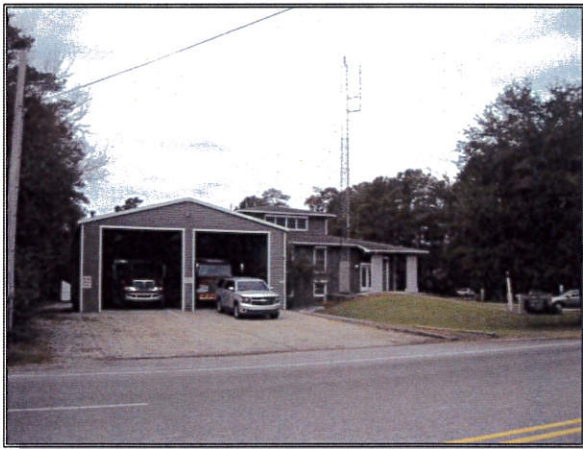




SOUTHERN SHORES VOLUNTEER FIRE STATION: EXISTING FACILITY ASSESSMENTS & PROGRAM NEEDS

South Station Located at 15 S. Dogwood Trail, Kitty Hawk, NC 27949

East Station Located at 28 E. Dogwood Trail, Kitty Hawk, NC 27949



BY:



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3 Jan. 2017

SOUTHERN SHORES FIRE DEPARTMENT

EXISTING FACILITIES ASSESSMENTS & PROGRAM NEEDS

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SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



ASSESSMENT SCOPE DESCRIPTION:

Stewart Cooper Newell Architects was hired by Southern Shores Fire Volunteer Department to perform existing facility assessments on 2 Stations; the South Station and the East Station.

South Station is located at the intersection of Pintail Trail and S Dogwood Trail in Southern Shores, NC. just across from Kitty Hawk Elementary school on Dogwood Trail. The facility address is 15 S. Dogwood Trail, Kitty Hawk, NC 27949.

East Station (EMS Station IV) is located at the intersection of Duck RD-NC 12 & East Dogwood Trail. The facility address is 28 E. Dogwood Trail, Kitty Hawk, NC 27949.

The South Station facility is comprised of a 2 apparatus bay structure built in 1989. The East Station facility is comprised of a combination (County) EMS, and (Township) Fire apparatus bay structure built in 1972 by the Kitty Hawk Fire Department, with Dare County EMS added later. In 1982 the Town of Southern Shores and the new Volunteer Fire Department was chartered by the State, and the Eastern station was repurposed. The purpose of this study assessment is to report the preliminary evaluations performed of existing facilities and present our findings of usability, gender equity, handicap accessibility, observable structural considerations, mechanical/ electrical/ plumbing systems conditions, observable roof conditions, interior/ exterior finishes, etc.

This assessment is cursory in nature and did not involve extensive testing of materials, systems, structural elements, or an evaluation of potentially hazardous materials that may or may not exist on-site. This report did not include in-depth roof assessments, but was based on visual observations from the ground.

This report did not include an in-depth assessment of building code compliance for the existing structures. It is assumed that the initial building constructions and subsequent modifications were permitted and the built conditions are in compliance with the requirements of the building code for the period built and the interpretation of local jurisdiction. Any modifications, alterations, additions to the buildings, or change of use, will require a thorough assessment of the structures for current building code compliance with the interpretation of the authority having jurisdiction.

Stewart-Cooper-Newell Architects included Cheatham Associates to perform the plumbing, mechanical, and electrical assessments for both facilities.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

PART 1: BUILDING ASSESSMENT

ARCHITECTURAL FINDINGS:

EXISTING CONDITIONS:

South Station

The existing facility has a series of modifications to the original 1989 pre-ADA regulated building design. The building contains two apparatus bays with sectional overhead doors for "back-in" entry only, with drive around access for other FD vehicles located in rear of station. A 2,800 SF free-standing patio slab was completed in 1996. Fire apparatus exit onto East Dogwood Trail, with public parking located on the North side along Pintail Trail, and staff parking is in rear, between the Station and Public Works grounds. The living quarters of the Station occurs west and north of vehicle bays, while the tool room is situated in rear of apparatus bays. The non-bay portion of the facility is a wood structure throughout, with asphalt shingles on the roof and wood shingles and lap board siding on exterior walls. The Apparatus bays are a "detached" PEMB structure.

The facility is registered as a 7,872 SF building.

East Station

The existing facility is a standard brick & mortar building with 5 apparatus bays, housing both the Township of Southern Shores Fire Department and Dare County's 2 EMS vehicles, with sectional overhead doors. Three bays are 'back-in' entry only, and 2 are 'pull- though' bays, with both public and staff parking located on northern and western sides of the building respectfully. There were additions to the facility made over the years, and introduced wood famed structures with CMU foundations to the facility. The living quarters are on northern and eastern sides of the facility. The roofing materials are asphalt shingles.

The facility is registered as a 4,091 SF building.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

AERIAL IMAGES OF SITES:



South Station



East Station

PERMITTING:

Should the existing buildings be renovated or replaced, it is anticipated that the following jurisdictions would have influence over the review of the changes for the building and systems.

- TOWN OF SOUTHERN SHORES – Site and Building Permit/Plans Review
- DARE COUNTY ENVIRONMENTAL SERVICES – On-site Septic System Modification.
- NC DEPARTMENT OF INSURANCE – Only required if building is enlarged by more than 20,000 gross square feet or replaced with a new building larger than 20,000 square feet. (not anticipated)
- NCDOT – Driveway modifications & ROW encroachments on S. Dogwood Trail.
- NCDENR – Land disturbance over 1 acre. (not anticipated)



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

BUILDING EXTERIOR:

South Station

Upon visual inspection the overall exterior of the building, the building envelope appears to be in fair condition, with some weathering of materials. The facility is a 34 year old structure, of mostly residential construction materials. There is noticeable aging of the building, due to proximity to the Atlantic Coastline and Currituck/ Albemarle Sounds. The elements have faded the roof and exterior wall shingles, and there is buckling of materials in multiple locations. Because the building uses standard residential materials, application of seals at doors and windows seems aged and in need of repair. Due to multiple levels within the facility, entrances/ exits are provided, although with little consideration to the disabled. Exterior ramps at both public and staff entrances, seem to exceed slope maximums, and curb cuts from ADA parking to sidewalk do not meet ADA standards.



