

Reserve Study

Southern Village HOA, Parks

Chapel Hill, NC

Inspection Date:

January 13 & 14, 2016

Prepared For:

Southern Village Homeowners' Association

Prepared By:

Raymond Engineering, Inc.
127 Persimmon Hill
Pittsboro, NC

919-942-7000

Report Number:

012016507PK

Inspector:

Bruce Raymond, P.E.



A handwritten signature in cursive script that reads "Bruce Raymond".

Professional Engineer's License Number: 30017



RESERVE SCOPE

The scope of the Reserve Study for the Southern Village Homeowners' Association parks in Chapel Hill, North Carolina, is based on the proposal submitted July 29, 2015. The Southern Village subdivision contains 6 parks as delineated below. Southern Village had a reserve study performed in December of 2012 (Raymond Engineering report No.121112507, dated December 2012). The previous report was for a collection of townhome sub-associations (TH-I; TH-II, Highgrove and Westend) as well as parks and alleyways. The following report is an update of the previous study and is a stand-alone report for the parks only. The other sub-associations and alleyways, are addressed in separate reports. A separate Raymond Engineering report dated April 22, 2015 reviewed the Southern Village parks. Pertinent data from that report has been included in this study. As delineated in the proposal, this study covers the following:

- Southern Village Parks
 - Market Park (corner of Newell and Winston Ridge)
 - Central Park (off Brookgreen)
 - Highgrove (corner of Highgrove and Hillspring)
 - Meeting Park (off Meeting)
 - Park at the corner of Edge Water and Graylyn
 - Arlen Park (between Eastgreen and Westgreen)

Each park was visually inspected during the onsite inspections. The subdivision property was inspected on January 13 and 14, 2016. The inspection was a visual inspection only to determine the overall condition of the parks and related equipment. The repairs, noted below in the Immediate Repair section, are based on observations made during the site inspection. The Immediate Repairs noted in Table II are not to be construed as capturing all repairs that might be necessary.

CONDITIONS & ASSUMPTIONS

The study projects the cost over the next twelve years for the maintenance and the replacement of major items and systems. Routine and customary maintenance are not included. As with any study of this nature, the further into the future the study goes, the less reliable the data. Unforeseen economical events can alter cost significantly. The study is based on industry standard replacement costs (National Construction Estimator, Means Building Construction Cost Data or Means Facilities Maintenance & Repair Cost Data Publications and internet data). A flat inflation rate of 4.5% was used to project costs calculated in year 2016 dollars.

SUMMARY

As noted above a previous reserve study was performed in December 2012 and a review of the parks performed in 2015. This is an update of that reserve study and report, however as noted above the 2012 study was for other sub-associations and this study is for the parks only. The overall condition was good.

A description of each park follows:

Market Park

Market Park consists of a swing set (two regular swings, one small child swing), climbing structure and two benches. This park has a wooden fence around the park and the climbing structure is constructed from wood.

Central Park

Central park consists of a ball field with chain-link back-stop, a basketball court, walking trail and a trash/recycle center (3 receptacles).

Highgrove Park (was noted as Hill Park in proposal)

Highgrove Park consists of a swing set (two regular swings, two small child swings), climbing structure, two benches, table/sear combination, trash/recycle center (3 receptacles) and combing.

Meeting Park

Market Park consists of two benches, a climbing structure and combing around park area.

Park at the corner of Edge Water and Graylyn

This park consists of a swing set (two regular swings, two small child swings), two climbing structures, two benches, trash/recycle center (3 receptacles) and a wooden fence.

Arlen Park

Arlen Park is a walking park. It consists of walking trails and two benches.

Table I provides an overview of immediate repairs and reserves that will be necessary. Details are provided in Table II (Immediate Repairs) and Table III (Replacement Reserves). Additional information/improvements for three items follows (see Observation section below).

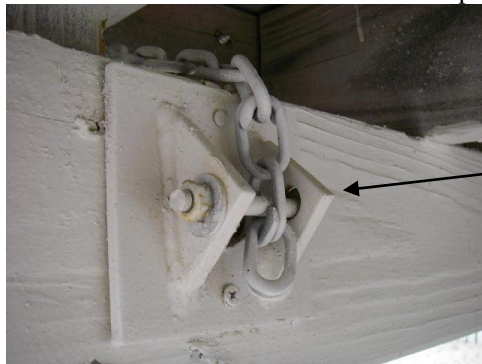
OBSERVATIONS

- **Observation:** Highgrove Park, Meeting Park and Arlen Park all have stone steps. The rear steps in Highgrove have a railing whereas the steps at the corner of this park and the other mentioned parks do not. Codes today would require a railing (any stairs over three full steps require a railing). A simple railing should be installed at these locations: corner steps at Highgrove, steps at Meeting Park and two steps into Arlen. As this is not immediate repair it has not been included in Table II, Immediate Repairs. A budgetary number of \$500 per railing can be used for budgetary purposes.
- The wooden fence along the park at the corner of Edge Water and Graylyn should have a wood preservative applied to extend the life of the fence.

IMMEDIATE REPAIRS

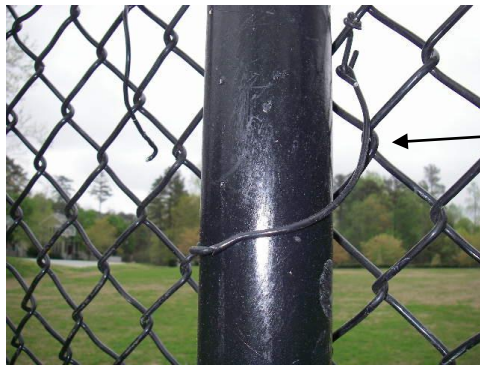
The following items are in need of immediate repair. A cost estimate is provided in Table II for each item. The repairs noted below are the based on observations made during the site inspection. These repairs are not to be construed as capturing all repairs that might be necessary.

- **Repair: Meeting Park** -The swinging bridge within the climbing structure has been repaired at least once. The chain supporting the swing appears to be undersized. It is doubtful that this structure would meet today's standards for playground equipment. Consideration to replace the structure should be given. At a minimum, it is recommended that the chain and its attachment be replaced with a more appropriate sized chain.



Repair chain

- **Repair: Central Park** - The backstop fencing needs minor repair as several of the loops attaching the fencing to the metal frame have come loose. This has allowed the fence to "droop". New loops should be installed to prevent additional movement of the fencing.



Loose strap
“Drooping” fence



- **Repair:** Central Park –As reported in 2015 report: “The asphalt basketball court should be repaired as it is cracked.” The cracks have been partially filled. The fill material has settled and additional material is required to fill the cracks. The current condition of the cracks will allow vegetation to grow in the cracks and will also allow water to infiltrate below the asphalt. Both of these conditions will lead to premature deterioration of the court. Repair will prevent court replacement for several more years.



