attic spaces. Together, these components prevent ice dams with a cold roof deck that melts snow and ice evenly.

The Association should periodically ensure that the vents are clear of debris and are not blocked from above by attic insulation. If the soffit vents are blocked from above, the Association should install polystyrene vent spaces or baffles between the roof joists at these locations to ensure proper ventilation. Silver Valley should fund this ongoing maintenance through the operating budget.

Certain characteristics of condition govern the times of replacement. Replacement of an asphalt shingle roof becomes necessary when there are multiple or recurring leaks and when the shingles begin to cup, curl and lift. These conditions are indications that the asphalt shingle roof is near the end of its useful life. Even if the shingles are largely watertight, the infiltration of water in one area can lead to permanent damage to the underlying roof sheathing. This type of deterioration requires replacement of saturated sections of sheathing and greatly increases the cost of roof replacement. Roof leaks may occur from interrelated roof system components, i.e.,



flashings. Therefore, the warranty period, if any, on the asphalt shingles, may exceed the useful life of the roof system.

Warranties are an indication of product quality and are not a product guarantee. Asphalt shingle product warranties vary from 20- to 50-years and beyond. However, the scope is usually limited to only the material cost of the shingles as caused by manufacturing defects. Warranties may cover defects such as thermal splitting, granule loss, cupping, and curling. Labor cost is rarely included in the remedy so if roof materials fail, the labor to tear off and install new shingles is extra. Other limitations of warranties are exclusions for "incidental and consequential" damages resulting from age, hurricanes, hail storms, ice dams, severe winds, tornadoes, earthquakes, etc. There are some warranties which offer no dollar limit for replacement at an additional cost (effectively an insurance policy) but again these warranties also have limits and may not cover all damages other than a product defect. We recommend a review of the manufacturers' warranties as part of the evaluation of competing proposals to replace a roof system. This evaluation should identify the current costs of remedy if the roof were to fail in the near term future. A comparison of the costs of remedy to the total replacement cost will assist in judging the merits of the warranties.

Our estimate of remaining useful life considers this possibility and the Association should anticipate the need for capital repairs to the shingles and other roof system components to achieve or maximize the remaining useful life of the roofs. The Association should fund ongoing roof repairs as normal maintenance from the operating budget.

Contractors use one of two methods of replacement for sloped roofs, either an overlayment or a tear-off. Overlayment is the application of new shingles over an existing roof.

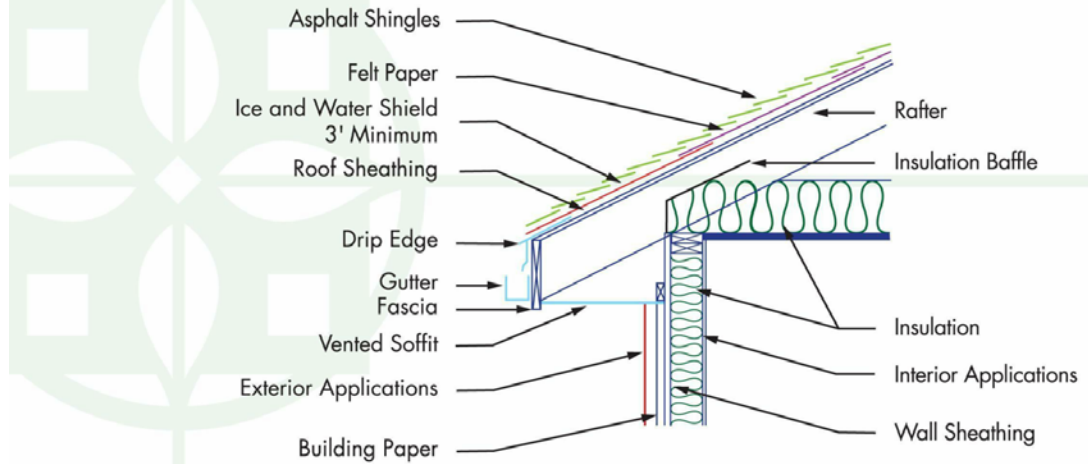
Although this method is initially more economical, the following disadvantages exist for this type of replacement:

1. Overlaid shingles hide condition defects of the roof system and do not allow for replacement of critical flashings, underlayments and ventilation.
2. Additional layers of shingles absorb and store more heat resulting in premature deterioration of the new shingles and continued deterioration of the underlying shingles and other roof system components.
3. New shingles installed over deteriorated shingles may result in an uneven appearance.

The disadvantages above result in a shorter useful life of 10- to 15-years for overlaid roofs. This shortened useful life and the inevitable eventual replacement of both shingle layers will actually result in increased long-term replacement costs. The costs of an eventual total replacement are deferred onto future homeowners thereby conflicting with the purpose of a reserve study to ensure homeowners pay their “fair share” of the weathering and aging of this commonly owned property. Therefore, we recommend only the tear-off method of replacement. The advantages of the tear-off method include the correction of hidden or latent defects and extend the useful life of the new roof.

The tear-off method of replacement includes removal of the existing shingles, flashings if required and underlayments. The contractor should then inspect the roof sheathing for areas of water damage and partially replace the sheathing as needed. Once the roof sheathing is repaired, the contractor can begin installation of the new underlayments, flashings and shingles. The following cross-sectional schematic illustrates an asphalt shingle roof system:

## ROOF SCHEMATIC



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The two types of underlayment most often used in an asphalt shingle roof system are ice and water shield membrane, and organic felt paper of varying weights depending on local building codes. Both types of underlayment protect the roof sheathing from moisture damage and wind-driven ice and snow. They have a low vapor resistance that impedes the accumulation of moisture between the underlayment and the roof sheathing. Ice and water shield membrane is thicker than organic paper and is used in areas that are subject to ice dams and standing water. The contractor should install ice and water shield membranes (often a modified bitumen product) at the outer 36 inches of the gutter and rake edge roof eaves, and in the roof valleys. Standard 15-pound organic felt paper should provide sufficient protection over the remaining portions of the roof. Underlayments work in conjunction with flashings to form a watertight roof system.

The function of flashing is to provide a watertight junction between the roofing material and the other parts of the structure and between roof sections. Flashing material is usually galvanized metal, although some roofs use copper or synthetic rubber. The Association should require the contractor to augment existing flashings or replace deteriorated flashings at the time of roof replacement at the following locations:

- Changes in the slope
- Valleys
- Roof intersections with a wall, vertical structure, roof penetration, i.e., vent stacks
- Rakes (sloped edges of the roof) and soffits (lower roof edges)

Another critical type of flashing is drip edge flashing. This important flashing sheds water off the edges of the roofs. The drip edge flashing allows storm water to run off the roof into the gutters without coming into contact with the underlayment and eave board. The special profile of a metal drip edge also prevents or minimizes the possibility of rain water blowing back under the shingles. The contractor should install this flashing at the gutter edge before the installation of underlayment and at the rake edge *after* the installation of underlayment.

Asphalt shingles include both fiberglass shingles and organic mat shingles. Both shingle types are made with asphalt. Fiberglass shingles use a fiberglass reinforcing mat while organic shingles use a wood based cellulose fiber mat. Fiberglass shingles are thinner, lighter and carry a better fire rating than organic shingles. Organic mat shingles are more durable and stay more flexible in cold weather. The contractor should install the shingles atop the underlayment and in conjunction with flashing. Based on a better fire rating, we suggest Silver Valley use a standard strip, fiberglass, Class A, minimum weight class of 210 pounds per square self-sealing shingle at the time of replacement. The self-sealing strip affixes to the lower exposed edges of the shingles. Heat from ambient weather and sunlight activates the shingle adhesive material and

seals the two adjacent courses of shingles together. Contractor proposals should specify the types of proposed materials and types of proposed fasteners. The Association should require the use of nail fasteners, not staples, at the time of replacement. Nail guns are acceptable. Staples are of lesser quality and might not withstand wind forces as well as nails.

Based on the age and condition of the roofs, we recommend Silver Valley budget for a phased replacement beginning by 2026 and concluding by 2034. A subsequent phased replacement is likely beginning by 2046. We note this information on Line Item 1.280 of *Reserve Expenditures*. We base our cost on replacement with standard laminate Class A 240-260-pounds per square shingles. The Association should fund any repairs prior to the complete replacement of the roofs through the operating budget. Our estimate of cost includes removal and reattachment of the gutters and downspouts at the time of replacement.

**Skylights** - Silver Valley maintains approximately 300 skylights. The Board informs us the skylights were installed in conjunction with asphalt shingle roof replacements from 2006 to 2014. The skylights are in good to fair overall condition.