East Elevation – The east elevation fronts South Dogwood Trail, and is where the (2) Apparatus Bays exit for street access, as well as main public entry, are located. The apron in front of the bays, while adequate in length, is in relatively poor condition. While the aprons may have been sufficient for the apparatus and equipment in service in 1982, the increasing size, capacity, and weight of fire response vehicles may require replacement of the concrete aprons in the future.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



It seems upon visual observation, that the railroad ties framing out the gravel walkway to the north of apron have been rubbed with tires from apparatus' turning. This may be due to the inadequate apron cut to street access. The overhead doors are insulated metal panel doors with a double vision panel and are in good condition. No complaints about the operation of the doors were stated at the time of the assessment. The overhead doors are 14'Wx14'H. These opening sizes are adequate for the current apparatus.

The bollard protection at the overhead doors is inadequate. There are no bollards at front of bays. The typical new construction standard is a free-standing pipe bollard at least 4'-0" tall located at least 2' forward of the building surface. This will protect the building from backing the vehicles up into the walls, and damaging door tracks. Since this is a 'back-in' only facility, bollard protection is even more necessary.

The design of S. Dogwood Trail causes the street to drain onto the property, and pools in low spots to the north of the drive apron, and in front of the man-door shown in image above. Here, an undersized drainage structure depends on a sump pump to remove rain water. The drainage on-site is inadequate for the additional amounts, and during major storms, water damage occurs in the basement in the form of flooding (see Interior Building notes) There remains serious concern for current and future mold contamination.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



North Elevation -The main public parking is located on the north side, and parallel to Pintail Trail Road. It has angled parking and is accessible through a 'One Way' lane off of Dogwood Trail Road. Even though there is Handicap parking, it is not properly designated or located. The stall does not have an adjacent loading zone, and the curb-cut to sidewalk does not show a turning radius of 5 feet at the loading zone entrance. The redirection into vehicle traffic lane from the parking stall, and then up sidewalk needs to be done directly from Loading Zone and not back into drive-way.

An egress man-door is on the North West corner of facility.

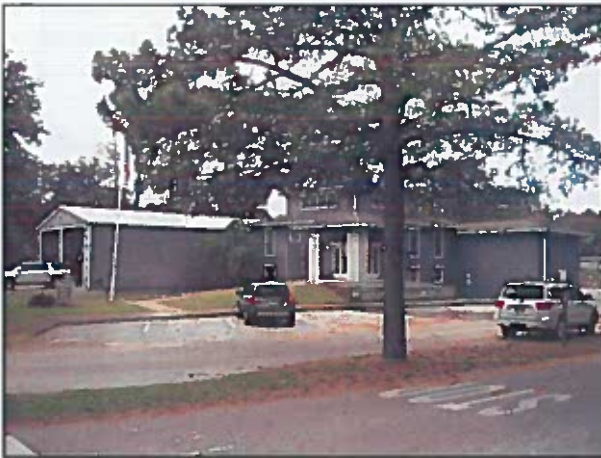


The hydrant needs a concrete pad as a working surface. Site drainage needs to be improved to eliminate ponding water.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Although there is a flag pole, it is leaning at an angle.

Exterior doors and windows provide daylight and ample access to facility, but they look to be residential and not commercial quality. They have storm shutter boxes above openings due to the location along the coast. No complaints about the shutters were stated at the time of the assessment.



Gravel landscaping provides less maintenance problems with xeriscaping, but it does present potential hazards to the disabled visitor/ staff, of unstable ground surfaces when not cleared off of path of travel.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



West Elevation – The west elevation fronts a large Staff parking lot for personal and fire vehicles.



There are security challenges at the connector element, including blind spots and poor lighting.

The west elevation has an egress door, an access door to the apparatus bay, (via 3 steps), a passage way door to east elevation, and a handicap ramp to apparatus bay. The ramp is weathered wood and regular replacement will be required. There also seems to be a lip at the door threshold that may be exceeding ADA standards of $\frac{3}{4}$ ".



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



There are two condensing HVAC units on wooden stands which seem to be extremely weathered and need of repair.



The west elevation also has the tool shed unattached to main building, next to the ADA ramp, with wood plank ramp to barn doors. Behind the tool shed is the bump out tool room accessed from inside the rear of apparatus bay. Above the tool room is the mechanical louver and exhaust chimney.

There is a lack of adequate storage, which leads to the open storage of materials and equipment on site.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



South Elevation – Along the south elevation, there are no windows or doors. A narrow vehicle access route around the southern elevation, between apparatus bay and property edge, is the only element of comment.



Roofing – Looking at the roof from ground level, it appears that the integrity of the roof structure is sound, although weathered by time and elements from coastal atmosphere. The asphalt shingles seem to have had their share of patchwork and replacement over time. There is a stack of unused shingles beside the shed on western elevation, with roles of tar paper.

Visually one can see moss build-up at corners between main building and apparatus structure.

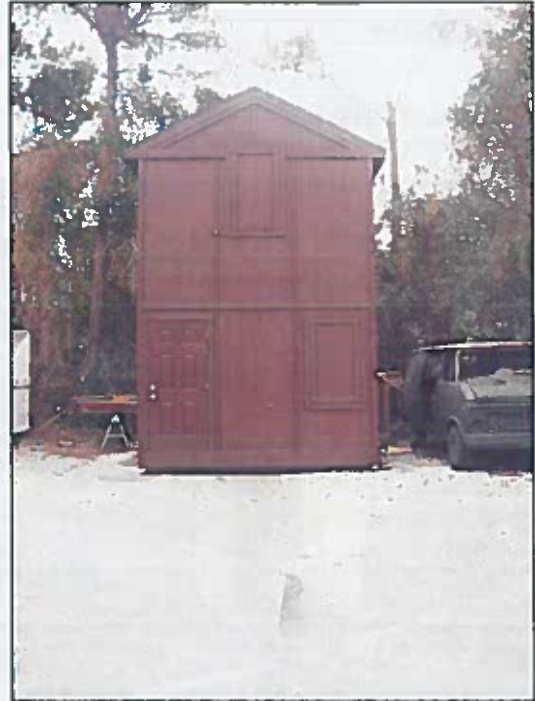


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Training Props- The site currently has Fire training props that will need to be incorporated in the site design options.