Sample – partially filled cracks

Repair: Edgewater/Graylyn - There is erosion at one location under the fence. As reported in 2015 there were two places – one location has been repaired and the attempted repair at the second location needs additional work. The areas should be re-graded and rip/rap added to allow storm water to exit the playground without creating an erosion issue.



Eroded area under fence

- **Repair:** Arlen –The lack of vegetation along the stone wall along Parkside Circle and Eastgreen Drive has allowed erosion to take place. In addition, the uncontrolled overflow of water has caused stones to come loose along the Eastgreen side. Vegetation (running cedar) similar to the vegetation near the Arlen Park steps should be added to control the erosion



Erosion along
Parkside Circle

Loose stone
along Eastgreen



Lack of
vegetation

RESERVES

The following information is being provided in support of Table III, Reserves.

- Re-mulch has been included every 4 years. This may wish to be extended.
- It is recommended as noted above in the Observation section that the climbing structure at Market Park be replaced which has been included.

Raymond Engineering, Inc.

Table I, Reserve Summary, Parks

Client: Southern Village, Parks**Survey Date:** January 20, 2016**Address:** US 15-501**Analysis Term:** 12 years**City & State:** Chapel Hill, North Carolina**Buildings:** None

Item			Condition			Immediate Repairs	Reserves
	Excellent	Good	Fair	Poor	N/A		
Site/Grounds							
Topography/Drainage					✓		
Pavement & Parking					✓		
Landscaping					✓		
Signage					✓		
Amenities		✓					\$35,158.00
Lighting					✓		
Buildings							
Roofing					✓		
Exterior					✓		
Framing					✓		
Foundations					✓		
Basement/Attic					✓		
Interiors							
Finishes					✓		
Components					✓		
Systems							
Plumbing					✓		
HVAC					✓		
Electrical					✓		
Fire/Safety					✓		
Code Compliance							
Code Compliance					✓		
Other							

Dollars shown are current (2016) dollars

Raymond Engineering, Inc.

Table II, Immediate Repairs, Parks

Client: Southern Village, Parks

Survey Date: January 20, 2016

Address: US 15-501

Analysis Term: 12 years

City & State: Chapel Hill, North Carolina

Buildings: None

Item	Recommended Work	Qty	Unit Cost	Unit Description	Est. Cost	Comments
Site/Grounds						
Topography/Drainage						
Pavement & Parking						
Landscaping						
Signage						
Amenities	Swing Bridge Repair	1	\$250	Lot	\$250.00	Repair swing bridge at Meeting Park
	Back Stop Repair	1	\$150	Lot	\$150.00	Repair back stop at Central Park
	Basketball Court Repair	1	\$100	Lot	\$100.00	Fill cracks in basketball court at Central Park
	Erosion Control	1	\$200	Lot	\$200.00	Fill in erosion at fence at Edgewater/Graylyn Park
	Erosion Control	1	\$4,000	Lot	\$4,000.00	Add venation at Arlen Park
Lighting						
Buildings						
Roofing						
Exterior	None					
Framing	None (not inspected)					
Foundations	None (not inspected)					
Basement/Attic	None (not inspected)					
ADA	None (not inspected)					
Interiors						
Finishes	None (not inspected)					
Components	None (not inspected)					
Systems						
Plumbing	None (not inspected)					
HVAC	None (not inspected)					
Electrical	None (not inspected)					
Fire/Safety	None (not inspected)					
Code Compliance						
Code Compliance	None (not inspected)					
Other	N/A					
N/A						

Total
1.25 Multiplier

\$4,700.00
\$5,875.00

Raymond Engineering, Inc.

Table III, Reserve Details, Parks

Client: Southern Village, Parks Survey Date: January 20, 2016

Address: US 15-501

Analysis Term: 12 years

City & State: Chapel Hill, North Carolina

Buildings: None

	Recommended Work	Ave. Life (yrs)	Effective Age	Remaining life	Qty	Qty/Yr	Unit Cost	Unit Description	Est. Cost/Yr	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Total Over Term
Site/Grounds																						
Topo/Drain																						
Pave/Park																						
Landscape																						
Amenities	Mulch Playgrounds	5	3	2	174	174	\$40.00	Cu Yd	\$6,960		\$6,960				\$6,960					\$6,960		\$20,880
	Paint (Meeting)	5	1	4	167	167	\$4.50	Ft	\$752				\$752					\$752				\$1,503
	Climbing Structure (Meeting)	20	20	0	1	1	\$10,000.00	Unit	\$10,000		\$10,000											\$10,000
	New Swings	20	15	5	10	10	\$50.00	Unit	\$500					\$500								\$500
	Misc (bench/Trash)	20	15	5	17	17	\$75.00	Unit	\$1,275					\$1,275								\$1,275
	Basketball Asphalt	20	17	3	200	200	\$5.00	Sq Ft	\$1,000		\$1,000											\$1,000
Buildings																						
Roofing																						
Exterior																						
Interiors																						

Annual Requirements, Uninflated	\$0	\$16,960	\$1,000	\$752	\$1,775	\$6,960	\$0	\$0	\$752	\$0	\$6,960	\$0	\$0	\$752	\$0	\$6,960	\$0	\$0	\$752	\$0	\$6,960	\$0	\$35,158
Inflation Factor (1.04%/year)	\$1.04	\$1.08	\$1.12	\$1.17	\$1.22	\$1.27	\$1.32	\$1.37	\$1.42	\$1.48	\$1.54	\$1.60	\$1.66	\$1.72	\$1.78	\$1.84	\$1.90	\$1.96	\$2.02	\$2.08	\$2.14	\$2.20	\$22.60
Annual Requirements, Inflated	\$0	\$18,344	\$1,125	\$879	\$2,160	\$8,807	\$0	\$0	\$1,070	\$0	\$10,715	\$0	\$0	\$1,070	\$0	\$10,715	\$0	\$0	\$1,070	\$0	\$10,715	\$0	\$43,098

Reserve Study

Southern Village HOA, Alleyways

Chapel Hill, NC

Inspection Date:

January 13 & 14, 2016

Prepared For:

Southern Village Homeowners' Association

Prepared By:

Raymond Engineering, Inc.
127 Persimmon Hill
Pittsboro, NC

919-942-7000

Report Number:

012016507AW

Inspector:

Bruce Raymond, P.E.



