

FULL RESERVE STUDY

***QUEENS GRANT SOUND SIDE
TOPSAIL BEACH, NC***

Prepared for:
***QUEENS GRANT SOUND SIDE ASSOCIATION
TOPSAIL BEACH, NC
&
PREMIER MANAGEMENT COMPANY***

Prepared by:
***CRITERIUM – GILES ENGINEERS
7334 CHAPEL HILL ROAD, SUITE 200
RALEIGH, NC 27607
(919) 465-3801
NC Lic. No. C-2871***



NOVEMBER 20, 2018

CONTENTS

1.0 INTRODUCTION 1

2.0 EXECUTIVE SUMMARY 2

3.0 PURPOSE & SCOPE..... 3

3.1 PURPOSE 3

3.2 SCOPE 3

3.3 SOURCES OF INFORMATION 4

4.0 DESCRIPTION 5

5.0 OBSERVATIONS 6

6.0 RESERVE FUND ANALYSIS..... 9

7.0 CONCLUSION..... 11

8.0 LIMITATIONS 11

APPENDIX A: RESERVE FUND PROJECTIONS-DUPLEX UNITS.....

APPENDIX B: RESERVE FUND PROJECTIONS-MULTI-FAMILY UNITS

APPENDIX C: PROJECT PHOTOGRAPHS

1.0 INTRODUCTION

The Queens Grant Soundside Association authorized Criterium–Giles Engineers to conduct a Reserve Fund Study for the Queens Grant Soundside community located in Topsail Beach, North Carolina. Studies of this nature are important to ensure a community has sufficient funds for long-term, periodic capital expenditure requirements. Anticipating large expenditures over an extended period of time through a structured analysis and scheduling process assists the Association in meeting financial requirements without increasing the service fees above permitted maximums, borrowing the funds, or levying special financial assessments to the home owners.

Typically, a community association has two broad cash requirements: the general operating reserves and the capital repair and replacement reserves. In this report, we will focus on those items falling under the capital repair and replacement reserve criteria. We have projected a capital repair and replacement reserve for twenty (20) years. The first ten years are the most reliable. Such a study should be updated every five years.

This report is structured to analyze components of the community for which the Association is responsible and to assess a useful expected life and useful remaining life to those components. The anticipated scheduled repair or replacement of the component and the anticipated expense for the activity are then analyzed in conjunction with the current capital reserves funding program for the community. Funding program recommendations are made with the objective of limiting substantial cash excesses while minimizing financial burdens that can result from significant cash inadequacies.

This report is intended to be used as a tool to determine reserve fund allocation requirements for the community, to manage future Association obligations, and to inform the community of future financial needs in general. The report that follows has been prepared from the perspective of what an owner of this property would benefit from knowing. Some items, beyond those of immediate concern, may be discussed. Therefore, the report should be read in its entirety in order to fully understand all of the information that has been obtained.

2.0 EXECUTIVE SUMMARY

Queens Grant Soundside is comprised of 42 individually owned units within 16 buildings located along Tower Court in Topsail Beach, NC. The community includes 14 duplex buildings as well as (2) multifamily buildings having 6-units and 8-units, respectively. According to discussions with residents, the building construction began in 1984 with the multifamily buildings, and the duplex buildings were completed in two primary phases: 2014/2016 (8 buildings) and 2017/2018 (6 buildings). Due to a fire, the 8-unit townhome building was re-constructed in the early 1990s. The Association is not responsible for maintenance of the single family home buildings. The common areas, including the roadways, pool, stormwater infiltration basins, etc., are maintained by other associations and not included in this study.

The association has responsibility for the maintenance of the exterior façade of the buildings (excluding windows and screens), roofing, gutters, porches, patios, decks, and various site improvements. The Association is only responsible for painting of the front door from our understanding. The most significant site improvements include the drainage areas around the perimeter of the building, retaining walls, irrigation system. From discussions onsite, the driveways/carports are the responsibility of the homeowner.

The buildings, common areas and grounds are generally in good to fair condition. Based on our evaluation, the current level of funding does not maintain a positive balance through the term of this study. We have provided recommendations for annual reserve contribution schedules that provide sufficient funding to meet capital expenditure requirements in the next twenty years. A more detailed analysis of the reserve fund has been provided in Appendix A.

Some significant expenditures are expected over the term of the study. Some of the more notable examples are listed below:

- Replace decks/patios
- Paint and repair trim, repair siding

There are, of course, other capital expenditures to be expected over the next twenty years. Those items that will require attention are discussed later in this report. For your convenience, we have prepared the following summary of the condition of the major systems of the property.

3.0 PURPOSE & SCOPE

3.1 Purpose

The purpose of this study is to perform a reserve fund analysis and to determine a capital needs plan. It is intended to be used as a tool for the Queens Grant Soundside in determining the allocation requirements into the reserve fund in order to meet future anticipated capital expenditures for the community.

This report forecasts obligations for the community twenty years into the future. It should be noted that events might occur that could have an effect on the underlying component or system useful life assumptions used in this study. Likewise, inevitable market fluctuations can have an impact on component or system replacement and repair costs. Therefore, a study such as this should be updated from time to time, usually on a three to five-year cycle, in order to reflect the most accurate needs and obligations of the community.

3.2 Scope

This study has been performed according to the scope as generally defined by the Queens Grant Soundside, Criterium-Giles Engineers Inc., Premier Management Company, and the standards of the Community Associations Institute. The findings and recommendations are based on interviews with the community's management personnel; a review of available documents; and an investigation of the buildings and site.

The "Cash Flow Method" of calculating reserves has been utilized, whereby contributions to the reserve fund are designed to offset the variable annual expenditures. Funding alternates are recommended which are designed to achieve a "Baseline Funding" goal by maintaining a positive balance for the term of the study.

The guidelines used to determine which physical components within the community are to be included in the component inventory are based on the following general criteria:

1. The component must be a common element, or otherwise noted to be the responsibility of the Association to replace.
2. The component must have an estimated remaining useful life of twenty years or less. As the site ages, additional components may need to be added.
3. The funding for replacement should be from one source only, not funded from another area of the budget or through a maintenance contract.
4. The cost of replacement should be high enough to make it financially unsound to fund it from the operating budget.

Our reserve study analysis included evaluating the following association property:

- **Buildings:** The HOA is responsible for maintenance of the exterior façade (excluding windows and screens), including roofs, gutters and downspouts, wood decks/steps, siding, and trim. The Association is only responsible for painting the front door.
- **Mechanical Systems:** The Association is not responsible for the

individual townhome HVAC units.

- **Site and Grounds:** The HOA is responsible for the common area drainage systems around the buildings, retaining walls, and irrigation systems. The infiltration basins, asphalt drives, marina and bulkheads, and other amenities and site elements are the responsibility of other associations.

The above list was obtained from the site inspection and discussions with the management firm prior to the inspection.

This study estimates the funding levels required for maintaining the long-term viability of the facility. Our approach involves:

1. Examining association managed equipment, building and site facilities.
2. Predicting their remaining service life and, approximating how frequently they will require repair or replacement.
3. Estimating repair or replacement costs (in 2018 dollars) for each capital item.
4. Using data developed in Steps 1, 2 and 3 to project Capital Reserve balances for Years 1 through 20.

The statements in this report are opinions about the present condition of the subject community. They are based on visual evidence available during a diligent investigation of all reasonably accessible areas falling under the responsibility of the Association. We did not remove any surface materials, perform any destructive testing, or move any furnishings. This study is not an exhaustive technical evaluation. Such an evaluation would entail a significantly larger scope than this effort. For additional limitations, see Section 8.0.

3.3 Sources of Information

Onsite inspections of the property occurred on the following date:

- October 19, 2018

The following people were interviewed during our study:

- Jake Davis, Community Manager, Premier Management Company
- Residents/Board members

The following documents were made available to us and reviewed:

- Pender County real estate records
- 2018 HOA budget and financials
- HOA Governance documents

We based our cost estimates on some or all of the following:

- R.S. Means
- Our data files on similar projects
- Local contractor estimates

For your reference, the following definitions may be helpful:

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) Evidence of previous repairs not in compliance with commonly accepted practice, b) Workmanship not in compliance with commonly accepted standards, 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 of a capacity that is defined as enough for what is required, sufficient, suitable, and/or conforms to standard construction practices.

All ratings are determined by comparison to other buildings of similar age and construction type. Further, some details of workmanship and materials will be examined more closely in higher quality buildings where such details typically become more relevant.

All directions (left, right, rear, etc.), when used, are taken from the viewpoint of an observer standing in front of a building and facing it.

Repair/Replacement Reserves - Non-annual maintenance items that will require significant expenditure over the life of the buildings. Included are items that will reach the end of their estimated useful life during the course of this forecast, or, in the opinion of the investigator, will require attention during that time.

4.0 DESCRIPTION

Queens Grant Soundside is comprised of 42 individually owned units within 16 buildings located along Tower Court in Topsail Beach, NC. The community includes 14 duplex buildings as well as (2) multifamily buildings having 6-units and 8-units, respectively. According to discussions with residents, the building construction began in 1984 with the multifamily buildings, and the duplex buildings were completed in two primary phases: 2014/2016 (8 buildings) and 2017/2018 (6 buildings). Due to a fire, the 8-unit townhome building was re-constructed in the early

1990s. The Association is not responsible for maintenance of the single family home buildings. The common areas, including the roadways, pool, stormwater infiltration basins, etc., are maintained by other associations and not included in this study.

The association has responsibility for the maintenance of the exterior façade of the buildings (excluding windows and screens), roofing, gutters, porches, patios, decks, and various site improvements. The Association is only responsible for painting of the front door from our understanding. The most significant site improvements include the drainage areas around the perimeter of the building, retaining walls, irrigation system. From discussions onsite, the driveways/carports are the responsibility of the homeowner.

The buildings appear to be of wood frame construction on wood piling foundations. Exterior surfaces are primarily comprised of vinyl siding and trim with sections of wood trim. Limited sections of wood and fiber cement paneling are located in the carports

The building roofs are primarily covered in standing seam metal roof panels. Aluminum gutters and downspouts discharge stormwater to grade or into pipe extensions.

Site drainage is provided via landscaped swales and catch basins in the paved and landscaped areas. These systems direct water flow off site through the drainage infrastructure and into the infiltration basins.

5.0 OBSERVATIONS

The following key observations were made about the current condition of the more significant and costly common elements of the property.

Site and Grounds

The asphalt streets are reportedly the responsibility of the Queens Grant Recreation Association. Similarly, the concrete parking areas and driveways are the responsibility of the individual homeowner and have not been included in the reserve study funding.

Drainage systems in the community consist of standard concrete catch basins and piping networks in the streets which is assumed to be maintained by the Recreation Association along with the roadways. The pipes outlet into grass swales between several of the buildings, which flow toward the waterways surrounding the buildings. Downspouts generally discharge onto splashblocks or into the grass swales. Overall, the systems appear to be functioning as intended. The Association may wish to extend additional downspouts away from the foundation, install minor drainage systems due to saturated soils, or other nuisance drainage concerns. The small pipes used for landscaped drainage systems have a tendency to clog, and sedimentation can reduce the effectiveness of the grass swales. We have allocated funds to repair/improve the drainage systems on a 5 year cycle beginning in 2022. Repairs will likely include retrenching of swales to improve flow, extending gutter downspouts to underground systems, stabilizing steep or bare slopes, installation and repair of rip rap pads,

installing french drains or other types of subsurface drainage systems. Please note that the funds provided are limited to the highest priority areas, and will not provide the ability for drainage improvements at each unit. Funding is provided on a per unit basis to help in budgeting for future expenses.

The infiltration basins at the townhomes as well as adjacent to the single family homes are assumed to be maintained by the Recreation Association.

Segmental block retaining walls are located adjacent to the grass swales. The blocks have a useful life greater than the term of this study. However, minor repairs are often required due to damage from lawn maintenance equipment and the cap blocks becoming dislodged. We have included funds for minor repairs every 15 years beginning in 2029. Retaining wall costs may be the responsibility of the Recreation Association; however, we have included funding on a per unit basis to help plan for these expenses.

Irrigation is provided at each of the lots, with multiple controllers noted at the buildings. In the future, the landscape contractor has indicated that installing a master controller would be more efficient for controlling the irrigation; however, that is not under review at the time. We have provided funds for replacing the irrigation controllers, timers, and valves as necessary every 5 years beginning in 2021. Funding is provided on a per unit basis to help in budgeting for future expenses.