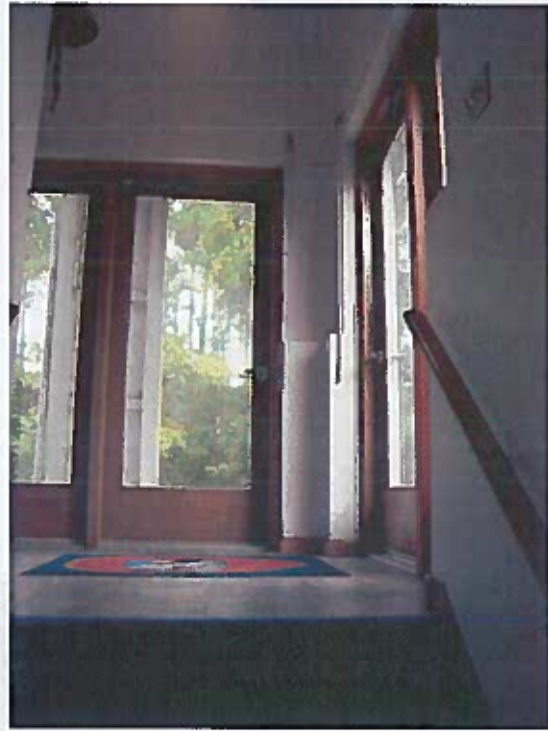
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

BUILDING INTERIOR:

South Station

General Accessibility – The interior spaces of Station present an accessibility problem since there are multiple levels at the main entrance, with no accommodations for the disabled.



There are many conditions inside the facility which were not required to meet today's handicap standards when initially constructed. Renovation of these areas will require that items such as door hardware, door swing clearances, thresholds, toilet fixture clearances, kitchen sink accessibility, and casework storage accessibility will all need to comply with current standards. The knob style cylindrical hardware will all need to be replaced with lever style. Any areas open to the public needs to be fully accessible.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

Apparatus Bays – The Apparatus Bays are in generally good condition but it does not appear as though the initial construction of the floor slab provided adequate control joints for controlled cracking of the surface. As a result of the cracking and possible settlement, water used to clean the apparatus bay floor, or deposited by the apparatus, will not travel fully into the exterior (there are no drains) and presents a potential slip hazard in the bay area.



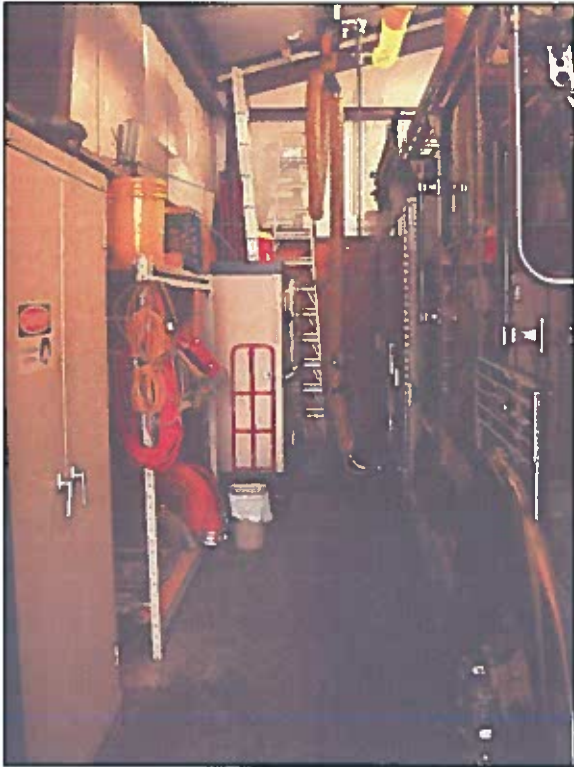
Personal Protection Equipment (PPE) is stored in the open Apparatus Bays, which does not meet current guidelines for protecting the PPE from UV degradation and vehicle exhaust contamination, or protecting building occupants from carcinogen off-gassing from the PPE.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

The sides of Apparatus Bays are used for storage and materials, and congest access routes.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

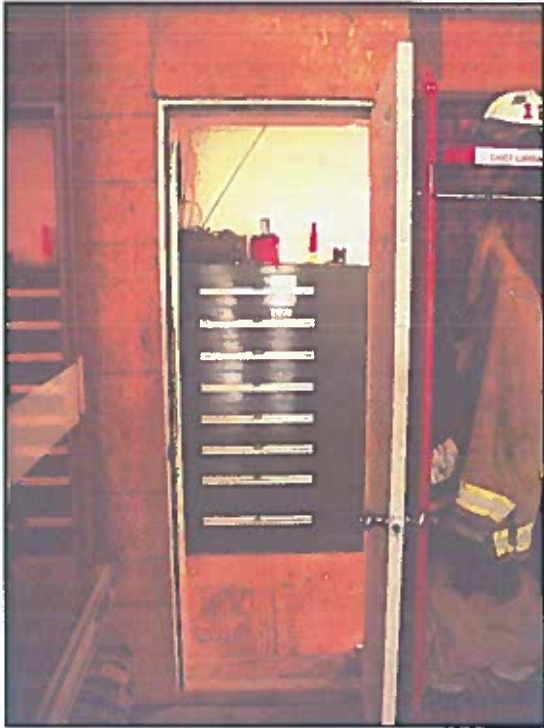
EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

The existing ice machine is currently housed in the rear corner of the apparatus bay. There is a small decontamination area with a decon sink next to the ice machine. The typical standard in a new construction is to have a separate decontamination room where this equipment can be housed out of the bay area. Typical new construction would also have a large decontamination sink with sideboards for washdown of larger items in addition to an emergency shower/eyewash station for safety. Per OSHA recommendations, the ice machine should be moved into a room not subject to exhaust fumes, particulate contaminants, etc.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Tool Room- The Tool room is housed in the back of the Apparatus Bays, with a plywood floor and OSB covered walls on Bay side.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

Offices-The access route to the offices is up a stairway and through a non-Accessible passageway. The clearances do not meet building codes, and the door hardware is a knob style residential type.



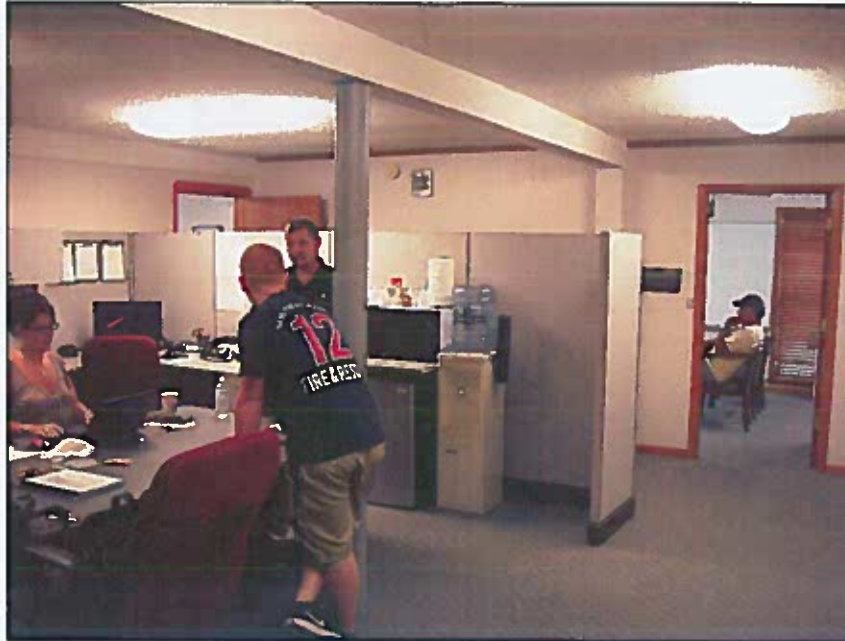
The reception office has 2 work stations with no welcome lobby. The public restroom has the needed clearances, but no grab bars or proper fixtures for the disabled.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

The main office are carpeted and have partitions with open workstation format.