**Asphalt shingle roof with skylights**





We recommend the Association anticipate a useful life of up to 20 years for the skylights. Skylights have considerably shorter lives when compared to windows and doors of similar construction due to an increased exposure to weather elements. Snow drifts and wind driven rains cause excessive wear to the seals and frames. Failed seals or glass are common occurrences as the skylights age and approach the end of their useful lives. We recommend the Association budget for a phased replacement beginning by 2026 and concluding by 2034, in conjunction with roof replacements. A subsequent phased replacement is likely beginning by 2046. We depict this information on Line Item 1.580 of *Reserve Expenditures*. The Association should fund interim repairs through the operating budget.

**Staircases** - The Association maintains 28 sets of concrete staircases with decorative brick masonry and metal railings. See “**Railings and Gates, Metal**” for our recommendations on replacement of the metal railings. The staircases are mostly original and in fair overall condition. The Board informs us four staircases were repaired in 2015. The Board also informs us the Association plans to repair or replace concrete treads and railings with deterioration in 2016. We note concrete cracks, concrete deterioration, brick mortar deterioration, organic growth and stucco paint finish deterioration at the staircases.



**Staircase overview**



**Concrete step cracks at Unit 170**



**Decorative brick mortar deterioration and organic growth at Unit 130**



**Stucco paint finish deterioration at concrete staircase at Unit 166**



**Concrete and stucco paint finish deterioration near landing at Unit 164**



Concrete materials have useful lives of up to 65 years. However, achieving this long useful life requires inspections and partial replacements to maintain safe conditions for residents of Silver Valley. Following near term inspections and partial replacements, we recommend the Association budget for the following activities by 2021:

- Complete inspection of the staircases
- Replacement of a limited amount of the decorative brick masonry
- Replacement of up to ten percent (10%) of the concrete treads and landings
- Repointing of up to five percent (5%) of the decorative brick masonry

The Association should anticipate subsequent inspections and partial replacements every five years thereafter. We include this information on Line Item 1.600 of *Reserve Expenditures*. Partial interim replacements should be funded through the operating budget as normal maintenance. The estimate of cost in 2016 reflects a cost provided by the Board.

**Walls, Soffit and Fascia, Aluminum, Paint Finishes** - Aluminum soffits and fascia comprise one of the exterior finish materials at the buildings. The soffits and fascia were installed concurrent with vinyl siding installations from 2004 to 2005 and are in fair overall condition. See “**Walls, Vinyl Siding**” for our recommendations on replacement of the soffits and fascia. The Board informs us the Association historically applies a paint finish to the aluminum soffits and fascia. The Board also informs us the aluminum soffit and fascia was painted concurrent with stucco paint finish applications from 2011 through 2014.



#### **Aluminum soffit and fascia**

The aluminum soffits serve as vents for the asphalt shingle roofs. Normal deterioration mainly relates to fading of the exterior finish from exposure to sunlight, weathering and air pollutants. Aluminum elements can be damaged from forces which cause it to warp, dent and tear resulting from rocks thrown from lawn mowers, wind-driven objects, etc. The fascia is a component of the roof and gutter system that prevents water from coming into contact with underlying wood members. Like the soffit, over time the fascia may fade, become damaged or otherwise fail to prevent water infiltration.

Although paint finish applications may improve the aesthetics of these aluminum elements, the functionality may continue to be compromised and paint finish applications might not extend the useful life of these components. The useful life of these paint finish applications is from 8- to 10-years. Based on historical practices and discussions with the Board, we include paint finish applications at the soffit and fascia in a phased manner beginning by 2021 and concluding by 2024, in conjunction with stucco paint finish applications. The Association should anticipate subsequent phased paint finish applications every 10 years thereafter except when replacement occurs. We depict this information on Line Item 1.860 of *Reserve Expenditures*. The estimate of cost reflects historical costs provided by the Board.

**Walls, Stucco** - Stucco comprises one of the exterior finish materials at the buildings and privacy walls. The stucco is original and in fair overall condition. The Board informs us the stucco paint finish at the buildings was reapplied from 2011 to 2014 and it is in good to fair overall condition. We note stucco cracks, deterioration and paint finish deterioration.



**Stucco overview**



**Stucco cracks at Building 10**



**Stucco deterioration near garage door at Unit 70**



**Stucco crack**



**Significant stucco deterioration and cracks at free standing wall near Unit 106**

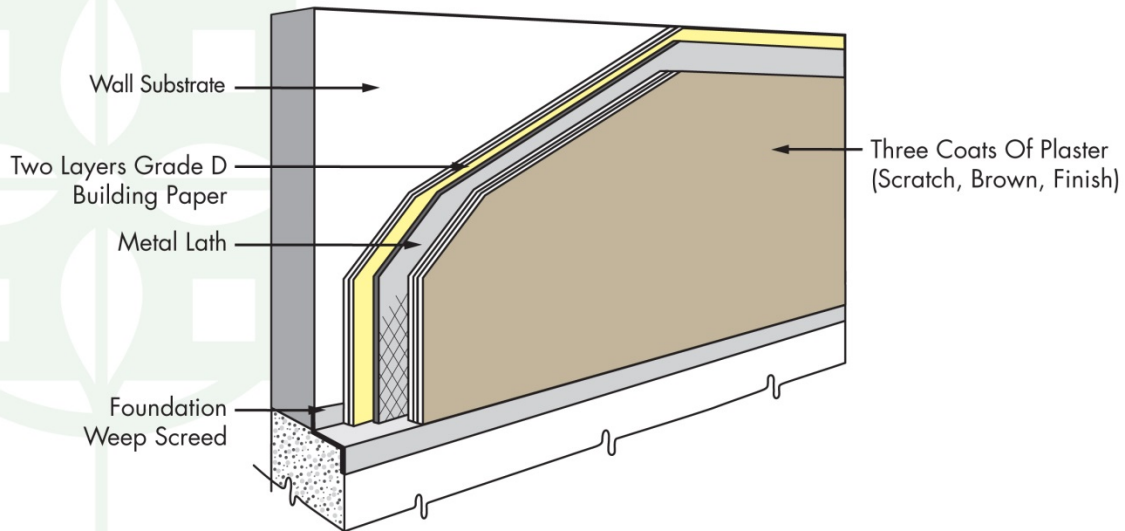


**Stucco paint finish deterioration near Unit 76**

We elaborate on solutions and procedures necessary for the optimal maintenance of stucco in the following discussion.

Stucco is Portland cement plaster that is applied either directly to a solid base such as masonry or concrete, or is applied to galvanized metal lath attached with galvanized fasteners to frame construction. In frame construction, two layers of a Grade D water-vapor permeable building paper are necessary to separate the stucco from the wood product sheathing. The actual construction may vary and must follow the specifications of the supplier, manufacturer or local building codes; however, the following graphic details the typical components of a stucco wall system on frame construction:

## STUCCO DETAIL



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Along with proper installation, proper maintenance and periodic finish applications, the inherent composition of stucco wall systems results in an indefinitely long useful life. The useful life of these finish applications is from 8- to 10-years. We recognize that the initial finish may achieve a longer useful life. Color variations at repairs often warrant complete coating application to maintain aesthetics. Periodic repairs and finish applications help prevent water infiltration and spalling from weather exposure, maintain a good appearance and maximize the useful life of the system. We include the following commentary as a summary of the minimum requirements for a successful paint finish application for present and future board members.

Correct and complete preparation of the surface before application of the paint finish maximizes the useful life of the paint finish and surface. The contractor should remove all loose, peeled or blistered paint before application of the new paint finish. The contractor should then



power wash the surface to remove all dirt and biological growth. Water-soluble cleaners that will not attack Portland cement are acceptable for removing stains.

Summarizing the minimum requirements of the proposed scope of work, all bids should include the following:

1. Name of paint finish product
2. The contractor will involve manufacturer representatives to ensure specifications and warranty
3. The contractor will apply the paint to clean and dry surfaces at the manufacturer's recommended spreading rates
4. The contractor will apply successive coats of the paint finish, with sufficient time elapse between coats, as necessary to ensure uniform appearance
5. The contractor will conduct crack repairs and replace deteriorated or damaged stucco prior to the application of the paint finish
6. The contractor will replace deteriorated sealants or caulk prior to the application of the paint finish

In consideration of the above recommended maintenance, useful life and age of the stucco paint finishes, we advise Silver Valley budget for phased paint applications, partial stucco replacements and crack repairs beginning by 2021 and concluding by 2024. The Association should anticipate subsequent phased paint finish applications and replacements and every 10 years thereafter. Our estimate of cost anticipates the following in coordination with each paint finish application:

- Crack repairs as needed (Each paint product has the limited ability to cover and seal cracks but we recommend repair of all cracks which exceed the ability of the paint product to bridge.)
- Replacement of up to one percent (1%), of the stucco walls (The exact amount of area in need of replacement will be discretionary based on the actual future conditions and the desired appearance.)
- Replacement of up to fifty percent (50%) of the sealants in coordination with each paint finish application.

We depict this information on Line Item 1.861 of *Reserve Expenditures*. The estimate of cost reflects historical costs provided by the Board plus partial sealant replacements.