The entrance signage is assumed to be maintained by the Recreation Association.

Common Building Exteriors

The predominant pitched roof surfaces over the duplex buildings as well as the 6-unit multi-family building are covered in standing seam metal roof panels. The 8-unit multi-family townhome building is covered in asphaltic fiberglass, architectural shingles. Roof surfacing is applied over roof sheathing, and appears to be in good condition. Typically, the standing seam metal roof panels will provide 40+ years of useful life, while the asphalt shingles will last approximately 15-20 years. We strongly recommend that any re-roofing project closely follow procedures outlined by the National Roofing Contractors Association's *Roofing and Waterproofing Manual*. A re-roofing sequence should include removal of the existing roofing material, replacement of any inadequate roof sheathing, replacement of any damaged flashing, and replacement of drip edge components. The 6-unit townhome building appears to have had the shingle roof replaced with metal panels around 2014. The age of the shingled roof is unknown and is difficult to inspect from ground level, but it is assumed that to maintain consistency the next roof replacement will utilize metal standing seam roof panels. For budgeting purposes, we have assumed this would occur in 2030. Though replacement of the metal roof panels is not expected during the term of this study, coating to prevent corrosion and to extend the useful life is expected after 20 years. We have provided funds for this purpose in 2036 for all units.

Gutters and downspouts are in generally good condition and should not require replacement until the 2nd roof replacement, as this component typically provides forty years of relatively trouble free service. Gutters and downspouts were not present on the 6-unit building at the time of inspection. Funds for limited replacement of deteriorated gutters and downspouts should occur from the general maintenance budget, as needed.

It is likely that minor roofing repairs will be required in the interim. Repairs would likely include replacing exhaust vent boots and making minor flashing repairs. We have assumed that these minor repairs would be funded from a general operating budget.

The buildings in the community are of wood framed construction and are primarily clad in vinyl siding and trim. Trim components also include sections of wood and aluminum. The multi-unit townhome buildings also include wood siding panels on the lower level that are in fair condition. We have included funds to paint the trim, front doors, and make minor repairs to siding and trim every 6 years beginning in 2023 for the Duplex buildings. Funding for painting and repairs to the Townhome buildings is included in 2020. Note, ongoing repairs were noted to the siding, soffit, and fascia of several units due to recent hurricane damage.

Each unit is provided with a 2-level, wood framed deck. The new decks appear to be in good condition, while the original multi-family decks are in fair to poor condition. The Association is obtaining proposals to replace the deckboards and railings on the multi-unit buildings in the immediate term. The scope of the project has yet to be finalized; however, for budgeting purposes, we have assumed that the community will move forward with replacing the deckboards and railings in early 2019. We have provided funds for full replacement of the decks (including deck boards, railings, and structural components) every 30 years beginning in 2034. We utilized the proposal of the median cost.

Similarly, the deckboards and railings will require replacement on the Duplex buildings on an approximately 15-year cycle. We have included funds to perform these replacements in 2030 on the 16 units constructed from 2014-2016 (Phase 1); replacements are projected for 2033 for the units constructed in 2017-2018 (Phase 2). Full replacement of the deck structures are not anticipated during the term of this study.

A total of 5 buildings are provided with grade level wood-framed patios at the rear of the building. We have provided funds to replace the deckboards every 15 years beginning in 2033.

Finally, we noted ceilings being installed on the underside of the decks at limited units. These ceilings can cause moisture intrusion into the buildings as well as decrease the life of the deck structures due to holding moisture against the framing. We recommend maintaining the decks as originally constructed.

The outdoor showers are reportedly the responsibility of the individual homeowner and not included in the study.

6.0 RESERVE FUND ANALYSIS

Using software developed by Criterium Engineers and KPMG Peat Marwick, we have analyzed capital reserves draw-down for the projected capital expenditures to determine the amount needed. The following is a projected reserve fund analysis for non-annual items as discussed in the report. This projection takes into consideration a reasonable return on invested moneys and inflation. Please review this thoroughly and let us know of any changes that may be desired.

The intent of this reserve fund projection is to help the Association develop a reserve fund to provide for anticipated repair or replacements of various system components during the next twenty years.

The capital items listed are those that are typically the responsibility of the Association and are derived from a list provided the Association with several items added as a result of the inspection. However, association by-laws vary, and therefore, which components are the responsibilities of the owner and which are the responsibilities of the Association can vary. The Association should confirm that the items listed should be financed by the reserve fund.

This projection provides the following:

- An input sheet that defines all the criteria used for the financial alternatives, including the assumed inflation rate of 3% annually and rate of return on deposited reserve funds of 1.0% annually.
- A table that lists anticipated replacement and/or repair items complete with estimated remaining life expectancies, projected costs of replacement and/or repair, a frequency in years of when these items require replacement and/or repair, and a projection based on this frequency.
- A table and graph that represent end of year balances versus capital expenditures based on your current funding program and reserve balances, and alternatives to your current program. The provided graphs illustrate what effects the funding methods will have over the presented twenty-year period versus the anticipated capital expenditures.
- Note that based on our developed list of capital items and taking inflation into account, the current funding level does not maintain a positive balance.
- The Association should bear in mind that unanticipated expenditures can always arise and maintenance of a significant reserve fund balance can be viewed as a way to avoid special assessments.

We have included alternatives to your current reserve funding program and recommend that the board adopt an alternative that best reflects the objectives of the community. In summary they are as follows:

Duplex Units

Current Reserve Funding Rate: TBD

Current Reserve Balance: TBD

- **Alternative 1:** In 2019, increase the current annual capital reserve contributions to \$23,520 (\$70.00/unit/month). Then, increase the reserve contribution by \$3,360/year (\$10.00/unit/month) every year for the next 11 years. This alternative is projected to maintain a positive balance through the term of this study.
- **Alternative 2:** In 2019, increase the current annual capital reserve contributions to \$30,240 (\$90.00/unit/month). Then, increase the annual reserve contribution by 8% every year for the next 7 years. This alternative is projected to maintain a positive balance through the term of this study.
- **Alternative 3:** In 2019, increase the current annual capital reserve contributions to \$16,800 (\$50.00/unit/month). Then, increase the annual reserve contribution by 9% every year for the remainder of the 20 year term. In addition, a special assessment in the amount of \$168,000 (\$6,000 per unit) is projected to be required in 2033. This alternative is projected to maintain a positive balance through the term of this study.

Multi-Family Units

Current Reserve Funding Rate: TBD

Current Reserve Balance: TBD

- **Alternative 1:** In 2019, increase the current annual capital reserve contributions to \$16,800 (\$100.00/unit/month). Then, increase the reserve contribution by \$1,680/year (\$10.00/unit/month) every year for the next 12 years. In addition, a special assessment in the amount of \$84,000 (\$6,000 per unit) is projected to be required in 2019. This alternative is projected to maintain a positive balance through the term of this study.
- **Alternative 2:** In 2019, increase the current annual capital reserve contributions to \$15,120 (\$90.00/unit/month). Then, increase the annual reserve contribution by 10% every year for the next 10 years. In addition, a special assessment in the amount of \$84,000 (\$6,000 per unit) is projected to be required in 2019. This alternative is projected to maintain a positive balance through the term of this study.
- **Alternative 3:** In 2019, increase the current annual capital reserve contributions to \$8,400 (\$50.00/unit/month). Then, increase the annual reserve contribution by 10% every year for the remainder of the 20 year term. In addition, two special assessments are projected to be required. The first is projected to be \$84,000 (\$6,000 per unit) in 2019 and the second is projected to be \$168,000 (\$12,000 per unit) in 2034. This alternative is projected to maintain a positive balance through the

term of this study.

Please note that the reserve fund study does not include typical annual maintenance items. Our assumption is that you already have an annual operating budget that provides for these typical, repetitive items. This includes miscellaneous repairs, lawn and grounds maintenance, routine minor painting, etc. We have focused on those significant, non-annual items where careful financial planning is important.

Finally, please note that the estimates we have developed are based on 2018 dollars. Our reserve fund study does adjust for an estimated annual inflation and a given return on investment assuming that the indicated fund balances are maintained.

7.0 CONCLUSION

The alternatives provided above should provide sufficient funding to meet estimated capital expenditures during the next twenty years. Further detail of the reserve fund analysis is provided in Appendix A.

8.0 LIMITATIONS

The observations described in this study are valid on the date of the investigation and have been made under the conditions noted in the report. We prepared this study for the exclusive use of the Queens Grant Soundside. Criterium-Giles Engineers Inc. does 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 and hold Criterium-Giles Engineers Inc. harmless for any damages, losses, or expenses they may incur as a result of its use.

This study is limited to the visual observations made during our inspection. We did not remove surface materials, conduct any destructive or invasive testing, move furnishings or equipment, or undertake any digging or excavation. Accordingly, we cannot comment on the condition of systems that we could not see, such as buried structures and utilities, nor are we responsible for conditions that could not be seen or were not within the scope of our services at the time of the investigation. We did not undertake to completely assess the stability of the buildings or the underlying foundation soil since this effort would require excavation and destructive testing. Likewise, this is not a seismic assessment.

We did not investigate the following areas:

- Buried utilities or infrastructure
- Concealed structural members or systems
- Unit interiors

We do not render an opinion on uninvestigated portions of the community. We did not perform any computations or other engineering analysis as part of this evaluation, nor did we conduct a comprehensive code compliance investigation. This study is not to be considered a warranty of condition, and no warranty is implied. The appendices are an integral part of this report and must be included in any review.

Members of the Criterium-Giles Engineers team working on this reserve study are not members of, or otherwise associated with the association. Criterium-Giles Engineers has disclosed any other involvement with the association that could result in conflicts of interest.

Information provided by the official representative of the association regarding financial, physical, quantity, or historical issues, will be deemed reliable by Criterium-Giles Engineers. The reserve balance presented in the Reserve Study is based upon information provided and was not audited. Information provided about reserve projects will be considered reliable. Any on-site inspection should not be considered a project audit or quality inspection. Criterium-Giles Engineers is not aware of any additional material issues which, if not disclosed, would cause a distortion of the association's situation.

In our Reserve Fund Analysis, we have provided estimated costs. These costs are based on our general knowledge of building systems and the contracting and construction industry. When appropriate, we have relied on standard sources, such as Means Building Construction Cost Data, to develop estimates. However, for items that we have developed costs (e.g.: structural repairs), no standard guide for developing such costs exists. Actual costs can vary significantly, based on the availability of qualified contractors to do the work, as well as many other variables. We cannot be responsible for the specific cost estimates provided.

We have performed no design work as part of this study, nor have we obtained competitive quotations or estimates from contractors as this also is beyond the scope of the project. The actual cost to remedy deficiencies and deferred maintenance items that we have identified may vary significantly from estimates and competitive quotations from contractors.

If you have any questions about this study or the reserve fund analysis, please feel free to contact us. Thank-you for the opportunity to be of assistance to you.

Respectfully submitted,



Christopher A. Flythe, PE, RS
Principal Engineer
Criterium-Giles Engineers, Inc.

