

**Revised**  
**FULL RESERVE STUDY**  
**Plymouth Commons**  
**Homeowners Association**



**Plymouth, Michigan**  
**Inspected - August 18, 2020**  
**Revised - December 9, 2020**



This Report contains intellectual property developed by Reserve Advisors, LLC and cannot be reproduced or distributed to those who conduct reserve studies without their written consent.

Long-term thinking. Everyday commitment.

Plymouth Commons Homeowners Association  
Plymouth, Michigan

Dear Board of Directors of Plymouth Commons Homeowners Association:

At the direction of the Board that recognizes the need for proper reserve planning, we have conducted a *Full Reserve Study* of Plymouth Commons Homeowners Association in Plymouth, Michigan and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, August 18, 2020.

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

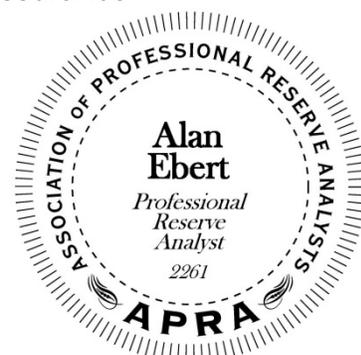
An ongoing review by the Board and an Update of this Reserve Study are necessary to ensure an equitable funding plan since a Reserve Study is a snapshot in time. We recommend the Board budget for an Update to this Reserve Study in two- to three-years. We look forward to continuing to help Plymouth Commons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

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

Respectfully submitted on December 9, 2020 by

*Reserve Advisors, LLC*

Visual Inspection and Report by: Nicholas M. Johanning, RS<sup>1</sup>  
Review by: Alan M. Ebert, RS, PRA<sup>2</sup>, Director of Quality Assurance



<sup>1</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.

<sup>2</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>.



Long-term thinking. Everyday commitment.

## 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. RESERVE COMPONENT DETAIL.....</b>	<b>4.1</b>
Asphalt Pavement, Repaving, Walking Paths.....	4.1
Irrigation System.....	4.2
Landscape.....	4.3
Signage .....	4.4
Reserve Study Update.....	4.5
<b>5. METHODOLOGY .....</b>	<b>5.1</b>
<b>6. CREDENTIALS .....</b>	<b>6.1</b>
<b>7. DEFINITIONS .....</b>	<b>7.1</b>
<b>8. PROFESSIONAL SERVICE CONDITIONS .....</b>	<b>8.1</b>



# 1. RESERVE STUDY EXECUTIVE SUMMARY

**Client:** Plymouth Commons Homeowners Association (Plymouth Commons)

**Location:** Plymouth, Michigan

**Reference:** 200446

**Property Basics:** Plymouth Commons Homeowners Association is a homeowners association which is responsible for the common elements shared by 130 single family homes. The community was built in 1989.

**Reserve Components Identified:** Four Reserve Components.

**Inspection Date:** August 18, 2020.

**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 2047 due to renovations of the community entrance monuments.

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

- Current and future local costs of replacement
- 0.9% anticipated annual rate of return on invested reserves
- 2.0% 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:**

- \$70,640 as of June 10, 2020
- The Association did not budget Reserve Contributions in 2020.
- A potential deficit in reserves might occur by 2041 based upon continuation of the most recent annual reserve contribution of \$0 and the identified Reserve Expenditures.

**Project Prioritization:** We note anticipated Reserve Expenditures for the next 30 years in the **Reserve Expenditures** tables and include a **Five-Year Outlook** table following the **Reserve Funding Plan** in Section 3. We recommend the Association prioritize replacement of the asphalt pavement walking paths to maintain a safe walking surface in the next five years based on the conditions identified.

