

# FULL RESERVE STUDY

## Eagle Crossing Homeowners' Association



**Brownsburg, Indiana**

**October 18, 2016**



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## TABLE OF CONTENTS

<b>1. RESERVE STUDY EXECUTIVE SUMMARY .....</b>	<b>1.1</b>
<b>2. RESERVE STUDY REPORT .....</b>	<b>2.1</b>
<b>3. RESERVE EXPENDITURES and FUNDING PLAN .....</b>	<b>3.1</b>
<b>4. CONDITION ASSESSMENT.....</b>	<b>4.1</b>
Property Site Elements.....	4.1
Asphalt Pavement, Crack Repair, Patch and Partial Seal Coat.....	4.1
Asphalt Pavement, Repaving, Parking Areas .....	4.3
Asphalt Pavement, Repaving, Walking Paths.....	4.6
Concrete Sidewalks and Play Courts .....	4.8
Fences, Aluminum .....	4.9
Gazebo, HESSIE'S Tree House.....	4.10
Meditation Chapel.....	4.11
Pavilions.....	4.12
Pedestrian Bridges and Stairways.....	4.13
Pedestrian Stairway, Stairway to Character.....	4.14
Playground Equipment.....	4.15
Ponds.....	4.17
Signage.....	4.19
Pool Elements .....	4.21
Concrete Decks .....	4.21
Covers .....	4.23
Furniture.....	4.23
Mechanical Equipment .....	4.24

Pool Finishes, Plaster .....	4.25
Pool Houses, Exterior Renovations .....	4.26
Pool Houses, Interior Renovations .....	4.28
Reserve Study Update.....	4.29
<b>5. METHODOLOGY .....</b>	<b>5.1</b>
<b>6. DEFINITIONS .....</b>	<b>6.1</b>
<b>7. PROFESSIONAL SERVICE CONDITIONS.....</b>	<b>7.1</b>
<b>8. CREDENTIALS.....</b>	<b>8.1</b>

## 1. RESERVE STUDY EXECUTIVE SUMMARY

**Client:** Eagle Crossing Homeowners' Association (Eagle Crossing)

**Location:** Brownsburg, Indiana

**Reference:** 160697

**Property Basics:** Eagle Crossing Homeowners' Association is a homeowners association which is responsible for the common elements shared by 853 single family homes. The development was built in 2003 and contains asphalt pavement, pedestrian bridges and stairways, playgrounds, three ponds, two pools and two pool houses.

**Reserve Components Identified:** 22 Reserve Components.

**Inspection Date:** October 18, 2016.

**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 2028 due to replacement of the fences.

**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
- 1.5% 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.

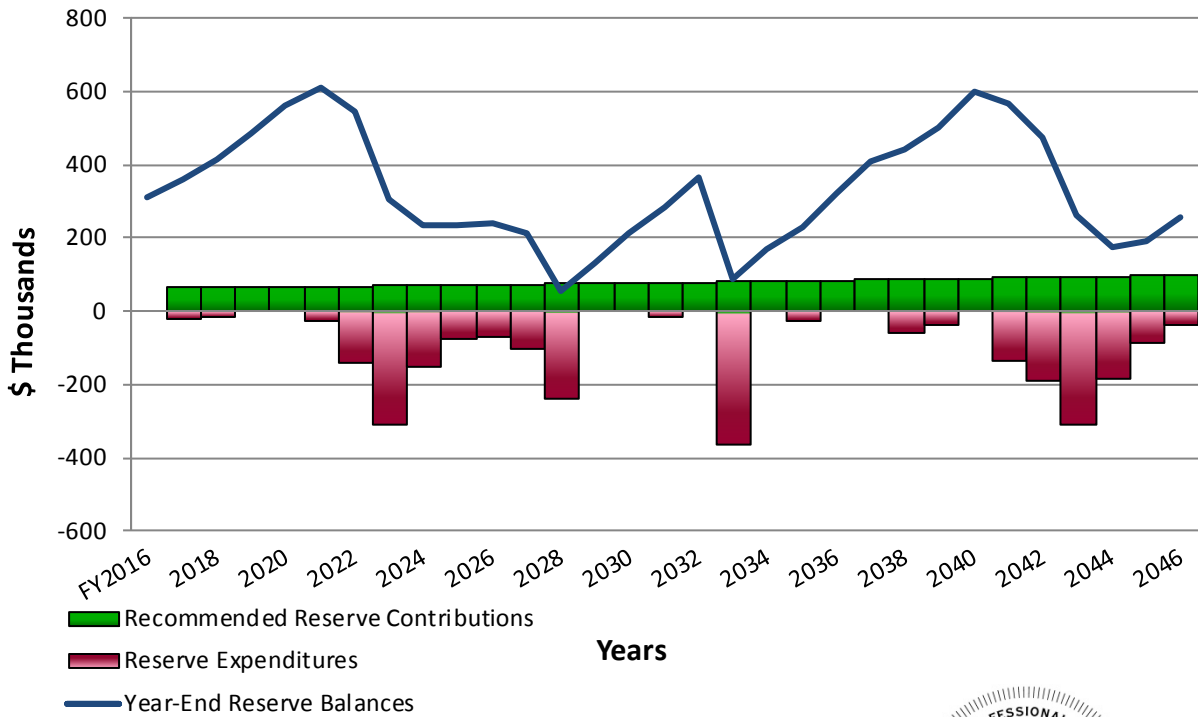
**Cash Status of Reserve Fund:** \$308,243 as of September 30, 2016.

**Recommended Reserve Funding:** The Association did not budget Reserve Contributions in 2016. We recommend the Association adopt a reserve budget of \$64,000 in 2017. 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 \$64,000 represents about a fifteen percent (15.4%) adjustment in the 2016 total Operating Budget of \$415,500. This initial adjustment of \$64,000 is equivalent to an increase of \$6.25 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."

### Eagle Crossing Recommended Reserve Funding Table and Graph

Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)
2017	64,000	357,740	2027	74,400	214,499	2037	86,300	410,886
2018	65,000	414,401	2028	75,500	55,567	2038	87,600	444,151
2019	66,000	486,441	2029	76,600	133,434	2039	88,900	503,845
2020	67,000	560,460	2030	77,700	213,460	2040	90,200	601,456
2021	68,000	609,101	2031	78,900	282,559	2041	91,600	565,696
2022	69,000	543,682	2032	80,100	367,014	2042	93,000	474,216
2023	70,000	307,778	2033	81,300	87,858	2043	94,400	263,657
2024	71,100	233,472	2034	82,500	172,101	2044	95,800	177,619
2025	72,200	233,051	2035	83,700	230,996	2045	97,200	191,780
2026	73,300	241,876	2036	85,000	319,688	2046	98,700	255,496



Respectfully submitted on January 6, 2017 by  
RESERVE ADVISORS, INC.