**Appendix A: RESERVE FUND PROJECTIONS –
DUPLEX UNITS**

Itemized Worksheet

Capital Item To Be Replaced	Quantity	Unit cost	Reserve Requirement (*)	Frequency (yrs**)	Remaining Life (yrs)	Information Source
Site						
Drainage system repairs/improvements	28 unit	\$100.00	\$2,800.00	5	3	
Segmental block retaining walls	28 unit	\$125.00	\$3,500.00	15	10	
Irrigation system repairs	28 unit	\$250.00	\$7,000.00	5	2	
Building Exterior						
Re-coat metal roof panels	14 bldg	\$7,500.00	\$105,000.00	20	17	
Paint and repair siding and trim	28 unit	\$900.00	\$25,200.00	6	4	
Replace deckboard and rails - Phase 1	7,600 SF	\$22.00	\$167,200.00	15	11	Buildings constructed 2014/2016
Replace deckboard and rails - Phase 2	5,700 SF	\$22.00	\$125,400.00	15	14	Buildings constructed 2017-2018
Replace grade-level wood patios	4,000 SF	\$15.00	\$60,000.00	15	14	
Building Interior						
Mechanical						
Amenities						
Other						
		Totals	\$496,100.00			
		Total Over Term	\$575,900.00			

* Costs are typically 10%±

** Reserve study is based on a 20 year projection of non-annual maintenance

Annual Expense By Year

	Year: Year Number:	2019 1	2020 2	2021 3	2022 4	2023 5	2024 6	2025 7	2026 8	2027 9	2028 10	2029 11	2030 12	2031 13	2032 14	2033 15	2034 16
Site																	
Drainage system repairs/improvements		0	0	0	2,800	0	0	0	0	2,800	0	0	0	0	2,800	0	0
Segmental block retaining walls		0	0	0	0	0	0	0	0	0	0	3,500	0	0	0	0	0
Irrigation system repairs		0	0	7,000	0	0	0	0	7,000	0	0	0	0	7,000	0	0	0
Building Exterior																	
Re-coat metal roof panels		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paint and repair siding and trim		0	0	0	0	25,200	0	0	0	0	0	25,200	0	0	0	0	0
Replace deckboard and rails - Phase 1		0	0	0	0	0	0	0	0	0	0	0	167,200	0	0	0	0
Replace deckboard and rails - Phase 2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	125,400	0
Replace grade-level wood patios		0	0	0	0	0	0	0	0	0	0	0	0	0	0	60,000	0
Building Interior																	
Mechanical																	
Amenities																	
Other																	
Total Costs		0	0	7,000	2,800	25,200	0	0	7,000	2,800	0	28,700	167,200	7,000	2,800	185,400	0
Total Costs Adjusted For 3% Inflation		0	0	7,426	3,060	28,363	0	0	8,609	3,547	0	38,570	231,444	9,980	4,112	280,434	0

Annual Expense By Year

	Year:	2035	2036	2037	2038
	Year Number:	17	18	19	20
Site					
Drainage system repairs/improvements		0	0	2,800	0
Segmental block retaining walls		0	0	0	0
Irrigation system repairs		0	7,000	0	0
Building Exterior					
Re-coat metal roof panels		0	105,000	0	0
Paint and repair siding and trim		25,200	0	0	0
Replace deckboard and rails - Phase 1		0	0	0	0
Replace deckboard and rails - Phase 2		0	0	0	0
Replace grade-level wood patios		0	0	0	0
Building Interior					
Mechanical					
Amenities					
Other					
Total Costs		25,200	112,000	2,800	0
Total Costs Adjusted For 3% Inflation		40,439	185,119	4,767	0

Reserve Study Worksheet

General Information:

1 Organization: **Queens Grant Soundside - Duplexes**
2 Address: **Tower Drive**
Topsail Beach, NC

3	Number of Units	28
4	Age of Building (in years)	4
5a	Study Period (in years)	20
5b	Normal Fiscal Year starts:	January 1, 2019
5c	Partial Fiscal Year starts:	January 1, 2019
5d	Partial Year Length:	12 months
6	Site Inspection Date	October 19, 2018
7	Reserve Funds at start	\$0
8	Rate of Return on invested Reserve Funds (%)	1.0%
9	Inflation Rate (%)	3.0%

10 Current Funding Levels

Existing Funding Levels				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Reserve Fund Contribution.....	\$0	\$0	\$0.00	\$0.00
	Years Out	Total Annual	Per Unit	
Planned Special Assessment.....	0	\$0	\$0	
Balance Computed.....	(\$845,870)			

11 Alternative Reserve Fund Contribution

Alternative 1 Level Funding with Steps				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....	\$1,960	\$23,520	\$70.00	\$840.00
Monthly Amount, (Last Year).....	\$5,040	\$60,480	\$180.00	\$2,160.00
Balance Required Final Year.....	\$42,293			
Special Assessments:	Years Out	Total/Year	Per Unit	
First Assessment.....	0	\$0	\$0	
Second Assessment.....	0	\$0	\$0	
Balance Computed.....	\$177,307			

Alternative 2 Escalating Funding at 8% per Year				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....	\$2,520	\$30,240	\$90.00	\$1,080.00
Monthly Amount, (Last Year).....	\$4,319	\$51,826	\$154.24	\$1,850.93
Balance Required Final Year.....	\$42,293			
Base Escalation %.....	8.00%			
Special Assessments:	Years Out	Total/Year	Per Unit	
First Assessment.....	0	\$0	\$0	
Second Assessment.....	0	\$0	\$0	
Balance Computed.....	\$135,620			

Alternative 3 Escalating Funding with Special Assessments				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....	\$1,400	\$16,800	\$50.00	\$600.00
Monthly Amount, (Last Year).....	\$7,198	\$86,380	\$257.08	\$3,085.00
Balance Required Final Year.....	\$42,293			
Base Escalation %.....	9.00%			
Special Assessments:	Years Out	Total/Year	Per Unit	
First Assessment.....	15	Jan 2033	\$168,000	\$6,000
Second Assessment.....	0	\$0	\$0	
Balance Computed.....	\$202,364			

Existing Funding Levels

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$0	\$0	\$0	\$0	\$0
2020	2	\$0	\$0	\$0	\$0	\$0	\$0
2021	3	\$0	\$0	\$0	\$0	\$7,426	(\$7,426)
2022	4	(\$7,426)	\$0	\$0	\$0	\$3,060	(\$10,486)
2023	5	(\$10,486)	\$0	\$0	\$0	\$28,363	(\$38,849)
2024	6	(\$38,849)	\$0	\$0	\$0	\$0	(\$38,849)
2025	7	(\$38,849)	\$0	\$0	\$0	\$0	(\$38,849)
2026	8	(\$38,849)	\$0	\$0	\$0	\$8,609	(\$47,458)
2027	9	(\$47,458)	\$0	\$0	\$0	\$3,547	(\$51,005)
2028	10	(\$51,005)	\$0	\$0	\$0	\$0	(\$51,005)
2029	11	(\$51,005)	\$0	\$0	\$0	\$38,570	(\$89,575)
2030	12	(\$89,575)	\$0	\$0	\$0	\$231,444	(\$321,019)
2031	13	(\$321,019)	\$0	\$0	\$0	\$9,980	(\$330,999)
2032	14	(\$330,999)	\$0	\$0	\$0	\$4,112	(\$335,111)
2033	15	(\$335,111)	\$0	\$0	\$0	\$280,434	(\$615,545)
2034	16	(\$615,545)	\$0	\$0	\$0	\$0	(\$615,545)
2035	17	(\$615,545)	\$0	\$0	\$0	\$40,439	(\$655,984)
2036	18	(\$655,984)	\$0	\$0	\$0	\$185,119	(\$841,103)
2037	19	(\$841,103)	\$0	\$0	\$0	\$4,767	(\$845,870)
2038	20	(\$845,870)	\$0	\$0	\$0	\$0	(\$845,870)

Existing Funding Levels

Beginning Balance as of start of year beginning Jan 2019: \$

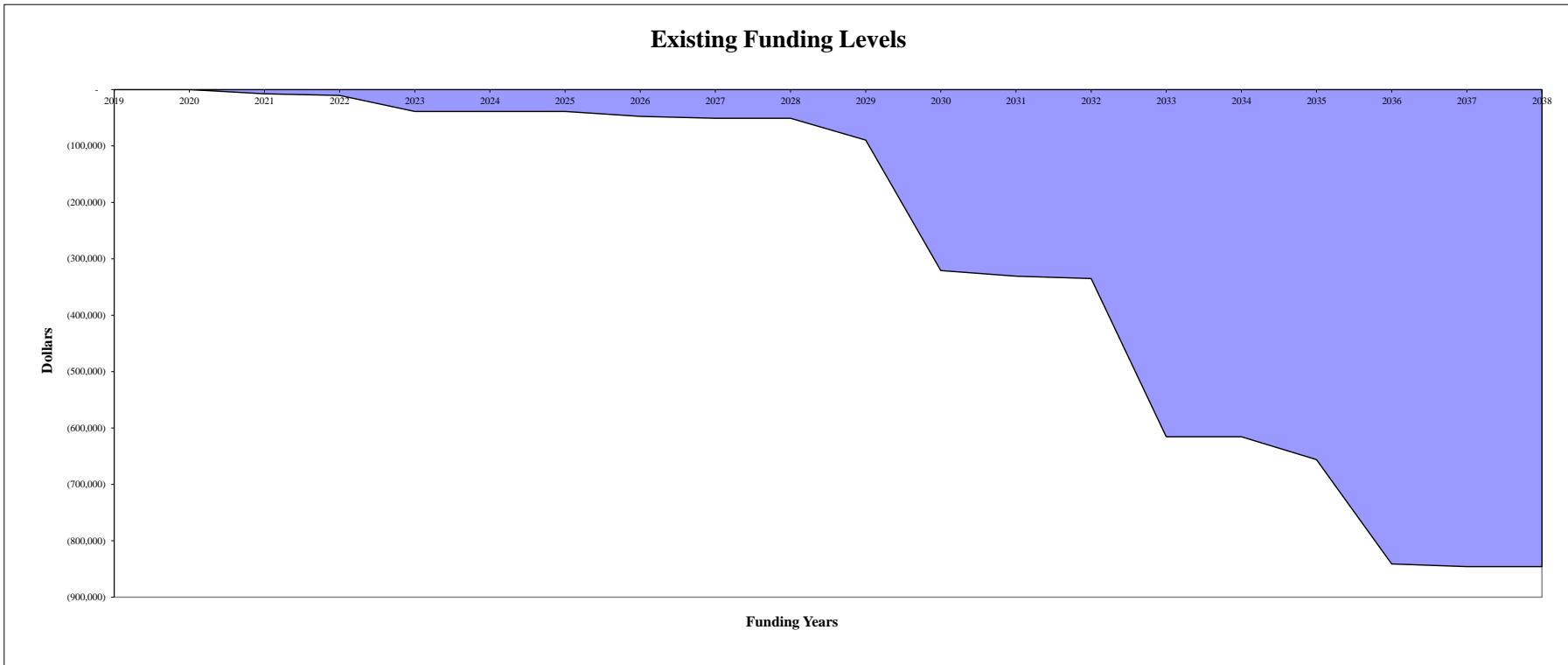
CONTRIBUTIONS	
AMOUNT	
\$0.00	per year
\$0.00	per unit per year
\$0.00	per month
\$0.00	per unit per month

SPECIAL ASSESSMENTS			
Totals			
Per Year	\$0	Per Unit	\$0

Projected Annual Funding and Expenditures:

Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	-	-	(7,426)	(10,486)	(38,849)	(38,849)	(38,849)	(47,458)	(51,005)	(51,005)	(89,575)	(321,019)	(330,999)	(335,111)	(615,545)
Capital Expenditures:	-	-	7,426	3,060	28,363	-	-	8,609	3,547	-	38,570	231,444	9,980	4,112	280,434
Total Revenue (all sources)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	(615,545)	(655,984)	(841,103)	(845,870)	(845,870)
Capital Expenditures:	-	40,439	185,119	4,767	-
Total Revenue (all sources)	-	-	-	-	-



Alternative 1: Level Funding with Steps

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$23,520	\$0	\$0	\$235	\$0	\$23,755
2020	2	\$23,755	\$26,880	\$0	\$0	\$506	\$0	\$51,142
2021	3	\$51,142	\$30,240	\$0	\$0	\$740	\$7,426	\$74,695
2022	4	\$74,695	\$33,600	\$0	\$0	\$1,052	\$3,060	\$106,288
2023	5	\$106,288	\$36,960	\$0	\$0	\$1,149	\$28,363	\$116,034
2024	6	\$116,034	\$40,320	\$0	\$0	\$1,564	\$0	\$157,917
2025	7	\$157,917	\$43,680	\$0	\$0	\$2,016	\$0	\$203,613
2026	8	\$203,613	\$47,040	\$0	\$0	\$2,420	\$8,609	\$244,464
2027	9	\$244,464	\$50,400	\$0	\$0	\$2,913	\$3,547	\$294,231
2028	10	\$294,231	\$53,760	\$0	\$0	\$3,480	\$0	\$351,470
2029	11	\$351,470	\$57,120	\$0	\$0	\$3,700	\$38,570	\$373,720
2030	12	\$373,720	\$60,480	\$0	\$0	\$2,028	\$231,444	\$204,784
2031	13	\$204,784	\$60,480	\$0	\$0	\$2,553	\$9,980	\$257,836
2032	14	\$257,836	\$60,480	\$0	\$0	\$3,142	\$4,112	\$317,347
2033	15	\$317,347	\$60,480	\$0	\$0	\$974	\$280,434	\$98,366
2034	16	\$98,366	\$60,480	\$0	\$0	\$1,588	\$0	\$160,435
2035	17	\$160,435	\$60,480	\$0	\$0	\$1,805	\$40,439	\$182,281
2036	18	\$182,281	\$60,480	\$0	\$0	\$576	\$185,119	\$58,219
2037	19	\$58,219	\$60,480	\$0	\$0	\$1,139	\$4,767	\$115,071
2038	20	\$115,071	\$60,480	\$0	\$0	\$1,756	\$0	\$177,307