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Professional Engineer's License Number: 30017



RESERVE SCOPE

The scope of the Reserve Study for the Southern Village Homeowners' Association alleyways and walking trail in Chapel Hill, North Carolina, is based on the proposal submitted July 29, 2015. Southern Village contains many paved alleyways that are not maintained by the City of Chapel Hill. The walking trail is an asphalt paved walking trail from the Fan Branch Bridge (near Culbreth Road) to Southern Community Park off US 15-501. Note there is a walking trail along the perimeter of Central Park (park next to Southern Village sports complex on Brookgreen Drive) which is included in the Southern Village Park Reserve Study. Southern Village had a reserve study performed in December of 2012 (Raymond Engineering report No.121112507, dated December 2012). The previous report was for a collection of townhome sub-associations (TH-I; TH-II, Highgrove and Westend) as well as parks and alleyways. The following report is an update of the previous study and is a stand-alone report for the alleyways and walking trail only. The other sub-associations and parks, are addressed in separate reports. As delineated in the proposal, this study covers the following:

- All the paved alleyways
- Walking trail as described above

The walking trails and all the alleyways were traversed during the site inspections. The subdivision property was inspected on January 13 and 14, 2016. The inspection was a visual inspection only to determine the overall condition of the alleyways and trail. The repairs noted below in the Immediate Repair section are the based on observations made during the site inspection. The Immediate Repairs noted in Table II are not to be construed as capturing all repairs that might be necessary.

The alleyway between Copperline Drive and Market Street runs from Kildaire Road to Kildaire is named Maya Drive. As it is named it is assumed that this is a maintained roadway that is maintained by others (not Southern Village).

CONDITIONS & ASSUMPTIONS

The study projects the cost over the next twelve years for the maintenance and the replacement of major items and systems. Routine and customary maintenance are not included. As with any study of this nature, the further into the future the study

goes, the less reliable the data. Unforeseen economical events can alter cost significantly. The study is based on industry standard replacement costs (National Construction Estimator, Means Building Construction Cost Data or Means Facilities Maintenance & Repair Cost Data Publications and internet data). A flat inflation rate of 4.5% was used to project costs calculated in year 2016 dollars.

SUMMARY

A previous reserve study was performed in December 2012. This is an update of that reserve study, however as noted above the 2012 study was for other sub-associations and this study is for The alleyways and walking trail only. The overall condition was good. As suggested in the 2012 study many of the alleyways have been over coated. Over coating will extend the life of the asphalt and is recommended, see Reserve section below.

Table I provides an overview of immediate repairs and reserves that will be necessary. Details are provided in Table II (Immediate Repairs) and Table III (Replacement Reserves). Additional information/improvements for three items follows (see Observation section below).

OBSERVATIONS

- **Observation:** The alleyway catch basins and curb drains need to be periodically cleaned. The reserves have money allocated to cleaning periodically; however after a storm any collected debris should be removed. .



Remove collected debris

IMMEDIATE REPAIRS

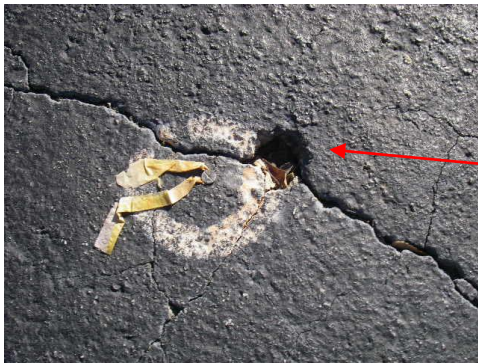
The following items are in need of immediate repair. A cost estimate is provided in Table II for each item. The repairs noted below are the based on observations made during the site inspection. These repairs are not to be construed as capturing all repairs that might be necessary.

- **Repair:** A small section of the alleyway behind 114 Westgreen is damaged and should be repaired (cut damaged area and re-store foundation and patch).



Area to be
patched

- **Repair:** There is a hole in the alleyway pavement between Edgewater and Brookgreen near the top of the alleyway. The hole needs to be appropriately filled to prevent water intrusion.



Hole to be filled

- **Repair:** The alleyway pavement near the “T” intersection on the alleyway between Brookgreen and Tharrington is damaged and needs to be patched (cut damaged area and re-store foundation and patch).



Area to be
patched

- **Repair:** The alleyway pavement near the “T” intersection on the alleyway between Tharrington and Parkside is damaged and needs to be patched (cut damaged area and re-store foundation and patch).



Area to be
patched

- **Repair:** The alleyway pavement on the side spur to Parkside of the alleyway between Tharrington and Parkside is damaged (rippled) and needs to be patched (cut damaged area and re-store foundation and patch).



Rippled
pavement



- **Repair:** The alleyway pavement in the curve close to Parkview of the alleyway between Highgrove and Hillspring is damaged and needs to be patched (cut damaged area and re-store foundation and patch).



Area to be
patched

- **Repair:** The alleyway pavement behind 212 Glade of the alleyway between Glade and Westside is damaged and needs to be patched (cut damaged area and re-store foundation and patch).



Area to be
patched

- **Repair:** The guard posts along the alleyway behind Parkside are deteriorating and should be replaced.



Deteriorated
posts

- **Repair:** The alleyway curb drain at the corner near the rear of 415 Copperline is damaged. The curb needs to be repaired and the drain cover re-set. .



Damaged curb
drain

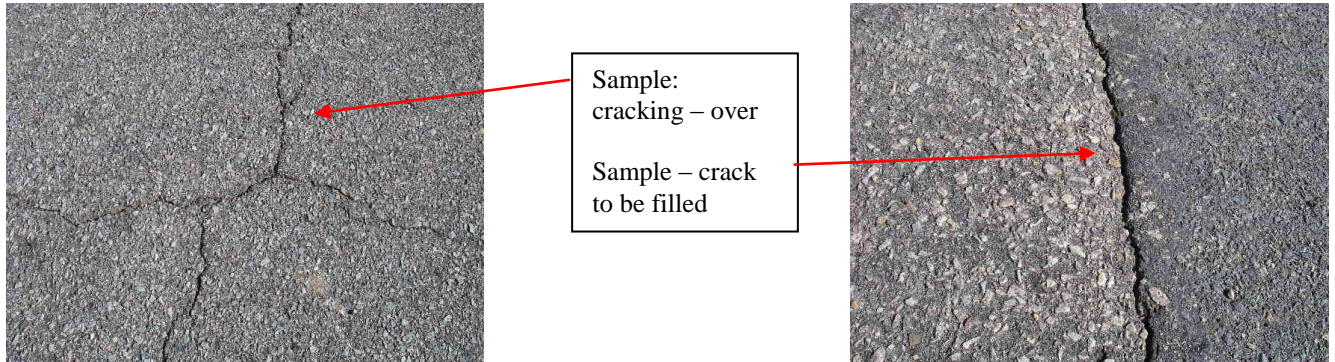


Damaged curb
drain

RESERVES

The following information is being provided in support of Table II, Reserves.

