

FULL RESERVE STUDY

**SPARGER SPRINGS TOWNHOMES
DURHAM, NC**

Prepared for:
**SPARGER SPRINGS TOWNHOME OWNER'S ASSOCIATION
DURHAM, NC
&
ALLENTON MANAGEMENT**

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1.0 INTRODUCTION

The Sparger Springs Townhome Owners Association authorized Criterium–Giles Engineers to conduct a Reserve Fund Study for the Sparger Springs Townhome community located in Durham, 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 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

Sparger Springs Townhomes is currently comprised of 100 individually owned townhomes within 28 buildings. The Association has responsibility for the maintenance and repair of the buildings' exterior including roofing, gutters, siding and trim in addition to various other site improvements. Repair and replacement of windows are the responsibility of the homeowner. The most significant site improvements include the private asphalt drive and parking areas within the community, common area drainage systems, concrete walkways and mail kiosks.

The buildings, common areas and grounds are generally in good condition; however, based upon our evaluation, the current level of reserve funding is not adequate. We have provided alternatives for annual reserve contribution schedules that will 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 building roofs
- Resurface asphalt drive and parking areas
- Storm water system maintenance

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.

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 Sparger Springs Townhome Owners Association 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 Sparger Springs Townhome Owners Association, Criterium-Giles Engineers Inc. 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 painting and repairs of the siding, trim, roofing, gutters and downspouts. Repair and replacement of exterior windows are the responsibility of the individual homeowner.

- **Mechanical Systems:** The Association is not responsible for the individual townhome HVAC units.
- **Site and Grounds:** The HOA is responsible for the asphalt drive and parking areas, common area concrete sidewalks, common area drainage systems, landscaping and irrigation, mailbox kiosks and fencing.

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 2016 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 inspection of the property occurred on the following date:

- May 27, 2016

The following people were interviewed during our study:

- Mr. Arnold Spell, Community Manager, Allenton Management

The following documents were made available to us and reviewed:

- Durham County Real Estate Records
- Governing documents
- 2016 financials, budget and reserves

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

Sparger Springs Townhomes is currently comprised of 100 individually owned townhomes within 28 buildings. The Association has responsibility for the maintenance and repair of the buildings' exterior including roofing, gutters, siding and trim in addition to various other site improvements. Repair and replacement of windows are the responsibility of the homeowner. The most significant site improvements include the private asphalt drive and parking areas within the community, common area drainage systems, concrete walkways and mail kiosks.

The building roofs are primarily shingled with asphaltic 3-tab shingles. Aluminum gutters and downspouts discharge storm water to grade and into the drainage infrastructure. The buildings are of wood frame construction on slab on grade foundations. Exterior finishes are primarily comprised of painted Masonite lap siding and trim. Portions of the units are also clad with brick veneer.

Site drainage is provided via swales and catch basins in the paved and landscaped areas. These systems direct water flow into the city sewer system and a nearby creek.

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 drive and parking areas within the community are asphalt paved and are privately maintained by the Association. The asphalt paved areas are in relatively good condition considering their age. Cracks in the pavement have recently been sealed; however, the pavement is nearing the end of its useful life. Asphalt paving has a normal useful life of approximately 20 years in this type of residential setting. We have included funds for resurfacing the asphalt paved areas on a 20-year schedule beginning in 2024. Typically, we recommend filling, patching and sealing potential cracks, restriping and the application of an oil resistant sealant to all asphalt paved surfaces on an approximate 7-year cycle. We have allocated funds for this work 7 years after the pavement has been resurfaced in 2029.

We observed some timber and precast concrete landscape edging around the parking area medians between townhome units. We have not allocated funds for the repair or replacement of these items under the assumption they will be funded from the operating budget as needed.

Flatwork in the community consists of concrete walkways thru the common areas of the community and at the front of each unit. There is a concrete patio at the back of some units; however, it is assumed the maintenance of the patio is the homeowner's responsibility. The flatwork generally appears to be in relatively good condition, though we did observe portions of walkway that have slightly heaved and/or cracked. We have allocated funds for periodic replacement of concrete surfaces and have assumed that 5% of the flatwork area will require improvement every 8 years beginning in 2022.

Storm water on the site drains via surface flow or swales toward a creek at the east side of the community and/or to catch basins in the curbs and landscaped areas. We have allocated funds to repair/improve the drainage systems on a 5-year cycle beginning in 2019. Repairs will likely include retrenching of swales to improve flow, maintenance of underground systems, installation and repair of rip rap or turf reinforcement on steep slopes, installing french drains or other types of subsurface drainage

systems. These types of repairs can be moderate (re-trenching swales, flushing pipes), to very expensive (new underground pipe systems). We have included a moderate budget to help cover these costs.

There is a mail building with pedestal-mounted kiosks near the entrance of the community. The kiosks are mostly sheltered from weather; however, they have begun to show signs of corrosion. We anticipate these units will require replacement on an approximate 20-year schedule, and we have included funds for their replacement beginning in 2022.

Some small timber retaining walls are located at various locations throughout the community. The walls appear to be relatively good condition; however, we have included funds for miscellaneous repairs on a 20-year schedule beginning in 2034.

Several of the townhome units have privacy fences surrounding the back patio. We assumed maintenance and repair of the fences are the responsibility of the individual home owner.

The property may be accessed via Sparger Road at the west side of the community. There is a painted wood sign framed with steel angle and supported by masonry pilasters located at the community entrance. The sign is lit by a landscape lighting system with the controller mounted at the rear side of the sign. The sign was in relatively good condition; however, we did observe some minor corrosion on the steel angles behind the sign. We also observed some bricks missing from the top of one of the pilasters. We have allocated funds for the periodic repair and maintenance of the entrance sign along with the landscape lighting system on a 10-year schedule beginning in 2022.

The underground water and sewer mains within the property are maintained by the Association. We have allotted funding for miscellaneous repairs on a 30-year cycle beginning in 2032.

Common Building Exteriors

The Association is responsible for exterior maintenance of the townhome units, including roofing, siding and trim, gutters and downspouts. Repair and replacement of the windows is the responsibility of the individual homeowner.

The predominant pitched roof surfaces over the buildings are covered in asphaltic fiberglass, 3-tab shingles. Roof surfacing is applied over plywood sheathing and appears to be in relatively good condition with no known active roof leaks or problems. Typically, this type of roofing surface will last approximately twenty to twenty-five 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. We have allocated funds for roof replacement in two

phases and on a 20-year schedule beginning in 2027.

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

Gutters and downspouts are generally in good condition and should not require replacement until the time of roof replacement, as this component typically provides twenty years of relatively trouble free service.

The buildings in the community are of wood framed construction and are primarily clad in Masonite siding and trim. The Association is responsible for painting exterior elements such as the doors, shutters and other trim. Portions of the siding have begun to deteriorate; we recommend replacing deteriorated portions of Masonite siding with a rot-resistant material such as cement fiber. We have included funds for miscellaneous repairs and painting the buildings in two phases and on a 5-year cycle beginning in 2016.

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 1.5% 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.
- Based on our developed list of capital items and taking inflation into account, the current funding level is adequate.
- 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 an alternative as well as your current reserve funding program for review. We recommend the Board alter or maintain the program that best reflects the objectives of the community. In summary they are as follows:

Current Reserve Funding Rate: \$35,000 per year

Current Reserve Balance: \$104,500 (projected January 2017 balance)

- **Alternative 1:** Beginning in 2017, increase the annual reserve contribution to \$66,000, then increase by 9,000 every year for the next 10 years. This alternative is projected to maintain a positive balance through the term of this study.
- **Alternative 2:** Beginning in 2017, increase the annual reserve contribution to \$72,000, then increase the contribution rate by 9% for the next 10 years. This alternative is projected to maintain a positive balance through the term of this study.
- **Alternative 3:** Beginning in 2017, levy a special assessment in the amount of \$250,000. In 2024, levy another special assessment in the amount of \$900,000. This alternative is projected to maintain a positive balance through the term of this study. **Note we do not endorse this alternative, as special assessments are not a preferred method of funding reserves.**

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 2016 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.