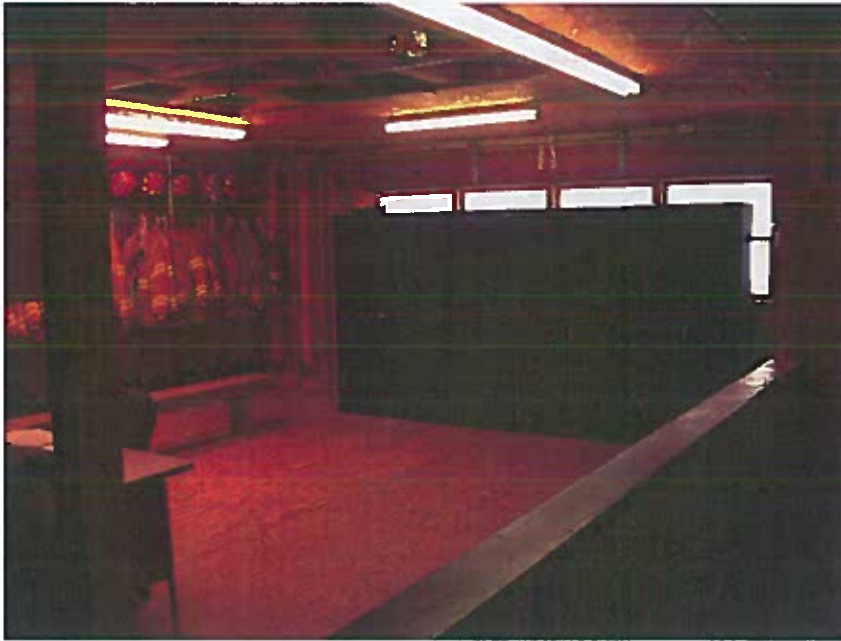


Upper Ready Room- Turn out Gear-Above the office and living space, there is a ready gear/ turn-out storage attic room. The construction is unfinished wood framed walls with no insulation or drywall, and plywood floors with vinyl flooring peeling up in some locations.

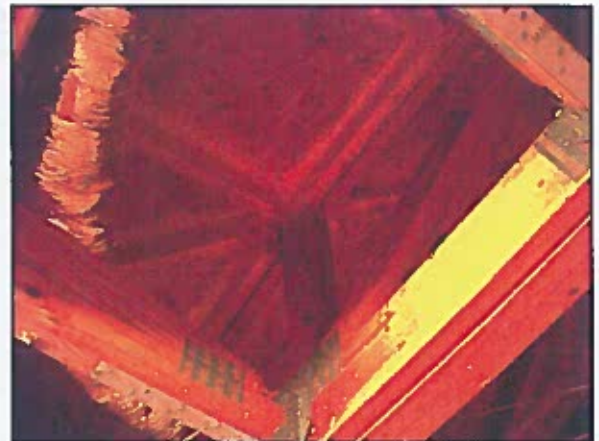


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



The ceiling is wood framed with partial sections covered with OSB, and the center area is exposed to the underside of wood framed roof. This does not allow for air temperature regulation, and exposed electrical wires are not to codes.



The entire facility is not storm-hardened and does not meet the code requirements as an essential facility.



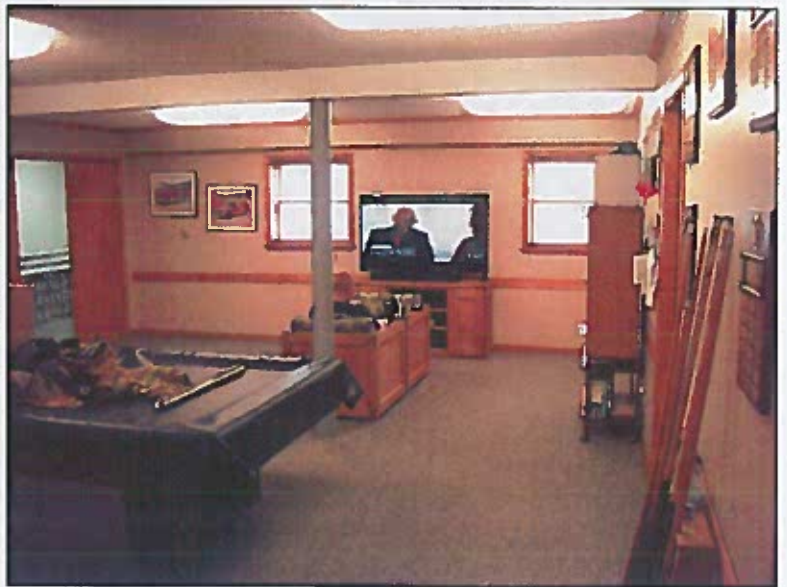
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

Dayroom – The dayroom is an open plan configuration containing the areas for seating spaces and a pool table. The exterior windows in the dayroom are an operable wood framed window. The carpet in the dayroom is in poor condition. Several areas of the carpet have picks, runs and have de-raveled.



There is a small Medical Supply closet near the entrance to Day Room.



