July 16, 2021

CAROLINA FOREST COMMUNITY SERVICE ASSOCIATION
c/o Charity Hurlburt, Association Manager
ADVANTAGE GOLD REALTY
1512 Gum Branch Road
Jacksonville, North Carolina

Via Email: churlburt@advantagegoldrealty.com

Property:	**CAROLINA FOREST COMMUNITY SERVICE ASSOICATION (CSA)** **912-914 SAVANNAH DRIVE, JACKSONVILLE, NC 28546**
Service:	**RESERVE STUDY**
Project No.:	21-0136-NC
Attachment:	Report

Dear Charity Hurlburt and Members of the Board,

Criterium-NC Engineers has completed a Reserve Study for the Carolina Forest Community Service Association (CSA). We submit our draft report herewith for the Board's consideration and review.

This Reserve Study has been performed in general accordance with Community Association Institute (CAI) National Reserve Study Standards.

Our findings and recommendations are principally based on observations made during our on-site visual inspection performed on May 18, 2021.

The report herewith should be reviewed in its entirety, including its Appendices which contain the financial analysis, captioned photographs, and reference documents.

In reviewing the engineering assumptions, cost estimates and projected fund values herein, please understand that their accuracy diminishes greatly beyond Year Five. Long range facility maintenance projections are intended only to indicate the likely pattern of capital expenditures and to guide financial planning. Criterium-NC agrees with CAI's recommendation that reserve studies should be updated regularly to allow periodic adjustment of facility plans and funding strategies.

If you have any questions or would like to discuss funding alternatives, please contact Senior Engineer Cam Grant, P.E. at (800) 242-1969, ext. 111.

Criterium-NC Engineers appreciates this opportunity to assist the Board, in support of the Carolina Forest Community Service Association's facility and financial planning.

Thank you.

CRITERIUM-NC ENGINEERS

H. Alan Mooney, P.E.(NC)

RESERVE STUDY UPDATE

CAROLINA FOREST COMMUNITY SERVICE ASSOCIATION (CSA)
912-914 SAVANNAH DRIVE
JACKSONVILLE, NORTH CAROLINA 28546

Prepared for:

CAROLINA FOREST COMMUNITY SERVICE ASSOCIATION
C/O ADVANTAGE GOLD REALTY

Prepared by:

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MEMBER OF community ASSOCIATIONS INSTITUTE

Walk-Through Survey performed May 17, 2021
Submitted July 16, 2021

CE Project No. 21-0136-NC

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APPENDICES

1.0 INTRODUCTION

Following authorization by the Association Manger – Charity Hurlburt, Criterium-NC Engineers conducted a Reserve Study of your 574 unit residential community located off Carolina Forest Boulevard in Jacksonville, North Carolina.

This report must be reviewed in its entirety to understand our findings and their limitations. The Appendices are an integral part of this report and must be included in any review. Please refer to *Appendix D* for definitions of common terms of reference used herein.

We have conducted the study in general accordance with the National Reserve Study Standards published by the Community Association Institute (CAI). Please refer to *Appendix D* which contains a copy of the CAI standard.

This study was conducted by licensed Professional Engineers and other qualified staff working under the responsible charge of a CAI-certified Reserve Specialist. Please refer to *Appendix E* for the qualifications of the project team.

Criterium-NC Engineers' Logan Poe, P.E.[(NC)] performed this study and visited the site on May 18, 2021. This report is principally based on our visual inspection and from information in the previous 2012 study. Logan Poe, P.E.[(NC)] prepared this report and the attached financial analysis. V. Campbell Grant, P.E.[(ME)] and H. Alan Mooney, P.E.[(NC)] reviewed his findings and presents this confidential report for the Board's review and use.

In reviewing the engineering assumptions, cost estimates and projected fund values herein, please understand that their accuracy diminishes greatly beyond Year 5. Long range facility maintenance projections are intended only to indicate the likely pattern of reserve expenditures and to guide financial planning. Criterium-NC agrees with CAI's recommendation that reserve studies should be updated regularly to allow periodic adjustment of facility plans and funding strategies.

2.0 EXECUTIVE SUMMARY

In summary, as a result of our on-site inspections and other investigations, we find the common components of the property to be in good general condition and generally well maintained.

We observed some deficiencies and some deferred repairs which are noted herein.

We have identified an inventory of Association-responsible common components which are likely to require periodic repair or replacement or other recurrent reserve investment.

We have formed an opinion of the remaining useful life of each component. We have estimated the current cost of required reserve expenditures for their repair or replacement. We have projected annual reserve budgets over a 30-year planning period.

We have also interviewed the Board to learn of any planned facility improvements which will require reserve expenditures.

In the summary, the 30-year total of projected reserve expenditure budgets, (current dollar cost estimates inflated at 2% annually), is $3,167,410.

The Board has provided us with information on the Association's Reserve Fund and the current funding plan. Our initial financial analysis was based on the data supplied.

Given the reported $197,584 starting balance of the Reserve Fund on January 1, 2022, the current ongoing rate of contribution $41,490 annually, and an anticipated average rate of return on investment of 0% per year, our financial analysis indicates that the Association's current funding will not be adequate to meet future needs.

Due to reserve expenses, the projected year-end fund balance becomes negative in Year 13 (2034).

3.0 PURPOSE & SCOPE

3.1 OBJECTIVES

The purpose of this reserve study is to determine a reserve needs plan for the Association, to evaluate the current rate of contribution to the reserve fund, and, if required, to suggest alternate funding strategies.

This report is intended to be used as a tool by the Association's Board for considering and managing its future financial obligations, for determining appropriate reserve fund allocations, and for informing the individual Owners of the Association's required reserve expenditures and the resulting financial plan.

For purposes of financial planning, Association-responsible expenses are typically divided into two categories:

- Operation and maintenance (O&M) of commonly-held elements of real property and other assets. These O&M expenses usually include taxes, insurance, property management costs and other service fees.
- Reserve expenditures for major periodic repairs or replacement of commonly-held elements.

Normal, recurring O&M costs are typically paid by the individual Owners through periodic assessments or service fees equal to their share of the annual budget, which is estimated based on cost projections of either actual or average levels of expense.

Some additional contingency amount may be included in annual O&M budgets to result in a year-end surplus which is carried forward year-to-year to cover variations in annual costs or any uninsured losses. This carry-over is often referred to as an operating reserve.

These O&M costs, the funding and operating reserves are not typically considered by a Reserve Study.

Long-term reserve expenditures, the funding plan and ensuring adequate Reserve Fund balances are the focus of this Reserve Study.

Studies of this nature are important to ensure that a community will have sufficient funds for long-term, periodic reserve expenditure requirements. This helps preserve the value of the community and the units within it.

Anticipating significant expenditures over an extended period of time will assist the Association in determining appropriate levels of present and ongoing contribution to a reserve fund which will result in adequate balances to cover these expenses as they arise without any need for borrowing or special assessments.

History demonstrates that, as time progresses, property conditions and management strategies will change. As a result, planned scopes of work may be altered or deferred. Actual cost in the marketplace will vary from estimates. Actual rates of inflation and returns on investment will vary from projections.

For these reasons, we concur with the Community Association Institute guidelines and recommend that this reserve study be updated every three to five years.

3.2 LEVEL OF SERVICE

The Community Association Institute (CAI) identifies three levels of service for Reserve Studies:

I. Full Reserve Study, with site visit

II. Reserve Study Update, with site visit

III. Reserve Study Update, without site visit

All may be appropriate for a community, depending on the condition of the facility and the phase of their planning cycle. The CAI National Reserve Study Standard in *Appendix D* contains more detail on these levels of service and the scope of study of each of them.

Our current study is a Level II - Reserve Study Update, with site visit.

Criterium's actual scope of service is enhanced and exceeds the CAI standard in the Amount principal ways:

- Our investigation and evaluation of the property is performed by experienced professional engineers.
- After preparing and submitting our initial analysis, we engage in an iterative review process with the Board, toward developing a financial plan more responsive to the needs of our client.

3.3 SOURCES OF INFORMATION

The following people were interviewed during our study: Board members:

- Elle Grandstaff – Acting Board President

The following documents were provided to us and reviewed:

- Previous Reserve Studies: 2012

No building construction documents were available.

4.0 PHYSICAL ANALYSIS

4.1 PROPERTY DESCRIPTION

Please refer to *Appendix C* for captioned photographs and Appendix Contents.

Carolina Forest is a 574-member association located in Jacksonville, North Carolina. Development of the community first began in approximately 2005. The clubhouse and pool were reportedly constructed in 2011-2012 and other areas of the community and roads built out over the last 10 years. The community consist of single-family residential homes, a community clubhouse, and a pool building. The association has responsibility for maintaining the clubhouse and pool building, as well as various site improvements and amenities. Amenities include a swimming pool, newly installed playground area and associated equipment. The most significant site improvements include the clubhouse parking lot, community roadways, clubhouse, and pool.

The community is located between the main roads of Ramsey Road and Western Boulevard. Primary access to the community is via Carolina Forest Blvd. The majority of the association is located on the west side of Carolina Forest Blvd and accessed from secondary roads off of Brunswick Drive, Savannah Drive, and Cypress Bay Drive. Along the east side of Carolina Forest Blvd, it was reported that the association is responsible for a section of roadway along Terry Lee Lanier Drive and the entire road along W.T. Whitehead Drive. The clubhouse, pool and respective pool building, parking lot and playground equipment is located near the intersection of Savannah Drive and Ironwood Court.

The residential buildings, individual driveways and mailboxes are the responsibility of the individual homeowners.

Site drainage is provided via landscaped swales and inlet basins in the paved and landscaped areas. These systems direct water flow toward swales and creeks running through the property.

Asphalt drives are provided along the private community-maintained roadways. The asphalt drives are lined with a combination of concrete curb and gutters and concrete lined swales.

4.2 COMMON COMPONENTS

Please refer to *Appendix A* for the Common Component Inventory.

Association-responsible common components include:

- Asphalt-paved roads, and clubhouse parking lot
- Storm drain collection systems
- Concrete flatwork and curbing
- Cast-in-place concrete walks
- Entrance monuments
- Clubhouse
- Pool and pool building with respective equipment
- Playground equipment and fencing
- Storage shed

- Landscape irrigation system
- Fencing around pool

Individual Unit Owners are responsible for maintenance & repairs of their own homes.

4.3 CONDITION ASSESSMENT

4.3.1 Site Improvements

Description & Observations

The topography of the community is generally flat with limited slope. The community-maintained roads and the clubhouse parking lot are asphalt paved. A parking lot is located adjacent to the pool located near the intersection of Ironwood Court and Savanah Drive.

Per information provided, the community is responsible for maintaining the asphalt roadways and concrete flatwork. The roadways include are as follows; Carolina Forest Blvd (partial sections), Brunswick Drive, Savannah Drive, Wynbrookee Lane, Caldwell Drive, Maplewood Court, Ivey Glen Lane, Willoughby Lane, Winson Green Lane, Walkens Woods Lane, Sone Gate, Old Stone, Ironwood Court, Stagecoach Drive, Hills Lorough Loop, Hunterswood Court, Kingswood Court, Edgefield Drive, Autumn Cove Court, Cypress Bay Drive, Burning Tree Lane and W.t. Whitehead Drive. Additionally, it was reported that the western section of Terry Lee Lanier Drive was also the responsibility of the community. The community responsibility of Carolina Forest Blvd extends from Ramsey Road to Cypress Bay Drive and then continues along the southern portion of Carolina Forest Blvd, south of Stagecoach Drive. It was reported that the community is not responsible for the portion of roadway servicing the daycare and apartments.

The majority of the asphalt pavement appeared to be of original construction. Per information provided a section of newly installed pavement overlay was provided along Carolina Forest Blvd by the City of Jacksonville. This section of pavement was located along the southern portion of Carolina Forest Blvd to the intersection of Cypress Bay Drive and Terry Lee Lanier Drive.

The original pavement at other community-maintained roadways appeared to be in good to fair condition. Limited sections of potholes and distressed pavement was observed at limited locations. A failed repaired area of asphalt was observed in front of the driveway at 113 Ironwood Court.

The asphalt roads and parking areas had been scheduled to be resealed on a seven-year schedule thereafter. We have anticipated the need for re-surfacing sections of the asphalt surfaces at the community. This component typically has an estimated useful life of approximately twenty years. We have provided this in a two-phase approach given the amount of reportedly community-maintained roads. Full depth repairs will be required at areas of failed pavement and subgrade. We assumed these expenses for immediate repairs to the asphalt pavement at failed sections would be funded from an annual maintenance budget.

Concrete curb and gutter is installed along the perimeter of the parking lot and community drives. Over time, it is likely that cracks and depressions will develop in the concrete curbing. Limited areas of broken concrete curbing was observed along Willoughby Lane. We have allocated funds for periodic replacement of concrete curbing as required and have assumed that 2% of the surfaces will require replacement every 8 years beginning in 2026.

Concrete sidewalks are located around the clubhouse building, roadways and the parking lot. It is likely that due to differential settlement and cracking, sections of the concrete flatwork will require repair. Recent

crack sealing was reported around the clubhouse and pool deck. We have allocated funds for periodic replacement of concrete surfaces as required and have assumed that 2% of the surfaces will require replacement every 8 years beginning in 2026.

Stormwater on the site drains via surface flow or via landscaped swales toward a stream running through the property. The association is responsible for maintaining portions of the swales located on common property throughout the community. We anticipate the need to improve/maintain drainage in common area drainage systems by re-cutting swales, adding riprap reinforcements and/or repairing erosion. Some of the swales were overgrown with vegetation at the time of our inspection. We have allocated funds for improvements to the overall drainage system on an eight-year cycle beginning in 2025.

Anodized aluminum fencing has been installed around the swimming pool area. Over time it is likely that the fence coating will begin to fade in color and deteriorate. The fencing was in good condition at the time of our inspection. We have assumed these expenses would be funded from an annual operating budget.

Three large monument entrance signs are located along Carolina Forest Drive in the community at the intersections of Western Blvd, Stagecoach Drive and Ramsey Road. The composite signs are mounted on a brick monument structure. Two of the signs include an EIFS type stucco trim around the composite sign. The brick monument structures appeared to be in good condition and will not likely require significant repair over the term of the study. The composite sign inlays appeared to be in good condition. Over time the composite sign inlay will likely begin to fade in color and deteriorate. We have allocated funds to repair and paint the monument entrance signs on a 10-year cycle beginning in 2030.

Irrigation systems serve the landscaped areas around each of the monument entrance signs and at the common areas around the clubhouse. The irrigation systems will likely require periodic minor repairs. We have assumed these expenses would be funded from an annual operating budget. We have allocated funds to replace the major irrigation components on a 12-year cycle beginning in 2034.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all site improvements which are common components, and a detailed schedule of projected Reserve Expenditure.

4.3.2 Building Structure and Exterior

Description & Observations

As no building construction documents were available for review, any comment on the structural systems for the community is based on how the buildings appear to be constructed from an exterior inspection.

The responsibility of the HOA is limited to the clubhouse and pool building. The buildings are of stick-framed construction with pitched roofs. Foundation walls appear to be constructed on a concrete slab-on-grade. Footings were not visible.

There did not appear to be any issues of concern regarding capital expenditures for the structural systems for these buildings at the time of the investigation.

The club house and pool building exteriors are primarily clad in vinyl siding with aluminum wrapped trim components. Limited trim and column components are comprised of painted PVC or composite material. The exterior doors are painted fiberglass doors. The exterior of the buildings was generally in good condition. We have allocated funds to paint the exterior doors and trim components at the club house and

pool buildings on a 7-year cycle beginning in 2028.