The alternatives provided above will provide sufficient funding to meet

7.0 CONCLUSION

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 Sparger Springs Townhomes Homeowners Association. 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.

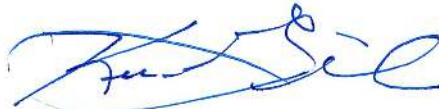
We have performed no design work as part of this study, nor have we obtained competitive quotations or estimates from contractors as this also is beyond the scope of the project. The actual cost to remedy deficiencies and deferred maintenance items that we have identified may vary significantly from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



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Criterium-Giles Engineers, Inc.



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Criterium-Giles Engineers, Inc.

Appendix A: RESERVE FUND PROJECTIONS

Itemized Worksheet

Capital Item To Be Replaced	Quantity	Unit cost	Reserve Requirement (*)	Frequency (yrs**)	Remaining Life (yrs)	Information Source
Site						
Asphalt paving crack repair, seal coat, restriping	16,100 SY	\$2.00	\$32,200.00	7	12	
Asphalt paving resurface	16,100 SY	\$11.00	\$177,100.00	20	7	
Concrete flatwork (replace 5% of total area)	95 SY	\$95.00	\$9,025.00	8	5	
Drainage improvements	1 LS	\$7,500.00	\$7,500.00	5	2	
Replace mailbox kiosks	8 EA	\$1,800.00	\$14,400.00	25	5	
Repair site retaining walls	1 LS	\$15,000.00	\$15,000.00	20	17	
Entrance sign	1 LS	\$2,500.00	\$2,500.00	10	5	
Landscape lighting	1 LS	\$2,500.00	\$2,500.00	10	5	
Allocation for repairs to buried utilities	1 LS	\$8,500.00	\$8,500.00	30	15	
Building Exterior						
Replace building roofs - Phase 1	610 SQ	\$265.00	\$161,650.00	20	10	
Replace building roofs - Phase 2	715 SQ	\$266.00	\$190,190.00	20	11	
Paint / repair siding & trim - Phase 1	55 UNIT	\$2,000.00	\$110,000.00	5	0	
Paint / repair siding & trim - Phase 2	45 UNIT	\$2,000.00	\$90,000.00	5	1	
Building Interior						
Mechanical						
Amenities						
Other						
			Totals	\$820,565.00		
			Total Over Term	\$1,489,290.00		

* Costs are typically 10%±

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

Annual Expense By Year

	Year:	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Site																	
Asphalt paving crack repair, seal coat, restriping		0	0	0	0	0	0	0	0	0	0	0	0	32,200	0	0	0
Asphalt paving resurface		0	0	0	0	0	0	0	177,100	0	0	0	0	0	0	0	0
Concrete flatwork (replace 5% of total area)		0	0	0	0	0	9,025	0	0	0	0	0	0	0	9,025	0	0
Drainage improvements		0	0	7,500	0	0	0	0	7,500	0	0	0	0	7,500	0	0	0
Replace mailbox kiosks		0	0	0	0	0	14,400	0	0	0	0	0	0	0	0	0	0
Repair site retaining walls		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Entrance sign		0	0	0	0	0	2,500	0	0	0	0	0	0	0	0	0	2,500
Landscape lighting		0	0	0	0	0	2,500	0	0	0	0	0	0	0	0	0	2,500
Allocation for repairs to buried utilities		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,500
Building Exterior																	
Replace building roofs - Phase 1		0	0	0	0	0	0	0	0	0	0	161,650	0	0	0	0	0
Replace building roofs - Phase 2		0	0	0	0	0	0	0	0	0	0	0	190,190	0	0	0	0
Paint / repair siding & trim - Phase 1		110,000	0	0	0	0	110,000	0	0	0	0	110,000	0	0	0	0	110,000
Paint / repair siding & trim - Phase 2		0	90,000	0	0	0	0	90,000	0	0	0	0	90,000	0	0	0	0
Building Interior																	
Mechanical																	
Amenities																	
Other																	
Total Costs		110,000	90,000	7,500	0	0	138,425	90,000	184,600	0	0	271,650	280,190	39,700	9,025	0	123,500
Total Costs Adjusted For 3% Inflation		110,000	92,700	7,957	0	0	160,473	107,465	227,035	0	0	365,075	387,848	56,603	13,254	0	192,409

Annual Expense By Year

	Year:	2033	2034	2035	2036
	Year Number:	17	18	19	20
Site					
Asphalt paving crack repair, seal coat, restriping		0	0	0	32,200
Asphalt paving resurface		0	0	0	0
Concrete flatwork (replace 5% of total area)		0	0	0	0
Drainage improvements		0	7,500	0	0
Replace mailbox kiosks		0	0	0	0
Repair site retaining walls		0	15,000	0	0
Entrance sign		0	0	0	0
Landscape lighting		0	0	0	0
Allocation for repairs to buried utilities		0	0	0	0
Building Exterior					
Replace building roofs - Phase 1		0	0	0	0
Replace building roofs - Phase 2		0	0	0	0
Paint / repair siding & trim - Phase 1		0	0	0	0
Paint / repair siding & trim - Phase 2		90,000	0	0	0
Building Interior					
Mechanical					
Amenities					
Other					
Total Costs		90,000	22,500	0	32,200
Total Costs Adjusted For 3% Inflation		144,424	37,189	0	56,463

Reserve Study Worksheet

General Information:

- 1 Organization: **Sparger Springs**
 2 Address: **Durham, NC**

3	Number of Units	100
4	Age of Building (in years)	29
5a	Study Period (in years)	20
5b	Normal Fiscal Year starts:	January 1, 2017
5c	Partial Fiscal Year starts:	January 1, 2017
5d	Partial Year Length:	12 months
6	Site Inspection Date	May 27, 2016
7	Reserve Funds at start	\$104,500
8	Rate of Return on invested Reserve Funds (%)	1.5%
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.....	\$2,917	\$35,000	\$29.17	\$350.00
	Years Out	Total Annual	Per Unit	
Planned Special Assessment.....	0	\$0	\$0	
Balance Computed.....	(\$1,152,389)			

11 Alternative Reserve Fund Contribution

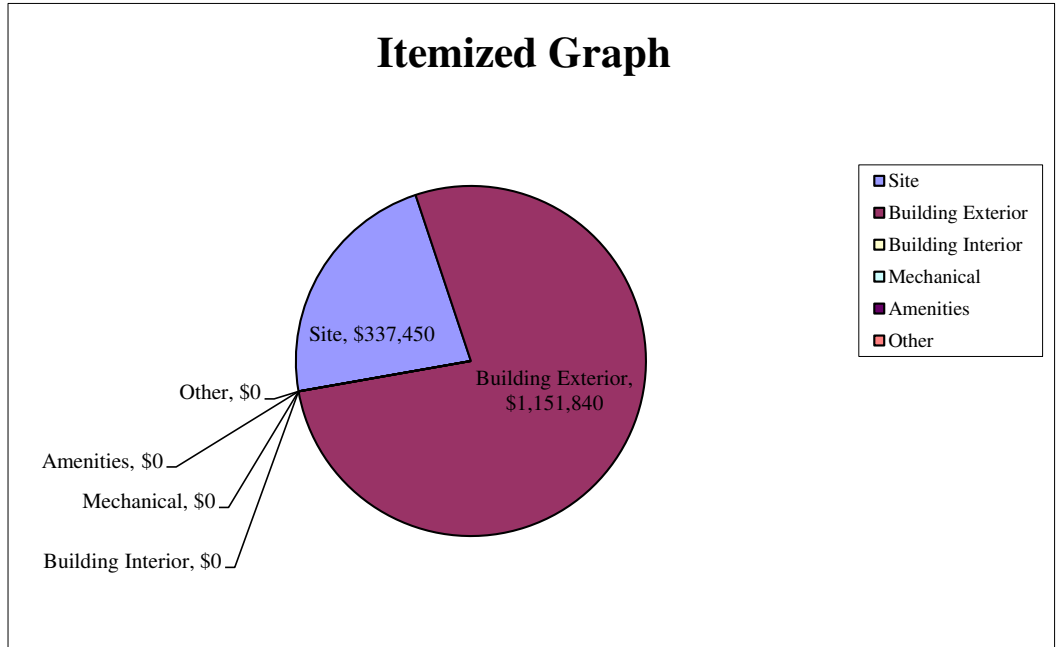
Alternative 1 Level Funding with Steps				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....	\$5,500	\$66,000	\$55.00	\$660.00
Monthly Amount, (Last Year).....	\$13,000	\$156,000	\$130.00	\$1,560.00
Balance Required Final Year.....	\$97,945			
	Years Out	Total/Year	Per Unit	
Special Assessments:				
First Assessment.....	0	\$0	\$0	
Second Assessment.....	0	\$0	\$0	
Balance Computed.....	\$871,694			