**Walls, Vinyl Siding** - Vinyl siding comprises approximately 77,000 square feet of the exterior walls. This quantity includes the aluminum soffit and fascia. The Board informs us the vinyl siding was installed from 2004 to 2005 and it is in good to fair overall condition. We note vinyl siding solar warp and heat warp adjacent to windows and skylights.



**Vinyl siding at side elevation**



**Vinyl siding at rear elevation**



**Vinyl siding warp at Unit 94**



**Vinyl siding warp at Unit 70**



**Vinyl siding warp at Unit 131**

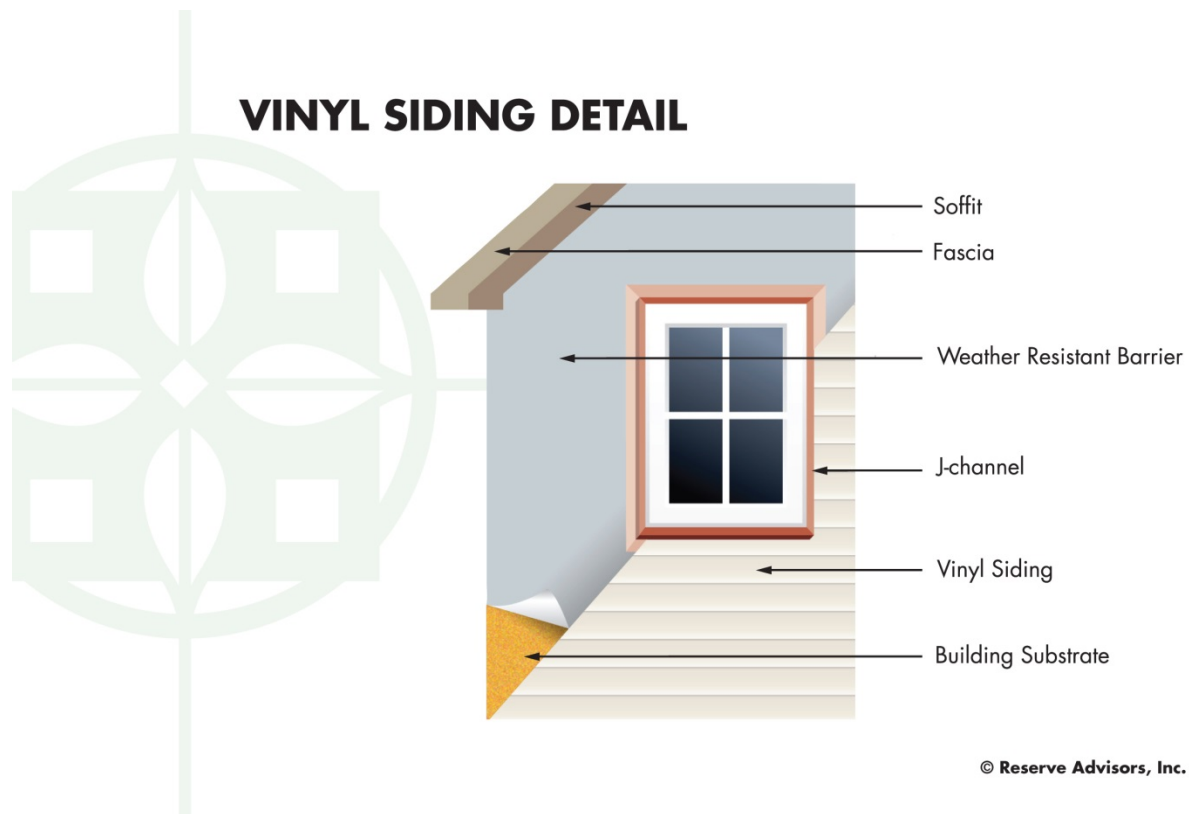
Heat warp and damage often result from the solar reflection of windows and skylights, which can produce and transmit abnormally high concentrations of heat onto the vinyl siding, resulting in the siding melting or warping. The areas of greatest concern are located where the windows or skylights of an opposing wall reflect directly onto the vinyl siding. These sections are affected due to the continual direct sunlight on the windows and skylights, which then reflect onto the siding. This condition will continue to occur. However, the following is a list of preventative measures:

- Landscaping - Planting trees and shrubbery will help block the reflection between townhomes.
- Screens - Adding screens to the windows will decrease the intensity of the reflection, transmitting less heat
- Awnings - Adding awnings to the windows will help eliminate direct contact from the sun.

We recommend the Association take preventative measures in order to maximize the useful life of the vinyl siding. We recommend the Association fund these measures through means other than reserves. We elaborate on solutions and procedures necessary for maintenance and replacement of vinyl siding in the following discussion.

Vinyl siding has a useful life of up to 40 years. Consideration of appearance and development of issues largely governs the decision to replace, in whole or partially, prior to the end of its useful life. Maintenance and partial replacements of the siding may extend the useful life. Normal deterioration mainly relates to discoloration of the exterior finish from exposure to sunlight, weathering and air pollutants. Loosening of the fasteners also contributes to the possible need for premature replacement. Vinyl siding gets damaged from forces which cause it to warp and crack, such as lawn care equipment, wind-driven objects, etc.

The lack of replacement pieces matching the color and profile of the existing siding may result in the need for a premature replacement. These variables may affect the need for partial and complete replacements. The following diagram details the use of building wrap in a vinyl siding system:





The Association should install new vinyl siding as recommended by the *Vinyl Siding Institute, Inc.* We briefly summarize these recommendations in the following narrative:

*Weather Resistant Barrier* - Vinyl siding should be installed over a continuous weather resistant barrier. Vinyl siding is an exterior cladding that is not watertight. The weather resistant barrier should include water-vapor permeable building paper and properly integrated flashing around all penetrations.

*Fasteners* - Vinyl siding fasteners include nails, staples and screws. Only aluminum, galvanized steel or other corrosion-resistant fasteners should be used. The fasteners should penetrate a minimum of  $\frac{3}{4}$  of an inch into the framing.

*Fastening* - The fasteners should allow  $\frac{1}{32}$  of an inch clearance between the fastener head and the siding, and the fasteners should be installed in the center of the nailing slot in the nailing flange. This will allow for the thermal expansion and contraction of the siding. Overtight fasteners will cause the siding to buckle. Fasteners should be spaced a maximum of 16 inches apart for horizontal siding, 12 inches for vertical siding and 8- to 10-inches for vinyl siding accessories.

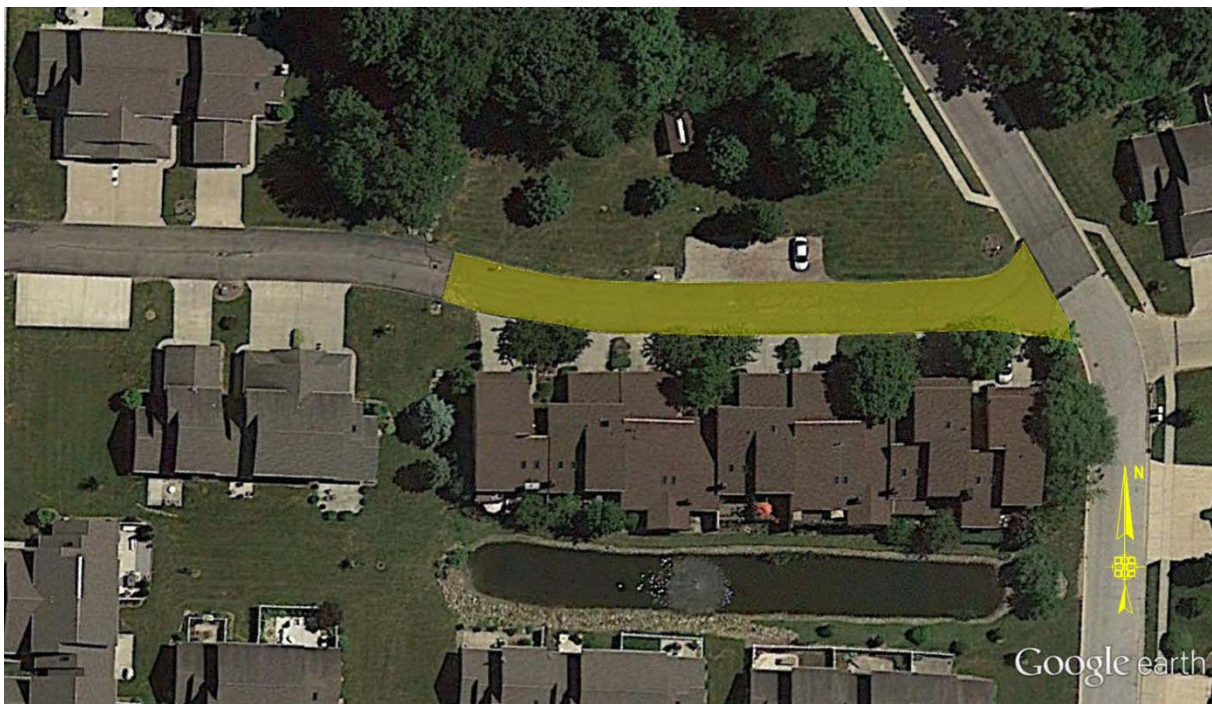
*Installation* - Siding panels should overlap by approximately one inch. Joints should be staggered so that no two courses are aligned vertically, unless separated by at least three courses. The siding should not be caulked where the siding meets trim accessories, such as J-channel, or at overlap joints. J-channel should be installed a minimum of  $\frac{1}{2}$  inch off of roof lines.

