

# RESERVE STUDY REPORT

PREPARED FOR

**Windstone Community Association II, Inc.**

Sugar Grove, Illinois

CLIENT CONTACT

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Attn: Tom Carlstead, Property Manager



REPORT VERSION ONE

WEC PROJECT #: 18C-357

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## **PHOTOGRAPHS**

## **RESERVE ANALYSIS EXHIBITS**

- Exhibit 1 – Element Summary
- Exhibit 2A – Element Replacement Schedule (Inflation Rate = 3.0%) (6 pages)
- Exhibit 3A – Recommended Funding Plan (Inflation Rate = 3.0%)
- Exhibit 2B – Element Replacement Schedule (Inflation Rate = 5.0%) (6 pages)
- Exhibit 3B – Recommended Funding Plan (Inflation Rate = 5.0%)
- Exhibit 4 – Fund Balance Comparison

## 1. EXECUTIVE SUMMARY

Waldman Engineering Consultants, Inc. (WEC) was contracted to perform a Reserve Study for Windstone Community Association II, Inc. located in Sugar Grove, Illinois in accordance with our proposal dated June 8, 2018.

The subject property was originally constructed from approximately 1986 through the early 2000's and consists of 306 single family homes.

To fulfill the terms of the proposal, the engineering staff of WEC prepared this reserve study with a two-part assessment and analysis process.

### **Part 1 - Field Assessment**

The engineering staff of WEC conducted a detailed visual inspection of the Association's common elements on July 9, 2018. The visual inspection consisted of obtaining a general condition of the elements as well as determining the quantity and specifications of the elements. The elements that have been included in the Reserve Study are considered common to the property as provided by the Association and/or its Property Manager and include the following.

- Asphalt Pavement
- Entrance Monuments
- Lake and Spillway
- Wood Piers
- Tennis Courts
- Benches and Trash Receptacles

Where deemed appropriate, a representative sampling of repetitive or similar systems, components, equipment, units, areas, buildings, etc., was performed during the detailed visual inspection. A representative sampling inspection is deemed appropriate when similar observations, deficiencies, and recommendations are duplicated several times over.

We found the property to be very well maintained overall. Isolated deficiencies were observed and are described in each respective element section and photographic section of this report.

### **Part 2 - Reserve Analysis**

A repair or replacement expense was determined for each of the elements above that met the three-part test as outlined below:

1. The element replacement expense is significant enough to impact the financial results of the study.
2. The element has a limited useful life.
3. The element must have a determinant remaining useful life.

The replacement cost estimates are calculated using a combination of bids from local contractors for similar work, actual data that may be provided from property representatives, as well as the latest version (updated quarterly) of the R.S. Means cost estimating database configured for the region that the property is located in. The replacement expenses were then scheduled over the next 30 years according to each element's anticipated remaining useful life. Repair/replacement projects were spread over a number of years for elements that a single year replacement project was not considered practical due to cost or scope of work. In order to accurately determine the level of reserve contributions necessary to meet all anticipated expenses, the present day expenses had to be inflated to account for future increases in construction costs. The average construction cost inflation rate over the past 20 years is currently 3.89% and is determined using the average of the RS Means Historical Cost Indexes for the Chicagoland area over the last 20 years. Therefore, for the purpose of this report, WEC has given two recommended funding plans using inflation rates of 3.0% and 5.0%. Given the present day expense, the future expense is calculated using the "future value of a single amount formula" as follows:

$$F = P (1 + IR)^n$$

where

F = future expense

P = present day expense

IR = inflation rate expressed as a decimal

n = number of years until future expense occurs

The recommended funding plan was produced for the purpose of determining the amount of money the Association would need to set aside in the reserve account each year in order to meet the anticipated expenses over the next 30 years. The reserve account starting balance for the fiscal year January 1, 2019 – December 31, 2019 was given to WEC by the property representative and is shown in the table below along with the current annual reserve fund contribution. Interest rates are currently at historic lows. While we cannot predict what future interest rates will be, we have used a slightly higher rate of return that provided based on the assumption that interest rates will increase over the term of the study period.

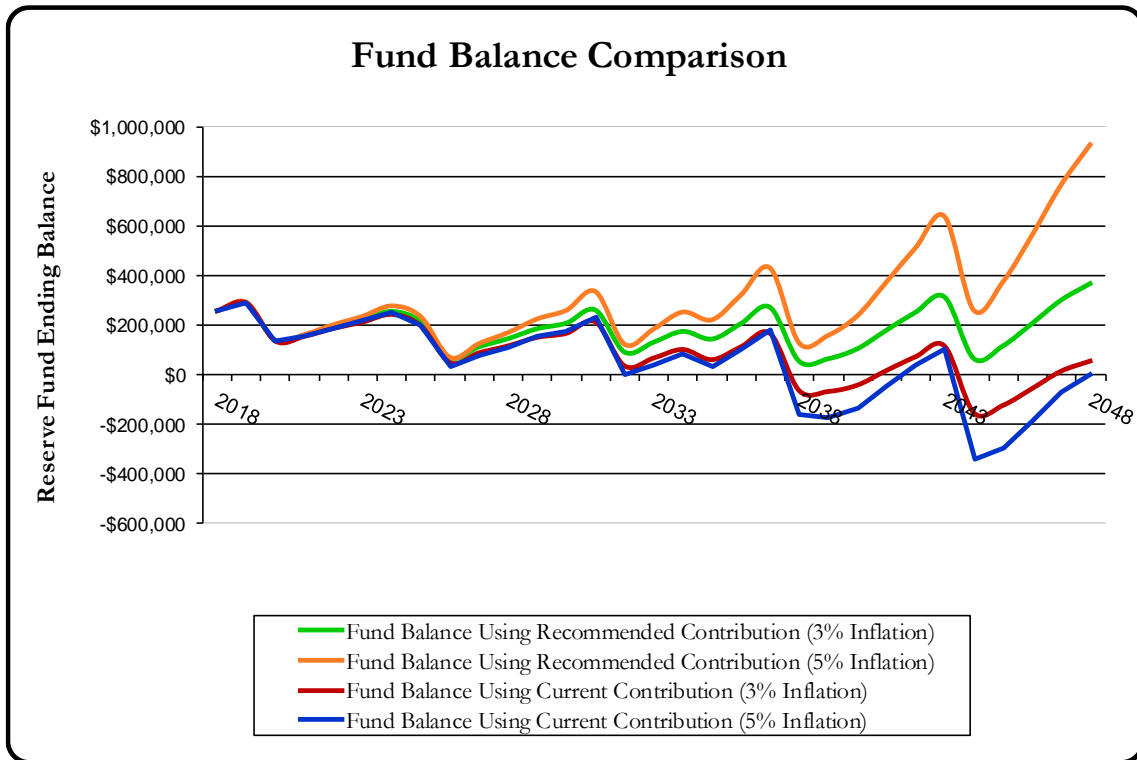
Summary of Financial Information	
Projected Starting Reserve Fund Balance (As of 1/1/2019)	\$257,814
Current Annual Reserve Fund Contribution	\$30,748
Reserve Fund Interest Rate (Normalized rates of 1% & 2% used in funding plans)	N/A