Alternative 2 Escalating Funding at 9% per Year				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....	\$6,000	\$72,000	\$60.00	\$720.00
Monthly Amount, (Last Year).....	\$14,204	\$170,450	\$142.04	\$1,704.50
Balance Required Final Year.....	\$97,945			
Base Escalation %.....	9.00%			
	Years Out	Total/Year	Per Unit	
Special Assessments:				
First Assessment.....	0	\$0	\$0	
Second Assessment.....	0	\$0	\$0	
Balance Computed.....	\$1,064,642			

Alternative 3 Escalating Funding with Special Assessments				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Monthly Amount, (First Year).....	\$2,917	\$35,000	\$29.17	\$350.00
Monthly Amount, (Last Year).....	\$2,917	\$35,000	\$29.17	\$350.00
Balance Required Final Year.....	\$97,945			
Base Escalation %.....	0.00%			
	Years Out	Total/Year	Per Unit	
Special Assessments:				
First Assessment.....	1	Jan 2017	\$250,000	\$2,500
Second Assessment.....	8	Jan 2024	\$900,000	\$9,000
Balance Computed.....	\$83,327			

Itemized Graph

Categories	Totals
Site	\$337,450
Building Exterior	\$1,151,840
Building Interior	\$0
Mechanical	\$0
Amenities	\$0
Other	\$0
Total	\$1,489,290



Existing Funding Levels

Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments	Investment Earnings	Capital Expenditures	Ending Balance
2017	1	\$104,500	\$35,000	\$0	\$442	\$110,000	\$29,942
2018	2	\$29,942	\$35,000	\$0	\$0	\$92,700	(\$27,758)
2019	3	(\$27,758)	\$35,000	\$0	\$0	\$7,957	(\$714)
2020	4	(\$714)	\$35,000	\$0	\$514	\$0	\$34,800
2021	5	\$34,800	\$35,000	\$0	\$1,047	\$0	\$70,847
2022	6	\$70,847	\$35,000	\$0	\$0	\$160,473	(\$54,625)
2023	7	(\$54,625)	\$35,000	\$0	\$0	\$107,465	(\$127,090)
2024	8	(\$127,090)	\$35,000	\$0	\$0	\$227,035	(\$319,125)
2025	9	(\$319,125)	\$35,000	\$0	\$0	\$0	(\$284,125)
2026	10	(\$284,125)	\$35,000	\$0	\$0	\$0	(\$249,125)
2027	11	(\$249,125)	\$35,000	\$0	\$0	\$365,075	(\$579,200)
2028	12	(\$579,200)	\$35,000	\$0	\$0	\$387,848	(\$932,048)
2029	13	(\$932,048)	\$35,000	\$0	\$0	\$56,603	(\$953,651)
2030	14	(\$953,651)	\$35,000	\$0	\$0	\$13,254	(\$931,904)
2031	15	(\$931,904)	\$35,000	\$0	\$0	\$0	(\$896,904)
2032	16	(\$896,904)	\$35,000	\$0	\$0	\$192,409	(\$1,054,313)
2033	17	(\$1,054,313)	\$35,000	\$0	\$0	\$144,424	(\$1,163,737)
2034	18	(\$1,163,737)	\$35,000	\$0	\$0	\$37,189	(\$1,165,926)
2035	19	(\$1,165,926)	\$35,000	\$0	\$0	\$0	(\$1,130,926)
2036	20	(\$1,130,926)	\$35,000	\$0	\$0	\$56,463	(\$1,152,389)

Existing Funding Levels

Beginning Balance as of start of year beginning Jan 2017: \$104,500

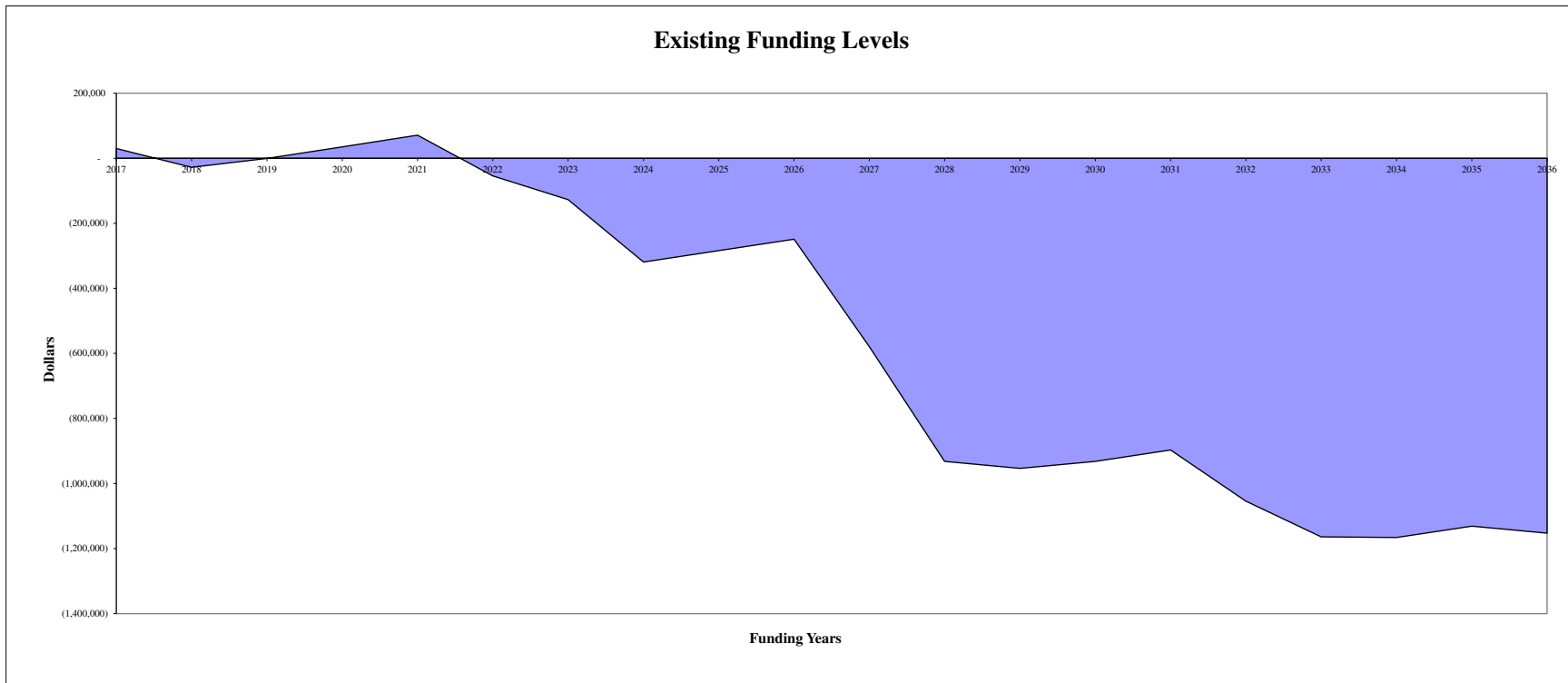
CONTRIBUTIONS	
AMOUNT	
\$35,000.00	per year
\$350.00	per unit per year
\$2,916.67	per month
\$29.17	per unit per month