With consideration of the age and existing condition of the siding, we recommend the Association anticipate a phased replacement of the siding beginning by 2041 and concluding by 2044. For purposes of this Reserve Study, we base our cost on replacement with a minimum of .048-inch thick siding. We note this information on Line Item 1.920 of *Reserve Expenditures*.

Vinyl siding is relatively maintenance free. However, the Association should periodically clean the vinyl siding with a water hose. A non-abrasive household cleaner or manufacturer specified vinyl siding cleaner will remove more intense stains. The Association should fund these ongoing expenses through the operating budget.

### Property Site Elements

**Asphalt Pavement, Repaving** – The Association is responsible for thirty percent (30%) of costs associated with the 650 square yards of asphalt pavement along Mulberry Lane. The following figure depicts the location of the asphalt pavement along Mulberry Lane:



The pavement is in poor overall condition at an unknown age. The Board informs us the Association conducted pavement repairs in 2014. The Association should continue to fund crack repairs and patching as ongoing maintenance through the operating budget. We note cracks, previous repairs, partial replacements and minor catch basin settlement.



**Asphalt pavement street with cracks and previous repairs**



**Asphalt pavement street cracks and previous repairs**

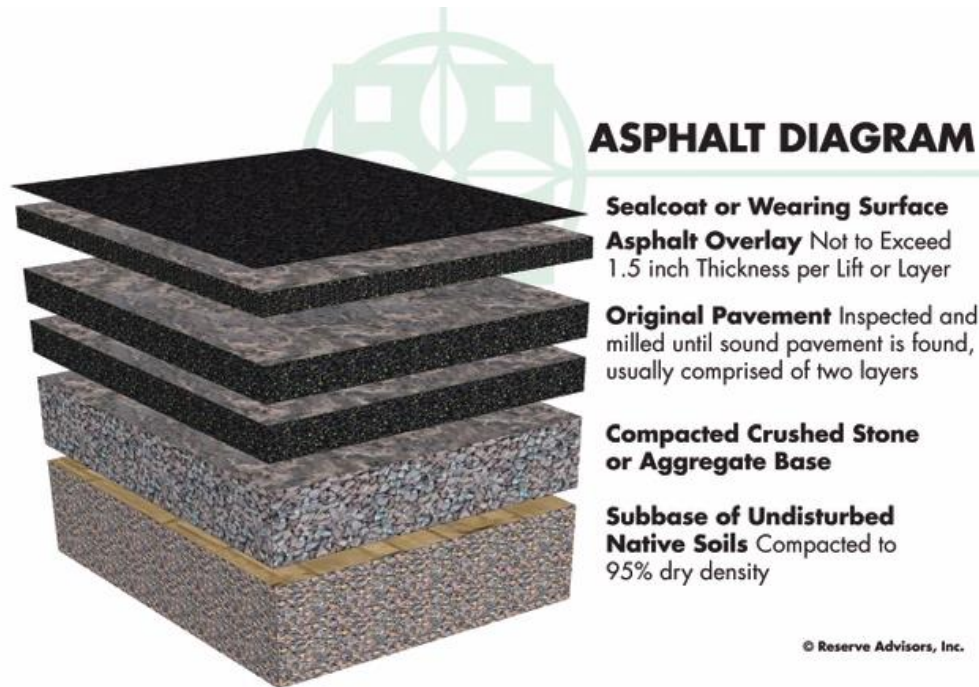


**Asphalt pavement street partial replacements and minor catch basin settlement**

The useful life of pavement in Munroe Falls is from 15- to 20-years. We include the following repaving solutions and procedures for the benefit of the present and future board members.

Components of asphalt pavement include native soil, aggregate and asphalt. First the contractor creates a base course of aggregate or crushed stone and native soil. The base course is individually compacted to ninety-five percent (95%) dry density prior to the application of the asphalt. Compaction assures a stable base for the asphalt that reduces the possibility of

settlement. For street systems, 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 these components:



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 for initial repaving followed by the total replacement method for subsequent repaving at Silver Valley.

A variety of repairs are necessary to deteriorated pavement prior to the application of an overlay. The contractor should use a combination of area patching, crack repair and milling before the overlayment. Properly milled pavement removes part of the existing pavement and permits the overlay to match the elevation of adjacent areas not subject to repaving. Milling also allows the contractor to make adjustments to the slope of the pavement to ensure proper drainage. The contractor should clean the milled pavement to ensure proper bonding of the new overlayment. We recommend an overlayment thickness that averages 1½ inches (not less than one inch or more than two inches). Variable thicknesses are often necessary to create an adequate slope for proper drainage. The contractor should identify and quantify areas of pavement that require area patching, crack repair and milling to help the Association compare proposed services.

Total replacement requires the removal of all existing asphalt. For area patching, we recommend the contractor use a rectangular saw cut to remove the deteriorated pavement. For larger areas such as entire parking areas or driveways, we recommend the contractor grind, mill or pulverize the existing pavement to remove it. The contractor should then augment and compact the existing aggregate and native soil to create a stable base. Finally the contractor should install the new asphalt in at least two lifts.



The time of replacement is dependent on the useful life, age and condition of the pavement. The useful life is dependent in part on the maintenance applied to the pavement, the amounts and concentration of auto solvents that penetrate the pavement, the exposure to sunlight and detrimental effects of inclement weather. Silver Valley should repair any isolated areas of deteriorated pavement concurrent with periodic seal coat applications and fund these activities through the operating budget. Based on the condition of the asphalt pavement street, we recommend the Association plan for milling and overlayment of the pavement with area patching of up to twenty-five percent (25%) by 2018. We depict this information on Line Item 4.040 of *Reserve Expenditures*. We recommend the Association plan for total replacement by 2038. We depict this information on Line Item 4.045 of *Reserve Expenditures*. Failure to conduct pavement area patching and repaving near term will result in a decreased useful life of the pavement and potentially lead to full depth replacement for the entire pavement.

**Catch Basins** - The 20 catch basins collect storm water from the streets and conduct it into the storm water system. The overall condition of the catch basins is fair with minor settlement visually apparent.



**Catch basin with minor settlement**



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.

The Association should anticipate the occasional displacement or failure of a catch basin and the surrounding pavement from erosion. Erosion causes settlement around the collar of catch basins. Left unrepaired, the entire catch basin will shift and need replacement. The exact times and amount of capital repairs or replacements are dependent upon variable natural forces. Based on the age and condition of the catch basins, we recommend the Association anticipate the inspection, capital repair or partial replacement of up to seven catch basins by 2023 and every six years thereafter. We include this information on Line Item 4.100 of *Reserve Expenditures*.

**Concrete, Flatwork** - The Association maintains various applications of concrete flatwork. These applications of concrete have useful lives of up to 65 years although isolated deterioration of limited areas of concrete is common. Inclement weather, inadequate subsurface preparation and improper concrete mixtures or finishing techniques can result in premature deterioration such as settlement, chips, cracks and spalls. Variable conditions like these result in the need to plan for periodic partial replacements of the concrete flatwork throughout the next 30 years. We comment on the respective quantities, conditions and times of partial replacements of concrete flatwork in the following sections of this narrative.

*Concrete Driveways* - Concrete driveways of varying sizes and configurations allow for access to the individual residences throughout the Association. The driveways are in fair overall condition and comprise approximately 38,700 square feet. We note cracks, settlement and partial replacements.



**Concrete driveway near Mulberry Lane**



**Concrete driveway settlement**



**Concrete driveway cracks and partial replacements near Unit 86**

We estimate that up to approximately 11,620 square feet of concrete driveways, or thirty percent (30%) of the total, will require replacement during the next 30 years. We advise the Association budget for the replacement of up to approximately 1,660 square feet by 2023, followed by a steadily increasing rate of replacement as the driveways continue to age.

Line Item 4.120 of *Reserve Expenditures* notes our estimate of future costs and anticipated times of replacements. We base our estimate of replacement on five-inch

thick, 3,000 pounds per square inch (PSI) concrete with 6x6 - W1.4xW1.4 steel reinforcing mesh.