**Based on the reserve analysis, it was concluded that the potential need for a loan or special assessment is not anticipated at this time. However, minor annual inflationary-based increases in reserve funding should be anticipated over the 30-year reserve term. Please refer to Exhibits 3A and 3B for the recommended funding plans based on inflation rates of 3.0% and 5.0%. It is estimated that a funding plan falling between these two rates is adequate to properly fund the anticipated capital expenditures. The following tables summarize the recommended annual reserve fund contributions over the next 30 years.**

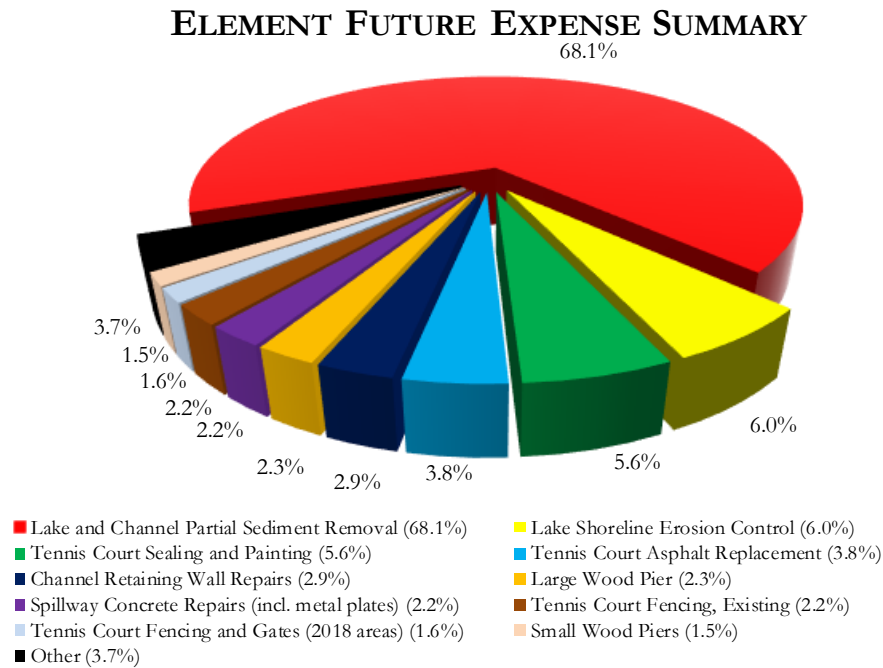
Recommended Funding Plan Summary (Inflation Rate = 3.0%)					
Year	Reserve Fund Contribution	Year	Reserve Fund Contribution	Year	Reserve Fund Contribution
2019	\$31,932	2029	\$46,590	2039	\$67,976
2020	\$33,161	2030	\$48,383	2040	\$70,593
2021	\$34,438	2031	\$50,246	2041	\$73,311
2022	\$35,764	2032	\$52,180	2042	\$76,133
2023	\$37,141	2033	\$54,189	2043	\$79,064
2024	\$38,571	2034	\$56,276	2044	\$82,108
2025	\$40,056	2035	\$58,442	2045	\$85,269
2026	\$41,598	2036	\$60,692	2046	\$88,552
2027	\$43,199	2037	\$63,029	2047	\$91,961
2028	\$44,862	2038	\$65,456	2048	\$95,502

Recommended Funding Plan Summary (Inflation Rate = 5.0%)					
Year	Reserve Fund Contribution	Year	Reserve Fund Contribution	Year	Reserve Fund Contribution
2019	\$32,747	2029	\$61,470	2039	\$115,387
2020	\$34,875	2030	\$65,465	2040	\$122,888
2021	\$37,142	2031	\$69,721	2041	\$130,875
2022	\$39,556	2032	\$74,253	2042	\$139,382
2023	\$42,127	2033	\$79,079	2043	\$148,442
2024	\$44,866	2034	\$84,219	2044	\$158,091
2025	\$47,782	2035	\$89,693	2045	\$168,367
2026	\$50,888	2036	\$95,523	2046	\$179,311
2027	\$54,196	2037	\$101,732	2047	\$190,966
2028	\$57,718	2038	\$108,345	2048	\$203,379

The status of the current funding plan as it relates to the recommended funding plan is illustrated below and in **Exhibit 4**, assuming that the current budgeted amount is increased for inflation annually.



The following chart illustrates the ratio of expenses that will be incurred over the 30-year study period for each of the elements that represent a majority of the future repair or replacement expenses.



The annual contributions made to the reserve fund are a means to compensate for the difference between the ongoing deterioration of a property and its finances. Since elements deteriorate at varying rates and the finances of the property are typically changing on an annual basis, the need to maintain balance between the two is an ongoing process. Therefore, to maintain this balance, periodic updates to the Reserve Study are recommended approximately every three years. Annual updates may be warranted depending on the age of the property and the amount of repair or replacement activity.

## **2. INTRODUCTION**

Waldman Engineering Consultants, Inc. (WEC) was contracted to perform a Reserve Study for Windstone Community Association II, Inc. located in Sugar Grove, Illinois in accordance with our proposal dated June 8, 2018. The purpose of the reserve study is to determine a reasonable level of annual reserve fund contributions required to meet the future expenditures for the elements on the property that will likely require major repairs or replacements over the next 30-year period.

Applicable state law (The Illinois Condominium Act or the Illinois Common Interest Community Association Act) has not specifically defined “Reasonable Reserves”, nor has it prescribed any specific formulas for use in determining the amount of these reserves. This reserve study will aid the decision of determining what a reasonable reserve level should be.

## **3. RESERVE STUDY GOALS**

The goals of the Reserve Study are as follows:

- Quantify as well as provide a condition assessment of each major element the Association has responsibility for maintaining.
- Determine the typical useful life and remaining useful life of the elements.
- Estimate replacement costs for each element and prepare a schedule of element replacements based on historical performance data and present condition.
- Evaluate the annual reserve fund contributions required to ensure that reserve funds are available when needed to repair or replace the elements without the need to levy a special assessment.