- The alleys are in good condition. Some of the alleys have been over-coated to extend life, others have not. Patching has been performed in many locations. Continuation of sealing will extend the life of the pavement. Sealing the cracks in the alley pavement and weed killing the vegetation in the cracks will extend the life of the pavement. Monies to periodically perform this task are included in Table III. Table assumes repair to 20% of the alleyways every 5 years.



Raymond Engineering, Inc.

Table I, Reserve Summary, Alleyways

Client: Southern Village, Alleyways**Survey Date:** January 20, 2016**Address:** US 15-501**Analysis Term:** 12 years**City & State:** Chapel Hill, North Carolina**Buildings:** None

Item			Condition			Immediate Repairs	Reserves
	Excellent	Good	Fair	Poor	N/A		
Site/Grounds							
Topography/Drainage		✓				\$1,200.00	\$13,000.00
Pavement & Parking		✓				\$2,680.00	\$280,800.00
Landscaping					✓		
Signage					✓		
Amenities					✓		
Lighting					✓		
Buildings							
Roofing					✓		
Exterior					✓		
Framing					✓		
Foundations					✓		
Basement/Attic					✓		
Interiors							
Finishes					✓		
Components					✓		
Systems							
Plumbing					✓		
HVAC					✓		
Electrical					✓		
Fire/Safety					✓		
Code Compliance							
Code Compliance					✓		
Other							

Dollars shown are current (2016) dollars

Raymond Engineering, Inc.

Table II, Immediate Repairs, Alleyways

Client: Southern Village, Alleyways

Survey Date: January 20, 2016

Address: US 15-501

Analysis Term: 12 years

City & State: Chapel Hill, North Carolina

Buildings: None

Item	Recommended Work	Qty	Unit Cost	Unit Description	Est. Cost	Comments
Site/Grounds						
Topography/Drainage	Repair Curb Drain	1			\$1,200.00	Repair curb drain, 415 Copperline
Pavement & Parking	Repair Pavement	700	\$2.40	Sq Ft	\$1,680.00	Repair alley pavement
	Replace posts	Lot	\$1,000	Lot	\$1,000.00	Replace deteriorated posts
Landscaping						
Signage						
Amenities						
Lighting						
Buildings						
Roofing	None (not inspected)					
Exterior	None (not inspected)					
Framing	None (not inspected)					
Foundations	None (not inspected)					
Basement/Attic	None (not inspected)					
ADA	None (not inspected)					
Interiors						
Finishes	None (not inspected)					
Components	None (not inspected)					
Systems						
Plumbing	None (not inspected)					
HVAC	None (not inspected)					
Electrical	None (not inspected)					
Fire/Safety	None (not inspected)					
Code Compliance						
Code Compliance	None (not inspected)					
Other	N/A					
N/A						

Total
1.25 Multiplier

\$3,880.00
\$4,850.00

Raymond Engineering, Inc.

Table III, Reserve Details, Alleyways

Client: Southern Village, Alleyways Survey Date: January 20, 2016

Address: US 15-501

Analysis Term: 12 Years

City & State: Carboro, North Carolina

Buildings: None

	Recommended Work	Ave. Life (yrs)	Effective Age	Remaining life	Qty	Qty/Yr	Unit Cost	Unit Description	Est. Cost/Yr	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Total Over Term
Site/Grounds																						
Topo/Drain																						
	Culvert Cleaning/Inspect	50	20	30	52	26	\$250.00	Lot sum	\$6,500					\$6,500					\$6,500			\$13,000
Pave/Park																						
	Minor Repair Between Paving	25	15	10	194,515	39000	\$2.40	Sq Ft	\$93,600	\$93,600				\$93,600					\$93,600			\$280,800
	New asphalt	25	15	10	194,515	194,515	\$0.00	Sq Ft	\$0									\$0				\$0
Landscape																						
Amenities																						
Buildings																						
Roofing																						
Exterior																						
Interiors																						
Annual Requirements, Uninflated										\$93,600	\$0	\$0	\$0	\$100,100	\$0	\$0	\$0	\$0	\$100,100	\$0	\$0	\$293,800
Inflation Factor (1.04%/year)										\$1.04	\$1.08	\$1.12	\$1.17	\$1.22	\$1.27	\$1.32	\$1.37	\$1.42	\$1.48	\$1.54	\$1.60	
Annual Requirements, Inflated										\$97,344	\$0	\$0	\$0	\$121,787	\$0	\$0	\$0	\$0	\$148,172	\$0	\$0	\$367,303

Reserve Study

Southern Village HOA, TH- I

Chapel Hill, NC

Inspection Date:
January 13 & 14, 2016

Prepared For:
Southern Village Homeowners' Association

Prepared By:
Raymond Engineering, Inc.
127 Persimmon Hill
Pittsboro, NC

919-942-7000

Report Number:
012016507TH-I

Inspector:
Bruce Raymond, P.E.



A handwritten signature in cursive script that reads "Bruce Raymond".

Professional Engineer's License Number: 30017



RESERVE SCOPE

The scope of the Reserve Study for the Southern Village Homeowners' Association sub-association TH-I in Chapel Hill, North Carolina, is based on the proposal submitted July 29, 2015. Southern Village had a reserve study performed in December of 2012 (Raymond Engineering report No.121112507, dated December 2012). The previous report was for a collection of townhome sub-associations (TH-I; TH-II, Highgrove and Westend) as well as parks and alleyways. The following report is an update of the previous study and is a stand-alone report for the TH-I sub-association only. The other sub-associations, parks, and alleyways are addressed in separate reports. As delineated in the proposal, this study covers the following:

- TH-I (2 buildings)
 - Building Exteriors
 - Roofs
 - Exterior

As noted in the July 29, 2015 proposal the exterior inspection will be limited to a visual walk around of each building to verify the recent painting is in line with projections for future painting to assure the reserves are timed properly for future painting. The study will include a site visit to determine the condition of the designated items. The roofs will be inspected from the ground using binoculars to determine the estimated remaining life.

The subdivision property was inspected on January 13 and 14, 2016. For this sub-association (TH-I) study the following buildings were inspected:

Address	Total No. of buildings
• Westgreen, 104-118	1
• Westgreen, 200-214	1

CONDITIONS & ASSUMPTIONS

The study projects the cost over the next twelve years for the maintenance and the replacement of major items and systems. Routine and customary maintenance are not included. As with any study of this nature, the further into the future the study goes, the less reliable the data. Unforeseen economical events can alter cost significantly. The study is based on industry standard replacement costs (National Construction Estimator, Means Building Construction Cost Data or Means Facilities Maintenance & Repair Cost Data Publications and internet data). A flat inflation rate of 4.5% was used to project costs calculated in year 2016 dollars.