The kitchen is off of the Day Room through a carpeted passage way, which contains a refrigerator and cupboards.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

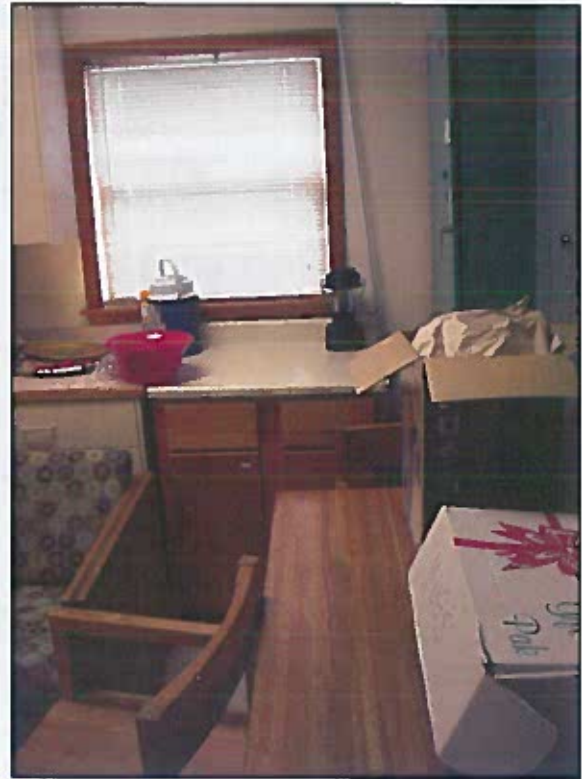
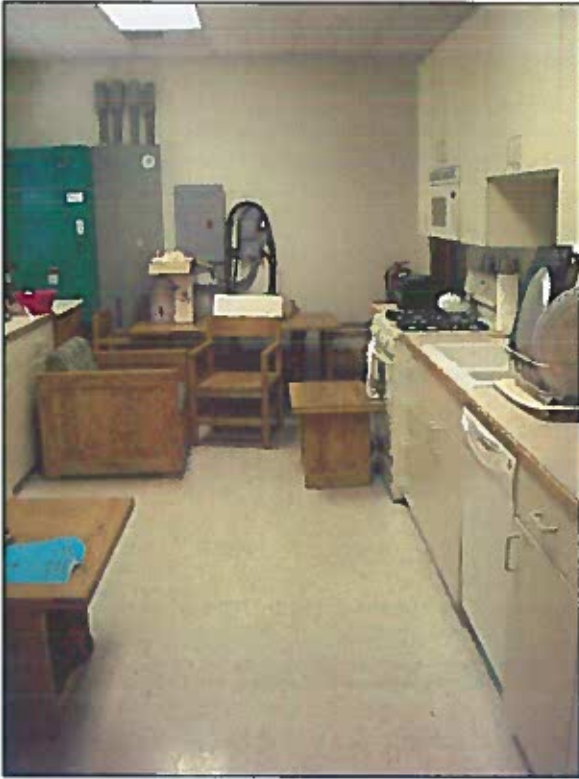
EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

The design of S. Dogwood Trail causes the street to drain onto the property, and pools in low spots to the north of the drive apron, and in front of the man-door shown in image above. Here, an undersized drainage structure depends on a sump pump to remove rain water. The drainage on-site is inadequate for the additional amounts, and during major storms, water damage occurs in the basement in the form of flooding (see photos below) There remains serious concern for current and future mold contamination.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Kitchen- The kitchen for the station shows its age. The casework in the kitchen is lighter duty residential grade casework than would typically be recommended in new construction for a fire station. The kitchen sink height, hardware and base cabinet configuration will not meet current accessibility standards. The VCT flooring shows cracking. The dining area is congested around the main breaker boxes & ATS, and blocks access to the Fire Extinguisher.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Laundry Room- The main industrial quality Washer/ Dryer machines and restroom are off of the Day Room, and through a very narrow non-accessible hallway, adjacent to a refrigerator. The access to this area is nonconductive for doing large loads of laundry. Dirty PPE often carry known carcinogens. Contaminated PPE should not be brought from the "hot-zone" of the Apparatus support areas into the "clean" portions of the station.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

Training Room- The Training Room is between the Kitchen and Day Room, and has mostly Accessible Restroom with shower.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

BUILDING EXTERIOR:

East Station

Upon visual inspection the overall exterior of the building, the building envelope appears to be in fair to poor condition, with extensive weathering of materials and access paths. The facility is a 45 year old structure, of a combination residential/ commercial construction materials. There is noticeable aging of the building, due to proximity to the Atlantic Coastline and Currituck/ Albemarle Sounds. The elements have faded the roof and exterior doors and window frames. Upon visual inspection, there does not seem to be an ADA accessible entry meeting building codes, as there are step thresholds in case of flooding. There are numerous OSHA violations throughout the facility. The roof conditions are fair, but aged.



South Elevation- The south elevation fronts to East Dogwood Trail, and is the main emergency apparatus ingress/ egress side. The main engine bay overhead door is all glass panels (un-insulated) with lower panel blanked out aluminum. The other 4 doors have been replaced w/ non-insulated opaque plastic paneled doors which allow transmitting of ambient light into bays. These doors should be replaced w/ proper insulated doors, and all OH door seals need replacing.



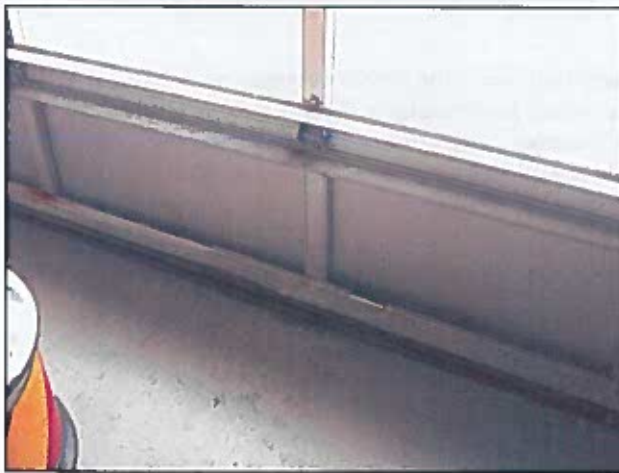
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

The apron shows many cracks, indicating poor subsurface conditions and settling. At the expansion joint at overhead door, the interior slab is pronounced about an inch.



The main Engine overhead door is damaged and should be replaced with a proper insulated door.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



The main public doors on the west and south elevations, are not ADA accessible due to the step, and the door handle on the EMS entry not being a lever mechanism.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

West elevation- The west elevation shows the 3 windows and entry door to main bay through the brick and mortar exterior wall. The only concrete bollards on the property are located at the door to bay on this elevation. Again, this door, as every other exterior door, does not meet ADA standards (although this one does have a lever handle) for either an ingress or egress door due to the stepped threshold.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

North elevation- The northern elevation houses the living, cleaning and parking areas for the facility. 2 overhead doors to the bays can be seen here, as well as a man-door.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

There is also a smaller shed that houses the generator next to the living quarters of the facility on the northern elevation, between station and parking area. The main facility lacks gutters at several locations.