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<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

### **Eagle Crossing Homeowners' Association**

### **Brownsburg, Indiana**

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, October 18, 2016.

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, includes photographic documentation of the condition of various property elements, describes our recommendations for repairs or replacement, and includes detailed solutions and procedures for replacements for the benefit of current and future board members
- **Methodology** - Lists the national standards, methods and procedures used, 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



Eagle Crossing Homeowners' Association is a homeowners association which is responsible for the common elements shared by 853 single family homes. The development was built in 2003 and contains asphalt pavement, pedestrian bridges and stairways, playgrounds, three ponds, two pools and two pool houses. We identify 22 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 Management. 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:

- Eagle Crossing responsibility
- Limited useful life expectancies
- Predictable remaining useful life expectancies
- Replacement cost above a minimum threshold

Long-Lived Property Elements may not have predictable Remaining Useful Lives or their replacement may occur beyond the 30-year scope of the study. The operating budget should fund infrequent repairs. Funding untimely or unexpected replacements from reserves will necessitate increases to Reserve Contributions. Periodic updates of this Reserve Study will help determine the merits of adjusting the Reserve Funding Plan. We identify the following Long-Lived Property Elements as excluded from reserve funding at this time.

- Electrical Systems, Common
- Foundations, Pool Houses
- Pipes, Interior Building, Domestic Water, Sanitary Waste, Vent, Pool Houses
- Pipes, Subsurface Utilities, Pool Houses
- Pool Structures
- Structural Frames, Common

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 (These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.)
- Landscape
- Paint Finishes, Touch Up
- Ponds, Erosion Control
- Signage
- Volleyball Court, Sand
- Water Heaters, Pool Houses
- Other Repairs normally funded through the Operating Budget

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

Property Maintained by Others relates to:

- Site Lighting (Municipality)
- Street Systems (Municipality)
- Sidewalks Along Streets (Municipality)
- Pond at Main Entrance of Tallgrass Community (Eagle Lake Condominiums)
- Buildings and Site Elements, Eagle Lake Condominiums (Eagle Lake Condominiums)



### 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

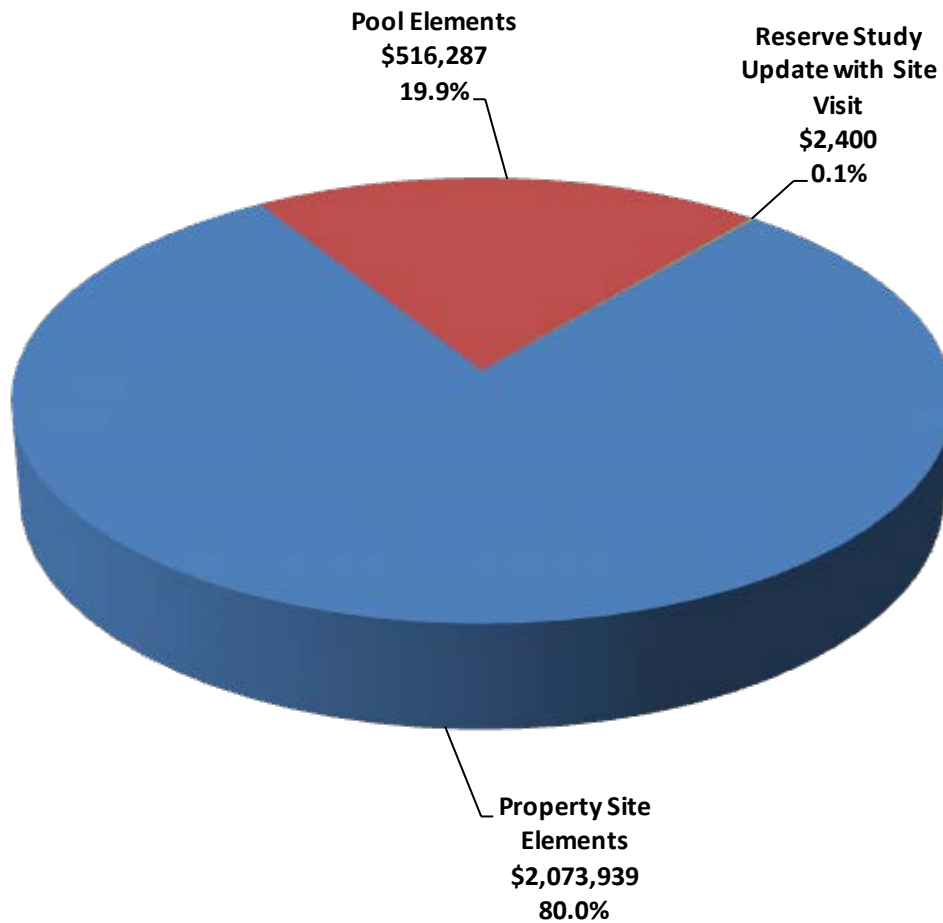
#### **Reserve Funding Plan**

- 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.

**Eagle Crossing**  
Future Expenditures Relative Cost Illustration



# RESERVE EXPENDITURES

Eagle Crossing  
Homeowners' Association  
Brownsburg, Indiana

**Explanatory Notes:**

- 1) **1.5%** 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.

