

Reserve Study  
for  
**MALVERN OF MADISON**



Prepared by  
**The Malvern of Madison, Inc.**  
**Reserve Study Committee**

**September 8, 2022**

# Malvern of Madison – Reserve Study

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## INTRODUCTION

A reserve study should be considered a “dynamic” document. In other words, it’s a document that must be periodically revisited to confirm or modify as necessary the information it contains.

One of the purposes of a reserve study is to predict remaining life expectancy and replacement costs for our improvements – the roof on the clubhouse for example. Life expectancy can be based on an average of life expectancies for similar roofs. But perhaps our roof is subject to environmental conditions not typically associated with the average roof. So maybe its remaining life will be shorter or longer than originally predicted.

The same is true for cost. Predictions can be made based on some combination of the previous replacement cost, nationally published costs, current material costs, etc. But no one really knows how much a replacement roof, for example, will cost until the job is actually bid out. Even then there might be some additional costs that couldn’t be predicted until the shingles were removed.

Other factors include inflation and the price of oil. In the early 1980s inflation was above 10%. For individual years 2008 through 2018, it’s annually averaged as high as 3.8% and as low as -0.4%. Using a factor too high could result in higher than necessary annual assessments for current residents. Using a factor too low could result in the need for future loans or special assessments.

Similarly, oil prices can have significant fluctuations depending on world events. Since we maintain our streets, oil price fluctuations can have a significant impact on predicted future costs associated with repaving our streets.

**So, the “dynamic” nature of this study means that periodic reviews and updates are required to validate the information contained herein. These reviews and updates should occur no less than annually at minimum and perhaps more often as new information and conditions may warrant.**

## RESERVE STUDY COMMITTEE

During the November 12, 2020, Board Meeting, a reserve study committee was formed with the charge of performing an annual review and update to the 2019 in-house reserve study. The committee was chaired by Ed Johnson. Board members on the committee were Fred Bourque, Rick Collins, Grover Dean, Stephen Langone, and Rodney Taylor. In 2021 and 2022, that committee prepared a draft update to the 2019 Reserve Study, and the 2022 Five-Year Plan was based on the projections in the draft Reserve Study. Then in 2022 the Board directed the committee to perform an annual review and update the draft 2022 Reserve Study. The 2022 committee was chaired by Ed Johnson. Board members on the committee were Fred Bourque, Chris Dickens, David Kalish, and Stephen Langone. This document is the result of their work. The 2023 Five-Year Plan is based on the projections in this document.

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## PURPOSE OF A RESERVE STUDY

A reserve study is a helpful tool that can be used as a reference to determine adequate funding levels to meet current and future reserve component expenditures. The study has two parts: a *physical analysis* and a *financial analysis*.

The *physical analysis* includes a listing of the component inventory, a condition assessment of each component based on visual inspection, and the anticipated remaining useful life and projected repair and/or replacement costs of each item.

The *financial analysis* offers recommendations for current and future reserve contribution rates, which will guide members to a path on proper funding of their reserve account.

## REQUIREMENT FOR A RESERVE STUDY

Virginia Code dictates requirements for Homeowner Associations in the Commonwealth of Virginia to establish reserves for capital components:

*§ 55.1-1826. ... reserves for capital components.*

*B. Except to the extent otherwise provided in the declaration and unless the declaration imposes more stringent requirements, the board of directors shall:*

- 1. Conduct at least once every five years a study to determine the necessity and amount of reserves required to repair, replace, and restore the capital components as defined in § 55.1-1800;*
- 2. Review the results of that study at least annually to determine if reserves are sufficient; and*
- 3. Make any adjustments the board of directors deems necessary to maintain reserves, as appropriate.*

*C. To the extent that the reserve study conducted in accordance with this section indicates a need to budget for reserves, the association budget shall include:*

- 1. The current estimated replacement cost, estimated remaining life, and estimated useful life of the capital components as defined in § 55.1-1800;*
- 2. As of the beginning of the fiscal year for which the budget is prepared, the current amount of accumulated cash reserves set aside to repair, replace, or restore capital components and the amount of the expected contribution to the reserve fund for that year;*
- 3. A statement describing the procedures used for estimation and accumulation of cash reserves pursuant to this section; and*
- 4. A statement of the amount of reserves recommended in the study and the amount of current cash for replacement reserves.*

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## DESCRIPTION OF MALVERN OF MADISON

Malvern of Madison is a residential subdivision of single-family homes located in Madison County, Virginia containing a total of 234 privately owned lots.