Since there is no proper drainage, pooling effect occurs at the valley between asphalt and concrete apron.



East elevation- The east elevation shows the vegetation and addition of small structure for housing the gas BBQ. The main breakers are located here, as is the underground cable box and trash cans.

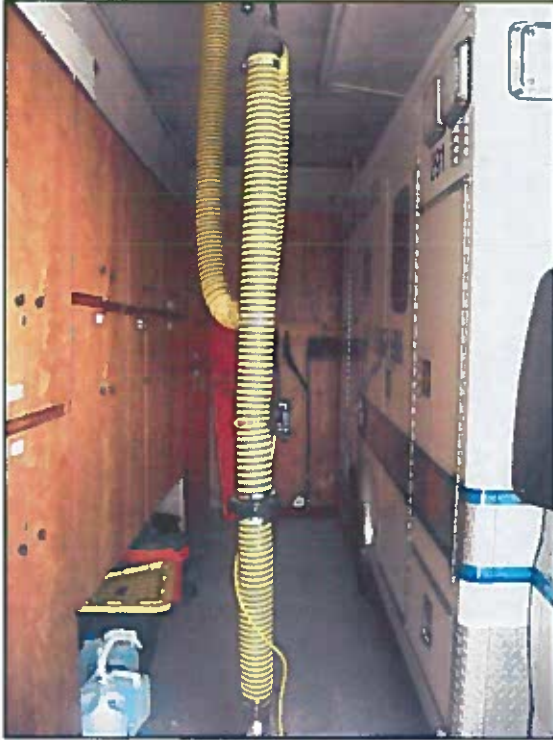


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

BUILDING INTERIOR:

East Station



Apparatus Bays- Storage of Oxygen bottles in EMS bay, with only a small chain for fall protection will not pass code. Concrete filled bollards, with a top and bottom chain, are needed for proper protection.

Exhaust system hoses left hanging down in access routes can be hazards in an emergency egress situation.

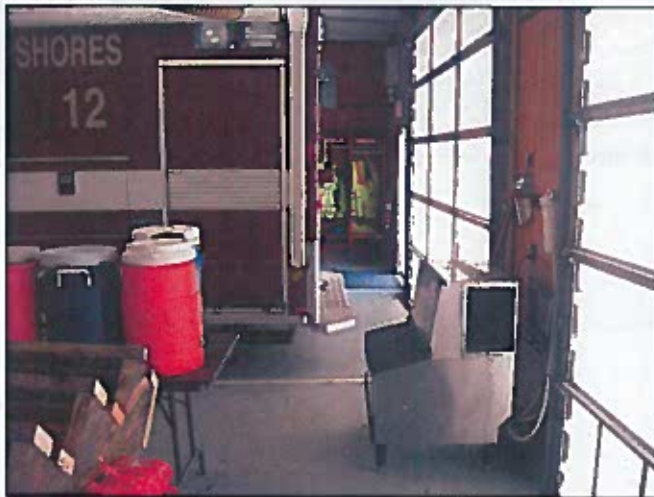


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



In an already confined space, necessary exhaust system hoses take up precious real-estate.

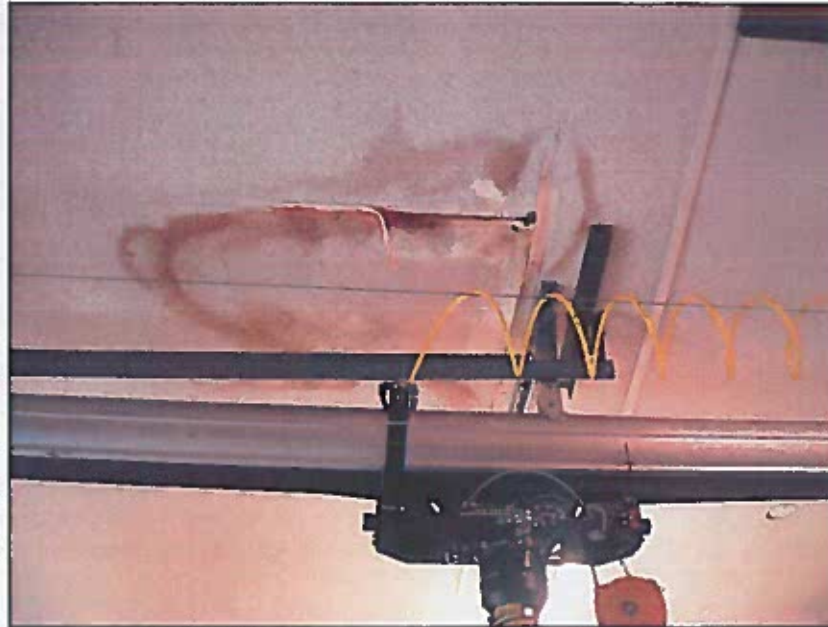


The existing ice machine is currently housed in the front of the apparatus bay. Per OSHA recommendations, the ice machine should be moved into a room not subject to exhaust fumes, particulate contaminants, etc.

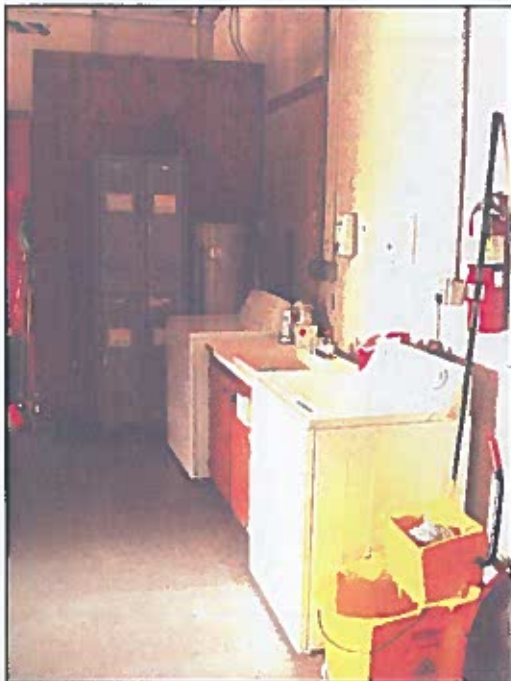


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



There is water damage in bay ceiling from attic space above.