Alternative 1: Level Funding with Steps

Beginning Balance as of start of year beginning Jan 2019: \$

CONTRIBUTIONS		
FIRST YR	LAST YR	
\$23,520.00	\$60,480.00	per year
\$840.00	\$2,160.00	per unit per year
\$1,960.00	\$5,040.00	per month
\$70.00	\$180.00	per unit per month

SPECIAL ASSESSMENTS				
First Second	Per Year Per Year	Totals		
		\$0	Per Unit	\$0
		\$0	Per Unit	\$0

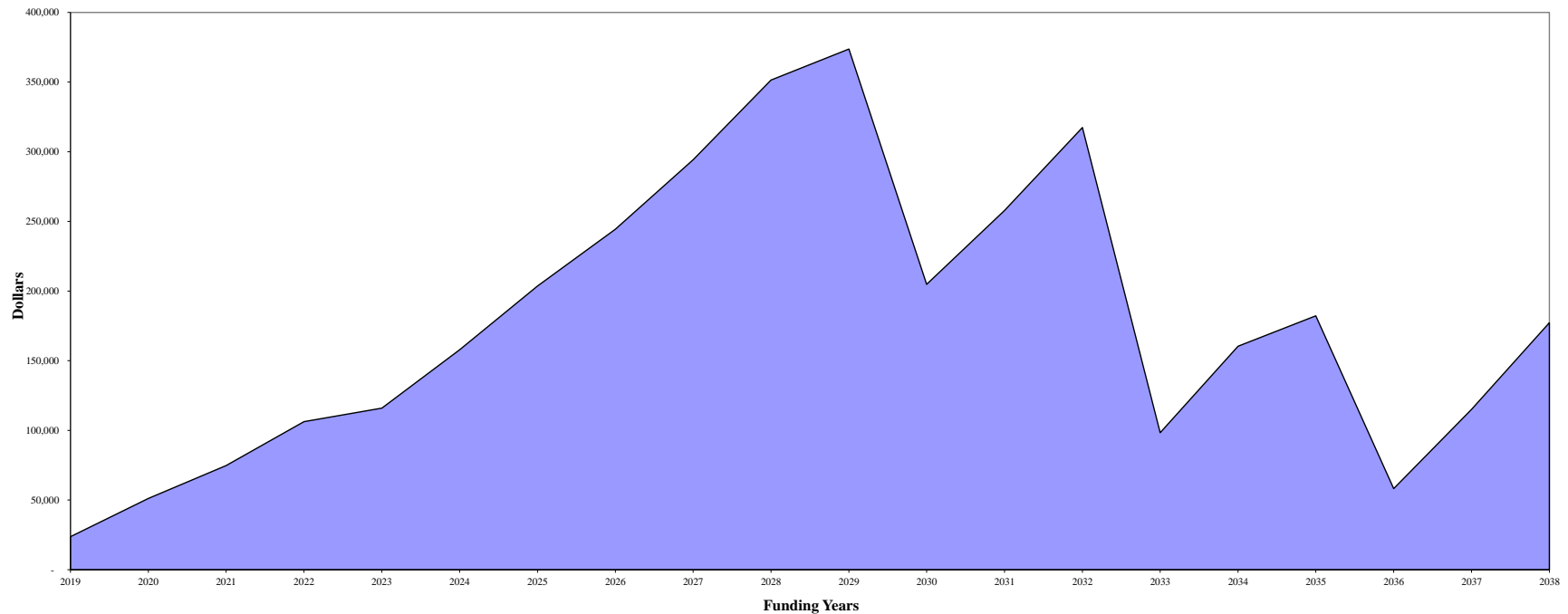
SETTINGS (analyzed by unit/month)			
Starting amount (\$):	70		
Increment by (\$):	10		
Every	1	year	
Frequency:	11	time	

Projected Annual Funding and Expenditures:

Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	23,755	51,142	74,695	106,288	116,034	157,917	203,613	244,464	294,231	351,470	373,720	204,784	257,836	317,347	98,366
Capital Expenditures:	-	-	7,426	3,060	28,363	-	-	8,609	3,547	-	38,570	231,444	9,980	4,112	280,434
Total Revenue (all sources)	23,755	27,386	30,980	34,652	38,109	41,884	45,696	49,460	53,313	57,240	60,820	62,508	63,033	63,622	61,454

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	160,435	182,281	58,219	115,071	177,307
Capital Expenditures:	-	40,439	185,119	4,767	-
Total Revenue (all sources)	62,068	62,285	61,056	61,619	62,236

Alternative 1: Level Funding with Steps



Alternative 2: Escalating Funding at 8% per Year

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$30,240	\$0	\$0	\$302	\$0	\$30,542
2020	2	\$30,542	\$32,659	\$0	\$0	\$632	\$0	\$63,834
2021	3	\$63,834	\$35,272	\$0	\$0	\$917	\$7,426	\$92,596
2022	4	\$92,596	\$38,094	\$0	\$0	\$1,276	\$3,060	\$128,906
2023	5	\$128,906	\$41,141	\$0	\$0	\$1,417	\$28,363	\$143,102
2024	6	\$143,102	\$44,432	\$0	\$0	\$1,875	\$0	\$189,409
2025	7	\$189,409	\$47,987	\$0	\$0	\$2,374	\$0	\$239,770
2026	8	\$239,770	\$51,826	\$0	\$0	\$2,830	\$8,609	\$285,817
2027	9	\$285,817	\$51,826	\$0	\$0	\$3,341	\$3,547	\$337,437
2028	10	\$337,437	\$51,826	\$0	\$0	\$3,893	\$0	\$393,156
2029	11	\$393,156	\$51,826	\$0	\$0	\$4,064	\$38,570	\$410,476
2030	12	\$410,476	\$51,826	\$0	\$0	\$2,309	\$231,444	\$233,166
2031	13	\$233,166	\$51,826	\$0	\$0	\$2,750	\$9,980	\$277,762
2032	14	\$277,762	\$51,826	\$0	\$0	\$3,255	\$4,112	\$328,731
2033	15	\$328,731	\$51,826	\$0	\$0	\$1,001	\$280,434	\$101,124
2034	16	\$101,124	\$51,826	\$0	\$0	\$1,530	\$0	\$154,480
2035	17	\$154,480	\$51,826	\$0	\$0	\$1,659	\$40,439	\$167,526
2036	18	\$167,526	\$51,826	\$0	\$0	\$342	\$185,119	\$34,576
2037	19	\$34,576	\$51,826	\$0	\$0	\$816	\$4,767	\$82,451
2038	20	\$82,451	\$51,826	\$0	\$0	\$1,343	\$0	\$135,620

Alternative 2: Escalating Funding at 8% per Year

Beginning Balance as of start of year beginning Jan 2019: \$

CONTRIBUTIONS	
FIRST YR	LAST YR
\$30,240.00	\$51,826.05
\$1,080.00	\$1,850.93
\$2,520.00	\$4,318.84
\$90.00	\$154.24
	per year
	per unit per year
	per month
	per unit per month

SPECIAL ASSESSMENTS				
First Second	Per Year Per Year	Totals		\$0 \$0
		\$0	Per Unit Per Unit	

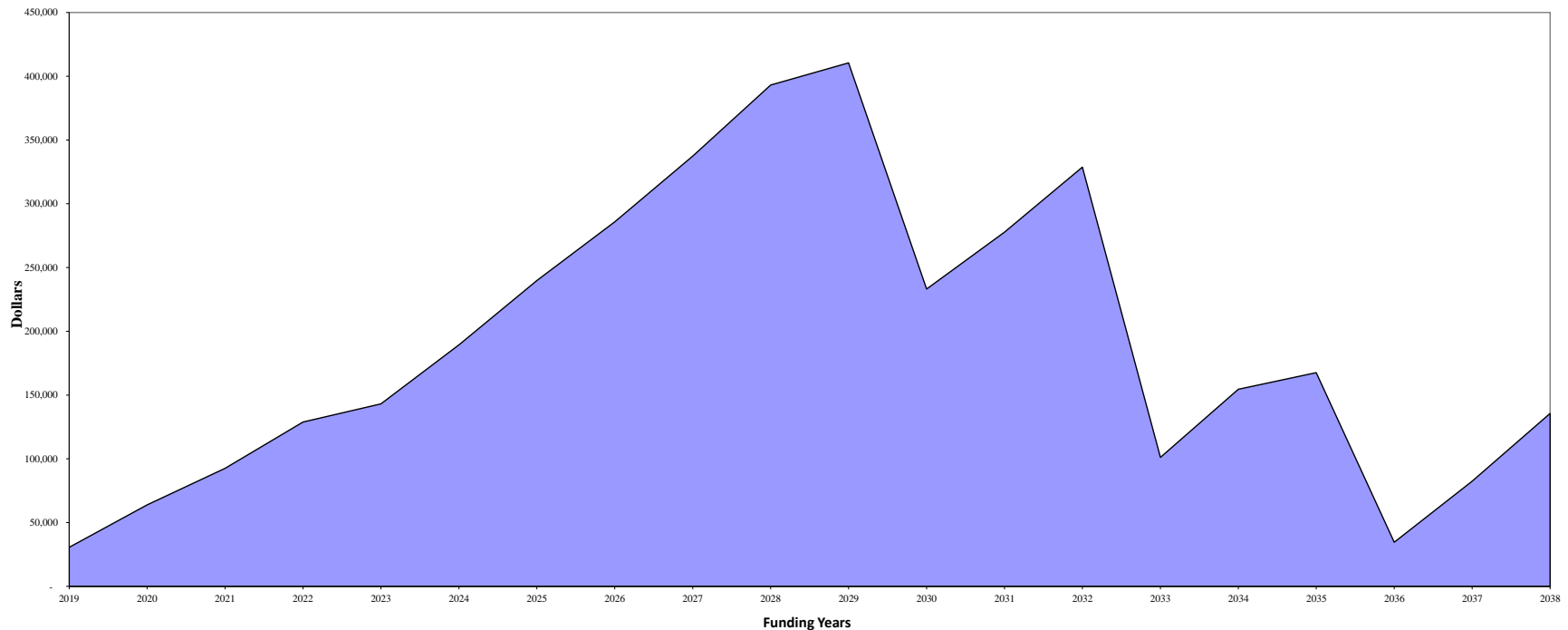
SETTINGS (analyzed by unit/month)		
Starting amount (\$):	90	
Increment by (%):	8	
Step (%):		
Every	1	year
Frequency:	7	time

Projected Annual Funding and Expenditures:

Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	30,542	63,834	92,596	128,906	143,102	189,409	239,770	285,817	337,437	393,156	410,476	233,166	277,762	328,731	101,124
Capital Expenditures:	-	-	7,426	3,060	28,363	-	-	8,609	3,547	-	38,570	231,444	9,980	4,112	280,434
Total Revenue (all sources)	30,542	33,291	36,189	39,370	42,558	46,308	50,361	54,656	55,167	55,719	55,890	54,135	54,576	55,081	52,827

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	154,480	167,526	34,576	82,451	135,620
Capital Expenditures:	-	40,439	185,119	4,767	-
Total Revenue (all sources)	53,356	53,485	52,168	52,642	53,169