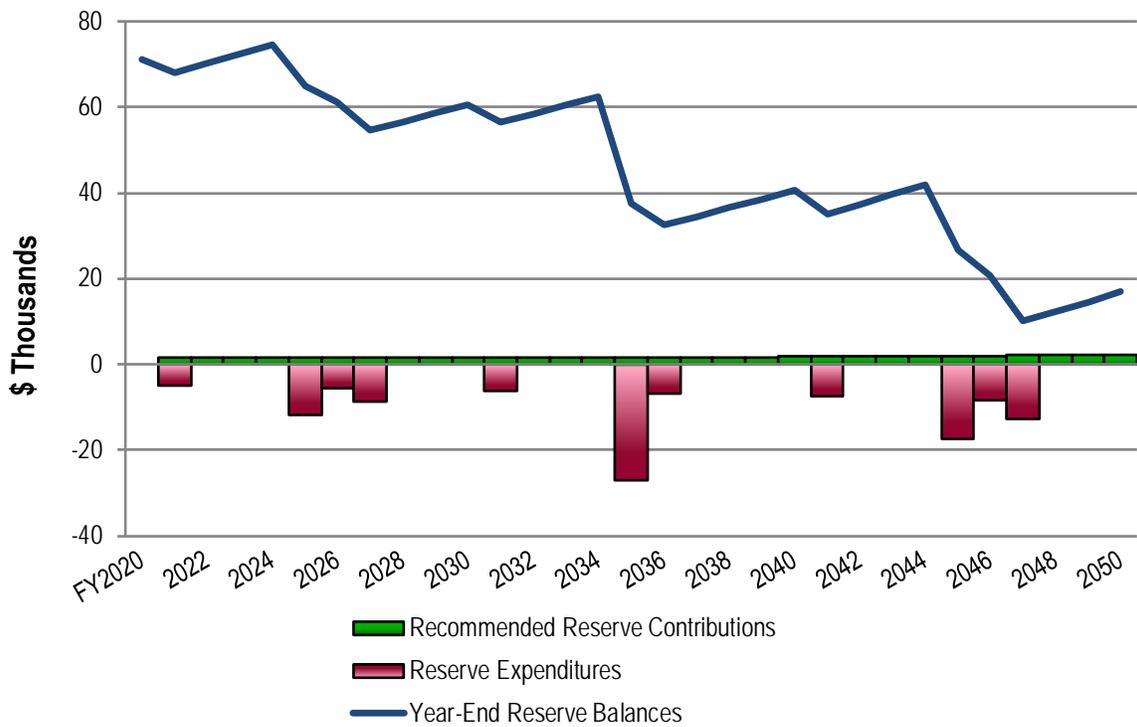
**Recommended Reserve Funding:** We recommend the following in order to achieve a stable and equitable Funding Plan:

- Increase to \$1,500 in 2021
- Stable contributions of \$1,500 from 2022 through 2035
- Inflationary increases through 2050, the limit of this study's Cash Flow Analysis
- 2021 Reserve Contribution of \$1,500 is equivalent to an average annual contribution of \$11.54 per homeowner.



**Plymouth Commons**  
Recommended Reserve Funding Table and Graph

Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)	Year	Reserve Contributions (\$)	Reserve Balances (\$)
2021	1,500	67,980	2031	1,500	56,439	2041	1,800	35,138
2022	1,500	70,099	2032	1,500	58,454	2042	1,850	37,313
2023	1,500	72,237	2033	1,500	60,487	2043	1,900	39,557
2024	1,500	74,394	2034	1,500	62,538	2044	1,950	41,872
2025	1,500	64,747	2035	1,500	37,569	2045	2,000	26,690
2026	1,500	61,180	2036	1,550	32,569	2046	2,050	20,585
2027	1,500	54,584	2037	1,600	34,469	2047	2,100	10,020
2028	1,500	56,582	2038	1,650	36,437	2048	2,150	12,270
2029	1,500	58,598	2039	1,700	38,473	2049	2,200	14,590
2030	1,500	60,632	2040	1,750	40,577	2050	2,250	16,981





## 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

### **Plymouth Commons Homeowners Association**

### **Plymouth, Michigan**

and submit our findings in this report. The effective date of this study is the date of our visual, noninvasive inspection, August 18, 2020.

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

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

## IDENTIFICATION OF PROPERTY



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

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

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

We advise the Board conduct an annual review of these classes of property to confirm its policy concerning the manner of funding, i.e., from reserves or the operating budget. The Reserve Study identifies Reserve Components as set forth in your Declaration or which were identified as part of your request for proposed services.