The pitched roof surfaces over the buildings are covered in standing seam metal roofing. Standing seam metal roofing has an expected useful life well beyond the term of this study. However, we anticipate that the roofing will begin to fade in color over time and require re-coating. No significant fading was observed at the time of our inspection. We have allocated funds to re-coat the standing seam metal roofing on a 15-year cycle beginning in 2037.

The club house windows are comprised of double pane vinyl frame windows. The windows generally appeared to be in good condition. We estimate the windows to have expected useful lives of approximately 20 years. We have allocated funds to replace the windows beginning in 2040.

Due to the environment around the pool, the metal pool pump and chemical room doors will likely corrode and require replacement on an approximately 15-year cycle. We have allocated funds to replace the doors beginning in 2031.

A recently purchased stand alone storage building was observed at the southeast corner of the club house adjacent to the wooded area. We estimate the storage building to have and expected useful life of approximately 20 years. We have allocated funds to paint the siding components along with the scheduled re-painting of the clubhouse and pool building trim components.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all building exterior items which are common components,

4.3.3 Building Interior

Description & Observations

This section of the report does not address Owner-responsible Unit interiors.

The club house interior walls and ceilings are comprised of smooth finished painted drywall and wood trim. The flooring throughout the club house is comprised of ceramic tile. The club house was recently renovated due to issues with reported microbial growth within the space. The renovation included new paint and upgrades to the kitchen and bathroom components.

We estimate that depending on the level of traffic/use, to maintain a clean bright appearance the club house will require interior painting on a 7-year cycle. We have allocated funds to paint the interior walls and trim beginning in 2029.

Additionally, as part of the reported microbial growth discovered within the building, new furnishings were acquired. This included a small section of workout equipment including a treadmill and We have allocated funds on a 15-year cycle to replace the interior furnishings as needed beginning in 2037. This funding would include replacement/upgrade of the audio/visual equipment in the club house.

The club house included a small kitchen with a section of wood cabinets and a sink. Two restrooms are located in the club house with toilets, sinks and fixtures. We have allocated funds to refurbish the kitchen cabinets and kitchen and bathroom fixtures on a 15-year cycle beginning in 2037.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all interior items which are common components,

4.3.4 Mechanical

Description & Observations

This section of the report does not address Owner-responsible mechanical, electrical and plumbing systems.

The heating, ventilation and air conditioning (HVAC) equipment serving the clubhouse includes two original Bryant heat pumps located outside and corresponding fan coil units located in the attic space of the club house. The heat pumps include a 5-ton capacity unit and a 4-ton capacity unit. The heat pumps were manufactured in 2011 and have expected useful lives of approximately 15 years. Two small Frigidaire pass through wall mounted heating and air conditioning units are located in the pool building. We have allocated funds for replacing the HVAC equipment on a 15-year cycle beginning in 2026.

Security cameras have been installed around the club house and pool area. A key fob system provides secured entrance into the pool area and club house. These systems typically require repairs or upgrades on a 10-15 year cycle. Based on information provided both systems were recently upgraded as part of the clubhouse improvements. We have allocated funds to repair/upgrade the security camera and access control systems on a 12-year cycle beginning in 2034.

Exterior light fixtures are mounted around the pool buildings including can lights in the outdoor ceiling area around the clubhouse. These fixtures typically require periodic replacement. We have assumed this minor expense will be funded from a general operating budget.

The pool pump and filtration equipment includes a 5-horsepower pump and two Triton II sand filters with an automatic chlorinator. The pump was scheduled to be replaced as part of the repairs to the pool. We have allocated funds to repair/replace this equipment on a 10-year cycle beginning in 2037.

The club house restrooms and kitchen are served by an electric water heater. Typically, a water heater has an expected useful life of approximately 15 years. As part of the renovation of the clubhouse, the hot water heater was reportedly scheduled to be replaced and relocated from the attic to the ground level mechanical room. We have allocated funds to replace it in 2037.

The plumbing piping and electrical wiring systems in the club house have expected useful lives beyond the term of this study. Minor periodic repairs will likely be required and we have assumed these expenses would be funded from an annual maintenance budget.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all mechanical items which are common components,

4.3.5 Amenities

Description & Observations

Amenities at this property include a swimming pool and playground area.

The swimming pool was constructed in 2012 and the surface appeared to be in poor condition. The pool was drained and not in use at the time of our inspection. Per information provided, repairs were scheduled to repair the pool surface. The pool surface will typically require re-plastering and tile/coping repair on a 12-year cycle. We have allocated funds to repair and re-plaster the pool surface beginning in 2034.

The pool deck was comprised of concrete and includes a textured coating. Per information provided, the deck was recently repaired. Limited cracking due to differential settlement in the concrete deck and

deterioration in the textured pool coating will likely require the coating to be refinished on a 10 to 20 year cycle. We have allocated funds in year 12 to repair and refinish the textured coating on the pool deck.

Pool furnishings include access ladders and rails in addition to pool chairs. We have allocated funds to replace approximately 1/3rd of the pool furniture on a 5-year cycle beginning in 2027.

A newly installed playground was installed at the west side of the clubhouse. The playground included various slides, climbing apparatuses and equipment. The systems were in good condition. We estimate the equipment to have expected useful lives of approximately 20 years. We have allocated funds to replace the playground equipment beginning in 2041.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all amenities which are common components,

4.3.6 Other

We identified no other common components for which we anticipate any need for eventual capital expenditure.

4.4 CURRENT DEFICIENCIES

Based on the Board's list of concerns, individual Owner's reports and our own observations, we identified design & construction deficiencies and deferred repairs which may require near-term repair, corrective action or improvements:

- Asphalt pavement cracking, settlement and potholes.
- Broken sections of concrete curbing.
- Differential settlement at various concrete flatwork

Also, at the time of our inspection, various normal maintenance activities were pending:

- Pool repair
- Pool building bathroom upgrades scheduled
- Parking lot lighting
- Installation of shade structure at playground to be voted on.
- Replacement of the pool pump once pools is repaired.
- Replacement of the sand at the pool filtration system
- Obtaining bids to expand pool facility
- Relocating hot water heater from attic with new unit at mechanical room at the ground level

Correction of most of these items do not represent significant expenses and should be covered by normal operations & maintenance budgets.

4.5 LIFE & VALUATION

4.5.1 Opinions of Useful Life

Simply stated, for components which require periodic reserve expenditures for their repairs or replacement, the frequency of work equals the typical, industry accepted expected useful life (EUL) for the type of feature:

Component's Frequency of Reserve Expenditure = Component's EUL

And, the remaining useful life (RUL) of a component before the next reserve expenditure for its repair or replacement is equal to the difference between its EUL and its age:

RUL = EUL – Age

Of course, the condition and rate of deterioration of actual site improvements and building elements rarely conform to such simple analysis. And, often, a property's history and available documentation does not provide any record of a particular component's actual age.

In our experience, the effective age and actual RUL of an installed item vary greatly from its actual age and calculated RUL. These variances depend on the quality of its original materials and workmanship, level of service, climatic exposure, and ongoing maintenance. As part of Criterium-NC's work on this reserve study, we have determined our opinion of the effective age, EUL and RUL of each common component based on our evaluation of its existing condition and considering those factors.

As a result, in preparing the Reserve Expenditure schedule for reserve studies, we often:

- Accelerate the schedule of work for components found to be in poorer condition than expected for their age.
- Defer work for components observed to be in unusually good condition.

In reality, reserve repair and replacement work for some components is often spread over a number of years. This may be done because not all on-site installations of a particular type of component age or deteriorate at the same rate. Or, work may be scheduled in phases to limit disruption or ease cash flow.

For these reasons, when it seems appropriate we will spread some budgets over multiple years. However, it is beyond the scope of this reserve study to prioritize the need for work between a number of buildings or installed locations or to closely specify or breakdown phased work packages.

In summary, we have based our opinion of the remaining service life and expected frequency and schedule of repair for each common component on some or all of the following:

- Actual or assumed age Observed existing condition
- Association's or Property Manager's maintenance history and plan
- Our experience with actual performance of such components under similar service and exposure
- Our experience managing the repairs and replacements of such components

We use the following documentation to guide our considerations:

- Fannie Mae - Expected Useful Life Tables National Association of Home Builders - Life Expectancy of Components
- Marshall & Swift Valuation Service Expected Life Expectancies

4.5.2 Cost Estimating Cost Estimating

In developing our estimate of reserve expenditure for most common components, we have estimated a quantity of each item and also a unit cost for its repair or replacement. In some cases, it is more appropriate to estimate a lump sum cost for a required work package or 'lot'.

Unless directed to take a different approach, we assume that contract labor will perform the work and apply appropriate installer's mark-ups on supplied material and equipment. When required, our estimated costs include demolition and disposal of existing materials, and protection of other portions of the property.

When appropriate for large reserve projects, we will also include soft costs for design and project management, and typical general contractor's cost for general conditions, supervision, overhead and profit.

We have based our opinion of unit and lump sum costs on some or all of the following:

- Records of previous maintenance expenses
- Previously solicited Vendor quotations or Contractor proposals
- Provided reserve budgets developed by others
- Our project files on repairs and replacements at other properties

We use the following publications to guide our considerations:

- On-Line R S Means - Construction Cost Data
- Marshall & Swift Valuation Service - Facility Cost Index

Annual aggregated reserve expenditure budgets have been calculated for all years during the study period by inflating the annual tallies of current dollar cost estimates, and compounding for inflation at 2% per year.

Of course, it is impossible to accurately predict inflation fluctuation. Three percent is close to the average annual values of both consumer and construction cost increases since the US Bureau of Labor Statistics started publishing data approximately 85 years ago.

5.0 FINANCIAL ANALYSIS

Please refer to *Appendix A* which contains tables and graphs illustrating the findings following below.

5.1 RESERVE EXPENDITURE PROJECTION

Based on our investigations and estimates described in Section 4 of this report, we have identified likely reserve expenditures throughout the study period.

For detailed information on projected reserve expenditures, please refer to the *Appendix A* tables titled "Common Component Inventory & Reserve Expenditure Planning" and "Annual Reserve Expenditures 30-Year Budget Projection."

In the summary, the 30-year total of projected reserve expenditure budgets, (current dollar cost estimates inflated at 2% annually), is $3,167,410.

Please note that we have assumed that the cost of minor repair & replacement work valued at less than $1,500 will be covered by normal Operations & Maintenance budgets. Such "de minimis" costs may be for one-time

work on a single item, or aggregated repairs of a type of component over a year.

We have also included any reserve budget allowances for repair of casualty damage by vehicle impact, severe storm action, etc. It is assumed that such expenses would be defrayed by proceeds of insurance claims.

5.2 CURRENT FUNDING

5.2.1 Board-Provided Information

At the time we were retained to provide this study, provided us with initial information on the Trust's Reserve Fund and its funding plan.

Our initial financial analysis was based on the data supplied.

- Fiscal Year Starting Date: January 1, 2022
- For Designated Year: 2022
- Starting Fund Balance: $258,300
- On Date: January 1, 2022
- Current Rate of Contribution: $41,490
- Planned Increases: none
- Planned Special Assessments: none
- Projected Average Return on Investment: 0%
- Projected Rate of inflation: 2%

Financial data, records of past expenses, and cost estimates provided by others have been taken in good faith and at face value. No audit or other verification has been performed.

5.2.2 Current Funding Plan Projection

Our initial analysis was a projection of the Association's current rate of contribution forward over 30 years with no increases.

For detailed data, please refer to the *Appendix A* tables and graphs titled "Reserve Fund - 30-Year Cash flow Projection - Current Funding Plan."

Given the reported $197,584 starting balance of the Reserve Fund on January 1, 2022, the current ongoing rate of contribution $41,490 annually, and an anticipated average rate of return on investment of 0% per year, our financial analysis indicates that the Association's current funding will not be adequate to meet future needs.

Due to reserve expenses, the projected year-end fund balance becomes negative in Year 13 (2034).

5.3 ALTERNATE FUNDING PLANS

In this report, we have recommended maintaining a minimum threshold fund balance equal to two times the average annual reserve expenditure current dollar budgets. The initial value should be based on the average in dollars, and then the threshold value should grow over the planning period at the assured rate of inflation.

We have prepared three alternate funding plans for the Board's consideration:

- A one-time lump sum increase in Year 1. A 190% increase to $17.50 per month per unit would be required to maintain positive balances throughout the 30-year planning period.
- Phased annual increases in Years 2-6 (2023 - 2027). Five increases of $3.00 per month per unit would be required to maintain the suggested threshold. In Years 6-30 (2027 - 2051) total monthly contribution would equal $21.02 per unit.
- Thirteen increase @ 12% in Year 2-14 (2023-2035). This would result in a contribution of $26.28 per unit per month in Years 14-30 (2035-2051).

We look forward to working with the Board to develop a satisfactory plan for their adoption.

5.4 FUNDING METHODOLOGIES (Background Information)

The Community Association Institute (CAI) recognizes several reserve funding methodologies, all of which may be used to satisfy these principles:

- Sufficient Funds When Required
- Stable Contribution Rate over the Years
- Evenly Distributed Contributions over the Years
- Fiscally Responsible

For this reserve study, Criterium-NC has utilized a cash flow approach.

One strategy to ensure there will be sufficient funds available to cover unplanned emergencies is to maintain prudent minimum threshold reserve balances.

For your association, we suggest an initial threshold equal to two times the average annual reserve expenditure in current dollars. This equals $233,682 in Year One.

This is then adjusted for inflation over the study period leading to a future dollar threshold value of approximately $414,983 in Year 30.

The alternative funding plans we developed should maintain positive reserve balances throughout the study which will not fall far below this suggested range of minimum threshold values.

For the planning needs of your association, we have recommended a cash-flow approach. This methodology is approved by CAI.

There are other ways of determining appropriate reserve funding levels. These are set forth in CAI's National Reserve Study Standard attached hereto in Appendix D.

6.0 LIMITATIONS

This information in this study is not to be considered a warranty of condition, quality, compliance or cost. No warranty is implied.

Financial data, records of past expenses, and cost estimates provided by others have been taken in good faith and at face value. No audit or other verification has been performed.

The observations described in this study are valid on the dates of the investigation and have been made under the conditions noted in the report.

This study is limited to the visual observations made during our inspection. We did not undertake any excavation conduct any destructive or invasive testing, remove surface materials or finishes, or displace furnishings or equipment.

Except as specifically noted, we did not observe or inspect the following areas and items:

In the absence of other information such as records from construction or previous inspections, or indirect evidence of concealed conditions, we cannot form any opinion on unobserved portions of the facility.

However, our opinion regarding concealed portions of the property and their condition are informed by our experience with other similar facilities.

In some cases, we inspected only a representative sample of site improvements and building spaces, components, systems or equipment. We cannot be responsible for unobserved aberrations.

We did not perform any computations or other engineering analysis as part of this study, nor did we conduct a comprehensive code compliance investigation.

We did not undertake to completely assess the structural stability of the buildings or the underlying foundations and soils. Similarly, we performed no seismic assessment.

We did not undertake a comprehensive environmental assessment of the facility, nor perform any sampling or testing for hazardous materials.

Reserve budgets are opinions of likely expense based on rough cost estimates. We have not obtained competitive quotations or estimates from contractors. Actual costs can vary significantly, based on the eventually determined scope of work, availability of materials and qualified contractors, and many other variables. We cannot be responsible for variances.