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years		Costs, \$				RUL = 0 FY2016	1 2017	2 2018	3 2019	4 2020	5 2021	6 2022	7 2023	8 2024	9 2025	10 2026	11 2027	12 2028	13 2029	14 2030	15 2031							
						Useful	Remaining	Unit (2016)	Per Phase (2016)	Total (2016)	30-Year Total (Inflated)																							
<b>Property Site Elements</b>																																		
4.020	4,130	4,130	Square Yards	Asphalt Pavement, Crack Repair, Patch and Partial Seal Coat	2018	3 to 5	2	1.10	4,543	4,543	22,267			4,680													5,432							
4.045	1,830	1,830	Square Yards	Asphalt Pavement, Total Replacement, Parking Areas	2023	15 to 20	7	25.50	46,665	46,665	121,546								51,791															
4.080	2,300	2,300	Square Yards	Asphalt Pavement, Total Replacement, Walking Paths	2023	12 to 18	7	36.50	83,950	83,950	214,978								93,171															
4.140	14,700	735	Square Feet	Concrete Sidewalks and Play Courts, Partial	2018	to 65	2 to 30+	8.50	6,248	124,950	46,895			6,436					6,934							7,470								
4.200	4,670	4,670	Linear Feet	Fences, Aluminum	2028	to 25	12	40.00	186,800	186,800	223,341															223,341								
4.360	1	1	Each	Gazebo, Hessie's Tree House	2025	to 25	9	12,000.00	12,000	12,000	13,721															13,721								
4.401	1	1	Each	Meditation Chapel, Renovation	2026	to 25	10	12,000.00	12,000	12,000	13,926															13,926								
4.403	2	2	Each	Pavilions, Renovation	2027	to 25	11	16,000.00	32,000	32,000	37,694															37,694								
4.404	2,030	405	Square Feet	Pedestrian Bridges and Stairways, Wood, Phased	2023	15 to 25	7 to 11	60.00	24,300	121,800	287,549								26,969	27,374	27,784	28,201	28,624											
4.406	1	1	Allowance	Pedestrian Stairway, Stairway to Character, Wood	2024	15 to 25	8	35,500.00	35,500	35,500	93,851															39,990								
4.660	2	2	Each	Playground Equipment, Large Playgrounds	2022	15 to 20	6	65,000.00	130,000	130,000	333,600								142,148															
4.661	4	2	Each	Playground Equipment, Small Playgrounds, Phased	2023	15 to 20	7 to 8	31,000.00	62,000	124,000	325,399									68,810	69,843													
4.730	37,000	7,400	Square Yards	Ponds, Sediment Removal, Partial	2033	to 30	17	29.00	214,600	214,600	276,409																							
4.800	1	1	Allowance	Signage, Renovation	2021	15 to 20	5	25,250.00	25,250	25,250	62,763															27,201								
<b>Pool Elements</b>																																		
6.200	13,820	13,820	Square Feet	Concrete Decks, Inspections, Partial Replacements and Repairs	2025	8 to 12	9	1.50	20,730	20,730	83,134															23,702								
6.300	4,610	4,610	Square Feet	Covers, Vinyl	2017	6 to 8	1	2.00	9,220	9,220	45,154		9,358													10,542								
6.500	1	1	Allowance	Furniture	2026	to 12	10	22,000.00	22,000	22,000	56,058															25,532								
6.600	2	1	Allowance	Mechanical Equipment, Phased	2017	to 15	1 to 8	10,500.00	10,500	21,000	66,351		10,657													11,828	13,127							
6.800	4,140	4,140	Square Feet	Pool Finishes, Plaster	2023	8 to 12	7	11.50	47,610	47,610	185,330									52,840														
6.801	1	1	Allowance	Pool Houses, Exterior Renovations, Complete	2043	to 40	27	20,500.00	20,500	20,500	30,643																							
6.802	1	1	Allowance	Pool Houses, Exterior Renovations, Partial	2023	to 20	7	10,000.00	10,000	10,000	11,098									11,098														
6.850	1	1	Allowance	Pool Houses, Interior Renovations, Complete	2027	to 20	11	32,700.00	32,700	32,700	38,519															38,519								
		1	Allowance	Reserve Study Update with Site Visit	2018	2	2	2,400.00	2,400	2,400	2,400			2,400																				
<b>Anticipated Expenditures, By Year</b>																																		
											\$2,592,626	0	20,015	13,516	0	0	27,201	142,148	311,613	149,035	75,749	67,659	104,837	236,243	0	0	13,127							

## RESERVE EXPENDITURES

Eagle Crossing  
Homeowners' Association  
Brownsburg, Indiana

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years		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	Unit (2016)	Per Phase (2016)	Total (2016)	30-Year Total (Inflated)																				
<u>Property Site Elements</u>																															
4.020	4,130	4,130	Square Yards	Asphalt Pavement, Crack Repair, Patch and Partial Seal Coat	2018	3 to 5	2	1.10	4,543	4,543	22,267	5,851					6,304														
4.045	1,830	1,830	Square Yards	Asphalt Pavement, Total Replacement, Parking Areas	2023	15 to 20	7	25.50	46,665	46,665	121,546											69,755									
4.080	2,300	2,300	Square Yards	Asphalt Pavement, Total Replacement, Walking Paths	2023	12 to 18	7	36.50	83,950	83,950	214,978									121,807											
4.140	14,700	735	Square Feet	Concrete Sidewalks and Play Courts, Partial	2018	to 65	2 to 30+	8.50	6,248	124,950	46,895	8,047					8,669						9,339								
4.200	4,670	4,670	Linear Feet	Fences, Aluminum	2028	to 25	12	40.00	186,800	186,800	223,341																				
4.360	1	1	Each	Gazebo, Hessie's Tree House	2025	to 25	9	12,000.00	12,000	12,000	13,721																				
4.401	1	1	Each	Meditation Chapel, Renovation	2026	to 25	10	12,000.00	12,000	12,000	13,926																				
4.403	2	2	Each	Pavilions, Renovation	2027	to 25	11	16,000.00	32,000	32,000	37,694																				
4.404	2,030	405	Square Feet	Pedestrian Bridges and Stairways, Wood, Phased	2023	15 to 25	7 to 11	60.00	24,300	121,800	287,549											36,324	36,868	37,422	37,983						
4.406	1	1	Allowance	Pedestrian Stairway, Stairway to Character, Wood	2024	15 to 25	8	35,500.00	35,500	35,500	93,851													53,861							
4.660	2	2	Each	Playground Equipment, Large Playgrounds	2022	15 to 20	6	65,000.00	130,000	130,000	333,600										191,452										
4.661	4	2	Each	Playground Equipment, Small Playgrounds, Phased	2023	15 to 20	7 to 8	31,000.00	62,000	124,000	325,399											92,678	94,068								
4.730	37,000	7,400	Square Yards	Ponds, Sediment Removal, Partial	2033	to 30	17	29.00	214,600	214,600	276,409	276,409																			
4.800	1	1	Allowance	Signage, Renovation	2021	15 to 20	5	25,250.00	25,250	25,250	62,763							35,562													
<u>Pool Elements</u>																															
6.200	13,820	13,820	Square Feet	Concrete Decks, Inspections, Partial Replacements and Repairs	2025	8 to 12	9	1.50	20,730	20,730	83,134				27,508										31,924						
6.300	4,610	4,610	Square Feet	Covers, Vinyl	2017	6 to 8	1	2.00	9,220	9,220	45,154	11,876								13,378											
6.500	1	1	Allowance	Furniture	2026	to 12	10	22,000.00	22,000	22,000	56,058							30,526													
6.600	2	1	Allowance	Mechanical Equipment, Phased	2017	to 15	1 to 8	10,500.00	10,500	21,000	66,351							14,569							16,170						
6.800	4,140	4,140	Square Feet	Pool Finishes, Plaster	2023	8 to 12	7	11.50	47,610	47,610	185,330	61,323											71,167								
6.801	1	1	Allowance	Pool Houses, Exterior Renovations, Complete	2043	to 40	27	20,500.00	20,500	20,500	30,643												30,643								
6.802	1	1	Allowance	Pool Houses, Exterior Renovations, Partial	2023	to 20	7	10,000.00	10,000	10,000	11,098																				
6.850	1	1	Allowance	Pool Houses, Interior Renovations, Complete	2027	to 20	11	32,700.00	32,700	32,700	38,519																				
		1	Allowance	Reserve Study Update with Site Visit	2018	2	2	2,400.00	2,400	2,400	2,400																				
<b>Anticipated Expenditures, By Year</b>																															
											\$2,592,626	0	363,506	0	27,508	0	0	60,068	35,562	0	135,185	191,452	309,906	184,797	85,516	37,983					