*Concrete Streets* - The Association maintains approximately 75,500 square feet of concrete at the private streets. The streets are mostly original and in fair overall condition. The Board informs us the Association conducted partial replacement events in 2014 and 2015. In addition, the Board informs us the Association plans to replace all remaining areas with significant deterioration in 2016 and 2017. We note cracks, deterioration, settlement and partial replacements.



**Concrete street partial replacements**



**Concrete street cracks, deterioration and partial replacements**



**Concrete street cracks**



**Concrete street partial replacements**



**Concrete street cracks**



**Concrete street settlement, cracks, deterioration and partial replacements**

Heavy wear from vehicle traffic increases the potential for deterioration. Therefore, concrete streets have a useful life of up to 55 years.

During cold weather, concrete streets contract causing joints to widen which allows for the accumulation of debris. During warm weather, the pavement expands and the joints narrow. Accumulated incompressible debris in the joints produces high compressive stresses at the adjoining faces of the joints. These compressive stresses can cause spalling of the concrete along the joints. In addition, coarse aggregates used in concrete pavement are susceptible to disintegration ("D" cracking) from repeated freeze



and thaw cycles. The disintegration and spalling associated with these stresses typically occurs at open, unsealed pavement joints due to moisture and debris accumulation in the joints. For these reasons, we recommend the Association seal all concrete street joints to maximize the useful life of the concrete. The Association should fund these expenses through the operating budget.

Following near term replacements in 2016 and 2017, we estimate that an additional 22,645 square feet of concrete streets, or approximately thirty percent (30%) of the total, will require replacement during the next 30 years. We advise the Association budget for the replacement of up to 3,235 square feet of the streets by 2023, followed by a steadily increasing rate of replacement as the streets continue to age. Line Item 4.180 of *Reserve Expenditures* notes our estimate of future costs and anticipated times of replacements. The estimate of cost in 2016 and 2017 reflect costs provided by the Board.

The Association should coordinate the concrete flatwork partial replacements on Line Items 4.120 and 4.180 of *Reserve Expenditures* to maximize the given amount of concrete in a single event. This will permit the use of a single contractor and likely achieve the most economical unit price for the work. The times and costs of these replacements may vary. However, the estimated expenditures detailed in *Reserve Expenditures* are sufficient to budget appropriate reserves.

**Fence, Wood** - Approximately 210 linear feet of wood fence line the north perimeter of the property adjacent to Buildings 3 and 4. The wood fence is in good to fair condition at an age of approximately eight years. The Board informs us the Association plans to stain the fence in 2016 and fund this activity through the operating budget. We note minor organic growth.



**Wood fence with minor organic growth**

Wood fences of this type have useful lives of 15- to 20-years. The Association should anticipate periodic partial replacements due to the non-uniform nature of wood deterioration. Along with these partial replacements, the Association should apply periodic stain applications as needed and fund these activities through the operating budget. We suggest the Association plan for replacement by 2028. We depict this information on Line Item 4.285 of *Reserve Expenditures*.

**Landscape, Partial Replacements** - The Association contains a large quantity of trees, shrubbery and other landscape elements. The Board informs us over approximately 100 trees have been removed since 2013. Replacement of these elements is an ongoing need. Many associations budget for these replacements as normal maintenance. Other associations fund ongoing replacements from reserves. Large amounts of landscape may need replacement due to disease, drought or other forces of nature. The Association may also desire to periodically update the appearance of the community through major improvements to the landscape. The Association currently funds \$3,000 annually for tree trimming and removal through the operating budget. We recommend the Association continue to fund for this work through the operating budget. In consideration of these factors and at the request of the Board, we include an annual

landscape allowance beginning in 2017 to ensure the accumulation of sufficient reserves for partial replacements of the landscape. The times and costs of these replacements may vary. However, we judge the amounts shown on Line Item 4.500 of *Reserve Expenditures* sufficient to budget appropriate reserves.

**Light Poles and Fixtures** - The Association uses 31 light poles and fixtures to illuminate the property. These elements are in fair overall condition at an unknown age. The Board informs us the Association plans to clean and paint the light poles in 2017 and fund these activities through the operating budget. We note light pole lean and rust.



**Light pole and fixture with lean**



**Light pole rust**

Exterior light poles and fixtures have useful lives of up to 25 years. Based on the condition of the light poles and fixtures, the Association should anticipate the need for replacement by 2021 and again by 2045. We note this information on Line Item 4.560 of *Reserve Expenditures*.

**Mailbox Stations** - The Association maintains 13 metal mailbox stations throughout the property that serve the residents of Silver Valley. The mailbox stations are in fair overall condition at an unknown age. The Board informs us the mailbox stations were sanded and



painted in 2014 and these activities were funded through the operating budget. We note mailbox station rust.



**Mailbox station rust**



**Typical mailbox station**

Mailbox stations of this type have useful lives of up to 25 years. Silver Valley should budget for replacement of the mailbox stations by 2020 and again by 2042. We depict this information on Line Item 4.600 of *Reserve Expenditures*. The Association should verify the new mailboxes meet the specifications of the *United States Postal Service*.

**Pipes, Subsurface Utilities** - The Association maintains the subsurface utility pipes throughout the property. The exact amounts and locations of the subsurface utility pipes were not ascertained due to the nature of the underground construction and the non-invasive nature of the inspection. We anticipate a useful life of up to and likely beyond 85 years. At this time, we do not anticipate replacement of continuous lengths of subsurface utility pipes. Rather, we recommend Silver Valley budget for repairs to isolated occurrences of breached utilities. For budgetary purposes, we include an allowance for possible replacement of a limited quantity of the subsurface utility pipes by 2035 and again by 2044. We note this information on Line Item 4.650 of *Reserve Expenditures*.

Although it is likely that the times of replacement and extent of repair costs may vary from the budgetary allowance, Silver Valley could budget sufficient reserves for these utility repairs 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 repairs to budget sufficient reserves.

**Pond** - The Association funds fifty percent (50%) of the maintenance costs for the retention pond south of Mulberry Lane. The remaining maintenance costs are funded by the neighboring association. The health or condition of a pond is reflected in the clarity of the water, balance of plant life, the ability of the water to retain life giving gases and the health of the fish in larger bodies of water. Three factors which affect the health of ponds are erosion, buildup of silt and algae blooms. We note erosion along the northeast perimeter of the pond.



**Pond overview**



**Pond shoreline rip rap**



**Pond shoreline with minor erosion**

We include the following solutions and procedures as a summary of the minimum requirements for successful pond management for present and future board members.

Eutrophication is a process in which a pond becomes shallower and more biologically productive. Human or animal activity often increases the rate of eutrophication. Erosion and storm water deposit fines or silt into the pond and affect the rate of eutrophication. The amount and intensity of rainfall, soil saturation levels and ground cover all affect the amount of deposits into the pond. Run-off from construction excavations is another contributor to changes in the depth of the pond. Lawn fertilizers are another source of nutrients that contribute to eutrophication. Fertilizers often contain nitrogen and phosphorous which exacerbate nutrient loads into the water system. We advise that Silver Valley consider the use of fertilizers with low or no phosphorus content for areas adjacent to the pond.

Another method to slow eutrophication is the use of algae-killing chemical treatments. Introduction of metal compounds, such as copper sulfate, to the water renders the nutrients inactive to the algae. If necessary, we recommend the Association fund the use of chemical



treatments to control algae growth in the pond through the operating budget. The Association should first obtain all permits necessary for the use of chemical treatments.

There are several methods with which the Association can manage the pond and limit algae blooms and slow the eutrophication process. We discuss each management method below.

*Aeration* - The use of small pumps, motors and aerators circulates pond water and increases the amount of entrained oxygen in the water, increasing water quality and reducing algae growths. Silver Valley utilizes one aerator. The aerator was installed in 2013 and is in satisfactory condition. Aerators have a useful life of 10- to 15-years. We recommend the Association replace the aerator as normal maintenance through the operating budget.

*Erosion Control* - The pond shoreline consists of approximately 525 linear feet of natural vegetation and stone rip rap. Shorelines are subject to fluctuations in water levels, increased plant growth and migrating storm and ground water resulting in the need for erosion control measures up to every 15 years. The use and maintenance of landscape, natural vegetation and/or stone rip rap along the pond shoreline will help maintain an attractive appearance and prevent soil erosion.

We recommend that the Association plan to augment the existing stone rip-rap in a four-foot high band around the pond by 2020 and every 13 years thereafter. We note this information on Line Item 4.710 of *Reserve Expenditures*.

The above management methods will help to maintain the pond and potentially reduce more costly future maintenance expenditures.

**Retaining Walls, Timber** - The Association maintains retaining walls throughout the property which comprise approximately 2,970 square feet of wood timbers. The Board informs us three retaining walls were removed within the last two years and the landscape at these locations was regraded and mulched as a low cost alternative. The remaining retaining walls are likely original and in fair to poor condition. We note timber retaining wall lean, organic growth, displacement, cracks, rot and damage.