## **4. LEVEL OF SERVICE**

This report is based on the following level of service:

**Level 2 – Update Reserve Study with Site Visit:** An update reserve study includes a component inventory that is developed from a previous Reserve Study element list, condition assessment based on visual observations, life and valuation estimates, fund status, and funding plan. It is noted the sole difference between Level 1 and Level 2 is wholesale element quantification is not performed for a Level 2 study. For purposes of this reserve study update, select components have been requantified and/or reclassified as necessary.



## 5. ASSUMPTIONS

Several general assumptions have been made for the completion of this study, which are as follows:

1. The elements will be replaced with like kind unless otherwise noted or directed by a representative of the property to use alternate materials.
2. All new installations will comply with current city, state and local building code requirements.
3. The building structures have a remaining useful life greater than 30 years.
4. Maintenance will be performed on the common elements to ensure that the expected useful lives will be achieved or exceeded.
5. Since cash flow takes place at frequent and varying time intervals within an interest period, a simplified method of assuming that all cash flow occurs at the midpoint of the interest period is used in the reserve analysis.
6. The financial analysis in this study employs the cash flow method for developing the recommended reserve funding plan. This method generates a reserve funding plan to offset the anticipated annual expenditures which vary with time. In addition, the funding plan was generated using the baseline funding method. By definition, the baseline funding method maintains a reserve fund balance above zero for each year of the study.
7. The study is limited to the elements of the property that likely require major repair or replacement during the study period and that have a significant impact on the reserve contributions. Elements that require minor repairs or replacements and are relatively insignificant in cost when compared to the property in its totality are assumed to be funded from the operating and maintenance budget.
8. Certain recurring and/or minimal expenses are considered to be maintenance items. Therefore, adequate funding for such expenses should be allocated in the operating and maintenance budget. Expenses assumed to be funded through the operating and maintenance budget at the subject property include, but are not limited to, the following:
  - Applying protective coatings to the wood piers
  - Expenses associated with typical maintenance of the common area landscaping
  - Expenses associated with maintaining the water quality of the lake
  - Minor repairs to the retention lake shoreline such as minor additions of rip-rap, soil, etc.
  - Common area concrete (limited)
9. The following components were reported to be the responsibility of separate entities and therefore are not included in the study:
  - Street systems (including curbs, gutters and catch basins) (Municipality)
  - Sidewalks along streets (Municipality)
  - Homes and lots (Homeowners)
  - Bridge west of spillway (Municipality)
10. Elements such as electrical, water supply, and waste water systems for the buildings along with any common irrigation and storm water drainage systems located throughout the property are considered to have an extensive lifetime that make it very difficult to predict or establish major repair or replacement expenses. These elements can function indefinitely with ongoing maintenance and repairs which are considered minor when compared to wholesale replacement expenses; therefore, we assume that future minor ongoing maintenance and repair expenses incurred will be funded from the operating and

maintenance budget. This assumption is based on the premise that a reserve study is to include elements that have a definable remaining useful life; therefore, incorporating replacement expenses for elements that do not have a predictable useful life into the study can significantly impact the accuracy and validity of the results.

11. This study is reliant on the element quantities documented in the reserve study previously prepared by Waldman Engineering Consultants dated April 22, 2014. For purposes of this reserve study update, select components have been requantified and/or reclassified as necessary. Changes in the reserve study capital expense list were made as a result of conversations with the Property Manager and/or Board Member(s).
12. There may be ash trees present on the property. The emerald ash borer in Illinois has created great concern with regard to the effects of this invasive and destructive beetle. It is recommended that a professional horticulturist be consulted regarding investigating for the presence of the beetle and formulation or reference to any plan of action should it be discovered on the property. Accurately predicting the quantity of trees that may be affected, the cost for treatment and/or removal, and replacement is beyond the scope of this report. Funding for this work should be discussed with a qualified landscaper and/or arborist and figured into the annual landscaping operating and maintenance budget and is not included in this report.
13. Wildlife management costs for control of animals such as geese, beavers, muskrats, etc., cannot be predicted and are considered operating expenses.

## 6. DISCLOSURES

Waldman Engineering Consultants has no affiliation with Windstone Community Association II, Inc. other than the preparation of this Reserve Study Report. This study was prepared entirely by an engineer that carries a Reserve Specialist designation endorsed by Community Associations Institute (CAI).

This study and report is based on observations of the visible and apparent conditions of a reasonable representative sampling of the property's elements at the time of inspection. Although due diligence was performed during the inspection phase, Waldman Engineering Consultants makes no representations regarding latent or concealed defects that may exist. The inspection did not constitute any invasive investigations and was not intended to determine whether applicable building components, systems, or equipment are adequate or in compliance with any specific or commonly accepted design requirement, building code, or specification. Such tasks as material testing, engineering analysis, destructive testing, or performance testing of building systems, components, or equipment are not considered as part of the scope of work, nor are they considered by the reserve study industry standard.

Judgments in this study are based on estimates of the age and typical useful life of the various elements included in this study. The predictions of useful life and remaining useful life are based on industry and/or statistical comparisons, along with sound engineering judgment. It is necessary to recognize that the actual conditions can alter the useful life of any element. The methods of installation, deferral of maintenance, or other unforeseen conditions make it virtually impossible to predict precisely when each element will require major repair or replacement. The results of this study should not be construed as a guarantee or warranty, either expressed or implied, as to the performance of products, materials, or workmanship.

If the property representative has not disclosed any known issues or problems with materials, components, or systems, it is noted that the validity of this study may be impacted. Where applicable, comments regarding the general condition of the property and any significant deficiencies as observed at the time of inspection have been documented. The information provided by the property representative regarding the financial, physical, or historical data is deemed reliable. The reserve study is intended to be a reflection of the information provided and is not for the purpose of performing an audit, quality analysis, forensic analysis, or background check of historical records.

Pricing used for the repair or replacement costs indicated in this report are derived from the R.S. Means publications in conjunction with other reliable resources such as individual material and equipment suppliers and contractors. The material and labor pricing provided are estimates and have been augmented as necessary to account for specific site conditions (i.e. material handling, scaffolding, etc.). The estimated repair and replacement expenses, unless otherwise noted, do not include allowances for architectural, engineering, or permitting fees.

By review of the property representative, the elements listed in the Exhibit 1 of this report have been identified as the elements for which the property has long-term responsibility for repair and replacement. The property representative assumes full responsibility for determining that the list of elements is complete. Waldman Engineering Consultants has not reviewed any documents or declarations as part of this Reserve Study and assumes no responsibility for the completeness of the inventory.