SUMMARY

A previous reserve study was performed in December 2012. This is an update of that reserve study, however as noted above the 2012 study was for other sub-associations and this study is for TH-1 only. The overall condition was good.

Table I provides an overview of the reserves that will be necessary. Details are provided in Table II (Reserves). Observations noted below are items that were observed during the inspection and are provided as additional information/improvements.

OBSERVATIONS

- **Observation:** Drainage is very important to the life of a building. Many leaders (pipe connected to downspouts) were buried (clogged) or crushed. Some leaders were not properly connected to their downspouts. All leaders should be checked and repaired or replaced.



Sample –
buried/clogged leader

Sample – poor leader
connection



- **Observation:** In many locations, the trees along the sidewalks have lifted sidewalk pads making a trip hazard. This condition was observed in many locations throughout Southern Village including in front of TH-I buildings. This is not an HOA issue; however, the trip hazard should be noted to the city maintenance department. In some locations the raised sidewalk has warning paint. In some locations cement has been added; however as it tappers the thin edge is becoming broken.



Sample – raised side walk, attempted repair (broken edge)

Sample – painted side walk



- **Observation:** As noted during the 2012 study the stoops in front of the townhomes located along Westgreen have settled. This may be a safety issue as the first step down is significantly larger than the others (trip hazard) are. This is an individual owner responsibility.



Front step settlement

RESERVES

The following information is being provided in support of Table II, Reserves.

- It is assumed that gutter cleaning is included in the routine maintenance budget. Some gutters will require more frequent cleaning than others will (determined by location and surrounding trees).



Sample: gutter needing cleaning

Raymond Engineering, Inc.

Table I, Reserve TH-I

Client: Southern Village TH-I**Address:** US 15-501**City & State:** Chapel Hill, North Carolina**Buildings:** 2**Survey Date:** January 20, 2016**Analysis Term:** 12 years

Item			Condition			Immediate Repairs	Reserves
	Excellent	Good	Fair	Poor	N/A		
Site/Grounds							
Topography/Drainage					✓		
Pavement & Parking					✓		
Landscaping					✓		
Signage					✓		
Amenities					✓		
Lighting					✓		
Buildings							
Roofing		✓					\$51,948.00
Exterior		✓					\$25,920.00
Framing					✓		
Foundations					✓		
Basement/Attic					✓		
Interiors							
Finishes					✓		
Components					✓		
Systems							
Plumbing					✓		
HVAC					✓		
Electrical					✓		
Fire/Safety					✓		
Code Compliance							
Code Compliance					✓		
Other							

Dollars shown are current (2016) dollars

Reserve Study

Southern Village HOA, TH- II

Chapel Hill, NC

Inspection Date:
January 13 & 14, 2016

Prepared For:
Southern Village Homeowners' Association

Prepared By:
Raymond Engineering, Inc.
127 Persimmon Hill
Pittsboro, NC

919-942-7000

Report Number:
012016507TH-II

Inspector:
Bruce Raymond, P.E.



A handwritten signature in cursive script that reads "Bruce Raymond".

Professional Engineer's License Number: 30017



RESERVE SCOPE

The scope of the Reserve Study for the Southern Village Homeowners’ Association sub-association TH-II in Chapel Hill, North Carolina, is based on the proposal submitted July 29, 2015. Southern Village had a reserve study performed in December of 2012 (Raymond Engineering report No.121112507, dated December 2012). The previous report was for a collection of townhome sub-associations (TH-I; TH-II, Highgrove and Westend) as well as parks and alleyways. The following report is an update of the previous study and is a stand-alone report for the TH-II sub-association only. The other sub-associations, parks, and alleyways, are addressed in separate reports. As delineated in the proposal, this study covers the following:

- TH-II (11 buildings)
 - Building Exteriors
 - Roofs
 - Exterior

As noted in the July 29, 2015 proposal the exterior inspection will be limited to a visual walk around of each building to verify the recent painting is in line with projections for future painting to assure the reserves are timed properly for future painting. The study will include a site visit to determine the condition of the designated items. The roofs will be inspected from the ground using binoculars to determine the estimated remaining life.

The subdivision property was inspected on January 13 and 14, 2016. For this sub-association (TH-II) study the following buildings were inspected:

Address	Total No. of buildings
• Greenview, 201-207	4
• Greenview, 200-212	1
• Copperline, 400-536	5
• Brookgreen, 200-210	1

CONDITIONS & ASSUMPTIONS

The study projects the cost over the next twelve years for the maintenance and the replacement of major items and systems. Routine and customary maintenance are not included. As with any study of this nature, the further into the future the study goes, the less reliable the data. Unforeseen economical events can alter cost significantly. The study is based on industry standard replacement costs (National Construction Estimator, Means Building Construction Cost Data or Means Facilities Maintenance & Repair Cost Data Publications and internet data). A flat inflation rate of 4.5% was used to project costs calculated in year 2016 dollars.

Rear decks should be replaced in the next 5 to 10 years. They have not been included as it is assumed that rear decks are not the sub-associations responsibility.

SUMMARY

A previous reserve study was performed in December 2012. This is an update of that reserve study, however, as noted above the 2012 study was for other sub-associations and this study is for TH-II only. The overall condition was good.

Table I provides an overview of the reserves that will be necessary. Details are provided in Table II (Reserves). Observations noted below are items that were observed during the inspection that are provided as additional information/improvements.

OBSERVATIONS

- **Observation:** As noted during the 2012 study, the stoops in front of the townhomes located in 500-516 Copperline have settled. This may be a safety issue as the first step down is significantly larger than the others (trip hazard) are. This is an individual owner responsibility.



Excessive settlement

- **Observation:** Drainage is very important to the life of a building. Many leaders (pipe connected to downspouts) were buried (clogged) or crushed. Some leaders are not properly connected to their downspouts. All leaders should be checked and repaired or replaced.



Sample – crushed leader

Improper connection



- **Observation:** The downspout behind 520 Copperline is crushed and needs to be replaced.



Sample – crushed downspout

- **Observation:** Vegetation should be removed from areas where it is in contact with buildings. Vegetation too close to a building holds moisture next to a building and provides easy egress for insects.



Sample – vegetation too close to building



- **Observation:** It is unknown if privacy fences are part of the sub-associations responsibility. The fences need painting and minor repairs.