Alternative 2: Escalating Funding at 8% per Year



Alternative 3: Escalating Funding with Special Assessments

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$16,800	\$0	\$0	\$168	\$0	\$16,968
2020	2	\$16,968	\$18,312	\$0	\$0	\$353	\$0	\$35,633
2021	3	\$35,633	\$19,960	\$0	\$0	\$482	\$7,426	\$48,648
2022	4	\$48,648	\$21,756	\$0	\$0	\$673	\$3,060	\$68,019
2023	5	\$68,019	\$23,715	\$0	\$0	\$634	\$28,363	\$64,004
2024	6	\$64,004	\$25,849	\$0	\$0	\$899	\$0	\$90,751
2025	7	\$90,751	\$28,175	\$0	\$0	\$1,189	\$0	\$120,116
2026	8	\$120,116	\$30,711	\$0	\$0	\$1,422	\$8,609	\$143,640
2027	9	\$143,640	\$33,475	\$0	\$0	\$1,736	\$3,547	\$175,304
2028	10	\$175,304	\$36,488	\$0	\$0	\$2,118	\$0	\$213,910
2029	11	\$213,910	\$39,772	\$0	\$0	\$2,151	\$38,570	\$217,262
2030	12	\$217,262	\$43,351	\$0	\$0	\$292	\$231,444	\$29,461
2031	13	\$29,461	\$47,253	\$0	\$0	\$667	\$9,980	\$67,401
2032	14	\$67,401	\$51,506	\$0	\$0	\$1,148	\$4,112	\$115,942
2033	15	\$115,942	\$56,141	\$168,000	\$0	\$596	\$280,434	\$60,246
2034	16	\$60,246	\$61,194	\$0	\$0	\$1,214	\$0	\$122,654
2035	17	\$122,654	\$66,701	\$0	\$0	\$1,489	\$40,439	\$150,405
2036	18	\$150,405	\$72,704	\$0	\$0	\$380	\$185,119	\$38,371
2037	19	\$38,371	\$79,248	\$0	\$0	\$1,129	\$4,767	\$113,980
2038	20	\$113,980	\$86,380	\$0	\$0	\$2,004	\$0	\$202,364

Alternative 3: Escalating Funding with Special Assessments

Beginning Balance as of start of year beginning Jan 2019: \$

CONTRIBUTIONS	
FIRST YR	LAST YR
\$16,800.00	\$86,379.91
\$600.00	\$3,085.00
\$1,400.00	\$7,198.33
\$50.00	\$257.08
	per year
	per unit per year
	per month
	per unit per month

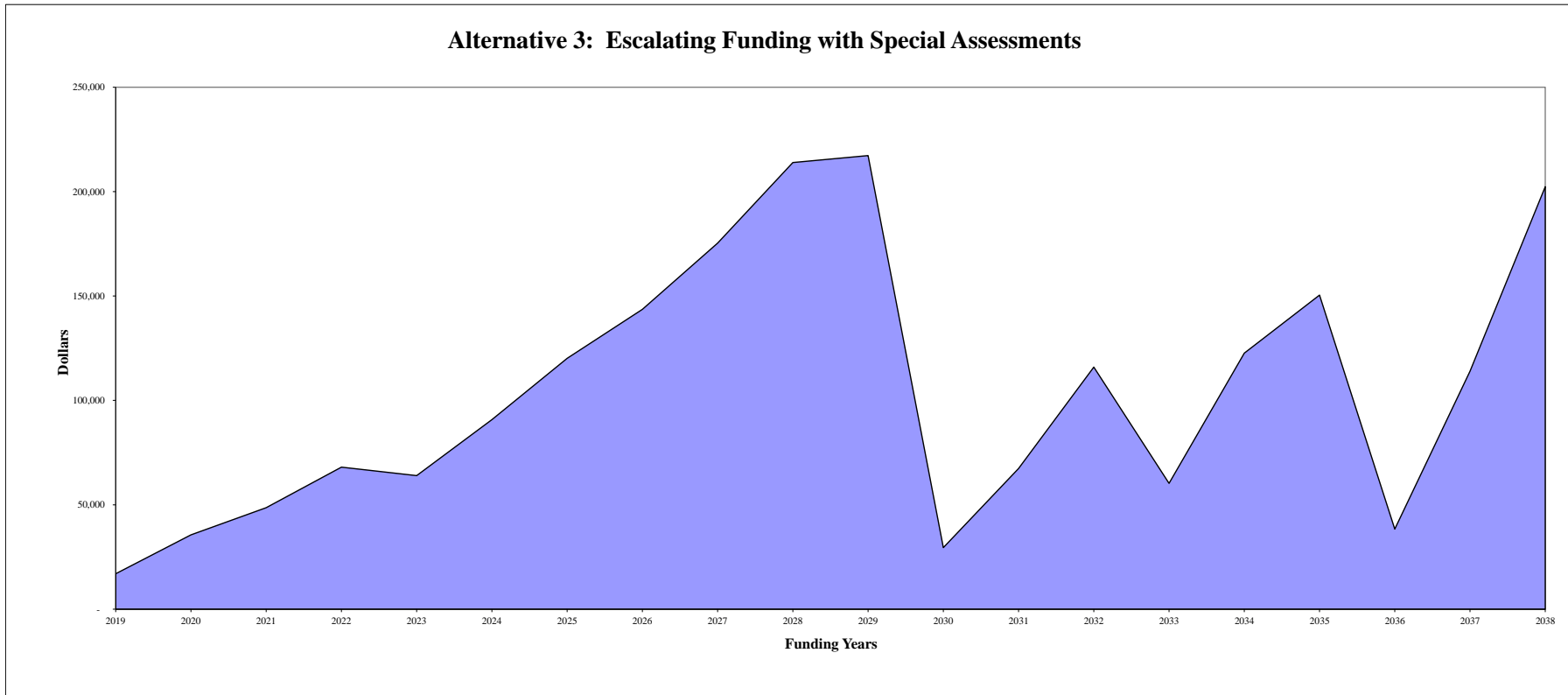
SPECIAL ASSESSMENTS				
First Jan 2033 Second	Totals			
	Per Year	\$168,000	Per Unit	\$6,000
	Per Year	\$0	Per Unit	\$0

SETTINGS (analyzed by unit/month)	
Starting amount (\$):	50
Increment by (%):	9
Step (%):	0
Every	3 year
Frequency:	3 time

Projected Annual Funding and Expenditures:

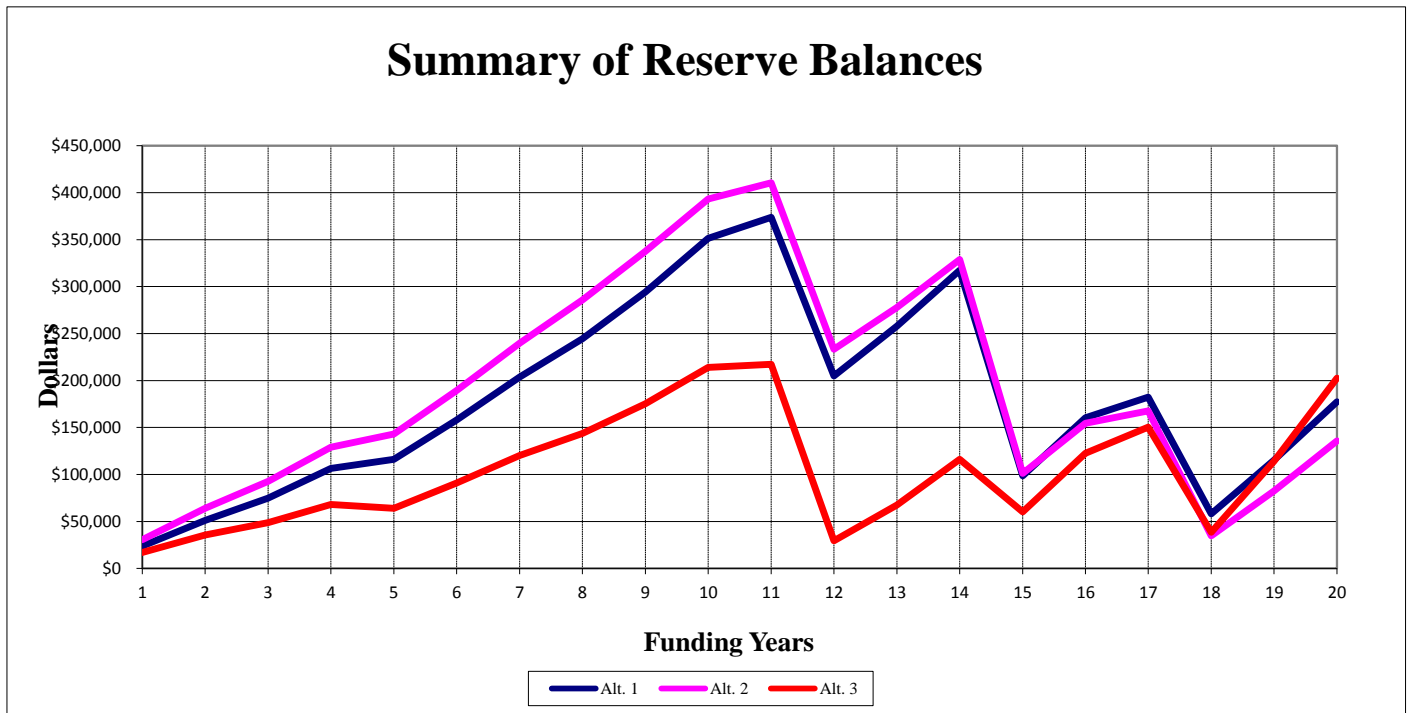
Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	16,968	35,633	48,648	68,019	64,004	90,751	120,116	143,640	175,304	213,910	217,262	29,461	67,401	115,942	60,246
Capital Expenditures:	-	-	7,426	3,060	28,363	-	-	8,609	3,547	-	38,570	231,444	9,980	4,112	280,434
Total Revenue (all sources)	16,968	18,665	20,442	22,430	24,348	26,747	29,365	32,133	35,211	38,606	41,923	43,643	47,920	52,653	224,738

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	122,654	150,405	38,371	113,980	202,364
Capital Expenditures:	-	40,439	185,119	4,767	-
Total Revenue (all sources)	62,408	68,190	73,084	80,376	88,384



Summary of Reserve Balances

<u>Year</u>	<u>Year Number</u>	<u>Yearly Expenditures</u>	<u>Alt. 1</u>	<u>Alt. 2</u>	<u>Alt. 3</u>
2019	1	\$0	\$23,755	\$30,542	\$16,968
2020	2	\$0	\$51,142	\$63,834	\$35,633
2021	3	\$7,426	\$74,695	\$92,596	\$48,648
2022	4	\$3,060	\$106,288	\$128,906	\$68,019
2023	5	\$28,363	\$116,034	\$143,102	\$64,004
2024	6	\$0	\$157,917	\$189,409	\$90,751
2025	7	\$0	\$203,613	\$239,770	\$120,116
2026	8	\$8,609	\$244,464	\$285,817	\$143,640
2027	9	\$3,547	\$294,231	\$337,437	\$175,304
2028	10	\$0	\$351,470	\$393,156	\$213,910
2029	11	\$38,570	\$373,720	\$410,476	\$217,262
2030	12	\$231,444	\$204,784	\$233,166	\$29,461
2031	13	\$9,980	\$257,836	\$277,762	\$67,401
2032	14	\$4,112	\$317,347	\$328,731	\$115,942
2033	15	\$280,434	\$98,366	\$101,124	\$60,246
2034	16	\$0	\$160,435	\$154,480	\$122,654
2035	17	\$40,439	\$182,281	\$167,526	\$150,405
2036	18	\$185,119	\$58,219	\$34,576	\$38,371
2037	19	\$4,767	\$115,071	\$82,451	\$113,980
2038	20	\$0	\$177,307	\$135,620	\$202,364



**Appendix B: RESERVE FUND PROJECTIONS –
MULTI-FAMILY UNITS**

Itemized Worksheet

Capital Item To Be Replaced	Quantity	Unit cost	Reserve Requirement (*)	Frequency (yrs**)	Remaining Life (yrs)	Information Source
Site						
Drainage system repairs/improvements	14 unit	\$100.00	\$1,400.00	5	3	
Segmental block retaining walls	14 unit	\$125.00	\$1,750.00	15	10	
Irrigation system repairs	14 unit	\$250.00	\$3,500.00	5	2	
Building Exterior						
Re-coat metal roof panels	70 SQ	\$250.00	\$17,500.00	20	17	
Paint and repair siding and trim	14 unit	\$1,300.00	\$18,200.00	6	1	
Replace deckboard and rails	1 bid	\$75,000.00	\$75,000.00	15	0	
Replace deck structure	1 est.	\$100,000.00	\$100,000.00	30	15	
Replace asphalt shingles with metal panels	80 SQ	\$1,000.00	\$80,000.00	20	11	
Building Interior						
Mechanical						
Amenities						
Other						
		Totals	\$297,350.00			
		Total Over Term	\$441,650.00			