Reserve Components are defined by CAI as property elements with:

- Plymouth Commons responsibility
- Limited useful life expectancies
- Predictable remaining useful life expectancies
- Replacement cost above a minimum threshold

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

- Electrical Systems, Common
- Inlet/Outlet Structures, Concrete, Storm Water Management System
- Pipes, Subsurface Utilities

The operating budget provides money for the repair and replacement of certain Reserve Components. The Association may develop independent criteria for use of operating and reserve funds. For purposes of calculating appropriate Reserve Contributions, we identify the following list of Operating Budget Funded Repairs and Replacements:

- General Maintenance to the Common Elements
- Expenditures less than \$3,000 (These relatively minor expenditures have a limited effect on the recommended Reserve Contributions.)
- Asphalt Pavement, Walking Paths, Crack Repair and Patch
- Catch Basins, Landscape
- Concrete Streets, Joint Sealants
- Irrigation System, Controls and Maintenance
- Landscape, General Maintenance
- Paint Finishes
- Other Repairs normally funded through the Operating Budget

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

- Homes and Lots (Incl. Mailboxes and Sidewalks)

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

- Light Poles and Fixtures (Electric Company)
- Street Systems (Plymouth Township)

### **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
- 2020 local cost of replacement
  - Per unit
  - Per phase
  - Replacement of total quantity
- Percentage of future expenditures anticipated during the next 30 years
- Schedule of estimated future costs for each reserve component including inflation

#### **Reserve Funding Plan**

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

#### **Five-Year Outlook**

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

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

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

## RESERVE EXPENDITURES

Plymouth Commons  
Homeowners Association  
Plymouth, Michigan

**Explanatory Notes:**

- 1) **2.0%** is the estimated Inflation Rate for estimating Future Replacement Costs.
- 2) **FY2020** is Fiscal Year beginning January 1, 2020 and ending December 31, 2020.

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years		Costs, \$			Percentage of Future Expenditures	RUL = 0 FY2020	1 2021	2 2022	3 2023	4 2024	5 2025	6 2026	7 2027	8 2028	9 2029	10 2030	11 2031	12 2032	13 2033	14 2034	15 2035									
						Useful	Remaining	Unit (2020)	Per Phase (2020)	Total (2020)																										
4.080	410	410	Square Yards	Asphalt Pavement, Total Replacement, Walking Paths	2025	15 to 20	5	26.00	10,660	10,660	24.9%						11,770																			
4.420	1	1	Allowance	Irrigation System	2035	to 40+	15	20,000.00	20,000	20,000	22.9%																	26,917								
4.500	1	1	Allowance	Landscape, Partial Replacements	2021	to 5	1	5,000.00	5,000	5,000	33.9%		5,100					5,631									6,217									
4.800	1	1	Allowance	Signage, Renovation	2027	15 to 20	7	7,500.00	7,500	7,500	18.3%								8,615																	
<b>Anticipated Expenditures, By Year (\$117,350 over 30 years)</b>												0	5,100	0	0	0	0	11,770	5,631	8,615	0	0	0	6,217	0	0	0									26,917

## RESERVE EXPENDITURES

Plymouth Commons  
Homeowners Association  
Plymouth, Michigan

Line Item	Total Quantity	Per Phase Quantity	Units	Reserve Component Inventory	Estimated 1st Year of Event	Life Analysis, Years		Costs, \$			Percentage of Future Expenditures	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
						Useful	Remaining	Unit (2020)	Per Phase (2020)	Total (2020)		2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
4.080	410	410	Square Yards	Asphalt Pavement, Total Replacement, Walking Paths	2025	15 to 20	5	26.00	10,660	10,660	24.9%										17,489						
4.420	1	1	Allowance	Irrigation System	2035	to 40+	15	20,000.00	20,000	20,000	22.9%																
4.500	1	1	Allowance	Landscape, Partial Replacements	2021	to 5	1	5,000.00	5,000	5,000	33.9%	6,864					7,578					8,367					
4.800	1	1	Allowance	Signage, Renovation	2027	15 to 20	7	7,500.00	7,500	7,500	18.3%												12,802				
<b>Anticipated Expenditures, By Year (\$117,350 over 30 years)</b>												6,864	0	0	0	0	0	7,578	0	0	0	17,489	8,367	12,802	0	0	0