This report is intended solely for the use of the Windstone Community Association II, Inc. in connection with funding for major repairs and replacements, and may not be used by any other party for any purpose.

## 7. RESERVE ANALYSIS

Upon completion of the field assessment, WEC determined whether the elements qualify to be considered a major capital expense for future funding in the Reserve Study based on the following three-part test:

1. The element replacement expense is significant enough to impact the financial results of the study.
2. The element has a limited useful life.
3. The element must have a determinant remaining useful life.

Once replacement expenses were determined for all major elements, an element replacement schedule was prepared for a 30-year term. The replacement schedule is based on the element historical performance data, current condition, age, and estimated life expectancy. The National Reserve Study Standard published by CAI dictates that a minimum of a 20-year replacement schedule be used in a Reserve Study. WEC has selected a 30-year reserve term to capture replacement expenses associated with elements that can achieve a long service life.

In order to accurately determine the level of reserve contributions necessary to meet all anticipated expenses, the present day expenses had to be inflated to account for future increases in construction costs. The construction cost inflation rate is currently 3.89% and is determined using the average of the RS Means Historical Cost Indexes for Chicagoland over the last 20 years. For the purpose of this report, WEC has given two recommended funding plans using an inflation rate of 3.0% and 5.0%. Given the present day expense, the future expense is calculated using the “future value of a single amount formula” as follows:

$$F = P (1 + IR)^n$$

where

F = future expense

P = present day expense

IR = inflation rate expressed as a decimal

n = number of years until future expense occurs

A recommended funding plan was then developed using a baseline funding method, which maintains a yearly reserve fund ending balance above zero. The results of the funding plan outline the amount of money required to be deposited into the reserve fund each year in order to meet the projected element replacement/repair expenses without the need of levying a special assessment.

This study delivers two economic scenarios using a reserve fund interest rate and two construction cost inflation rates. The interest rate is provided by the representative of the property. Given the varying changes in inflation rates and the length of the study period, two inflation rates are used to provide a potential range of funding plans. It is emphasized that the recommended reserve funding plans presented in **Exhibits 3A and 3B** are each only one of many possible schedules that can be employed to meet the future reserve requirements.

The reserve analysis exhibits included with this report include the following:

- |                             |  |
|-----------------------------|--|
| <b>Exhibit 1</b>            | <i>Element Summary</i> – Includes element quantities, units, estimated present day costs, observed conditions, typical useful life, and estimated remaining useful life                                      |
| <b>Exhibits 2A &amp; 2B</b> | <i>Element Replacement Schedules</i> – Includes replacement expenses and scheduling inflated at the indicated rates (3.0% and 5.0%)  |
| <b>Exhibits 3A &amp; 3B</b> | <i>Recommended Funding Plans</i> – Presents yearly breakdown of recommended contributions, anticipated expenses, interest accruals, and ending balances based on the two inflation schedules (3.0% and 5.0%) |
| <b>Exhibit 4</b>            | <i>Fund Balance Comparison</i> – Chart comparing the difference between the Recommended Funding Plans Year End Balance to Current Funding Plan Year End Balance  |

## 8. FIELD INSPECTION

The contract to perform a Reserve Study for Windstone Community Association II, Inc. required an on-site, visual inspection of the property and a report on the general condition of the elements. The definitions below summarize the method used to determine the condition of each element included in this study.

### Condition Definitions

**Poor** – a major deficiency of a component in which the function or operation is affected, is at or beyond its typical useful life, or whose remaining useful life should not be relied upon as a result of the information gathered regarding actual or effective age or evidence of abuse, excessive wear and tear, exposure to the elements, lack of proper maintenance, etc. This definition specifically excludes deficiencies that may be remedied with routine maintenance, miscellaneous minor repairs, normal operating maintenance, etc. However, it may include components that are governed by aesthetics as opposed to performance.

**Marginal** – no major component deficiencies observed or evidence that would suggest that a major deficiency may exist. The component remains functional and operational as it exists, however there is evidence that it is nearing the end of its typical useful life.

**Satisfactory** – no major component deficiencies observed, or evidence that the component is nearing its typical useful life, however it is apparent that the component has not been recently replaced or repaired to its original condition.

**Good** – no major component deficiencies observed and it is apparent that the component has been recently replaced or repaired to its original condition.

**Varies** – the general condition of an element cannot be generally defined by one of the above mentioned definitions.

During the course of our inspection, several general observations were made regarding the construction and maintenance of the property. In general, a diligent effort was made to distribute the repair and replacement expenses over a number of years to create a more uniform expense report. The following discussions relate to the general features of the elements.

## ASPHALT PAVEMENT

### Element Description

The west entrance tennis court has a service drive constructed of asphalt pavement. The asphalt was in overall satisfactory condition; however, it is showing signs of aging in the form of cracking and surface deterioration.

With time, asphalt pavement deteriorates as a result of ultraviolet rays breaking down the asphalt binder, surface wear, and an accumulation of cracking that occurs due to freeze/thaw cycles and loading. Other factors that contribute to pavement deterioration are settlement (as a result inadequate compaction of the sub base) and poor drainage. Water that ponds on the surface accelerates the deterioration process by causing breakdown of the asphalt, sub-base and oils. Cracks that develop then allow moisture to penetrate the pavement down to the granular base course and typically cause the substrate to lose strength which leads to accelerated deterioration due to freeze/thaw cycles.

Based on the observed conditions and expected useful life, funding has been allocated for wholesale replacement of the tennis court service drive in 2022. Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling.

### Deficiencies Noted (sampling only, not intended to be a comprehensive list of every defect)

- o See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Asphalt Pavement Service Drive	850	Square Feet	\$3,000	15-20	4	Satisfactory

## ENTRANCE MONUMENTS

### Element Description

Located at the west entrance to the property are two identical property identification entrance monuments. The entrance monuments are constructed with concrete foundations, stone masonry, and concrete lettering panels. A portion of each monument functions as a retaining wall.

The entrance monuments were observed to be in satisfactory condition overall. However, areas of mortar loss and deterioration were noted as well as isolated locations of damage. No evidence of structural deficiencies were noted which may indicate failure of the retaining wall function. Tuckpointing the entrance monuments is often considered necessary to prevent costly and extensive damage such as deterioration of mortar joints, cracking and spalling of brick, etc., that is caused by moisture penetration.