## RESERVE FUNDING PLAN

### CASH FLOW ANALYSIS

#### Eagle Crossing Homeowners' Association

Brownsburg, Indiana

#### 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)	308,243	309,283	357,740	414,401	486,441	560,460	609,101	543,682	307,778	233,472	233,051	241,876	214,499	55,567	133,434	213,460
Total Recommended Reserve Contributions (Note 2)	0	64,000	65,000	66,000	67,000	68,000	69,000	70,000	71,100	72,200	73,300	74,400	75,500	76,600	77,700	78,900
Plus Estimated Interest Earned, During Year (Note 3)	1,040	4,472	5,177	6,040	7,019	7,842	7,729	5,709	3,629	3,128	3,184	3,060	1,811	1,267	2,326	3,326
Less Anticipated Expenditures, By Year	0	(20,015)	(13,516)	0	0	(27,201)	(142,148)	(311,613)	(149,035)	(75,749)	(67,659)	(104,837)	(236,243)	0	0	(13,127)
Anticipated Reserves at Year End	<u>\$309,283</u>	<u>\$357,740</u>	<u>\$414,401</u>	<u>\$486,441</u>	<u>\$560,460</u>	<u>\$609,101</u>	<u>\$543,682</u>	<u>\$307,778</u>	<u>\$233,472</u>	<u>\$233,051</u>	<u>\$241,876</u>	<u>\$214,499</u>	<u>\$55,567</u>	<u>\$133,434</u>	<u>\$213,460</u>	<u>\$282,559</u>

(NOTE 5)

(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	282,559	367,014	87,858	172,101	230,996	319,688	410,886	444,151	503,845	601,456	565,696	474,216	263,657	177,619	191,780
Total Recommended Reserve Contributions	80,100	81,300	82,500	83,700	85,000	86,300	87,600	88,900	90,200	91,600	93,000	94,400	95,800	97,200	98,700
Plus Estimated Interest Earned, During Year	4,355	3,050	1,743	2,703	3,692	4,898	5,733	6,356	7,411	7,825	6,972	4,947	2,959	2,477	2,999
Less Anticipated Expenditures, By Year	0	(363,506)	0	(27,508)	0	0	(60,068)	(35,562)	0	(135,185)	(191,452)	(309,906)	(184,797)	(85,516)	(37,983)
Anticipated Reserves at Year End	<u>\$367,014</u>	<u>\$87,858</u>	<u>\$172,101</u>	<u>\$230,996</u>	<u>\$319,688</u>	<u>\$410,886</u>	<u>\$444,151</u>	<u>\$503,845</u>	<u>\$601,456</u>	<u>\$565,696</u>	<u>\$474,216</u>	<u>\$263,657</u>	<u>\$177,619</u>	<u>\$191,780</u>	<u>\$255,496</u>

(NOTE 4)

#### Explanatory Notes:

- 1) Year 2016 starting reserves are as of September 30, 2016; FY2016 starts January 1, 2016 and ends December 31, 2016.
- 2) 2017 is the first year of recommended Reserve 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 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.*

##### **Property Site Elements**

**Asphalt Pavement, Crack Repair, Patch and Partial Seal Coat** - Asphalt pavement comprises 4,130 square yards of parking areas and driveways at each of the pool houses and walking paths. The pavement is original and in good to fair overall condition. We note cracks at the parking areas and cracks and deterioration at the walking paths. To maximize the life of the parking area pavement, the Association should plan for seal coat applications and repairs every three- to five-years. These activities reduce water infiltration and the effects of inclement weather. We elaborate on solutions and procedures necessary for the optimal maintenance of asphalt pavement in the following discussion.

We recommend periodic seal coat applications, crack repairs and patching to maintain the pavement. These activities minimize the damaging effects of vehicle fluids, maintain a uniform and positive appearance, and maximize the useful life of the pavement. Asphalt pavement is susceptible to isolated areas of accelerated deterioration in areas that experience freeze-thaw cycles, at the centerlines of streets and at high traffic areas such as intersections. Depressions



often appear at areas where vehicles park such as driveways and parking areas. Isolated areas of depressions, cracks and deterioration indicate the need for crack repairs and patching. The contractor should patch areas that exhibit potholes, alligator or spider web pattern cracks, and areas of pavement that are severely deteriorated from oil and gasoline deposits from parking vehicles. Area patching requires total replacement of isolated areas of pavement. The contractor should mechanically rout and fill all cracks with hot emulsion. Crack repair minimizes the chance of the cracks transmitting through the pavement.

There are four main types of seal coats available: fog coat, acrylic sealer, chip seals and asphaltic emulsion. A fog coat is a simple mixture of water and asphalt. Acrylic sealers include an acrylic additive to the water and asphalt mixture for greater resistance to abrasion. Fog coats and acrylic sealers are typically spray applied and are only for aesthetic purposes. Chip seal is the most substantial type of seal coat which involves placement of oil and aggregate on the driving surface. Either a roller or normal vehicular traffic works the gravel into the oil. Asphaltic emulsions combine a sharp sand mixture or mineral fibers, and an emulsifying agent with the water and asphalt mixture. Asphaltic emulsions are typically hand applied with squeegees to ensure that the sealer fills surface abrasions and minor cracks. This prevents the infiltration of water through cracks into the underlying pavement base. Seal coats therefore minimize the damaging effects of water from expansion and contraction. We regard asphaltic emulsions as the most effective and economical type of seal coat.

Eagle Crossing should repair any isolated areas of deteriorated pavement prior to seal coat applications. Proposals for seal coat applications should include crack repairs and patching. The contractor should only apply seal coat applications after repairs are completed. A seal coat

does not bridge or close cracks, therefore, unrepaired cracks render the seal coat applications useless. Our future estimates of cost include an allowance for repair activities.

Eagle Crossing should budget for crack repairs and patching for all asphalt pavement and seal coat applications at the parking areas by 2018 and subsequent events every five years thereafter except when repaving occurs. Line Item 4.020 of *Reserve Expenditures* notes our estimate of future costs and anticipated times of these activities.

**Asphalt Pavement, Repaving, Parking Areas** - As previously mentioned, asphalt pavement comprises 1,830 square yards of parking areas and driveways at each of the pool houses. The pavement is original and in fair overall condition. We note cracks in the asphalt pavement.