## RESERVE FUNDING PLAN

CASH FLOW ANALYSIS  
Plymouth Commons  
Homeowners Association

		Individual Reserve Budgets & Cash Flows for the Next 30 Years															
Plymouth, Michigan		FY2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Reserves at Beginning of Year	<i>(Note 1)</i>	70,640	70,958	67,980	70,099	72,237	74,394	64,747	61,180	54,584	56,582	58,598	60,632	56,439	58,454	60,487	62,538
Total Recommended Reserve Contributions	<i>(Note 2)</i>	0	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Estimated Interest Earned, During Year	<i>(Note 3)</i>	318	622	619	638	657	623	564	519	498	516	534	524	515	533	551	448
Anticipated Expenditures, By Year		0	(5,100)	0	0	0	(11,770)	(5,631)	(8,615)	0	0	0	(6,217)	0	0	0	(26,917)
Anticipated Reserves at Year End		<u>\$70,958</u>	<u>\$67,980</u>	<u>\$70,099</u>	<u>\$72,237</u>	<u>\$74,394</u>	<u>\$64,747</u>	<u>\$61,180</u>	<u>\$54,584</u>	<u>\$56,582</u>	<u>\$58,598</u>	<u>\$60,632</u>	<u>\$56,439</u>	<u>\$58,454</u>	<u>\$60,487</u>	<u>\$62,538</u>	<u>\$37,569</u>
Predicted Reserves based on 2020 funding level of:	\$0	70,958	66,474	67,072	67,676	68,285	57,077	51,934	43,748	44,142	44,539	44,940	39,099	39,451	39,806	40,164	13,487

(continued)

		Individual Reserve Budgets & Cash Flows for the Next 30 Years, Continued														
		2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Reserves at Beginning of Year		37,569	32,569	34,469	36,437	38,473	40,577	35,138	37,313	39,557	41,872	26,690	20,585	10,020	12,270	14,590
Total Recommended Reserve Contributions		1,550	1,600	1,650	1,700	1,750	1,800	1,850	1,900	1,950	2,000	2,050	2,100	2,150	2,200	2,250
Estimated Interest Earned, During Year		314	300	318	336	354	339	325	344	365	307	212	137	100	120	141
Anticipated Expenditures, By Year		(6,864)	0	0	0	0	(7,578)	0	0	0	(17,489)	(8,367)	(12,802)	0	0	0
Anticipated Reserves at Year End		<u>\$32,569</u>	<u>\$34,469</u>	<u>\$36,437</u>	<u>\$38,473</u>	<u>\$40,577</u>	<u>\$35,138</u>	<u>\$37,313</u>	<u>\$39,557</u>	<u>\$41,872</u>	<u>\$26,690</u>	<u>\$20,585</u>	<u>\$10,020</u>	<u>\$12,270</u>	<u>\$14,590</u>	<u>\$16,981</u>
Predicted Reserves based on 2020 funding level of:	\$0	6,713	6,773	6,834	6,896	6,958	(591)	(596)					<i>(NOTE 5)</i>			<i>(NOTE 4)</i>

Explanatory Notes:

- 1) Year 2020 ending reserves are as of June 10, 2020; FY2020 starts January 1, 2020 and ends December 31, 2020.
- 2) 2021 is the first year of recommended contributions.
- 3) 0.9% is the estimated annual rate of return on invested reserves
- 4) Accumulated year 2050 ending reserves consider the age, size, overall condition and complexity of the property.
- 5) Threshold Funding Year (reserve balance at critical point).