Sample – fence
needing paint

- **Observation:** As noted above it is unknown if privacy fences are part of the sub-associations responsibility. The privacy fences behind the Copperline units are pressure treated and should be replaced in the next 5 to 10 years.



Sample – privacy
fence to be replaced
in the near future

- **Observation:** In many locations, the trees along the sidewalks have lifted sidewalk pads making a trip hazard. This condition was observed in many locations throughout Southern Village including in front of TH-II buildings. This is not an HOA issue; however, the trip hazard should be noted to the city maintenance department. In some locations the raised side walk has warning paint.



Sample – raised
side walk

Sample – painted
side walk



RESERVES

The following information is being provided in support of Table II, Reserves.

- It is assumed that gutter cleaning is included in the routine maintenance budget. Some gutters will require more frequent cleaning than others will (determined by location and surrounding trees).



Sample: gutter
needing cleaning

Raymond Engineering, Inc.

Table I, Reserve TH-II

Client: Southern Village TH-II

Address: US 15-501

City & State: Chapel Hill, North Carolina

Buildings: 11

Survey Date: January 20, 2016

Analysis Term: 12 years

Item			Condition			Immediate Repairs	Reserves
	Excellent	Good	Fair	Poor	N/A		
Site/Grounds							
Topography/Drainage					✓		
Pavement & Parking					✓		
Landscaping					✓		
Signage					✓		
Amenities					✓		
Lighting					✓		
Buildings							
Roofing		✓					\$190,534.50
Exterior		✓					\$161,877.60
Framing					✓		
Foundations					✓		
Basement/Attic					✓		
Interiors							
Finishes					✓		
Components					✓		
Systems							
Plumbing					✓		
HVAC					✓		
Electrical					✓		
Fire/Safety					✓		
Code Compliance							
Code Compliance					✓		
Other							

Dollars shown are current (2016) dollars

Raymond Engineering, Inc.

Table II, Reserve Details, TH-II

Client: Southern Village TH-II
Address: US 15-501
City & State: Carboro, North Carolina
Buildings: 11

Survey Date: January 20, 2016
Analysis Term: 12 years

	Recommended Work	Ave. Life (yrs)	Effective Age	Remaining life	Qty	Qty/Yr	Unit Cost	Unit Description	Est. Cost/Yr	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Total Over Term		
Site/Grounds																								
	Topo/Drain																							
	N/A																							
	Pave/Park																							
	N/A																							
	Landscape																							
Buildings	Amenities																							
	N/A																							
Roofing	Roof Replacement: 200-210 Brookgreen 400-422 Copperline 500-536 Copperline 200-212 Greenview 201-203 Brookgreen 205-207 Brookgreen	20	15	5	76213.8	76214	\$2.50	Sq Ft	\$190,535					\$190,535								\$190,535		
Exterior	Exterior Paint: 200-210 Brookgreen 400-422 Copperline 500-536 Copperline 200-212 Greenview 2010203 Greenview 205-207 Greenview	5	4	2	53959.2	53959	\$1.00	Sq Ft	\$53,959					\$53,959								\$53,959		
Interiors																								
											Annual Requirements, Uninflated													
											Inflation Factor (1.04%/year)													
											Annual Requirements, Initiated													
											\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
											\$1.04	\$1.08	\$1.12	\$1.17	\$1.22	\$1.27	\$1.32	\$1.37	\$1.42	\$1.48	\$1.54	\$1.60	\$1.66	\$1.72

Reserve Study

Southern Village HOA, Westend

Chapel Hill, NC

Inspection Date:

January 13 & 14, 2016

Prepared For:

Southern Village Homeowners' Association

Prepared By:

Raymond Engineering, Inc.
127 Persimmon Hill
Pittsboro, NC

919-942-7000

Report Number:

012016507WE

Inspector:

Bruce Raymond, P.E.



A handwritten signature in cursive script that reads "Bruce Raymond".

Professional Engineer's License Number: 30017



RESERVE SCOPE

The scope of the Reserve Study for the Southern Village Homeowners' Association sub-association Westend in Chapel Hill, North Carolina, is based on the proposal submitted July 29, 2015. Southern Village had a reserve study performed in December of 2012 (Raymond Engineering report No.121112507, dated December 2012). The previous report was for a collection of townhome sub-associations (TH-I; TH-II, Highgrove and Westend) as well as parks and alleyways. The following report is an update of the previous study and is a stand-alone report for the Westend sub-association only. The other sub-associations, parks, and alleyways are addressed in separate reports. As delineated in the proposal, this study covers the following:

- Westend (2 buildings)
 - Building Exteriors
 - Roofs
 - Exterior

As noted in the July 29, 2015 proposal the exterior inspection will be limited to a visual walk around of each building to verify the recent painting is in line with projections for future painting to assure the reserves are timed properly for future painting. The study will include a site visit to determine the condition of the designated items. The roofs will be inspected from the ground using binoculars to determine the estimated remaining life.

The subdivision property was inspected on January 13 and 14, 2016. For this sub-association (Westend) study the following buildings were inspected:

Address	Total No. of buildings
• Highgrove, 900-920	1
• Highgrove, 1000-1020	1

CONDITIONS & ASSUMPTIONS

The study projects the cost over the next twelve years for the maintenance and the replacement of major items and systems. Routine and customary maintenance are not included. As with any study of this nature, the further into the future the study goes, the less reliable the data. Unforeseen economical events can alter costs significantly. The study is based on industry standard replacement costs (National Construction Estimator, Means Building Construction Cost Data or Means Facilities Maintenance & Repair Cost Data Publications and internet data). A flat inflation rate of 4.5% was used to project costs calculated in year 2016 dollars.

SUMMARY

A previous reserve study was performed in December 2012. This is an update of that reserve study, however, as noted above the 2012 study was for other sub-associations and this study is for Westend only. The overall condition was good.

Table I provides an overview of the reserves that will be necessary. Details are provided in Table II (Reserves). Observations noted below are items that were observed during the inspection that are provided as additional information/improvements.

OBSERVATIONS

- **Observation:** Drainage is very important to the life of a building. Many leaders (pipe connected to downspouts) were buried (clogged) or crushed. All leaders should be checked and repaired or replaced.



Sample –
buried/clogged leader

- **Observation:** Several of the downspout leaders use “pop-ups” at their end. These need to be periodically checked to assure they function freely. They can easily become clogged or covered.



Pop-up

Pop-up with debris in unit (unit was cleaned at inspection)



- **Observation:** The Time Warner cable box behind 1018 Highgrove is damaged. The cable provider should be contacted to have the box repaired. .



Damaged cable box

- **Observation:** It is unknown if privacy fences are part of the sub-associations responsibility. The fences need painting and minor repairs.



