

# FACILITY CONDITON ASSESSMENT SERVICES REPORT

OF

## University Crossings

ARMSTRONG ATLANTIC STATE UNIVERSITY

11935 ABERCORN STREET

SAVANNAH, GEORGIA 31419

CONTRACT NO. AASU-2215

October 15, 2013



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## 1. EXECUTIVE SUMMARY

### 1.1. Property Description

Cogdell & Mendrala Architects (CMA) performed a Facility Condition Assessment (FCA) of the University Crossings housing complex, located at Armstrong Atlantic State University in Savannah, Georgia.

**Site:**

The site is located in the Southwest quadrant of the Armstrong Campus and is directly adjacent to the Armstrong Center to the north. To the East, the site is bordered by Bob Burnett Blvd. and on the south, by Windward Commons (additional housing facility). The western border of the property abuts Roger Warlick Dr. from which access is gained through an electric gate.

**Buildings:**

The buildings were constructed in 1975 and were purchased by *Educational Properties Foundation Inc.* (EFPI) in 2004. The property underwent renovations in 2004, 2011 and 2012.

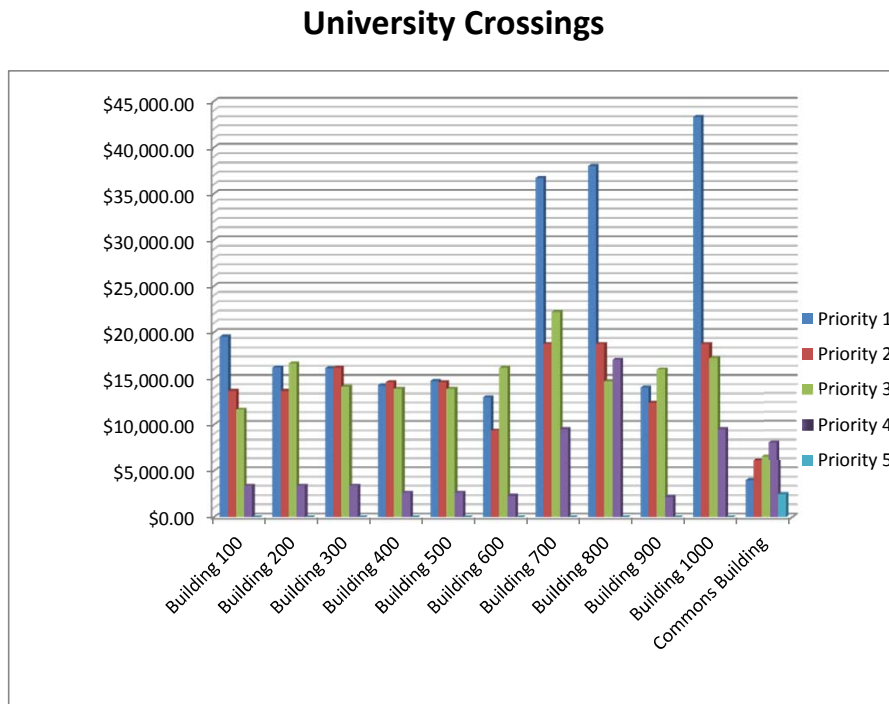
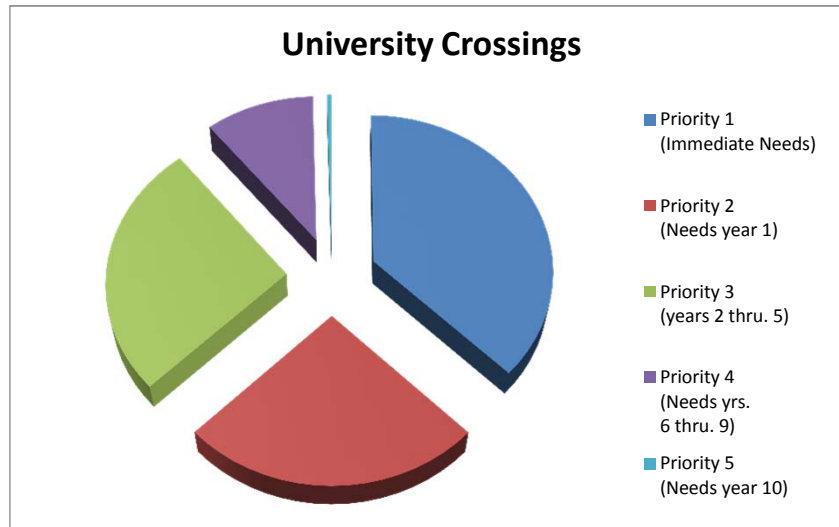
The complex consists of 11 buildings total -- 7 two story buildings, each containing 4 two bedroom apartment units; 3 two story buildings, each containing 8 two bedroom apartment units and 1 one story management building. There are a total of 52 two bedroom units in 10 buildings plus the management building (containing an office, laundry and a two bedroom staff apartment). Each unit includes two bedrooms; closets; kitchen; living and dining area; with 1 or 2 bathrooms depending on unit. Buildings are residential type construction - wood framed, brick veneer, shingled with a hip roof.

**Findings:**

Based on CMA's document reviews, interviews and field observations, it is the opinion of CMA that the subject Property, although well maintained, is in overall fair-to-poor condition.

It is the professional opinion of CMA that the Estimated Useful Life of the Property is approximately 30 years and the Effective Age of the Property is approximately 50 years. Therefore the Property has exceeded its Remaining Useful Life.

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**1.2 PROPERTY SUMMARY TABLE**

**Site Visit Date:** August, 2012  
**Property Description:** Student Housing  
**Building Name:** University Crossings  
**Year Built:** 1975  
**Building Area (Gross SF):** 24,134  
**Evaluation Period: (years)** 10

Construction System	Condition			Recommendations				
	Good	Fair	Poor	Priority 1 (Immediate Needs)	Priority 2 (Needs year 1)	Priority 3 (years 2 thru. 5)	Priority 4 (Needs yrs. 6 thru. 9)	Priority 5 (Needs year 10)
3.6.3.1 Building 100			✓	\$19,540.00	\$13,662.50	\$11,628.00	\$3,398.00	\$0.00
3.6.3.2 Building 200			✓	\$16,190.00	\$13,662.50	\$16,628.00	\$3,398.00	\$0.00
3.6.3.3 Building 300			✓	\$16,115.00	\$16,162.00	\$14,128.00	\$3,398.00	\$0.00
3.6.3.4 Building 400			✓	\$14,253.00	\$14,607.50	\$13,884.00	\$2,654.00	\$0.00
3.6.3.5 Building 500			✓	\$14,728.00	\$14,607.50	\$13,884.00	\$2,654.00	\$0.00
3.6.3.6 Building 600			✓	\$12,983.00	\$9,370.00	\$16,160.00	\$2,314.00	\$0.00
3.6.3.7 Building 700			✓	\$36,696.00	\$18,740.00	\$22,203.50	\$9,522.00	\$0.00
3.6.3.8 Building 800			✓	\$37,996.00	\$18,740.00	\$14,703.50	\$17,022.00	\$0.00
3.6.3.9 Building 900			✓	\$14,040.00	\$12,367.50	\$15,984.00	\$2,208.00	\$0.00
3.6.3.10 Building 1000			✓	\$43,296.00	\$18,740.00	\$17,203.50	\$9,522.00	\$0.00
3.6.3.11 Commons Building			✓	\$4,010.00	\$6,165.00	\$6,560.00	\$8,066.00	\$2,500.00
Overall Property (Uninflated)				\$229,847.00	\$156,824.50	\$162,966.50	\$64,156.00	\$2,500.00

Repairs and Reserve Summary	Today's Dollars	\$/SF
Priority 1 Needs (Immediate)	\$229,847.00	\$9.52
Priority 2 Needs (Year 1)	\$156,824.50	\$6.50
Priority 3 Needs (Years 2 to 5)	\$162,966.50	\$6.75
Priority 4 Needs (Years 6 to 9)	\$64,156.00	\$2.66
Priority 5 Needs (Years 10)	\$2,500.00	\$0.10

Current Replacement Value: \$3,137,420.00  
Total Costs (Priority 1 to 5): \$616,294.00  
Facility Condition Index (FCI\*): **0.20**

\* Refer to Section 5.3 of the report for a discussion of Facility Condition Index.

## 2. PURPOSE AND SCOPE

### 2.1. Scope of Services:

This document has been prepared in accordance with *ASTM-E-2018-08, A Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process*, and as amended with the inclusion of additional information as outlined in the Board of Regents of the University System of Georgia's FCA /FCAR Template. The purpose of the FCA was to perform a baseline property conditions assessment of the improvements located at the subject site. The goal was to identify and communicate *physical deficiencies* (as defined in ASTM-E-2018) and outline recommendations and cost analyses, pertinent to the identified deficiencies. The report is comprised of three primary components, with supplemental information interwoven as applicable. The primary components are *Document Reviews and Interviews, Walk-Through Survey, and the Facility Condition Report*.

The elements which were the *primary* focus of the survey included the building envelope as well as the building systems – mechanical, plumbing, fire protection/alarm and electrical.

ASTM-E-2018-08 is included as part of this document by reference.

### 2.2. Assessment Procedures

#### 2.2.1. Interviews and Document Review

The object of the Interviews and document review process is to augment the walkthrough-survey and assist in the understanding of the subject project and identification of physical deficiencies.

#### 2.2.2. Interview

CMA interviewed the following persons during the course of the project:

Personnel Interviewed		
Name	Title	Phone Number
Mr. David Faircloth	Director of Facilities Planning, Design & Construction	(912) 344-2545
Mr. Mel Manor	Construction Project Manager/Campus Architect	(912) 344-2989



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The interviews were conducted in person, on Campus, and the following items were discussed and/or reviewed:

Appraisals; Certificate of Occupancy; Safety Inspection Records; Warranty Information; Records identifying age of material building material systems; Historical costs for repairs, improvements, reoccurring replacements, etc.; Pending proposals for or executed contracts for material repairs or improvements; Descriptions of future planned improvements; Outstanding citation for building code or life safety violations; the ADA survey and status of any improvements implemented to effect physical compliance; and Previously prepared property condition reports or studies pertaining to any aspect of the subject property's physical condition.

- In response to the items discussed above, the interviewer learned that the Campus has all available information listed above on file and several documents were forwarded to the interviewer for review. The campus has an ongoing safety program in place. The State Fire Marshal conducted an extensive review in 2012 which prompted a significant renovation project directed at correcting major Life Safety violations.
- There have been a number of improvements to the property since purchased, as follows:
  - HVAC Replacement – ongoing
    - Summary on replaced HVAC units – both air handler and outdoor heat pump
    - 55 total HVAC units (52 apartments plus 3 at management bldg)
      - 6 replaced in past year between Sept 2012-Sept 2013 (Carrier)
      - 29 replaced in period 2006-2010 (various manuf.: Carrier, Trane, Tempstar, Bryant)
      - 11 replaced circa 2004/2005 (all Payne) \*\*unsure if replaced before or after property transfer
      - 9 replaced circa 1995 to 1998 (all Goodman)
    - \*\*\*note approximations based on replacement records and date codes on existing equipment labels
    - Costs: Average replacement cost per unit \$2,500 (for both air handler and outdoor unit with new programmable thermostat)
  - Project AASU-1211 University Crossings Renovations - Summer2012
    - Costs: \$695,000 (cost inclusive of both construction and design fees)  
Completion Date August 2012  
Overview of Work Scope:

- FIRE SPRINKLER SYSTEM

Installed fire sprinkler system installed in all 11 buildings  
Generally work included civil work (water supply tap; underground vault, double detect-o-check, back flow preventer, post indicator valve; fire department connection; underground plumbing lines around site, grounds repair, feeds to each building); construction of new exterior sprinkler riser closets for entry point at each building; alarm monitoring for all valves/flow switches - tie in to existing fire alarm system; misc. drywall/ceiling repairs and drywall bulkheads/soffits/pilasters to conceal piping (retrofit installation of automatic sprinkler system involved routing lines in attic at second floor and routing below 2nd floor joists at first floor).

- EXTERIOR STAIRS TREAD REPLACEMENT

22 stairways/porches total including balcony areas (occurring at front and rear entrances of 10 two story buildings)  
Replaced deteriorated wood stair treads with "Trex" composite decking (synthetic board material).  
Budget scope did not include rebuilding of stairs; included was only minor repair work (replacement of deteriorated framing members; supplemental framing where existing stringer/joist spacing was inadequate; reattachment of "loose" framing members).

- INTERIOR FLOORING

Replaced flooring in 50 of the 52 two bedroom units in 10 two story buildings with vinyl plank flooring material. Flooring replaced thru-out units inclusive of closets (previously existing Bedrooms, Hallway and Living area carpeted; Kitchen & Baths vinyl). New carpeted flooring installed at all interior stairs.

HVAC

Added exhaust ventilation fans in bathrooms where not present or non-operational.

FINAL CLEANING BY CONTRACTOR

Work scope included 'final' cleaning by Contractor (with units move-in ready for student occupancy)  
Interior Painting performed by in-house forces

- Project - University Crossings - HVAC Repairs

- Date: completed July 2012

- Installed float switch in upflow air handler drain at each unit

and sealed around supply ductwork connection to unit where openings present.

- Project AASU-1217, University Crossings – Visiting Faculty Housing Renovations - Units UC-101 (downstairs) and UC-103 (upstairs).
  - Construction Cost: \$44,888.00  
Date: completed March 2012  
Overview of Work Scope: interior painting, new bamboo wood flooring throughout, new kitchen countertop and faucet, new bath vanity and faucets, exhaust fan, new light fixtures.
  - Additionally new appliances, new furnishings installed.
- Project AASU-1123, University Crossings – Staff Unit Interior Renovations
  - Construction Cost: \$14,229  
Date: completed June 2011  
Overview of Work Scope: (apartment portion only) interior painting, kitchen countertop, cabinets refurbishment, new bath vanity and faucets, tub gel-coated new faucet, bedroom flooring; and exterior painting.
- Also discussed were Furnishings, Fixtures and Equipment (FF&E). All furniture and appliances are purchased through Auxiliary Services, and the cost for replacement of these items is not considered in this report.
- All painting for the buildings is done by Plant Operations as part of the Campus painting. Painting costs are not considered in this report.

### 2.2.3. Document Review

CMA briefly reviewed the following documents:

Documents Reviewed		
Name & Description of Document	Title	Date
Civil Plans	B. P. Barber & Assocs. Clemmons Engineers	2004 2012
Architectural Plans	Dawson Wissmach	2004
Mechanical, Electrical/Plumbing Plans	ROSSER	2012
USG PPV Spreadsheet Property & Liability Insurance Program SOV, Rates and Premiums		January 31, 2013-2014
ROPA Survey and Report	Sightlines	2012

### 2.2.4. Walk-Through Survey

The objective of the walk-through survey is to visually observe the subject property so as to obtain information on material systems and components for the purposes of providing a brief description, identifying physical deficiencies to the extent that they are easily visible and readily accessible, and obtaining information needed to address such issues in the FCR.

## 3. SYSTEM DESCRIPTION, OBSERVATIONS AND RECOMMENDATIONS

### 3.1. Current Property Improvements

The site is located in the Southwest quadrant of the Armstrong Campus and is directly adjacent to the Armstrong Center to the north. To the East, the site is bordered by Bob Burnett Blvd. and on the south, by Windward Commons (additional housing facility). The western border of the property abuts Roger Warlick Dr. from which access is gained through an electric gate.

The buildings were constructed in 1975 and were purchased by *Educational Properties Foundation Inc.* (EFPI) in 2004. The property underwent renovations in 2004, 2011 and 2012.

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The complex consists of 11 buildings total -- 7 two story buildings, each containing 4 two bedroom apartment units; 3 two story buildings, each containing 8 two bedroom apartment units and 1 one story management building. There are a total of 52 two bedroom units in 10 buildings plus the management building (containing an office, laundry and a two bedroom staff apartment). Each unit includes two bedrooms; closets; kitchen; living and dining area; with 1 or 2 bathrooms depending on unit. Buildings are residential type construction - wood framed, brick veneer, shingled with a hip roof.

The street address of Armstrong Atlantic State University is 11935 Abercorn Street, Savannah, Georgia, 31419.

Building Name	Compass Point Phases I and II
Number of Floors	Two
Occupant Load	106 beds
Building Usage	Student dormitory spaces
Gross Area	48,000
Structure	Wood framing
Exterior Walls	Wood frame with brick veneer
Roof	Asphalt shingles
Foundation	Concrete slab
HVAC	Split systems
Electrical	120/240v, single phase meter at each end of each building
Construction Quality	Poor to fair
Furnishings	Wood desks/beds-Condition varies

### 3.2. Condition and Remaining Useful Life of the Property

Based on CMA's document reviews, interviews and field observations, it is the opinion of CMA that the subject Property, although well maintained, is in overall fair-to-poor condition

The average condition of the construction systems reviewed and recommendation for their repair is summarized in the Property Summary Table following Section 1.1 of this report. The table presents a summary of the condition of site and building components and equipment observed and costs associated with Immediate Needs, Short Term Needs and Physical Needs over the Term. These conditions and recommendations are explained in more detail in Sections 2.3 through 4.0 of this report. A detailed discussion of opinions of cost, Immediate Needs, Short Term Needs and anticipated Physical Needs over the Term is presented in Section 5.0, with tabulated opinions of cost presented in Appendix A.

It is the professional opinion of CMA that the Estimated Useful Life of the Property is approximately 30 years and the Effective Age of the Property is approximately 50 years. Therefore the Property has exceeded its Remaining Useful Life.

This RUL is based on the observed physical condition of the Property at the time of the site visit by CMA and is subject to possible effects of concealed conditions or the occurrence of extraordinary events, such as natural disasters or other “acts of God” which may occur subsequent to the date of the on-site visit. The RUL is further based on the assumption that the immediate needs, short term needs and long term replacement repairs that are provided as capital reserves are completed in a timely and professional manner and appropriate routine maintenance and replacement items are performed on an as needed basis.

### **3.3. Site Conditions**

#### **3.3.1. Topography**

##### ***Observations***

The site is relatively flat, sloping from elevation 21 to 18, from east to west.

According to the Savannah Area Geographic Information System Map, updated July 2013, the property is located in Zone X, defined as an area outside the 500-year flood plain.

##### ***Recommendations***

Based on the observed condition of the topography, only routine maintenance will be required during the term.

No immediate or short term needs were identified.

#### **3.3.2. Storm Water Drainage**

##### ***Observations***

Water from the building roofs drains into gutters and downspouts that surface flow to a detention pond that is centrally located on the site which discharges into a storm water system that crosses beneath Roger Warlick Dr.

Overall, Property drainage appeared to be good and the drainage infrastructure components appeared to be in good condition. There were indications of isolated ponding along various areas of the site but not to the extent that any re-grading is anticipated

##### ***Recommendations***

Based on the observed condition of the storm water drainage systems, only routine maintenance will be required during the evaluation period. No other action is currently recommended.

#### **3.3.3. Site Access and Egress**

***Observations***

The site is fenced on all sides with an electronic controlled vehicular gate on Roger Warlick Dr., and a similar pedestrian gate at the Northeast corner of the site.

Pedestrian circulation consists of concrete sidewalks at the front of the units. There are no walks serving the rear of the units except for one sidewalk that connects the parking to the pedestrian gate. All other pedestrian travel at the rear of the units is on grass.

The site has adequate provisions for emergency vehicle access to all buildings once they have entered the vehicular gate.

***Recommendations***

Not applicable.

**3.3.4. Paving, Curbing and Parking**

***Observations***

The eleven buildings of the site surround a central parking area with pedestrian travel front and rear of the units.

Asphalt paving is cracking in some locations.

***Recommendations***

Section	Description	Estimated Cost
3.3.4.	<b>Paving, Curbing and Parking</b>	
	Sealcoat and restripe parking and drives.	\$16,500.00

**3.3.5. Loading Areas, Dock and Walks**

***Observations***

No loading docks were observed on the Property.

Concrete pedestrian walks provide primary access to the site.

***Recommendations***

Based on the observed condition of the walks only routine maintenance will be required during the evaluation period. No other action is currently recommended.

### **3.3.6. Landscaping**

#### ***Observations***

The landscaping consists primarily of ground cover, grass turf, shrubs, flowers and trees.

#### ***Recommendation***

Based on the observed condition of the landscaping, only routine maintenance will be required during the evaluation period. No other action is currently recommended.

### **3.3.7. Exterior Lighting**

Exterior lighting consists of building and pole-mounted fixtures.

The exterior light fixtures can be expected to last through the term with periodic repairs and replacement as part of routine maintenance; no other action is currently recommended.

Review of the exterior lighting serving the Property was not included in the survey scope of work.

### **3.3.8. Walls, Fencing and Railing**

The entire site is fenced. The fencing construction varies along the perimeter of the site, and consists of wood, concrete block or chain-link fencing . . . depending on the location. Based on the observed condition of the fencing, only routine maintenance will be required during the evaluation period. No other action is currently recommended.

## **3.4. Site Amenities**

No site amenities were observed during the site visit.

## **3.5. Utilities**

The City of Savannah provides domestic drinking water, sanitary sewer and storm drainage collection provisions to the Campus. The composition of these lines running within the campus was not made known to CMA during the survey. Gas lines to campus are supplied by Georgia Natural Gas. All site utility lines running below grade belong to the Campus. Electricity is provided by Georgia Power.

In general, main utility lines can be expected to provide 50 or more years of useful life, depending on the type and quality of materials and workmanship of the installation

Review of the site utilities serving the Property was not included in the survey scope of work.



### **3.6. Structural Frame and Building Envelope**

#### ***Observations***

Within the authorized scope of this evaluation, definitive determination of the structural systems was not possible because CMA was able to make only limited observations due to lack of physical accessibility and no destructive testing was performed. Based on non-invasive surface observations, review of available construction documentation and experience with buildings of similar type and age indicate the following construction:

#### **3.6.1. Foundation**

There were no drawings of the original construction available for review that would give any indication of the components of the existing foundation. The ground floors are concrete slabs.

#### **3.6.2. Building Frame**

Although no drawings of the original construction were available for review, it appears that the building frame consists primarily of wood construction.

#### **3.6.3. Building Envelope**

#### ***Observations***

#### ***Complex General Comments:***

The complex was built around 1975. In 2004, the front porches were extended and new stairs for the second floor units installed. In 2012, sprinkler systems and sprinkler riser rooms were added to the buildings. Walls, windows and doors are in fair to good condition. Roofs are in poor condition with the exception of the Commons Building and Building 9.

Work required and associated costs are summarized by building at the end of this report.

### **3.6.3.1 Building 100**

#### **Observations**

##### **3.6.3.1.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.



Figure 1: Typical condition of opening in wall at HVAC penetration



Figure 2: Typical condition of opening in wall at Hose bibb

2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)



Figure 3: Typical condition of column trim



Figure 4: Typical condition of column base trim

4. Column base trim at Buildings 100 is rotting at locations near the slab. Condition of the structural column inside the trim is unknown. (See Fig. 3 – 4)
5. Holes in brick sills at second floor window openings.