Criterium-NC Engineers prepared this confidential report for the review and use of the Board of the Association. We do not intend any other individual or party to rely upon this study without our express written consent. If another individual or party relies on this study, they shall indemnify, defend and hold Criterium-NC Engineers, its subsidiaries, affiliates, officers, directors, members, shareholders, partners, agents, employees and such other parties in interest specified by Criterium-NC Engineers harmless for any damages, losses, or expenses they may incur as a result of its use. Any use or reliance of the report by an individual or party other than shall constitute acceptance of these terms and conditions.

Criterium-NC Engineers does not offer financial counseling services. Although reasonable rates of inflation and return on investment must be assumed to calculate projected balances, no one can accurately predict actual economic performance. Although reserve fund management and investment may be discussed during the course of the study, we do not purport to hold any special qualifications in this area.

We recommend that the Board also seek other professional guidance before finalizing their current reserve fund planning activity. Depending on issues which may arise, an appropriate team of consultants to aid decision-making might include their property manager, accountant, financial counselor and attorney.

7.0 CONCLUSION

Criterium-NC Engineers appreciates this opportunity to assist The Carolina Forest Community Service Association in support of your facility and financial planning. We are pleased to present this report for the Board's consideration and use.

To the best of our ability, we have attempted to work in the best interest of the Association and to aid the Board toward fulfillment of their fiduciary responsibilities and obligations to the individual Unit Owners who comprise the association's membership.

In our professional opinion, and within the limitations disclosed elsewhere herein, all information contained herein is reliable and appropriate to guide the Board's deliberations and decision-making.

All of Criterium-NC's work for this study has been carried out in strict accordance with the CAI Code of Ethics. We consider our report confidential, and will not share its content with anyone but the Board without its knowledge and release.

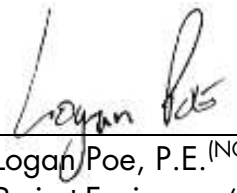
We are unaware of any other involvement or business relationship between Criterium-NC Engineers and the Developer, or individual Unit Owners, or members of the Board, or any other entities which constitutes any conflict of interest.

Criterium-NC Engineers appreciates this opportunity to assist the Board in support of the association's facility and financial planning. Thank you.

Thank you.

Respectfully submitted,

CRITERIUM-NC ENGINEERS



Logan Poe, P.E.[NC]
Project Engineer – *(Investigating & Reporting)*

H. Alan Mooney, P.E. [NC]
President – *(Reviewing)*
Criterium-NC PLLC – P-2160
5 Depot Street, Suite 23
Freeport, ME 04032

APPENDIX A
FINANCIAL EXHIBITS

Reserve Study for Client:
The Board Of Trustees
Carolina Forest (CSA)
Jacksonville, North Carolina

Primary Contact:
Charity Hurlburt
Advantage Gold Realty
910-353-2001
churlburt@advantagegoldrealty.com

Association Information, Agreed Planning Assumptions and Current Reserve Funding Data

		Property-Specific Notes		
Association Information:				
Number of units			574	
Is this property mixed-use?			No	
Are all Units assessed at the same rate?			Yes	
Next fiscal year starts:			January 1, 2022	
Next fiscal year is designated as			2022	
Construction History			**Year**	**Age**
Initial building construction or first Unit occupancy		Clubhouse - Constructed 2011-2012	2012	9
If building(s) had a prior use, the year of condo conversion		Not applicable		
If phased construction, the year the last Unit was completed		Not applicable	2013	8
Significant renovation		Clubhouse interior refurbishment	2021	1
Significant renovation		Pavement repair & overlay - Section of Carolina Forest Blvd, but not others	2019	3
Study Information & Planning Assumptions:				
Study period, duration in years			20	
Study period starts			January 1, 2022	
Rate of return on investment % (ROI) applied to reserve fund balances			0.0%	
Annual inflation rate (%) applied to future expenditure annual budgets			2.0%	
Current Funding Levels:				
Current annual reserve contribution		per Sherri Mayes 7/7/21 telcon	$ 41,490	
Current annual fees from units (toptal revenue including for reserve)		per Sherri Mayes 7/7/21 telcon	$ 258,300	
Percentage - reserve savings of overall revenue			16.1%	
Annual reserve contribution per unit			$ 72.28	
Monthly reserve contribution per unit			$ 6.02	
Estimated starting reserve fund balance		estimated on 1/1/22 per Sherri Mayes 7/7/21 telcon	$ 197,584	
Currently planned annual reserve contribution (savings)		per Sherri Mayes 7/7/21 telcon	$ 41,490	
Current Planned Special Assessments			**Dollars**	**Year**
		None	$ -	--

Carolina Forest (CSA)

Asset Inventory and Current Reserve Item Determination

Line Item No.	Category / Item Description	Decision Factors for inclusion in the Current Reserve Study										Current Reserve Item?	Notes
		Responsibility?			Future Expense?		Expected Schedule?			Funding?			
		Assn	Unit Owners	Third Parties	Yes	No	Recurs Annually	Expense in Study Period	Replace Beyond Period	Reserves	O&M		
1	**Site Improvements**												
2	Resurface asphalt parking lot at clubhouse	X			X			X		X		Yes	Numbers in previous report - will require resurfacing over length of study.
3	Resurface asphalt drives Phase 1	X			X			X		X		Yes	Only Clubhouse In Older Report
4	Resurface asphalt drives Phase 2	X			X			X		X		Yes	Only Clubhouse In Older Report
5	Seal coat and stripe asphalt drives and parking lot	X			X			X		X		Yes	Only Clubhouse In Older Report
6	Repair sections of concrete curbing	X			X			X		X		Yes	Repair totals dropped to 2%
7	Repair sections of concrete flatwork	X			X			X		X		Yes	Repair totals dropped to 2%
8	Repair landscape irrigation system	X			X			X		X		Yes	Left in report from previous - will require some upgrades over length of study
9	Repair/paint entrance signs	X			X			X		X		Yes	Carry over from previous report - will require some maintenance and upgrades over length of study.
10	Drainage improvements	X			X			X		X		Yes	Will require improvements to drainage areas over length of study.
11	**Site Amenities**												
12	Re-coat pool surface	X			X			X		X		Yes	Scheduled to be re-coated and will need to be re-coated again over length of study.
13	Repair/refinish textured pool deck	X			X			X		X		Yes	Recently repaired and will require additional repairs over length of study
14	Replace portion of pool furnishings	X			X			X		X		Yes	Phased replacement over length of study
15	Replace playground equipment	X			X			X		X		Yes	Replacement captured near end of study
16	**Buildings - Envelope**												
17	Paint exterior trim and doors	X			X			X		X		Yes	
18	Repair and paint metal roofing	X			X			X		X		Yes	Also included money for storage
19	Replace pool building doors	X			X			X		X		Yes	Replacement near end of study
20	Replace exterior windows	X			X			X		X		Yes	Replacement near end of study
21	**Mechanical, Electrical & Plumbing Systems**												
22	Replace clubhouse HVAC system components	X			X			X		X		Yes	Replacement will be required over length of study
23	Repair/replace pool pumps and filtration equipment	X			X			X		X		Yes	Replacement will be required over length of study
24	Repair/upgrade access control and security systems	X			X			X		X		Yes	Replacement will be required over length of study
25	Replace water heater	X			X			X		X		Yes	Scheduled to be replaced but will require additional replacement over length of study.
74	Paint interior walls and trim	X			X			X		X		Yes	
75	Replace interior furnishings	X			X			X		X		Yes	Scheduled to be upgraded over length of study.
76	Refurbish kitchen cabinets and fixtures	X			X			X		X		Yes	Scheduled to be upgraded over length of study.
77	**Services**												
78	Reserve Study Updates	X			X			X		X		Yes	per Community Association Institute (CAI) recommendations

Carolina Forest (CSA)

Current Reserve Items and Expenditure Planning

Line Item No.	Category / Item Description	Planning Notes / Scope of Work Budget & Scheduling	Quantity Count	Quantity Unit	Unit Cost (Current (Year 1) Dollars)	Reserve Expenditure (Current (Year 1) Dollars)	Useful Life, Years EUL = Expected or Frequency	Useful Life, Years RUL = Remaining or Next Expense
1	**Site Improvements**							
2	Resurface asphalt parking lot at clubhouse	Numbers in previous report - will require resurfacing over length of study.	1,522	SY	$ 10.50	$ 15,981	20	9
3	Resurface asphalt drives Phase 1	Only Clubhouse In Older Report	47,569	SY	$ 9.00	$ 428,121	20	14
4	Resurface asphalt drives Phase 2	Only Clubhouse In Older Report	47,569	SY	$ 9.00	$ 428,121	20	18
5	Seal coat and stripe asphalt drives and parking lot	Only Clubhouse In Older Report	96,660	SY	$ 2.00	$ 193,320	7	2
6	Repair sections of concrete curbing	Repair totals dropped to 2%	1,370	LF	$ 35.00	$ 47,950	8	4
7	Repair sections of concrete flatwork	Repair totals dropped to 2%	608	SY	$ 55.00	$ 33,440	8	4
8	Repair landscape irrigation system	Left in report from previous - will require some upgrades over length of study	1	LS	$ 7,500.00	$ 7,500	12	12
9	Repair/paint entrance signs	Carry over from previous report - will require some maintenance and upgrades over length of study.	3	EA	$ 2,500.00	$ 7,500	10	8
10	Drainage improvements	Will require improvements to drainage areas over length of study.	1	LS	$ 15,000.00	$ 15,000	15	3
11	**Site Amenities**							
12	Re-coat pool surface	Scheduled to be re-coated and will need to be re-coated again over length of study.	1,800	SF	$ 16.00	$ 28,800	12	12
13	Repair/refinish textured pool deck	Recently repaired and will require additional repairs over length of study	3,600	SF	$ 4.00	$ 14,400	12	12
14	Replace portion of pool furnishings	Phased replacement over length of study	1	LS	$ 1,800.00	$ 1,800	5	5
15	Replace playground equipment	Replacement captured near end of study	1	LS	$ 30,000.00	$ 30,000	20	19
16	**Buildings - Envelope**							
17	Paint exterior trim and doors	0	1	LS	$ 2,200.00	$ 2,200	7	6
18	Repair and paint metal roofing	Also included money for storage	47	SQ	$ 125.00	$ 5,875	15	15
19	Replace pool building doors	Replacement near end of study	2	EA	$ 800.00	$ 1,600	10	9
20	Replace exterior windows	Replacement near end of study	26	EA	$ 350.00	$ 9,100	20	18
21	**Mechanical, Electrical & Plumbing Systems**							
22	Replace clubhouse HVAC system components	Replacement will be required over length of study	9	tons	$ 2,000.00	$ 18,000	15	4
23	Repair/replace pool pumps and filtration equipment	Replacement will be required over length of study	1	LS	$ 5,500.00	$ 5,500	15	15
24	Repair/upgrade access control and security systems	Replacement will be required over length of study	1	LS	$ 15,000.00	$ 15,000	12	12
25	Replace water heater	Scheduled to be replaced but will require additional replacement over length of study.	1	LS	$ 1,800.00	$ 1,800	15	15
74	Paint interior walls and trim		1	LS	$ 2,500.00	$ 2,500	7	7
75	Replace interior furnishings	Scheduled to be upgraded over length of study.	1	LS	$ 8,000.00	$ 8,000	15	15
76	Refurbish kitchen cabinets and fixtures	Scheduled to be upgraded over length of study.	1	LS	$ 10,000.00	$ 10,000	15	15
77	**Services**							
78	Reserve Study Updates	per Community Association Institute (CAI) recommendations	1	LS	$ 4,500.00	$ 4,500	5	4

Carolina Forest (CSA)

Annual Reserve Expenditure Budget Projection

Line Item No.	Category / Item Description	Study Year Number & Fiscal Year									
		1	2	3	4	5	6	7	8	9	10
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	**Site Improvements**										
2	Resurface asphalt parking lot at clubhouse	0	0	0	0	0	0	0	0	0	15,981
3	Resurface asphalt drives Phase 1	0	0	0	0	0	0	0	0	0	0
4	Resurface asphalt drives Phase 2	0	0	0	0	0	0	0	0	0	0
5	Seal coat and stripe asphalt drives and parking lot	0	0	193,320	0	0	0	0	0	0	193,320
6	Repair sections of concrete curbing	0	0	0	0	47,950	0	0	0	0	0
7	Repair sections of concrete flatwork	0	0	0	0	33,440	0	0	0	0	0
8	Repair landscape irrigation system	0	0	0	0	0	0	0	0	0	0
9	Repair/paint entrance signs	0	0	0	0	0	0	0	0	7,500	0
10	Drainage improvements	0	0	0	15,000	0	0	0	0	0	0
11	**Site Amenities**										
12	Re-coat pool surface	0	0	0	0	0	0	0	0	0	0
13	Repair/refinish textured pool deck	0	0	0	0	0	0	0	0	0	0
14	Replace portion of pool furnishings	0	0	0	0	0	1,800	0	0	0	0
15	Replace playground equipment	0	0	0	0	0	0	0	0	0	0
16	**Buildings - Envelope**										
17	Paint exterior trim and doors	0	0	0	0	0	0	2,200	0	0	0
18	Repair and paint metal roofing	0	0	0	0	0	0	0	0	0	0
19	Replace pool building doors	0	0	0	0	0	0	0	0	0	1,600
20	Replace exterior windows	0	0	0	0	0	0	0	0	0	0
21	**Mechanical, Electrical & Plumbing Systems**										
22	Replace clubhouse HVAC system components	0	0	0	0	18,000	0	0	0	0	0
23	Repair/replace pool pumps and filtration equipment	0	0	0	0	0	0	0	0	0	0
24	Repair/upgrade access control and security systems	0	0	0	0	0	0	0	0	0	0
25	Replace water heater	0	0	0	0	0	0	0	0	0	0
74	Paint interior walls and trim	0	0	0	0	0	0	0	2,500	0	0
75	Replace interior furnishings	0	0	0	0	0	0	0	0	0	0
76	Refurbish kitchen cabinets and fixtures	0	0	0	0	0	0	0	0	0	0
77	**Services**										
78	Reserve Study Updates	0	0	0	0	4,500	0	0	0	0	4,500
79											
80	**Current (Year 1) Dollar Annual Total =**	**0**	**0**	**193,320**	**15,000**	**103,890**	**1,800**	**2,200**	**2,500**	**7,500**	**215,401**
81	**Future Dollar Annual Total, adjusted for inflation =**	**0**	**0**	**201,130**	**15,918**	**112,454**	**1,987**	**2,478**	**2,872**	**8,787**	**257,424**

Carolina Forest (CSA)