**Parking area overview**



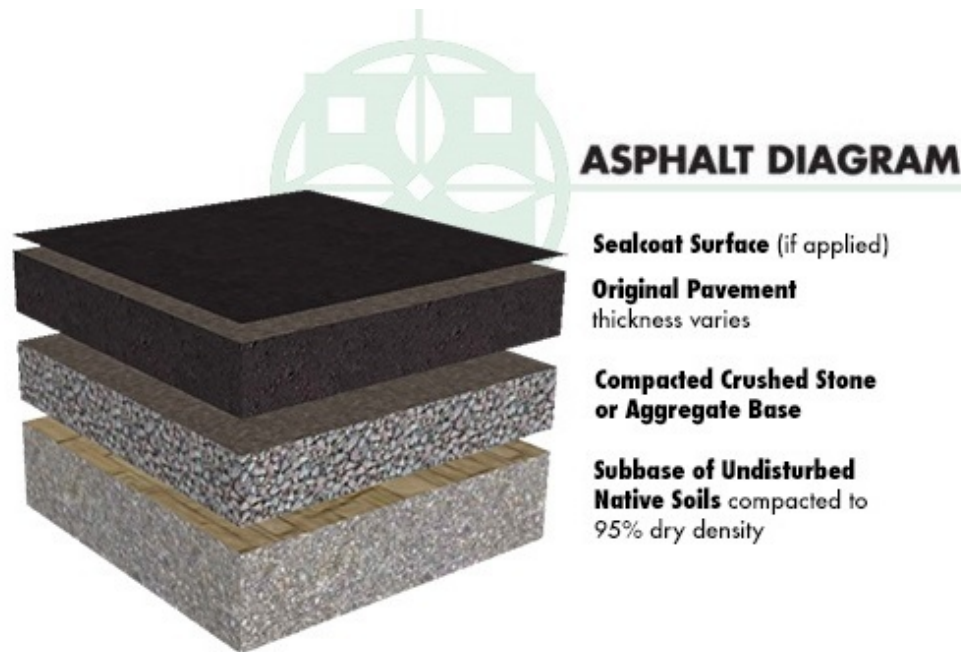
**Asphalt pavement crack**



**Asphalt pavement crack**

The useful life of pavement in Brownsburg 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. The following diagram depicts these components:



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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 total replacement method of repaving at Eagle Crossing.



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. Eagle Crossing should repair any isolated areas of deteriorated pavement concurrent with periodic seal coat applications. We recommend the Association plan for total replacement by 2023 and again by 2043. We depict this information on Line Item 4.045 of *Reserve Expenditures*.

**Asphalt Pavement, Repaving, Walking Paths** - The Association maintains 2,300 square yards of asphalt walking paths along the Monarch Trail and throughout the wooded area in the Silverleaf community. These paths are original and in good overall condition. We note isolated deterioration and cracks.



**Asphalt walking path overview**



**Asphalt walking path deterioration**



**Asphalt walking path cracks**

Walking path asphalt pavement is typically not as thick as parking area or street asphalt pavement. This type of pavement application has the potential for deterioration from tree roots, settlement and development of cracks. The need to maintain a safe pedestrian surface results in a useful life of 12- to 18-years for walking path asphalt pavement. We recommend the Association budget for total replacement by 2023 and again by 2041. We anticipate total replacement is likely to maintain a safe pedestrian walking surface. We include this information on Line Item 4.080 of *Reserve Expenditures*.

**Concrete Sidewalks and Play Courts** - The Association maintains 14,700 square feet of concrete flatwork which includes sidewalks throughout the community and a play court near each pool house. The sidewalks and play courts are in good condition. We note isolated trip hazards and cracks at the sidewalks.



**Concrete sidewalk overview**



**Isolated trip hazard**



**Concrete sidewalk crack and trip hazard**



**Concrete play court**

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 estimate that up to 4,410 square feet of concrete, or thirty percent (30%) of the total, will require replacement during the next 30 years. We recommend the Association budget for replacement of 735 square feet of concrete every five years beginning by 2018. Line Item 4.140 of *Reserve Expenditures* notes our estimate of future costs and anticipated times of replacements. We base our estimate of replacement on four-inch thick, 3,000 psi (pounds per square inch) concrete with 6x6 - W1.4xW1.4 steel reinforcing mesh. The times and costs of these replacements may vary. However, the estimated expenditures detailed in *Reserve Expenditures* are sufficient to budget appropriate reserves. We recommend an annual inspection of the sidewalks to identify potential trip hazards. We suggest the Association grind down or mark these hazards with orange safety paint prior to replacement and fund this ongoing activity through the operating budget.

**Fences, Aluminum** - Approximately 4,670 linear feet of aluminum fences are found at the perimeter of the property and at the pools. The fences are original and in good condition. We note isolated damage at the Tallgrass community pool fence.





**Fence overview**



**Isolated damage at the Tallgrass community pool fence**

The finish on this type of fence is maintenance free and should last the life of the fence. However, light gauge aluminum fences are prone to damage from pedestrians in high traffic areas, such as near sidewalks and surrounding pool decks. We estimate a useful life of up to 25 years for the aluminum fences and recommend the Association budget for replacement by 2028. We include this information on Line Item 4.200 of *Reserve Expenditures*.

**Gazebo, Hessie's Tree House** - The Association maintains Hessie's Tree House, a gazebo, in the Silverleaf community. Hessie's Tree House is original and in good condition. We note isolated damage at the wood railings.



**Hessie's Tree House**



**Railing damage**

Wood structures exposed to weather have a useful life of up to 25 years with periodic maintenance. We recommend Eagle Crossing budget for replacement by 2025 and budget for paint applications and repairs through the operating budget. We depict this information on Line Item 4.360 of *Reserve Expenditures*.

**Meditation Chapel** - The Association maintains Meditation Chapel in the Silverleaf community. Meditation Chapel is original and in good condition. We note deterioration at the railing posts.



**Meditation Chapel**



**Railing post deterioration**

Wood structures exposed to weather have a useful life of up to 25 years with periodic maintenance. We recommend the Association anticipate the need to renovate Meditation Chapel by 2026. These renovations should include the following activities:

- Replacement of the cedar shake roof
- Replacement of the railings
- Repairs to the concrete deck
- Partial replacement of deteriorated wood components

We depict this information on Line Item 4.401 of *Reserve Expenditures*.

**Pavilions** - The Association maintains two wood frame pavilions near each pool house. The pavilions are original and in good condition. We note cracked concrete and an isolated cracked cap at a masonry column base.



**Pavilion overview**



**Pavilion framing**



**Concrete cracks at pavilion**



**Isolated cracked cap at masonry column base**

Wood structures exposed to weather have a useful life of up to 25 years with periodic maintenance. We recommend the Association anticipate the need to renovate the pavilions by 2027. These renovations should include the following activities:

- Replacement of the asphalt shingle roof
- Partial replacement of deteriorated wood components
- Partial replacement of the concrete floor
- Partial replacement of the masonry veneer at the base of the columns

We depict this information on Line Item 4.403 of *Reserve Expenditures*.