The development was begun in the very early 1970s by a developer who envisioned a rustic recreational community complete with tree-lined private roadways, two lakes, a riding stable, 10 miles of riding trails, clubhouse and community center, two tennis courts, swimming pool, beaches, and boating center.

As sales of lots began the developer completed the clubhouse/community center, 1 of the 2 lakes, the swimming pool, and stable. Unfortunately, though, after only a few years the developer was unable to attract enough buyers to sustain adding additional amenities and, in fact, subsequently relinquished his control of unsold lots to the bank that held the loans.

Suffice it to say that the early lot owners, through a concerted effort, patience, negotiation, and hard work, turned Malvern into what it has become today. Starting in 1975 they negotiated agreements whereby many roads that were not yet begun would be cleared and graded, including construction of a permanent all-weather crossing over Dark Run.

Then, over the next 30 years, the residents managed completion of the roadway infrastructure until, finally in 2006, the last roads in Malvern were paved. Along the way some of the originally envisioned amenities had to be abandoned due to lack of funds and interest. For example, the riding trails were not built because there was little interest for residents to have horses. The stable lot was sold to a private owner in 2000 to generate funds for road improvements. The tennis courts were not built. The second lake was never started. In 1991, the residents began paying a special assessment of \$125 per lot for completion of the roadway system. This special assessment stayed through 2008. In 2010, the easement for the second lake and bridle trails were vacated.

Fortunately, what has survived through the many years since 1975 is the community spirit to volunteer time, services, and talents to minimize expenses for work that many other communities would otherwise elect to pay for through higher yearly assessments. These efforts have allowed Malvern to remain a self-managed homeowner association, with modest annual dues and user fees, since its beginnings.

## PREVIOUS RESERVE PLANNING

The Board of Directors focused on the Virginia statute starting in 2007. At this time Malvern had about \$40,000 in cash and owed over \$210,000 for repayment of road and dam loans.

The methodology was to list the various common components in Malvern. Then professional advice was sought to determine approximate costs for maintenance and repairs. It was also recognized that reserve funds must be established once our final loan was paid off in 2011.

All the information was then compiled into what was called the 5-year plan. This plan was presented to the membership on April 26, 2008, where the minutes state, “a 5-year plan is required by the State of VA to show that any HOA has a financial plan for future costs that will be sustained by membership dues, not by loans.”

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On October 18, 2008, the 5-year plan was used to justify to the membership the need to raise regular dues from \$300 to \$525 per lot per year and to rescind a \$125 special assessment that had been in place since 1992.

Since 2008, the 5-year plan has been reviewed and modified on a yearly basis prior to membership approval of the budget for the upcoming year.

In 2012, the Board formed and charged a Reserve Study Committee to prepare a formal Study on which to base assessments. The Study was completed and presented to the Board and membership in April 2013.

In 2018, the Board directed the Reserve Committee to conduct a 5-year update of the Study in accordance with the Virginia Code requirements. The revised Study was presented to and accepted by the Board in February 2019.

In November 2020, the Board requested the committee to perform an annual review based on new cost data, particularly resurfacing costs. This document is the updated Reserve Study prepared by the committee and approved by the Board at the September 2022 Board meeting.

### RESERVE FUNDING

Operational expenses and reserve funding are paid from annual regular dues assessed to each lot owner. In 2020, regular dues increased to \$575 per lot per year. This amount multiplied by a total of 234 lots generates \$134,550 per year. Other income sources increase total typical income to approximately \$140,000 per year. This income is offset, however, by persistent economic difficulties experienced by some residents, which has resulted in non-payment of dues, resulting in lost revenue of approximately \$1,000 per year. So, for the foreseeable future, it is felt prudent to expect total income to be \$139,000.

This reserve study shows the need for periodic dues increases. Knowing this allows for what hopefully will be scheduled and modest increases without the requirement for special assessments.

In order to maintain an adequate reserve fund balance, this study proposes dues increases of \$25 per lot beginning in 2020 and then every 4 years thereafter. One-half of each dues increase is to be allocated to increasing the annual deposit to the reserve fund and the other half towards operating expenses.

In October 2018, the Treasurer purchased a \$100,000 CD using money that had accumulated in the reserve fund. This is a 3% CD that will mature in October 2023, at which time it will be converted to cash. As of August 2022, the CD had earned over \$11,000 in interest. However, a portion of the interest was withdrawn in 2020 to supplement the 2020 resurfacing project and the remaining interest as of August 2022, was withdrawn to supplement the 2022 mitigation of a slow leak draining water from the lake.