**Typical timber retaining wall with lean and organic growth**



**Retaining wall between Buildings 3 and 4 with cracks and displacement**



**Timber retaining wall lean, rot, cracks and organic growth**



**Timber retaining wall damage, lean, board rot, cracks and organic growth**



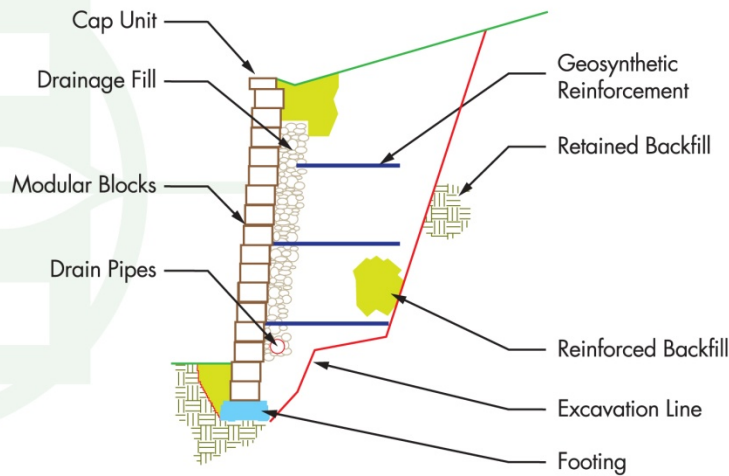
**Timber retaining wall lean, rot, organic growth and cracks**



**Timber retaining wall lean, rot, cracks and organic growth**

Timber retaining walls have a useful life of 15- to 20-years. The Board informs us the Association is considering replacement of the timber retaining walls with an alternative wall system. We recommend the Association consult with a qualified professional geotechnical engineer to determine an alternative retaining wall system. Based on our experience and our non-invasive visual inspection of the existing timber retaining walls, we advise Silver Valley consider replacement with a modular, interlocking dry-set masonry retaining wall system. The following schematic depicts this type of retaining wall:

### MASONRY RETAINING WALL DETAIL



© Reserve Advisors, Inc.

The cost of dry-set masonry retaining walls is similar to the cost of timber walls. However, dry-set masonry retaining walls offer a longer useful life of up to 35 years and lower total maintenance costs. Another replacement material for timber retaining walls under approximately five-feet in height is stone. Stone retaining walls, when installed properly and with proper drainage can have a long useful life. However, problems can occur with stone



retaining walls resulting from the lack of stability of this type of system on steep embankments. Poor drainage of stone retaining walls can potentially cause settlement and wall displacement over time, leading to premature total replacement. Without adequate drainage and a proper tieback system to reinforce stone retaining walls, the surrounding area will exhibit accelerated erosion from storm water runoff over time. In consideration of these factors, we recommend phased replacement of the timber retaining walls with masonry retaining walls beginning in 2017 and concluding by 2019. We include this information on Line Item 4.763 of *Reserve Expenditures*. Future updates to this Reserve Study will consider changes in replacement material or addition of retaining walls.

Additionally, for the benefit of current and future Board members, we include a cost analysis, based on the total quantity 2,970 square feet, which compares the future costs of replacement with timber versus replacement with masonry.

<b>Retaining Wall Material</b>	<b>Masonry</b>	<b>Timber</b>
Cost in 2016 Dollars	\$151,470	\$151,470
Divided by its Useful Life (Years)	35	20
Equals Cost of Ownership <sup>1</sup> Relating to Eventual Replacement, in 2016 Dollars	\$4,328	\$7,574
<b>Total Annual Cost of Ownership (2016 dollars)</b>	<b>\$4,328</b>	<b>\$7,574</b>

<sup>1</sup> Cost of Ownership is a method to describe the direct and indirect costs to purchase and maintain an element through its entire useful life.

Our life cycle cost analysis determined that replacement with masonry retaining walls results in the lowest cost of ownership. The annual cost of ownership is \$4,328 for masonry.

This contrasts with \$7,574 for timber. The Association should consider the aesthetic advantages and disadvantages of each material.

**Signage, Renovation** - The Association maintains five wood and four painted concrete property and unit identification signs throughout the community. The Board informs us the signs were painted and cleaned in 2014. The signage is likely original and in fair overall condition.



**Wood property identification signage**



**Wood street and unit identification signage**



**Concrete unit identification signage with cracks**

The functional useful life of these signs is from 15- to 20-years. Community signage contributes to the overall aesthetic appearance of the property to owners and potential buyers. Renovation or replacement of community signs is often predicated upon the desire to "update"





the perceived identity of the community rather than for utilitarian concerns. Therefore, the specific times for replacement or renovation are discretionary. Based on the condition of the signage, we recommend the Association plan for renovations by 2025 and again by 2045. Renovation should include the following work:

- Paint finish applications and repairs to the four painted concrete signs
- Replacement of the five wood signs

We note this information on Line Item 4.800 of *Reserve Expenditures*. The Association should fund interim repairs and replacements through the operating budget.

### **Reserve Study Update**

An ongoing review by the Board and an Update of this Reserve Study in two- to three-years 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. 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.

Silver Valley 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 Homeowners 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<sup>1</sup> set forth by the Community Associations Institute (CAI) and the Association of Professional Reserve Analysts (APRA) fulfilling the requirements of a "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:

<sup>1</sup> Identified in the APRA "Standards - Terms and Definitions" and the CAI "Terms and Definitions".



<b>Information Furnished by the Association</b>	
2016 unaudited Cash Status of the Reserve Fund	246,163
2016 Remaining Budgeted Reserve Contribution	38,862
Anticipated Interest on Reserve Fund	2,530
Less Anticipated Reserve Expenditures	(31,500)
Projected 2016 Year-End Reserve Balance	\$256,055

The Cash Flow Method to compute, project and illustrate the 30-year Reserve Funding Plan

Local<sup>2</sup> 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 Munroe Falls, Ohio at an annual inflation rate of 2.5%. Isolated or regional 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 Silver Valley and their effects on remaining useful lives

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.

The anticipated effects of appreciation of the reserves over time in accord with an anticipated future return or yield on investment of your cash equivalent assets at an annual rate of 1.35% (We did not consider the costs, if any, of Federal and State Taxes on income derived from interest and/or dividend income).

Interest rates on reserves are steady or increasing in concert with the certificates of deposit and money market rates. Slight increases exist in the savings rates of one, two or three-year CDs. Without significant differences in these savings rates, shorter term investments are the choice of many investors. We recommend consultation with a professional investment adviser before investing reserves to determine an appropriate investment strategy to maximize a safe return on reserve savings. The following

<sup>2</sup> See Credentials for addition information on our use of published sources of cost data.



table summarizes rates of inflation and key rates for government securities, generally considered as safe investment alternatives.

Interest Rate and Inflation Data	2014				2015			
	2014:1 (A)	2014:2 (A)	2014:3 (A)	2014:4 (A)	2015:1 (A)	2015:2 (A)	2015:3 (A)	2015:4 (E)
Average or Last Actual = (A)								
1-Year Treasury Bill	0.13%	0.15%	0.13%	0.01%	0.25%	0.27%	0.30%	0.50%
10-Year Treasury Note	2.80%	2.65%	2.40%	2.25%	1.90%	2.50%	2.70%	2.28%
30-Year Treasury Bond	3.90%	3.50%	3.35%	3.00%	2.55%	3.20%	3.40%	3.05%
Consumer Price Index (annualized rate)	1.50%	2.00%	2.40%	2.60%	0.00%	0.00%	0.00%	0.00%
Residential Construction Producer Price Index-Inflation Rate, Bureau of Labor Statistics (Year over Year Oct. 2015 Showing no meaningful change )								-0.3%
Savings Rates Results RANGE as found in <a href="http://www.bankrate.com">http://www.bankrate.com</a>	0.05 to 1.10% Money Market Savings				0.65 to 1.53% for 2-Year Certificate of Deposit			
	0.65 to 1.35% 1-Year Certificate of Deposit				0.9 to 1.35% for 3-Year Certificate of Deposit			
Estimated Near Term Yield Rate for Reserve Savings . . . . .					1.35%			
Est. Near Term Local Inflation Rate for Future Capital Expenditures . . . . .					2.5%			
					<b>11/13/2015</b>			

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



## 6. 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 Silver Valley 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) Silver Valley 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.



## 7. PROFESSIONAL SERVICE CONDITIONS

**Our Services** - Reserve Advisors, Inc. will perform its services as an independent contractor in accordance with our professional practice standards. Our compensation is not contingent upon our conclusions.

Our inspection and analysis of the subject property is limited to visual observations and is noninvasive. We will inspect sloped roofs from the ground. We will inspect 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 our observation. Conditions can change between the time of inspection and the issuance of the report. Reserve Advisors does not investigate, nor assume any responsibility for any existence or impact of any hazardous materials, structural, latent or hidden defects which may or may not be present on or within the property. 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.