* Costs are typically 10%±

** Reserve study is based on a 20 year projection of non-annual maintenance

Annual Expense By Year

	Year: Year Number:	2019 1	2020 2	2021 3	2022 4	2023 5	2024 6	2025 7	2026 8	2027 9	2028 10	2029 11	2030 12	2031 13	2032 14	2033 15	2034 16
Site																	
Drainage system repairs/improvements		0	0	0	1,400	0	0	0	0	1,400	0	0	0	0	1,400	0	0
Segmental block retaining walls		0	0	0	0	0	0	0	0	0	0	1,750	0	0	0	0	0
Irrigation system repairs		0	0	3,500	0	0	0	0	3,500	0	0	0	0	3,500	0	0	0
Building Exterior																	
Re-coat metal roof panels		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paint and repair siding and trim		0	18,200	0	0	0	0	0	18,200	0	0	0	0	0	18,200	0	0
Replace deckboard and rails		75,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75,000
Replace deck structure		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100,000
Replace asphalt shingles with metal panels		0	0	0	0	0	0	0	0	0	0	0	80,000	0	0	0	0
Building Interior																	
Mechanical																	
Amenities																	
Other																	
Total Costs		75,000	18,200	3,500	1,400	0	0	0	21,700	1,400	0	1,750	80,000	3,500	19,600	0	175,000
Total Costs Adjusted For 3% Inflation		75,000	18,746	3,713	1,530	0	0	0	26,688	1,773	0	2,352	110,739	4,990	28,783	0	272,644

Annual Expense By Year

	Year:	2035	2036	2037	2038
	Year Number:	17	18	19	20
Site					
Drainage system repairs/improvements		0	0	1,400	0
Segmental block retaining walls		0	0	0	0
Irrigation system repairs		0	3,500	0	0
Building Exterior					
Re-coat metal roof panels		0	17,500	0	0
Paint and repair siding and trim		0	0	0	18,200
Replace deckboard and rails		0	0	0	0
Replace deck structure		0	0	0	0
Replace asphalt shingles with metal panels		0	0	0	0
Building Interior					
Mechanical					
Amenities					
Other					
Total Costs		0	21,000	1,400	18,200
Total Costs Adjusted For 3% Inflation		0	34,710	2,383	31,914

Reserve Study Worksheet

General Information:

1 Organization: **Queens Grant Soundside - Townhomes**
2 Address: **Tower Drive**
Topsail Beach, NC

3	Number of Units	14
4	Age of Building (in years)	34
5a	Study Period (in years)	20
5b	Normal Fiscal Year starts:	January 1, 2019
5c	Partial Fiscal Year starts:	January 1, 2019
5d	Partial Year Length:	12 months
6	Site Inspection Date	October 19, 2018
7	Reserve Funds at start	\$0
8	Rate of Return on invested Reserve Funds (%)	1.0%
9	Inflation Rate (%)	3.0%

10 Current Funding Levels

Existing Funding Levels					
		Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Reserve Fund Contribution.....		\$0	\$0	\$0.00	\$0.00
	Years Out		Total Annual	Per Unit	
Planned Special Assessment.....	0		\$0	\$0	
Balance Computed.....	(\$615,966)				

11 Alternative Reserve Fund Contribution

Alternative 1 Level Funding with Steps					
		Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....		\$1,400	\$16,800	\$100.00	\$1,200.00
Monthly Amount, (Last Year).....		\$3,080	\$36,960	\$220.00	\$2,640.00
Balance Required Final Year.....		\$30,798			
Special Assessments:	Years Out		Total/Year	Per Unit	
First Assessment.....	1	Jan 2019	\$84,000	\$6,000	
Second Assessment.....	0		\$0	\$0	
Balance Computed.....	\$100,488				

Alternative 2 Escalating Funding at 10% per Year					
		Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....		\$1,260	\$15,120	\$90.00	\$1,080.00
Monthly Amount, (Last Year).....		\$3,268	\$39,217	\$233.44	\$2,801.24
Balance Required Final Year.....		\$30,798			
Base Escalation %.....	10.00%				
Special Assessments:	Years Out		Total/Year	Per Unit	
First Assessment.....	1	Jan 2019	\$84,000	\$6,000	
Second Assessment.....	0		\$0	\$0	
Balance Computed.....	\$126,270				

Alternative 3 Escalating Funding with Special Assessments					
		Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....		\$700	\$8,400	\$50.00	\$600.00
Monthly Amount, (Last Year).....		\$4,281	\$51,374	\$305.80	\$3,669.55
Balance Required Final Year.....		\$30,798			
Base Escalation %.....	10.00%				
Special Assessments:	Years Out		Total/Year	Per Unit	
First Assessment.....	1	Jan 2019	\$84,000	\$6,000	
Second Assessment.....	16	Jan 2034	\$168,000	\$12,000	
Balance Computed.....	\$128,329				

Existing Funding Levels

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$0	\$0	\$0	\$75,000	(\$75,000)
2020	2	(\$75,000)	\$0	\$0	\$0	\$18,746	(\$93,746)
2021	3	(\$93,746)	\$0	\$0	\$0	\$3,713	(\$97,459)
2022	4	(\$97,459)	\$0	\$0	\$0	\$1,530	(\$98,989)
2023	5	(\$98,989)	\$0	\$0	\$0	\$0	(\$98,989)
2024	6	(\$98,989)	\$0	\$0	\$0	\$0	(\$98,989)
2025	7	(\$98,989)	\$0	\$0	\$0	\$0	(\$98,989)
2026	8	(\$98,989)	\$0	\$0	\$0	\$26,688	(\$125,677)
2027	9	(\$125,677)	\$0	\$0	\$0	\$1,773	(\$127,451)
2028	10	(\$127,451)	\$0	\$0	\$0	\$0	(\$127,451)
2029	11	(\$127,451)	\$0	\$0	\$0	\$2,352	(\$129,803)
2030	12	(\$129,803)	\$0	\$0	\$0	\$110,739	(\$240,541)
2031	13	(\$240,541)	\$0	\$0	\$0	\$4,990	(\$245,531)
2032	14	(\$245,531)	\$0	\$0	\$0	\$28,783	(\$274,315)
2033	15	(\$274,315)	\$0	\$0	\$0	\$0	(\$274,315)
2034	16	(\$274,315)	\$0	\$0	\$0	\$272,644	(\$546,959)
2035	17	(\$546,959)	\$0	\$0	\$0	\$0	(\$546,959)
2036	18	(\$546,959)	\$0	\$0	\$0	\$34,710	(\$581,669)
2037	19	(\$581,669)	\$0	\$0	\$0	\$2,383	(\$584,052)
2038	20	(\$584,052)	\$0	\$0	\$0	\$31,914	(\$615,966)

Existing Funding Levels

Beginning Balance as of start of year beginning Jan 2019: \$

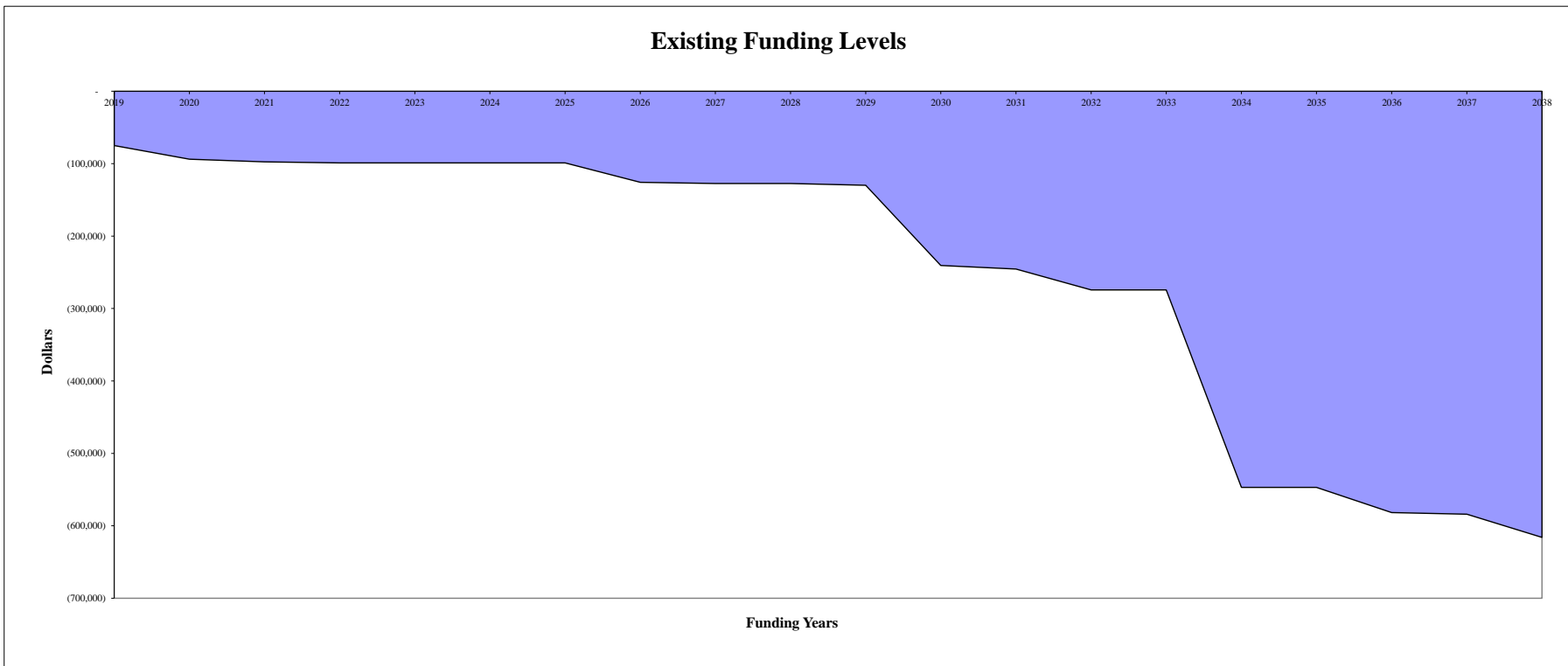
CONTRIBUTIONS	
AMOUNT	
\$0.00	per year
\$0.00	per unit per year
\$0.00	per month
\$0.00	per unit per month

SPECIAL ASSESSMENTS			
Totals			
Per Year	\$0	Per Unit	\$0

Projected Annual Funding and Expenditures:

Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	(75,000)	(93,746)	(97,459)	(98,989)	(98,989)	(98,989)	(98,989)	(125,677)	(127,451)	(127,451)	(129,803)	(240,541)	(245,531)	(274,315)	(274,315)
Capital Expenditures:	75,000	18,746	3,713	1,530	-	-	-	26,688	1,773	-	2,352	110,739	4,990	28,783	-
Total Revenue (all sources)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	(546,959)	(546,959)	(581,669)	(584,052)	(615,966)
Capital Expenditures:	272,644	-	34,710	2,383	31,914
Total Revenue (all sources)	-	-	-	-	-



Alternative 1: Level Funding with Steps

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$16,800	\$84,000	\$0	\$258	\$75,000	\$26,058
2020	2	\$26,058	\$18,480	\$0	\$0	\$258	\$18,746	\$26,050
2021	3	\$26,050	\$20,160	\$0	\$0	\$425	\$3,713	\$42,922
2022	4	\$42,922	\$21,840	\$0	\$0	\$632	\$1,530	\$63,864
2023	5	\$63,864	\$23,520	\$0	\$0	\$874	\$0	\$88,258
2024	6	\$88,258	\$25,200	\$0	\$0	\$1,135	\$0	\$114,593
2025	7	\$114,593	\$26,880	\$0	\$0	\$1,415	\$0	\$142,887
2026	8	\$142,887	\$28,560	\$0	\$0	\$1,448	\$26,688	\$146,207
2027	9	\$146,207	\$30,240	\$0	\$0	\$1,747	\$1,773	\$176,420
2028	10	\$176,420	\$31,920	\$0	\$0	\$2,083	\$0	\$210,423
2029	11	\$210,423	\$33,600	\$0	\$0	\$2,417	\$2,352	\$244,088
2030	12	\$244,088	\$35,280	\$0	\$0	\$1,686	\$110,739	\$170,316
2031	13	\$170,316	\$36,960	\$0	\$0	\$2,023	\$4,990	\$204,309
2032	14	\$204,309	\$36,960	\$0	\$0	\$2,125	\$28,783	\$214,610
2033	15	\$214,610	\$36,960	\$0	\$0	\$2,516	\$0	\$254,086
2034	16	\$254,086	\$36,960	\$0	\$0	\$184	\$272,644	\$18,586
2035	17	\$18,586	\$36,960	\$0	\$0	\$555	\$0	\$56,101
2036	18	\$56,101	\$36,960	\$0	\$0	\$584	\$34,710	\$58,935
2037	19	\$58,935	\$36,960	\$0	\$0	\$935	\$2,383	\$94,446
2038	20	\$94,446	\$36,960	\$0	\$0	\$995	\$31,914	\$100,488