Annual Reserve Expenditure Budget Projectic

Line Item No.	Category	Item Description	Study Year Number & Fiscal Year									
			11	12	13	14	15	16	17	18	19	20
			2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
1	**Site Improvements**											
2		Resurface asphalt parking lot at clubhouse	0	0	0	0	0	0	0	0	0	0
3		Resurface asphalt drives Phase 1	0	0	0	0	428,121	0	0	0	0	0
4		Resurface asphalt drives Phase 2	0	0	0	0	0	0	0	0	428,121	0
5		Seal coat and stripe asphalt drives and parking lot	0	0	0	0	0	0	193,320	0	0	0
6		Repair sections of concrete curbing	0	0	47,950	0	0	0	0	0	0	0
7		Repair sections of concrete flatwork	0	0	33,440	0	0	0	0	0	0	0
8		Repair landscape irrigation system	0	0	7,500	0	0	0	0	0	0	0
9		Repair/paint entrance signs	0	0	0	0	0	0	0	0	7,500	0
10		Drainage improvements	0	0	0	0	0	0	0	0	15,000	0
11	**Site Amenities**											
12		Re-coat pool surface	0	0	28,800	0	0	0	0	0	0	0
13		Repair/refinish textured pool deck	0	0	14,400	0	0	0	0	0	0	0
14		Replace portion of pool furnishings	1,800	0	0	0	0	1,800	0	0	0	0
15		Replace playground equipment	0	0	0	0	0	0	0	0	0	30,000
16	**Buildings - Envelope**											
17		Paint exterior trim and doors	0	0	0	2,200	0	0	0	0	0	0
18		Repair and paint metal roofing	0	0	0	0	0	5,875	0	0	0	0
19		Replace pool building doors	0	0	0	0	0	0	0	0	0	1,600
20		Replace exterior windows	0	0	0	0	0	0	0	0	9,100	0
21	**Mechanical, Electrical & Plumbing Systems**											
22		Replace clubhouse HVAC system components	0	0	0	0	0	0	0	0	0	18,000
23		Repair/replace pool pumps and filtration equipment	0	0	0	0	0	5,500	0	0	0	0
24		Repair/upgrade access control and security systems	0	0	15,000	0	0	0	0	0	0	0
25		Replace water heater	0	0	0	0	0	1,800	0	0	0	0
74		Paint interior walls and trim	0	0	0	0	2,500	0	0	0	0	0
75		Replace interior furnishings	0	0	0	0	0	8,000	0	0	0	0
76		Refurbish kitchen cabinets and fixtures	0	0	0	0	0	10,000	0	0	0	0
77	**Services**											
78		Reserve Study Updates	0	0	0	0	4,500	0	0	0	0	4,500
79												
80		**Current (Year 1) Dollar Annual Total =**	**1,800**	**0**	**147,090**	**2,200**	**435,121**	**32,975**	**193,320**	**0**	**459,721**	**54,100**
81		**Future Dollar Annual Total, adjusted for inflation =**	**2,194**	**0**	**186,546**	**2,846**	**574,133**	**44,380**	**265,387**	**0**	**656,595**	**78,813**

Carolina Forest (CSA)

Annual Reserve Expenditure Budget Projectic

Line Item No.	Category / Item Description	Study Year Number & Fiscal Year 21 2042	22 2043	23 2044	24 2045	25 2046	26 2047	27 2048	28 2049	29 2050	30 2051	30 Year Total
1	**Site Improvements**											
2	Resurface asphalt parking lot at clubhouse	0	0	0	0	0	0	0	0	0	15,981	**31,962**
3	Resurface asphalt drives Phase 1	0	0	0	0	0	0	0	0	0	0	**428,121**
4	Resurface asphalt drives Phase 2	0	0	0	0	0	0	0	0	0	0	**428,121**
5	Seal coat and stripe asphalt drives and parking lot	0	0	0	193,320	0	0	0	0	0	0	**773,280**
6	Repair sections of concrete curbing	47,950	0	0	0	0	0	0	0	47,950	0	**191,800**
7	Repair sections of concrete flatwork	33,440	0	0	0	0	0	0	0	33,440	0	**133,760**
8	Repair landscape irrigation system	0	0	0	0	7,500	0	0	0	0	0	**15,000**
9	Repair/paint entrance signs	0	0	0	0	0	0	0	0	7,500	0	**22,500**
10	Drainage improvements	0	0	0	0	0	0	0	0	0	0	**30,000**
11	**Site Amenities**											
12	Re-coat pool surface	0	0	0	0	28,800	0	0	0	0	0	**57,600**
13	Repair/refinish textured pool deck	0	0	0	0	14,400	0	0	0	0	0	**28,800**
14	Replace portion of pool furnishings	1,800	0	0	0	0	1,800	0	0	0	0	**9,000**
15	Replace playground equipment	0	0	0	0	0	0	0	0	0	0	**30,000**
16	**Buildings - Envelope**											
17	Paint exterior trim and doors	2,200	0	0	0	0	0	0	2,200	0	0	**8,800**
18	Repair and paint metal roofing	0	0	0	0	0	0	0	0	0	0	**5,875**
19	Replace pool building doors	0	0	0	0	0	0	0	0	0	1,600	**4,800**
20	Replace exterior windows	0	0	0	0	0	0	0	0	0	0	**9,100**
21	**Mechanical, Electrical & Plumbing Systems**											
22	Replace clubhouse HVAC system components	0	0	0	0	0	0	0	0	0	0	**36,000**
23	Repair/replace pool pumps and filtration equipment	0	0	0	0	0	0	0	0	0	0	**5,500**
24	Repair/upgrade access control and security systems	0	0	0	0	15,000	0	0	0	0	0	**30,000**
25	Replace water heater	0	0	0	0	0	0	0	0	0	0	**1,800**
74	Paint interior walls and trim	0	2,500	0	0	0	0	0	0	2,500	0	**10,000**
75	Replace interior furnishings	0	0	0	0	0	0	0	0	0	0	**8,000**
76	Refurbish kitchen cabinets and fixtures	0	0	0	0	0	0	0	0	0	0	**10,000**
77	**Services**											
78	Reserve Study Updates	0	0	0	0	4,500	0	0	0	0	4,500	**27,000**
79												
80	**Current (Year 1) Dollar Annual Total =**	**85,390**	**2,500**	**0**	**193,320**	**70,200**	**1,800**	**0**	**2,200**	**91,390**	**22,081**	**2,336,819**
81	**Future Dollar Annual Total, adjusted for inflation =**	**126,885**	**3,789**	**0**	**304,846**	**112,912**	**2,953**	**0**	**3,755**	**159,112**	**39,212**	**3,167,410**

Carolina Forest (CSA)

Reserve Expenditure Budget Projection Summary

Annual Budgets	Year No.	Fiscal Year	Current Dollars	Future Dollars
	1	2022	$ -	$ -
	2	2023	$ -	$ -
	3	2024	$ 193,320	$ 201,130
	4	2025	$ 15,000	$ 15,918
	5	2026	$ 103,890	$ 112,454
	6	2027	$ 1,800	$ 1,987
	7	2028	$ 2,200	$ 2,478
	8	2029	$ 2,500	$ 2,872
	9	2030	$ 7,500	$ 8,787
	10	2031	$ 215,401	$ 257,424
	11	2032	$ 1,800	$ 2,194
	12	2033	$ -	$ -
	13	2034	$ 147,090	$ 186,546
	14	2035	$ 2,200	$ 2,846
	15	2036	$ 435,121	$ 574,133
	16	2037	$ 32,975	$ 44,380
	17	2038	$ 193,320	$ 265,387
	18	2039	$ -	$ -
	19	2040	$ 459,721	$ 656,595
	20	2041	$ 54,100	$ 78,813
	21	2042	$ 85,390	$ 126,885
	22	2043	$ 2,500	$ 3,789
	23	2044	$ -	$ -
	24	2045	$ 193,320	$ 304,846
	25	2046	$ 70,200	$ 112,912
	26	2047	$ 1,800	$ 2,953
	27	2048	$ -	$ -
	28	2049	$ 2,200	$ 3,755
	29	2050	$ 91,390	$ 159,112
	30	2051	$ 22,081	$ 39,212
Totals, Averages & Expense per Unit				
30-Year Total =			$ 2,336,819	$ 3,167,410
Annual Average =			$ 77,894	$ 105,580
Monthly Average =			$ 6,491	$ 8,798
30-Year Total per Unit =			$ 4,071	$ 5,518
Annual Average per Unit =			$ 136	$ 184
Monthly Average per Unit =			$ 11.31	$ 15.33
Reserve Fund Balance - Minimum Threshold Value				
Suggest setting the initial Year 1 value at three times the Annual Average Budget in Current Dollars =			$ 233,682	
Future values in Years 2-30 are projected ahead with compounding inflation. Resulting Year 30 value =				$ 414,983

Carolina Forest (CSA)

Cash-Flow Projection at the Current Funding Level, unchanged throughout Study Period

Year No.	Fiscal Year	Beginning Reserve Fund Balance	Current Fee Revenue (Savings)	Currently Planned Special Assessments	Investment Earnings	Projected Reserve Expenditures	Ending Reserve Fund Balance (> Threshold / < Threshold / Deficit)	Suggested Minimum Threshold
1	2022	$ 197,584	$ 41,490	$ -	$ -	$ -	$ 239,074	$ 233,682
2	2023	$ 239,074	$ 41,490	$ -	$ -	$ -	$ 280,564	$ 238,356
3	2024	$ 280,564	$ 41,490	$ -	$ -	$ 201,130	$ 120,924	$ 243,123
4	2025	$ 120,924	$ 41,490	$ -	$ -	$ 15,918	$ 146,496	$ 247,985
5	2026	$ 146,496	$ 41,490	$ -	$ -	$ 112,454	$ 75,532	$ 252,945
6	2027	$ 75,532	$ 41,490	$ -	$ -	$ 1,987	$ 115,035	$ 258,004
7	2028	$ 115,035	$ 41,490	$ -	$ -	$ 2,478	$ 154,047	$ 263,164
8	2029	$ 154,047	$ 41,490	$ -	$ -	$ 2,872	$ 192,665	$ 268,427
9	2030	$ 192,665	$ 41,490	$ -	$ -	$ 8,787	$ 225,368	$ 273,796
10	2031	$ 225,368	$ 41,490	$ -	$ -	$ 257,424	$ 9,434	$ 279,272
11	2032	$ 9,434	$ 41,490	$ -	$ -	$ 2,194	$ 48,729	$ 284,857
12	2033	$ 48,729	$ 41,490	$ -	$ -	$ -	$ 90,219	$ 290,554
13	2034	$ 90,219	$ 41,490	$ -	$ -	$ 186,546	$ (54,836)	$ 296,365
14	2035	$ (54,836)	$ 41,490	$ -	$ -	$ 2,846	$ (16,192)	$ 302,292
15	2036	$ (16,192)	$ 41,490	$ -	$ -	$ 574,133	$ (548,835)	$ 308,338
16	2037	$ (548,835)	$ 41,490	$ -	$ -	$ 44,380	$ (551,725)	$ 314,505
17	2038	$ (551,725)	$ 41,490	$ -	$ -	$ 265,387	$ (775,622)	$ 320,795
18	2039	$ (775,622)	$ 41,490	$ -	$ -	$ -	$ (734,132)	$ 327,211
19	2040	$ (734,132)	$ 41,490	$ -	$ -	$ 656,595	$ (1,349,237)	$ 333,755
20	2041	$ (1,349,237)	$ 41,490	$ -	$ -	$ 78,813	$ (1,386,560)	$ 340,430
21	2042	$ (1,386,560)	$ 41,490	$ -	$ -	$ 126,885	$ (1,471,955)	$ 347,239
22	2043	$ (1,471,955)	$ 41,490	$ -	$ -	$ 3,789	$ (1,434,254)	$ 354,184
23	2044	$ (1,434,254)	$ 41,490	$ -	$ -	$ -	$ (1,392,764)	$ 361,267
24	2045	$ (1,392,764)	$ 41,490	$ -	$ -	$ 304,846	$ (1,656,121)	$ 368,493
25	2046	$ (1,656,121)	$ 41,490	$ -	$ -	$ 112,912	$ (1,727,543)	$ 375,863
26	2047	$ (1,727,543)	$ 41,490	$ -	$ -	$ 2,953	$ (1,689,006)	$ 383,380
27	2048	$ (1,689,006)	$ 41,490	$ -	$ -	$ -	$ (1,647,516)	$ 391,048
28	2049	$ (1,647,516)	$ 41,490	$ -	$ -	$ 3,755	$ (1,609,781)	$ 398,868
29	2050	$ (1,609,781)	$ 41,490	$ -	$ -	$ 159,112	$ (1,727,403)	$ 406,846
30	2051	$ (1,727,403)	$ 41,490	$ -	$ -	$ 39,212	$ (1,725,126)	$ 414,983
30-Year Total of Revenues =			**$ 1,244,700**			**$ 3,167,410**	**= 30-Year Total of Expenses**	

All year-end balances, revenues & expenditures above in future dollars

Carolina Forest (CSA) — **One-time, lump-sum increase.**

Alternative Funding Plan No. One — **Includes no special assessments.**

190% increase over the current rate of contributions to reserves in Year One (2022).

Results in an increase from the current $6.02 contribution per Unit per Month up to $17.50.

If there were no increases in the overall O&M budget, this represents a 31% increase in overall fees.

> Threshold
< Threshold
Deficit

Year No.	Fiscal Year	Beginning Reserve Fund Balance	Proposed Fee Revenue (Savings)	Currently Planned Special Assessments	Additionally Proposed Special Assessments	Investment Earnings	Projected Reserve Expenditures	Ending Reserve Fund Balance	Suggested Minimum Threshold
1	2022	$ 197,584	$ 120,540	$ -	$ -	$ -	$ -	$ 318,124	$ 233,682
2	2023	$ 318,124	$ 120,540	$ -	$ -	$ -	$ -	$ 438,664	$ 238,356
3	2024	$ 438,664	$ 120,540	$ -	$ -	$ -	$ 201,130	$ 358,074	$ 243,123
4	2025	$ 358,074	$ 120,540	$ -	$ -	$ -	$ 15,918	$ 462,696	$ 247,985
5	2026	$ 462,696	$ 120,540	$ -	$ -	$ -	$ 112,454	$ 470,782	$ 252,945
6	2027	$ 470,782	$ 120,540	$ -	$ -	$ -	$ 1,987	$ 589,335	$ 258,004
7	2028	$ 589,335	$ 120,540	$ -	$ -	$ -	$ 2,478	$ 707,397	$ 263,164
8	2029	$ 707,397	$ 120,540	$ -	$ -	$ -	$ 2,872	$ 825,065	$ 268,427
9	2030	$ 825,065	$ 120,540	$ -	$ -	$ -	$ 8,787	$ 936,818	$ 273,796
10	2031	$ 936,818	$ 120,540	$ -	$ -	$ -	$ 257,424	$ 799,934	$ 279,272
11	2032	$ 799,934	$ 120,540	$ -	$ -	$ -	$ 2,194	$ 918,279	$ 284,857
12	2033	$ 918,279	$ 120,540	$ -	$ -	$ -	$ -	$ 1,038,819	$ 290,554
13	2034	$ 1,038,819	$ 120,540	$ -	$ -	$ -	$ 186,546	$ 972,814	$ 296,365
14	2035	$ 972,814	$ 120,540	$ -	$ -	$ -	$ 2,846	$ 1,090,508	$ 302,292
15	2036	$ 1,090,508	$ 120,540	$ -	$ -	$ -	$ 574,133	$ 636,915	$ 308,338
16	2037	$ 636,915	$ 120,540	$ -	$ -	$ -	$ 44,380	$ 713,075	$ 314,505
17	2038	$ 713,075	$ 120,540	$ -	$ -	$ -	$ 265,387	$ 568,228	$ 320,795
18	2039	$ 568,228	$ 120,540	$ -	$ -	$ -	$ -	$ 688,768	$ 327,211
19	2040	$ 688,768	$ 120,540	$ -	$ -	$ -	$ 656,595	$ 152,713	$ 333,755
20	2041	$ 152,713	$ 120,540	$ -	$ -	$ -	$ 78,813	$ 194,440	$ 340,430
21	2042	$ 194,440	$ 120,540	$ -	$ -	$ -	$ 126,885	$ 188,095	$ 347,239
22	2043	$ 188,095	$ 120,540	$ -	$ -	$ -	$ 3,789	$ 304,846	$ 354,184
23	2044	$ 304,846	$ 120,540	$ -	$ -	$ -	$ -	$ 425,386	$ 361,267
24	2045	$ 425,386	$ 120,540	$ -	$ -	$ -	$ 304,846	$ 241,079	$ 368,493
25	2046	$ 241,079	$ 120,540	$ -	$ -	$ -	$ 112,912	$ 248,707	$ 375,863
26	2047	$ 248,707	$ 120,540	$ -	$ -	$ -	$ 2,953	$ 366,294	$ 383,380
27	2048	$ 366,294	$ 120,540	$ -	$ -	$ -	$ -	$ 486,834	$ 391,048
28	2049	$ 486,834	$ 120,540	$ -	$ -	$ -	$ 3,755	$ 603,619	$ 398,868
29	2050	$ 603,619	$ 120,540	$ -	$ -	$ -	$ 159,112	$ 565,047	$ 406,846
30	2051	$ 565,047	$ 120,540	$ -	$ -	$ -	$ 39,212	$ 646,374	$ 414,983

30-Year Total of Revenues =	**$ 3,616,200**	**$ 3,167,410**	**= 30-Year Total of Expenses**

All year-end balances, revenues & expenditures above in future dollars

Carolina Forest (CSA) **Annual step increases.**

Alternative Funding Plan No. Two **Includes no special assessments.**

Five equal annual steps in Years 2-6 (2023-2037). Each step equals a $3.00 increase per Unit per Mont
Results in a contribution of $21.02 per Unit per Month in Years 6-30 (2027-2051).