We assume, without independent verification, the accuracy of all data provided to us. 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. Your obligation for indemnification and reimbursement shall extend to any controlling person of Reserve Advisors, Inc., including any director, officer, employee, affiliate, or agent. Liability of Reserve Advisors, Inc. 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** - Reserve Advisors, Inc. will complete the services in accordance with the Proposal. The Report represents a valid opinion of our findings and recommendations and is deemed complete. However, we will consider any additional information made available to us in the interest of promptly issuing a Revised Report if changes are requested within six months of receiving the Report. We retain the right to withhold a Revised Report if payment for services is not rendered in a timely manner. All files, work papers or documents developed by us during the course of the engagement remains our property.

**Your Obligations** - You agree to provide us access to the subject property during our on-site visual inspection and tour. You will provide to us to the best of your ability and if reasonably available, historical and budgetary information, the governing documents, and other information that we request and deem necessary to complete our Study. You agree to pay our actual attorneys' fees and any other costs incurred in the event we have to initiate litigation to collect on any unpaid balance for our services.

**Use of Our Report and Your Name** - Use of this Report is limited to only the purpose stated herein. Any use or reliance for any other purpose, by you or third parties, is invalid. Our Reserve Study Report in whole or part is not and cannot be used as a design specification, design engineering services or an appraisal. You may show our report in its entirety to those third parties who need to review the information contained herein. The Client and other third parties viewing this report should not reference our name or our report, in whole or in part, in any document prepared and/or distributed to third parties without our written consent. *This report contains intellectual property developed by Reserve Advisors, Inc. specific to this engagement and cannot be reproduced or distributed to those who conduct reserve studies without the written consent of Reserve Advisors, Inc.*



We reserve the right to include our client's name in our client lists, but we will maintain the confidentiality of all conversations, documents provided to us, and the contents of our reports, subject to legal or administrative process or proceedings. These conditions can only be modified by written documents executed by both parties.

**Payment Terms, Due Dates and Interest Charges** - The retainer payment is due upon authorization and prior to shipment of the report. The final payment of the fee is due immediately upon receipt of the Report. Subsequent changes to the report can be made for up to six months from the initial report date. Any outstanding balance after 30 days of the invoice date is subject to an interest charge of 1.5% per month. Any litigation necessary to collect an unpaid balance shall be venued in Milwaukee County Circuit Court in the State of Wisconsin.

#### **CONDITIONS OF OUR SERVICE ASSUMPTIONS**

To the best of our knowledge, all data set forth in this report are true and accurate. Although gathered from reliable sources, we make no guarantee nor assume liability for the accuracy of any data, opinions, or estimates identified as furnished by others that we used in formulating this analysis.

We did not make any soil analysis or geological study with this report; nor were any water, oil, gas, coal, or other subsurface mineral and use rights or conditions investigated.

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.

We have made a visual inspection of the property and noted visible physical defects, if any, in our report. Our inspection and analysis was made by employees generally familiar with real estate and building construction; however, we did not do any invasive testing. Accordingly, we do not opine on, nor are we responsible for, the structural integrity of the property including its conformity to specific governmental code requirements, such as fire, building and safety, earthquake, and occupancy, or any physical defects that were not readily apparent during the inspection.

Our opinions of the remaining useful lives of the property elements do not represent a guarantee or warranty of performance of the products, materials and workmanship.





## 8. CREDENTIALS

### HISTORY AND DEPTH OF SERVICE

**Founded in 1991**, Reserve Advisors, Inc. 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 principals are founders of Community Associations Institute's (CAI) Reserve Committee that developed national standards for reserve study providers. One of our principals 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. Each Team Review requires the attendance of several engineers, a Review Coordinator, Director of Quality Assurance and other participatory peers. 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 the 2,600,000-square foot 98-story Trump International Hotel and Tower in Chicago. 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.

**QUALIFICATIONS**  
**THEODORE J. SALGADO**  
**Principal Owner**

**CURRENT CLIENT SERVICES**

Theodore J. Salgado is a co-founder of Reserve Advisors, Inc., which is dedicated to serving community associations, city and country clubs, religious organizations, educational facilities, and public and private entities throughout the United States. He is responsible for the production, management, review, and quality assurance of all reserve studies, property inspection services and consulting services for a nationwide portfolio of more than 6,000 clients. Under his direction, the firm conducts reserve study services for community associations, apartment complexes, churches, hotels, resorts, office towers and vintage architecturally ornate buildings.



**PRIOR RELEVANT EXPERIENCE**

Before founding Reserve Advisors, Inc. with John P. Poehlmann in 1991, Mr. Salgado, a professional engineer registered in the State of Wisconsin, served clients for over 15 years through American Appraisal Associates, the world's largest full service valuation firm. Mr. Salgado conducted facilities analyses of hospitals, steel mills and various other large manufacturing and petrochemical facilities and casinos.

He has served clients throughout the United States and in foreign countries, and frequently acted as project manager on complex valuation, and federal and state tax planning assignments. His valuation studies led to negotiated settlements on property tax disputes between municipalities and property owners.

Mr. Salgado has authored articles on the topic of reserve studies and facilities maintenance. He also co-authored *Reserves*, an educational videotape produced by Reserve Advisors on the subject of Reserve Studies and maintaining appropriate reserves. Mr. Salgado has also written in-house computer applications manuals and taught techniques relating to valuation studies.

**EXPERT WITNESS**

Mr. Salgado has testified successfully before the Butler County Board of Tax Revisions in Ohio. His depositions in pretrial discovery proceedings relating to reserve studies of Crestview Estates Condominium Association in Wauconda, Illinois, Rivers Point Row Property Owners Association, Inc. in Charleston, South Carolina and the North Shore Club Associations in South Bend, Indiana have successfully assisted the parties in arriving at out of court settlements.

**EDUCATION** - Milwaukee School of Engineering - B.S. Architectural Engineering

**PROFESSIONAL AFFILIATIONS/DESIGNATIONS**

American Association of Cost Engineers - Past President, Wisconsin Section  
Association of Construction Inspectors - Certified Construction Inspector  
Association of Professional Reserve Analysts - Past President & Professional Reserve Analyst (PRA)  
Community Associations Institute - Member and Volunteer Leader of multiple chapters  
Concordia Seminary, St. Louis - Member, National Steering Committee  
Milwaukee School of Engineering - Member, Corporation Board  
Professional Engineer, Wisconsin (1982) and North Carolina (2014)

Ted continually maintains his professional skills through American Society of Civil Engineers, ASHRAE, Association of Construction Inspectors, and continuing education to maintain his professional engineer licenses.



**JOHN P. POEHLMANN, RS**  
**Principal**

John P. Poehlmann is a co-founder of Reserve Advisors, Inc. He is responsible for the finance, accounting, marketing, and overall administration of Reserve Advisors, Inc. He also regularly participates in internal Quality Control Team Reviews of Reserve Study reports.



Mr. Poehlmann directs corporate marketing, including business development, advertising, press releases, conference and trade show exhibiting, and electronic marketing campaigns. He frequently speaks throughout the country at seminars and workshops on the benefits of future planning and budgeting for capital repairs and replacements of building components and other assets.

**PRIOR RELEVANT EXPERIENCE**

Mr. Poehlmann served on the national Board of Trustees of Community Associations Institute. An international organization, Community Associations Institute (CAI) is a nonprofit 501(c)(3) trade association created in 1973 to provide education and resources to America's 335,000 residential condominium, cooperative and homeowner associations and related professionals and service providers.

He is a founding member of the Institute's Reserve Committee. The Reserve Committee developed national standards and the Reserve Specialist (RS) Designation Program for Reserve Study providers. Mr. Poehlmann has authored numerous articles on the topic of Reserve Studies, including Reserve Studies for the First Time Buyer, Minimizing Board Liability, Sound Association Planning Parallels Business Concepts, and Why Have a Professional Reserve Study. He is also a contributing author in Condo/HOA Primer, a book published for the purpose of sharing a wide background of industry knowledge to help boards in making informed decisions about their communities.

**INDUSTRY SERVICE AWARDS**

- CAI Wisconsin Chapter Award
- CAI National Rising Star Award
- CAI Michigan Chapter Award

**EDUCATION**

- University of Wisconsin-Milwaukee - Master of Science Management
- University of Wisconsin - Bachelor of Business Administration

**PROFESSIONAL AFFILIATIONS**

- Community Associations Institute (CAI)** - Founding member of Reserve Committee; former member of National Board of Trustees; Reserve Specialist (RS) designation; Member of multiple chapters
- Association of Condominium, Townhouse, & Homeowners Associations (ACTHA)** – member



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

**CURRENT CLIENT SERVICES**

Alan M. Ebert, a Professional Engineer, is 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 hundreds 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 2012

*Reserve Specialist (RS)* - Community Associations Institute

*Professional Reserve Analyst (PRA)* - Association of Professional Reserve Analysts



**LOUISE L. HEFFERNAN, RS**  
**Responsible Advisor**

**CURRENT CLIENT SERVICES**

Louise L. Heffernan, a Biosystems and Bioproducts Engineer, is an Advisor for Reserve Advisors. Ms. Heffernan is responsible for the inspection and analysis of the condition of clients' property, and recommending engineering solutions to prolong the lives of the components. She also forecasts capital expenditures for the repair and/or replacement of the property components and prepares technical reports on assignments. She is responsible for conducting Life Cycle Cost Analysis and Capital Replacement Forecast services and the preparation of Reserve Study Reports for condominiums, townhomes and homeowners associations. Ms. Heffernan frequently serves as the Quality Assurance Review Coordinator for all types of developments.