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

Projected Annual Funding and Expenditures:

Year:	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	29,942	(27,758)	(714)	34,800	70,847	(54,625)	(127,090)	(319,125)	(284,125)	(249,125)	(579,200)	(932,048)	(953,651)	(931,904)	(896,904)
Capital Expenditures:	110,000	92,700	7,957	-	-	160,473	107,465	227,035	-	-	365,075	387,848	56,603	13,254	-
Total Revenue (all sources)	35,442	35,000	35,000	35,514	36,047	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000

Year:	2032	2033	2034	2035	2036
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	(1,054,313)	(1,163,737)	(1,165,926)	(1,130,926)	(1,152,389)
Capital Expenditures:	192,409	144,424	37,189	-	56,463
Total Revenue (all sources)	35,000	35,000	35,000	35,000	35,000



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
2017	1	\$104,500	\$66,000	\$0	\$0	\$908	\$110,000	\$61,408
2018	2	\$61,408	\$75,000	\$0	\$0	\$656	\$92,700	\$44,363
2019	3	\$44,363	\$84,000	\$0	\$0	\$1,806	\$7,957	\$122,212
2020	4	\$122,212	\$93,000	\$0	\$0	\$3,228	\$0	\$218,441
2021	5	\$218,441	\$102,000	\$0	\$0	\$4,807	\$0	\$325,247
2022	6	\$325,247	\$111,000	\$0	\$0	\$4,137	\$160,473	\$279,911
2023	7	\$279,911	\$120,000	\$0	\$0	\$4,387	\$107,465	\$296,833
2024	8	\$296,833	\$129,000	\$0	\$0	\$2,982	\$227,035	\$201,781
2025	9	\$201,781	\$138,000	\$0	\$0	\$5,097	\$0	\$344,877
2026	10	\$344,877	\$147,000	\$0	\$0	\$7,378	\$0	\$499,255
2027	11	\$499,255	\$156,000	\$0	\$0	\$4,353	\$365,075	\$294,533
2028	12	\$294,533	\$156,000	\$0	\$0	\$940	\$387,848	\$63,625
2029	13	\$63,625	\$156,000	\$0	\$0	\$2,445	\$56,603	\$165,468
2030	14	\$165,468	\$156,000	\$0	\$0	\$4,623	\$13,254	\$312,837
2031	15	\$312,837	\$156,000	\$0	\$0	\$7,033	\$0	\$475,870
2032	16	\$475,870	\$156,000	\$0	\$0	\$6,592	\$192,409	\$446,053
2033	17	\$446,053	\$156,000	\$0	\$0	\$6,864	\$144,424	\$464,494
2034	18	\$464,494	\$156,000	\$0	\$0	\$8,750	\$37,189	\$592,054
2035	19	\$592,054	\$156,000	\$0	\$0	\$11,221	\$0	\$759,275
2036	20	\$759,275	\$156,000	\$0	\$0	\$12,882	\$56,463	\$871,694

Alternative 1: Level Funding with Steps

Beginning Balance as of start of year beginning Jan 2017: \$104,500

CONTRIBUTIONS		
FIRST YR	LAST YR	
\$66,000.00	\$156,000.00	per year
\$660.00	\$1,560.00	per unit per year
\$5,500.00	\$13,000.00	per month
\$55.00	\$130.00	per unit per month

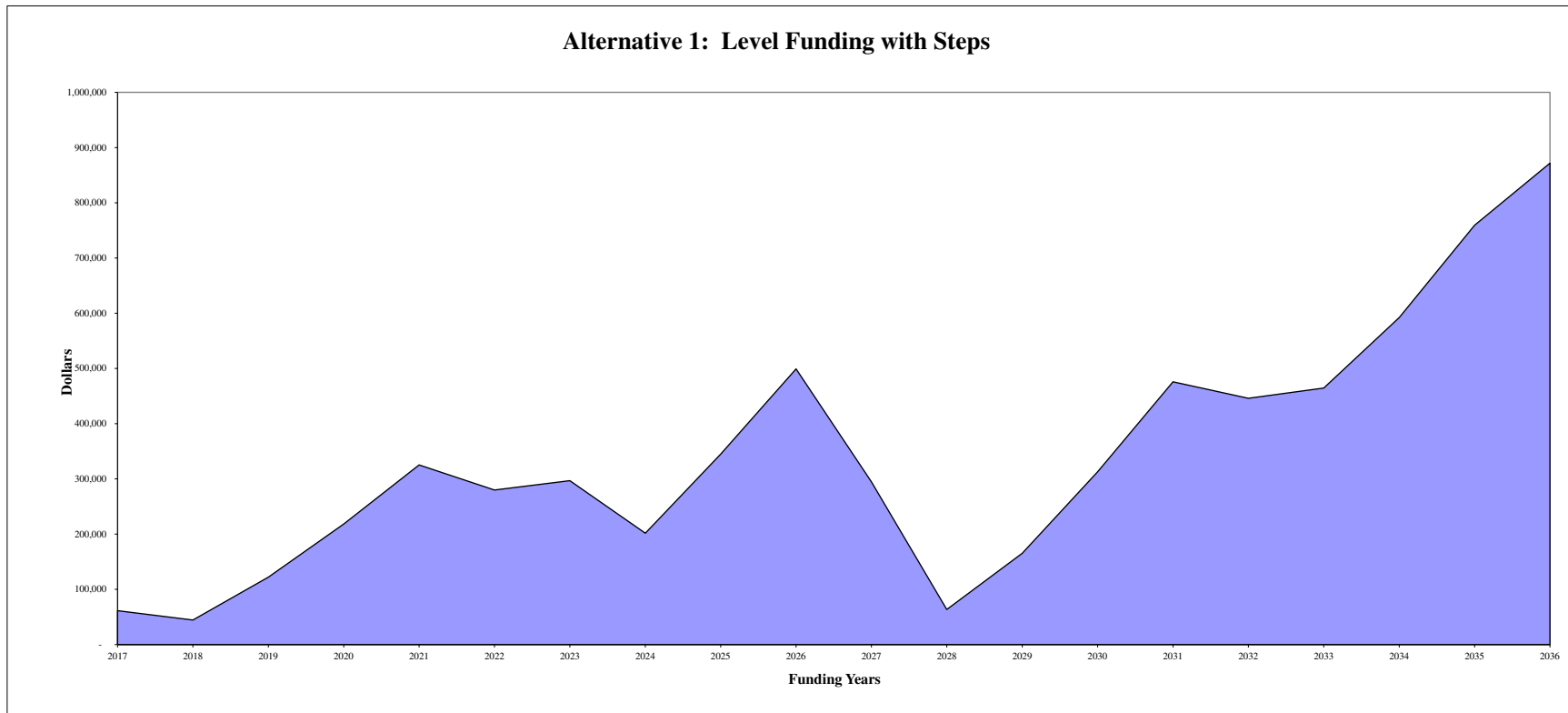
SPECIAL ASSESSMENTS				
First Second	Per Year Per Year	Totals		\$0 \$0
		\$0 \$0	Per Unit Per Unit	

SETTINGS (analyzed by year)		
Starting amount (\$):	5500	
Increment by (\$):	750	
Every	1	year
Frequency:	10	time

Projected Annual Funding and Expenditures:

Year:	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	61,408	44,363	122,212	218,441	325,247	279,911	296,833	201,781	344,877	499,255	294,533	63,625	165,468	312,837	475,870
Capital Expenditures:	110,000	92,700	7,957	-	-	160,473	107,465	227,035	-	-	365,075	387,848	56,603	13,254	-
Total Revenue (all sources)	66,908	75,656	85,806	96,228	106,807	115,137	124,387	131,982	143,097	154,378	160,353	156,940	158,445	160,623	163,033