#### **3.6.3.1.2 Porches**

##### **Observations**

1. The rear exterior porches do not meet code. Handrails do not meet code nor do riser heights. Where the porches are connected to the buildings, the masonry veneer has been removed to attach the porch, leaving the existing upper masonry bearing on the wood construction of the porch.
2. Condensate lines at building 100 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

**3.6.3.1.3 Doors**



Figure 5: Typical condition of lack of door frame trim allowing brick cavity to be exposed



Figure 6: Typical condition of damaged additional trim

1. Doors typically are in fair to good condition with intact weather-stripping. At building 100 it appears that front doors were relocated out of the kitchen space into a former window opening that was enlarged. Since the brick does not return in the lower part of this opening, the cavity is covered by wood trim. At some units, the trim has failed or was inadequate when installed, leaving the cavity accessible. These openings allow access for both moisture and pest penetration. (See Fig. 5 - 6)

#### **3.6.3.1.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.1.5 Soffits/Fascia**

1. Eave Trim is rotted on rear porch at Building 100.



Figure 7: Typical condition of missing soffit



Figure 8: Typical condition of unsecure soffit in need of repair



Figure 9: Typical condition of damaged soffit in need of repair and or replacement

2. At building 100 isolated failures of vinyl soffit material are present. It appears this material was installed over plywood soffits, however, where the plywood has been removed for later construction of porches or other construction, failure of the vinyl soffit provides access to the attic space for animals such as squirrels and bats. (See Fig. 7 - 9)

#### ***3.6.3.1.6 Roofs and drainage systems***



Figure 10: Typical condition of failing self-sealing adhesive strips on shingles

1. On most of the buildings, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.





Figure 11: Typical condition of improper nailing of ridge vents with caulk patches

3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)



Figure 12: Typical condition of small scale roof patch



Figure 13: Typical condition of large scale roof patch



Figure 14: Typical condition for faulty roof patch attempt in disrepair

4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)



Figure 15: Typical condition of porch roof additions with cut valleys

5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.





Figure 16: Typical condition where one long single piece of flashing is used, and is a defective installation



Figure 17: Typical condition of improper trim being used to hide flashing and trim is too close to roof surface

7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)



Figure 18: Typical condition where rubber boots are failing



Figure 19: Typical condition where tape has been used improperly to seal rubber boot

8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)



Figure 20: Typical condition at rear porch structure; showing improper flashing and algae growth

12. At Building 100, small rear porch roof structures exist. These are typically in fair to poor condition. Flashing at the roof/brick wall joint is not sealed into the brick coursing and is in cases pulled away from the brick funneling water into the joint. Algae growth exists on these roofs in several locations. (See Fig. 20)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.1.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Replace column surrounds with synthetic material	
	Repair of Exterior Finishes	\$1,075.00
3.6.3.1.2.	<b>Porches</b>	
	Remove and rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair of Porches	\$8,173.00
3.6.3.1.3.	<b>Doors</b>	
	Inspect all entry doors for flaws in wood trim. Replace and/or repair all failed or inadequate trim to assure brick cavity is sealed.	\$1,268.00
	Replace sealants / Paint	
	Repair of Doors	\$1,268.00
3.6.3.1.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair of Windows	\$4,230.00
3.6.3.1.5.	<b>Soffits/Fascia</b>	
	Replace and repair all rotted Eave Trim is rotted on rear porch	
	Replace and repair all missing and or damaged soffit material	
	Repair of Soffits/Fascia	\$370.00
3.6.3.1.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair of Roof & Drainage Systems	\$6,462.50

### **3.6.3.2 Building 200**

#### **Observations**

##### **3.6.3.2.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Column base trim at Buildings 200 is rotting at locations near the slab. Condition of the structural column inside the trim is unknown. (See Fig. 3 – 4)
5. Holes in brick sills at second floor window openings.

##### **3.6.3.2.2 Porches**

1. Condensate lines at building 200 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

##### **3.6.3.2.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping. At building 200 it appears that front doors were relocated out of the kitchen space into a former window opening that was enlarged. Since the brick does not return in the lower part of this opening, the cavity is covered by wood trim. At some units, the trim has failed or was inadequate when installed, leaving the cavity accessible. These openings allow access for both moisture and pest penetration. (See Fig. 5 - 6)

##### **3.6.3.2.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.2.5 Soffits/Fascia**

1. At building 200 isolated failures of vinyl soffit material are present. It appears this material was installed over plywood soffits, however, where the plywood has been removed for later construction of porches or other construction, failure of the vinyl soffit provides access to the attic space for animals such as squirrels and bats. (See Fig. 7 - 9)

#### **3.6.3.2.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)
12. At Building 200, small rear porch roof structures exist. These are typically in fair to poor condition. Flashing at the roof/brick wall joint is not sealed into the brick coursing and is in cases pulled away from the brick funneling water into the joint. Algae growth exists on these roofs in several locations. (See Fig. 20)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.2.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Replace column surrounds with synthetic material	
	Repair Exterior Finishes	
	Repair of Exterior Walls	\$1,075.00
3.6.3.2.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair of Porches	\$8,173.00
3.6.3.2.3.	<b>Doors</b>	
	Inspect all entry doors for flaws in wood trim. Then replace and/or repair all failed or inadequate trim to assure brick cavity is sealed.	
	Replace sealants / paint	
	Repair of Doors	\$1,268.00
3.6.3.2.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair of Windows	\$4,230.00
3.6.3.2.5.	<b>Soffits/Fascia</b>	
	Replace and repair all missing and or damaged soffit material	
	Repair of Soffits/Fascia	\$120.00
3.6.3.2.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair of Roof & Drainage Systems	\$6,462.50

### **3.6.3.3 Building 300**

#### **Observations**

##### **3.6.3.3.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Column base trim at Buildings 300 is rotting at locations near the slab. Condition of the structural column inside the trim is unknown. (See Fig. 3 - 4)
5. Holes in brick sills at second floor window openings.

##### **3.6.3.3.2 Porches**

1. Condensate lines at building 3 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

##### **3.6.3.3.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping. At building 300 it appears that front doors were relocated out of the kitchen space into a former window opening that was enlarged. Since the brick does not return in the lower part of this opening, the cavity is covered by wood trim. At some units, the trim has failed or was inadequate when installed, leaving the cavity accessible. These openings allow access for both moisture and pest penetration. (See Fig. 5 - 6)

##### **3.6.3.3.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.



#### **3.6.3.3.5 Soffits/Fascia**

1. Eave Trim is un-finished on rear porch at Building 300.
2. At building 300 isolated failures of vinyl soffit material are present. It appears this material was installed over plywood soffits, however, where the plywood has been removed for later construction of porches or other construction, failure of the vinyl soffit provides access to the attic space for animals such as squirrels and bats. (See Fig. 7 - 9)

#### **3.6.3.3.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)
12. At Building 300, small rear porch roof structures exist. These are typically in fair to poor condition. Flashing at the roof/brick wall joint is not sealed into the brick coursing and is in cases pulled away from the brick funneling water into the joint. Algae growth exists on these roofs in several locations. (See Fig. 20)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.3.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Replace column surrounds with synthetic material	
	Repair Exterior Finishes	
	Repair of Exterior Walls	\$1,075.00
3.6.3.3.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair of Porches	\$8,173.00
3.6.3.3.3.	<b>Doors</b>	
	Inspect all entry doors for flaws in wood trim. Then replace and/or repair all failed or inadequate trim to assure brick cavity is sealed.	
	Replace sealants / paint	
	Repair of Doors	\$1,268.00
3.6.3.3.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair of Windows	\$4,230.00
3.6.3.3.5.	<b>Soffits/Fascia</b>	
	Replace and repair all rotted Eave Trim is rotted on rear porch	
	Replace and repair all missing and or damaged soffit material	
	Repair of Soffits/Fascia	\$370.00
3.6.3.3.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair of Roofs & Drainage systems	\$6,462.50

**3.6.3.4 Building 400**

**Observations**

#### **3.6.3.4.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Column base trim at Buildings 400 is rotting at locations near the slab. Condition of the structural column inside the trim is unknown. (See Fig. 3 – 4)
5. Holes in brick sills at second floor window openings.

#### **3.6.3.4.2 Porches**

1. Condensate lines at building 400 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

#### **3.6.3.4.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping. At building 400 it appears that front doors were relocated out of the kitchen space into a former window opening that was enlarged. Since the brick does not return in the lower part of this opening, the cavity is covered by wood trim. At some units, the trim has failed or was inadequate when installed, leaving the cavity accessible. These openings allow access for both moisture and pest penetration. (See Fig. 5 - 6)

#### **3.6.3.4.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.4.5 Soffits/Fascia**

1. Eave Trim is rotted on rear porch at Building 400.
2. At building 4 isolated failures of vinyl soffit material are present. It appears this material was installed over plywood soffits, however, where the plywood has been removed for later construction of porches or other construction, failure of the vinyl soffit provides access to the attic space for animals such as squirrels and bats. (See Fig. 7 - 9)

**3.6.3.4.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.4.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Replace column surrounds with synthetic material	
	Repair Exterior Finishes	
	Repair of Exterior Walls	\$1,075.00
3.6.3.4.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair of Porches	\$8,173.00
3.6.3.4.3.	<b>Doors</b>	
	Inspect all entry doors for flaws in wood trim. Then replace and/or repair all failed or inadequate trim to assure brick cavity is sealed.	
	Replace sealants / paint	
	Repair of Doors	\$1,584.00
3.6.3.4.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair of Windows	\$2,820.00
3.6.3.4.5.	<b>Soffits/Fascia</b>	
	Replace and repair all un-finished Eave Trim on rear porch	
	Repair of Soffits/Fascia	\$120.00
3.6.3.4.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair of Roof & Drainage Systems	\$5,757.50

**3.6.3.5 Building 500**

**Observations**

#### **3.6.3.5.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Column base trim at Buildings 500 is rotting at locations near the slab. Condition of the structural column inside the trim is unknown. (See Fig. 3 – 4)
5. Holes in brick sills at second floor window openings.

#### **3.6.3.5.2 Porches**

1. Condensate lines at building 500 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

#### **3.6.3.5.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping. At building 500 it appears that front doors were relocated out of the kitchen space into a former window opening that was enlarged. Since the brick does not return in the lower part of this opening, the cavity is covered by wood trim. At some units, the trim has failed or was inadequate when installed, leaving the cavity accessible. These openings allow access for both moisture and pest penetration. (See Fig. 5 - 6)

#### **3.6.3.5.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.5.5 Soffits/Fascia**

1. Eave Trim is rotted on rear porch at Building 500.
2. At building 500 isolated failures of vinyl soffit material are present. It appears this material was installed over plywood soffits, however, where the plywood has been removed for later construction of porches or other construction, failure of the vinyl soffit provides access to the attic space for animals such as squirrels and bats. (See Fig. 7 - 9)

#### **3.6.3.5.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.5.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Replace column surrounds with synthetic material	
	Repair Exterior Finishes	\$1,075.00
3.6.3.5.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair Porches	\$8,173.00
3.6.3.5.3.	<b>Doors</b>	
	Inspect all entry doors for flaws in wood trim. Then replace and/or repair all failed or inadequate trim to assure brick cavity is sealed.	
	Replace sealants / paint	
	Repair Doors	\$1,584.00
3.6.3.5.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Windows	\$2,820.00
3.6.3.5.5.	<b>Soffits/Fascia</b>	
	Replace and repair all un-finished Eave Trim on rear porch	
	Repair of Soffits/Fascia	\$120.00
3.6.3.5.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roof & Drainage Systems	\$5,757.50

**3.6.3.6 Building 600**

**Observations**

**3.6.3.6.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)



3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Holes in brick sills at second floor window openings.

#### **3.6.3.6.2 Porches**

1. Condensate lines at building 600 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

#### **3.6.3.6.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping.

#### **3.6.3.6.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.6.5 Soffits/Fascia**

1. Appear to be in good visual condition.

#### **3.6.3.6.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions

should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)

8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.6.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Repair Exterior Walls	\$375.00
3.6.3.6.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair Porches	\$8,173.00
3.6.3.6.3.	<b>Doors</b>	
	Inspect all entry doors and preform regular routine maintenance.	
	Replace sealants / paint	
	Repair Doors	\$1,584.00
3.6.3.6.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Doors	\$2,256.00
3.6.3.6.5.	<b>Soffits/Fascia</b>	
	None	
3.6.3.6.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roof & Drainage Systems	\$6,110.00

**3.6.3.7 Building 700**

**Observations**

**3.6.3.7.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Holes in brick sills at second floor window openings.

#### **3.6.3.7.2 Porches**

1. Condensate lines at building 700 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

#### **3.6.3.7.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping.

#### **3.6.3.7.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.7.5 Soffits/Fascia**

1. Appear to be in good visual condition.

#### **3.6.3.7.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)

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8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

**Recommendations**

Section	Description	Estimated Cost
3.6.3.7.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Repair Exterior Walls	\$400.00
3.6.3.7.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair Porches	
	Repair Porches	\$15,661.00
3.6.3.7.3.	<b>Doors</b>	
	Inspect all entry doors and preform regular routine maintenance.	
	Replace sealants / paint	
	Repair Doors	\$3,051.50
3.6.3.7.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Windows	\$4,512.00
3.6.3.7.5.	<b>Soffits/Fascia</b>	
	None	
3.6.3.7.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roofs & Drainage Systems	\$12,220.00

### **3.6.3.8 Building 800**

#### ***Observations***

##### **3.6.3.8.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Holes in brick sills exist second floor window openings.

##### **3.6.3.8.2 Porches**

1. Condensate lines at building 800 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

##### **3.6.3.8.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping.

##### **3.6.3.8.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

##### **3.6.3.8.5 Soffits/Fascia**

1. Appear to be in good visual condition.

##### **3.6.3.8.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.

3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

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***Recommendations***

Section	Description	Estimated Cost
3.6.3.8.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Repair Exterior Walls	\$400.00
3.6.3.8.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Trench concrete install underground drainage piping, and patch concrete	
	Install drywells in grassed area beyond concrete paving	
	Repair Porches	\$15,661.00
3.6.3.8.3.	<b>Doors</b>	
	Inspect all entry doors and preform regular routine maintenance.	
	Replace sealants / paint	
	Repair Doors	\$3,051.50
3.6.3.8.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Windows	\$4,512.00
3.6.3.8.5.	<b>Soffits/Fascia</b>	
	None	
3.6.3.8.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roof & Drainage Systems	\$12,220.00



### **3.6.3.9 Building 900**

#### **Observations**

##### **3.6.3.9.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)
4. Holes in brick sills at second floor window openings.

##### **3.6.3.9.2 Porches**

1. Unable to locate condensate lines at building 900 during visual inspection.

##### **3.6.3.9.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping.

##### **3.6.3.9.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

##### **3.6.3.9.5 Soffits/Fascia**

1. At building 900 isolated failures of vinyl soffit material are present. It appears this material was installed over plywood soffits, however, where the plywood has been removed for later construction of porches or other construction, failure of the vinyl soffit provides access to the attic space for animals such as squirrels and bats. (See Fig. 7 - 9)



Figure 21: Faulty fascia trim installation on building 900



Figure 22: Close-up of Faulty fascia trim installation on building 900

2. At building 900, faulty/improper fascia trim is installed on the building. (See Fig. 21 – 22)

#### ***3.6.3.9.6 Roofs and drainage systems***

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)

2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

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**Recommendations**

Section	Description	Estimated Cost
3.6.3.9.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Repair Exterior Walls	\$375.00
3.6.3.9.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Locate condensate lines to insure that they are issue free unlike the other buildings in the complex.	
	Repair Porches	\$8,173.00
3.6.3.9.3.	<b>Doors</b>	
	Inspect all entry doors and preform regular routine maintenance.	
	Replace sealants / paint	
	Repair Doors	\$1,408.00
3.6.3.9.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Windows	\$2,256.00
3.6.3.9.5.	<b>Soffits/Fascia</b>	
	Replace and repair all missing and or damaged soffit material	
	Replace all faulty/improper fascia trim	
	Repair of Soffits/Fascia	\$220.00
3.6.3.9.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roofs & Drainage Systems	\$5,757.50

**3.6.3.10 Building 1000**

**Observations**

**3.6.3.10.1 Exterior Walls**

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)

#### **3.6.3.10.2 Porches**

1. Condensate lines at building 1000 either drain onto the rear porch, or have piping installed on top of the slab to drain the condensate past the paved area. Accumulations of water were present at several of these porches. Pipe running above the slab presents a tripping hazard and is likely to be damaged.

#### **3.6.3.10.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping.

#### **3.6.3.10.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

#### **3.6.3.10.5 Soffits/Fascia**

1. Appear to be in good visual condition.

#### **3.6.3.10.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots

have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)

9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)
11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

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***Recommendations***

Section	Description	Estimated Cost
3.6.3.10.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Repair Exterior Walls	\$400.00
3.6.3.10.2.	<b>Porches</b>	
	Rebuild rear porch/deck entry	
	Locate condensate lines to insure that they are issue free unlike the other buildings in the complex.	
	Repair Porches	\$15,661.00
3.6.3.10.3.	<b>Doors</b>	
	Inspect all entry doors and preform regular routine maintenance.	
	Replace sealants / paint	
	Repair Doors	\$3,051.00
3.6.3.10.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Windows	\$4,512.00
3.6.3.10.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roofs & Drainage Systems	\$12,220.00

***3.6.3.11 Commons Building***

***Observations***

***3.6.3.11.1 Exterior Walls***

1. Exterior walls are of painted brick and are typically in good condition.
2. In several locations, openings exist in the brickwork allowing insects and vermin access to the cavity. (See Fig. 1 - 2)
3. Typically these openings exist at HVAC refrigerant line penetrations, electrical penetrations, and hose bibb locations. (See Fig. 1 - 2)

***3.6.3.11.2 Porches***

1. Not applicable

**3.6.3.11.3 Doors**

1. Doors typically are in fair to good condition with intact weather-stripping.

**3.6.3.11.4 Windows**

1. Caulk is failing at second floor windows.
2. Windows are aluminum single hung sash and appear to be in good condition, other than several are missing insect screens. Due to the occupancy of the buildings, this is likely to be a recurring problem and should be handled as a maintenance item.

**3.6.3.11.5 Soffits/Fascia**

1. Appear to be in good visual condition.

**3.6.3.11.6 Roofs and drainage systems**

1. On most of the building, the self-sealing adhesive strips are failing in multiple locations, typically on the south facing side of the roofs. Strips of shingles may be easily lifted apart. This typically occurs with age and repeated thermal movement. This leaves the shingles vulnerable to wind damage. (See Fig. 10)
2. The granules are beginning to release from the shingles. This is a sign the shingles have exceeded their useful life.
3. At ridge vent locations, the nail heads have penetrated through the cap shingles. Attempts have been made to repair this problem with silicone sealers and caulk. (See Fig. 11)
4. Numerous patched areas and faulty repairs are evident on the roofs. (See Fig. 12 – 14)
5. During installation of the porch roofs, cut valleys were used. While acceptable, they are inferior to a woven valley. (See Fig. 15)
6. Woven valleys were used when the sprinkler riser rooms were added.
7. At front dormers, the flashing at the upper part of the dormer is installed as one long single piece. This is a defective installation. Flashing at sidewall conditions should be woven into the shingles, i.e., step flashed. Where the dormer has some amount of overhang, similar flashing is used. The metal used was galvanized, the installers attempted to conceal it from view using painted trim material, which is now too close to the roof surface. (See Fig. 16 – 17)
8. At pipe and vent penetrations, Galvanized metal or vinyl flashings with rubber boots have been installed. On many of these installations the rubber is cracking or broken. Attempts have been made to remedy the situation with sealants and even tape. This repair should have been corrected with manufactured repair boots. (See Fig. 18 – 19)
9. Flashing cement around upper boot in Fig. 19.
10. At many locations, the flanges of these boots are not nailed and sealed at the downslope side, creating an opportunity for water penetration from windblown rain. (See Fig. 18)



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11. At several pipe penetrations, the pipe does not extend the recommended 6" above the roof surface. (See Fig. 19)

**Recommendations**

Section	Description	Estimated Cost
3.6.3.11.1.	<b>Exterior Walls</b>	
	Patch holes in masonry	
	Repair Exterior Walls	\$375.00
3.6.3.11.3.	<b>Doors</b>	
	Inspect all entry doors and preform regular routine maintenance.	
	Replace sealants / paint	
	Repair Doors	\$1,056.00
3.6.3.11.4.	<b>Windows</b>	
	Re-Caulk any windows with failing caulk joints.	
	Replace all missing insect screens.	
	Repair Windows	\$1,269.00
3.6.3.11.6.	<b>Roofs &amp; Drainage Systems</b>	
	Re-roof all surfaces	
	Replace all flashing	
	Inspect height of roof vent penetrations and repair or adjust to meet 6" recommendation	
	Replace all roof penetration boots and or flashing.	
	Repair Roofs & Drainage Systems	\$4,700.00

**3.6.4. Stairs, Steps and Breezeways**

Section not applicable

**3.7. Plumbing Systems**

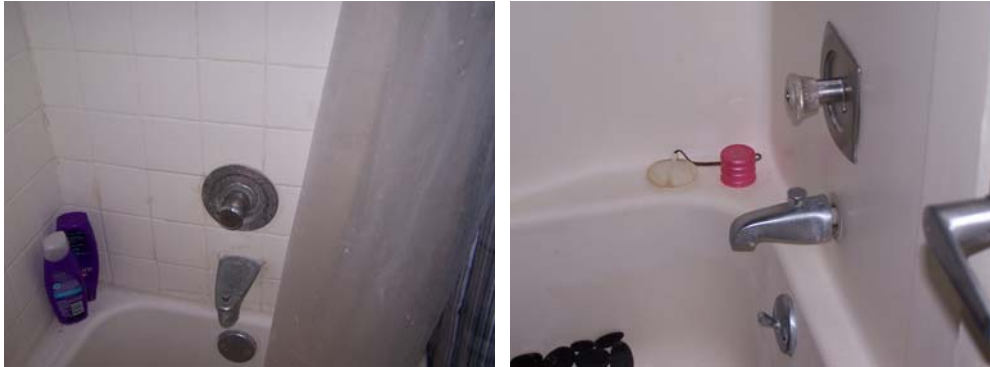
**Observations**

Buildings 1, 2, 3 and 9 are equipped with 1 full bath per unit while all other buildings have 2 full baths per unit. Each unit has a kitchen sink with disposal and dishwasher. Each unit has an individual electric water heater of varying sizes. The water heaters vary in location from building to building. Many of the plumbing fixtures in these buildings, especially in Buildings 1-5 and 9 are in very poor condition. These should be replaced as soon as practicable. Also, many of the original plumbing fixtures and water heaters do not comply with current codes. It would be beneficial to bring these up to code when being replaced.

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1. Many of the plumbing fixtures in these buildings, especially in Buildings 1-5 and 9 are in very poor condition. These should be replaced as soon as practicable.



**Figure 23: Typical condition of Existing Plumbing Fixtures, Typical of Building 1 – 5 and 9**

2. Some of the original plumbing fixtures and water heaters do not comply with current codes.
3. There are kitchen disposals installed in each unit throughout the University Crossings Housing complex. Most of these units either do not work at all or make extremely loud noises while in operation.
4. The exterior hose bibs installed on these buildings do not have proper freeze protection.



**Figure 24: Non-Freeze Protected Hose Bib (Typical on all Buildings)**

***Recommendations***

1. The plumbing fixtures in these all buildings approaching the end of their service life and or in poor condition should be replaced as soon as practicable.
2. Any original plumbing fixtures and water heaters that do not comply with current codes should be replaced or repaired to meet current code.
3. All kitchen disposals should be inspected for flaws and repaired or replaced.
4. All the exterior hose bibs should be repaired to normal operating condition and have proper freeze protection.

Section	Description	Estimated Cost
3.7.	<b>Plumbing</b>	
	Replace all plumbing fixtures and water heaters	\$175,000.00

***Summary of Findings***

***3.7.1. Building 100***

***Observations***

1. The water heaters for this building are located in the mechanical closet of each unit in this building. These water heaters need their respective pop-off valves piped either to a drain or the exterior of the building. When not properly connected this is a code violation. We can verify that some are not connected while others disappear into wall, and we cannot determine where they terminate.
2. The water heaters on the second floor do not have drain pans. This is a code violation.
3. There are missing faucet tags and drain stoppers in various units.