Alternative 1: Level Funding with Steps

Beginning Balance as of start of year beginning Jan 2019: \$

CONTRIBUTIONS	
FIRST YR	LAST YR
\$16,800.00	\$36,960.00
\$1,200.00	\$2,640.00
\$1,400.00	\$3,080.00
\$100.00	\$220.00
	per year
	per unit per year
	per month
	per unit per month

SPECIAL ASSESSMENTS				
First Jan 2019 Second	Totals			
	Per Year	\$84,000	Per Unit	\$6,000
	Per Year	\$0	Per Unit	\$0

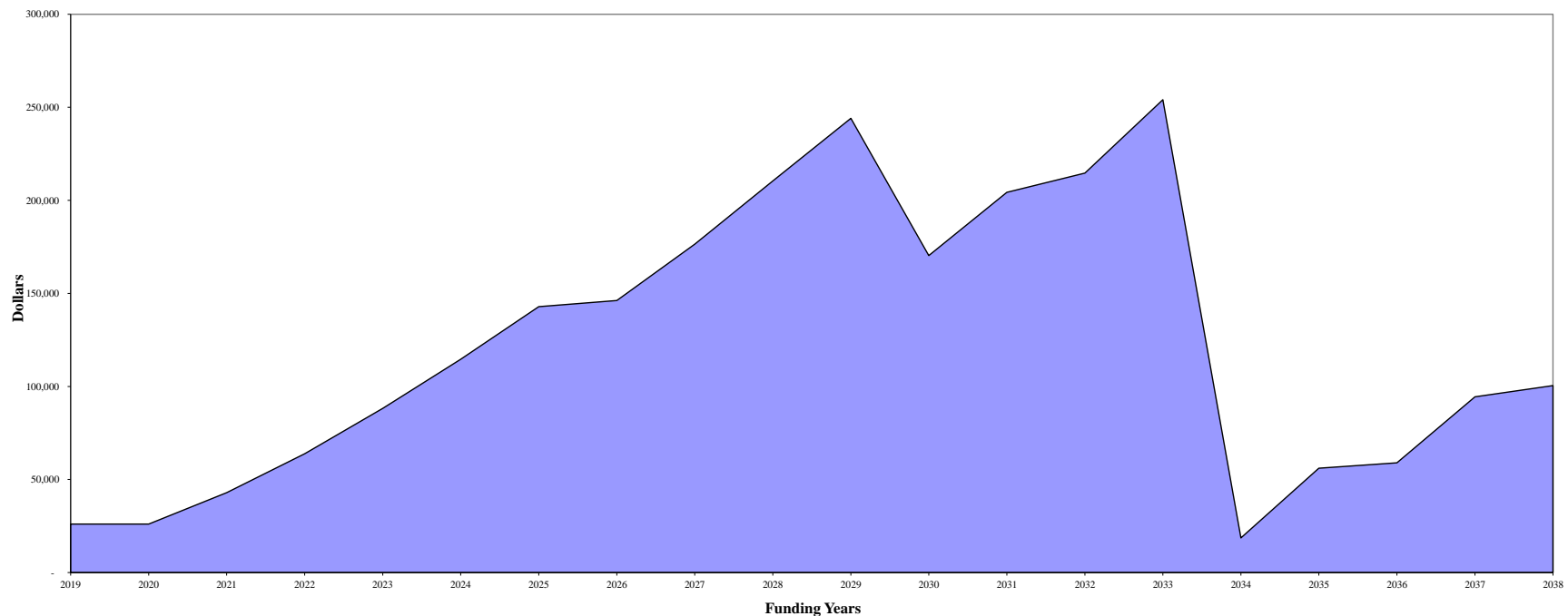
SETTINGS (analyzed by unit/month)			
Starting amount (\$):	100		
Increment by (\$):	10		
Every	1	year	
Frequency:	12	time	

Projected Annual Funding and Expenditures:

Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	26,058	26,050	42,922	63,864	88,258	114,593	142,887	146,207	176,420	210,423	244,088	170,316	204,309	214,610	254,086
Capital Expenditures:	75,000	18,746	3,713	1,530	-	-	-	26,688	1,773	-	2,352	110,739	4,990	28,783	-
Total Revenue (all sources)	101,058	18,738	20,585	22,472	24,394	26,335	28,295	30,008	31,987	34,003	36,017	36,966	38,983	39,085	39,476

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	18,586	56,101	58,935	94,446	100,488
Capital Expenditures:	272,644	-	34,710	2,383	31,914
Total Revenue (all sources)	37,144	37,515	37,544	37,895	37,955

Alternative 1: Level Funding with Steps



Alternative 2: Escalating Funding at 10% per Year

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$15,120	\$84,000	\$0	\$241	\$75,000	\$24,361
2020	2	\$24,361	\$16,632	\$0	\$0	\$222	\$18,746	\$22,470
2021	3	\$22,470	\$18,295	\$0	\$0	\$371	\$3,713	\$37,422
2022	4	\$37,422	\$20,125	\$0	\$0	\$560	\$1,530	\$56,577
2023	5	\$56,577	\$22,137	\$0	\$0	\$787	\$0	\$79,502
2024	6	\$79,502	\$24,351	\$0	\$0	\$1,039	\$0	\$104,891
2025	7	\$104,891	\$26,786	\$0	\$0	\$1,317	\$0	\$132,994
2026	8	\$132,994	\$29,465	\$0	\$0	\$1,358	\$26,688	\$137,128
2027	9	\$137,128	\$32,411	\$0	\$0	\$1,678	\$1,773	\$169,443
2028	10	\$169,443	\$35,652	\$0	\$0	\$2,051	\$0	\$207,146
2029	11	\$207,146	\$39,217	\$0	\$0	\$2,440	\$2,352	\$246,452
2030	12	\$246,452	\$39,217	\$0	\$0	\$1,749	\$110,739	\$176,680
2031	13	\$176,680	\$39,217	\$0	\$0	\$2,109	\$4,990	\$213,016
2032	14	\$213,016	\$39,217	\$0	\$0	\$2,235	\$28,783	\$225,685
2033	15	\$225,685	\$39,217	\$0	\$0	\$2,649	\$0	\$267,551
2034	16	\$267,551	\$39,217	\$0	\$0	\$341	\$272,644	\$34,466
2035	17	\$34,466	\$39,217	\$0	\$0	\$737	\$0	\$74,420
2036	18	\$74,420	\$39,217	\$0	\$0	\$789	\$34,710	\$79,717
2037	19	\$79,717	\$39,217	\$0	\$0	\$1,166	\$2,383	\$117,716
2038	20	\$117,716	\$39,217	\$0	\$0	\$1,250	\$31,914	\$126,270

Alternative 2: Escalating Funding at 10% per Year

Beginning Balance as of start of year beginning Jan 2019: \$

CONTRIBUTIONS	
FIRST YR	LAST YR
\$15,120.00	\$39,217.39
\$1,080.00	\$2,801.24
\$1,260.00	\$3,268.12
\$90.00	\$233.44
	per year
	per unit per year
	per month
	per unit per month

SPECIAL ASSESSMENTS				
First Jan 2019	Totals			
	Per Year	\$84,000	Per Unit	\$6,000
Second	Per Year	\$0	Per Unit	\$0

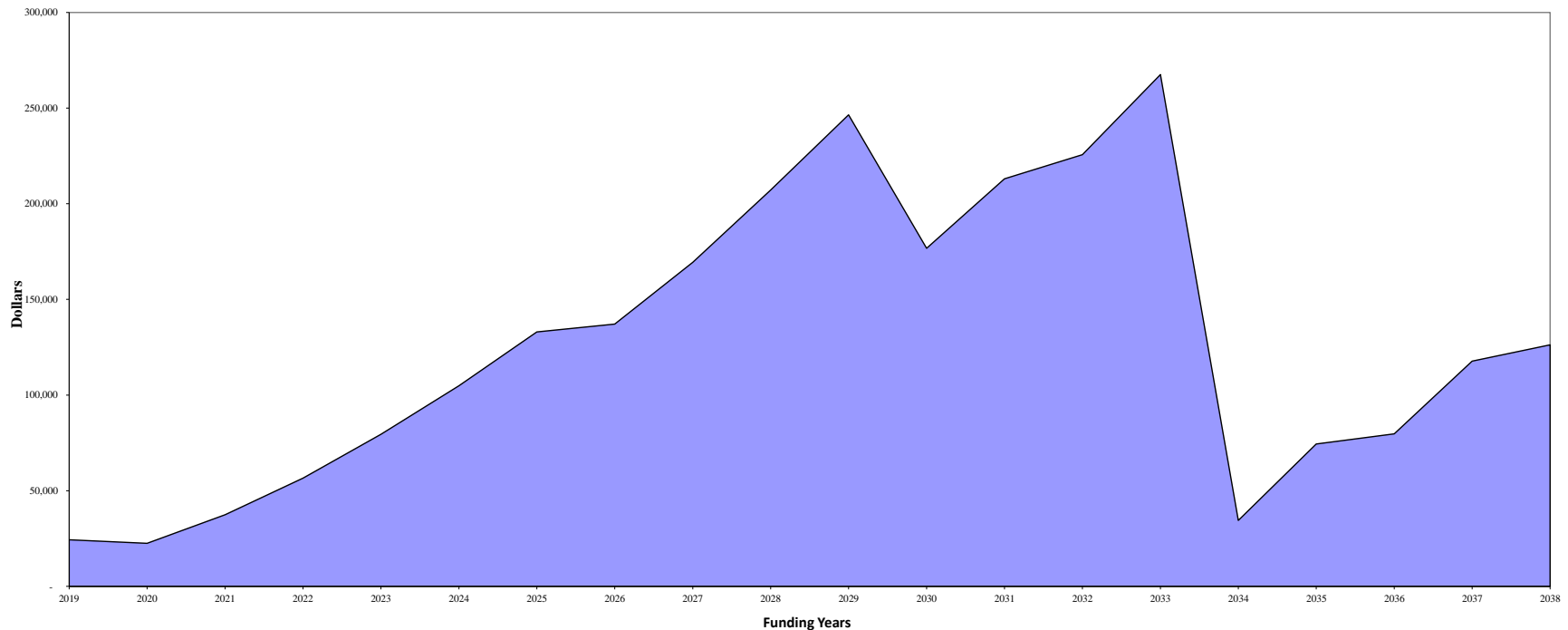
SETTINGS (analyzed by unit/month)		
Starting amount (\$):	90	
Increment by (%):	10	
Step (%):		
Every	1	year
Frequency:	10	time

Projected Annual Funding and Expenditures:

Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	24,361	22,470	37,422	56,577	79,502	104,891	132,994	137,128	169,443	207,146	246,452	176,680	213,016	225,685	267,551
Capital Expenditures:	75,000	18,746	3,713	1,530	-	-	-	26,688	1,773	-	2,352	110,739	4,990	28,783	-
Total Revenue (all sources)	99,361	16,854	18,666	20,685	22,924	25,389	28,103	30,822	34,089	37,703	41,658	40,967	41,326	41,452	41,866

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	34,466	74,420	79,717	117,716	126,270
Capital Expenditures:	272,644	-	34,710	2,383	31,914
Total Revenue (all sources)	39,559	39,954	40,007	40,383	40,468