Based on the observed conditions, known history, and expected useful life, funding has been allocated for periodic partial tuckpointing and repairs of the entrance monuments every five years over the reserve term starting in year 2020. Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling. Re-painting the lettering, cleaning, and lighting replacement should be budgeted for, and performed as part of ongoing routine maintenance.

### Deficiencies Noted (sampling only, not intended to be a comprehensive list of every defect)

- See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Monument Tuckpointing	1,100	Square Feet	\$11,500	20-25	Ongoing	Satisfactory

## **LANDSCAPING AND IRRIGATION**

### **Element Description**

The property contains mature trees and an assortment of shrubs. The landscaping appeared to be well maintained and in overall satisfactory condition. An irrigation system is present at the west entrance monuments and center island at the west entrance.

Determining the health of the plants on the property as well as predicting the life expectancy of the plants and associated future expenses is beyond the scope of the reserve study. The day-to-day care and weather conditions will have a significant impact on how each will endure throughout this study period. Life limiting factors include cultural problems, insects, diseases, physical damage, and trauma. Evergreen shrubs as well as other small- to medium-size plants may require replacement over the 30-year period of this study as a result of disease, damage, etc. With the exception of the ash trees, the trees located throughout the property are assumed to have a life beyond this study period.

The discovery of the emerald ash borer in Illinois has created concern considering the effects of this invasive and destructive beetle. If detected, replacement trees will likely be of a different species suitable for northern Illinois. It is recommended that a professional horticulturist be consulted regarding investigating for the presence of the beetle and formulation or reference to any plan of action should it be discovered on the property. Accurately predicting the quantity of trees that may be affected and associated costs is beyond the scope of this report. Therefore, funding for this work should be discussed with a qualified landscaper and/or arborist and figured into the annual landscaping operating and maintenance budget. Therefore, costs are not included in this report.

Since landscaping costs are dependent on care, weather, aesthetics, and, most of all, the expectations of the Association, no costs have been included in the study at this time. It is recommended that the board discuss and decide on what they feel is appropriate, and allocate appropriate funding in the operating and maintenance budget.

The costs associated with the irrigation system will include annual maintenance expenses, including replacement of damaged heads and subsurface supply lines. Based on the limited area of this system, we recommend these expenses be budgeted in the annual operating and maintenance budget.



## LAKE

### Element Description

Centrally located within the community is a large storm water retention lake. Water flows into the lake mainly from the northwest and out into a channel at the south east spillway. The lake shoreline is constructed of a combination of native plants and turf grass. Only minor shoreline erosion was noted at areas of the lake and was somewhat accelerated at the locations where turf grass extends to the lake perimeter (i.e., areas where no native planting buffer zone is installed). It is understood that there have been issues with heavy siltation/sediment entering the lake from the northwest inlet(s) and significant costs have been incurred as a result (a total of over \$100,000 approximately five to six years ago). Additionally, there have been past expenditures for silt/sediment removal from the southeast channel (a total of over \$14,000 approximately four to five years ago). With the exception of areas of minor erosion, the shorelines and water quality appeared to be in satisfactory condition at the time of observation. Lakes and channels of this type will require both annual maintenance and long-term capital expenses.

The retention lake is a system designed to handle the runoff from storm water both in terms of temporary storage and removal from the property as well as treating the water to remove harmful pollutants prior to the water entering a natural waterway or municipal system. Over time, the sediment in the water accumulates at the lake basin which reduces the capacity of the lake and its ability to properly treat the water and also decreases the lake's health. Erosion of the shorelines can greatly contribute to the sediment buildup. Eventual sediment removal expenditures due to buildup, and rehabilitation of the shoreline are anticipated over the 30-year study period including the grading of the banks, and either re-planting natural grasses, or the installation of limestone rip rap.

Although not observed at the time of inspection, it is understood that a bubbler aeration system is used in the lake. Replacement of the pump and system(s) will be necessary over time due to normal wear and tear. General allowances for replacement of the aeration system have been included periodically over the course of the study.

As previously stated, the majority of the lake's shoreline consists of native plantings which have been maintained as a buffer zone. A limited portion of the shoreline include turf grass which extends to the lake's perimeter. These areas are showing a somewhat increased level of erosion. This type of erosion is common at areas with turf grass shorelines and may be caused by high soil moisture or inappropriate soil types, but is mainly due to the lack of stabilizing vegetation with a deep root system. Turf grasses are shallow rooted and provide little resistance against erosion that is typically caused by wave action and fluctuating water levels. Turf grass is also not resistant to submerged or saturated soil conditions caused by elevated water levels, which can occur after large rainfall events.

The buffer zones provide a filter layer for runoff entering the ponds to remove pollutants and sediments as well as a dense root structure to resist erosion. They also serve to improve the aesthetic appearance of the ponds and provide habitat for wildlife. A professional horticulturist should be consulted to ensure proper plant species are selected and an establishment plan is followed. We understand that the Association plans to reseed areas of the buffer zones in 2018. This expenditure is included in the 2018 projected year-ending reserve balance. Based on observed conditions and known history, funding has been allocated for future shoreline erosion control expenditures next by 2023 and every five years thereafter. Interim ongoing maintenance expenditures should be budgeted for in the annual operating and maintenance budget.

For the purpose of this study, based on observed conditions and known history, funding has been allocated over the 30-year study period in the form of an allowance for future sediment removal expenditures every six years beginning in 2022. The expenditures applied to this study are partially based on the Association's reported historic costs, and include the channel. Our inspection of the lake is a visual inspection of conditions above the water line only. The reserve study does not evaluate conditions such as water quality, sediment buildup, or runoff capacity.

Lakes can be complex ecosystems that are affected by many variables such as water depth, runoff, wind, weather, etc. One cannot accurately predict the future evolution of these bodies of water, their rate of siltation, and amount of potential shoreline erosion with a one-day visual observation, once every several years. Therefore, this study is not intended to be a full comprehensive evaluation of current conditions and subsequent prediction of ecosystem evolution. We strongly recommend the ponds be further evaluated and maintained on a regular basis by a qualified contractor and/or civil engineer that specializes in pond maintenance.

Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling. Funding for this element of the reserve study should be adjusted as necessary based on a pond maintenance specialist's recommendations.

Expenses associated with the retention pond that are not included in the study are those to maintain water quality. Over time, nutrients such as nitrogen and phosphorus enter the water body through water runoff. These nutrients can come from surrounding soils, well water, fertilizers, or animal excretions. Excessive nutrients can lead to dense plant growth, buildup of organic matter, low oxygen levels, and changes in fish population. The expenses to maintain the water quality are considered to be maintenance expenses and therefore adequate funding should be allocated to the operating and maintenance budget for such expenses.