The following is a partial list of clients served by Louise Heffernan demonstrating her breadth of experiential knowledge of community associations in construction and related buildings systems.

**Heritage Glen Condominium Association, Inc.** This quiet wooded community of 121 condominiums in 43 buildings is located in the historic and charming town of Simsbury, Connecticut. The buildings were constructed in the late 1960's. The community features private asphalt pavement streets, detached garages, a clubhouse, pool, retaining walls and ponds.

**Oviedo Forest Master Homeowners' Association, Inc.** Located in Oviedo, Florida, this Association maintains the common elements shared by 125 single family homes in both gated and non-gated communities. The buildings were built from 2006 to 2014. The development contains asphalt pavement streets, playground equipment, ponds and retaining walls.

**Heritage Place Condominium Association** Located in the heart of Kentucky's Bluegrass Region in Lexington, Kentucky, this condominium style development contains 120 units in 30 buildings. The exteriors of the buildings comprise brick veneer, vinyl siding and asphalt shingle roofs. The buildings were built from 2000 to 2003. The property contains asphalt pavement streets, concrete flatwork and retaining walls.

**Hanover Homeowners Association** This townhome style development located in Houston, Texas is comprised of 148 units in 41 buildings. The exteriors of the buildings comprise fiber cement siding and asphalt shingle roofs. The buildings were constructed from 2006 to 2014. The development contains concrete flatwork, fences, a pool house and pool.

**Hidden Terrace Townhomes Association** Nestled among the rolling terrain of Plymouth, Minnesota, this townhome style development consists of 32 units in 16 buildings. The buildings were built from 2003 to 2006. The exteriors of the buildings comprise wood balconies and porches, asphalt shingle roofs and vinyl siding. The Association is responsible for asphalt pavement driveways, concrete sidewalks and stone retaining walls.

**Woodcliff Carriage Homes** Situated east of Saint Paul, Minnesota this condominium style development of 56 units in seven buildings is located in the valleys of Woodbury, Minnesota. These carriage homes were built in the early 1980's. The exteriors of the buildings comprise aluminum siding and asphalt shingle roofs. The community includes asphalt pavement streets and parking areas, and concrete flatwork.

**PRIOR RELEVANT EXPERIENCE**

Before joining Reserve Advisors, Ms. Heffernan attended the University of Minnesota in Minneapolis, Minnesota, where she attained her Bachelor of Science degree in Biosystems and Bioproducts Engineering. Her studies focused on environmental engineering and water resources. At the University of Minnesota, Ms. Heffernan worked as a Research Assistant for the Biosystems and Bioproducts Engineering department where she supervised projects in the fields of hydrology, soil science and agricultural engineering. Before joining *Reserve Advisors*, Ms. Heffernan worked with Metropolitan Council analyzing water treatment processes.

**EDUCATION**

University of Minnesota, Twin-Cities - B.S. Biosystems and Bioproducts Engineering

**PROFESSIONAL AFFILIATIONS**

*Reserve Specialist (RS)* - Community Associations Institute



**NATHAN A. ESTREM, E.I.T., RS**  
**Review Coordinator**

**CURRENT CLIENT SERVICES**

Nathan A. Estrem, a Civil Engineer, is an Advisor for Reserve Advisors, which is dedicated to serving community associations, religious organizations, educational facilities, and public and private entities throughout the United States. Mr. Estrem is responsible for the inspection and analysis of the property's current condition, recommending engineering solutions to prolong the lives of building components, forecasting capital expenditures for the repair and/or replacement of the property components, and technical report preparation on assignments. He is responsible for conducting Life Cycle Cost Analysis and Capital Replacement Forecast Services on townhomes, homeowners associations and planned unit developments.

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

**Old Shakopee Park South** is a 64 unit condominium building situated in Bloomington, Minnesota a suburbs of Minneapolis, this development includes a multitude of amenities ranging from underground parking, an indoor and outdoor pool, elevators, party rooms, a fitness center, a guest suite and manager suite, as well as tennis courts, walking trails and a pond.

**Upper Landing Urban Village** Situated along the Mississippi River front in the Lower Town neighborhood of St. Paul, Minnesota, Upper Landing Urban Village is the master association for seven other condominium associations and comprises the main site elements of the mixed use development. The development includes decorative fencing, retaining walls, playgrounds and river-walk trails along the waterfront.

**Lourdes Square Townhomes** A 40-unit residential development in Minneapolis, Minnesota. This property was developed from 1994 to 1995 at the site of a former bottling plant in downtown Minneapolis. Its row style, brick masonry exterior and gated access with high-end site features adds aesthetic appeal to the west-bank neighborhood of downtown.

**Daniel Boone Area School District** A municipal school district located in Birdsboro and Monocacy Pennsylvania. Comprised of six schools, an administrative building and transition house, the buildings ranged in age from 5-to 85-years and comprise many complicated mechanical systems to include geothermal and pneumatic heating systems. There is also an outdoor stadium complete with turf and a press-box.

**Liberty on Bluff Creek Associations** Liberty on Bluff Creek is a development in Chanhassen, Minnesota and is comprised of two condominium associations, a townhome association and a master association. Combined, they comprise 415 units in 73 buildings with four separate building styles. In addition to the common exterior and interior building elements, the development includes street systems, walking trails, retaining walls, an outdoor pool, pool house and an intricate storm water control system.

**PRIOR RELEVANT EXPERIENCE**

Before joining Reserve Advisors, Mr. Estrem worked as a civil engineer with an environmental engineering firm. He was responsible for civil design, construction oversight and construction inspection on a variety of environmental engineering projects ranging from industrial landfills to groundwater remediation systems. His day to day activities included conducting meetings with clients and contractors, completing detailed construction specifications, developing and reviewing construction plans, maintaining project databases and drafting government compliance reports for a variety of municipal, state and federal facility permits.

**EDUCATION**

University of Minnesota - B.C.E. Civil Engineering

**PROFESSIONAL AFFILIATIONS**

*Engineer in Training (E.I.T.)MN* - Minnesota Board of Architecture, Engineering, Land Surveying  
Landscape Architecture, Geoscience and Interior Design (AELSLAGID)  
*Reserve Specialist (RS)* - Community Associations Institute



## RESOURCES

Reserve Advisors, Inc. 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](http://www.iami.org). Several advisors and a Principal of Reserve Advisors, Inc. hold Senior Memberships with ACI.

**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](http://www.ashrae.org). Reserve Advisors, Inc. 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.msbinfo.com](http://www.msbinfo.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](http://www.rsmeans.com).

**Reserve Advisors, Inc.**, 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.

# Reserve Study Update

May 19, 2016

The Reserve Study for Silver Valley Condominium, Inc.

Was submitted on .....May 19, 2016

To maintain the most accurate and cost-effective replacement schedule and funding plan for your property elements, this study should be updated on or about .....**Second Quarter, 2018**  
...but no later than.....**Second Quarter, 2019**

As a valued client, we are pleased to offer a future reserve study update with site visit for.....**\$3,700**

For a Reserve Study Update with Site visit as noted above.

**This future update fee is based on the same property components that were contained in your last Reserve Advisors' reserve study or update. We are pleased to include property additions for an additional fee.**

To initiate your Reserve Study Update, please sign this authorization and fax or mail to the number below. Upon receipt of this authorization we will contact you to schedule your site visit and invoice for the Reserve Study Update Service.

Sign this contract below and fax to **414-272-3663**. Or mail to  
Reserve Advisors, Inc.  
735 N. Water St., Suite 175  
Milwaukee, WI 53202

Delivery options for your Reserve Study Update Report, Please check one of the following:

- 1-Full color printed copy PLUS Electronic Report, FREE  
 2-Full color printed copies PLUS Electronic Report, \$100

**For: Reserve Advisors, Inc.**

Signature:  \_\_\_\_\_

Jacquie Martin  
Director of Client Services - Great Lakes  
Region  
Jacque@reserveadvisors.com  
Ref. # 081012  
(800) 221-9882

**For Silver Valley Condominium, Inc.**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

**Agent or Manager:** Renee Hambach

**Management Firm:** Associated Property  
Management