> Threshold
< Threshold
Deficit

Year No.	Fiscal Year	Beginning Reserve Fund Balance	Proposed Fee Revenue (Savings)	Currently Planned Special Assessments	Additionally Proposed Special Assessments	Investment Earnings	Projected Reserve Expenditures	Ending Reserve Fund Balance	Suggested Minimum Threshold
1	2022	$ 197,584	$ 41,490	$ -	$ -	$ -	$ -	$ 239,074	$ 233,682
2	2023	$ 239,074	$ 62,154	$ -	$ -	$ -	$ -	$ 301,228	$ 238,356
3	2024	$ 301,228	$ 82,818	$ -	$ -	$ -	$ 201,130	$ 182,916	$ 243,123
4	2025	$ 182,916	$ 103,482	$ -	$ -	$ -	$ 15,918	$ 270,480	$ 247,985
5	2026	$ 270,480	$ 124,146	$ -	$ -	$ -	$ 112,454	$ 282,172	$ 252,945
6	2027	$ 282,172	$ 144,810	$ -	$ -	$ -	$ 1,987	$ 424,995	$ 258,004
7	2028	$ 424,995	$ 144,810	$ -	$ -	$ -	$ 2,478	$ 567,327	$ 263,164
8	2029	$ 567,327	$ 144,810	$ -	$ -	$ -	$ 2,872	$ 709,265	$ 268,427
9	2030	$ 709,265	$ 144,810	$ -	$ -	$ -	$ 8,787	$ 845,288	$ 273,796
10	2031	$ 845,288	$ 144,810	$ -	$ -	$ -	$ 257,424	$ 732,674	$ 279,272
11	2032	$ 732,674	$ 144,810	$ -	$ -	$ -	$ 2,194	$ 875,289	$ 284,857
12	2033	$ 875,289	$ 144,810	$ -	$ -	$ -	$ -	$ 1,020,099	$ 290,554
13	2034	$ 1,020,099	$ 144,810	$ -	$ -	$ -	$ 186,546	$ 978,364	$ 296,365
14	2035	$ 978,364	$ 144,810	$ -	$ -	$ -	$ 2,846	$ 1,120,328	$ 302,292
15	2036	$ 1,120,328	$ 144,810	$ -	$ -	$ -	$ 574,133	$ 691,005	$ 308,338
16	2037	$ 691,005	$ 144,810	$ -	$ -	$ -	$ 44,380	$ 791,435	$ 314,505
17	2038	$ 791,435	$ 144,810	$ -	$ -	$ -	$ 265,387	$ 670,858	$ 320,795
18	2039	$ 670,858	$ 144,810	$ -	$ -	$ -	$ -	$ 815,668	$ 327,211
19	2040	$ 815,668	$ 144,810	$ -	$ -	$ -	$ 656,595	$ 303,883	$ 333,755
20	2041	$ 303,883	$ 144,810	$ -	$ -	$ -	$ 78,813	$ 369,880	$ 340,430
21	2042	$ 369,880	$ 144,810	$ -	$ -	$ -	$ 126,885	$ 387,805	$ 347,239
22	2043	$ 387,805	$ 144,810	$ -	$ -	$ -	$ 3,789	$ 528,826	$ 354,184
23	2044	$ 528,826	$ 144,810	$ -	$ -	$ -	$ -	$ 673,636	$ 361,267
24	2045	$ 673,636	$ 144,810	$ -	$ -	$ -	$ 304,846	$ 513,599	$ 368,493
25	2046	$ 513,599	$ 144,810	$ -	$ -	$ -	$ 112,912	$ 545,497	$ 375,863
26	2047	$ 545,497	$ 144,810	$ -	$ -	$ -	$ 2,953	$ 687,354	$ 383,380
27	2048	$ 687,354	$ 144,810	$ -	$ -	$ -	$ -	$ 832,164	$ 391,048
28	2049	$ 832,164	$ 144,810	$ -	$ -	$ -	$ 3,755	$ 973,219	$ 398,868
29	2050	$ 973,219	$ 144,810	$ -	$ -	$ -	$ 159,112	$ 958,917	$ 406,846
30	2051	$ 958,917	$ 144,810	$ -	$ -	$ -	$ 39,212	$ 1,064,514	$ 414,983

30-Year Total of Revenues =	**$**	**4,034,340**	**$**	**3,167,410**	**= 30-Year Total of Expenses**

All year-end balances, revenues & expenditures above in future dollars

Carolina Forest (CSA)
Alternative Funding Plan No. Three

Incremental annual percentage increases.
Includes no special assessments.

Thirteen increases @ 12.0% (compounding) in Years 2-14 (2023-2035).
Results in a contribution of $26.28 per Unit per Month in Years 14-30 (2035-2051).

> Threshold
< Threshold
Deficit

Year No.	Fiscal Year	Beginning Reserve Fund Balance	Proposed Fee Revenue (Savings)	Currently Planned Special Assessments	Additionally Proposed Special Assessments	Investment Earnings	Projected Reserve Expenditures	Ending Reserve Fund Balance	Suggested Minimum Threshold
1	2022	$ 197,584	$ 41,490	$ -	$ -	$ -	$ -	$ 239,074	$ 233,682
2	2023	$ 239,074	$ 46,469	$ -	$ -	$ -	$ -	$ 285,543	$ 238,356
3	2024	$ 285,543	$ 52,045	$ -	$ -	$ -	$ 201,130	$ 136,458	$ 243,123
4	2025	$ 136,458	$ 58,290	$ -	$ -	$ -	$ 15,918	$ 178,830	$ 247,985
5	2026	$ 178,830	$ 65,285	$ -	$ -	$ -	$ 112,454	$ 131,662	$ 252,945
6	2027	$ 131,662	$ 73,120	$ -	$ -	$ -	$ 1,987	$ 202,794	$ 258,004
7	2028	$ 202,794	$ 81,894	$ -	$ -	$ -	$ 2,478	$ 282,210	$ 263,164
8	2029	$ 282,210	$ 91,721	$ -	$ -	$ -	$ 2,872	$ 371,060	$ 268,427
9	2030	$ 371,060	$ 102,728	$ -	$ -	$ -	$ 8,787	$ 465,000	$ 273,796
10	2031	$ 465,000	$ 115,055	$ -	$ -	$ -	$ 257,424	$ 322,631	$ 279,272
11	2032	$ 322,631	$ 128,862	$ -	$ -	$ -	$ 2,194	$ 449,298	$ 284,857
12	2033	$ 449,298	$ 144,325	$ -	$ -	$ -	$ -	$ 593,623	$ 290,554
13	2034	$ 593,623	$ 161,644	$ -	$ -	$ -	$ 186,546	$ 568,722	$ 296,365
14	2035	$ 568,722	$ 181,041	$ -	$ -	$ -	$ 2,846	$ 746,917	$ 302,292
15	2036	$ 746,917	$ 181,041	$ -	$ -	$ -	$ 574,133	$ 353,825	$ 308,338
16	2037	$ 353,825	$ 181,041	$ -	$ -	$ -	$ 44,380	$ 490,487	$ 314,505
17	2038	$ 490,487	$ 181,041	$ -	$ -	$ -	$ 265,387	$ 406,141	$ 320,795
18	2039	$ 406,141	$ 181,041	$ -	$ -	$ -	$ -	$ 587,182	$ 327,211
19	2040	$ 587,182	$ 181,041	$ -	$ -	$ -	$ 656,595	$ 111,629	$ 333,755
20	2041	$ 111,629	$ 181,041	$ -	$ -	$ -	$ 78,813	$ 213,857	$ 340,430
21	2042	$ 213,857	$ 181,041	$ -	$ -	$ -	$ 126,885	$ 268,013	$ 347,239
22	2043	$ 268,013	$ 181,041	$ -	$ -	$ -	$ 3,789	$ 445,265	$ 354,184
23	2044	$ 445,265	$ 181,041	$ -	$ -	$ -	$ -	$ 626,307	$ 361,267
24	2045	$ 626,307	$ 181,041	$ -	$ -	$ -	$ 304,846	$ 502,502	$ 368,493
25	2046	$ 502,502	$ 181,041	$ -	$ -	$ -	$ 112,912	$ 570,631	$ 375,863
26	2047	$ 570,631	$ 181,041	$ -	$ -	$ -	$ 2,953	$ 748,719	$ 383,380
27	2048	$ 748,719	$ 181,041	$ -	$ -	$ -	$ -	$ 929,760	$ 391,048
28	2049	$ 929,760	$ 181,041	$ -	$ -	$ -	$ 3,755	$ 1,107,046	$ 398,868
29	2050	$ 1,107,046	$ 181,041	$ -	$ -	$ -	$ 159,112	$ 1,128,976	$ 406,846
30	2051	$ 1,128,976	$ 181,041	$ -	$ -	$ -	$ 39,212	$ 1,270,805	$ 414,983

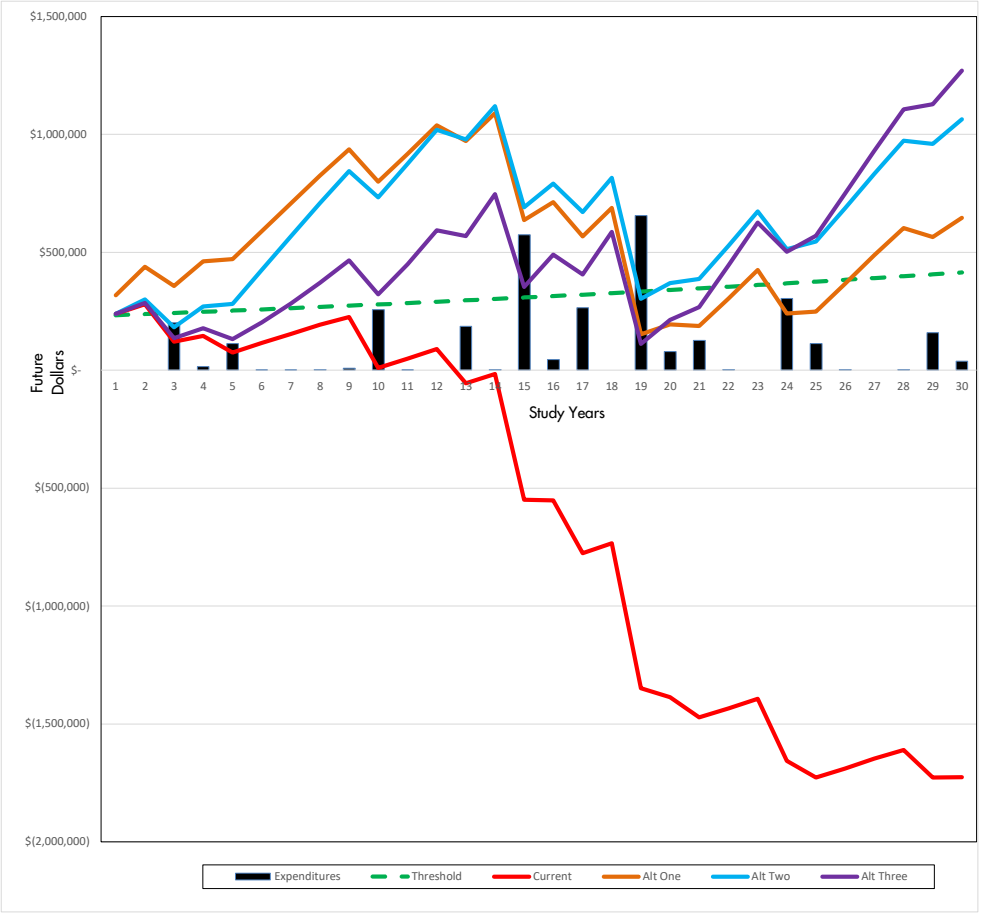
30-Year Total of Revenues =	**$ 4,240,630**	**$ 3,167,410**	**= 30-Year Total of Expenses**

All year-end balances, revenues & expenditures above in future dollars

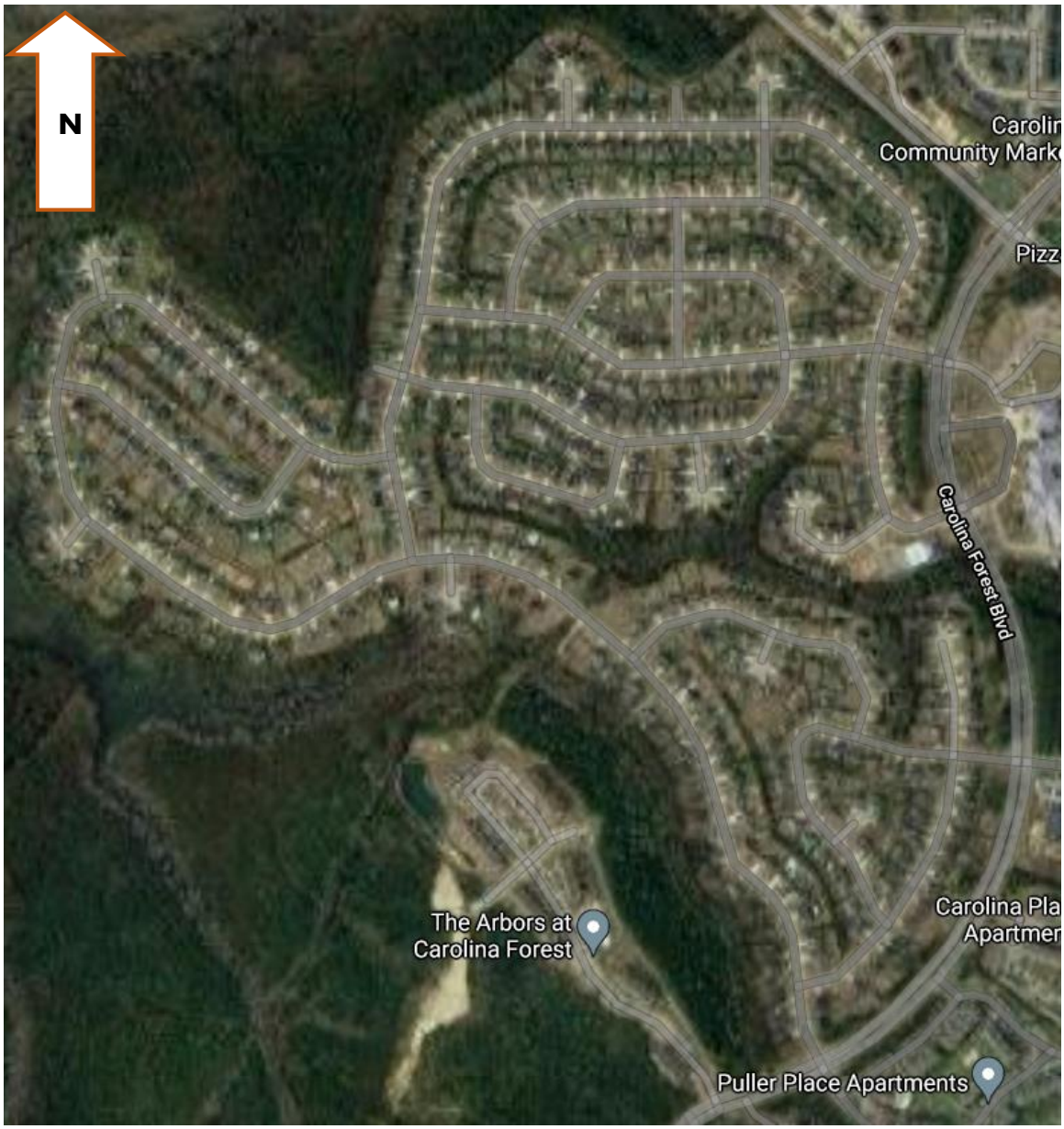
Carolina Forest (CSA)
30-Year Cash-Flow Projections - Summary Graph