Alternative 2: Escalating Funding at 10% per Year



Alternative 3: Escalating Funding with Special Assessments

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2019	1	\$0	\$8,400	\$84,000	\$0	\$174	\$75,000	\$17,574
2020	2	\$17,574	\$9,240	\$0	\$0	\$81	\$18,746	\$8,149
2021	3	\$8,149	\$10,164	\$0	\$0	\$146	\$3,713	\$14,746
2022	4	\$14,746	\$11,180	\$0	\$0	\$244	\$1,530	\$24,640
2023	5	\$24,640	\$12,298	\$0	\$0	\$369	\$0	\$37,308
2024	6	\$37,308	\$13,528	\$0	\$0	\$508	\$0	\$51,345
2025	7	\$51,345	\$14,881	\$0	\$0	\$662	\$0	\$66,888
2026	8	\$66,888	\$16,369	\$0	\$0	\$566	\$26,688	\$57,135
2027	9	\$57,135	\$18,006	\$0	\$0	\$734	\$1,773	\$74,101
2028	10	\$74,101	\$19,807	\$0	\$0	\$939	\$0	\$94,847
2029	11	\$94,847	\$21,787	\$0	\$0	\$1,143	\$2,352	\$115,425
2030	12	\$115,425	\$23,966	\$0	\$0	\$287	\$110,739	\$28,939
2031	13	\$28,939	\$26,363	\$0	\$0	\$503	\$4,990	\$50,815
2032	14	\$50,815	\$28,999	\$0	\$0	\$510	\$28,783	\$51,541
2033	15	\$51,541	\$31,899	\$0	\$0	\$834	\$0	\$84,274
2034	16	\$84,274	\$35,089	\$0	\$168,000	\$0	\$272,644	\$14,719
2035	17	\$14,719	\$38,598	\$0	\$0	\$533	\$0	\$53,850
2036	18	\$53,850	\$42,458	\$0	\$0	\$616	\$34,710	\$62,214
2037	19	\$62,214	\$46,703	\$0	\$0	\$1,065	\$2,383	\$107,599
2038	20	\$107,599	\$51,374	\$0	\$0	\$1,271	\$31,914	\$128,329

Alternative 3: Escalating Funding with Special Assessments

Beginning Balance as of start of year beginning Jan 2019: \$

CONTRIBUTIONS	
FIRST YR	LAST YR
\$8,400.00	\$51,373.64
\$600.00	\$3,669.55
\$700.00	\$4,281.14
\$50.00	\$305.80
	per year
	per unit per year
	per month
	per unit per month

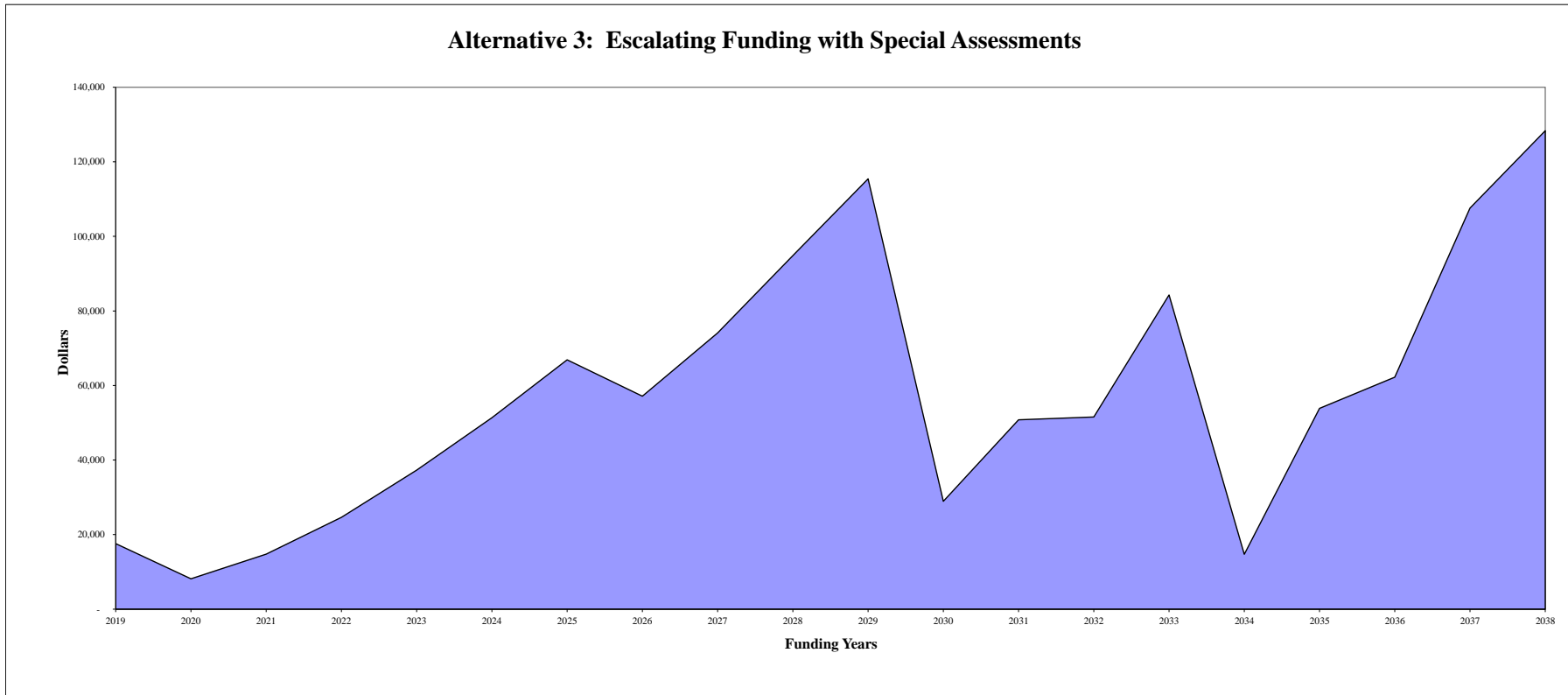
SPECIAL ASSESSMENTS				
		Totals		
First Jan 2019	Second Jan 2034	Per Year	Per Unit	Per Unit
		\$84,000	\$6,000	\$12,000
		\$168,000		

SETTINGS (analyzed by unit/month)	
Starting amount (\$):	50
Increment by (%):	10
Step (%):	0
Every	3 year
Frequency:	3 time

Projected Annual Funding and Expenditures:

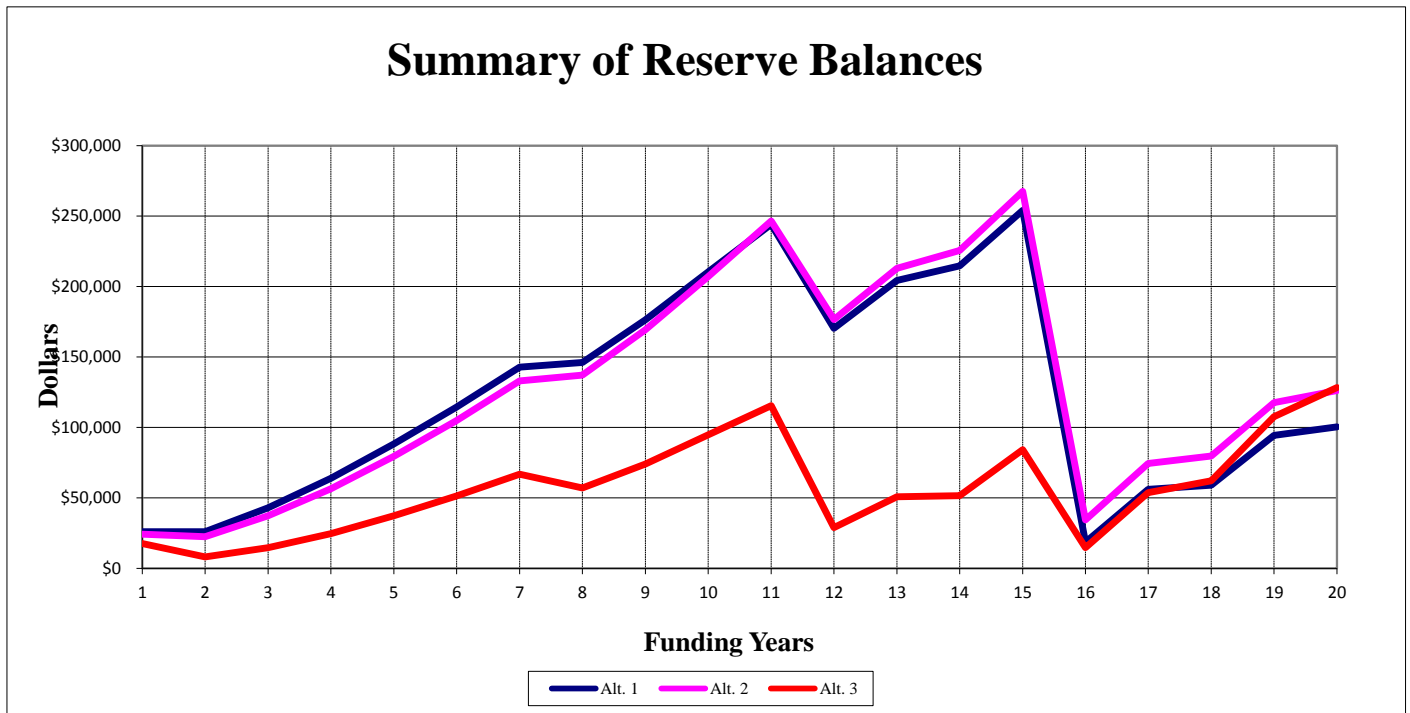
Year:	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	17,574	8,149	14,746	24,640	37,308	51,345	66,888	57,135	74,101	94,847	115,425	28,939	50,815	51,541	84,274
Capital Expenditures:	75,000	18,746	3,713	1,530	-	-	-	26,688	1,773	-	2,352	110,739	4,990	28,783	-
Total Revenue (all sources)	92,574	9,321	10,310	11,424	12,668	14,037	15,543	16,935	18,740	20,746	22,930	24,253	26,866	29,509	32,733

Year:	2034	2035	2036	2037	2038
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	14,719	53,850	62,214	107,599	128,329
Capital Expenditures:	272,644	-	34,710	2,383	31,914
Total Revenue (all sources)	203,089	39,131	43,074	47,769	52,644



Summary of Reserve Balances

<u>Year</u>	<u>Year Number</u>	<u>Yearly Expenditures</u>	<u>Alt. 1</u>	<u>Alt. 2</u>	<u>Alt. 3</u>
2019	1	\$75,000	\$26,058	\$24,361	\$17,574
2020	2	\$18,746	\$26,050	\$22,470	\$8,149
2021	3	\$3,713	\$42,922	\$37,422	\$14,746
2022	4	\$1,530	\$63,864	\$56,577	\$24,640
2023	5	\$0	\$88,258	\$79,502	\$37,308
2024	6	\$0	\$114,593	\$104,891	\$51,345
2025	7	\$0	\$142,887	\$132,994	\$66,888
2026	8	\$26,688	\$146,207	\$137,128	\$57,135
2027	9	\$1,773	\$176,420	\$169,443	\$74,101
2028	10	\$0	\$210,423	\$207,146	\$94,847
2029	11	\$2,352	\$244,088	\$246,452	\$115,425
2030	12	\$110,739	\$170,316	\$176,680	\$28,939
2031	13	\$4,990	\$204,309	\$213,016	\$50,815
2032	14	\$28,783	\$214,610	\$225,685	\$51,541
2033	15	\$0	\$254,086	\$267,551	\$84,274
2034	16	\$272,644	\$18,586	\$34,466	\$14,719
2035	17	\$0	\$56,101	\$74,420	\$53,850
2036	18	\$34,710	\$58,935	\$79,717	\$62,214
2037	19	\$2,383	\$94,446	\$117,716	\$107,599
2038	20	\$31,914	\$100,488	\$126,270	\$128,329



Appendix C: PROJECT PHOTOGRAPHS

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
General view of
community

Photo Number
1



Description:
Building units

Photo Number
2

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Side elevation

Photo Number
3



Description:
Front elevation and
stairways

Photo Number
4

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Limited units with
paintable ceilings
in carport

Photo Number
5



Description:
Rear elevation and
decks

Photo Number
6

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Grass swales and
retaining walls

Photo Number
7



Description:
Downspout pipe
leader

Photo Number
8

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:

Partial
undermining of
concrete carport
unit 960A

Photo Number

9



Description:

Deck with
previous railing
replacement

Photo Number

10

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:

Rear stairs in fair
to poor condition

Photo Number

11



Description:

Deckboards at 8-
unit townhome
building in fair to
poor condition

Photo Number

12

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Repairs to damage
to townhome
building

Photo Number
13



Description:
Typical elevation

Photo Number
14

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Wood patio on
limited units

Photo Number
15



Description:
Wood panels at
limited units

Photo Number
16

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Typical rear deck

Photo Number
17



Description:
Drainage area
around buildings
as well as
irrigation

Photo Number
18

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Irrigation
controller

Photo Number
19



Description:
Infiltration basin
(master
association)

Photo Number
20

Location:
Queens Grant Soundside
Topsail Beach, NC

Photo Taken by: Christopher A. Flythe, PE
Date: October 19, 2018



Description:
Front steps

Photo Number
21



Description:
Deckboards
and railings in
poor condition

Photo Number
22