### RESERVE COMPONENTS IN MALVERN

A *reserve component* is a commonly owned item which requires a reserve balance for maintenance, repair, and replacement. Malvern's *reserve components* are as follows:

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1. Roads: approximately 8.5 miles including lake access off Ashlawn Drive, plus clubhouse parking area, twin box culvert, and approximately 50 iron or corrugated metal pipe culverts, roadside ditches, gravel shoulders, and guardrail
2. Lake including two docks, spillway and dam
3. Clubhouse
4. Pool
5. Playground equipment
6. Mailbox structure and mailbox clusters
7. Newspaper boxes
8. Entrance sign
9. Road signs and community signs
10. Common grounds

**Roads.** All roadways in Malvern have been paved since 2006. Many of the roadways were paved in 2000 others in 2004 and remaining roads in 2006. Pavement width varies between 12 feet on several side roads to a maximum of 20 feet on main roadways. Shoulder width is minimal along most roads as are ditches. There is no curb and gutter in the subdivision.

Roads were constructed without a design standard, so pavement, base, and sub-base depths were known only through anecdotal memories of long-term residents. This changed in 2017 when an engineering company was hired to evaluate our roads. They core sampled 60 locations, measuring both asphalt and gravel thickness. The full report can be found on the Malvern website.

Road maintenance since 2006 has taken several forms: patchwork, crack sealing and resurfacing.

Patchwork repairs generally cover only a small area where the pavement failure is evidenced by a pothole, fatigue crack (commonly referred to as alligator cracks), or rutting. Fixing these areas generally requires removing the old paving, applying a tack coat and then patching with 2 inches of asphalt.

Cracks that aren't too wide can be sealed with a hot pour crack filler material to prevent water penetration.

Resurfacing covers larger lengths of roadway and involves removing and then patching heavily damaged areas of failure, cutting out about a foot of pavement at both ends of the total length of repair so as to provide a smooth transition back to old pavement and finally, overlaying the total length of repair with 2 inches of compacted asphalt, which when compacted (rolled) has a thickness of about 1-½ inches. The width of resurfacing is, at minimum, half the full pavement width, or, ideally, the full pavement width. This type of repair is a better long-term solution compared with random patching, but may come at a higher cost.

Beginning in 2020 and then every 4 years thereafter, resurfacing will be implemented. Main roads will be targeted in the beginning with side roads being done in later years. Withdrawal of a portion of Malvern's reserve fund and, operations savings funds will be combined to maximize the economy of scale of the resurfacing operation. Beginning in 2021, the Board has set aside \$20,000 from each year's operations budget to apply to the quadrennial paving cost.

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The 2020 project completed Malvern Drive to Pine Torch Lane, Covered Bridge Drive to Aroda Road, all of Liberty Lane, and a section of Old Forge Way. These roads are expected to have a useful life of at least 15 years before needing resurfacing.

In 2021 a portion of Turkey Trot had to be rebuilt because of substrate failure. Future paving projects may encounter similar situations, which will require removing entire sections of the roadway and rebuilding with a new base. These projects will cost more than resurfacing over the existing base.

During the interim years, annual operational road budgets will include funds for patchwork, crack filling, and seal coating. Such repairs are much less expensive than resurfacing or rebuilding. In 2022, for example, the dock road was seal coated at a cost of \$1,295. In certain cases, this technique may help lessen the need to address the road before its planned resurfacing date.

**Twin concrete box culverts.** This concrete structure is located where Dark Run flows under Covered Bridge Drive. The culverts were installed in 1981 at a cost of about \$90,000. An engineering report prepared in 1977 showed the culverts to have been designed to pass the 25-year storm. This means larger storms could overtop the roadway surface and in fact was the case during the flash flood that hit Madison County in 1995. The culverts performed as expected and without damage. However, the roadway surface was affected such that repairs needed to be made once the storm had passed and contractors were again available. Fortunately, the quick-thinking reactions of a few residents allowed that limited access remained open until the subsequent repairs were scheduled and completed.

It is expected that the culverts have an estimated remaining life greater than 30 years and so this component is not included as requiring reserve funds.

Dating back at least to 1990, there has been a concern, particularly by members living south of the box culverts, that there is no contingency plan in place for an alternate exit that that could be used in the event of a catastrophic failure of the roadway over the culverts. Previous Boards have attempted to resolve this issue but without success. In October 2018, the membership directed the Board to research whether the State or County abandoned right-of-way across private property between Malvern's end of Aroda Road and the end of State highway maintenance for Sparks Lane, Route 726. This and other potential routes continue to be investigated by the current Board.