***Unit/Room Specific Issues***

***Unit 102***

1. The tub/shower is not draining properly.



Figure 25: Unit 102 – Tub/Shower not Draining Properly

2. The air handler condensate drain hose has been installed into the tail piece of the bathroom sink. It is not secured to the tail piece and can easily fall out. Also, this drain should be routed in a manner that achieves gravity fall.

#### ***Unit 104***

1. The tub/shower is not draining properly.

#### ***Recommendations***

Section	Description	Estimated Cost
3.7.1.	<b>Plumbing</b>	
	Repair of plumbing items	\$675.00

#### ***3.7.2. Building 200***

#### ***Observations***

1. The water heaters for this building are located in the storage closet below the interior stairwell. These water heaters need their respective pop-off valves piped either to a drain or the exterior of the building. When not properly connected this is a code violation. We can verify that some are not connected while others disappear into wall.
2. Two of the water heaters need their respective pop-off valves installed.



Figure 26: Missing Pop-off Valves

3. There is a cleanout located at the rear of this building that the cover has been cracked and is now open.



Figure 27: Cleanout with Broke Cover

4. There are missing faucet tags and drain stoppers in various units

#### ***Recommendations***

Section	Description	Estimated Cost
3.7.2.	<b>Plumbing</b>	
	Repair of plumbing items	\$550.00

#### ***3.7.3. Building 300***

##### ***Observations***

1. The water heaters for this building are located in the mechanical closet of each unit in this building. These water heaters need their respective pop-off valves piped either to a drain or the exterior of the building. When not properly connected this is a code violation. We can verify that some are not connected while others disappear into wall and we cannot determine where they terminate.

2. The water heaters on the second floor do not have drain pans. This is a code violation.
3. There are missing faucet tags and drain stoppers in various units.

***Unit/Room Specific Issues***

***Unit 304***

1. The toilet in this space is running constantly.
2. Water damage has appeared in this unit as well as the unit below which can be from either the toilet or tub/shower.

***Recommendations***

Section	Description	Estimated Cost
3.7.3.	<b>Plumbing</b>	
	Repair of plumbing items	\$675.00

***3.7.4. Building 400***

***Observations***

1. The water heaters for this building have been installed in the clothes closets. Students are using these water heaters in many cases as places of storage, which can lead maintenance problems due to the exposed piping.



Figure 28: Water Heater Installed in Clothes Closet

2. The 2nd floor water heaters have been installed without drain pans, which is a violation of current code.
3. There are missing faucet tags and drain stoppers in various units.

***Unit/Room Specific Issues***

***Unit 404***

1. There appears to be some form of leak either from the toilet or tub/shower unit.



Figure 29: Bathroom Ceiling and Light Fixture Indicating Leak Above

***Recommendations***

Section	Description	Estimated Cost
3.7.4.	<b>Plumbing</b>	
	Repair of plumbing items	\$600.00

***3.7.5. Building 500***

***Observations***

1. The water heaters for this building have been installed in the clothes closets. Students are using these water heaters in many cases as places of storage, which can lead maintenance problems due to the exposed piping.





Figure 30: Water Heaters in Clothes Closets

2. The 2nd floor water heaters have been installed without drain pans, which is a violation of current code.
3. There are missing faucet tags and drain stoppers in various units.

#### ***Unit/Room Specific Issues***

##### ***Unit 502***

1. The tub/shower spout is not seated properly against the wall of the tub/shower.
2. The upper heating element cover on the water heater should be replaced.

##### ***Unit 504***

1. The tub/shower spout is not seated properly against the wall of the tub/shower.



***Recommendations***

Section	Description	Estimated Cost
3.7.5.	<b>Plumbing</b>	
	Repair of plumbing items	\$625.00

**3.7.6. Building 600**

***Observations***

1. The water heaters for this building have been installed below the corner of the kitchen cabinets. This installation renders these water heaters very difficult to access.



Figure 31: Water Heater Located Below Cabinet with Minimal Access

2. There are missing faucet tags and drain stoppers in various units.

***Recommendations***

Section	Description	Estimated Cost
3.7.6.	<b>Plumbing</b>	
	Repair of plumbing items	\$800.00

### **3.7.7. Building 700**

#### **Observations**

1. The water heaters for this building have been installed below the corner of the kitchen cabinets. This installation renders these water heaters very difficult to access.
2. There are missing faucet tags and drain stoppers in various units.

#### **Recommendations**

Section	Description	Estimated Cost
3.7.7.	<b>Plumbing</b>	
	Repair of plumbing items	\$1,600.00

### **3.7.8. Building 800**

#### **Observations**

1. The water heaters for this building have been installed below the corner of the kitchen cabinets. This installation renders these water heaters very difficult to access.
2. There are missing faucet tags and drain stoppers in various units.

#### **Recommendations**

Section	Description	Estimated Cost
3.7.8.	<b>Plumbing</b>	
	Repair of plumbing items	\$1,600.00

### **3.7.9. Building 900**

#### **Observations**

1. The water heaters for this building are located in closet space under the stairs. The closet is also being used as storage for the air handler air filters for the complex. This can cause maintenance issues in the future.



Figure 32: Water Heater Access Issue

2. There are missing faucet tags and sink stops in various units.

***Unit/Room Specific Issues***

***Unit 901***

1. Water piping has been installed in front of the air handling unit. This condition inhibits access when servicing this unit.

***Unit 903***

1. The floor appears to stay wet. This may have been caused by a leaky toilet or bathtub.



Figure 33: Leaking Plumbing Fixture Issue

***Recommendations***

Section	Description	Estimated Cost
3.7.9.	<b>Plumbing</b>	
	Repair of plumbing items	\$650.00

***3.7.10. Building 1000***

***Observations***

1. The water heaters for this building have been installed below the corner of the kitchen cabinets. This installation renders these water heaters very difficult to access.
2. There are missing faucet tags and drain stoppers in various units.



Figure 34: Missing Sink Stopper and Sink Tags

***Recommendations***

Section	Description	Estimated Cost
3.7.10.	<b>Plumbing</b>	
	Repair of plumbing items	\$1,600.00

***3.7.11. Building Community Building***

***Observations***

1. The Community Building has the University Crossing Housing Office, Manager's Suite, and the Laundry Room. This building appears to have been recently renovated.

***Recommendations***

1. None.

### 3.8. HVAC Systems

#### *Observations*

All apartment units are served with residential split system heat pumps with vertical air handlers. The air handlers are installed on wooden platforms in hall closets and utilize a plenum type return air system and a fully ducted supply air system. Steel ceiling and sidewall supply registers are located in each bedroom and common area. Ceiling exhaust fans are located in the restrooms of Buildings 6 through 10 but are missing in Buildings 2, 3, 4 and 5 and two units of Building 1. A recirculating residential range hood is located in each apartment unit.

1. The type of mechanical system serving these apartment units generally have an average service life of 10 to 15 years. Many units were reaching or have reached the expected service life.
2. There is a mixture of refrigerants used throughout. Older systems use HCFC-22 (R-22) as the operating system. This refrigerant is currently being phased out of production. Newer systems use HFC-410a (R-410a) as the operating system.
3. The majority of the mechanical systems are well below the current minimum energy efficiency rate.
4. Landscape debris and trash was located around a majority of the outdoor heat pumps. Outdoor heat pumps should be kept clear of debris to help maintain maximum efficiency.
5. Most of the outdoor refrigerant pipe insulation was deteriorated. All outdoor refrigerant pipe insulation should be replaced except for the apartment units that have recently had the outdoor heat pump replaced.
6. All outdoor refrigerant pipe insulation lacked weatherproof protection. All outdoor refrigerant pipe insulation should have a weatherproof coating applied to extend the life of the insulation.
7. Refrigerant piping and condensate lines for the upper units are routed downstairs into the lower units. Once inside the lower units, the refrigerant piping is routed in a conduit type trough below the slab of the building. The end of the conduit was left exposed in the lower level units and should be covered with a sleeve cover or an appropriate sealant.
8. The condensate drain line from each air handler lacked insulation. Insulation should be installed to prevent water damage inside the mechanical closet.
9. The air handler installation lacked an auxiliary or secondary condensate drain system as required by code. It is highly recommended that one of the three types of protection required be provided.
10. Some of the apartment units utilized digital thermostats. It is recommended to change all mechanical thermostats to digital thermostats. Digital thermostats are more accurate with temperature readings and could help prevent excess operation of the air conditioning system.
11. Numerous supply air registers had rust and dirt on them. The registers should be thoroughly cleaned or replaced as needed with new registers.

12. Numerous exhaust fans were dirty or not present during the review. Exhaust fans were either installed or replaced during the summer renovations on this housing project.

### ***Recommendations***

<b>Section</b>	<b>Description</b>	<b>Estimated Cost</b>
3.8.	<b>HVAC Systems</b>	
	Clean Mechanical yards	\$400.00
	Repair damaged insulation on refrigerant line sets	\$2,750.00
	Install proper disposal routes for condensate drains on building exterior	\$5,000.00
	Install secondary condensate float switch	<i>Completed</i>
	Replace all existing diffusers	\$10,000.00

### ***Summary of Findings***

#### ***3.8.1. Building 100***

##### ***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. Three of the four mechanical systems use R-22 refrigerant.
3. The refrigerant piping is routed from the outdoor heat pump into the concrete walkway and then below the slab of the building to the associated air handler. This routing of the piping will make new unit replacement more difficult and will result in higher installation costs.
4. Ductwork located in the attic space appeared to have areas that lacked insulation. Air leaks around the duct seams and joints were also visible. It is recommended to have the ductwork seams and joints sealed with mastic as well as new insulation with a resistance rating of R-8.

##### ***Unit/Room Specific Issues***

###### ***Unit 101***

1. The outdoor heat pump did not have any information listed on it.
2. The air handler (Payne – 2004) has two years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. An exhaust fan was located in the restroom.
5. Apartment has a digital thermostat.

***Unit 102***

1. The outdoor heat pump (Goodman – 1996) has exceeded the expected service life.
2. The air handler (Goodman – 1997) is in the last year of the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.

***Unit 103***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (DNP (Day/Night/Payne – 2002) is entering the first year of the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.
5. An exhaust fan was installed in the restroom but its ductwork was not connected.

***Unit 104***

1. The outdoor heat pump (Tempstar – 2010) has eight years before reaching the minimum expected service life.
2. The indoor air handler (Tempstar – 2010) has eight years before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.

***Recommendations***

Section	Description	Estimated Cost
3.8.1.	<b>HVAC Systems</b>	
	Repair ductwork in attic	
	Replace units in 101, 102, and 103	
	Other needed unit repairs	
	Repair HVAC System	\$10,250.00

***3.8.2. Building 200***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. All mechanical systems use R-22 refrigerant.

3. The refrigerant piping is routed from the outdoor heat pump into the concrete walkway and then below the slab of the building to the associated air handler. This routing of the piping will make new unit replacement more difficult and will result in higher installation costs.
4. All apartment units utilize digital thermostats.
5. Ductwork located in the attic space appeared to have areas that lacked insulation. Air leaks around the duct seams and joints were also visible. It is recommended to have the ductwork seams and joints sealed with mastic as well as new insulation with a resistance rating of R-8.

#### ***Unit/Room specific Issues***

##### ***Unit 201***

1. The outdoor heat pump (Trane – 2007) has five years before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years before reaching the minimum expected service life.
3. Supply air registers are rusty and should be replaced.

##### ***Unit 202***

1. The outdoor heat pump (Trane – 2007) has five years before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years before reaching the minimum expected service life.
3. The indoor refrigerant pipe insulation was missing.
4. A significant air leak was noticed around the air handler.

##### ***Unit 203***

1. The outdoor heat pump (Trane – 2007) has five years before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years before reaching the minimum expected service life.

##### ***Unit 204***

1. The outdoor heat pump (Trane – 2007) has five years before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years before reaching the minimum expected service life.
3. Supply air registers are rusty and should be replaced.



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***Recommendations***

Section	Description	Estimated Cost
3.8.2.	<b>HVAC Systems</b>	
	Repair ductwork in attic	
	Other needed unit repairs	
	Continue HVAC unit change out	
	Repair HVAC System	\$12,700.00

***3.8.3. Building 300***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. All mechanical systems use R-22 refrigerant.
3. The refrigerant piping is routed from the outdoor heat pump into the concrete walkway and then below the slab of the building to the associated air handler. This routing of the piping will make new unit replacement more difficult and will result in higher installation costs.
4. Ductwork located in the attic space appeared to have areas that lacked insulation. Air leaks around the duct seams and joints were also visible. It is recommended to have the ductwork seams and joints sealed with mastic as well as new insulation with a resistance rating of R-8.

***Unit/Room specific Issues***

***Unit 301***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2004) has two years left before reaching the minimum expected service life. .
3. Apartment has a mechanical thermostat.

***Unit 302***

1. The outdoor heat pump did not have any information listed on it.
2. The air handler (Goodman – 1998) has exceeded the expected service life.
3. Apartment has a mechanical thermostat.

***Unit 303***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2004) has two years left before reaching the minimum expected service life. .
3. Apartment has a digital thermostat.
4. Supply air registers are rusty and should be replaced.

***Unit 304***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2004) has two years left before reaching the minimum expected service life. .
3. Apartment has a mechanical thermostat.

***Recommendations***

Section	Description	Estimated Cost
3.8.3.	<b>HVAC Systems</b>	
	Repair ductwork in attic	
	Replace units in 301, 302, 303, and 304	
	Other needed unit repairs	
	Repair HVAC System	\$12,750.00

***3.8.4. Building 400***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. All mechanical systems use R-22 refrigerant.
3. The refrigerant piping is routed from the outdoor heat pump into the concrete walkway and then below the slab of the building to the associated air handler. This routing of the piping will make new unit replacement more difficult and will result in higher installation costs.
4. Ductwork located in the attic space appeared to have areas that lacked insulation. Air leaks around the duct seams and joints were also visible. It is recommended to have the ductwork seams and joints sealed with mastic as well as new insulation with a resistance rating of R-8.

***Unit/Room Specific Issues***

***Unit 401***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2003) has one year left before reaching the minimum expected service life. .
3. Apartment has a mechanical thermostat.

***Unit 402***

1. The outdoor heat pump (Grandaire – 2003) has one year left before reaching the minimum expected service life.
2. The air handler (Goodman – 1998) has exceeded the expected service life. .
3. Apartment has a digital thermostat.

***Unit 403***

1. The outdoor heat pump (Trane – 2007) has five years left before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years left before reaching the minimum expected service life.
3. Apartment has a digital thermostat.

***Unit 404***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2004) has two years left before reaching the minimum expected service life. .
3. Apartment has a mechanical thermostat.
4. Supply air registers are rusty and should be replaced.

***Recommendations***

Section	Description	Estimated Cost
3.8.4.	<b>HVAC Systems</b>	
	Repair ductwork in attic	
	Replace units in 401, 402, and 404	
	Other needed unit repairs	
	Repair HVAC System	\$12,650.00

### **3.8.5. Building 500**

#### ***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. All mechanical systems use R-22 refrigerant.
3. The refrigerant piping is routed from the outdoor heat pump into the concrete walkway and then below the slab of the building to the associated air handler. This routing of the piping will make new unit replacement more difficult and will result in higher installation costs.
4. Ductwork located in the attic space appeared to have areas that lacked insulation. Air leaks around the duct seams and joints were also visible. It is recommended to have the ductwork seams and joints sealed with mastic as well as new insulation with a resistance rating of R-8.

#### ***Unit/Room Specific Issues***

##### ***Unit 501***

1. The outdoor heat pump (Bryant – 2006) has four years left before reaching the minimum expected service life.
2. The air handler (Bryant – 2006) has four years left before reaching the minimum expected service life. .
3. Apartment has a digital thermostat.
4. Supply air registers are rusty and should be replaced.

##### ***Unit 502***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2003) has one year left before reaching the minimum expected service life. .
3. Apartment has a mechanical thermostat.

##### ***Unit 503***

1. The outdoor heat pump (Bryant – 2006) has four years left before reaching the minimum expected service life.
2. The air handler (Carrier – 2006) has four years left before reaching the minimum expected service life. .
3. Apartment has a digital thermostat.

##### ***Unit 504***

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1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne – 2004) has two years left before reaching the minimum expected service life. .
3. Apartment has a mechanical thermostat.

***Recommendations***

Section	Description	Estimated Cost
3.8.5.	<b>HVAC Systems</b>	
	Repair ductwork in attic	
	Replace units in 101, 102, and 103	
	Other needed unit repairs	
	Repair HVAC System	\$12,650.00

***3.8.6. Building 600***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. All mechanical systems use R-22 refrigerant.
3. All apartment units utilize digital thermostats.
4. The outdoor condensing units are located along the rear of the building. Large amounts of trash and debris were located around the condensing units. This can cause refrigerant lines and the condensing units themselves to deteriorate and malfunction.

***Unit/Room Specific Issues***

***Unit 601***

1. The outdoor heat pump (Trane – 2006) has four years left before reaching the minimum expected service life.
2. The air handler (Trane – 2004) has two years left before reaching the minimum expected service life.
3. Supply air registers are rusty and should be replaced.

***Unit 602***

1. The outdoor heat pump (Trane – 2007) has five years left before reaching the minimum expected service life.

2. The air handler (Trane – 2007) has five years left before reaching the minimum expected service life.

***Unit 603***

1. The outdoor heat pump (Trane – 2006) has four years left before reaching the minimum expected service life.
2. The air handler did not have any information listed on it.
3. Missing exhaust fan light lens.
4. Supply air registers should be cleaned.

***Unit 604***

1. The outdoor heat pump (Trane – 2007) has five years left before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years left before reaching the minimum expected service life.

***Recommendations***

Section	Description	Estimated Cost
3.8.6.	<b>HVAC Systems</b>	
	Replace units in 101, 102, and 103	
	Other needed unit repairs	
	Repair HVAC System	\$11,150.00

***3.8.7. Building 700***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. Six of the eight mechanical systems use R-22 refrigerant.
3. The outdoor condensing units are located along the rear of the building. Large amounts of trash and debris were located around the condensing units. This can cause refrigerant lines and the condensing units themselves to deteriorate and malfunction.

***Unit/Room Specific Issues***

***Unit 701***

1. The outdoor heat pump (Trane – 2007) has five years left before reaching the minimum expected service life.

2. The air handler (Trane – 2007) has five years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.
5. Burnt and cracked exhaust fan light cover. Replace the cover and clean the fan grille.

***Unit 702***

1. The outdoor heat pump (Carrier – 2008) has five years left before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Supply air registers are rusty and should be replaced.
5. The bathroom exhaust fan is not working.

***Unit 703***

1. The outdoor heat pump (Trane – 2007) has five years left before reaching the minimum expected service life.
2. The air handler (Trane – 2007) has five years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.
5. Supply air registers are rusty and should be replaced.
6. The bathroom exhaust fan and light are not working.

***Unit 704***

1. The outdoor heat pump (Tempstar – 2009) has seven years left before reaching the minimum expected service life.
2. Mechanical system uses R-410a refrigerant.
3. Apartment has a digital thermostat.

***Unit 705***

1. The outdoor heat pump (Goodman – 1998) has exceeded the expected service life.
2. The air handler (Goodman – 1995) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.

**Unit 706**

1. The outdoor heat pump (Tempstar – 2008) has six years left before reaching the minimum expected service life.
2. Mechanical system uses R-22 refrigerant.
3. Apartment has a digital thermostat.

**Unit 707**

1. The outdoor heat pump (Goodman – 1998) has exceeded the expected service life.
2. The air handler (Goodman – 1995) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.

**Unit 708**

1. The outdoor heat pump (Bryant – 2006) has four years left before reaching the minimum expected service life.
2. The air handler (Carrier – 2006) has four years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.
5. The bathroom exhaust fan is not working.

**Recommendations**

Section	Description	Estimated Cost
3.8.7.	<b>HVAC Systems</b>	
	Replace units in 705, 707, and 708	
	Other needed unit repairs	
	Repair HVAC System	\$21,400.00

**3.8.8. Building 800**

**Observations**

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. Five of the eight mechanical systems use R-22 refrigerant.
3. All apartment units utilize digital thermostats.



4. The outdoor condensing units are located along the rear of the building. Large amounts of trash and debris were located around the condensing units. This can cause refrigerant lines and the condensing units themselves to deteriorate and malfunction.
5. The condensate from the four indoor air handlers is discharged on the rear porch of the lower apartments. This causes water to collect and puddle along the building.



Figure 35: Condensate Discharge Issue

### ***Unit/Room Specific Issues***

#### ***Unit 801***

1. The outdoor heat pump (Goodman – 1997) has exceeded the expected service life.
2. The air handler (Goodman – 1995) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.

#### ***Unit 802***

1. The outdoor heat pump (Tempstar – 2008) has six years left before reaching the minimum expected service life.
2. The air handler (Airquest – 2008) has six years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.

#### ***Unit 803***

1. The outdoor heat pump (Bryant – 2006) has four years left before reaching the minimum expected service life.

2. The air handler (Carrier – 2006) has four years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.

***Unit 804***

1. The outdoor heat pump (Tempstar – 2008) has six years left before reaching the minimum expected service life.
2. The air handler (Airquest – 2008) has six years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.

***Unit 805***

1. The outdoor heat pump (Tempstar – 2010) has eight years left before reaching the minimum expected service life.
2. The air handler (Carrier – 2008) has six years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.
5. The bathroom exhaust fan is not working.

***Unit 806***

1. The outdoor heat pump (Goodman – 1997) has exceeded the expected service life.
2. The air handler (Goodman – 1995) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Exhaust fan grille needs cleaning.

***Unit 807***

1. The outdoor heat pump (Tempstar – 2010) has eight years left before reaching the minimum expected service life.
2. The air handler (Tempstar– 2010) has eight years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.
5. Missing bathroom exhaust fan light lens cover.

***Unit 808***

1. The outdoor heat pump (Tempstar – 2009) has seven years left before reaching the minimum expected service life.
2. The air handler (Carrier– 2009) has seven years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.

***Recommendations***

Section	Description	Estimated Cost
3.8.8.	<b>HVAC Systems</b>	
	Replace units in 801, 803, and 806	
	Other needed unit repairs	
	Repair HVAC System	\$21,400.00

***3.8.9. Building 900***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. Two of the four mechanical systems use R-22 refrigerant.
3. All apartment units utilize digital thermostats.
4. Ductwork located in the attic space appeared to have areas that lacked insulation. Air leaks around the duct seams and joints were also visible. It is recommended to have the ductwork seams and joints sealed with mastic as well as new insulation with a resistance rating of R-8.

***Unit/Room Specific Issues***

***Unit 901***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne– 2004) has two years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.

***Unit 902***

1. The outdoor heat pump (Bryant – 2006) has four years left before reaching the minimum expected service life.
2. The air handler (Bryant– 2006) has four years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.

***Unit 903***

1. The outdoor heat pump (Payne – 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne– 2004) has two years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.

***Unit 904***

1. The outdoor heat pump (Bryant – 2006) has four years left before reaching the minimum expected service life.
2. The air handler (Carrier– 2006) has four years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.

***Recommendations***

Section	Description	Estimated Cost
3.8.9.	<b>HVAC Systems</b>	
	Repair ductwork in attic	
	Replace units in 901, 902, 903, and 904	
	Repair HVAC System	\$12,750.00

***3.8.10. Building 1000***

***Observations***

1. The age of the outdoor heat pumps and air handlers are listed below in the respective apartment unit section.
2. Six of the eight mechanical systems use R-22 refrigerant.

3. The outdoor condensing units are located along the rear of the building. Large amounts of trash and debris were located around the condensing units. This can cause refrigerant lines and the condensing units themselves to deteriorate and malfunction.

***Unit/Room Specific Issues***

***Unit 1001***

1. The outdoor heat pump (Carrier – 2010) has eight years left before reaching the minimum expected service life.
2. The air handler (Carrier– 2010) has eight years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a digital thermostat.