Year No.	Fiscal Year	Projected Reserve Expenditures	Year-End Reserve Fund Balances: Suggested Minimum Threshold	Comparison of Funding Plans: Current	Alt One Lump Sum	Alt Two Equal Steps	Alt Three Increment %
1	2022	$ -	$ 233,682	$ 239,074	$ 318,124	$ 239,074	$ 239,074
2	2023	$ -	$ 238,356	$ 280,564	$ 438,664	$ 301,228	$ 285,543
3	2024	$ 201,130	$ 243,123	$ 120,924	$ 358,074	$ 182,916	$ 136,458
4	2025	$ 15,918	$ 247,985	$ 146,496	$ 462,696	$ 270,480	$ 178,830
5	2026	$ 112,454	$ 252,945	$ 75,532	$ 470,782	$ 282,172	$ 131,662
6	2027	$ 1,987	$ 258,004	$ 115,035	$ 589,335	$ 424,995	$ 202,794
7	2028	$ 2,478	$ 263,164	$ 154,047	$ 707,397	$ 567,327	$ 282,210
8	2029	$ 2,872	$ 268,427	$ 192,665	$ 825,065	$ 709,265	$ 371,060
9	2030	$ 8,787	$ 273,796	$ 225,368	$ 936,818	$ 845,288	$ 465,000
10	2031	$ 257,424	$ 279,272	$ 9,434	$ 799,934	$ 732,674	$ 322,631
11	2032	$ 2,194	$ 284,857	$ 48,729	$ 918,279	$ 875,289	$ 449,298
12	2033	$ -	$ 290,554	$ 90,219	$ 1,038,819	$ 1,020,099	$ 593,623
13	2034	$ 186,546	$ 296,365	$ (54,836)	$ 972,814	$ 978,364	$ 568,722
14	2035	$ 2,846	$ 302,292	$ (16,192)	$ 1,090,508	$ 1,120,328	$ 746,917
15	2036	$ 574,133	$ 308,338	$ (548,835)	$ 636,915	$ 691,005	$ 353,825
16	2037	$ 44,380	$ 314,505	$ (551,725)	$ 713,075	$ 791,435	$ 490,487
17	2038	$ 265,387	$ 320,795	$ (775,622)	$ 568,228	$ 670,858	$ 406,141
18	2039	$ -	$ 327,211	$ (734,132)	$ 688,768	$ 815,668	$ 587,182
19	2040	$ 656,595	$ 333,755	$ (1,349,237)	$ 152,713	$ 303,883	$ 111,629
20	2041	$ 78,813	$ 340,430	$ (1,386,560)	$ 194,440	$ 369,880	$ 213,857
21	2042	$ 126,885	$ 347,239	$ (1,471,955)	$ 188,095	$ 387,805	$ 268,013
22	2043	$ 3,789	$ 354,184	$ (1,434,254)	$ 304,846	$ 528,826	$ 445,265
23	2044	$ -	$ 361,267	$ (1,392,764)	$ 425,386	$ 673,636	$ 626,307
24	2045	$ 304,846	$ 368,493	$ (1,656,121)	$ 241,079	$ 513,599	$ 502,502
25	2046	$ 112,912	$ 375,863	$ (1,727,543)	$ 248,707	$ 545,497	$ 570,631
26	2047	$ 2,953	$ 383,380	$ (1,689,006)	$ 366,294	$ 687,354	$ 748,719
27	2048	$ -	$ 391,048	$ (1,647,516)	$ 486,834	$ 832,164	$ 929,760
28	2049	$ 3,755	$ 398,868	$ (1,609,781)	$ 603,619	$ 973,219	$ 1,107,046
29	2050	$ 159,112	$ 406,846	$ (1,727,403)	$ 565,047	$ 958,917	$ 1,128,976
30	2051	$ 39,212	$ 414,983	$ (1,725,126)	$ 646,374	$ 1,064,514	$ 1,270,805

All expenditure and year-end balances above in future dollars



APPENDIX B
GRAPHIC EXHIBITS



Source: Google Maps

AERIAL PHOTO

CAROLINA FOREST COMMUNITY SERVICE ASSOCIATION
JACKSONVILLE, NORTH CAROLINA

CRITERIUM ENGINEERS

APPENDIX C
PHOTOGRAPHS

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Entrance signage.

Photo Number
1

Description:
Additional entrance signage.

Photo Number
2

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Clubhouse

Photo Number
3

Description:
Overview of clubhouse building and pool.

Photo Number
4

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Condition of pool deck and empty pool at time of inspection.

Photo Number
5

Description:
Close-up condition of deteriorated pool surface scheduled for repair.

Photo Number
6

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Pool pump house.

Photo Number
7

Description:
Recently sealed concrete flatwork around clubhouse.

Photo Number
8

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Storage building adjacent to clubhouse.

Photo Number
9

Description:
Clubhouse interior.

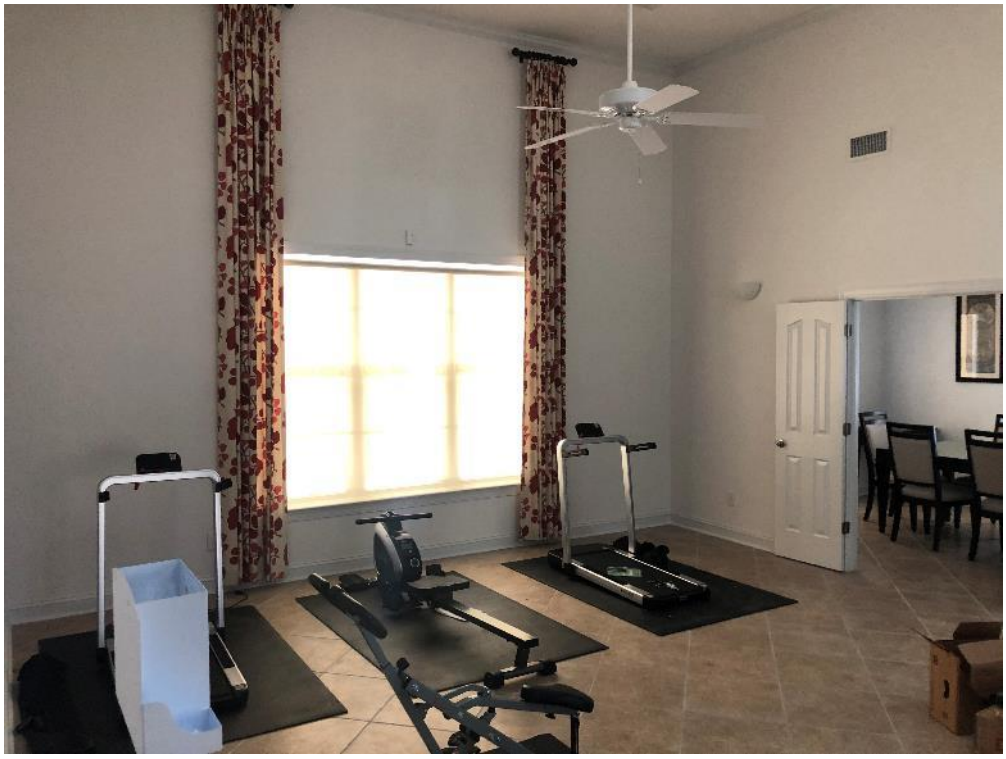
Photo Number
10

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update



Description:
Clubhouse interior with exercise equipment.

Photo Number
11

Description:
Clubhouse kitchen.

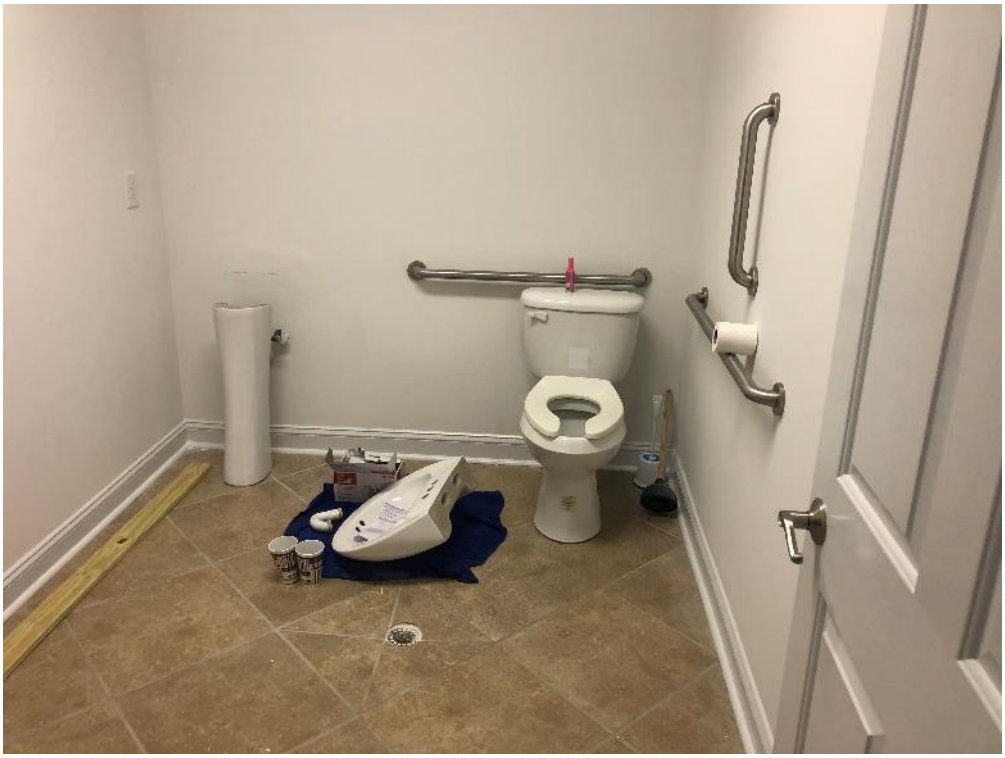
Photo Number
12

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update



Description:
Clubhouse bathroom being renovated.

Photo Number
13

Description:
Conference room.

Photo Number
14

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Main water supply shut off valve at clubhouse.

Photo Number
15

Description:
Front elevation of clubhouse.

Photo Number
16

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Playground.

Photo Number
17

Description:
HVAC equipment.

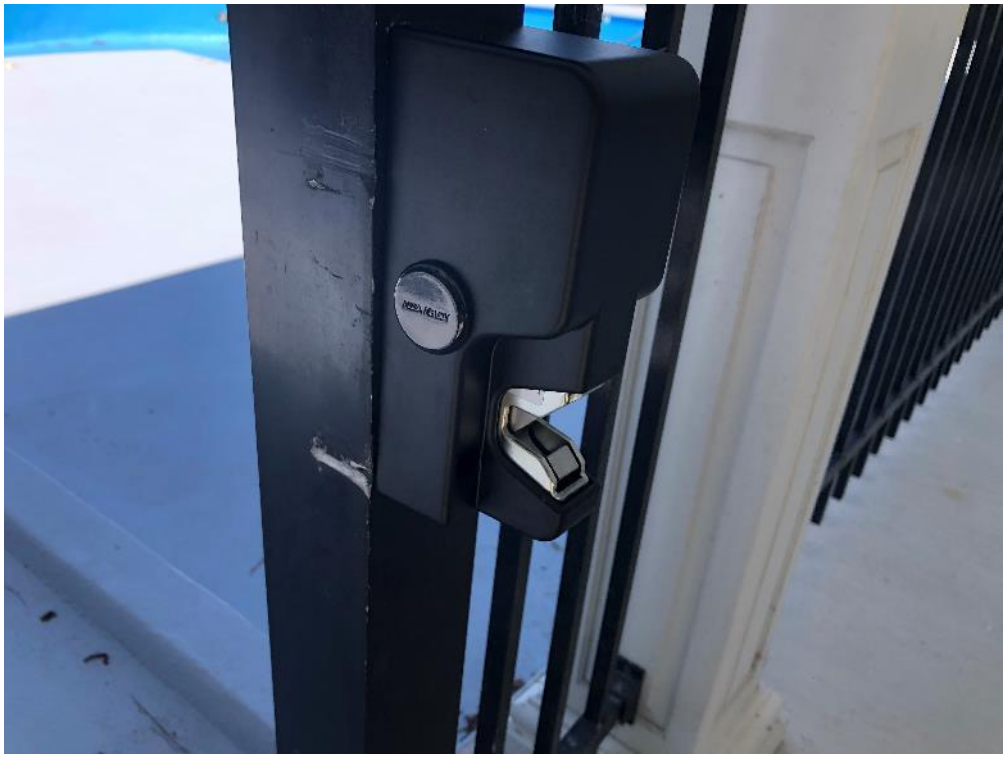
Photo Number
18

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update



Description:
Newly installed key fob access control at pool entry gate.

Photo Number
19

Description:
Pool pump and filtration equipment.