**Culverts.** There are about 50 other smaller culverts crossing under roadways throughout Malvern. This does not include driveway culverts, which are a responsibility of the corresponding lot owner. Most culverts are between 15- and 24-inch diameter or the equivalent elliptical pipe size. A 36-inch culvert on Liberty Lane was replaced in 2009 for a total cost of about \$16,000. A smaller pipe was replaced on Sylvan Lane where it intersects with Malvern Drive in 2011.

These culverts are periodically inspected. Repair or replacement costs would typically fall into the annual road maintenance allotment.

**Guardrail.** There are two of these located on the sides of Covered Bridge where it crosses over Dark Run. A small section that was damaged in 2012 was repaired. Approximately 140 lineal feet of guardrail was added to the east side of Covered Bridge as it approaches Dark Run in an attempt to prevent cars from sliding into the woods when snow or ice is present. This additional guardrail was added in May 2012 at a cost of \$5,000.

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**Lake.** Lake Malvern is a private lake for the exclusive enjoyment of Malvern residents and their guests only. Construction began in 1971 and was completed in 1972. Original design plans can't be found.

A major dam repair was performed in 2005 at a cost of approximately \$160,000. Malvern secured funds for the repair with a loan from a local bank. This loan was paid off in 2011.

The dam was recertified by Virginia Department of Conservation and Recreation (DCR) as of September 30, 2011. The classification of the dam is a low hazard dam. A 6-year permit was issued at that time.

Malvern requested the permit be renewed in 2017. We were subsequently informed by DCR that approval required installation of a device to permit draining of the lake within a reasonable period of time. Research indicated installation of a siphon was a practical and relatively economical solution to the requirement. An engineer was hired to prepare construction documents, which were submitted and approved by DCR. Bids were solicited to a number of contractors. However, Bander Smith, LLC of Richmond, Virginia was the sole bidder. Their bid was \$31,100. Construction was completed in September 2020. Total cost including engineering, construction, as-built report, and purchase of a siphon, was approximately \$38,000. A new permit was issued in 2022, which expires in September 2024. Testing of the siphon will occur annually.

The expected lifespan of the dam is indefinite and reserve funds need not accumulate for this purpose. It is assumed the DCR classification of a low hazard dam will remain on subsequent recertifications. Should the dam classification change it will be necessary to allot funds to upgrade the dam and spillway to meet higher standards.

Lifespan is predicated on vigilant maintenance. Inspection of the embankment and spillway need to occur no less than monthly. Spillway blockages and rodent damage should be addressed immediately. Trees and brush must not be allowed to grow in or near the embankment. The embankment should be mowed at least twice per year. Inspections need to confirm that leaks are not occurring. Inspections should occur prior to predicted storm events and immediate steps taken to remedy any blockage that could prevent free outflow of water through the spillway. Likewise, inspections should occur immediately after a large storm event or earthquake to evaluate whether damage has occurred.

In 2022 a slow leak was discovered in the lake, emanating from an old metal 10-inch pipe that extended from inside the lake, through the dam, and outlet just upstream from the bottom of the spillway. By July 2022 the flow rate from the leak was estimated to be 150 GPM. Over a period of 3 weeks, the water level dropped by about 21 inches. Malvern Board members plugged the leak temporarily, and bids were sought to implement a permanent fix. Triad, the engineering firm who had done the drain siphon specifications and permitting in 2017, was hired to acquire an emergency permit from the State. Several contractors who do this type of work were consulted, including Bander Smith, who had installed the drain siphon in 2020. The other contractors declined to do the job for various reasons, and Bander Smith was contracted to fill the old pipe with mortar, which created a permanent fix to the leak. The total cost of the project was \$32,000, including engineering, permitting, and installation costs.

**Docks.** The lake has two wooden docks. The northern dock is accessed via the dock road, which is located on an easement off of Ashlawn Drive. The southern dock is accessed via the clubhouse property.

It appears from old pictures that the docks have been in place since 1972. No original design plans or specifications have been found. The dock structure is a wooden deck built on steel trusses, held by steel

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beams resting on steel piers driven into the lake bottom. The expected lifespan for steel pier pilings can be as much as 85 years or more. The steel on the pipe appears to have a thickness of ¼ inch and is showing normal signs of corrosion and pitting at the splash line. This is where most corrosion is expected to take place. The pits don't appear to be even one-half through the wall. This level of corrosion wouldn't even be of concern if the metal was used in a high-load situation. The trusses underneath show corrosion, but only what is expected.

Replacement cost would be \$50 or more per square foot. The north dock is approximately 885 square feet; the south dock is approximately 266 square feet. So, in 2018 dollars the replacement costs total \$64,000 for both docks. It is currently unnecessary to set aside reserve funds for replacement as the estimated remaining life exceeds the 30-year timespan of this study. Later updates in the years leading up to 2050 will address this need.