***Unit 1002***

1. The outdoor heat pump (Goodman – 1998) has exceeded the expected service life.
2. The air handler (Goodman– 1998) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.

***Unit 1003***

1. The outdoor heat pump (Trane - 2007) has five years left before reaching the minimum expected service life.
2. The air handler (Trane - 2007) has five years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.
5. Indoor air handler appears to be leaning.



Figure 36: Leaning Air Handler Issue

***Unit 1004***

1. The outdoor heat pump (Tempstar - 2009) has seven years left before reaching the minimum expected service life.
2. The air handler (Carrier-2009) has seven years left before reaching the minimum expected service life.
3. Mechanical system uses R-410a refrigerant.
4. Apartment has a mechanical thermostat.
5. The bathroom exhaust fan is not working.

***Unit 1005***

1. The outdoor heat pump (Payne - 2004) has two years left before reaching the minimum expected service life.
2. The air handler (Payne - 2004) has two years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a digital thermostat.
5. The bathroom exhaust fan is not working.

***Unit 1006***

1. The outdoor heat pump (Goodman - 1998) has exceeded the expected service life.
2. The air handler (Goodman - 1998) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.
5. The bathroom exhaust fan is not working.
6. Indoor air handler appears to be leaning.



Figure 37: Leaning Air Handler Issue

***Unit 1007***

1. The outdoor heat pump (Goodman - 1998) has exceeded the expected service life.
2. The air handler (Bryant – 2004) has two years left before reaching the minimum expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.

***Unit 1008***

1. The outdoor heat pump (Goodman - 1998) has exceeded the expected service life.
2. The air handler (Goodman - 1998) has exceeded the expected service life.
3. Mechanical system uses R-22 refrigerant.
4. Apartment has a mechanical thermostat.

***Recommendations***

Section	Description	Estimated Cost
3.8.10.	<b>HVAC Systems</b>	
	Repair ductwork in attic.	
	Replace units in 1002, 1005, 1006, 1007, and 1008	
	Other needed unit repairs	
	Repair HVAC System	\$23,200.00

### **3.8.11. Commons Building**

#### **Observations**

1. System 1 the outdoor heat pump (Payne - 2006) has four years left before reaching the minimum expected service life.
2. System 1 the air handler (Payne - 2006) has four years left before reaching the minimum expected service life.
3. System 2 the outdoor heat pump (Payne – 2006) has four years left before reaching the minimum expected service life.
4. System 2 the air handler (Payne – 2006) has four years left before reaching the minimum expected service life.
5. System 3 the outdoor heat pump (Carrier – 2013) has ten years left before reaching the minimum expected service life.
6. System 3 the air handler (Carrier – 2013) has ten years left before reaching the minimum expected service life.
7. One of the Heat Pumps located outside of the office space in not placed on a pad. The other unit is placed on a pad; however the pad is not level.



Figure 38: Heat Pumps outside Office of Community Building

#### **Recommendations**

Section	Description	Estimated Cost
3.8.11.	<b>HVAC Systems</b>	
	Repair/install housekeeping pads	
	Replace units	
	Other needed unit repairs	
	Repair HVAC System	\$8,950.00



### 3.9. Electrical Systems

#### *Observations*

All of the housing buildings are served via a single meter center located on one end of each of the housing buildings. The general house power and lighting is served from the unit panels. Emergency/Egress lighting is not present on each building stairwell. General purpose lighting at the stairwells is provided by lighting fixtures at the doors. General purpose lighting is provided by in the units by standard residential style fixtures. These fixtures currently utilize both incandescent and screw in compact fluorescent lamps. The commons building is served via a single meter feeding distribution panels in the building. The panels serve the power and lighting in this building. There is no emergency lighting present in this building. The general purpose lighting is provided by in the residence of this building by standard residential style fixtures. The lighting in the common spaces is mostly provided by linear fluorescent fixtures.

The entire complex is protected by a centralized fire alarm system. The central controller for this system is located in the office area of the community building. This system is shown to be operating correctly. Since there is a centralized fire alarm system, including detection and notification, installed throughout the housing complex no local smoke detectors are needed. However, some of the original 120V smoke detectors still remain in various housing units.

1. There are many various fixture types utilized throughout the University Crossings Housing complex. Most of these fixtures are utilizing A19 screw-in incandescent lamps.
2. There are missing and damaged device plates throughout the University Crossings Housing complex in all buildings.



Figure 39: Unit 101 Missing Device Plate (Typical Condition in Most Units)



Figure 40: Unit 401 Missing Device Plate (Typical Condition in Most Units)

3. The exterior receptacles are not GFCI protected devices and do not have device plates which meet current codes. Some of these device plates are now damaged. We recommend changing out the devices and plates with products meeting current code.
4. The stairwells at each of the building in the complex need to have added emergency and egress lighting.

### ***Recommendations***

Section	Description	Estimated Cost
3.9.	<b>Electrical Systems</b>	
	Replace existing lamps with fluorescent lamps	\$20,000.00
	Replace damaged/missing device plates	\$8,700.00
	Replace exterior receptacles with GFCI's	\$1,500.00

#### ***3.9.1. Building 100***

### ***Observations***

1. The existing electrical service for this building consists of a 4 gang meter center located on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service entrance cables are routed exposed below each of the meters on the exterior of the building. This installation does meet current codes. However, the existing service is lacking the current code required main disconnecting means for each unit. Based on the date when these units were built, these disconnects may not have been required. Further, the exposed service entrance cables are not a best installation practice. Should these cables become damaged in any way there is no overcurrent protection. This service is in fair physical shape and should not give any problems during the next five years.



Figure 41: Building 1 Service Meters and Exposed Service Entrance Cables

2. The grounding and bonding conductor for this meter center is not properly secured to the wall.
3. The clothes closets throughout this building utilize incandescent lamps with open type luminaire lamp holders. This is a violation of current code. Open type luminaire lamp holders are not allowed in this application. NEC code has been revised many times concerning this issue due to the fire hazard present by luminaires in clothes closets. There are a few units that do have lensed fixtures, however in many cases these lensed fixtures are missing their lenses or are too close to the closet shelves to comply with current codes.
4. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
5. The building attic access in Unit 103 has NM cables and low voltage cable running across the access opening. This is a code violation. The cables must be routed around the opening and they are within 6 feet of the opening it must have physical protection. In the upper left hand corner of the picture below there is an open splice made in the NM cable.



Figure 42: Building 1 – Attic Access Exposed and Unprotected Cables

6. There was no GFCI protection found for the kitchen counter top receptacles or the bathroom receptacles. This is a violation of current code and presents a safety issue.



Figure 43: Building 1 – Unit 101 No GFCI Protection

### ***Unit/Room Specific Issues***

#### ***Unit 101***

1. In the mechanical closet there is an open splice in the NM cable connecting the water heater. This does not meet code.
2. The NM cable connecting the water heater does not have a cable connector securing the cable to the water heater. This does not meet code.
3. The NM cable connector at the air handler is not properly installed. Currently there are exposed conductors. This does not meet code.
4. The ceiling mounted light fixture is not properly secured to the ceiling.
5. There is a 240V receptacle installed below the electrical panel board in the kitchen. This device has been painted over numerous times is missing, a device

plate, and does not appear to serve any piece of equipment. This should be removed for safety reasons.

#### ***Unit 102***

1. In the mechanical closet there is an open splice in the NM cable connecting the water heater. This does not meet code.



Figure 44: Building 1 – Unit 102 Open Splices

2. The NM cable connecting the water heater does not have a cable connector securing the cable to the water heater. This does not meet code.
3. The NM cable connector at the air handler is not properly installed. Currently there are exposed conductors. This does not meet code.
4. The electrical panel cover latch is broken. The cover now has a hook and hasp functioning as the panel lock.
5. The wiring on the kitchen counter top receptacle when tested in using an easy check indicated there was a wiring issue.

#### ***Unit 103***

1. There are individual strands of branch circuit conductors wrapped in tape serving the air handler. These conductors are rated for installation only in conduit. Also, there is an open splice in these cables before they enter the air handler. This does not meet code.

#### ***Unit 104***

1. The electrical distribution panel serving this space has an cover that has been altered and does not meet code.

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Figure 45: Unit 104 – Altered Panel Cover

2. The NM cable serving the Air handler has been spliced in a junction box. However, the NM cable is showing signs of deterioration and is not properly supported.

***Recommendations***

Section	Description	Estimated Cost
3.9.1.	<b>Electrical Systems</b>	
	Provide enclosure around service entrance cables	
	Secure grounding wires	
	Replace lighting fixtures in closets	
	Rework wiring in attic access	
	Provide GFI protected outlets in kitchens and bathrooms	
	Other needed unit repairs	
	Repair Electrical System	\$4,825.00

### **3.9.2. Building 200**

#### ***Observations***

1. The existing electrical service for this building consists of a 4 gang meter center located on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service entrance cables are routed exposed below each of the meters on the exterior of the building. This installation does meet current codes. However, the existing service is lacking the current code required main disconnecting means for each unit. Based on the date when these units were built, these disconnects may not have been required. Further, the exposed service entrance cables are not a best installation practice. Should these cables become damaged in any way there is no overcurrent protection. This service is in fair physical shape and should not give any problems during the next five years.
2. This overhead service on this building has and open eye bolt on the messenger cable which is open in the direction of tension.
3. There was no GFCI protection found for the kitchen counter top receptacles or the bathroom receptacles. This is a violation of current code and presents a safety issue.



Building 2 Open Eye Bolt on Service Messenger Cable

4. The clothes closets throughout this building utilize incandescent lamps with open type luminaire lamp holders. This is a violation of current code. Open type luminaire lamp holders are not allowed in this application. NEC code has been revised many times concerning this issue due to the fire hazard present by luminaires in clothes closets. There are a few units that do have lensed fixtures, however in many cases these lensed fixtures are missing their lenses or are too close to the closet shelves to comply with current codes.



5. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
6. The grounding conductor installed during the fire alarm modifications is not protected from physical damage nor supported properly.



Figure 46: Building 2 Unprotected Grounding Conductor

7. The water heaters for all 4 units are located in the storage room below the interior stair case. The wiring serving these units has numerous open splices and improperly terminated cables.



Figure 47: Building 2 Storage Closet with Open Splices and Incorrect Terminations



***Unit/Room Specific Issues***

***Unit 202***

1. The wiring on the kitchen counter top receptacle when tested in using an easy check indicated there was a wiring issue.

***Recommendations***

Section	Description	Estimated Cost
3.9.2.	<b>Electrical Systems</b>	
	Provide enclosure around service entrance cables	
	Repair eye bolt on messenger cable	
	Provide GFI protected outlets in kitchens and bathrooms	
	Replace lighting fixtures in closets	
	Secure and protect grounding conductor	
	Rework wiring associated with water heaters	
	Other needed unit repairs	
	Repair Electrical System	\$4,400.00

***3.9.3. Building 300***

***Observations***

1. The existing electrical service for this building consists of a 4 gang meter center located on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service is lacking the current code required main disconnecting means for each unit. Based on the date when these units were built, these disconnects may not have been required. This service is in fair physical shape and should not give any problems during the next five years.
2. The clothes closets throughout this building utilize incandescent lamps with open type luminaire lamp holders. This is a violation of current code. Open type luminaire lamp holders are not allowed in this application. NEC code has been revised many times concerning this issue due to the fire hazard present by luminaires in clothes closets. There are a few units that do have lensed fixtures, however in many cases these lensed fixtures are missing their lenses or are too close to the closet shelves to comply with current codes.
3. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.

4. The storage closet located below the interior stairwell has a pull chain type porcelain lamp socket which has an screw-in receptacle adapter and no lamp.
5. There was no GFCI protection found for the kitchen counter top receptacles or the bathroom receptacles. This is a violation of current code and presents a safety issue.

***Unit/Room Specific Issues***

***Unit 301***

1. Missing lighting fixture lens in bedroom.

***Unit 303***

1. In the mechanical closet there is an open splice in the NM cable connecting the air handler. Also the conductors installed through the NM connector are not rated for this use.



Figure 48: Unit 303 – Open Splice and Incorrect Conductor Usage

**Unit 303 – Open Splice and Incorrect Conductor Usage**

2. The low voltage conductors installed in the mechanical closet for what appears to be an alarm system are not properly supported.

***Unit 304***

1. There is a receptacle in the living area that is not properly secured to the wall.



Figure 49: Unit 304 – Improperly Secured Device

### ***Recommendations***

Section	Description	Estimated Cost
3.9.3.	<b>Electrical Systems</b>	
	Provide enclosure around service entrance cables	
	Replace lighting fixtures in closets	
	Repair lighting in building storage closet	
	Provide GFI protected outlets in kitchens and bathrooms	
	Other needed unit repairs	
	Repair Electrical System	\$3,900.00

### ***3.9.4. Building 400***

#### ***Observations***

1. The existing electrical service for this building consists of a 4 gang meter center located on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service entrance cables are routed exposed below each of the meters on the exterior of the building. This installation does meet current codes. However, the existing service is lacking the current code required main disconnecting means for each unit. Based on the date when these units were built, these disconnects may not have been required. Further, the exposed service entrance cables are not a best installation practice. Should these cables become damaged in any way there is no overcurrent protection. This service is in fair physical shape and should not give any problems during the next five years.

2. The clothes closets throughout this building utilize incandescent lamps with open type luminaire lamp holders. This is a violation of current code. Open type luminaire lamp holders are not allowed in this application. NEC code has been revised many times concerning this issue due to the fire hazard present by luminaires in clothes closets. There are a few units that do have lensed fixtures, however in many cases these lensed fixtures are missing their lenses or are too close to the closet shelves to comply with current codes.
3. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
4. There was no GFCI protection found for the kitchen counter top receptacles. This is a violation of current code and presents a safety issue. The bathroom counter top receptacles were found to have GFCI breaker protection.

***Unit/Room Specific Issues***

***Unit 401***

1. The electrical distribution panel is missing a breaker blank.

***Recommendations***

Section	Description	Estimated Cost
3.9.4.	<b>Electrical Systems</b>	
	Provide enclosure around service entrance cables	
	Replace lighting fixtures in closets	
	Provide GFI protected outlets in kitchens and bathrooms	
	Other needed unit repairs	
	Repair Electrical System	\$3,200.00

### **3.9.5. Building 500**

#### ***Observations***

1. The existing electrical service for this building consists of a 4 gang meter center located on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service entrance cables are routed exposed below each of the meters on the exterior of the building. This installation does meet current codes. However, the existing service is lacking the current code required main disconnecting means for each unit. Based on the date when these units were built, these disconnects may not have been required. Further, the exposed service entrance cables are not a best installation practice. Should these cables become damaged in any way there is no overcurrent protection. This service is in fair physical shape and should not give any problems during the next five years.
2. The grounding and bonding conductor for this meter center is not properly secured to the wall.
3. The clothes closets throughout this building utilize incandescent lamps with open type luminaire lamp holders. This is a violation of current code. Open type luminaire lamp holders are not allowed in this application. NEC code has been revised many times concerning this issue due to the fire hazard present by luminaires in clothes closets. There are a few units that do have lensed fixtures, however in many cases these lensed fixtures are missing their lenses or are too close to the closet shelves to comply with current codes.
4. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
5. The building attic access in Unit 503 has NM cables running across the access opening. This is a code violation. Once of these cables is damaged. All NM cables must be routed around the opening and if they are within 6 feet of the opening it must have physical protection.
6. There was no GFCI protection found for the kitchen counter top receptacles. This is a violation of current code and presents a safety issue. The bathroom counter top receptacles were found to have GFCI breaker protection.

#### ***Unit/Room Specific Issues***

##### ***Unit 502***

1. There is an open junction box on the wall of the living room area.

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***Recommendations***

Section	Description	Estimated Cost
3.9.5.	<b>Electrical Systems</b>	
	Provide enclosure around service entrance cables	
	Secure and protect grounding conductor	
	Replace lighting fixtures in closets	
	Repair and re-work nm cables at the attic opening	
	Provide GFI protected outlets in kitchens and bathrooms	
	Other needed unit repairs	
	Repair Electrical System	\$3,650.00

***3.9.6. Building 600***

***Observations***

1. The existing electrical service for this building consists of a four gang meter centers on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service has exterior main disconnecting means for each unit. This service is in good physical shape and should not give any problems during the next five years.
2. The stairs serving this building do not have any form of emergency egress lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. These exterior lights have been wired so such that they burn 24/7 with not student control. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
3. The clothes closets throughout this building utilize incandescent lensed lighting fixtures, however many of these fixtures are missing their lenses and in some cases are installed too close to the closet shelves to comply with current codes.

***Unit/Room Specific Issues***

***Unit 601***

1. One of the old 120V smoke detector is missing.
2. One of the closet light fixtures is not secured to the ceiling.

***Unit 602***

1. One of the closet light fixtures is not secured to the ceiling.



Figure 50: Unit 602 – Light Fixture not Secured and Missing Lens

### ***Unit 603***

1. Broke device plate at entry of unit.
2. Missing light fixture globe.

### ***Recommendations***

Section	Description	Estimated Cost
3.9.6.	<b>Electrical Systems</b>	
	Replace/repair lighting fixtures in closets	
	Other needed unit repairs	
	Repair Electrical System	\$1,300.00

### ***3.9.7. Building 700***

### ***Observations***

1. The existing electrical service for this building consists of two four gang meter centers on the exterior of the building. Each meter serves 1 of the 8 living units in the building. The existing service has exterior main disconnecting means for each unit. This service is in good physical shape and should not give any problems during the next five years.
2. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
3. The code required clearance is not maintained in front of the electrical panel serving each unit in this building. Currently the refrigerator of each unit is blocking the needed clearance.



Figure 51: Unit 701 Panel Clearance Issue

4. The clothes closets throughout this building utilize incandescent lensed lighting fixtures, however many of these fixtures are missing their lenses and in some cases are installed too close to the closet shelves to comply with current codes.

#### ***Unit/Room Specific Issues***

##### ***Unit 701***

1. Open lamp fixture installed in the kitchen area.

##### ***Unit 703***

1. The range receptacle has been installed behind the casework. There is currently an accessible path for connecting the cord.
2. There appears to be some form of alarm panel in this unit installed below the electrical panel. This alarm panel is also not accessible as defined by code.
3. One of the 120V smoke detectors is not installed.

##### ***Unit 707***

1. Coax device plate is not properly secured to the wall in the bedroom.

#### ***Recommendations***

Section	Description	Estimated Cost
3.9.7.	<b>Electrical Systems</b>	
	Replace/repair lighting fixtures in closets	
	Relocate panels to comply with code	
	Other needed unit repairs	
	Repair Electrical System	\$12,450.00



### **3.9.8. Building 800**

#### ***Observations***

1. The existing electrical service for this building consists of two four gang meter centers on the exterior of the building. Each meter serves 1 of the 8 living units in the building. The existing service has exterior main disconnecting means for each unit. This service is in good physical shape and should not give any problems during the next five years.
2. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
3. The code required clearance is not maintained in front of the electrical panel serving each unit in this building. Currently the refrigerator of each unit is blocking the needed clearance. Unit 804 is the only exception.
4. The clothes closets throughout this building utilize incandescent lensed lighting fixtures, however many of these fixtures are missing their lenses and in some cases are installed too close to the closet shelves to comply with current codes.

#### ***Unit/Room Specific Issues***

##### ***Unit 802***

1. 120V smoke detector is missing.
2. Lighting fixture installed in this space does not match any other lighting fixture in the complex.

##### ***Unit 804***

1. One of the receptacles in the living area of this space is not properly secured.

##### ***Unit 805***

1. One of the closet lighting fixtures is not secured to the ceiling.

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***Recommendations***

Section	Description	Estimated Cost
3.9.8.	<b>Electrical Systems</b>	
	Replace/repair lighting fixtures in closets	
	Relocate panels to comply with code	
	Other needed unit repairs	
	Repair Electrical System	\$12,250.00

***3.9.9. Building 900***

***Observations***

1. The existing electrical service for this building consists of a 4 gang meter center located on the exterior of the building. Each meter serves 1 of the 4 living units in the building. The existing service entrance cables are routed exposed below each of the meters on the exterior of the building. This installation does meet current codes. However, the existing service is lacking the current code required main disconnecting means for each unit. Based on the date when these units were built, these disconnects may not have been required. Further, the exposed service entrance cables are not a best installation practice. Should these cables become damaged in any way there is no overcurrent protection. This service is in fair physical shape and should not give any problems during the next five years.
2. There was no GFCI protection found for the kitchen counter top receptacles or the bathroom receptacles. This is a violation of current code and presents a safety issue.
3. The clothes closets throughout this building utilize incandescent lamps with open type luminaire lamp holders. This is a violation of current code. Open type luminaire lamp holders are not allowed in this application. NEC code has been revised many times concerning this issue due to the fire hazard present by luminaires in clothes closets. There are a few units that do have lensed fixtures, however in many cases these lensed fixtures are missing their lenses or are too close to the closet shelves to comply with current codes.
4. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.

***Unit/Room Specific Issues***

***Unit 901***

1. One of the 120V smoke detectors is missing. This leaves an open junction box on the ceiling.
2. The weather proof receptacle on the back porch is missing a cover.



Figure 52: Unit 901 - Missing Weather Proof Cover

***Recommendations***

Section	Description	Estimated Cost
3.9.9.	<b>Electrical Systems</b>	
	Provide enclosure around service entrance cables	\$250.00
	Install needed GFCI receptacles in kitchen	\$350.00
	Replace lighting fixtures in closets	\$2,500.00
	Other needed unit repairs	\$200.00
	Repair Electrical System	\$3,300.00

***3.9.9. Building 1000***

***Observations***

1. The existing electrical service for this building consists of two four gang meter centers on the exterior of the building. Each meter serves 1 of the 8 living units in the building. The existing service has exterior main disconnecting means for each unit. This service is in good physical shape and should not give any problems during the next five years.

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2. The stairs serving this building do not have any form of emergency lighting. Each of the existing apartment units have an associated exterior door light, however, none of these lights have emergency capabilities. All egress stairs should have emergency lighting meeting minimum standards for egress during an emergency.
3. The code required clearance is not maintained in front of the electrical panel serving each unit in this building. Currently the refrigerator of each unit is blocking the needed clearance.
4. The clothes closets throughout this building utilize incandescent lensed lighting fixtures, however many of these fixtures are missing their lenses and in some cases are installed too close to the closet shelves to comply with current codes.

***Unit/Room Specific Issues***

***Unit 1004***

1. The receptacle in the living space is not secured properly to the wall.

***Unit 1007***

1. GFCI protected receptacle is missing from the bathroom sink area.
2. 120V smoke detector is missing leaving an open junction box on the ceiling.

***Recommendations***

Section	Description	Estimated Cost
3.9.10.	<b>Electrical Systems</b>	
	Replace lighting fixtures in closets	
	Relocate panels to comply with code	
	Other needed unit repairs	
	Repair Electrical System	\$12,250.00

***3.9.11. Commons Building***

***Observations***

1. The service to this building is in good physical shape and should not give any problems during the next five years.
2. The fluorescent lamps in this building will have to be changed out during the next five years. We recommend that a building wide lamping be performed.

***Recommendations***

Section	Description	Estimated Cost
3.9.9.	<b>Electrical Systems</b>	
	Replace lighting in building	
	Repair Electrical System	\$700.00

**3.10. Conveying Systems**

***Observations***

There is one two stop hydraulic elevator located in building 7000. The Campus has an ongoing service contract in place for maintaining the elevator.

***Recommendation***

As long as the Campus maintains the service contract, the elevator should last through the evaluation period.

**3.11. Life Safety and Fire Protection**

***General Observations***

Please note that after this survey was started a fire protection upgrade was conducted on this complex. This upgrade added fire sprinklers to all buildings as well addressed some of the code issues

Once the renovation/upgrade project is completed all of the buildings and units will be fully sprinkled. As long as regular maintenance and inspection practices are maintained, the sprinkler system should continue in service for years to come.