**Deficiencies Noted** (sampling only, not intended to be a comprehensive list of every defect)

- See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Lake Shoreline Erosion Control	2,880	Linear Feet	\$140,000	Indefinite	Ongoing	Varies
Lake and Channel Partial Sediment Removal	385,000	Square Feet	\$820,000	5-10	2	Satisfactory
Lake Aerators/Bubbler System	1	System	\$3,400	8-10	3	Satisfactory

## SPILLWAY AND CHANNEL

### Element Description

A reinforced concrete spillway is located at the southeast portion of the lake. The spillway water runs through six channels in the spillway concrete, down a buffered channel/stream, and under a roadway bridge at Queens Gate Circle. The spillway overflow channels have metal plate covers. The buffered channel/stream has rock masonry retaining walls at the upper end, and pre-cast concrete retaining walls at the mid and lower ends to prevent shoreline erosion. The channel/stream flow is buffered with rock and vegetation.

The spillway and stream appeared to have been well maintained and in satisfactory condition; however, minor cracks were observed in the spillway concrete and surface rusting was noted at the plate metal covers. It is recommended that the small cracks be monitored and sealed to limit damage that may occur due to moisture and freeze/thaw cycles. Over time, concrete structures may experience larger cracking and spalling that require repairs, and the metal covers will likely continue to deteriorate. Therefore, funding has been allocated for periodic concrete repairs and replacement/refurbishment of the metal covers at the concrete spillway over the 30-year reserve term. These repairs typically include removal of any loose or cracked concrete, cleaning of the area, and steel reinforced concrete patches.

The retaining walls at the stream perimeters appear to be in satisfactory overall condition with no significant deterioration or evidence of structural compromise. However, retaining structures of this type are prone to damage and deterioration over time stemming from soil erosion and the water flow adjacent to the wall faces. As such, funding has been allocated for periodic repairs and/or resetting to the channel walls over the 30-year reserve term.

Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling. Repairs to the channel/stream buffering vegetation and stones cannot be predicted and should be performed as part of ongoing routine maintenance and is considered an operating expense.

### Deficiencies Noted (sampling only, not intended to be a comprehensive list of every defect)

- o See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Spillway Concrete Repairs (incl. metal plates)	230	Square Feet	\$40,000	30-40+	Ongoing	Satisfactory
Channel Retaining Wall Repairs	800	Linear Feet	\$60,000	30-40+	Ongoing	Satisfactory

## **WOOD PIERS**

### **Element Description**

At the time of inspection, six small wood piers were located around the lake perimeter and one larger wood pier was located on the on the northwest portion of the lake. The piers exhibited settlement/heaving, and appeared weathered, worn, generally in marginal condition, and near the end of their expected useful lives.

Replacement of the piers will be necessary over time as exposure to the natural elements will deteriorate the wood. This study assumes the piers will be replaced with “like-kind”; however, replacement with more durable weather resistant materials such as aluminum should be considered at the time of replacement. More durable materials should be expected to cost more as an original investment but should pay for themselves in reduced maintenance and increased lifespan.

Based on the observed conditions and expected useful life, funding has been allocated for wholesale replacement of the wood piers in 2020. Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling.

### **Deficiencies Noted (sampling only, not intended to be a comprehensive list of every defect)**

- o See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Large Wood Pier	1	Each	\$13,500	15-20	2	Marginal
Small Wood Piers	6	Each	\$8,500	15-20	2	Marginal

## TENNIS COURTS

### Element Description

The property includes two tennis courts located near the west entrance and at the northwest perimeter of the property. It is understood that the tennis courts were overlaid in approximately 2011. Both of the tennis courts exhibited color coat deterioration. The asphalt at the west court exhibited relatively minor surface cracking and evidence of previous standing water. The asphalt at the northwest court exhibited significant cracks which span large lengths of the court surface.

The tennis court top coat serves to protect the asphalt from the damaging U.V. rays of the sun while providing a rich, aesthetically pleasing contrast for ball visibility, and an evenly textured surface for a consistent ball bounce. As the surface ages, its capacity to perform these functions is diminished. The sun eventually breaks down its pigments, causing oxidization and fading. Wind, rain and foot traffic from play slowly wear away the textured coatings, leaving the surface slick and, in extreme cases, void of any coating whatsoever. This creates the necessity to apply fresh color coatings every three- to five-years depending on the desired aesthetics and amount of use, even if there are no structural problems such as settlement or cracking. Periodic recoating of the surface is the most important preventative maintenance that can be done to extend the life of the pavement. Repairing of asphalt surface cracking should be completed prior to the application of color coatings.

The tennis courts are partially enclosed by chain link fencing. The existing chain link fencing was installed in approximately 2011 at the time of court resurfacing. These fences are in satisfactory overall condition, exhibiting general wear which is consistent with chain link fencing in this application. Minor heaving at the fence post bases was noted as well. We are informed that the Association plans to fully enclose the courts in 2018. This expenditure is included in the 2018 projected year-ending reserve balance.

Based on the observed conditions, known history, and expected useful life, funding for tennis court sealing and painting (and associated repairs) has been allocated in 2021 and every four years thereafter. Funding for replacement of the tennis courts has been allocated in 2025. Our expenditure assumes that the tennis court replacement will include complete removal of the existing courts rather than overlayment. As previously stated, it is understood that new chain link fences and gates which will fully enclose the courts will be added to the existing fences in 2018. Based on the likely desire to replace all tennis court fencing at the same time, we base the remaining useful life of the 2018 fences on the fences which were installed in 2011. Funding has been allocated for replacement of all tennis court fencing in 2035. Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling.

### Deficiencies Noted (sampling only, not intended to be a comprehensive list of every defect)

- See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Tennis Court Sealing and Painting	14,400	Square Feet	\$10,000	3-5	3	Satisfactory
Tennis Court Asphalt Replacement	14,400	Square Feet	\$52,800	10-25	7	Satisfactory
Tennis Court Fencing, Existing	400	Linear Feet	\$22,500	15-25	17	Satisfactory
Tennis Court Fencing and Gates (2018 areas)	300	Linear Feet	\$16,170	15-25	0	N/A

## **BENCHES AND TRASH RECEPTACLES**

### **Element Description**

Benches and trash receptacles are located near each tennis court. These exterior components are generally in marginal condition and exhibit damage and deterioration. Replacement of site furnishings such as this is typically performed to maintain the aesthetic appeal of property's amenities. Based on the observed condition and typical useful life, funding for replacement has been allocated in 2019. Please refer to the table below for a summary of the element quantities, present day cost, and remaining useful life as well as to Exhibits 2A (3% inflation rate) and 2B (5% inflation rate) for the estimated expenses and scheduling.