Year:	2032	2033	2034	2035	2036
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	446,053	464,494	592,054	759,275	871,694
Capital Expenditures:	192,409	144,424	37,189	-	56,463
Total Revenue (all sources)	162,592	162,864	164,750	167,221	168,882



Alternative 2: Escalating Funding at 9% per Year



Year	Year Number	Beginning Reserve Fund Balance	Fee Revenue	Special Assessments 1	Special Assessments 2	Investment Earnings	Capital Expenditures	Ending Balance
2017	1	\$104,500	\$72,000	\$0	\$0	\$998	\$110,000	\$67,498
2018	2	\$67,498	\$78,480	\$0	\$0	\$799	\$92,700	\$54,077
2019	3	\$54,077	\$85,543	\$0	\$0	\$1,975	\$7,957	\$133,638
2020	4	\$133,638	\$93,242	\$0	\$0	\$3,403	\$0	\$230,283
2021	5	\$230,283	\$101,634	\$0	\$0	\$4,979	\$0	\$336,896
2022	6	\$336,896	\$110,781	\$0	\$0	\$4,308	\$160,473	\$291,512
2023	7	\$291,512	\$120,751	\$0	\$0	\$4,572	\$107,465	\$309,371
2024	8	\$309,371	\$131,619	\$0	\$0	\$3,209	\$227,035	\$217,164
2025	9	\$217,164	\$143,465	\$0	\$0	\$5,409	\$0	\$366,038
2026	10	\$366,038	\$156,376	\$0	\$0	\$7,836	\$0	\$530,251
2027	11	\$530,251	\$170,450	\$0	\$0	\$5,034	\$365,075	\$340,661
2028	12	\$340,661	\$170,450	\$0	\$0	\$1,849	\$387,848	\$125,111
2029	13	\$125,111	\$170,450	\$0	\$0	\$3,584	\$56,603	\$242,543
2030	14	\$242,543	\$170,450	\$0	\$0	\$5,996	\$13,254	\$405,736
2031	15	\$405,736	\$170,450	\$0	\$0	\$8,643	\$0	\$584,829
2032	16	\$584,829	\$170,450	\$0	\$0	\$8,443	\$192,409	\$571,313
2033	17	\$571,313	\$170,450	\$0	\$0	\$8,960	\$144,424	\$606,300
2034	18	\$606,300	\$170,450	\$0	\$0	\$11,093	\$37,189	\$750,654
2035	19	\$750,654	\$170,450	\$0	\$0	\$13,817	\$0	\$934,921
2036	20	\$934,921	\$170,450	\$0	\$0	\$15,734	\$56,463	\$1,064,642

Alternative 2: Escalating Funding at 9% per Year

Beginning Balance as of start of year beginning Jan 2017: \$104,500

CONTRIBUTIONS	
FIRST YR	LAST YR
\$72,000.00	\$170,450.18
\$720.00	\$1,704.50
\$6,000.00	\$14,204.18
\$60.00	\$142.04

per year
per unit per year
per month
per unit per month

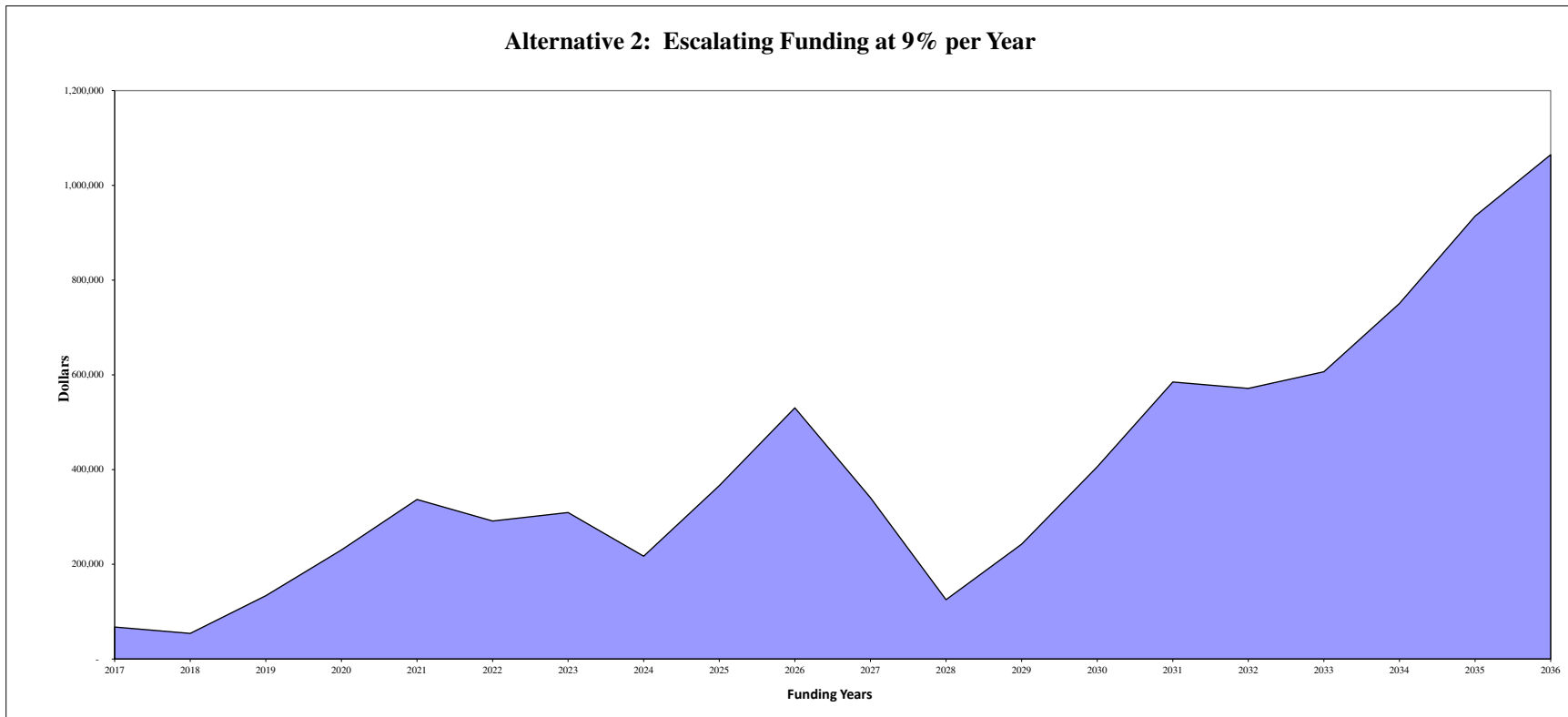
SPECIAL ASSESSMENTS				
First Second	Per Year Per Year	Totals		\$0 \$0
		\$0 \$0	Per Unit Per Unit	

SETTINGS (analyzed by year)	
Starting amount (\$):	6000
Increment by (%):	9
Step (%):	
Every	1 year
Frequency:	10 time

Projected Annual Funding and Expenditures:

Year:	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	67,498	54,077	133,638	230,283	336,896	291,512	309,371	217,164	366,038	530,251	340,661	125,111	242,543	405,736	584,829
Capital Expenditures:	110,000	92,700	7,957	-	-	160,473	107,465	227,035	-	-	365,075	387,848	56,603	13,254	-
Total Revenue (all sources)	72,998	79,279	87,518	96,645	106,613	115,089	125,323	134,828	148,874	164,213	175,485	172,299	174,035	176,446	179,093

Year:	2032	2033	2034	2035	2036
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	571,313	606,300	750,654	934,921	1,064,642
Capital Expenditures:	192,409	144,424	37,189	-	56,463
Total Revenue (all sources)	178,893	179,410	181,544	184,267	186,184