**3.12. Interior Elements**

Refer to comments found in the interview section of the document.

**Observations**

**Buildings 1000, 2000, 3000, 4000 and 7000**

The walls and ceilings are painted gypsum board. The flooring is sheet vinyl in the kitchen, ceramic tile in the bathrooms and carpet in all other spaces. The floor base is Medium Density Fiberboard (MDF) material except in the bathrooms it is ceramic tile. Plastic laminate countertops are in the kitchen and bathrooms.

**Buildings 5000, 6000 and 8000 – also portions of Buildings 2000 and 4000.**

All carpet and sheet vinyl areas have been replaced with luxury vinyl tile (LVT). The MDF base at these locations has been removed and vinyl base has been installed in its place.

**Recommendations**

The campus intends to continue with the changes made in building 5000, 6000 and 8000. That work should be complete in the summer of 2015. Once complete, there should be no more interior finish work required for the term except as required for general maintenance.

**4. ADDITIONAL CONSIDERATIONS**

**4.1. Code Compliance**

Refer to the interview section of this document.  
Code violations that were observed have been noted at each individual building review.

**4.2. Accessibility to Disabled Persons**

Refer to the interview section of this document. Accessibility violations that were observed have been noted at each individual building review.

**4.3. Furniture, Fixtures and Equipment**

The FFE is funded through Auxiliary Services, and is not included in this report.

**4.4. Seismic Assessment**

According to ASCE 7-05 Section 11.4-2, the Property is rated at Soil Class D and Design Class C per Table 11.6-1 and 11.6-2. A Scenario of Expected Loss report was not included in CMA's scope of work.

**4.5. FEMA Wind Zone Determination**

According to ASCE 7-05 Figure 6-1B, the Property is located in an area rated for 120 MPH wind speed. A Scenario of Expected Loss report was not included in CMA's scope of work.

**5. RECOMMENDATIONS AND PRELIMINARY OPINIONS OF COST**

**5.1. Opinions of Cost**

The opinions of cost presented are for the repair/replacement of readily visible materials and building system effects that might significantly affect the value of the Property. These opinions are based on approximate quantifies and values. They do not constitute a warranty that all items which may require repair or replacement are included.

Estimated cost opinions presented in this report are from a combination of sources. The primary sources include information from Means Repair and Remodeling Cost Data and Means Construction Cost Data as well as our firms on cost data information. In some instances, suppliers and contractors were contacted for input into costing information.

The costs are separated into the following categories based on the University System of Georgia requirements.

- Priority 1: Currently Critical (Immediate) – Items in this category require immediate action.
- Priority 2: Potentially Critical (Year One) – Items in this category, if not corrected expeditiously, will become critical within a year.
- Priority 3: Necessary – Not Yet Critical (Year Two – Five): Items in this category include conditions requiring prompt attention.
- Priority 4: Recommended (Year Six – Nine) – Items in this category represent a sensible improvement to existing conditions. *Not included in the scope of work for this survey.*
- Priority 5: Recommended (Ten Years or Beyond) – Items in this category represent an economic payback. The total term is based on 12 years. *Not included in the scope of work for this survey.*

## 5.2. Current Replacement Value (CRV)

Refer to appendix A for the CRV

## 5.3. Facility Condition Index (FCI)

The Facility Condition Index is the ratio of deferred maintenance dollars to replacement dollars and provides a comparison of an organization's assets. To calculate the FCI for a building, divide the total estimated cost to complete deferred maintenance projects for the building by its estimated replacement value.

$$FCI = \frac{\text{Total of Building Repair, Upgrade, Renewal Needs (\$)}}{\text{Current Replacement Value of Building Components (\$)}}$$

The lower the FCI, the lower the need for remedial or renewal funding relative to the facility's value.

FCI Value	Asset Condition
0.00 to 0.49	Good Condition
0.05 to 0.09	Fair Condition
0.10 to 0.30	Poor Condition

Refer to appendix A for the FCI by building

## **6. Appendices**

**Appendix A: Immediate and Physical Needs Over the Term Table**

**Appendix B: Property Location and Aerial Photo and Site Photographs**

**Appendix C: Supporting Documentation**

**Appendix D: Professional Resumes**

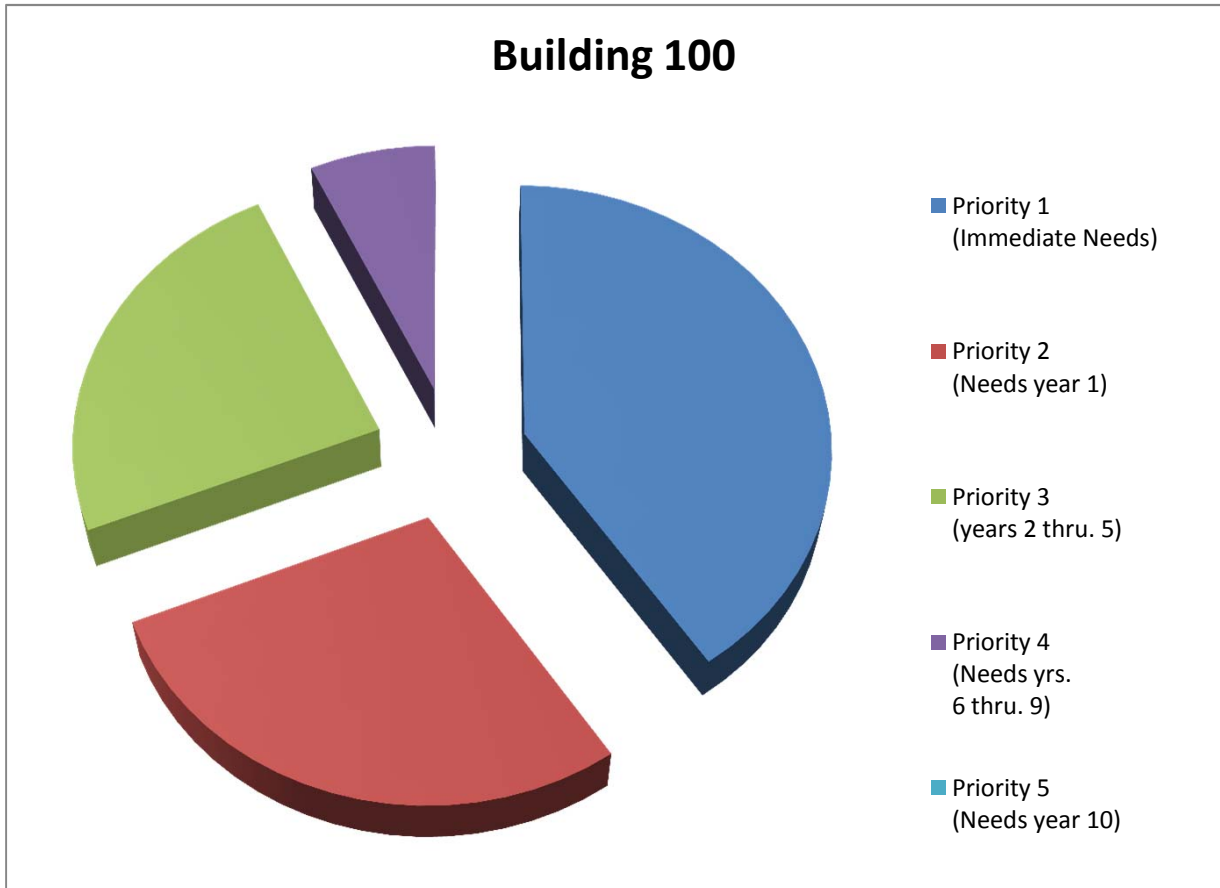
**Appendix E: Condition Evaluation Definitions and Common Abbreviations**

**Appendix F: Work Item Recommendation and General Definitions**



**Appendix A – Immediate and Physical Needs Over the Term Tables**

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

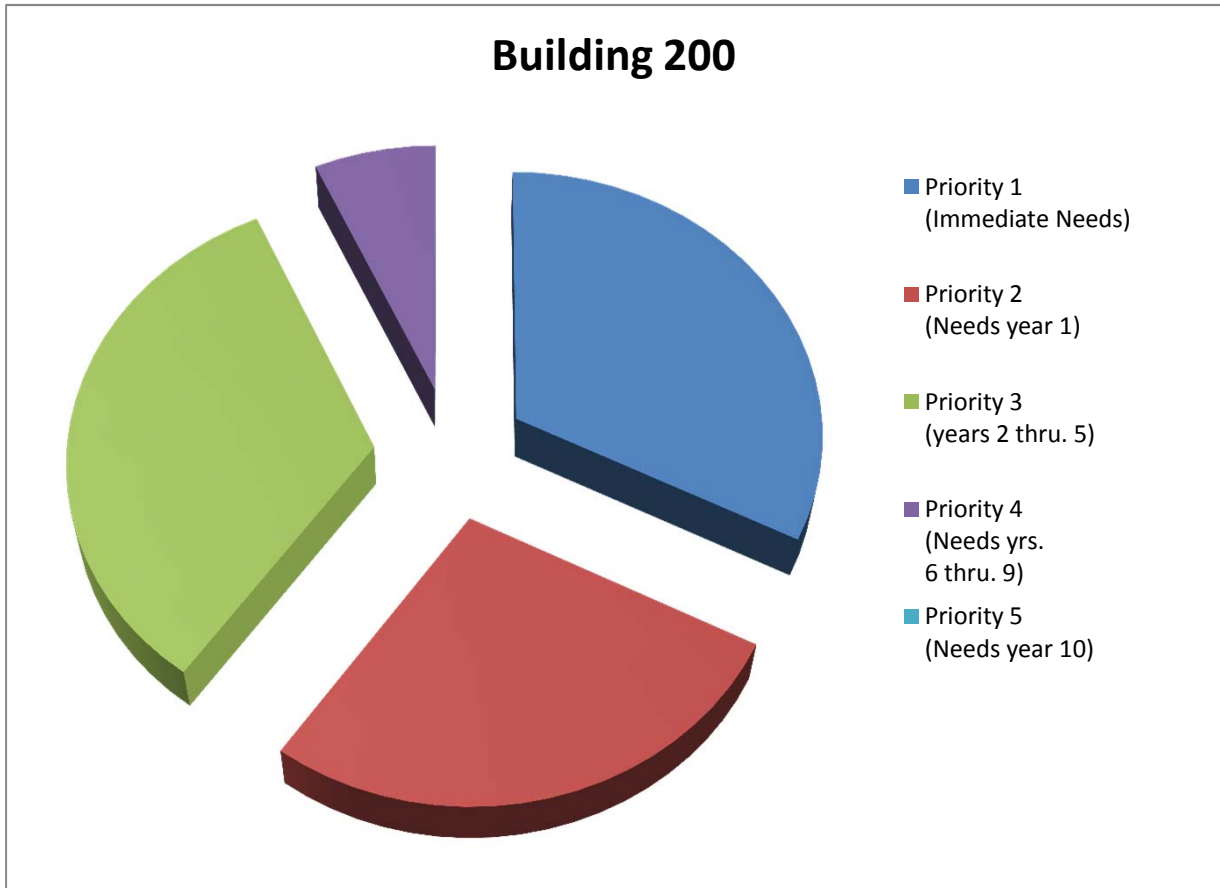


FACILITY CONDITION ASSESSMENT

University Crossings Building 100  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																				
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals	
3.3.4 PAVING, CURBING AND PARKING																				
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00	
3.6.3.8.1 EXTERIOR WALLS																				
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00	
Replace column surrounds	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
3.6.3.8.2 PORCHES / STAIRS																				
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00	
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00	
3.6.3.8.3 DOORS																				
Repaint paintable surfaces	7	5	2	8	EACH	\$106.00				\$848.00							\$848.00		\$1,696.00	
Replace sealants and soft joints	15	13	2	120	LF	\$3.50				\$420.00									\$420.00	
3.6.3.8.4 WINDOWS																				
Replace window caulking	15	13	2	480	LF	\$3.50				\$1,680.00									\$1,680.00	
Replace window screens	5	0	0	30	EACH	\$85.00			\$2,550.00					\$2,550.00					\$5,100.00	
3.6.3.8.5 SOFFITS & FASCIA																				
Replace & repair damaged eaves	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Replace & repair damaged soffits	--	--	--	1	LS	\$120.00	\$120.00												\$0.00	
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																				
Replace roof and flashing systems	15	--	15	2,750	SF	\$2.35			\$6,462.50										\$6,462.50	
3.7.8 PLUMBING SYSTEMS																				
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$675.00	\$675.00												\$0.00	
Replace apartment water heaters	15	10	5	4	EACH	\$920.00							\$3,680.00						\$3,680.00	
Replace apartment garbage disposals	12	11	1	4	EACH	\$225.00			\$900.00										\$900.00	
3.8.8 HVAC SYSTEMS																				
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00	
Continue HVAC unit change out	10	10	0	3	EACH	\$2,500.00	\$2,500.00			\$5,000.00									\$5,000.00	
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Repair ducctwork in attic	--	--	--	1	LS	\$1,250.00			\$1,250.00											
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$350.00	\$350.00												\$0.00	
3.9.8 ELECTRICAL SYSTEMS																				
Enclosure around service entry cables	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Secure ground wires	--	--	--	1	LS	\$125.00	\$125.00												\$0.00	
Replace lighting fixtures	--	--	--	1	LS	\$2,500.00			\$2,500.00										\$2,500.00	
Rework wiring in attic access	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Provide GFI protected outlets in kitchens & bathrooms	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$1,000.00	\$1,000.00												\$0.00	
3.11.8 LIFE SAFETY & FIRE PROTECTION																				
Replace/repair all handrails to meet Code	--	--	--	22	LF	\$33.50	\$737.00												\$0.00	
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00	
Total Immediate Repair Needs:							\$19,540													
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$13,662.50	\$7,948.00	\$0.00	\$0.00	\$3,680.00	\$2,550.00	\$0.00	\$0.00	\$848.00	\$0.00	\$27,438.50	
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249		
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$13,662.50	\$8,146.70	\$0.00	\$0.00	\$4,062.72	\$2,884.05	\$0.00	\$0.00	\$1,032.86	\$0.00	\$29,788.83	
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$46,978.50	
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$29,789	# of SF:	1,885					TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:						\$28,688.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.58	# of Yrs.:	10					Years 1-10 Avg. Cost per SF per Yr., Uninflated:						\$1.46
													Current Replacement Value:						\$245,050.00	
												Facility Condition Index (FCI):						0.19		

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

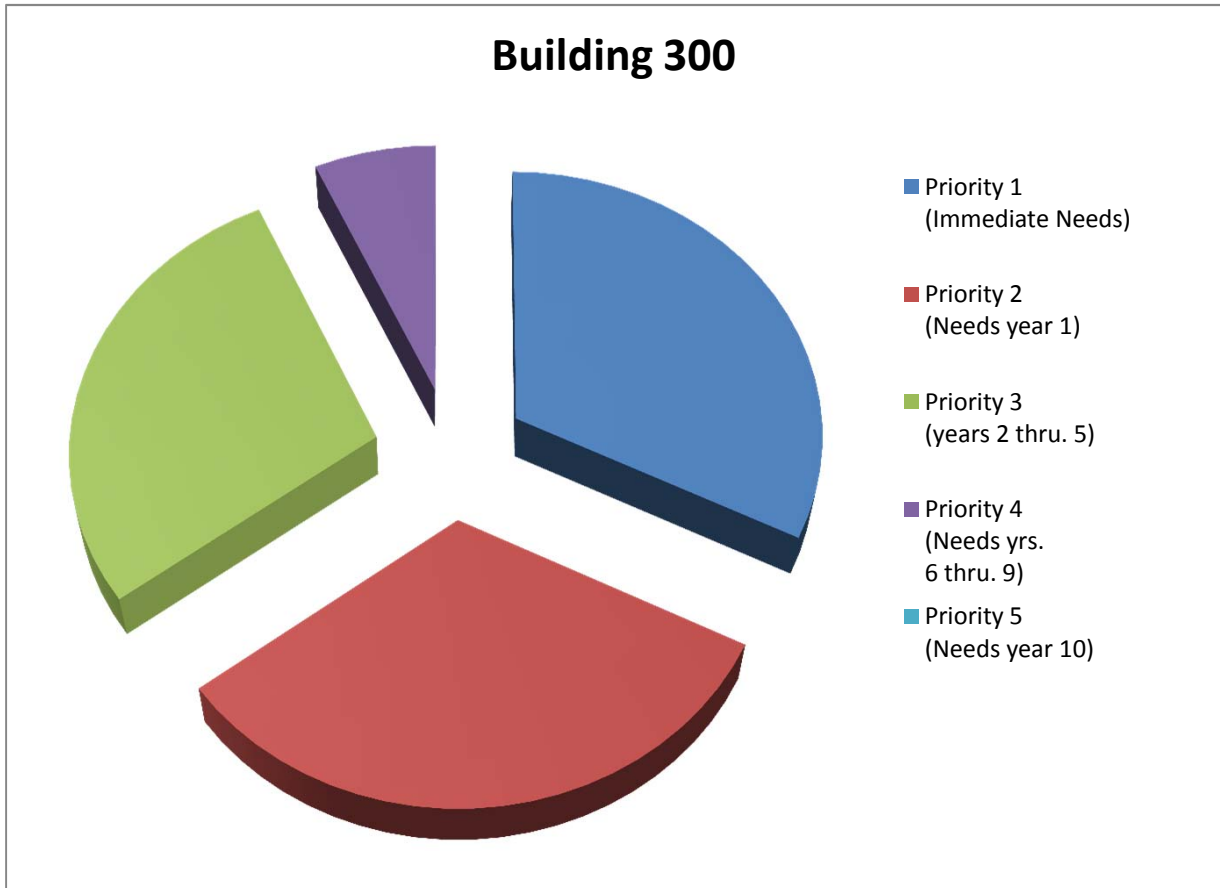


FACILITY CONDITION ASSESSMENT

University Crossings Building 200  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																				
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals	
3.3.4 PAVING, CURBING AND PARKING																				
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00	
3.6.3.8.1 EXTERIOR WALLS																				
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00	
Replace column surrounds	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
3.6.3.8.2 PORCHES / STAIRS																				
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00	
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00	
3.6.3.8.3 DOORS																				
Repaint paintable surfaces	7	5	2	8	EACH	\$106.00				\$848.00							\$848.00		\$1,696.00	
Replace sealants and soft joints	15	13	2	120	LF	\$3.50				\$420.00									\$420.00	
3.6.3.8.4 WINDOWS																				
Replace window caulking	15	13	2	480	LF	\$3.50				\$1,680.00									\$1,680.00	
Replace window screens	5	0	0	30	EACH	\$85.00			\$2,550.00					\$2,550.00					\$5,100.00	
3.6.3.8.5 SOFFITS & FASCIA																				
Replace & repair damaged soffits	--	--	--	1	LS	\$120.00	\$120.00												\$0.00	
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																				
Replace roof and flashing systems	15	--	15	2,750	SF	\$2.35			\$6,462.50										\$6,462.50	
3.7.8 PLUMBING SYSTEMS																				
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$550.00	\$550.00												\$0.00	
Replace apartment water heaters	15	10	5	4	EACH	\$920.00							\$3,680.00						\$3,680.00	
Replace apartment garbage disposals	12	11	1	4	EACH	\$225.00			\$900.00										\$900.00	
3.8.8 HVAC SYSTEMS																				
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00	
Continue HVAC unit change out	10	10	0	4	EACH	\$2,500.00							\$10,000.00						\$10,000.00	
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Repair ductwork in attic	--	--	--	1	LS	\$1,250.00			\$1,250.00											
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$300.00	\$300.00												\$0.00	
3.9.8 ELECTRICAL SYSTEMS																				
Enclosure around service entry cables	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Repair eye bolt on messenger cable	--	--	--	1	LS	\$200.00	\$200.00												\$0.00	
secure ground wires	--	--	--	1	LS	\$100.00	\$100.00												\$0.00	
Replace lighting fixtures	--	--	--	1	LS	\$2,500.00			\$2,500.00										\$2,500.00	
Rework wiring associated with water heaters	--	--	--	1	LS	\$500.00	\$500.00												\$0.00	
Provide GFI protected outlets in kitchens & bathrooms	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$150.00	\$150.00												\$0.00	
3.11.8 LIFE SAFETY & FIRE PROTECTION																				
Replace/repair all handrails to meet Code	--	--	--	22	LF	\$33.50	\$737.00												\$0.00	
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00	
Total Immediate Repair Needs:							\$16,190													
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$13,662.50	\$2,948.00	\$0.00	\$0.00	\$13,680.00	\$2,550.00	\$0.00	\$0.00	\$848.00	\$0.00	\$32,438.50	
EFF. AGE - Effective Age (Estimated)	Inflation Factor								1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249		
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$13,662.50	\$3,021.70	\$0.00	\$0.00	\$15,102.72	\$2,884.05	\$0.00	\$0.00	\$1,032.86	\$0.00	\$35,703.83	
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$48,628.50	
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$35,704	# of SF:	1,885					TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:						\$33,688.50
Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.89	# of Yrs.:	10					Years 1-10 Avg. Cost per SF per Yr., Uninflated:						\$1.72	
													Current Replacement Value:						\$245,050.00	
													Facility Condition Index (FCI):						0.20	

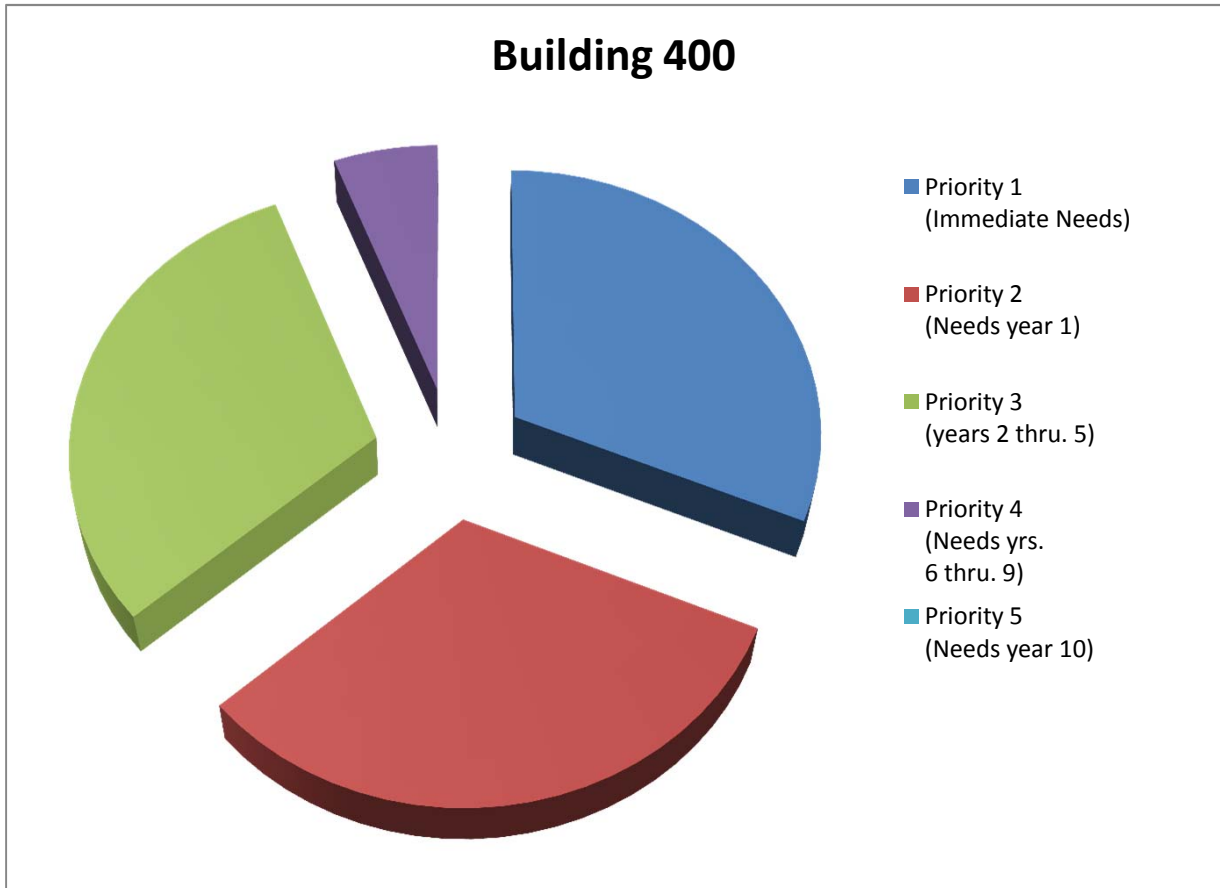
**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