## FIVE-YEAR OUTLOOK

**Plymouth Commons  
Homeowners Association**  
Plymouth, Michigan

---

Line Item	Reserve Component Inventory	RUL = 0 FY2020	1 2021	2 2022	3 2023	4 2024	5 2025
4.080	Asphalt Pavement, Total Replacement, Walking Paths						11,770
4.500	Landscape, Partial Replacements		5,100				
<b>Anticipated Expenditures, By Year (\$117,350 over 30 years)</b>		0	5,100	0	0	0	11,770

## 4. RESERVE COMPONENT DETAIL

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

### **Asphalt Pavement, Repaving, Walking Paths**

---

**Line Item:** 4.080

**Quantity:** 410 square yards

**History:** Unknown age, possibly original

**Condition:** Good to fair overall with cracks evident



**Asphalt pavement walking path overview**



**Walking path cracks**



**Walking path cracks**



**Walking path cracks**



**Walking path cracks**

**Useful Life:** The need to maintain a safe pedestrian surface results in a useful life of 15- to 20-years

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

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

## **Irrigation System**

---

**Line Item:** 4.420

**Quantity:** Approximately 16,000 square feet located at the islands and entrances

**History:** Original

**Condition:** Good overall and the Board does not report any deficiencies

**Useful Life:** Up to 40 years

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

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

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

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

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

## Landscape

---

**Line Item:** 4.500

**Component Detail Notes:** The Association contains a large quantity of trees, shrubbery and other landscape elements. Replacement of these elements is an ongoing need. Many associations budget for these replacements as normal maintenance. Other associations fund ongoing replacements from reserves. Large amounts of landscape may need replacement due to disease, drought or other forces of nature. If the cost of removal and replacement is substantial, funding from reserves is logical. The Association may also desire to periodically update the appearance of the community through major improvements to the landscape.

**Useful Life:** At the request of the Board, we include a landscape allowance for partial replacements every five years.

**Priority/Criticality:** Per Board discretion

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

## Signage

---

**Line Item:** 4.800

**Quantity:** Three entrance monument signs

**History:** Original

**Condition:** Good overall



Entrance monument overview



Entrance monument overview

**Useful Life:** 15- to 20-years

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

- Light fixtures
- Letters
- Masonry, Stone
- Retaining Walls, Masonry and Stone

**Priority/Criticality:** Per Board discretion

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

## Reserve Study Update

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

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

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

## 5.METHODOLOGY

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

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

- The Cash Flow Method to compute, project and illustrate the 30-year Reserve Funding Plan
- Local<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 Plymouth, Michigan at an annual inflation rate<sup>3</sup>. Isolated or regional markets of

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

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

<sup>3</sup> Derived from Marshall & Swift, historical costs and the Bureau of Labor Statistics.

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

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

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



## 6. CREDENTIALS

### HISTORY AND DEPTH OF SERVICE

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

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

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

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

### TOTAL STAFF INVOLVEMENT

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

### OUR GOAL

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

### VAST EXPERIENCE WITH A VARIETY OF BUILDINGS

Reserve Advisors has conducted reserve studies for a multitude of different communities and building types. We've analyzed thousands of buildings, from as small as a 3,500-square foot day care center to 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.

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

**CURRENT CLIENT SERVICES**

Nicholas M. Johannning, a Civil Engineer, is an Advisor for Reserve Advisors. Mr. Johannning is responsible for the inspection and analysis of the condition of clients' properties, and recommending engineering solutions to prolong the lives of the components. He also forecasts capital expenditures for the repair and/or replacement of the property components and prepares technical reports on assignments. He is responsible for conducting Life Cycle Cost Analysis and Capital Replacement Forecast services on townhomes, homeowners associations, planned unit developments and recreational associations.



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

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

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

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

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

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

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

**PRIOR RELEVANT EXPERIENCE**

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

**EDUCATION**

University of Toledo - B.S. Civil Engineering

**PROFESSIONAL AFFILIATIONS / DESIGNATIONS**

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

*Reserve Specialist (RS) - Community Associations Institute*

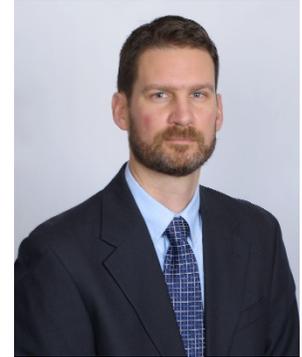


**ALAN M. EBERT, P.E., PRA, RS**  
**Director of Quality Assurance**

**CURRENT CLIENT SERVICES**

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

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



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

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

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

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

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

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

**PRIOR RELEVANT EXPERIENCE**

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

**EDUCATION**

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

**PROFESSIONAL AFFILIATIONS/DESIGNATIONS**

*Professional Engineering License* – Wisconsin, North Carolina, Illinois, Colorado

*Reserve Specialist (RS)* - Community Associations Institute

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



## RESOURCES

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

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

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

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

**Marshall & Swift / Boeckh**, (MS/B) the worldwide provider of building cost data, co-sourcing solutions, and estimating technology for the property and casualty insurance industry found on the web at [www.marshallswift.com](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' library of numerous periodicals relating to reserve studies, condition analyses, chapter community associations, and historical costs from thousands of capital repair and replacement projects, and product literature from manufacturers of building products and building systems.