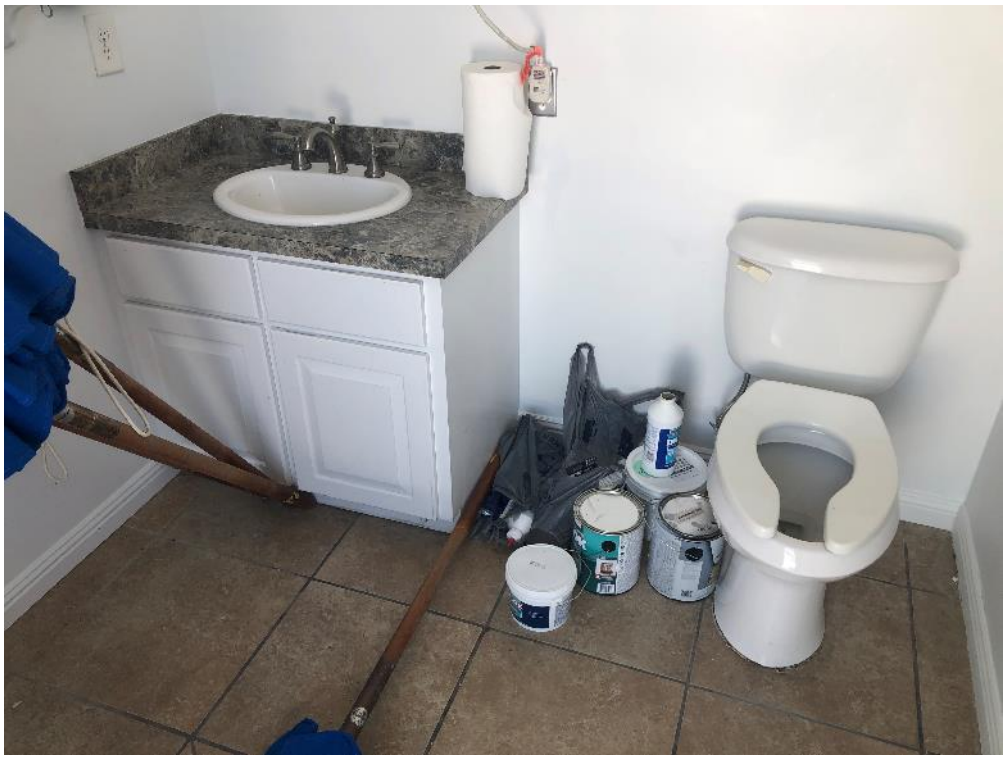
Photo Number
20

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update



Description:
Pool house bathroom.

Photo Number
21

Description:
Recently sealed concrete deck at pool.

Photo Number
22

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Typical community roadways.

Photo Number
23

Description:
Storm water inlet below concrete sidewalk. Note drainage easement between home sites.

Photo Number
24

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Broken concrete curbing.

Photo Number
25

Description:
Failed asphalt pavement patch.

Photo Number
26

Carolina Forest (CSA)
Jacksonville, NC

Photos taken by:
Logan Poe, PE(NC)

Date:
May 18, 2021

Reserve Study Update

Description:
Asphalt roads with concrete curbs and gutters.

Photo Number
27

Description:
New asphalt at Carolina Forest Blvd.

Photo Number
28

APPENDIX D
REFERENCE DOCUMENTS

RS

National Reserve Study Standards

11/2014

Table of Contents

General Information

Reserve Study

A Reserve Study is made up of two parts, 1) the information about the physical status and repair/replacement cost of the major common area components the association is obligated to maintain (Physical Analysis), and 2) the evaluation and analysis of the association's Reserve balance, income, and expenses (Financial Analysis). The Physical Analysis is comprised of the Component Inventory, Condition Assessment, and Life and Valuation Estimates. The Component Inventory should be relatively "stable" from year to year, while the Condition Assessment and Life and Valuation Estimates will necessarily change from year to year. The Financial Analysis is made up of a finding of the client's current Reserve Fund Status (measured in cash or as Percent Funded) and a recommendation for an appropriate Reserve contribution rate (Funding Plan).

Physical Analysis
- Component Inventory
- Condition Assessment
- Life and Valuation Estimates

Financial Analysis
- Fund Status
- Funding Plan

Levels of Service

The following three categories describe the various types of Reserve Studies, from exhaustive to minimal.

I. **Full:** A Reserve Study in which the following five Reserve Study tasks are performed:
   - Component Inventory
   - Condition Assessment (based upon on-site visual observations)
   - Life and Valuation Estimates
   - Fund Status
   - Funding Plan

II. **Update, With-Site-Visit/On-Site Review:** A Reserve Study update in which the following five Reserve Study tasks are performed:
   - Component Inventory (verification only, not quantification)
   - Condition Assessment (based on on-site visual observations)
   - Life and Valuation Estimates
   - Fund Status
   - Funding Plan

III. **Update, No-Site-Visit/Off Site Review:** A Reserve Study update with no on-site visual observations in which the following three Reserve Study tasks are performed:
   - Life and Valuation Estimates
   - Fund Status
   - Funding Plan

Terms and Definitions

CASH FLOW METHOD: A method of developing a Reserve Funding Plan 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: The individual line items in the Reserve Study, developed or updated in the Physical Analysis. These elements form the building blocks for the Reserve Study. Components typically are: 1) Association responsibility, 2) with limited Useful Life expectancies, 3) predictable Remaining Useful Life expectancies, 4) above a minimum threshold cost, and 5) as required by local codes.

COMPONENT INVENTORY: The task of selecting and quantifying Reserve Components. This task can be accomplished through on-site visual observations, review of association design and organizational documents, a review of established association precedents, and discussion with appropriate association representative(s) of the association or cooperative.

COMPONENT METHOD: A method of developing a Reserve Funding Plan where the total contribution is based on the sum of contributions for individual components. See "Cash Flow Method."

CONDITION ASSESSMENT: The task of evaluating the current condition of the component based on observed or reported characteristics.

CURRENT REPLACEMENT COST: See "Replacement Cost."

DEFICIT: An actual (or projected) Reserve Balance less than the Fully Funded Balance. The opposite would be a Surplus.

EFFECTIVE AGE: The difference between Useful Life and Remaining Useful Life. Not always equivalent to chronological age, since some components age irregularly. Used primarily in computations.

FINANCIAL ANALYSIS: The portion of a Reserve Study where current status of the Reserves (measured as cash or Percent Funded) and a recommended Reserve contribution rate (Reserve Funding Plan) are derived, and the projected Reserve income and expense over time is presented. The Financial Analysis is one of the two parts of a Reserve Study.

FULLY FUNDED: 100% Funded. When the actual (or projected) Reserve balance is equal to the Fully Funded Balance.

FULLY FUNDED BALANCE (FFB): Total Accrued Depreciation. An indicator against which Actual (or projected) Reserve balance can be compared. The Reserve balance that is in direct proportion to the fraction of life "used up" of the current Repair or Replacement cost. This number is calculated for each component, then summed together for an association total. Two formulae can be utilized, depending on the provider's sensitivity to interest and inflation effects. Note: Both yield identical results when interest and inflation are equivalent.

FFB = Current Cost X Effective Age / Useful Life

or

FFB = (Current Cost X Effective Age / Useful Life) + [(Current Cost X Effective Age / Useful Life) / (1 + Interest Rate) ^ Remaining Life] - [(Current Cost X Effective Age / Useful Life) / (1 + Inflation Rate) ^ Remaining Life]

FUND STATUS: The status of the reserve fund as compared to an established benchmark such as percent funding.

FUNDING GOALS: Independent of methodology utilized, the following represent the basic categories of Funding Plan goals:

Baseline Funding: Establishing a Reserve funding goal of keeping the Reserve cash balance above zero.

Full Funding: Setting a Reserve funding goal of attaining and maintaining Reserves at or near 100% funded.

Statutory Funding: Establishing a Reserve funding goal of setting aside the specific minimum amount of Reserves required by local statues.

Threshold Funding: Establishing a Reserve funding goal of keeping the Reserve balance above a specified dollar or Percent Funded amount. Depending on the threshold, this may be more or less conservative than "Fully Funding."

FUNDING PLAN: An association's plan to provide income to a Reserve fund to offset anticipated expenditures from that fund.

FUNDING PRINCIPLES:

- Sufficient Funds When Required
- Stable Contribution Rate over the Years
- Evenly Distributed Contributions over the Years
- Fiscally Responsible

LIFE AND VALUATION ESTIMATES: The task of estimating Useful Life, Remaining Useful Life, and Repair or Replacement Costs for the Reserve components.

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. 4

PHYSICAL ANALYSIS: The portion of the Reserve Study where the Component Inventory, Condition Assessment, and Life and Valuation Estimate tasks are performed. This represents one of the two parts of the Reserve Study.

REMAINING USEFUL LIFE (RUL): Also referred to as "Remaining Life" (RL). The estimated time, in years, that a reserve component can be expected to continue to serve its intended function. Projects anticipated to occur in the initial year have "zero" Remaining Useful Life.

REPLACEMENT COST: The cost of replacing, repairing, or restoring a Reserve Component to its original functional condition. The Current Replacement Cost would be the cost to replace, repair, or restore the component during that particular year.

RESERVE BALANCE: Actual or projected funds as of a particular point in time that the association has identified for use to defray the future repair or replacement of those major components which the association is obligated to maintain. Also known as Reserves, Reserve Accounts, Cash Reserves. Based upon information provided and not audited.

RESERVE PROVIDER: An individual that prepares Reserve Studies.

RESERVE STUDY: A budget planning tool which identifies the current status of the Reserve fund and a stable and equitable Funding Plan to offset the anticipated future major common area expenditures. The Reserve Study consists of two parts: the Physical Analysis and the Financial Analysis. "Our budget and finance committee is soliciting proposals to update our Reserve Study for next year's budget."

RESPONSIBLE CHARGE: A reserve specialist in responsible charge of a reserve study shall render regular and effective supervision to those individuals performing services which directly and materially affect the quality and competence rendered by the reserve specialist. A reserve specialist shall maintain such records as are reasonably necessary to establish that the reserve specialist exercised regular and effective supervision of a reserve study of which he was in responsible charge. A reserve specialist engaged in any of the following acts or practices shall be deemed not to have rendered the regular and effective supervision required herein:

1. The regular and continuous absence from principal office premises from which professional services are rendered; except for performance of field work or presence in a field office maintained exclusively for a specific project;
2. The failure to personally inspect or review the work of subordinates where necessary and appropriate;
3. The rendering of a limited, cursory or perfunctory review of plans or projects in lieu of an appropriate detailed review;
4. The failure to personally be available on a reasonable basis or with adequate advance notice for consultation and inspection where circumstances require personal availability.

SPECIAL ASSESSMENT: An assessment levied on the members of an association in addition to regular assessments. Special Assessments are often regulated by governing documents or local statutes.

SURPLUS: An actual (or projected) Reserve Balance greater than the Fully Funded Balance. See "Deficit."

USEFUL LIFE (UL): Total Useful Life or Depreciable Life. The estimated time, in years, that a reserve component can be expected to serve its intended function if properly constructed in its present application or installation.

Reserve Study Required Contents

Each Reserve Study prepared by a Reserve Specialist or Reserve Specialist applicant **must contain all of the following elements:**

PAGE	CONTENTS
_____	1. A summary of the association's number of units.
_____	2. Association physical description (legal or physical narrative).
_____	3. General statement or opinion describing the association's current reserve fund status (good/fair/poor, adequate or inadequate. Percent Funded, etc.).
_____	4. General statement describing the methods and objectives utilized in computing or evaluating the association's Reserve Fund status (Percent Funded or otherwise).
_____	5. Fiscal Year (start and end) for which the Reserve study is prepared.
_____	6. A projection of starting reserve cash balance (as-of above start date).
_____	7. A general statement describing the development or computation of the association's starting Reserve Fund balance.
_____	8. Recommended reserve contributions (minimum 20 years).
_____	9. Projected reserve expenses (minimum 20 years).
_____	10. Projected ending reserve fund balance (minimum of 20 years).
_____	11. A tabular listing of the components in the Reserve Study.
_____	12. A tabular listing of the component quantities or identifying descriptions.
_____	13. A tabular listing showing each component's Useful Life.
_____	14. A tabular listing showing each component's Remaining Useful Life, where RUL=0=initial year.
_____	15. A tabular listing showing each component's Current Replacement Cost.
_____	16. A general statement describing the Methods (cash flow, component, etc.) and Goals (Full Funding, Threshold Funding, Baseline Funding) of the Funding Plan, using National Standard terminology.
_____	17. Identification of the source(s) utilized to obtain component repair or replacement cost estimates.
_____	18. A clear description of which one of the three Reserve Study "Levels of Service" (ie: Full, Update With-Site-Visit, Update No-Site-Visit) was performed.
_____	19. A clear statement of assumption used for Interest and inflation (whether zero or otherwise).

Applicants MUST INCLUDE THE ABOVE TABLE with their work product submission, noting the page number where all the above required elements can be found in their sample work product.

Reserve Study Required Disclosures

Each Reserve Study prepared by a Reserve Specialist or Reserve Specialist applicant must contain all of the following disclosures:

PAGE	DISCLOSURE
_____	1. **General:** Description of other involvement(s) with the association, which could result in actual or perceived conflicts of interest.
_____	2. **Physical Analysis:** Description of how thorough the on-site observations were performed: representative sampling vs. all common areas, destructive testing or not, field measurements vs. drawing take-offs, etc.
_____	3. **Personnel Credentials:** State or organizational licenses or credentials carried by the individual responsible for Reserve Study preparation or oversight.
_____	4. **Completeness:** Material issues which, if not disclosed, would cause a distortion of the association's situation.
_____	5. **Reliance on Client Data:** Information provided by the official representative of the association regarding financial, physical, quantity, or historical issues will be deemed reliable by the consultant.
_____	6. **Scope:** The Reserve Study will be a reflection of information provided to the consultant and assembled for the association's use, not for the purpose of performing an audit, quality/forensic analyses, or background checks of historical records.
_____	7. **Reserve Balance:** The actual or projected total presented in the Reserve Study is based upon information provided and was not audited.
_____	8. **Reserve Projects:** Information provided about reserve projects will be considered reliable. Any on-site inspection should not be considered a project audit or quality inspection.

APPENDIX 1:

Reserve Specialist Code of Ethics

COMMUNITY ASSOCIATIONS INSTITUTE
PROFESSIONAL RESERVE SPECIALIST (RS) CODE OF ETHICS

The Reserve Specialist Shall:

1. Comply with current standards and practices as may be established from time to time by CAI, the Reserve Specialist (RS) Designation Review Board, subject to all federal, state and local laws, ordinances, and regulations, if any, in effect where the RS practices;
2. Participate in continuing professional education through CAI and other industry related organizations as required;
3. Act in the best interests of the client; refrain from making inaccurate or misleading representations or statements; not knowingly misrepresent facts to benefit the Specialist;
4. Undertake only those engagements that they can reasonably expect to perform with professional competence;
5. Exercise due care and perform planning and supervision as specified in the written client engagement agreement;
6. Disclose all relationships in writing to the client regarding any actual, potential or perceived conflict of interest between the Specialist and other vendors, including, but not limited to, management companies, insurance carriers, contractors and legal counsel.
7. Provide written disclosure of any compensation, gratuity or other form of remuneration from individuals or companies who act or may act on behalf of the client.
8. Conduct himself or herself in accordance with the Reserve Specialist requirements;
9. Not represent to anyone as being a Reserve Specialist designee until such time as he or she receives written confirmation from the Reserve Specialist Designation Review Board or CAI of receipt of the designation;
10. Recognize the original records, files, plats and surveys that are the property of the client are returned to the client at the end of the Specialists engagement; maintain the duty of confidentiality to all current and former clients.
11. Refrain from criticizing competitors or their business practices; Act in the best interests of their Employers; Maintain a professional relationship with our peers and industry related professionals.
12. Conduct themselves in a professional manner at all times when acting in the scope of their employment.
13. Not engage in any form of price fixing, anti-trust, or anti-competition.
14. Not use the work products of colleagues or competing Reserve Specialist firms that are considered proprietary without the expressed written permission of the author or the reserve specialist firm.
15. Abide by the re-designation policy of CAI.

Compliance with the Professional Reserve Specialist Code of Ethics is further amplified in the Code Clarification Document provided by the Community Associations Institute.