Replacement of the wooden decking on the northern dock occurred in 2013, and ladders on both docks were installed then, too. Reinforcement of the pilings on the northern dock was performed in 2021. It became obvious when the lake water level fell due to the leak, that the south dock structure may require replacement instead of repair. At the time of this study, the committee is in the process of studying alternatives. One such alternative could be to recommend the membership approve its removal since a total replacement cost could be prohibitive compared with the benefit derived.

**Clubhouse.** The Clubhouse Complex comprises the clubhouse proper and a separate building, which was formerly a garage, now known as the annex. The two structures are reported to have been built in 1951. The old garage was renovated at a later date when it was turned into an apartment prior to acquisition of the property by the Malvern developer. The clubhouse building contains two bedrooms that can sleep six; a living room capable of accommodating membership meetings and parties; a large dining room with seating for 24 at 6 tables; a large eat-in kitchen equipped with appliances, cookware, dinnerware, and glassware; an office used for the Board's executive sessions, corporate records storage, and the system security system controls; a restroom with a toilet stall and urinal, a bathroom with two toilet stalls and a shower, and a powder room; a deck off the main bedroom; and front and rear covered bluestone patios.

Historically, there have been approximately 60 reserved member use days per year, plus an additional 20 days of community use for meetings and functions. With the renovations that were completed in 2017, it was anticipated that clubhouse reservations would exceed historical usage, but probably not higher than 120 days per year. We had 98 days reserved for member use in 2018 and 72 days in 2019. COVID-19 restrictions limited clubhouse use, so there were only 39 days reserved by members in 2020 and 52 days in 2021. In 2022, with COVID-19 restrictions easing, member reservations are expected to increase to about 100 days per year and community usage to remain around 20 days per year.

The annex houses the electrical panels, mains, and Comcast connection; a large meeting/activity room referred to as the activity center; a storage room; a second smaller room that is sometimes used for small meetings, gatherings, and working groups; and a restroom that can be accessed from the inside and can be opened from the outside with a pool key. This restroom is referred to as the pool restroom.

Both building structures are expected to have an indefinite lifespan. The exterior wood walls of the clubhouse and annex were clad with vinyl siding, beginning in 2001 and completed in 2004. Materials were purchased in 2001 for about \$5,600. The project began using volunteers in 2001 and was finally completed by a contractor in 2004 at an additional cost of about \$6,500. The two roofs were also

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replaced in 2004 at a cost of \$13,000. Gutters and downspouts were replaced in 2005 for a cost of \$2,100. Windows on the main clubhouse building were replaced as funds allowed between 2002 and 2006. Sliding doors off the dining room and living room were replaced in 2011. New 28-ounce carpeting with a felt pad was installed in the living and dining rooms in 2012, for a cost of approximately \$4,200. When those carpets were later replaced with new flooring in 2017, the felt pad was reused.

In 2017 the clubhouse was renovated with new luxury vinyl plank floors, new millwork, drywall installation/repair/replacement, new powder room fixtures, and new paint. This work was performed by a contractor at a cost of \$15,000, using materials Malvern bought at a cost of \$13,000. Some of the new furnishings (e.g., draperies, bedspreads, artwork) were donated by a club member. The living room furniture (e.g., couches, chairs, coffee table, side tables, lamps) was all donated by club members over the years. In 2021-2022 new couches, chairs, and lamps were purchased at a total cost of approximately \$4,000. The tables will be refinished by a member volunteer with minimal cost to Malvern for materials. A queen bed was purchased for the Main Bedroom in 2018 for about \$500. Four replacement single beds were purchased in 2022 for a total cost of \$1,300. In 2022 the refrigerator failed and was replaced at a cost of \$805.

The Annex windows were replaced in 2018 at a cost of \$6,500. The Annex floors were replaced in 2019 with new vinyl flooring. Wood-look luxury vinyl plank flooring was purchased and installed in the activity center and the pool restroom. The storage room, hallway, and second small upper room were covered with luxury vinyl plank flooring left over from the clubhouse renovation. The total cost to purchase and install the floors in the annex was \$6,500.