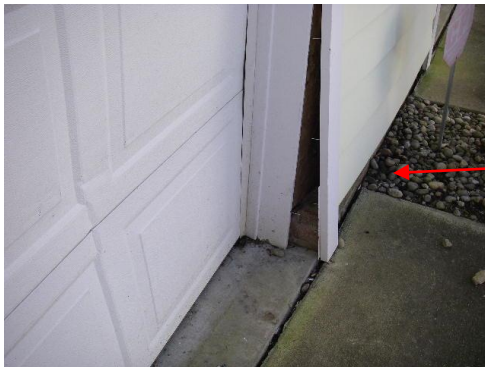
Sample – fence needing paint

- **Observation:** The rear wooden steps on several units are in need of paint. Based on their condition and the condition of the exterior of the building, it appears as these steps are not HOA responsibility.



Paint steps

- **Observation:** The garage trim at 1014 Highgrove is damaged, most likely being hit by a car. This should be repaired to prevent water intrusion. It is assumed that is not an HOA responsibility.



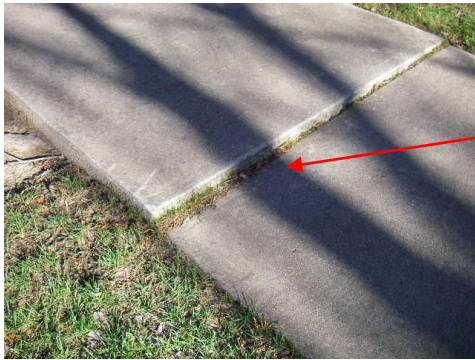
Damaged
garage trim

- **Observation:** The railing in front of 904 Highgrove is bent and should be repaired. It is assumed that is not an HOA responsibility.



Bent railing

- **Observation:** In many locations, the trees along the sidewalks have lifted sidewalk pads making a trip hazard. This condition was observed in many locations throughout Southern Village including in front of Westend buildings. This is not an HOA issue; however, the trip hazard should be noted to the city maintenance department. In some locations the raised side walk has warning paint.



Sample – raised
side walk

Sample – painted
side walk



RESERVES

The following information is being provided in support of Table II, Reserves.

- It is assumed that gutter cleaning is included in the routine maintenance budget. Some gutters will require more frequent cleaning than others will (determined by location and surrounding trees).



Sample: gutter
needing cleaning

Raymond Engineering, Inc.

Table I, Reserve Westend

Client: Southern Village, Westend

Survey Date: January 20, 2016

Address: US 15-501

Analysis Term: 12 years

City & State: Chapel Hill, North Carolina

Buildings: 2

Item			Condition			Immediate Repairs	Reserves
	Excellent	Good	Fair	Poor	N/A		
Site/Grounds							
Topography/Drainage					✓		
Pavement & Parking					✓		
Landscaping					✓		
Signage					✓		
Amenities					✓		
Lighting					✓		
Buildings							
Roofing		✓					
Exterior		✓					
Framing					✓		
Foundations					✓		
Basement/Attic					✓		
Interiors							
Finishes					✓		
Components					✓		
Systems							
Plumbing					✓		
HVAC					✓		
Electrical					✓		
Fire/Safety					✓		
Code Compliance							
Code Compliance					✓		
Other							

Dollars shown are current (2016) dollars

Raymond Engineering, Inc.

Table II, Reserve Details, Westend

Client: Southern Village, Westend Survey Date: January 20, 2016

Address: US 15-501

Analysis Term: 12 Years

City & State: Carboro, North Carolina

Buildings: 2

	Recommended Work	Ave. Life (yrs)	Effective Age	Remaining Life	Qty	Qty/Yr	Unit Cost	Unit Description	Est. Cost/Yr	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Total Over Term
Site/Grounds																						
	Topo/Drain																					
	N/A																					
	Pave/Park																					
	N/A																					
	Landscape																					
	N/A																					
	Amenities																					
	N/A																					
Buildings																						
	Roofing																					
	Roof Replacement:																					
	900-920 Highgrove																					
	1000-1020 Highgrove	20	15	5	29182.4	29182	\$2.50	Sq Ft	\$72,956				\$72,956									\$72,956
	Exterior																					
	Exterior Paint:																					
	900-920 Highgrove																					
	1000-1020 Highgrove	5	4	2	39206.4	39206	\$1.00	Sq Ft	\$39,206			\$39,206					\$39,206				\$39,206	\$117,619
Interiors																						
										Annual Requirements, Uninflated												
										Inflation Factor (1.04%/Year)												
										Annual Requirements, Inflated												
										\$0	\$0	\$39,206	\$72,956	\$0	\$0	\$0	\$39,206	\$0	\$0	\$0	\$39,206	\$190,575
										\$1.04	\$1.08	\$1.12	\$1.17	\$1.22	\$1.27	\$1.32	\$1.37	\$1.42	\$1.48	\$1.54	\$1.60	
										\$0	\$0	\$44,102	\$85,348	\$0	\$0	\$0	\$53,657	\$0	\$0	\$0	\$62,771	\$245,877

Reserve Study

Southern Village HOA, Highgrove

Chapel Hill, NC

Inspection Date:
January 13 & 14, 2016

Prepared For:
Southern Village Homeowners' Association

Prepared By:
Raymond Engineering, Inc.
127 Persimmon Hill
Pittsboro, NC

919-942-7000

Report Number:
012016507HG

Inspector:
Bruce Raymond, P.E.



A handwritten signature in cursive script that reads "Bruce Raymond".

Professional Engineer's License Number: 30017



RESERVE SCOPE

The scope of the Reserve Study for the Southern Village Homeowners' Association sub-association Highgrove in Chapel Hill, North Carolina, is based on the proposal submitted July 29, 2015. Southern Village had a reserve study performed in December of 2012 (Raymond Engineering report No.121112507, dated December 2012). The previous report was for a collection of townhome sub-associations (TH-I; TH-II, Highgrove and Westend) as well as parks and alleyways. The following report is an update of the previous study and is a stand-alone report for the Highgrove sub-association only. The other sub-associations, parks, and alleyways are addressed in separate reports. As delineated in the proposal, this study covers the following:

- Highgrove (4 buildings)
 - Building Exteriors
 - Roofs
 - Exterior

As noted in the July 29, 2015 proposal the exterior inspection will be limited to a visual walk around of each building to verify the recent painting is in line with projections for future painting to assure the reserves are timed properly for future painting. The study will include a site visit to determine the condition of the designated items. The roofs will be inspected from the ground using binoculars to determine the estimated remaining life.