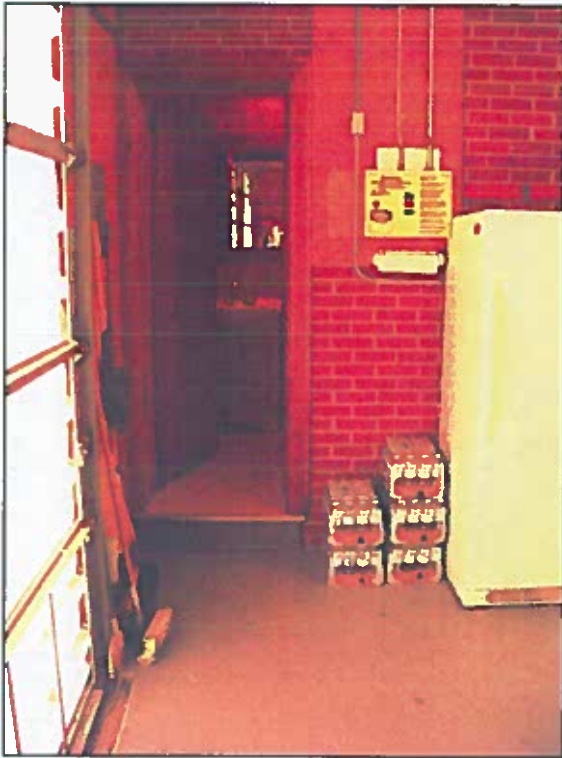


Residential Washer and Dryer are located in rear of EMS bays. There is a small decontamination area in-between washer and dryer. The typical standard in a new construction is to have a separate decontamination room where this equipment can be housed out of the bay area. Typical new construction would also have a large decontamination sink with sideboards for washdown of larger items in addition to an emergency shower/eyewash station for safety.



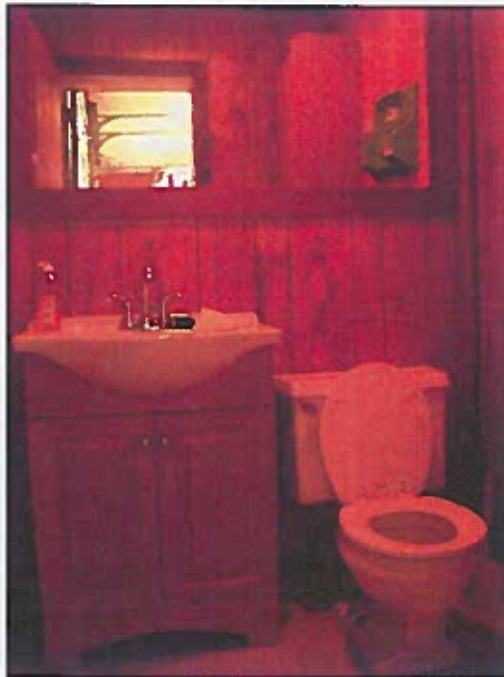
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



The Apparatus Bay Restroom is not accessible due to a step up, knob handle, and the accessible route clearances are encroached upon by equipment and water bottles.

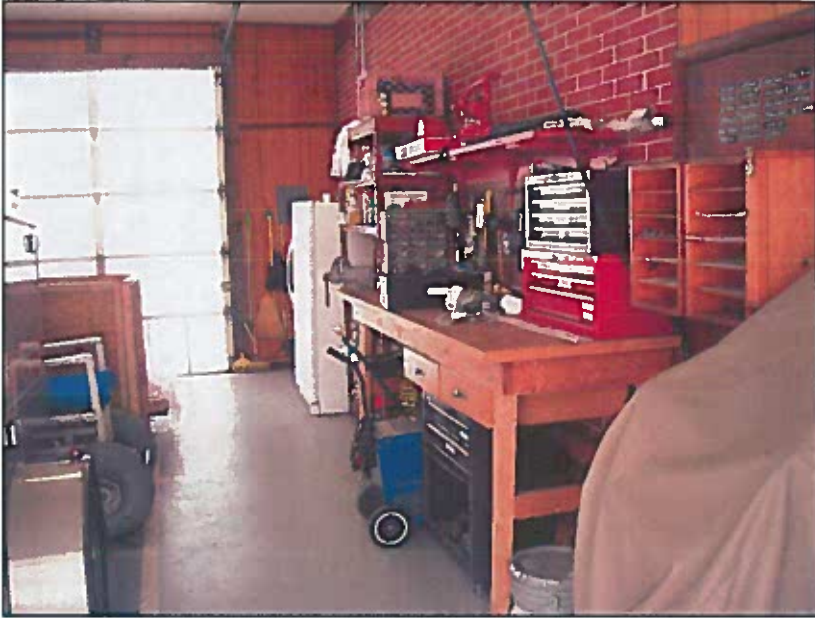
The sink is a standard residential grade standalone sink with no ADA clearances underneath, and no grab bars in Restroom.



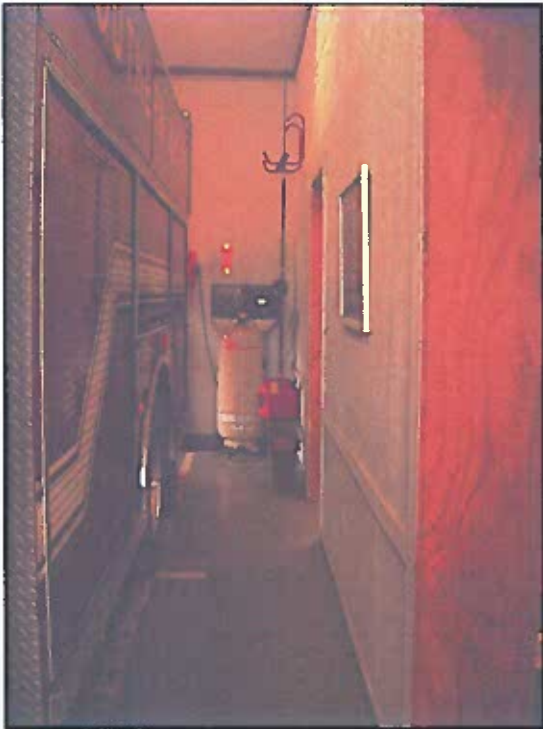
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

The Tool Shop is sharing the space in bay with storage along the wall.