### **Deficiencies Noted** (sampling only, not intended to be a comprehensive list of every defect)

- See photograph section of this report for examples of observed deficiencies.

Element Name	Quantity	Units	Present Day Expense	Typical Useful Life	Remaining Useful Life	General Condition
Benches and Trash Receptacles	4	Each	\$3,000	10-20	1	Marginal

## **9. RESERVE STUDY UPDATES**

The annual contributions made to the reserve fund are a means to compensate for the difference between the ongoing deterioration of a property and its finances. Since elements deteriorate at varying rates and the finances are typically changing on an annual basis, the need to maintain balance between the two is an ongoing process. In order to maintain this balance, it may be appropriate to have the reserve study updated.

When considering an update to a study, the following questions should be considered:

- Has there been a significant departure (i.e. 2% to 3%) from the anticipated rates for interest, inflation, and construction cost increases previously assumed?
- Have any major elements been added or replaced since the previous study?
- Have any elements sustained premature deterioration due to unseasonable weather or lack of maintenance since the previous study?
- Have any repairs or replacements been accelerated or deferred from the estimated schedule previously generated?

If the answer is “yes” to one or more of the above questions, then an update to the reserves study should be strongly considered.

Generally, a property that is relatively new in age and is not undergoing any major repairs or replacements should have the reserve study updated approximately every three years to maintain the validity of the estimates. However, if the property is older and is experiencing major repairs or replacements, then the study should be updated on an annual basis.

An update to a previous reserve study can typically be performed for a percentage of the original cost of the study. The re-evaluation can include a field walk of the property or simply an update to the tables.





Asphalt pavement service drive near west tennis court



Pavement cracking and minor surface deterioration



Entrance monument



Mortar loss





Damage



Mortar loss



Mortar deterioration



Lake overview





Lake overview



Channel overview



Majority of lake shorelines include natural planting buffer zones which help to prevent erosion



Majority of lake shorelines include natural planting buffer zones which help to prevent erosion





Minor, isolated erosion at shoreline with buffer zone



Majority of lake shorelines include natural planting buffer zones which help to prevent erosion



Limited portions of shorelines include landscaped turf grass up to water's edge. This condition may promote soil erosion. The location depicted in this photograph exhibits only minor erosion.



Channel lined with large concrete retaining wall blocks





Channel lined with large concrete retaining wall blocks



Rocks and vegetation at channel used to buffer water flow



Western portions of channel are lined with stone retaining walls



Concrete spillway





Surface rust on plate at spillway walking surface



Large pier



Deteriorated wood at large pier



Deteriorated wood at large pier





Small pier



Settlement and deteriorated wood at small pier



Settlement and deteriorated wood at small pier



Settlement and deteriorated wood at small pier





West tennis court



Evidence of previous tennis court overlayment



Minor surface damage



Minor surface damage





Color coat discoloration



General wear noted at fencing



North tennis court



Color coat deterioration and surface cracking





Significant surface cracking



Significant surface cracking



Minor general wear at fence



Minor heave at fencepost footing



Badly damaged and deteriorated trash receptacle



Weathered wood bench



















# EXHIBIT 3A

## Recommended Funding Plan

Interest Rate - 1.00% Inflation Rate - 3.00%

Windstone Community Association II, Inc.

WEC Project No: 18C-357

Version # : 1.0

STUDY YEAR	FISCAL YEAR	RECOMMENDED CONTRIBUTION	PERCENTAGE OF INCREASE	PROJECTED EXPENSES	INTEREST RECEIVED	RESERVE FUND ENDING BALANCE
0	2018					\$257,814
1	2019	\$31,932	3.85%	\$3,090	\$2,722	\$289,378
2	2020	\$33,161	3.85%	\$186,612	\$2,127	\$138,054
3	2021	\$34,438	3.85%	\$14,643	\$1,480	\$159,328
4	2022	\$35,764	3.85%	\$3,377	\$1,755	\$193,471
5	2023	\$37,141	3.85%	\$11,361	\$2,064	\$221,314
6	2024	\$38,571	3.85%	\$7,164	\$2,370	\$255,091
7	2025	\$40,056	3.85%	\$84,984	\$2,326	\$212,488
8	2026	\$41,598	3.85%	\$186,975	\$1,398	\$68,508
9	2027	\$43,199	3.85%	\$0	\$901	\$112,609
10	2028	\$44,862	3.85%	\$13,170	\$1,285	\$145,585
11	2029	\$46,590	3.85%	\$8,305	\$1,647	\$185,517
12	2030	\$48,383	3.85%	\$28,087	\$1,957	\$207,769
13	2031	\$50,246	3.85%	\$0	\$2,329	\$260,344
14	2032	\$52,180	3.85%	\$223,258	\$1,748	\$91,014
15	2033	\$54,189	3.85%	\$15,268	\$1,105	\$131,040
16	2034	\$56,276	3.85%	\$14,442	\$1,520	\$174,393
17	2035	\$58,442	3.85%	\$90,857	\$1,582	\$143,560
18	2036	\$60,692	3.85%	\$0	\$1,739	\$205,992
19	2037	\$63,029	3.85%	\$0	\$2,375	\$271,396
20	2038	\$65,456	3.85%	\$284,282	\$1,620	\$54,189
21	2039	\$67,976	3.85%	\$58,413	\$590	\$64,341
22	2040	\$70,593	3.85%	\$31,232	\$840	\$104,542
23	2041	\$73,311	3.85%	\$0	\$1,412	\$179,264
24	2042	\$76,133	3.85%	\$6,098	\$2,143	\$251,442
25	2043	\$79,064	3.85%	\$20,519	\$2,807	\$312,794
26	2044	\$82,108	3.85%	\$331,252	\$1,882	\$65,532
27	2045	\$85,269	3.85%	\$36,207	\$901	\$115,495
28	2046	\$88,552	3.85%	\$0	\$1,598	\$205,645
29	2047	\$91,961	3.85%	\$0	\$2,516	\$300,122
30	2048	\$95,502	3.85%	\$32,040	\$3,319	\$366,903
	<b>Totals</b>	<b>\$1,746,673</b>		<b>\$1,691,639</b>	<b>\$54,055</b>	















# EXHIBIT 3B

## Recommended Funding Plan

Interest Rate - 2.00% Inflation Rate - 5.00%

Windstone Community Association II, Inc.