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
2017	1	\$104,500	\$35,000	\$250,000	\$0	\$4,192	\$110,000	\$283,692
2018	2	\$283,692	\$35,000	\$0	\$0	\$3,390	\$92,700	\$229,382
2019	3	\$229,382	\$35,000	\$0	\$0	\$3,846	\$7,957	\$260,272
2020	4	\$260,272	\$35,000	\$0	\$0	\$4,429	\$0	\$299,701
2021	5	\$299,701	\$35,000	\$0	\$0	\$5,021	\$0	\$339,722
2022	6	\$339,722	\$35,000	\$0	\$0	\$3,214	\$160,473	\$217,463
2023	7	\$217,463	\$35,000	\$0	\$0	\$2,175	\$107,465	\$147,173
2024	8	\$147,173	\$35,000	\$0	\$900,000	\$0	\$227,035	\$855,138
2025	9	\$855,138	\$35,000	\$0	\$0	\$13,352	\$0	\$903,490
2026	10	\$903,490	\$35,000	\$0	\$0	\$14,077	\$0	\$952,568
2027	11	\$952,568	\$35,000	\$0	\$0	\$9,337	\$365,075	\$631,830
2028	12	\$631,830	\$35,000	\$0	\$0	\$4,185	\$387,848	\$283,167
2029	13	\$283,167	\$35,000	\$0	\$0	\$3,923	\$56,603	\$265,487
2030	14	\$265,487	\$35,000	\$0	\$0	\$4,309	\$13,254	\$291,542
2031	15	\$291,542	\$35,000	\$0	\$0	\$4,898	\$0	\$331,440
2032	16	\$331,440	\$35,000	\$0	\$0	\$2,610	\$192,409	\$176,642
2033	17	\$176,642	\$35,000	\$0	\$0	\$1,008	\$144,424	\$68,227
2034	18	\$68,227	\$35,000	\$0	\$0	\$991	\$37,189	\$67,028
2035	19	\$67,028	\$35,000	\$0	\$0	\$1,530	\$0	\$103,559
2036	20	\$103,559	\$35,000	\$0	\$0	\$1,231	\$56,463	\$83,327

Alternative 3: Escalating Funding with Special Assessments

Beginning Balance as of start of year beginning Jan 2017: \$104,500

CONTRIBUTIONS	
FIRST YR	LAST YR
\$35,000.00	\$35,000.00
\$350.00	\$350.00
\$2,916.67	\$2,916.67
\$29.17	\$29.17

per year
per unit per year
per month
per unit per month

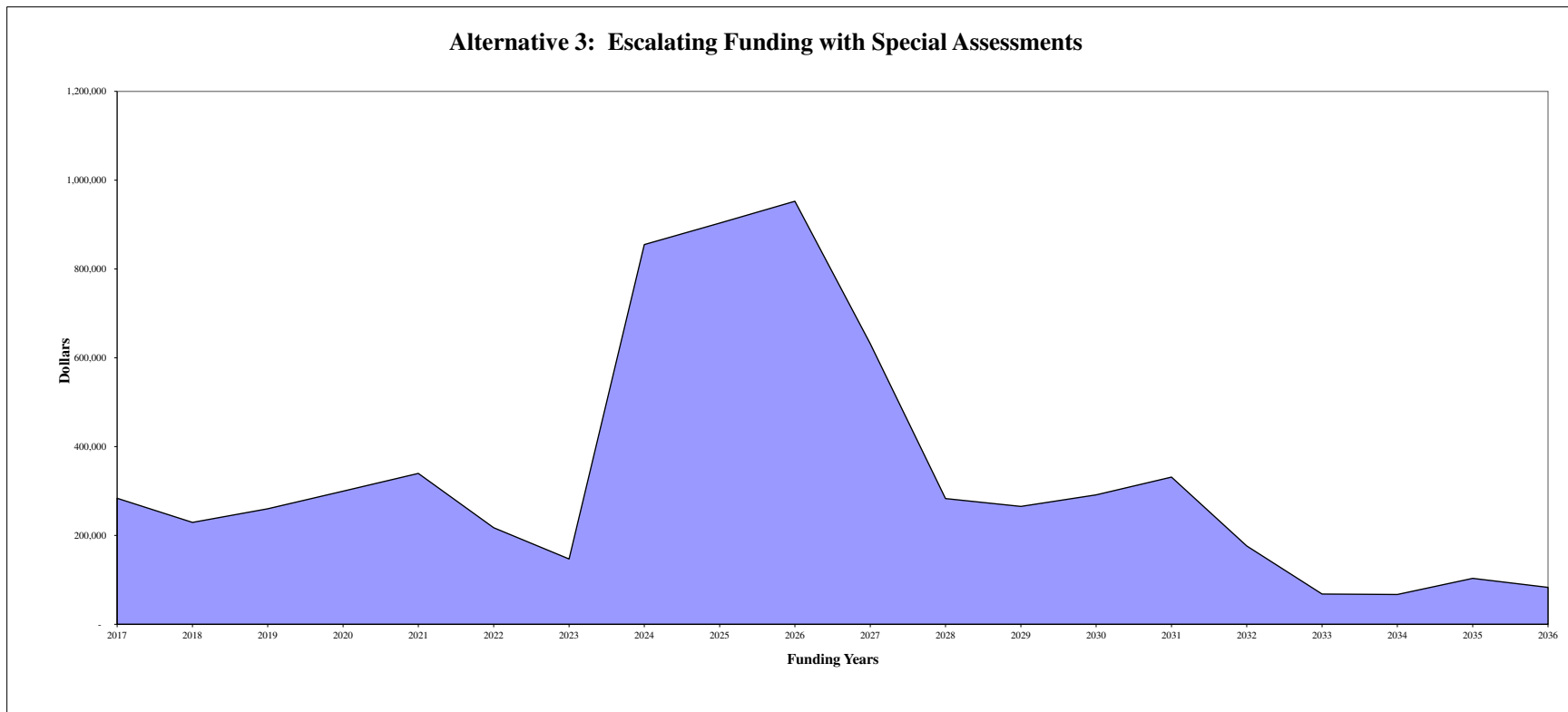
SPECIAL ASSESSMENTS			
		Totals	
First Jan 2017	Per Year	\$250,000	Per Unit \$2,500
Second Jan 2024	Per Year	\$900,000	Per Unit \$9,000

SETTINGS (analyzed by year)	
Starting amount (\$):	2916.6667
Increment by (%):	0
Step (%):	0
Every	3 year
Frequency:	3 time

Projected Annual Funding and Expenditures:

Year:	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	283,692	229,382	260,272	299,701	339,722	217,463	147,173	855,138	903,490	952,568	631,830	283,167	265,487	291,542	331,440
Capital Expenditures:	110,000	92,700	7,957	-	-	160,473	107,465	227,035	-	-	365,075	387,848	56,603	13,254	-
Total Revenue (all sources)	289,192	38,390	38,846	39,429	40,021	38,214	37,175	935,000	48,352	49,077	44,337	39,185	38,923	39,309	39,898

Year:	2032	2033	2034	2035	2036
Year Number:	16	17	18	19	20
End of Year Reserve Fund Balance	176,642	68,227	67,028	103,559	83,327
Capital Expenditures:	192,409	144,424	37,189	-	56,463
Total Revenue (all sources)	37,610	36,008	35,991	36,530	36,231