## 7. DEFINITIONS

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

**Cash Flow Method** - A method of calculating Reserve Contributions where contributions to the reserve fund are designed to offset the variable annual expenditures from the reserve fund. Different Reserve Funding Plans are tested against the anticipated schedule of reserve expenses until the desired funding goal is achieved.

**Component Method** - A method of developing a Reserve Funding Plan with the total contribution is based on the sum of the contributions for individual components.

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

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

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

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

**Long-Lived Property Component** - Property component of Plymouth Commons 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) Plymouth Commons responsibility; 2) limited Useful Life expectancies; 3) predictable Remaining Useful Life expectancies; and 4) a replacement cost above a minimum threshold.

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

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

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

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

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

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

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



## 8. PROFESSIONAL SERVICE CONDITIONS

**Our Services** - Reserve Advisors, LLC (RA) performs its services as an independent contractor in accordance with our professional practice standards and its compensation is not contingent upon our conclusions. The purpose of our reserve study is to provide a budget planning tool that identifies the current status of the reserve fund, and an opinion recommending an annual funding plan to create reserves for anticipated future replacement expenditures of the property.

Our inspection and analysis of the subject property is limited to visual observations, is noninvasive and is not meant to nor does it include investigation into statutory, regulatory or code compliance. RA inspects sloped roofs from the ground and inspects flat roofs where safe access (stairs or ladder permanently attached to the structure) is available. The report is based upon a "snapshot in time" at the moment of inspection. RA may note visible physical defects in our report. The inspection is made by employees generally familiar with real estate and building construction but in the absence of invasive testing RA cannot opine on, nor is RA responsible for, the structural integrity of the property including its conformity to specific governmental code requirements for fire, building, earthquake, and occupancy, or any physical defects that were not readily apparent during the inspection.

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

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

**Report** - RA completes the services in accordance with the Proposal. The Report represents a valid opinion of RA's findings and recommendations and is deemed complete. RA, however, considers any additional information made available to us within 6 months of issuing the Report if a timely request for a revised Report is made. RA retains the right to withhold a revised Report if payment for services was not tendered in a timely manner. All information received by RA and all files, work papers or documents developed by RA during the course of the engagement shall remain the property of RA and may be used for whatever purpose it sees fit.

**Your Obligations** - You agree to provide us access to the subject property for an on-site visual inspection. You agree to provide RA all available, historical and budgetary information, the governing documents, and other information that we request and deem necessary to complete the Report. You agree to pay actual attorneys' fees and any other costs incurred to collect on any unpaid balance for RA's services.

**Use of Our Report and Your Name** - Use of this Report is limited to only the purpose stated herein. You hereby acknowledge that any use or reliance by you on the Report for any unauthorized purpose is at your own risk and you shall hold RA harmless from any consequences of such use. Use by any unauthorized third party is unlawful. The Report in whole or in part **is not and cannot be used as a design specification for design engineering purposes or as an appraisal**. You may show our Report in its entirety to the following third parties: members of your organization, your accountant, attorney, financial institution and property manager who need to review the information contained herein. Without the written consent of RA, you shall not disclose the Report to any other third party. The Report contains intellectual property developed by RA and **shall not be reproduced or distributed to any party that conducts reserve studies without the written consent of RA**.

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

**Payment Terms, Due Dates and Interest Charges** - Retainer payment is due upon authorization and prior to inspection. The balance is due net 30 days from the report shipment date. Any balance remaining 30 days after delivery of the Report shall accrue an interest charge of 1.5% per month. Any litigation necessary to collect an unpaid balance shall be venued in Milwaukee County Circuit Court for the State of Wisconsin.