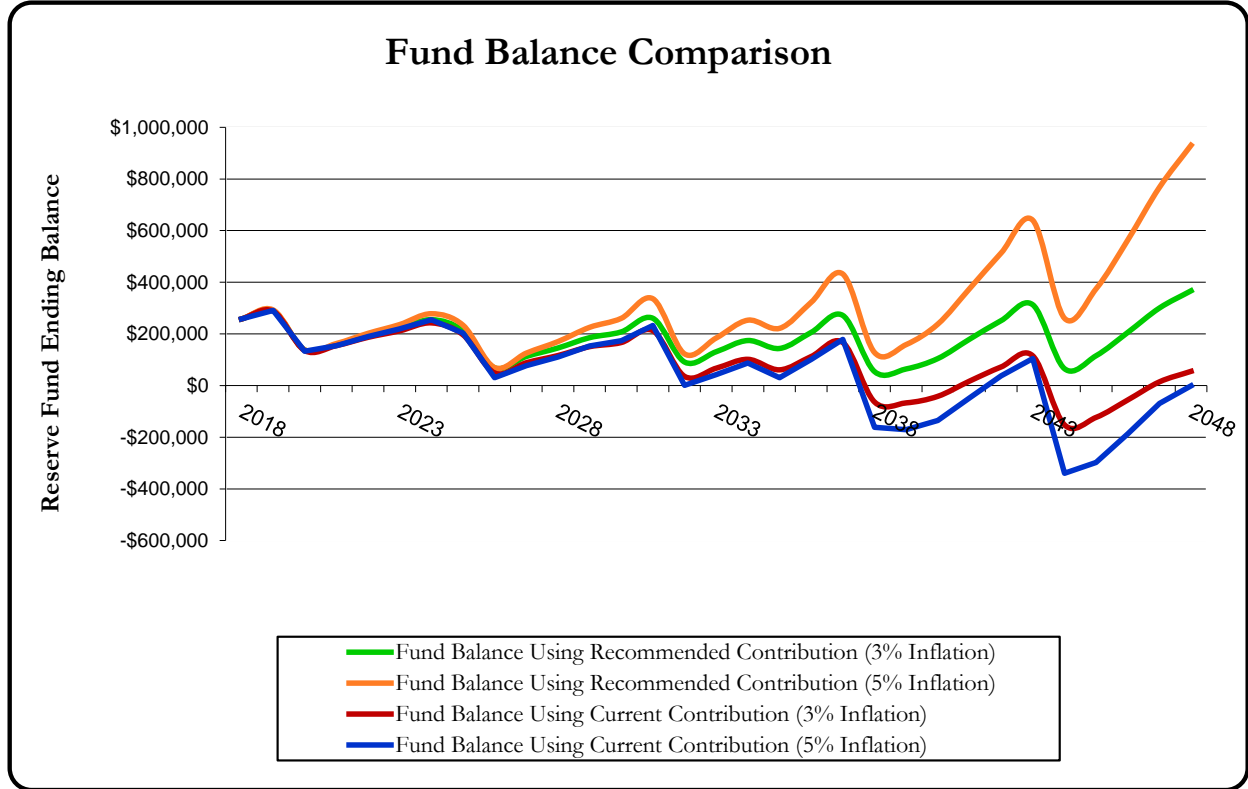
WEC Project No: 18C-357

Version # : 1.0

STUDY YEAR	FISCAL YEAR	RECOMMENDED CONTRIBUTION	PERCENTAGE OF INCREASE	PROJECTED EXPENSES	INTEREST RECEIVED	RESERVE FUND ENDING BALANCE
0	2018					\$257,814
1	2019	\$32,747	6.50%	\$3,150	\$5,452	\$292,863
2	2020	\$34,875	6.50%	\$193,930	\$4,267	\$138,075
3	2021	\$37,142	6.50%	\$15,512	\$2,978	\$162,683
4	2022	\$39,556	6.50%	\$3,647	\$3,613	\$202,205
5	2023	\$42,127	6.50%	\$12,508	\$4,340	\$236,165
6	2024	\$44,866	6.50%	\$8,041	\$5,092	\$278,082
7	2025	\$47,782	6.50%	\$97,231	\$5,067	\$233,700
8	2026	\$50,888	6.50%	\$218,072	\$3,002	\$69,518
9	2027	\$54,196	6.50%	\$0	\$1,932	\$125,646
10	2028	\$57,718	6.50%	\$15,963	\$2,930	\$170,331
11	2029	\$61,470	6.50%	\$10,262	\$3,919	\$225,458
12	2030	\$65,465	6.50%	\$35,378	\$4,810	\$260,355
13	2031	\$69,721	6.50%	\$0	\$5,904	\$335,980
14	2032	\$74,253	6.50%	\$292,238	\$4,540	\$122,534
15	2033	\$79,079	6.50%	\$20,373	\$3,038	\$184,278
16	2034	\$84,219	6.50%	\$19,646	\$4,331	\$253,182
17	2035	\$89,693	6.50%	\$125,992	\$4,701	\$221,584
18	2036	\$95,523	6.50%	\$0	\$5,387	\$322,494
19	2037	\$101,732	6.50%	\$0	\$7,467	\$431,694
20	2038	\$108,345	6.50%	\$417,629	\$5,541	\$127,951
21	2039	\$115,387	6.50%	\$87,479	\$2,838	\$158,697
22	2040	\$122,888	6.50%	\$47,682	\$3,926	\$237,829
23	2041	\$130,875	6.50%	\$0	\$6,065	\$374,770
24	2042	\$139,382	6.50%	\$9,675	\$8,792	\$513,269
25	2043	\$148,442	6.50%	\$33,186	\$11,418	\$639,943
26	2044	\$158,091	6.50%	\$546,151	\$8,918	\$260,801
27	2045	\$168,367	6.50%	\$60,855	\$6,291	\$374,603
28	2046	\$179,311	6.50%	\$0	\$9,285	\$563,199
29	2047	\$190,966	6.50%	\$0	\$13,174	\$767,338
30	2048	\$203,379	6.50%	\$57,050	\$16,810	\$930,477
	<b>Totals</b>	<b>\$2,828,485</b>		<b>\$2,331,651</b>	<b>\$175,829</b>	

# EXHIBIT 4

Fund Balance Comparison  
Windstone Community Association II, Inc.  
WEC Project No: 18C-357  
Version # : 1.0



Note: Fund balance using current contribution is calculated using annual funding increases equal to the inflation rates of 3% and 5%.

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