**Pedestrian Bridges and Stairways** - Eagle Crossing maintains approximately 2,030 square feet of wood pedestrian bridges and stairways located throughout the property including along the rustic trails in wooded areas. This quantity excludes the Stairway of Character depicted on Line Item 4.406 of *Reserve Expenditures*. The bridges and stairways are original and in overall good to fair condition.



**Pedestrian bridge at Maxine’s Garden**



**Pedestrian bridge along one of the rustic trails**



**Pedestrian bridge near playground on Split Rock Way**



**Deterioration of railing and deck boards**

These elements have a useful life of 15- to 25-years. We recommend the Association budget for a phased replacement beginning by 2023 and concluding by 2027. A subsequent phased replacement is likely beginning by 2043. We depict this information on Line Item 4.404 of *Reserve Expenditures*. We recommend Eagle Crossing budget for paint applications at the bridge at Maxine’s Garden and any interim repairs through the operating budget.

**Pedestrian Stairway, Stairway to Character** - Eagle Crossing maintains a pedestrian stairway, the Stairway to Character, located in the Silverleaf community. The Stairway to Character is original and in good condition. We note isolated deflection of the sideboards.



**Landing at Stairway to Character**



**Stairway to Character**



**Deflected sideboards at Stairway to Character**

This element has a useful life of 15- to 25-years. We recommend the Association budget for replacement by 2024 and again by 2044. We depict this information on Line Item 4.406 of *Reserve Expenditures*. We recommend Eagle Crossing budget for paint applications and interim repairs through the operating budget.

**Playground Equipment** - The Association maintains six sets of large and small playground equipment. The two sets of large playground equipment are located near each pool house. The remaining four sets of small playground equipment are located throughout the property. The playground equipment includes the following elements:

- Swing sets
- Playsets
- Surface, Wood Chips
- Border, Wood
- Benches
- Trash receptacles

The playground equipment is original and in good condition.



**Large playground overview**



**Small playground overview**

Safety is the major purpose for maintaining playground equipment. We recommend an annual inspection of the playground equipment to identify and repair as normal maintenance loose connections and fasteners or damaged elements. We suggest the Association learn more about the specific requirements of playground equipment at [PlaygroundSafety.org](http://PlaygroundSafety.org). We recommend the use of a specialist for the design or replacement of the playground equipment environment. Playground equipment of this type has a useful life of 15- to 20-years. We recommend replacement of the large playground equipment by 2022 and again by 2042. We recommend a phased replacement of the small playground equipment beginning by 2023 and concluding by 2024 and again beginning by 2043 and concluding by 2044. We include this information on Line Items 4.660 and 4.661 of *Reserve Expenditures*.

**Ponds** - The Association maintains three ponds located in the Tallgrass community that consist of approximately 37,000 square yards of water surface area. 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 minor erosion.



**Pond off of Eastern Range Road**



**Pond off of Split Rock Way**



**Pond off of Memorial Knoll Drive**



**Minor erosion at pond off of Memorial Knoll Drive**

Management does not report any problems with algae blooms. 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 Eagle Crossing consider the use of fertilizers with low or no phosphorus content for areas adjacent to the ponds.

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.

The gradual build-up of natural debris, including tree leaves, branches and silt, may eventually change the topography of areas of the pond. Silt typically accumulates at inlets, outlets and areas of shoreline erosion. Sediment removal of ponds becomes necessary if this accumulation alters the quality of pond water or the functionality of the ponds as storm water management structures. Sediment removal is the optimal but also the most capital intensive method of pond management. Excavation equipment used for sediment removal includes clamshells, draglines and suction pipe lines. Sediment removal can also include shoreline regrading. Regrading includes removal of collapsed and eroded soil, and redefining the shoreline.



We note deciduous trees in the vicinity of the ponds that will deposit leaves in the water during the autumn season. We also note natural vegetation at the perimeter of a portion of the ponds. These conditions suggest the Association should plan for eventual removal of sediment from the decay of seasonal vegetation at the pond perimeters.

Based on the visual condition, adjacent deciduous trees and visibly apparent erosion, we recommend the Association anticipate the need to remove pond sediment every 30 years. For reserve budgeting purposes, we estimate the need to remove twenty-five percent (25%) of the surface area an average depth of one yard. However, the actual volume of material to remove may vary dependent upon an invasive analysis at the time of removal. We conservatively recommend the Association budget for this variable but probable activity by 2033. The time and cost of this maintenance activity may vary. However, we judge the amount shown on Line Item 4.730 of *Reserve Expenditures* sufficient to budget appropriate reserves.

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

**Signage** - The Association maintains large property identification signs at the main entrances of the Silverleaf and Tallgrass communities and identification signs on masonry pillars throughout the property. The signage is original and in good condition. We note settlement of the masonry at the Tallgrass community entrance.



**Large property identification signs at the main entrances**



**Settlement of the masonry at the Tallgrass community entrance**



**Property identification signs at the northern entrances of the Tallgrass community**



**Signage on pillars throughout the property**

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. We recommend the Association plan to renovate the signage by 2021 and again by 2039. Renovation should include the following work:

- Repointing and repairs to the 3,300 square feet of masonry veneer
- Replacement of the concrete signs at the main entrances
- Replacement of the signage on masonry pillars throughout the property

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

### Pool Elements



**Pool house overview (typical)**



**Pool overview (typical)**  
*Note: Pool is covered for the winter*

**Concrete Decks** - Concrete decks surround the pools and comprise approximately 13,820 square feet. The decks are original and in good condition. We note isolated cracks.



**Concrete deck at pool**



**Isolated concrete deck crack**



**Evidence of previous crack repair at deck**

The useful life of a concrete pool deck is up to 60 years. However, we recommend the Association conduct inspections, partial replacements and repairs to the deck every 8- to 12-years.

Inadequate subsurface preparation, improper concrete mixtures, poor finishing techniques, soil movement and water infiltration underneath the concrete deck can cause significant settlement and cracks in the concrete. The pool deck should also be free of trip hazards for the safety of residents and their guests. Management informs us that repairs were completed in 2015. We recommend the Association budget for the following by 2025 and every 10 years thereafter:

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

The times, amounts and related costs of these repairs and replacements may vary. However, we judge the amounts shown on Line Item 6.200 of *Reserve Expenditures* sufficient to budget appropriate reserves.

**Covers** - Vinyl covers protect the pools during the off-season. The 4,610-square feet of covers date to 2006 and are in fair condition.



**Pool cover at large pool**



**Pool cover at baby pool**

The pool covers protect against unlawful entry and liability exposure, keeps the pool clear of unwanted leaves and debris, and protects the pool from harsh conditions during winter. The useful life of the pool covers is from six- to eight-years. We recommend Eagle Crossing anticipate replacement of these covers in 2017 and every eight years thereafter. We depict this information on Line Item 6.300 of *Reserve Expenditures*.