University Crossings Building 300  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																				
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals	
3.3.4 PAVING, CURBING AND PARKING																				
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00	
3.6.3.8.1 EXTERIOR WALLS																				
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00	
Replace column surrounds	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
3.6.3.8.2 PORCHES / STAIRS																				
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00	
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00	
3.6.3.8.3 DOORS																				
Repaint paintable surfaces	7	5	2	8	each	\$106.00				\$848.00							\$848.00		\$1,696.00	
Replace sealants and soft joints	15	13	2	120	LF	\$3.50				\$420.00									\$420.00	
3.6.3.8.4 WINDOWS																				
Replace window caulking	15	13	2	480	LF	\$3.50				\$1,680.00									\$1,680.00	
Replace window screens	5	0	0	30	EACH	\$85.00			\$2,550.00					\$2,550.00					\$5,100.00	
3.6.3.8.5 SOFFITS & FASCIA																				
Replace & repair damaged eaves	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Replace & repair damaged soffits	--	--	--	1	LS	\$120.00	\$120.00												\$0.00	
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																				
Replace roof and flashing systems	15	--	15	2,750	SF	\$2.35			\$6,462.50										\$6,462.50	
3.7.8 PLUMBING SYSTEMS																				
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$675.00	\$675.00												\$0.00	
Replace apartment water heaters	15	10	5	4	each	\$920.00							\$3,680.00						\$3,680.00	
Replace apartment garbage disposals	12	11	1	4	each	\$225.00			\$900.00										\$900.00	
3.8.8 HVAC SYSTEMS																				
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00	
Continue HVAC unit change out	10	10	0	4	each	\$2,500.00			\$2,500.00	\$7,500.00									\$10,000.00	
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Repair ducctwork in attic	--	--	--	1	LS	\$1,250.00			\$1,250.00											
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$350.00	\$350.00												\$0.00	
3.9.8 ELECTRICAL SYSTEMS																				
Enclosure around service entry cables	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Repair lighting in building storage closet	--	--	--	1	LS	\$200.00	\$200.00												\$0.00	
Replace lighting fixtures	--	--	--	1	LS	\$2,500.00			\$2,500.00										\$2,500.00	
Provide GFI protected outlets in kitchens & bathrooms	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
3.11.8 LIFE SAFETY & FIRE PROTECTION																				
Replace/repair all handrails to meet Code	--	--	--	22	LF	\$33.50	\$737.00												\$0.00	
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00	
Total Immediate Repair Needs: \$16,115																				
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$16,162.50	\$10,448.00	\$0.00	\$0.00	\$3,680.00	\$2,550.00	\$0.00	\$0.00	\$848.00	\$0.00	\$32,438.50	
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249		
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$16,162.50	\$10,709.20	\$0.00	\$0.00	\$4,062.72	\$2,884.05	\$0.00	\$0.00	\$1,032.86	\$0.00	\$34,851.33	
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$48,553.50	
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$34,851	# of SF:	1,885					TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:						\$33,688.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.85	# of Yrs.:	10					Years 1-10 Avg. Cost per SF per Yr., Uninflated:						\$1.72
													Current Replacement Value:						\$245,050.00	
													Facility Condition Index (FCI):						0.20	

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



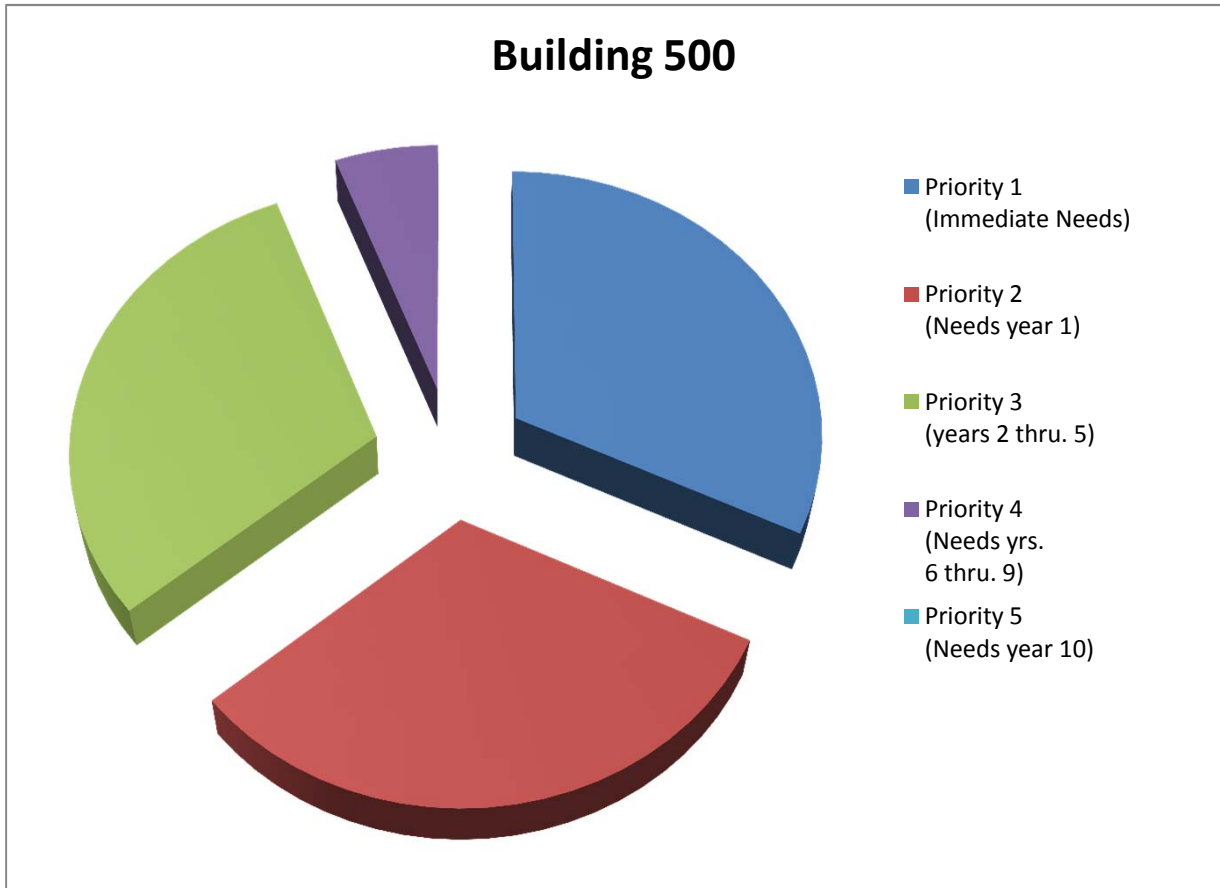


FACILITY CONDITION ASSESSMENT

University Crossings Building 400  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																				
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals	
3.3.4 PAVING, CURBING AND PARKING																				
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00	
3.6.3.8.1 EXTERIOR WALLS																				
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00	
Replace column surrounds	--	--	--	1	LS	\$700.00	\$700.00												\$0.00	
3.6.3.8.2 PORCHES / STAIRS																				
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00	
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00	
3.6.3.8.3 DOORS																				
Repaint paintable surfaces	7	5	2	9	each	\$106.00				\$954.00							\$954.00		\$1,908.00	
Replace sealants and soft joints	15	13	2	180	LF	\$3.50				\$630.00									\$630.00	
3.6.3.8.4 WINDOWS																				
Replace window caulking	15	13	2	320	LF	\$3.50				\$1,120.00									\$1,120.00	
Replace window screens	5	0	0	20	EACH	\$85.00			\$1,700.00					\$1,700.00					\$3,400.00	
3.6.3.8.5 SOFFITS & FASCIA																				
Replace & repair damaged soffits	--	--	--	1	LS	\$120.00	\$120.00												\$0.00	
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																				
Replace roof and flashing systems	15	--	15	2,450	SF	\$2.35			\$5,757.50										\$5,757.50	
3.7.8 PLUMBING SYSTEMS																				
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$600.00	\$600.00												\$0.00	
Replace apartment water heaters	15	10	5	4	each	\$920.00							\$3,680.00						\$3,680.00	
Replace apartment garbage disposals	12	11	1	4	each	\$225.00			\$900.00										\$900.00	
3.8.8 HVAC SYSTEMS																				
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00	
Continue HVAC unit change out	10	10	0	4	each	\$2,500.00			\$2,500.00	\$5,000.00			\$2,500.00						\$10,000.00	
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Repair ductwork in attic	--	--	--	1	LS	\$1,250.00			\$1,250.00											
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
3.9.8 ELECTRICAL SYSTEMS																				
Enclosure around service entry cables	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Replace lighting fixtures	--	--	--	1	LS	\$2,500.00			\$2,500.00										\$2,500.00	
Provide GFI protected outlets in kitchens & bathrooms	--	--	--	1	LS	\$700.00	\$350.00												\$0.00	
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$250.00	\$100.00												\$0.00	
3.11.8 LIFE SAFETY & FIRE PROTECTION																				
Install common smoke detectors in halls	--	--	--	1	LS	\$0.00	\$0.00												\$0.00	
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00	
Total Immediate Repair Needs:							\$14,253													
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$14,607.50	\$7,704.00	\$0.00	\$0.00	\$6,180.00	\$1,700.00	\$0.00	\$0.00	\$954.00	\$0.00	\$29,895.50	
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249		
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$14,607.50	\$7,896.60	\$0.00	\$0.00	\$6,822.72	\$1,922.70	\$0.00	\$0.00	\$1,161.97	\$0.00	\$32,411.49	
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$44,148.50	
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$32,411	# of SF:	1,586							TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:				\$31,145.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$2.04	# of Yrs.:	10							Years 1-10 Avg. Cost per SF per Yr., Uninflated:				\$1.88
													Current Replacement Value:						\$206,180.00	
												Facility Condition Index (FCI):						0.21		

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

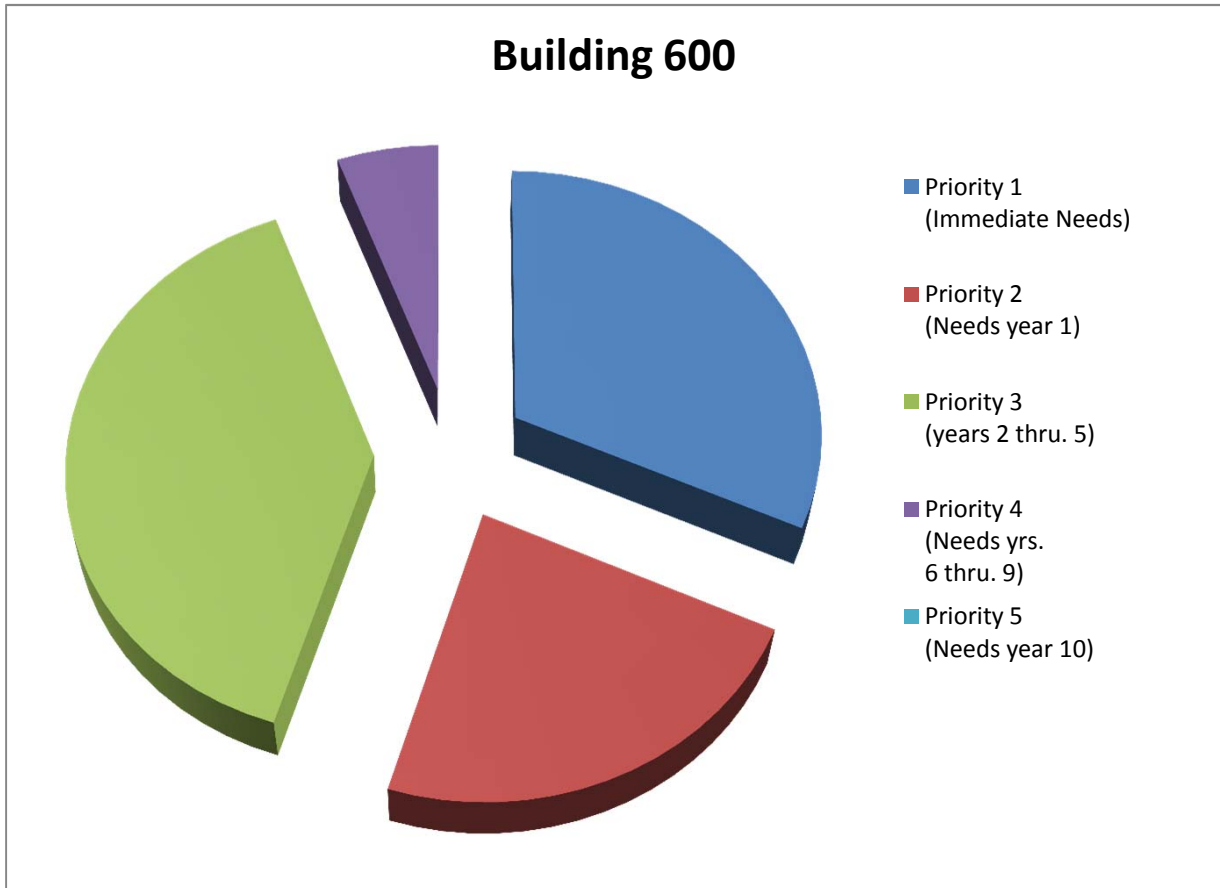


FACILITY CONDITION ASSESSMENT

University Crossings Building 500  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																					
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals		
3.3.4 PAVING, CURBING AND PARKING																					
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00		
3.6.3.8.1 EXTERIOR WALLS																					
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00		
Replace column surrounds	--	--	--	1	LS	\$700.00	\$700.00												\$0.00		
3.6.3.8.2 PORCHES / STAIRS																					
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00		
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00		
3.6.3.8.3 DOORS																					
Repaint paintable surfaces	7	5	2	9	each	\$106.00				\$954.00							\$954.00		\$1,908.00		
Replace sealants and soft joints	15	13	2	180	LF	\$3.50				\$630.00									\$630.00		
3.6.3.8.4 WINDOWS																					
Replace window caulking	15	13	2	320	LF	\$3.50				\$1,120.00									\$1,120.00		
Replace window screens	5	0	0	20	EACH	\$85.00			\$1,700.00					\$1,700.00					\$3,400.00		
3.6.3.8.5 SOFFITS & FASCIA																					
Replace & repair damaged soffits	--	--	--	1	LS	\$120.00	\$120.00												\$0.00		
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																					
Replace roof and flashing systems	15	--	15	2,450	SF	\$2.35			\$5,757.50										\$5,757.50		
3.7.8 PLUMBING SYSTEMS																					
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$625.00	\$625.00												\$0.00		
Replace apartment water heaters	15	10	5	4	each	\$920.00							\$3,680.00						\$3,680.00		
Replace apartment garbage disposals	12	11	1	4	each	\$225.00			\$900.00										\$900.00		
3.8.8 HVAC SYSTEMS																					
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00		
Continue HVAC unit change out	10	10	0	4	each	\$2,500.00			\$2,500.00	\$2,500.00		\$5,000.00							\$10,000.00		
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00		
Repair ducctwork in attic	--	--	--	1	LS	\$1,250.00			\$1,250.00												
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$250.00	\$250.00												\$0.00		
3.9.8 ELECTRICAL SYSTEMS																					
Enclosure around service entry cables	--	--	--	1	LS	\$250.00	\$250.00												\$0.00		
Secure & protect grounding conductor	--	--	--	1	LS	\$200.00	\$200.00												\$0.00		
Replace lighting fixtures	--	--	--	1	LS	\$2,500.00			\$2,500.00										\$2,500.00		
Repair & re-work cables/wiring in attic openings	--	--	--	1	LS	\$250.00	\$250.00												\$0.00		
Provide GFI protected outlets in kitchens & bathrooms	--	--	--	1	LS	\$350.00	\$350.00												\$0.00		
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$100.00	\$100.00												\$0.00		
3.11.8 LIFE SAFETY & FIRE PROTECTION																					
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00		
Total Immediate Repair Needs:							\$14,728														
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$14,607.50	\$5,204.00	\$0.00	\$5,000.00	\$3,680.00	\$1,700.00	\$0.00	\$0.00	\$954.00	\$0.00	\$29,895.50		
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249			
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$14,607.50	\$5,334.10	\$0.00	\$5,385.00	\$4,062.72	\$1,922.70	\$0.00	\$0.00	\$1,161.97	\$0.00	\$32,473.99		
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$44,623.50		
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$32,474	# of SF:	1,586											TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:	\$31,145.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$2.05	# of Yrs.:	10											Years 1-10 Avg. Cost per SF per Yr., Uninflated:	\$1.88
													Current Replacement Value:						\$206,180.00		
												Facility Condition Index (FCI):						0.22			

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

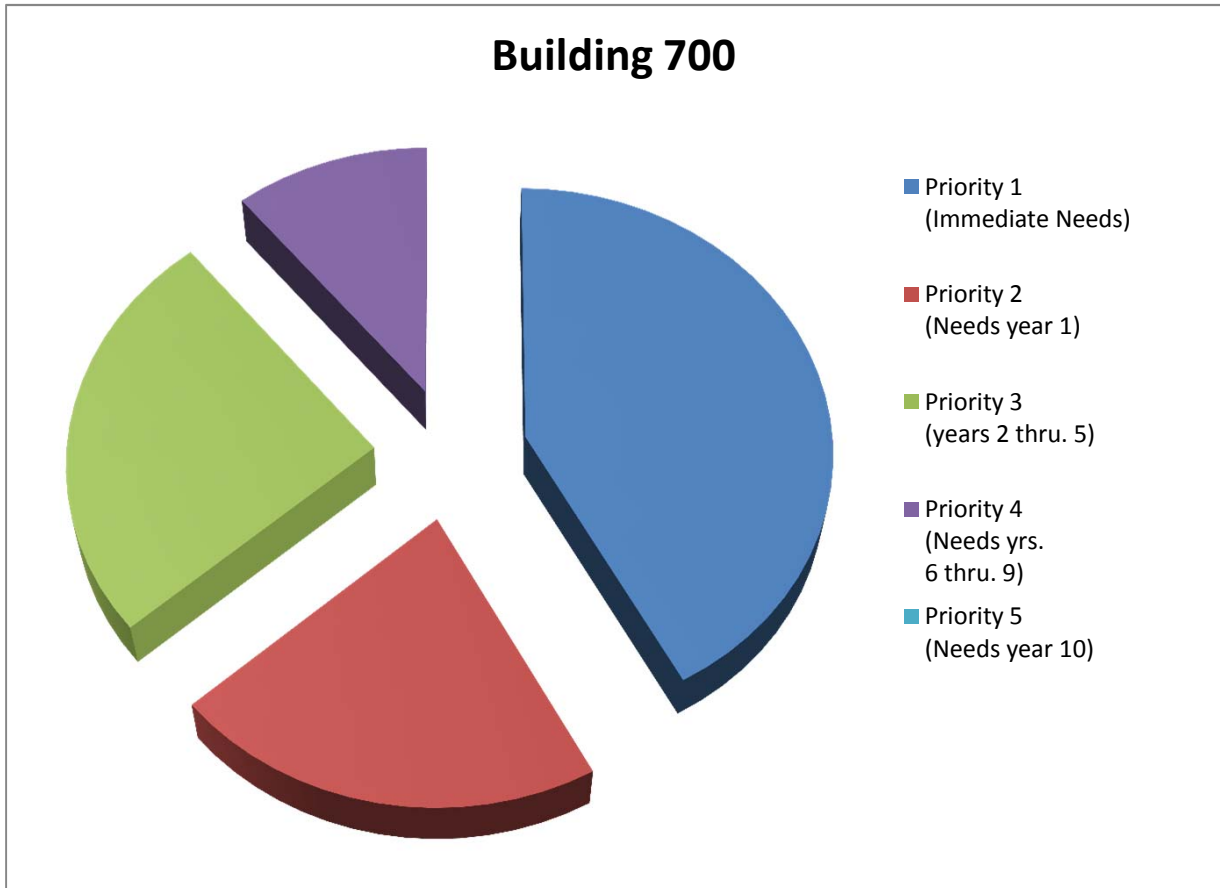


FACILITY CONDITION ASSESSMENT

University Crossings Building 600  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																								
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals					
3.3.4 PAVING, CURBING AND PARKING																								
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00					
3.6.3.8.1 EXTERIOR WALLS																								
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00					
3.6.3.8.2 PORCHES / STAIRS																								
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00					
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00					
3.6.3.8.3 DOORS																								
Repaint paintable surfaces	7	5	2	9	each	\$106.00				\$954.00							\$954.00		\$1,908.00					
Replace sealants and soft joints	15	13	2	180	LF	\$3.50				\$630.00									\$630.00					
3.6.3.8.4 WINDOWS																								
Replace window caulking	15	13	2	256	LF	\$3.50				\$896.00									\$896.00					
Replace window screens	5	0	0	16	EACH	\$85.00			\$1,360.00					\$1,360.00					\$2,720.00					
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																								
Replace roof and flashing systems	15	--	15	2,600	SF	\$2.35			\$6,110.00										\$6,110.00					
3.7.8 PLUMBING SYSTEMS																								
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$800.00	\$800.00												\$0.00					
Replace apartment water heaters	15	10	5	4	each	\$920.00							\$3,680.00						\$3,680.00					
Replace apartment garbage disposals	12	11	1	4	each	\$225.00			\$900.00										\$900.00					
3.8.8 HVAC SYSTEMS																								
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00					
Continue HVAC unit change out	10	10	0	4	each	\$2,500.00						\$5,000.00	\$5,000.00						\$10,000.00					
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00					
3.9.8 ELECTRICAL SYSTEMS																								
Replace lighting fixtures	--	--	--	1	LS	\$1,000.00			\$1,000.00										\$1,000.00					
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$300.00	\$300.00												\$0.00					
3.11.8 LIFE SAFETY & FIRE PROTECTION																								
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00					
Total Immediate Repair Needs:							\$12,983																	
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$9,370.00	\$2,480.00	\$0.00	\$5,000.00	\$8,680.00	\$1,360.00	\$0.00	\$0.00	\$954.00	\$0.00	\$27,844.00					
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249						
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$9,370.00	\$2,542.00	\$0.00	\$5,385.00	\$9,582.72	\$1,538.16	\$0.00	\$0.00	\$1,161.97	\$0.00	\$29,579.85					
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:							\$40,827.00				
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$29,580	# of SF:	1,586													TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:		\$27,844.00
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.87	# of Yrs.:	10													Years 1-10 Avg. Cost per SF per Yr., Uninflated:		\$1.76
													Current Replacement Value:							\$206,180.00				
												Facility Condition Index (FCI):							0.20					