Draft Revision April 2008

TERMS OF REFERENCE RESERVE STUDY	
ASSOCIATION	The unit owners' association. May be referred to with different terminology in legal covenants of incorporation.
BOARD	Elected officers of the Association with fiduciary responsibility for the community's common holdings. May be referred to with different
OWNER	Individual Unit owner, a Member or the Association
PROPERTY MANAGER	Professional organization through which the Board delegates responsibilities for operations and maintenance of the community.
EXCELLENT	Component or system is in "as new" condition, requiring no rehabilitation and should perform in accordance with expected performance.
GOOD	Component or system is sound and performing its function, although it may show signs of normal wear and tear. Some minor rehabilitation work may be required.
FAIR	Component or system falls into one or more of the following categories: a) Workmanship not in compliance with commonly accepted standards, b) Evidence of previous repairs not in compliance with commonly accepted practice, c) Component or system is obsolete, d) Component or system approaching end of expected performance. Repair or replacement is required to prevent further deterioration or to prolong expected life.
POOR	Component or system has either failed or cannot be relied upon to continue performing its original function as a result of having exceeded its expected performance, excessive deferred maintenance, or state of disrepair. Present condition could contribute to or cause the deterioration of other adjoining elements or systems. Repair or replacement is required.
ADEQUATE	A component or system is stable, has capacity to function as required, is sufficient for its service, is suitable for operation, and/or conforms to standard construction practices.
BASIS OF COMPARISON	Ratings are determined by comparison to other buildings of similar age and construction type.
LEFT, RIGHT, FRONT, REAR	Directions are taken from the viewpoint of an observer standing at the property frontage and facing it. Or, for a building within a campus setting, the viewpoint of an observer standing in front of the principal entrance and facing it.

CURRENT DEFICIENCY IMMEDIATE EXPENSE	We will note any observed or reported physical condition which requires immediate action to correct an existing or potential safety hazard, an enforceable building code violation, or the poor or deteriorated condition of a critical element or system. Also, to address any conditions which, if left "as is", would likely result in the failure of a critical element or system. Such items will be noted in our report even if they do not require a reserve expenditure.
SHORT-TERM RESERVE EXPENDITURES	Correction of physical deficiencies including deferred maintenance, which may not warrant immediate attention, but require repairs or replacements which should be undertaken on a priority basis, taking precedence over preventive maintenance work within a one-year time frame. Included are physical deficiencies resulting from improper design, faulty installation, and/or substandard quality of original systems or materials. Components or systems that have exceeded their expected useful life and require repair or replacement within a one-year time frame are also included. Observed minor issues which would typically be addressed as normal operations & maintenance work may not be noted in the report.
LONG-TERM RESERVE EXPENDITURES	Non-routine repairs, replacements or planned improvements that will require significant expenditure during the study period. Included are items that will reach the end of their estimated useful life or which, in the opinion of the engineer, will require such expense during that time. If saving for longer- term expenditures is desired, then allowances or contingencies for such items may also be included. Observed minor issues which would typically be addressed as normal operations & maintenance work may not be noted in the report.
EXPECTED USEFUL LIFE (EUL)	As components age, they wear and deteriorate at varying rates, depending on their service and exposure. Although it is an inexact science, various financial underwriters, data services and trade organizations publish guidance regarding the EULs of typical building materials and operating systems. For short-lived components, their EUL is used as the frequency between periodic repairs or replacements. Some systems' economic life may be shortened because improved equipment or materials has become available which is less costly to operate or maintain.
REMAINING USEFUL LIFE (RUL)	The simple equation for determining remaining useful life before repair or replacement is: **EUL – Age = RUL** However, based on our evaluation of a component and our professional judgment, we may assign a shorter or longer RUL to actual items being considered.

BUILDING SYSTEMS AND COMPONENTS COMMON ABBREVIATIONS AND			
ACM	Asbestos Containing Material	**HW**	Hot Water
ACT	Acoustic Ceiling Tile	**HWH**	Hot Water Heater (*domestic*)
ADA	Americans with Disabilities Act	**IBC**	International Building Code
AHU	Air Handling Unit	**IRC**	International Residential Code
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers	**KVA**	Kilovolt-Ampere
ASTM	American Society for Testing and Materials	**LF**	Lineal Foot
BOCA	Building Officials Code Administrators International	**MSL**	Mean Sea Level
BTU	British Thermal Unit	**NEC**	National Electric Code
BTUH	British Thermal Unit / Hour	**NFPA**	National Fire Protection Association
CFM	Cubic Foot / Minute	**MBH**	Thousand British Thermal Units / Hour
CI	Cast Iron (*piping*)	**MDP**	Main Distribution Panel (*electric power*)
CIP	Cast In Place (*concrete*)	**O&M**	Operations & Maintenance
CMU	Concrete Masonry Unit (*block*)	**OSB**	Oriented Strand Board (*sheathing or decking*)
CPVC	Chlorinated Poly Vinyl Chloride (*piping*)	**PCA**	Property Condition Assessment
CW	Cold Water	**PCR**	Property Condition Report
DI	Ductile Iron (*piping*)	**PE**	Licensed Professional Engineer
EIFS	Exterior Insulating and Finishing System	**PVC**	Poly Vinyl Chloride (*piping and siding*)
EPDM	Ethylene Propylene Diene Monomer	**PTAC**	Packaged Terminal Air Conditioning Unit
EUL	Expected Useful Life	**ROM**	Rough Order of Magnitude
FCU	Fan Coil Unit	**RUL**	Remaining Useful Life
FEMA	Federal Emergency Management Agency	**RTU**	Roof Top Unit
FFE	Furniture, Fixtures and Equipment	**SF**	Square Foot
FHA	Forced Hot Air	**SOG**	Slab on Grade (*concrete basement or ground floor*)
FHAA	Fair Housing Act and Amendments	**SQ**	100 Square Feet
FHW	Forced Hot Water	**SY**	Square Yard
FIRM	Flood Insurance Rate Map	**UBC**	Uniform Building Code
FOIA	Freedom of Information Act	**UL**	Underwriters Laboratories
GFI	Ground Fault Interruption (*circuit breaker*)	**VAC**	Volts Alternating Current
GWB	Gypsum Wall Board (*drywall or sheetrock*)	**VAV**	Variable Air Volume box
HID	High Intensity Discharge (*lamp, lighting fixture*)	**VCT**	Vinyl Composition Tile
HVAC	Heating Ventilation and Air Conditioning	**VWC**	Vinyl Wall Covering

APPENDIX E
PROJECT TEAM QUALIFICATIONS

Logan R. Poe, PE – Project Engineer

- B.S. Civil Engineering, The University of North Carolina at Charlotte, Charlotte, NC, 2011
- Professional Engineer – North Carolina (#046049)

Professional Summary

Mr. Poe has experience in residential and commercial design, construction administration and special inspections. He has provided engineering and consultation on many projects and has been responsible for development construction documentation on many sites. Mr. Poe also performs studies of completed facilities which address compliance with building codes, local regulations and industry standards. These assessments include the following categories of residential/commercial facilities:

- Commercial office buildings
- Industrial warehouses
- High rise condominiums with retail space
- Multi-family housing projects

Mr. Poe performs structural assessments on commercial buildings and multi-family structures during the process of a renovation or when a forensic evaluation is requested. The assessments of existing structural beams, columns and foundations are typically required when new HVAC units and solar panels are installed and when the assembly of the floor space is modified. Mr. Poe performs structural assessments for single-family and multi-family buildings. These assessments are required to determine if significant structural defects are present in the foundation, flooring and roofing systems. Mr. Poe prepares repair designs to remedy these defects as required.

Mr. Poe has conducted numerous quality assurance inspections for the installation of building envelope systems in multi-family new construction projects. These inspections include roofing, siding, fenestration, waterproofing and related systems. Inspections were conducted to confirm installation in accordance with project specifications, manufacturer's installation recommendations, building code and industry standards. Mr. Poe has also conducted numerous moisture intrusion evaluations for multi-family residential and commercial buildings.

Mr. Poe also performs numerous capital reserves studies for community associations/building owners, performs construction monitoring and quality assurance inspections as noted above for new multi-family and commercial construction and community association capital repair projects. Included in these assessments is repair/replacement cost estimates and useful life estimates for building components and site improvements for near term/immediate repairs. In addition, Mr. Poe has performed numerous construction draw inspections to ensure the respective pay applications are current to the project's schedule and construction documents respectively.

BUILDING INSPECTION ENGINEERS
PROUDLY SERVING NORTH AMERICA SINCE 1957

H. Alan Mooney, P.E.

Founding President

Alan Mooney is a civil and structural engineer with over 40 years of experience as a consulting engineer. From 1988 until 2018 he was President and principal owner of Criterium Engineers, a national consulting engineering firm with affiliate offices throughout North America.

His experience includes:

- complex multi-million-dollar engineering and construction projects
- forensic engineering
- construction quality assurance services
- numerous building envelope quality assurance and commissioning projects
- thousands of residential and commercial building inspections

In addition to his own projects, he continues to serve as an advisor/consultant for inspections, structural evaluations, investigative engineering, structural design and trainer for the Criterium Engineers staff.

As a structural engineer, he has designed a variety of structures in wood, concrete and steel. These structures include bridges, multi-story buildings, parking garages and marine facilities.

Mr. Mooney has also established an impressive track record as a noted seminar leader and author, both locally and nationally, on construction-related issues, construction quality, and building inspection procedures and standards.

EDUCATION AND PROFESSIONAL AFFILIATION

Rutgers University, New Brunswick, NJ – 1969
Bachelors of Science, Civil Engineering

Licensed Professional Engineer in ME, NH, VT, MA, CT, NY, NC, NJ, AZ, NV, FL, KS, WA
Board Certified Building Inspection Engineer
Licensed Reserve Study Specialist in NV

NSPE (National Society of Professional Engineers)
CAI (Community Associations Institute) –ASCE (American Society of Civil Engineers)
The Order of the Engineer

WHY I DO WHAT I DO

"Building technology is always changing; keeping up is an exciting challenge. Diagnosing problems means using good judgment and capitalizing on years of experience. It's even more challenging and exciting because every client's needs are different. What we do represents the essence of being a professional engineer."

WHY CRITERIUM ENGINEERS

"I founded Criterium Engineers to allow other engineers to discover their full potential as professionals."

SELECT PROJECT HIGHLIGHTS

- **San Diego Airport Expansion –** envelope commissioning
- **Phoenix Sky Harbor Airport –** envelope quality assurance
- **IKEA** – facilities review of all locations in the U.S.
- **Cincinnati, Ohio** – failure investigation of one-year-old, 60,000 sf roof
- **Silo Point, Baltimore, Maryland** – provided transition study and follow-up consulting for a unique, high-end condominium complex involving the conversion of an abandoned grain handling complex.
- **Sun City Anthem, Las Vegas, Nevada** – provided comprehensive reserve fund study for a large (10,000 residents), high end home owner association in Las Vegas.
- **Wimar-Tahoe** – provided expert testimony for building performance in a $100 million dispute involving a Lake Tahoe casino complex.
- **415 Congress Street** – provided expert testimony for a dispute regarding façade restoration and repair work on a large, 100-year old building listed on the National Register of Historic Places

EXPERIENCE HIGHLIGHTS

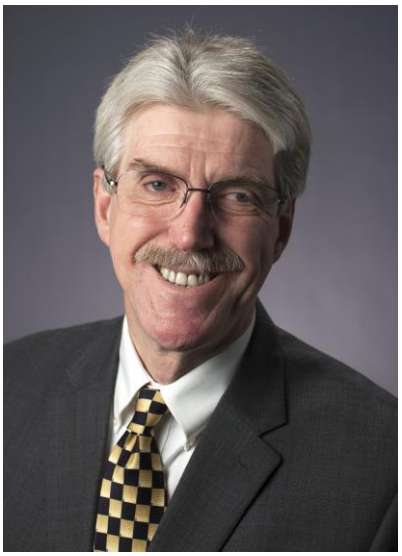
- 25 years' experience as a construction quality consultant including collaboration with several major builders to develop effective quality assurance programs.
- 30 years' experience as a construction expert in construction disputes, including serving as an expert witness on numerous occasions.
- Has performed more than 15,000 building inspections personally.
- Criterium Engineers now performs over 15,000 building inspections annually to standards Mr. Mooney developed and refines on an ongoing basis.
- 25 years' experience as a seminar leader; presented seminars to builders, appraisers, real estate agents in more than 30 states
- Founding president of the National Academy of Building Inspection Engineers (NABIE), 1989-1993.

hamooney@criterium-engineers.com – (207) 869-4207
5 Depot Street, Suite 23, Freeport, ME 04032

BUILDING INSPECTION ENGINEERS
PROUDLY SERVING NORTH AMERICA SINCE 1957

V. Campbell Grant, P.E., CBIE, LEED® AP, E.P.

Senior Engineer



Cam Grant is a licensed professional civil engineer and project manager with over 35 years experience in site development, building design & construction and facility management.

Since joining Criterium, Cam has become expert in

- commercial & residential Property Condition Assessments in support of real estate due diligence and financial underwriting
- Capital Reserve & Transition Studies for community associations' facility & financial planning
- Phase One Environmental Site Assessments for all appropriate inquiry under EPA regulations

Cam now manages these inspection services provided to Criterium's national clients across the country. He directs assigned professional staff from our affiliated offices, and assists them with guidance whenever required to ensure consistent high quality.

Cam has planned and led hundreds of capital improvement projects from conceptual payback analysis through facility commissioning. His responsibilities have included building design; permitting & construction; and process equipment specification, procurement & start-up. The value of several of his larger projects ranged over $50 million and up to $150 million.

Prior to joining Criterium, Cam was a project manager for a design-build general contractor. In that role, he concurrently estimated costs, authored proposals, obtained permits, hired subcontractors, purchased materials, leased equipment, and managed on-site superintendents at multiple locations.

EDUCATION AND PROFESSIONAL AFFILIATION

University of Maine, Orono, ME
Bachelors of Science, Civil Engineering
Southern Maine Community College, South Portland, ME
2D & 3D Design (AutoCad)

ASTM Training, Standard E 2018 Property Condition Assessments
ASTM Training, Standard E 1527 Phase I Environmental Site Assessments, September 2006

Licensed Professional Engineer: State of Maine, No. 4227
Certified Building Inspection Engineer, National Association of Building Inspection Engineers
Accredited Professional, US Green Building Council, Leadership in Energy & Environmental Design
Environmental Professional, Phase One Environmental Site Assessments

WHY I DO WHAT I DO

"When I was small, I enjoyed stacking up blocks, laying out toy train tracks and assembling erector sets. As I got older, I began to understand that building bigger things must be a group undertaking, and how the constructed environment enables human activities.

"At this point, I derive the most satisfaction from facilitating the work of others while ensuring a high

quality result. I really appreciate how the outcome of our work together adds value to other people's lives."

WHY CRITERIUM ENGINEERS

"Whether we are retained by real estate investment trusts or community associations or housing authorities or first-time home buyers, Criterium's clients require our guidance in making very significant current financial decisions, and with planning for future expenses.

"We place our building knowledge and professional experience into their service. Along the way, we also assist them with other considerations: life safety, regulatory compliance and obtaining the highest value-return from planned repairs and improvements. This is a great way to spend the day and earn a living!"

EXPERIENCE HIGHLIGHTS

- Extensive experience planning industrial operations and initiatives.
- Completed hundreds of capital improvement projects, including installation of equipment, building renovations, new building construction, and new plant development. Directly supervised design teams & on-site staff.
- Directed & documented the work of inter-disciplinary teams tasked with implementation of new management systems & with developing sales proposals

PROJECT HIGHLIGHTS

- Successfully coordinated the completion of thousands of individual tasks during US Navy ship overhauls
- Managed production scheduling for the design and fabrication of pulp & paper line machinery

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