**Furniture** - Associated furniture and fixtures around the pool include the following:

- Chairs (40)
- Lounges (60)
- Tables (8)
- Ladders and life safety equipment (4)

These items date to 2014 and are in good condition.



**Lounges**



**Chairs, tables, and ladder**

Pool furniture has a useful life of up to 12 years. We recommend the Association budget an allowance for replacement of the pool furniture and fixtures by 2026 and every 12 years thereafter. The times and costs of these replacements may vary. However, we judge the amounts shown on Line Item 6.500 of *Reserve Expenditures* sufficient to budget appropriate reserves. We recommend interim re-strapping, refinishing, and other repairs to the furniture as normal maintenance to maximize its useful life.

**Mechanical Equipment** - The pool mechanical equipment comprises the following:

- Controls
- Filters
- Heaters
- Interconnected pipe, fittings and valves
- Pumps

The pool mechanical equipment varies in age and is in overall good condition.



**Pool mechanical equipment**



**Pool water heater**

Pool mechanical equipment has a useful life of up to 15 years. Failure of the pool mechanical equipment as a single event is unlikely. We recommend the Association anticipate replacement of up to fifty percent (50%) of the pool mechanical equipment in 2017 and every seven years thereafter. We consider interim replacement of motors and minor repairs as normal maintenance. We note this information on Line Item 6.600 of *Reserve Expenditures*.

**Pool Finishes, Plaster** - The pool wall and floor surfaces have plaster finishes of 4,140 square feet based on the horizontal surface areas. The finishes date to 2013. We were unable to inspect the pools due to the covers. This type of pool finish deteriorates with time and requires periodic maintenance and replacement. We recommend the Association anticipate the need to replace the finishes and conduct related repairs every 8- to 12-years to maintain the integrity of the pool structures. Removal and replacement provides the opportunity to inspect the pool structures and to allow for partial repairs of the underlying concrete surfaces as needed. We recommend the Association budget for the following by 2023 and every 10 years thereafter:

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



We include this information on Line Item 6.800 of *Reserve Expenditures*.

**Pool Houses, Exterior Renovations** - The exteriors of the two pool houses include the following:

- 270 square feet of masonry veneer
- 3,620 square feet of vinyl siding
- 24 squares of asphalt shingle roofs

The exterior elements of the pool houses are original and in good condition. We note isolated siding damage.



**Pool house front**



**Pool house side and back**



**Siding damage**



**Siding damage**



**Siding damage**

The useful lives of the exterior elements of the pool houses vary significantly. However, due to the relatively small quantities and interrelated nature of these elements, we recommend the Association combine their replacements into coordinated exterior renovations.

We recommend the Association anticipate complete exterior renovations every 40 years.

These *complete* renovations should include the following:

- Replacement of the vinyl siding
- Repairs to the masonry veneer
- Replacement of the asphalt shingle roof assembly

Based on the age and visual condition of these exterior elements, we recommend the Association budget for the next coordinated complete exterior renovation by 2043.

In addition to the complete renovation, Eagle Crossing should also anticipate partial exterior renovations every 20 years. These *partial* renovations should include the following:

- Repairs to the masonry veneer
- Replacement of the asphalt shingle roof assembly

Based on the reported age and visual condition of these exterior pool house elements, we recommend the Association budget for a coordinated partial exterior renovation by 2023. Line

Items 6.801 and 6.802 of *Reserve Expenditures* note our estimate of future costs and anticipated times of exterior renovations of the pool houses.

**Pool Houses, Interior Renovations** - The interiors of the pool houses include approximately 1,100 square feet of finished area. Interior components of the pool houses include:

- Epoxy floor coverings
- Paint finishes on the walls and ceilings
- Plumbing fixtures
- Light fixtures

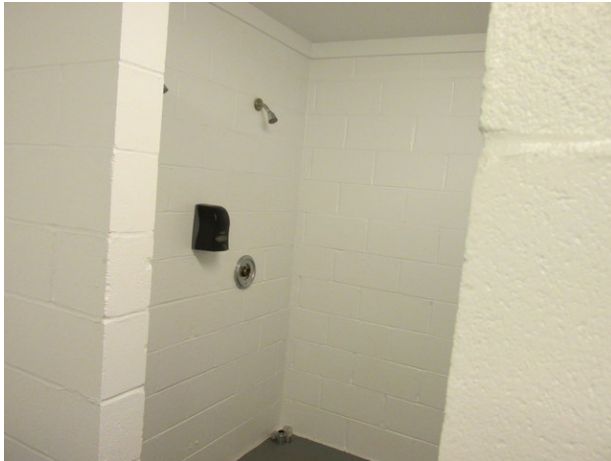
The interiors of the pool houses are in good condition. The Association last partially renovated the pool house interiors in 2015. The partial renovation included paint applications, epoxy floor coverings and rebuilding concrete block partition walls.



**Pool house interior**



**Pool house interior**



**Pool house interior**



**Pool house interior**

The useful lives of these interior building elements vary. However, due to the interrelated nature of these elements and the desire to achieve a uniform appearance, we recommend the Association combine their replacements into coordinated interior renovations.

We recommend the Association anticipate a complete interior renovation of the pool houses every 20 years. The complete renovation should include replacement of all the plumbing fixtures and paint applications. Based on the age and visual condition of these interior pool house elements, we recommend the Association budget for a coordinated complete interior renovation by 2027. We note this information on Line Item 6.850 of *Reserve Expenditures*.

### **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.

Eagle Crossing 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	308,243
2016 Remaining Budgeted Reserve Contribution	0
Anticipated Interest on Reserve Fund	1,040
Less Anticipated Reserve Expenditures	0
Projected 2016 Year-End Reserve Balance	\$309,283

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 Brownsburg, Indiana at an annual inflation rate of 1.5%. 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 Eagle Crossing 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	2015				2016			
	2015:1 (A)	2015:2 (A)	2015:3 (A)	2015:4 (A)	2016:1 (A)	2016:2 (E)	2016:3 (E)	2016:4 (E)
Average or Last Actual = (A)								
1-Year Treasury Bill	0.25%	0.27%	0.30%	0.65%	0.60%	0.55%	0.60%	0.65%
10-Year Treasury Note	1.90%	2.50%	2.70%	2.25%	1.80%	1.80%	1.85%	1.90%
30-Year Treasury Bond	2.55%	3.20%	3.40%	3.00%	2.65%	2.60%	2.60%	2.65%
Consumer Price Index (annualized rate)	0.00%	0.00%	0.00%	0.00%	0.10%	0.00%	0.00%	0.00%
Although past indicators are not predictive of future inflation in "building" construction, minimal inflation exists for past 2 years April, 2014 to April 2016 of 1% to 2.5%.								
Savings Rates Results RANGE as found in <a href="http://www.bankrate.com">http://www.bankrate.com</a>	0.02 to 1.11%		Money Market Savings		0.15 to 1.45%		for 2-Year Certificate of Deposit	
	0.1 to 1.25%		1-Year Certificate of Deposit		0.15 to 1.50%		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 .....				1.5%				
					<b>05/05/2016</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 Eagle Crossing 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) Eagle Crossing 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, 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, North Carolina