Utility service to the complex is a comprehensive residential system, including the following components: a well located in the pool house with underground pipes to the annex and clubhouse; underground electrical lines from the power pole to a main service panel located in the activity center; underground lines back to the pool house; electrical connections to subpanels in the clubhouse office; and a gravity septic system for sewage disposal. At one time there was a Comcast cable service to the clubhouse, but that service was discontinued in 2017 due to its high cost. Safety upgrades were performed on the electrical system by a contractor in 2017 at a cost of \$14,000. This included new wiring and outlets in the clubhouse, installation of a new subpanel in the clubhouse office to service the clubhouse circuits, and new lighting fixtures in the clubhouse and annex.

The well pump was replaced in 2011 after 23 years of service. The pump is at a depth of 340 feet and is rated at 7 gallons per minute. The well services both the clubhouse and the pool. During the summer months when the pool is open, clubhouse and pool water usage needs must be coordinated so that the clubhouse maintains adequate water pressure. When the pool is being filled, there is no water for the clubhouse and annex. The pool restroom, located in the annex, is used daily during the summer months by members and their guests using the pool, and it is used year-round by members and their children and guests who use the playground, which is located just across the driveway from the annex. A pool key is required to unlock the pool restroom.

Wastewater is generated by the toilets, sinks, shower, and dishwasher and is limited in volume and varies with the seasons, being heavier in the summer when the pool is in operation and lighter during the winter months. It is anticipated that the septic field piping and distribution system will have an indefinite lifespan. The septic field is located between the clubhouse and the lake. There is no visual indication to suspect septic field deterioration. The septic tank was last pumped in 2021, at which time it showed very little waste accumulation.

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The clubhouse heating, air conditioning, and ventilating system is all electric using a heat pump. The heat pump and ducting were installed in 2010 with a 10-year warranty. The oil furnace that had been used for heating was removed, oil from the underground tank was removed, and the tank was abandoned in place. Ductwork in the attic was also replaced. The total cost was about \$18,000. The lifespan of the new system was expected to be 18 years, but in 2020 the heat pump unit failed, just one month after the 10-year warranty had expired. Additionally, the air handler was determined to be 20 years old, well beyond its life expectancy. A new American Standard 16 SEER system with a Wi-Fi-enabled thermostat was installed, including heat pump, air handler, and copper wiring, at a cost of \$10,500. The new system also has a 10-year warranty and is expected to last 18 years. The attic ducting was determined to be in good shape.

Heating in the annex is provided by three wall heaters, two in the activity center and one in the pool restroom. Temperature-controlled baseboard heat is provided in the storage room and the second upper room. The wall heaters were replaced in 2021, and the baseboard heat was inspected at the same time and found to be working well. In 2021 a window air conditioning unit was purchased for the activity center.

In 2020 a new security system was installed in the clubhouse/pool complex. It has space for eight cameras and records continuously. The cameras are trained on the clubhouse/annex entrance patio, the parking lot from three directions, the playground, and the pool. At the same time, a hot spot router was purchased and installed so that Malvern can control access to its own network. Members and their families and guests can now access the Internet from anywhere in the clubhouse and annex, as well as from the lawn, pool, and playground area. In 2021 a television and Roku box were installed in the clubhouse living room. In 2022 this smaller TV was replaced by a 60-inch smart TV, which is installed over the fireplace.

Housekeeping for the clubhouse and annex is provided by a paid resident.

The Clubhouse front patio and portico floor need attention because of the continual shifting of the bluestone pavers. The clubhouse committee is evaluating alternative methods of repair or replacement and seeking estimates for the various alternatives. Reserve funds will be allocated for remediation of the this component.

**Pool.** The pool is intended for use by community members in good standing, their families, and their invited accompanied guests. The pool is typically open from Memorial Day Weekend through the Labor Day Weekend. The pool may not be reserved for private parties. Pool privileges are not a part of a clubhouse reservation.

Available records indicate the pool was built in 1971. This means it was installed as one of the planned amenities by a contractor for the original developer. The pool is generally rectangular with dimensions of approximately 22 feet by 55.5. The perimeter is 143 feet. The pool depth varies from 3 feet to 8 feet. The approximate volume of the pool is 47,500 gallons.

The pool is surrounded by pebbled concrete decking. There are wooden steps leading to an upper open composite deck atop the pool house. The pool house was refurbished in 2017 by a contractor at a cost of \$30,000. The work included installation of new decking over the existing concrete roof, a new staircase and steps to access the roof deck, refurbishing of the deck's wooden railing on the pool side, and modifications to the roof drainage. The pool house contains the well pump, as well as the pool

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pump, filter, valves, chlorinator, and safety shutoff (“dead man’s switch”). The room is also used for storage.

The perimeter of the pool is surrounded by an 8-foot-high chain link fence. Access is through a keyed gate. Club members who wish to use the Pool may purchase a gate key. There is a second gate for maintenance access that is secured with a padlock. Both gates are chained and padlocked during non-summer months.