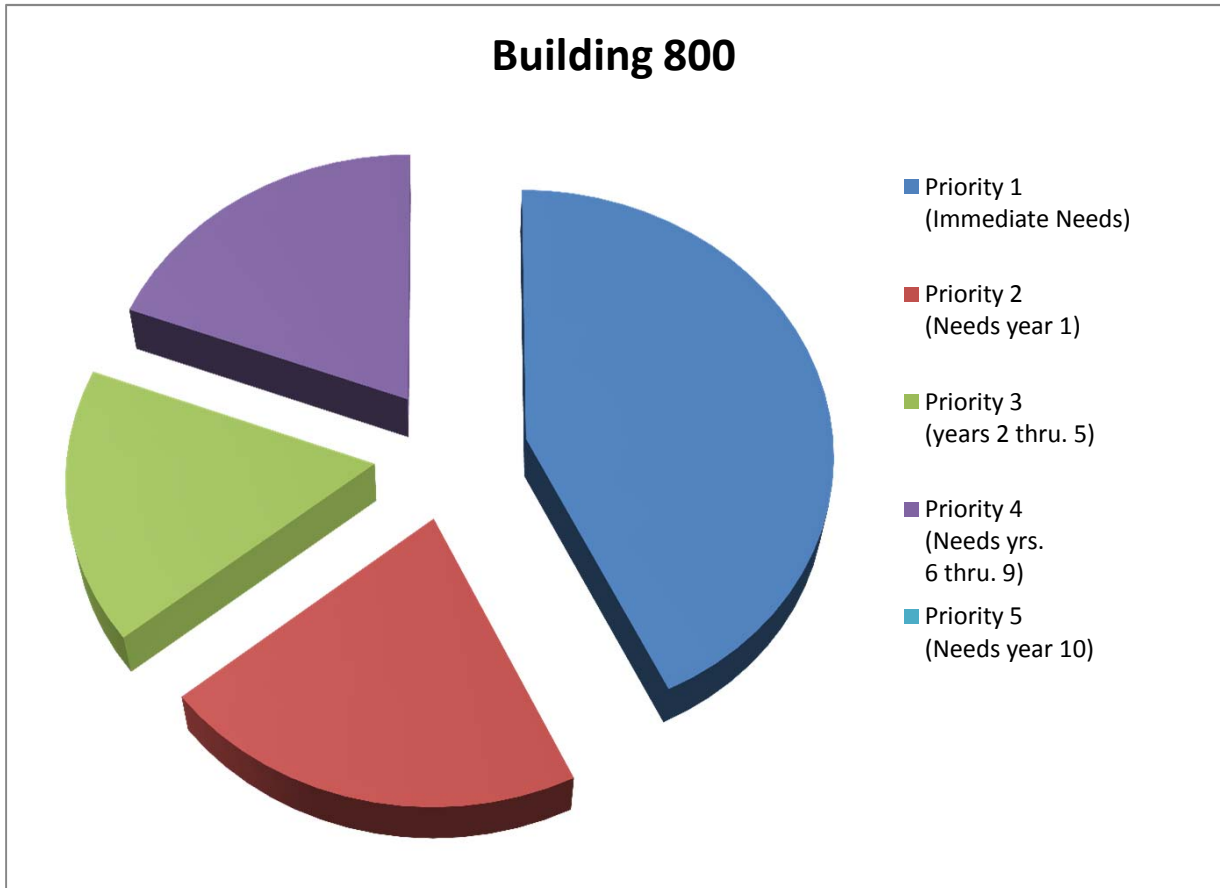
**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



University Crossings Building 700  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																						
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need			Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals		
3.3.4 PAVING, CURBING AND PARKING																						
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00													\$0.00		
3.6.3.8.1 EXTERIOR WALLS																						
Repair Exterior Finishes	--	--	--	1	LS	\$400.00	\$400.00													\$0.00		
3.6.3.8.2 PORCHES / STAIRS																						
Rear Porch Rebuild	25	15	10	320	SF	\$46.80	\$14,976.00													\$0.00		
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00													\$0.00		
3.6.3.8.3 DOORS																						
Repaint paintable surfaces	7	5	2	17	each	\$106.00					\$1,802.00							\$1,802.00		\$3,604.00		
Replace sealants and soft joints	15	13	2	357	LF	\$3.50					\$1,249.50									\$1,249.50		
3.6.3.8.4 WINDOWS																						
Replace window caulking	15	13	2	512	LF	\$3.50					\$1,792.00									\$1,792.00		
Replace window screens	5	0	0	32	EACH	\$85.00			\$2,720.00						\$2,720.00					\$5,440.00		
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																						
Replace roof and flashing systems	15	--	15	5,200	SF	\$2.35			\$12,220.00											\$12,220.00		
3.7.8 PLUMBING SYSTEMS																						
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$1600.00	\$1,600.00													\$0.00		
Replace apartment water heaters	15	10	5	8	each	\$920.00								\$7,360.00						\$7,360.00		
Replace apartment garbage disposals	12	11	1	8	each	\$225.00			\$1,800.00											\$1,800.00		
3.8.8 HVAC SYSTEMS																						
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00													\$0.00		
Continue HVAC unit change out	10	10	0	8	each	\$2,500.00	\$5,000.00						\$2,500.00	\$7,500.00	\$2,500.00	\$2,500.00				\$15,000.00		
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00													\$0.00		
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$250.00	\$250.00													\$0.00		
3.9.8 ELECTRICAL SYSTEMS																						
Replace lighting fixtures	--	--	--	1	LS	\$2,000.00			\$2,000.00											\$2,000.00		
Relocate unit panels to comply with code	--	--	--	1	LS	\$10,000.00	\$10,000.00													\$0.00		
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$450.00	\$450.00													\$0.00		
3.11.8 LIFE SAFETY & FIRE PROTECTION																						
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00													\$0.00		
Total Immediate Repair Needs:							\$36,696															
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$18,740.00	\$4,843.50	\$0.00	\$2,500.00	\$14,860.00	\$5,220.00	\$2,500.00	\$0.00	\$1,802.00	\$0.00	\$50,465.50			
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249				
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$18,740.00	\$4,964.59	\$0.00	\$2,692.50	\$16,405.44	\$5,903.82	\$2,900.00	\$0.00	\$2,194.84	\$0.00	\$53,801.18			
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:								\$87,161.50	
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$53,801	# of SF:	3,348											TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:		\$50,465.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.61	# of Yrs.:	10											Years 1-10 Avg. Cost per SF per Yr., Uninflated:		\$1.51
													Current Replacement Value:				\$435,240.00					
													Facility Condition Index (FCI):				0.20					

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



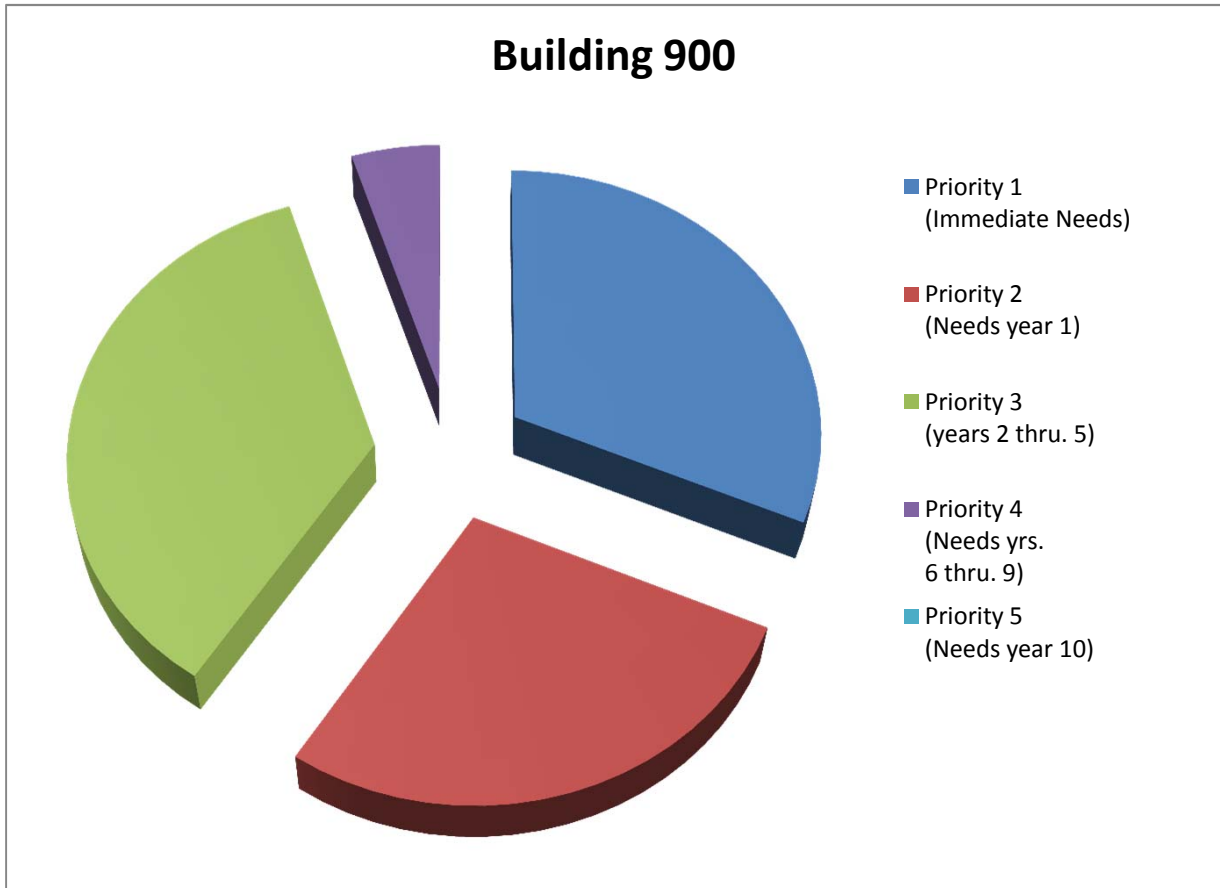


FACILITY CONDITION ASSESSMENT

University Crossings Building 800  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																				
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals	
3.3.4 PAVING, CURBING AND PARKING																				
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00	
3.3.4 PAVING, CURBING AND PARKING																				
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00	
3.6.3.8.1 EXTERIOR WALLS																				
Repair Exterior Finishes	--	--	--	1	LS	\$400.00	\$400.00												\$0.00	
3.6.3.8.2 PORCHES / STAIRS																				
Rear Porch Rebuild	25	15	10	320	SF	\$46.80	\$14,976.00												\$0.00	
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00	
3.6.3.8.3 DOORS																				
Repaint paintable surfaces	7	5	2	17	each	\$106.00				\$1,802.00							\$1,802.00		\$3,604.00	
Replace sealants and soft joints	15	13	2	357	LF	\$3.50				\$1,249.50									\$1,249.50	
3.6.3.8.4 WINDOWS																				
Replace window caulking	15	13	2	512	LF	\$3.50				\$1,792.00									\$1,792.00	
Replace window screens	5	0	0	32	EACH	\$85.00			\$2,720.00					\$2,720.00					\$5,440.00	
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																				
Replace roof and flashing systems	15	--	15	5,200	SF	\$2.35			\$12,220.00										\$12,220.00	
3.7.8 PLUMBING SYSTEMS																				
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$1600.00	\$1,600.00												\$0.00	
Replace apartment water heaters	15	10	5	8	each	\$920.00							\$7,360.00						\$7,360.00	
Replace apartment garbage disposals	12	11	1	8	each	\$225.00			\$1,800.00										\$1,800.00	
3.8.8 HVAC SYSTEMS																				
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00	
Continue HVAC unit change out	10	10	0	8	each	\$2,500.00	\$5,000.00					\$2,500.00		\$7,500.00	\$2,500.00	\$2,500.00			\$15,000.00	
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
3.9.8 ELECTRICAL SYSTEMS																				
Replace lighting fixtures	--	--	--	1	LS	\$2,000.00			\$2,000.00										\$2,000.00	
Relocate unit panels to comply with code	--	--	--	1	LS	\$10,000.00	\$10,000.00												\$0.00	
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$250.00	\$250.00												\$0.00	
3.11.8 LIFE SAFETY & FIRE PROTECTION																				
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00	
Total Immediate Repair Needs:							\$37,996													
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$18,740.00	\$4,843.50	\$0.00	\$2,500.00	\$7,360.00	\$10,220.00	\$2,500.00	\$2,500.00	\$1,802.00	\$0.00	\$50,465.50	
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249		
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$18,740.00	\$4,964.59	\$0.00	\$2,692.50	\$8,125.44	\$11,558.82	\$2,900.00	\$2,972.50	\$2,194.84	\$0.00	\$54,148.68	
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:							\$88,461.50
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$54,149	# of SF:	3,348						TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:					\$50,465.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.62	# of Yrs.:	10						Years 1-10 Avg. Cost per SF per Yr., Uninflated:					\$1.51
													Current Replacement Value:							\$435,240.00
												Facility Condition Index (FCI):							0.20	

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

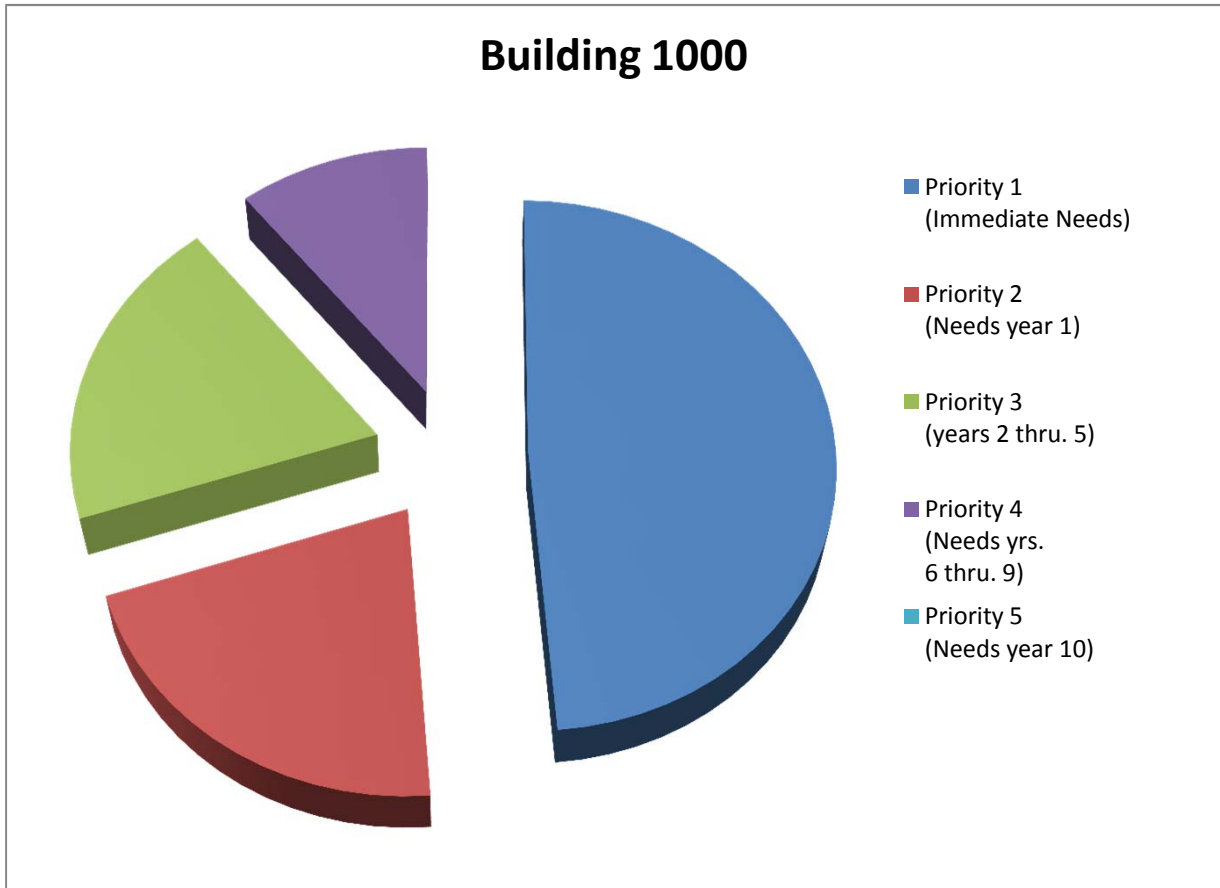


FACILITY CONDITION ASSESSMENT

University Crossings Building 900  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																						
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals			
3.3.4 PAVING, CURBING AND PARKING																						
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00			
3.6.3.8.1 EXTERIOR WALLS																						
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00			
3.6.3.8.2 PORCHES / STAIRS																						
Rear Porch Rebuild	25	15	10	160	SF	\$46.80	\$7,488.00												\$0.00			
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00			
3.6.3.8.3 DOORS																						
Repaint paintable surfaces	7	5	2	8	each	\$106.00				\$848.00							\$848.00		\$1,696.00			
Replace sealants and soft joints	15	13	2	160	LF	\$3.50				\$560.00									\$560.00			
3.6.3.8.4 WINDOWS																						
Replace window caulking	15	13	2	256	LF	\$3.50				\$896.00									\$896.00			
Replace window screens	5	0	0	16	EACH	\$85.00			\$1,360.00					\$1,360.00					\$2,720.00			
3.6.3.8.5 SOFFITS & FASCIA																						
Replace & repair damaged eaves	--	--	--	1	LS	\$220.00	\$220.00												\$0.00			
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																						
Replace roof and flashing systems	15	--	15	2,450	SF	\$2.35			\$5,757.50										\$5,757.50			
3.7.8 PLUMBING SYSTEMS																						
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$650.00	\$650.00												\$0.00			
Replace apartment water heaters	15	10	5	4	each	\$920.00							\$3,680.00						\$3,680.00			
Replace apartment garbage disposals	12	11	1	4	each	\$225.00			\$900.00										\$900.00			
3.8.8 HVAC SYSTEMS																						
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00			
Continue HVAC unit change out	10	10	0	3	each	\$2,500.00				\$5,000.00		\$5,000.00							\$10,000.00			
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00			
Repair ducctwork in attic	--	--	--	1	LS	\$1,250.00			\$1,250.00													
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$350.00	\$350.00												\$0.00			
3.9.8 ELECTRICAL SYSTEMS																						
Enclosure around service entrance cables	--	--	--	1	LS	\$250.00			\$250.00										\$250.00			
install GFCI receptacles in kinchen	--	--	--	1	LS	\$350.00			\$350.00										\$350.00			
Replace lighting fixtures	--	--	--	1	LS	\$2,500.00			\$2,500.00										\$2,500.00			
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$200.00	\$200.00												\$0.00			
3.11.8 LIFE SAFETY & FIRE PROTECTION																						
Replace/repair all handrails to meet Code	--	--	--	22	LF	\$33.50	\$737.00												\$0.00			
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00			
Total Immediate Repair Needs:							\$14,040															
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$12,367.50	\$7,304.00	\$0.00	\$5,000.00	\$3,680.00	\$1,360.00	\$0.00	\$0.00	\$848.00	\$0.00	\$29,309.50			
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249				
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$12,367.50	\$7,486.60	\$0.00	\$5,385.00	\$4,062.72	\$1,538.16	\$0.00	\$0.00	\$1,032.86	\$0.00	\$31,872.84			
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$43,349.50			
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$31,873	# of SF:	1,885							TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:				\$30,559.50		
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.69	# of Yrs.:	10							Years 1-10 Avg. Cost per SF per Yr., Uninflated:				\$1.55		
														Current Replacement Value:				\$245,050.00				
																		Facility Condition Index (FCI):				0.18

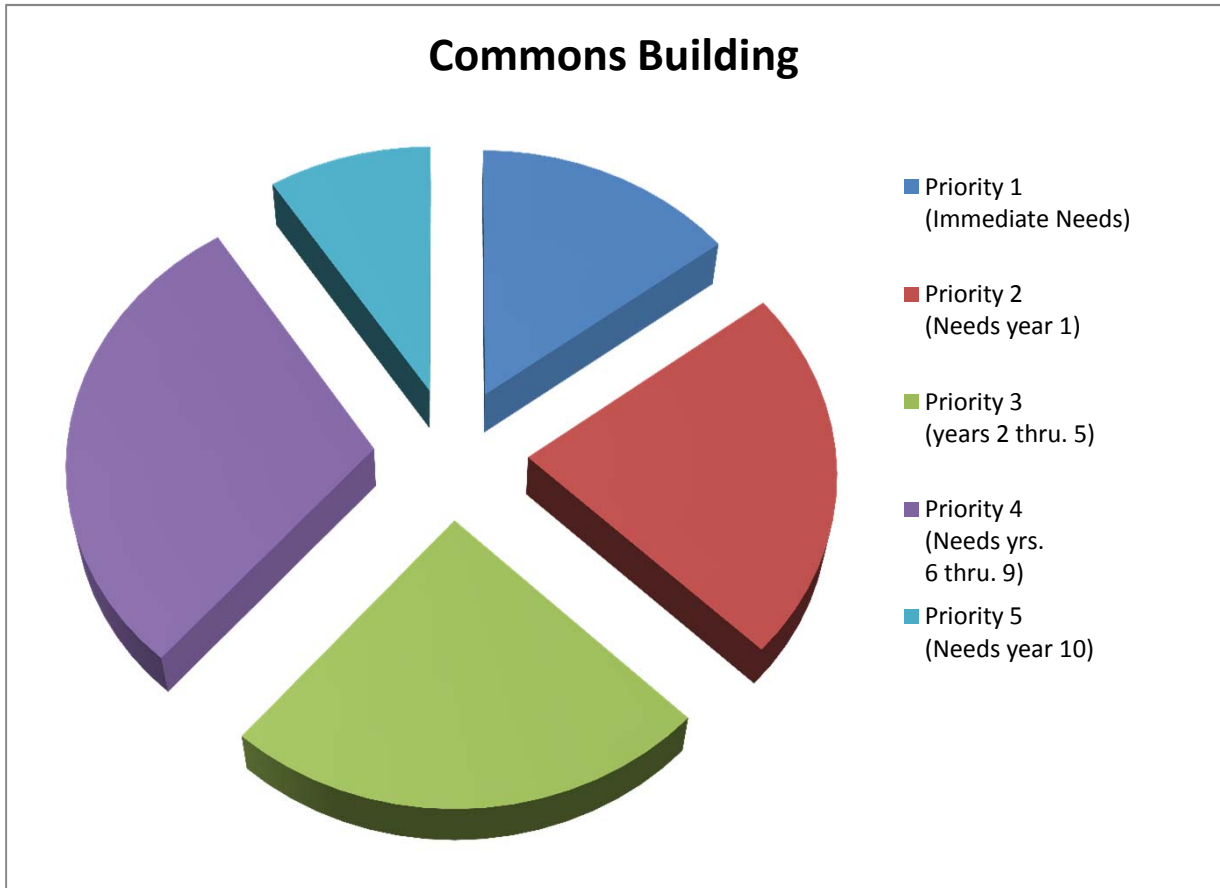
**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