The subdivision property was inspected on January 13 and 14, 2016. For this sub-association (Highgrove) study the following buildings were inspected:

Address	Total No. of buildings
• Westside, 101-123	1
• Nolen, 100-122	1
• Nolen, 101-123	1
• Glade, 100-122	1

CONDITIONS & ASSUMPTIONS

The study projects the cost over the next twelve years for the maintenance and the replacement of major items and systems. Routine and customary maintenance are not included. As with any study of this nature, the further into the future the study goes, the less reliable the data. Unforeseen economical events can alter cost significantly. The study is based on industry standard replacement costs (National Construction Estimator, Means Building Construction Cost Data or Means Facilities Maintenance & Repair Cost Data Publications and internet data). A flat inflation rate of 4.5% was used to project costs calculated in year 2016 dollars.

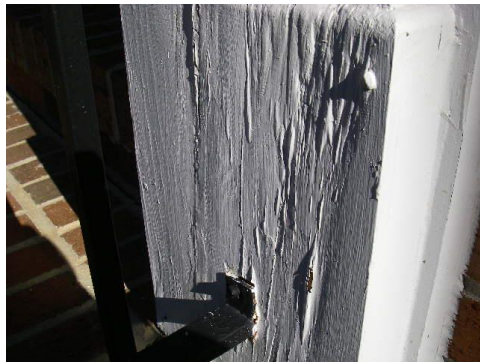
SUMMARY

A previous reserve study was performed in December 2012. This is an update of that reserve study, however, as noted above the 2012 study was for other sub-associations and this study is for Highgrove only. The overall condition was good.

Table I provides an overview of the reserves that will be necessary. Details are provided in Table II (Reserves). Observations noted below are items that were observed during the inspection that are provided as additional information/improvements.

OBSERVATIONS

- **Observation:** When buildings are re-painted, all wood rot needs to be addressed. In several locations, it appears that trim rot was over painted.



Sample – painted
over rot

- **Observation:** Drainage is very important to the life of a building. Many leaders (pipe connected to downspouts) were buried (clogged) or crushed. Some downspouts had no leaders allowing water to collect at the building. All leaders should be checked and repaired or replaced.



Sample – buried leader

Leader runs uphill



Sample – missing leader

- **Observation:** There is a “have-a-heart” animal trap located on the front roof in the middle of 101-123 Nolen. It should be removed.



Trap on roof

- **Observation:** Vegetation should be removed from areas where it is in contact with buildings. Vegetation too close to a building holds moisture next to a building and provides easy egress for insects.



Sample – vegetation too close to building



- **Observation:** It is unknown if privacy fences are part of the sub-associations responsibility. The fences need painting and minor repairs.



Sample – fence
needing paint

- **Observation:** The mailbox behind 103 West side is damaged and should be replaced. It is assumed that is not an HOA responsibility.

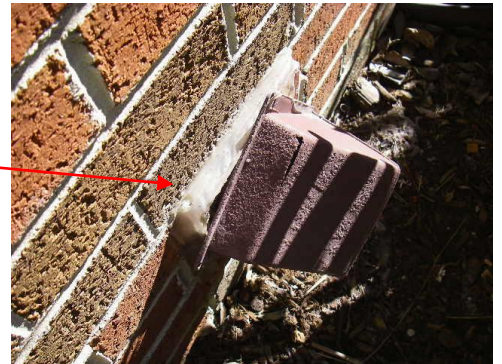


Replace mailbox

- **Observation:** Most of the plastic vent hoods are damaged and in need of replacement. It is assumed that is not an HOA responsibility.



Replace vent
hoods



RESERVES

The following information is being provided in support of Table II, Reserves.

- It is assumed that gutter cleaning is included in the routine maintenance budget. Some gutters will require more frequent cleaning than others will (determined by location and surrounding trees).



Sample: gutter
needing cleaning

- The caulking around the copper front dormer windows and doors should be replaced when re-roofing.



Re-caulk when
re-roofing

Raymond Engineering, Inc.

Table I, Reserve Highgrove

Client: Southern Village, Highgrove**Survey Date:** January 20, 2016**Address:** US 15-501**Analysis Term:** 12 years**City & State:** Chapel Hill, North Carolina**Buildings:** 4

Item			Condition			Immediate Repairs	Reserves
	Excellent	Good	Fair	Poor	N/A		
Site/Grounds							
Topography/Drainage					✓		
Pavement & Parking					✓		
Landscaping					✓		
Signage					✓		
Amenities					✓		
Lighting					✓		
Buildings							
Roofing		✓					\$286,078.00
Exterior		✓					\$80,102.40
Framing					✓		
Foundations					✓		
Basement/Attic					✓		
Interiors							
Finishes					✓		
Components					✓		
Systems							
Plumbing					✓		
HVAC					✓		
Electrical					✓		
Fire/Safety					✓		
Code Compliance							
Code Compliance					✓		
Other							

Dollars shown are current (2016) dollars

Raymond Engineering, Inc.

Table II, Reserve Details, Highgrove

Client: Southern Village
Address: US 15-501
City & State: Carboro, North Carolina
Buildings: 4

Survey Date: January 20, 2016
Analysis Term: 12 years

	Recommended Work	Ave. Life (yrs)	Effective Age	Remaining life	Qty	Qty/Yr	Unit Cost	Unit Description	Est. Cost/Yr	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Total Over Term												
Site/Grounds																																		
	Topo/Drain																																	
	N/A																																	
	Pave/Park																																	
Landscpe																																		
	N/A																																	
Amenities																																		
	N/A																																	
Buildings																																		
	Roofing																																	
	Roof Replacement																																	
	101-123 Westside																																	
	100-122 Nolen																																	
	101-123 Nolen																																	
	100-122 Glade	20	15	5	114431	114431	\$2.50 Sq Ft	\$286,078	\$286,078													\$286,078												
Exterior																																		
	Exterior Paint:																																	
	101-123 Westside																																	
	100-122 Nolen																																	
	101-123 Nolen																																	
	100-122 Glade	5	4	2	400512	40051	\$1.00 Sq Ft	\$40,051	\$40,051													\$80,102												
Interiors																																		
										Annual Requirements, Uninflated												\$0	\$0	\$40,051	\$286,078	\$0	\$0	\$0	\$0	\$366,180				
										Inflation Factor (1.04%/year)												\$1.04	\$1.08	\$1.12	\$1.17	\$1.22	\$1.27	\$1.32	\$1.37	\$1.42	\$1.48	\$1.54	\$1.60	
										Annual Requirements, Inflated												\$0	\$0	\$45,052	\$334,671	\$0	\$0	\$0	\$54,813	\$0	\$0	\$0	\$0	\$434,536