Daily general maintenance, cleaning, and chlorination is provided by a paid resident.

Tile work and replastering of the inside of the Pool was performed in 2009 by Aqua-Clean Pool Service, Inc. Additional work at that time included replacing the anti-entrapment drains, replacing the 4 skimmers, refilling the pool and purchasing several pieces of furniture. This work was done for a cost of about \$22,000. It is expected the resurfacing has a lifespan of 15 years.

A new pool cover was purchased in 2010 for about \$3,000 from Payne Pools & Spas. The pool pump was replaced in June 2012. At 2.5 HP, that pump proved to be too small for the size of the pool; and it failed in 2017. It was replaced with a larger (5 HP) pump by Payne Pools at a cost of \$2,500. The new pump is expected to last at least 10 years. These items are expenses from the operations budget.

**Playground.** The playground area is located near the pool and across the parking lot from the annex. Old playground equipment was removed in 2012 and replaced with commercial grade equipment made by Miracle Recreation Equipment Company, model 718-S069, for a total installed cost of about \$25,200. The lifespan for the new equipment is expected to be greater than 30 years with proper maintenance. The previous swing set and spring “chickens” were relocated in the Playground area. Installation of the equipment was performed by members of the community. The Playground area is mulched with playground-certified mulch to the recommended depth of 9 inches and is topped up each year. The cost for the annual mulching is in the \$2,000 range and is included in the operations budget.

**Mailbox structure and clusters.** The mailbox clusters reside under a roofed wooden structure installed by volunteers for around \$7,000 in 1999. Some of the metal mailbox clusters were purchased in 1991. The remaining clusters were purchased in 1999. The current understanding is that the mailbox clusters are owned and maintained by the Post Office. It is expected that the building can be maintained within the annual maintenance funds for buildings and grounds. In 2021 the Post Office provided some additional mailboxes at no charge.

**Newspaper boxes.** These are located near the mailbox structure. There are currently 3 boxes which were built by a Malvern resident as needed. A Board member administers the boxes. These boxes can be maintained or replaced on an as-needed basis using the annual maintenance funds for buildings and grounds. In 2022 the shingles on the newspaper box roofs were replaced with long-lasting rubber shingles at no charge by a Malvern resident.

**Entrance sign.** This is the monument sign located at the entrance to Malvern. It consists of a wooden sign, between stone pillars in a raised dirt and pea gravel island that is held in place by concrete blocks that do not require mortar. The sign is illuminated by lights located in the island. The sign and its components can be maintained on an as-needed basis using the annual maintenance funds for buildings and grounds.

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A single vehicle collision into the island on January 1, 2021, caused the entire island and sign to be replaced during the first half of 2021. The replacement was paid in full by the insurance company of the owner of the vehicle. The company used for the island replacement was S&B Lawncare. The new sign was made and installed by Xpress Copy & Graphics. Volunteers repaired the original entrance sign and then relocated it to the clubhouse property.

**Road signs and interior community signs.** Road signs consist of street signs, stop signs, speed limit signs, keep right signs and children playing signs. The stop and speed limit signs were all replaced in 2008. There are a total of 24 stop signs measuring 30 inches by 30 inches and a total of 12 speed limit signs measuring 24 inches by 30 inches. Each sign is held in place using 4 by 4-inch pressure treated wooden posts. The total cost for signs, hardware, posts, and cement was approximately \$1,900. There are 2 keep right signs purchased in 2010 for a total installed cost of approximately \$150. Installation of the stop, speed, and keep right signs was performed by volunteers.

The signs should give many years of service. Eventually the signs will need to be replaced when the luminosity has degraded to a point where the signs are difficult to see at night. Additionally, the posts may need to be replaced and unfortunately vandalism would be another cause for replacement.

Other signs include a large no trespassing/soliciting sign at the entrance, signs displaying pool and lake rules, and no trespassing signs at the clubhouse complex.

Annual operational budgets are sufficient to replace signs as needed.

**Common grounds.** The clubhouse is located on a 6.7-acre parcel. There is a median along a portion of Malvern Drive. Most of the median is privately owned by adjacent owners. However, the median is treated as common area for maintenance. There is a 0.697-acre parcel along the east side of Covered Bridge near Dark Run that is mowed during the summer months. There is an unmaintained 0.346-acre parcel at the end of Carriage Lane. These areas will mostly require just mowing and landscaping in selected areas, funds for which will be included in annual operations budgets.