*Reserve Specialist (RS)* - Community Associations Institute

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



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

**CURRENT CLIENT SERVICES**

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

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

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

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

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

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

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

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

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

**PRIOR RELEVANT EXPERIENCE**

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

**EDUCATION**

West Virginia University - B.S. Civil Engineering

**PROFESSIONAL AFFILIATIONS / DESIGNATIONS**

*Reserve Specialist (RS)* - Community Associations Institute

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





**CORINNE L. BILLINGSLEY**  
**Responsible Advisor**

**CURRENT CLIENT SERVICES**

Corinne L. Billingsley, an Architectural Engineer, is an Advisor for *Reserve Advisors, Inc.* Ms. Billingsley is responsible for the inspection and analysis of the condition of clients' properties, 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 on townhomes, homeowner associations, planned unit developments and recreational associations.

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

**Pinehurst at Gregg's Landing** A townhome association in Vernon Hills, Illinois with 160 units in 30 buildings. The development dates to 1998 and is comprised of asphalt streets, driveways, concrete sidewalks and a pond. The buildings utilize EIFS, fiber cement siding and masonry veneer at the façades and asphalt shingle roofs.

**The Coves of Harbor Springs** This 185-unit townhome style development is located in Aurora, Illinois. Constructed in 1997, this 33 building community comprises balconies over finished space, masonry veneer, vinyl siding, asphalt shingle roofs, asphalt pavement, and concrete sidewalks.

**Wedgewood Association, Inc.** A master association located in Crystal Lake, Illinois, responsible for the common elements shared by 262 single family homes and townhomes. Common elements include asphalt pavement, asphalt walking paths, concrete sidewalks, masonry entrance signage, ponds and wetlands.

**The Lofts at Rivertown** Originally home to the Frederick Stearns Pharmaceutical company in downtown Detroit, Michigan, the 1899 masonry structure and the 1919 eight-story concrete tower are on the National Register of Historic Places. The building was converted to apartments in 1989 and then to a 172-unit condominium style development in 2002.

**Colony Farms Condominium Association** This townhome style development is located in Plymouth, Michigan, and dates to 1971. The development is comprised of plywood and composite hardboard siding, masonry veneer, asphalt shingle roofs, asphalt pavement, timber retaining walls and ponds.

**Traditions on the Monon** Located in Carmel, Indiana, this 128-unit townhome style development is located along the converted rail line, the Monon Trail. The development was completed in 2009 and is comprised of masonry veneer, vinyl siding, asphalt shingle roofs, asphalt pavement and concrete flatwork.

**PRIOR RELEVANT EXPERIENCE**

Before joining *Reserve Advisors, Inc.*, Ms. Billingsley worked for K2N Crest where she performed façade inspections, designed repairs and inspected the work of contractors for building renovation, façade restoration, and structural repair projects. She also worked for Deloitte where she acted as the owner's representative for new construction and renovation projects. Ms. Billingsley is also active in her own community association. She has been on the board since 2007 and has served as Director, President, and Treasurer.

**EDUCATION**

Kellogg School of Management - Northwestern University - Master of Business Administration (MBA)  
Illinois Institute of Technology - B.S. Architectural Engineering

**PROFESSIONAL AFFILIATIONS/CERTIFICATIONS**

*Engineer In Training (E.I.T.) Registration* - Illinois  
*Construction Documents Technology (CDT)* - Construction Specifications Institute



**CHRISTOPHER C. DEWALL, P.E., PRA, RS**  
**Director of Product Development**

**CURRENT CLIENT SERVICES**

Christopher C. DeWall, a Professional Engineer, is a Director for Reserve Advisors. Mr. DeWall 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 and the preparation of Reserve Study Reports for high and midrise buildings, country clubs, and townhomes and homeowner associations. Christopher DeWall frequently serves as the Quality Assurance Review Coordinator for all types of developments.

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

**Crystal Park Unit Owners Association** This 12-story building built in 1985 is located in the Crystal City portion of Alexandria, Virginia. The property includes an elevated pool and pool deck above two floors of parking garage. Unit owners enjoy a majestic view of the U.S. Capitol Building and Washington Monument rising above the horizon just beyond the runway at Reagan International Airport.

**1301 Throckmorton Residences** reside on the top 13 floors of a 33-story building located downtown Fort Worth, Texas. Built in 2009, the building overlooks the Fort Worth Water Gardens and includes a pool and Zen garden atop the Omni Fort Worth Hotel.

**Riverwalk Plaza Condominium Association** consists of two converted warehouse buildings from the late 1800s in the Third Ward of Milwaukee, Wisconsin. The Association houses 75 loft style units with exposed Cream City brick and is situated directly on the Milwaukee River.

**Belfair Property Owners Association** is a private golf community situated on the Belfair Plantation five miles from Hilton Head Island. Magnificent oak trees over one hundred years old line the entrance to this property that dates back to the plantation built in 1811. The community amenities include a recently expanded clubhouse, two 18-hole golf courses, pool and exercise buildings and a state-of-the-art 29 acre practice facility. Belfair offers freshwater lakes, saltwater marshes and South Carolina wildlife.

**North Bank Condominium Home Owners Association** is the definition of old meets new in two conjoined buildings in the arena district of Columbus, Ohio. A 20-story tower of wall-to-ceiling windows was built in 2006 next to the historic A&P grocery warehouse originally constructed in 1926. This unique combination of 103 units provides the option of a converted warehouse style loft or a high-rise apartment with stunning views of the Columbus skyline.

**Prairie Park at Wheeling Condominium Association** is a midrise community of 240 units in four buildings located in Wheeling, Illinois. The property includes an elaborate waterfall at the entrance to the community and a clubhouse with indoor pool for year round entertainment.

**PRIOR RELEVANT EXPERIENCE**

Before joining Reserve Advisors, Mr. DeWall attended the University of Wisconsin in Madison, Wisconsin where he attained his Bachelor of Science degree in Mechanical Engineering. At the University of Wisconsin, Mr. DeWall helped design and fabricate a wheelchair with a seat capable of raising and lowering to and from the ground. Mr. DeWall is also the proud owner of a patent for a trigger lock on a pressure washer gun he developed while interning at Briggs and Stratton Power Products.

**EDUCATION**

University of Wisconsin - B.S. Mechanical Engineering

**PROFESSIONAL AFFILIATIONS**

*Professional Engineer (P.E.)* - Wisconsin 2016

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

*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.marshallswift.com](http://www.marshallswift.com).

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