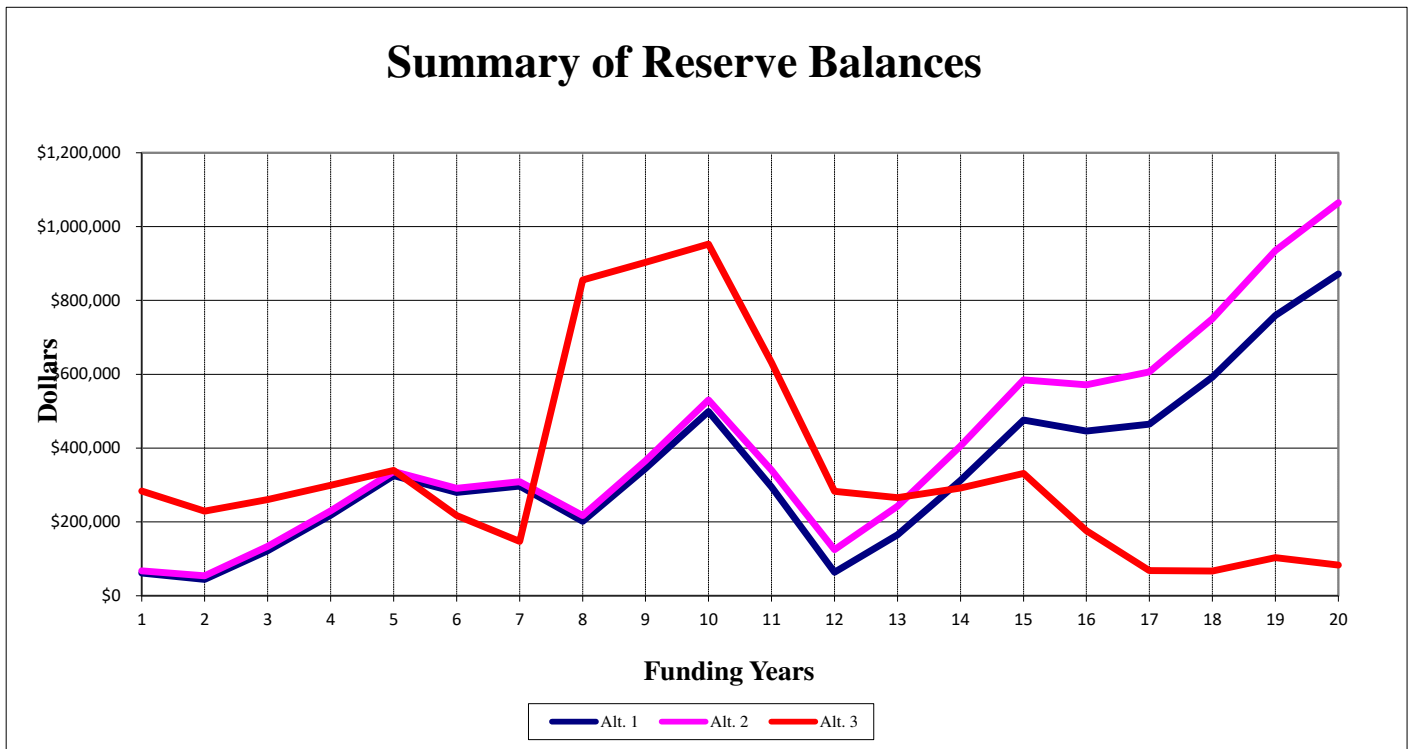


Summary of Reserve Balances



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<u>Year</u>	<u>Year Number</u>	<u>Yearly Expenditures</u>	<u>Alt. 1</u>	<u>Alt. 2</u>	<u>Alt. 3</u>
2017	1	\$110,000	\$61,408	\$67,498	\$283,692
2018	2	\$92,700	\$44,363	\$54,077	\$229,382
2019	3	\$7,957	\$122,212	\$133,638	\$260,272
2020	4	\$0	\$218,441	\$230,283	\$299,701
2021	5	\$0	\$325,247	\$336,896	\$339,722
2022	6	\$160,473	\$279,911	\$291,512	\$217,463
2023	7	\$107,465	\$296,833	\$309,371	\$147,173
2024	8	\$227,035	\$201,781	\$217,164	\$855,138
2025	9	\$0	\$344,877	\$366,038	\$903,490
2026	10	\$0	\$499,255	\$530,251	\$952,568
2027	11	\$365,075	\$294,533	\$340,661	\$631,830
2028	12	\$387,848	\$63,625	\$125,111	\$283,167
2029	13	\$56,603	\$165,468	\$242,543	\$265,487
2030	14	\$13,254	\$312,837	\$405,736	\$291,542
2031	15	\$0	\$475,870	\$584,829	\$331,440
2032	16	\$192,409	\$446,053	\$571,313	\$176,642
2033	17	\$144,424	\$464,494	\$606,300	\$68,227
2034	18	\$37,189	\$592,054	\$750,654	\$67,028
2035	19	\$0	\$759,275	\$934,921	\$103,559
2036	20	\$56,463	\$871,694	\$1,064,642	\$83,327



Appendix B: PROJECT PHOTOGRAPHS

Location:
Sparger Springs, Durham

Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Entrance drive to
community

Photo Number
1



Description:
Typical townhome
building

Photo Number
2

Location:
Sparger Springs, Durham

Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Typical townhome
building

Photo Number
3



Description:
Asphalt drive lane

Photo Number
4

Location:
Sparger Springs, Durham

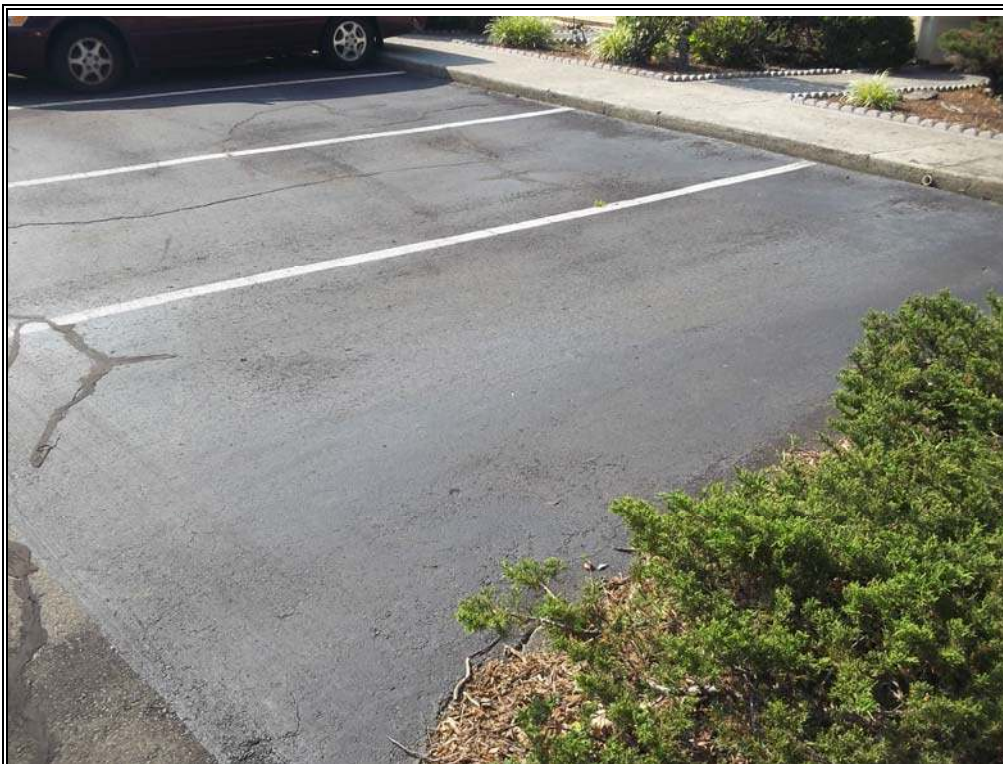
Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Recently sealed
cracks in asphalt
paving