### INFLATION RATE

From 2008 through 2018, the cumulative rate of inflation was 16.6%. This information is from the website, <https://www.usinflationcalculator.com/>. This reserve study used an annual inflation rate of 2.5% for estimating replacement costs.

It will be important that periodic reviews of the reserve study address inflation since it can have such a significant impact on future costs.

### ASSUMPTIONS

Estimating useful life and remaining useful life of any component is a guess. Consulting with contractors and other specialists could result in better estimates.

A component could fail sooner or later than the time it is scheduled to be repaired or replaced. A component failing sooner could burden the reserve fund balance.

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The twin box culverts at Dark Run, the dam and the clubhouse structure are predicted to have an indefinite lifespan with proper maintenance. Should any of these components fail there will be no funds set aside for their repair or replacement.

An operational budget threshold of \$5,000 exists, meaning components costing less than \$5,000 will be paid from annual operation funds and savings and not from reserve funds.

### EXPLANATION OF TABLES:

Table 1 shows future replacement cost based on the predicted inflation factor applied to the current replacement cost and the estimated remaining life of the corresponding component subtotal. Note in table 2 that pool is listed twice. This is because the pool will need to be addressed 2 times over the next 30 years.

Table 2 shows the impact that the annual contributions and expenditures will have on the total amount remaining in the reserve fund. The goal of table 2 is to not allow the reserve fund total to approach 0 or go into the negative.

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**Table 1 – Component and Maintenance Summary**

<b>Inflation factor</b>	2.50%			
<b>Component</b>	<b>Useful life</b>	<b>Remaining life</b>	<b>Current \$</b>	<b>Future \$</b>
Pool (from 2009) *	15	2		\$75,000
Pool (from 2009)	30	17		\$48,700
* Approximate cost for re-plastering, replacing tiling, coping, and concrete apron, installing a second main drain, and replacing ladders & handrails				
HVAC (from 2020)	16	14	\$10,500	\$15,200
Roof (replace in 2032)	26			\$17,000

### Road Resurfacing

Year	Funds Available	Square Yards	Cost per SY	Total Cost	Roads Addressed
<b>2020</b>	\$265,000		\$7.30		Malvern Drive to Pine Torch Lane, Covered Bridge to just past Aroda Road, Liberty Lane ( <b>COMPLETED</b> )
<b>2024</b>	\$205,000	17,000	\$12.00	\$204,000	Ashlawn; Old Forge
<b>2028</b>	\$205,000		\$		Covered Bridge from Aroda Road to Surry Court; feeder roads prioritized based on highest traffic counts first
<b>2032</b>	\$205,000		\$		Clubhouse parking; continue feed roads
<b>2036</b>	\$205,000		\$		To be determined
<b>2040</b>	\$205,000		\$		To be determined
<b>2044</b>	\$205,000		\$		To be determined
<b>2048</b>	\$205,000		\$		To be determined

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**Table 2 – 30-year Reserve Fund Summary**

Year	Year #	Annual Contribution	Annual Expenditures	Reserve Fund Balance	Task
				\$187,191	Balance prior to July interest withdrawal
2022	4	\$35,450	(\$8,838)	\$215,049	Dam emergency repair
2023	5	\$35,450	(\$25,000)	\$227,999	Clubhouse front patio
2024	6	\$38,375	(\$200,000)	\$66,374	Roads, pool renovations
2025	7	\$38,375		\$104,749	
2026	8	\$38,375		\$143,124	
2027	9	\$38,375		\$181,499	
2028	10	\$41,300	(\$125,000)	\$97,799	Roads
2029	11	\$41,300		\$139,099	
2030	12	\$41,300		\$180,399	
2031	13	\$41,300		\$221,699	
2032	14	\$44,225	(\$142,000)	\$123,924	Roads, roof
2033	15	\$44,225		\$168,149	
2034	16	\$44,225		\$212,374	
2035	17	\$44,225		\$256,599	
2036	18	\$47,150	(\$140,200)	\$163,549	Roads, Clubhouse HVAC
2037	19	\$47,150		\$210,699	
2038	20	\$47,150		\$257,849	
2039	21	\$47,150	(\$48,700)	\$256,299	Replastering
2040	22	\$50,075	(\$125,000)	\$181,374	Roads
2041	23	\$50,075		\$231,449	
2042	24	\$50,075		\$281,524	
2043	25	\$50,075		\$331,599	
2044	26	\$53,000	(\$125,000)	\$259,599	Roads
2045	27	\$53,000		\$312,599	
2046	28	\$53,000		\$365,599	
2047	29	\$53,000		\$418,599	
2048	30	\$55,925	(\$125,000)	\$349,524	Roads