University Crossings Building 1000  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																						
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals			
3.3.4 PAVING, CURBING AND PARKING																						
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00			
3.6.3.8.1 EXTERIOR WALLS																						
Repair Exterior Finishes	--	--	--	1	LS	\$400.00	\$400.00												\$0.00			
3.6.3.8.2 PORCHES / STAIRS																						
Rear Porch Rebuild	25	15	10	320	SF	\$46.80	\$14,976.00												\$0.00			
Trench conc. Install drainage/drywell	25	15	10	1	LS	\$685.00	\$685.00												\$0.00			
3.6.3.8.3 DOORS																						
Repaint paintable surfaces	7	5	2	17	each	\$106.00				\$1,802.00							\$1,802.00		\$3,604.00			
Replace sealants and soft joints	15	13	2	357	LF	\$3.50				\$1,249.50									\$1,249.50			
3.6.3.8.4 WINDOWS																						
Replace window caulking	15	13	2	512	LF	\$3.50				\$1,792.00									\$1,792.00			
Replace window screens	5	0	0	32	EACH	\$85.00			\$2,720.00					\$2,720.00					\$5,440.00			
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																						
Replace roof and flashing systems	15	--	15	5,200	SF	\$2.35			\$12,220.00										\$12,220.00			
3.7.8 PLUMBING SYSTEMS																						
Replace / repair apartment unit plumbing system items	--	--	--	1	LS	\$1,600.00	\$1,600.00												\$0.00			
Replace apartment water heaters	15	10	5	8	each	\$920.00							\$7,360.00						\$7,360.00			
Replace apartment garbage disposals	12	11	1	8	each	\$225.00			\$1,800.00										\$1,800.00			
3.8.8 HVAC SYSTEMS																						
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00			
Continue HVAC unit change out	10	10	0	8	each	\$2,500.00	\$10,000.00			\$2,500.00			\$2,500.00		\$2,500.00	\$2,500.00			\$10,000.00			
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00			
Repair ductwork in attic	--	--	--	1	LS	\$1,250.00	\$1,250.00												\$0.00			
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$800.00	\$800.00												\$0.00			
3.9.8 ELECTRICAL SYSTEMS																						
Replace lighting fixtures	--	--	--	1	LS	\$2,000.00			\$2,000.00										\$2,000.00			
Relocate unit panels to comply with code	--	--	--	1	LS	\$10,000.00	\$10,000.00												\$0.00			
Replace / repair apartment unit electrical system items	--	--	--	1	LS	\$250.00	\$250.00												\$0.00			
3.11.8 LIFE SAFETY & FIRE PROTECTION																						
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00			
Total Immediate Repair Needs						\$43,296																
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$18,740.00	\$7,343.50	\$0.00	\$0.00	\$9,860.00	\$2,720.00	\$2,500.00	\$2,500.00	\$1,802.00	\$0.00	\$45,465.50			
EFF. AGE - Effective Age (Estimated)	Inflation Factor						2.50%		1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249				
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$18,740.00	\$7,527.09	\$0.00	\$0.00	\$10,885.44	\$3,076.32	\$2,900.00	\$2,972.50	\$2,194.84	\$0.00	\$48,296.18			
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:								\$88,761.50	
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$48,296		# of SF:	3,348											TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:	\$45,465.50
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.44		# of Yrs.:	10											Years 1-10 Avg. Cost per SF per Yr., Uninflated:	\$1.36
												Current Replacement Value:								\$435,240.00		
												Facility Condition Index (FCI):								0.20		

**FACILITY CONDITION ASSESSMENT**  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



FACILITY CONDITION ASSESSMENT

University Crossings Commons Building  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

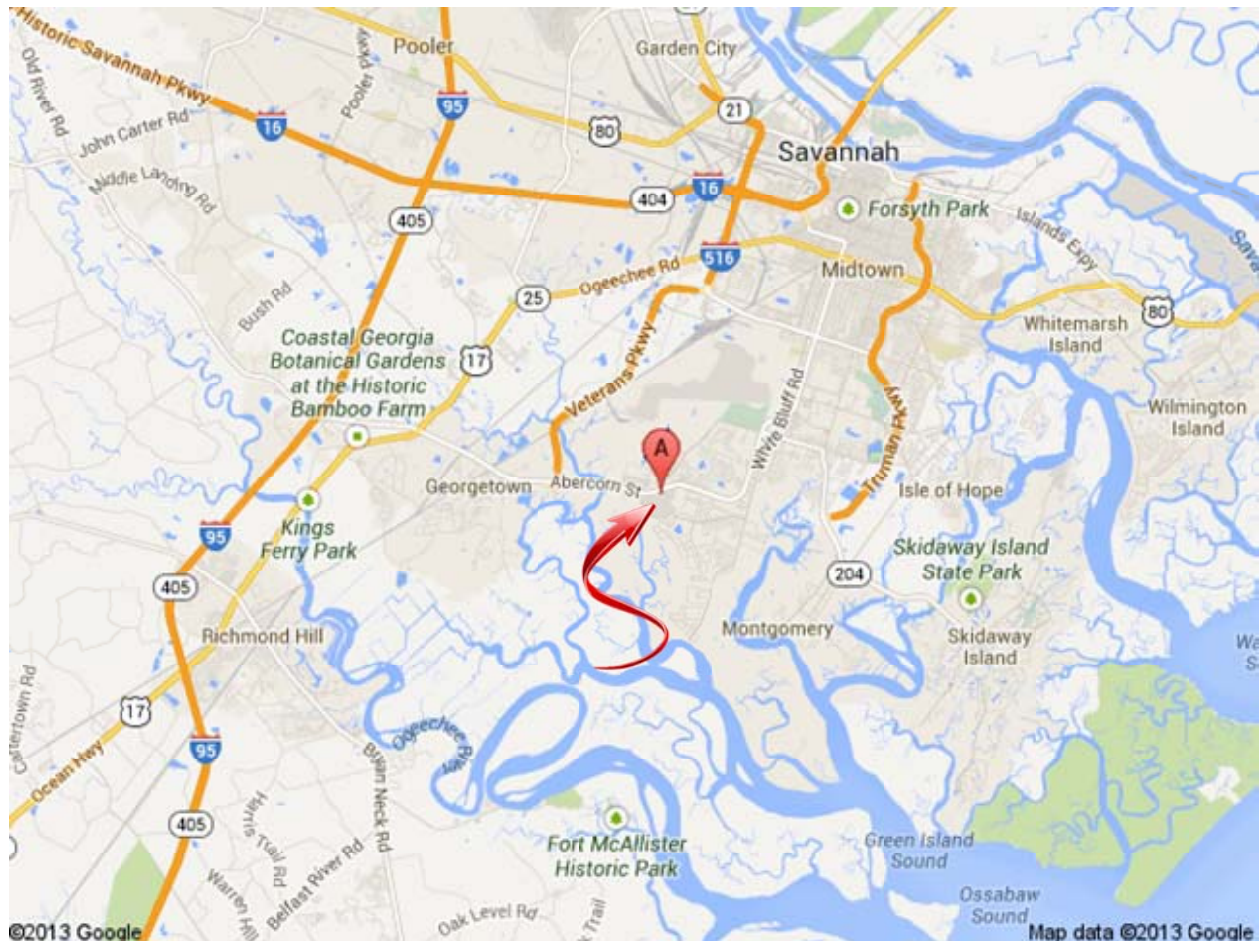
Immediate Needs, Short Term Needs and Pyhsical Needs Over the Term; 10 Years																			
Component	AVE EUL	EFF. AGE	RUL	Quantity	Unit	Unit Cost	Immediate Need		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7	Yr.8	Yr. 9	Yr. 10	Year 1-10 Totals
3.3.4 PAVING, CURBING AND PARKING																			
Repair parking with sealcoat and restriping all parking and drives	--	--	--	1	LS	\$1,500.00	\$1,500.00												\$0.00
3.6.3.8.1 EXTERIOR WALLS																			
Repair Exterior Finishes	--	--	--	1	LS	\$375.00	\$375.00												\$0.00
Replace column surrounds	--	--	--	0	LS	\$700.00	\$0.00												\$0.00
3.6.3.8.3 DOORS																			
Repaint paintable surfaces	7	5	2	6	each	\$106.00				\$636.00							\$636.00		\$1,272.00
Replace sealants and soft joints	15	13	2	120	LF	\$3.50				\$420.00									\$420.00
3.6.3.8.4 WINDOWS																			
Replace window caulking	15	13	2	144	LF	\$3.50				\$504.00									\$504.00
Replace window screens	5	0	0	9	EACH	\$85.00			\$765.00					\$765.00					\$1,530.00
3.6.3.8.6 ROOFS & DRAINAGE SYSTEMS																			
Replace roof and flashing systems	15	--	15	2,000	SF	\$2.35			\$4,700.00										\$4,700.00
3.7.8 PLUMBING SYSTEMS																			
Replace Laundry water heaters	15	8	7	5	each	\$920.00									\$4,600.00				\$4,600.00
Replace apartment water heaters	15	6	9	2	each	\$920.00											\$1,840.00		\$1,840.00
Replace apartment garbage disposals	12	6	6	1	each	\$225.00								\$225.00					\$225.00
3.8.8 HVAC SYSTEMS																			
Repair / Replace grilles, fans, and diffusers	10	0	10	1	LS	\$900.00	\$900.00												\$0.00
Continue HVAC unit change out	10	10	0	0	each	\$2,500.00						\$5,000.00						\$2,500.00	\$7,500.00
Repair/replace refrigerant pipe insulation in mechanical yards	--	--	--	1	LS	\$250.00	\$250.00												\$0.00
Replace / repair apartment unit mechanical system items	--	--	--	1	LS	\$300.00	\$300.00												\$0.00
3.9.8 ELECTRICAL SYSTEMS																			
Replace lamping	--	--	--	1	LS	\$700.00			\$700.00										\$700.00
3.11.8 LIFE SAFETY & FIRE PROTECTION																			
Replace/repair emergency and exit lights	--	--	--	1	LS	\$685.00	\$685.00												\$0.00
Total Immediate Repair Needs:							\$4,010												
AVE. EUL - Average Expected Useful Life	Total Estimated Costs (Year 1 to 10), Uninflated								\$6,165.00	\$1,560.00	\$0.00	\$5,000.00	\$0.00	\$990.00	\$4,600.00	\$0.00	\$2,476.00	\$2,500.00	\$23,291.00
EFF. AGE - Effective Age (Estimated)	Inflation Factor								1.000	1.025	1.051	1.077	1.104	1.131	1.160	1.189	1.218	1.249	
RUL - Remaining Useful Life (Estimated)	Total Estimated Costs (Year 1 to 10), Inflated								\$6,165.00	\$1,599.00	\$0.00	\$5,385.00	\$0.00	\$1,119.69	\$5,336.00	\$0.00	\$3,015.77	\$3,122.50	\$25,742.96
EA - Each; Var. - Varies													TOTAL BUILDING COSTS (PRIORITY 1 THROUGH 5), UNINFLATED:						\$27,301.00
SF - Square Feet; LF - Linear Feet	YEARS 1-10 CUMULATIVE TOTAL, INFLATED:						\$25,743			# of SF:		1,792	TERM COSTS (PRIORITY 2 THROUGH 5), UNINFLATED:						\$23,291.00
	Years 1-10 Avg. Cost per SF per Yr., Inflated:						\$1.44			# of Yrs.:		10	Years 1-10 Avg. Cost per SF per Yr., Uninflated:						\$1.30
													Current Replacement Value:				\$232,960.00		
													Facility Condition Index (FCI):				0.12		

**Appendix B – Property Location, Aerial Photographs and Site Photographs**



FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

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### Property Location Map

Compass Point Phases 1 and 2  
Armstrong Atlantic State University  
11935 Abercorn Street  
Savannah, Georgia 31419



## Aerial Photographs

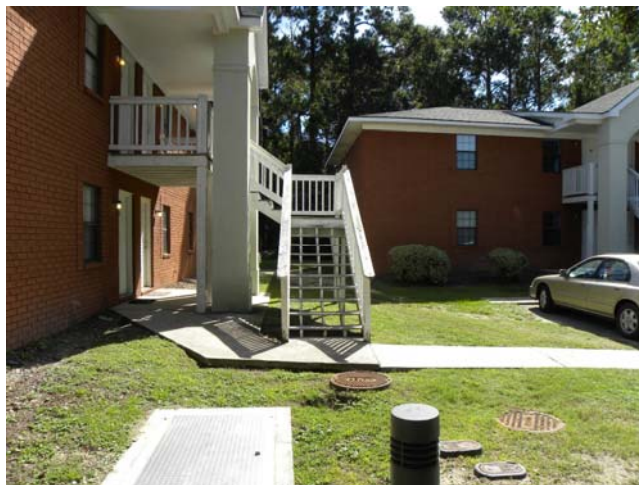
Compass Point Phases 1 and 2  
Armstrong Atlantic State University  
11935 Abercorn Street  
Savannah, Georgia 31419



FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

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**Site Photographs**



FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

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FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

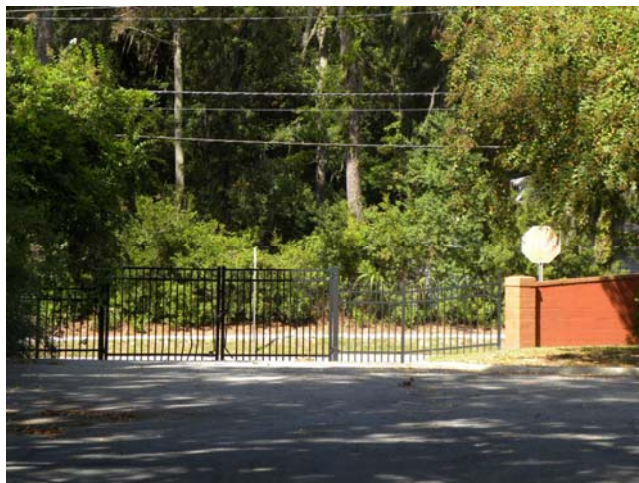
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FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

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FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

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FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419

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**2 Bedroom & 1 Bath Unit**

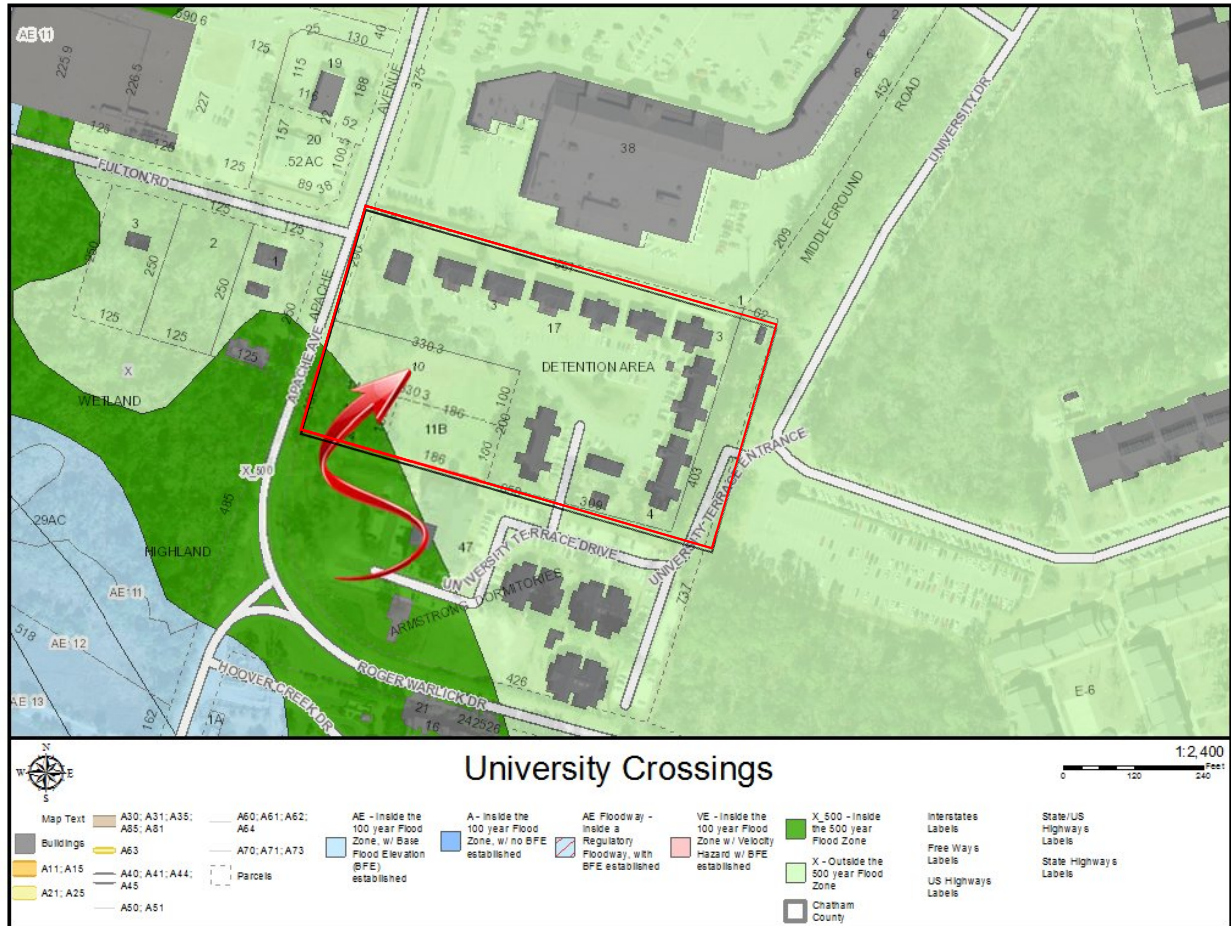


**2 Bedroom & 2 Bath Unit**



**Appendix C – Supporting Documentation**

FACILITY CONDITION ASSESSMENT  
University Crossings  
Armstrong Atlantic State University  
11935 Abercorn Street, Savannah, Georgia 31419



**Savannah Area Geographic Information System Map, updated July 2013**

**Appendix D: Professional Resumes**

## CogdellMendralaArchitects

### **Rudd M. Long, RCI, Project Investigator**

**Project Investigator/Lead Technician:** Rudd is assigned as the technical lead and “boots on the ground” for Facilities Assessment task orders – particularly those for which the potential for roof repairs and window replacements appear to be key issues of concern.

**Background -** A 13-year veteran of Cogdell & Mendrala, Rudd was once the Thomas Jefferson Memorial Intern at Colonial Williamsburg, where he wrote stabilization plans for several colonial era structures. He has experience with the commercial rehabilitation of historic structures in compliance with the Secretary of the Interior’s Standards for private owners seeking historic preservation tax incentives. Rudd worked for the National Park Service where his work included CAD documentation of various structures including the Texas State Capitol building. Rudd also worked for the Florida Park Service, overseeing seven National Register sites and one National Historic Landmark. He was the liaison between FPS and the State of Florida’s Bureau of Historic Preservation, which functions as the SHPO in Florida. In this position, he performed a number of highly technical assessments and developed work plans for remedial action.

**Education**      University of Texas at Arlington – Bachelor of Science in Architecture  
University of Florida – Master of Architecture Specializing in Historic Preservation

**Affiliations**      RCI

### **Selected Relevant Experience**

Georgia College & State University – Milledgeville, Georgia: Pre-demolition documentation of two historic buildings, one a classroom building in which Flannery O’Connor had matriculated.

Windsor Forest High School – Savannah, Georgia: Assessment and report of roof conditions and recommendations for repair and/or complete replacement. Prior to preparing bid documents, work included measurements and location of roof penetrations.

Housing Authority of Savannah - Yamacraw Village - Savannah, Georgia: Inspection of 313 occupied public housing units and recommendations/design for air-conditioning installation.

University of Georgia Marine Science Center (on Skidaway Island): Design and bid documents for removal and complete replacement with storm rated windows in three buildings. Work involved structural evaluation of openings and attachments to meet required ratings.

CAT Downtown Intermodal Transit Center – Savannah, Georgia: Prior to beginning design, Rudd was responsible for thorough documentation of the existing conditions and determination of structural systems suitability for integration into the proposed new building.

## CogdellMendralaArchitects

### **W. Donald Cogdell, Jr., AIA**

**Senior Principal:** Provides oversight of the team's performance and reviews all assessments prior to issuance.

**Background** – A founding principal of Cogdell & Mendrala, Don has been the lead designer for every project CMA has performed for the Board of Regents including the newest Physical Plant Facilities building.

### **Professional Registrations**

5623 Architect – Georgia; 3597 Architect – South Carolina; 9539 Architect – Florida

### **Relevant Experience**

**Landrum Dining Hall Assessment** – Don led the assessment team in the work intended to provide guidance to the Board of Regents regarding the desirability and feasibility of reusing a portion of the existing Landrum Hall facility as a permanent component of the proposed new dining facility. That concept had been suggested as a possible alternative to demolition of the entire structure in preparation for a proposed new building.

### **Georgia Southern University – Statesboro, Georgia**

- *Physical Plant Administration Building*
- *Cone Hall Renovation*
- *Hendricks Hall Renovation*

### **Armstrong Atlantic State University – Savannah, Georgia**

- *Jenkins Hall & Fine Arts Auditorium*
- *Annex 2*
- *Library Renovations*
- *Student Recreation Center*

### **East Georgia College**

- *Statesboro Academic Building*

### **Georgia College & State University – Milledgeville, Georgia**

- *Russell Library and Information Technology Center*



**Robert E. Lafond, PE, LEED<sup>®</sup> AP, CxA**

<b>Project Assignment:</b>	Mechanical Design, Plumbing Design
<b>Education:</b>	Georgia Institute of Technology B.S. Mechanical Engineering, 2007
<b>Registration:</b>	Registered Professional Engineer Georgia
<b>Affiliations:</b>	American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) American Society of Plumbing Engineers (ASPE) National Fire Protection Association (NFPA) US Green Building Council (USGBC)

**Experience:** Since joining the firm in 2007, Mr. Lafond has gained wide exposure to HVAC design with experience in the commercial, institutional and military areas. He has designed cooling and heating systems incorporating a variety of equipment including, air-cooled chillers, VAV air terminal units, DX systems, energy recovery, and water source heat pumps. Project experience ranges from small offices and banks to large university buildings.

During his time at Dulohery Weeks, Mr. Lafond has had varied experiences in plumbing design. In addition to the typical soil, waste and vent and hot and cold water piping systems, Mr. Lafond has also designed natural and LP gas systems, compressed air and storm drain piping systems.



**Steve C. Zettler, PE, LEED® AP, CEM**

<b>Project Assignment:</b>	Electrical Design
<b>Education:</b>	Georgia Southern University B.S. Electrical Engineering Technology, 1994
<b>Registration:</b>	Registered Professional Engineer - Georgia Electrical Contractor Non Restricted – Georgia Certified Energy Manager (CEM)
<b>Affiliations:</b>	US Green Building Council (USGBC) Association of Energy Engineers (AEE)

**Experience:** Prior to joining Dulohery Weeks, Mr. Zettler was employed with a major paper corporation, a textile plant and was also an electrical project manager for one of the largest construction companies in southeast Georgia. As project manager, his responsibilities included direction, coordination and planning for large commercial and industrial projects along with cost estimating. Mr. Zettler assisted plant engineers in the planning and execution of many large machine installations and modifications while ensuring compliance of product design with customer contract requirements. Mr. Zettler is able to identify problems, diagnose causes and determine the corrective actions while managing staff and controlling expenditures to deliver a complete project and a satisfied client.

Mr. Zettler's years of previous construction experience, has allowed him to view not only the "design" side of a project, but also the actual equipment applications and installations. Since joining the firm Mr. Zettler has designed projects for federal and state government installations, private industrial clients, healthcare facilities, and commercial clients.

Mr. Zettler also serves as a Project Manager.



**Thomas A. Beal, PE, LEED® AP, CxA, BEMP**

**Project Assignment:** Mechanical Design

**Education:** Georgia Institute of Technology, B.S. Mechanical Engineering, 2007

**Registration:** Registered Professional Engineer  
Georgia, South Carolina

**Affiliations:** American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)  
US Green Building Council (USGBC)

**Experience:** Since joining Dulohery Weeks, Mr. Beal has gained wide exposure to HVAC and plumbing design with experience in the commercial, institutional and military areas. He has designed cooling and heating systems incorporating a variety of equipment including, air-cooled and water-cooled chillers, variable air volume (VAV), direct expansion (DX), heat pumps, variable refrigerant flow (VRF) and energy recovery. He also has performed building energy analyses for **LEED** Building Certification and tax purposes (**EPact**). Project experience ranges from small offices and banks to large new schools.



**Appendix E – Condition Evaluation definitions and Common Abbreviations**

**Refer to ASTM-E-2018-08**

**INCLUDED WITH THIS DOCUMENT BY REFERENCE ONLY**

**Appendix F – Work Item Recommendation and General Definitions**

**Refer to ASTM-E-2018-08**

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