Photo Number
5



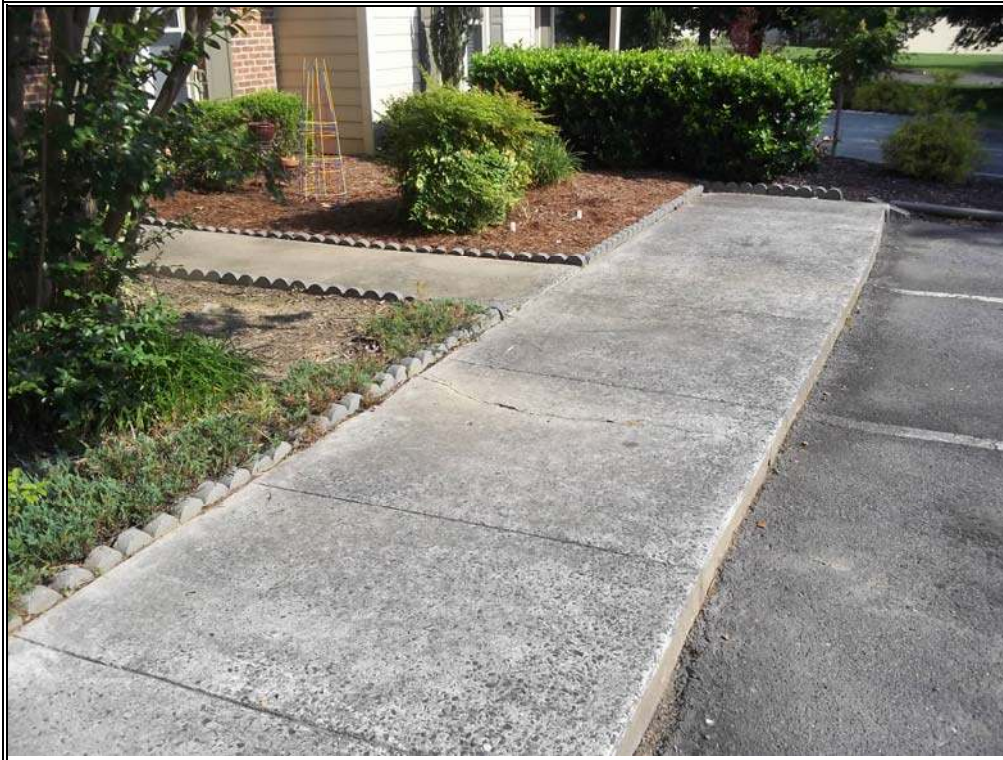
Description:
Typical parking
striping

Photo Number
6

Location:
Sparger Springs, Durham

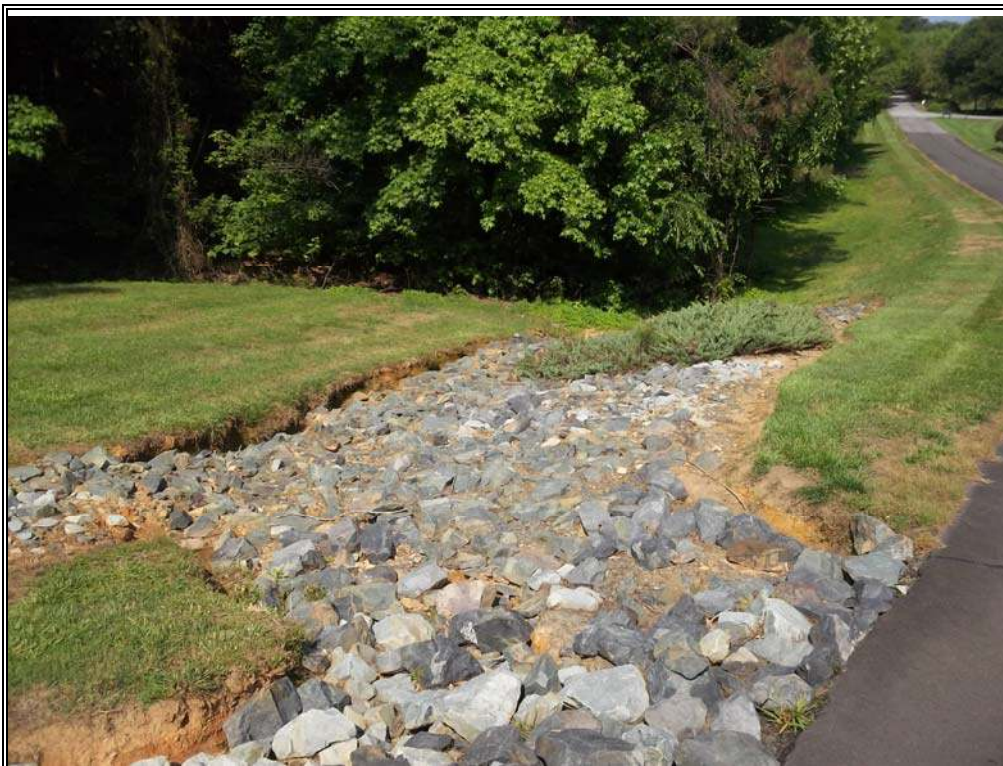
Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Typical concrete
flatwork

Photo Number
7



Description:
Rip-rap armored
storm water swale

Photo Number
8

Location:
Sparger Springs, Durham

Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Storm water catch
basin

Photo Number
9



Description:
Mail building

Photo Number
10

Location:
Sparger Springs, Durham

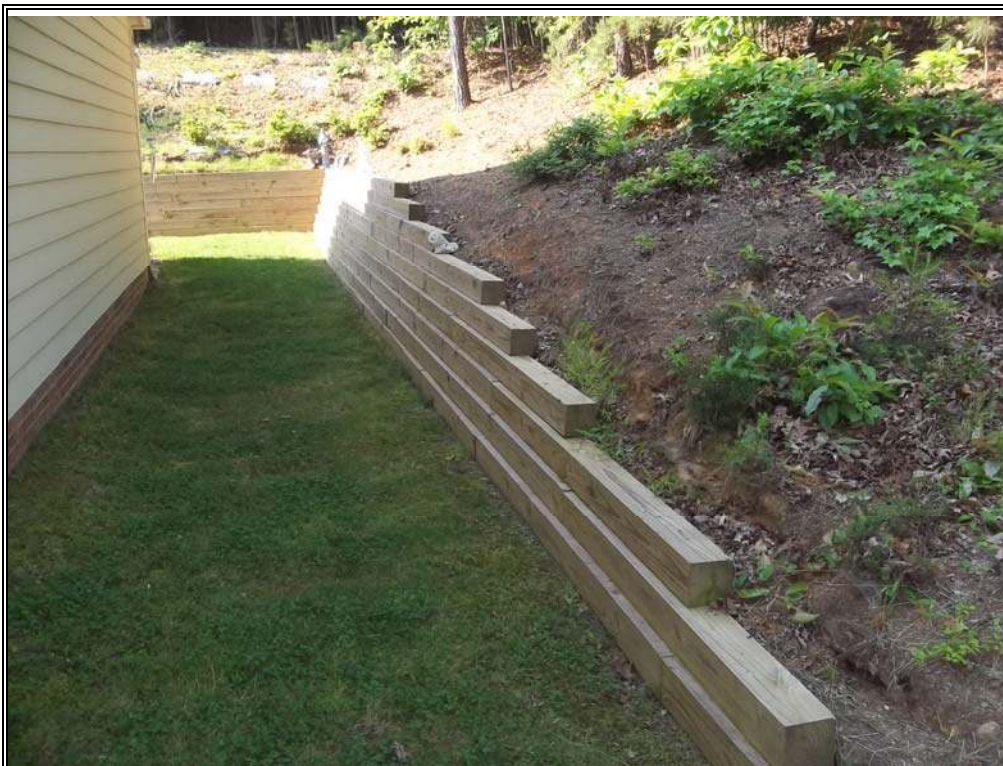
Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Signs of corrosion
on kiosk pedestal

Photo Number
11



Description:
Timber retaining
wall at south side
of community

Photo Number
12

Location:
Sparger Springs, Durham

Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Community
entrance sign

Photo Number
13



Description:
Steel support
framing of
entrance sign

Photo Number
14

Location:
Sparger Springs, Durham

Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Landscape lighting
at entrance sign

Photo Number
15



Description:
Typical building
roof

Photo Number
16

Location:
Sparger Springs, Durham

Photo Taken by:
Brent T. Blackburn, PE

Date:
May 27, 2016



Description:
Typical building
end with lap siding

Photo Number
17



Description:
Deteriorated
portion of siding

Photo Number
18