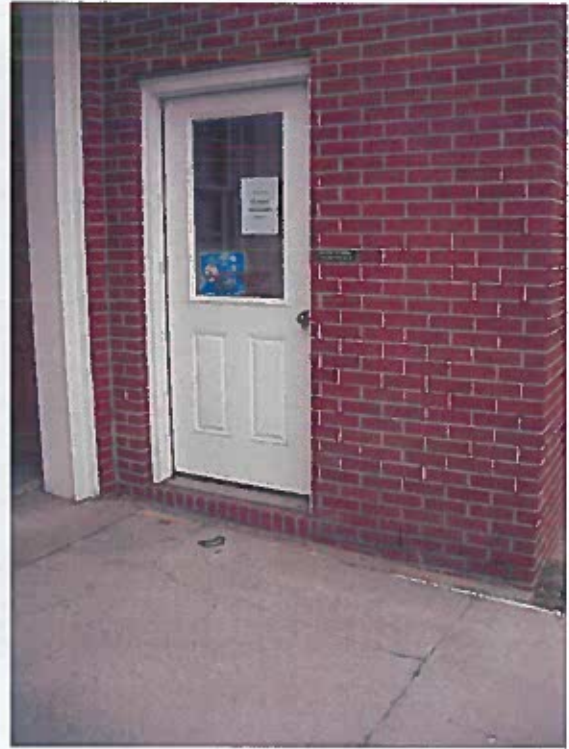


An IR Air Compressor is located in rear of bay.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Public Entrance- The main entry is a step up due to flooding threat for the area, and the door handle is not a Lever type, which is required for this entrance.



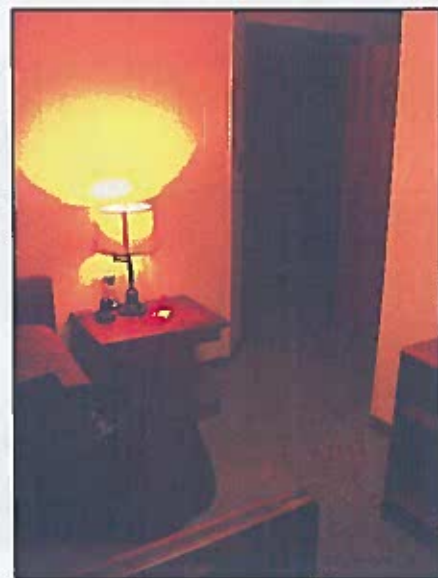
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

Restroom/ Shower- The current fixture arrangement will not meet accessibility standards. . The shower is not handicap accessible, and the sink and toilet do not have ADA approved hardware, and clearances are not met.



Sleeping Area- The sleeping area is an open plan with single beds and lockers.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



Day Room/ Kitchen- The dayroom is an open plan configuration containing the areas for seating and dining with the kitchen. The Kitchen has Plastic Laminate counter tops, and residential style fixtures.

The casework in the kitchen is light duty residential grade and would not be recommended in new construction for a fire station. The kitchen sink height and base cabinet configuration will not meet current accessibility standards.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

PART 2: SYSTEMS ASSESSMENT

MECHANICAL, PLUMBING AND ELECTRICAL SYSTEM FINDINGS.

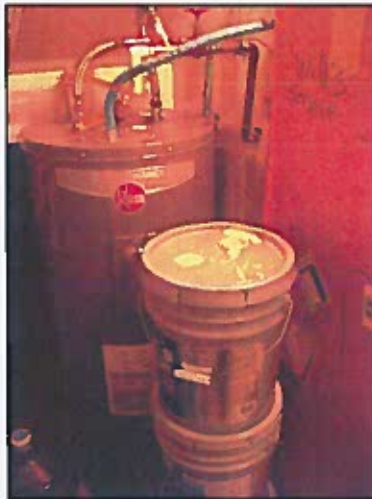
PME CONDITIONS ASSESSMENT

Southern Shores VFD South
Station Southern Shores, North
Carolina

I. PLUMBING

PLUMBING ASSESSMENT NOTES

1. Cold and hot water piping is copper at connections to fixtures, therefore it is logical to assume water piping is copper throughout the building. Did not observe any insulation on water piping.



2. Waste piping is PVC.
3. Plumbing fixtures are residential type with tank type water closets and single lever manual type faucets on lavatories and kitchen sink.
4. Kitchen sink or under counter dishwasher does not have a garbage disposal on waste line.
5. Top level of main building is plumbed for upfit.
6. Hot water for main building is provided by 40 gallon electric storage type heater with 4500 watt element. Water heater was new in April 2016.
7. Washer and dryer are commercial type.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

8. While some water closets had grab bars and one shower had a hand-held sprayer for accessibility, compliance with ADA requirements including mounting heights was not confirmed. Drain and water piping under lavatories is not insulated.



9. Although there are some water stained ceiling tiles in the building, no water leaks were observed.
10. Apparatus Bay does not have any floor drains. Ice machine drains to onsite drainage pumps. Hot water for utility sink is provided by electric unit in adjacent base cabinet.
11. There is not an emergency eyewash/shower station for personnel decontamination. The only decon apparatus is manual squeeze bottles for eyewash at the utility sink.
12. Apparatus Bay has one air compressor for general duty and one Bauer Unicus III high pressure SCBA fill station.
13. There are several hose bibs on the building's exterior.
14. Water for the building is provided by the Town's system. Sewer is to an onsite septic tank and field. Irrigation is provided by onsite well with pump inside the building in a closet adjacent to the commercial washer.
15. Gas for building generator, commercial dryer, and Apparatus Bay heaters is LP from onsite aboveground storage tank located in southwest corner of the site.
16. Two sump pumps located in front of building must remain operational to keep groundwater/rain water out of the main building's lowest level.
17. Staff did not report any deficiencies with the plumbing system.



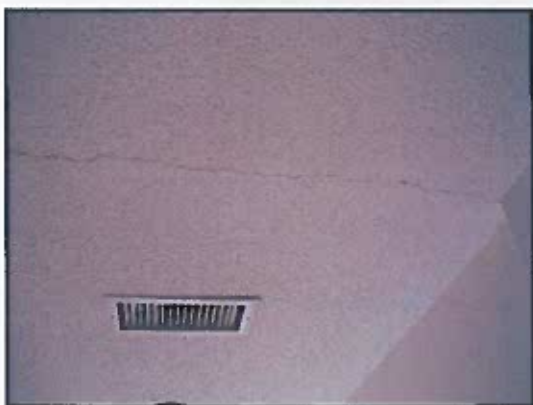
SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

II. MECHANICAL

MECHANICAL ASSESSMENT NOTES

1. Main building is conditioned by three split system heat pumps:
 - a. Trane 1-1/2 ton system manufactured in 1989 serves the Dayroom. System's refrigerant is R-22. System is currently not functional.
 - b. York 3-1/2 ton system manufactured in 1996 serves the meeting space. System's refrigerant is R-22.
 - c. Trane 4 ton system manufactured in 2003 serves the office areas and the upper floor level. System's refrigerant is R-22.
2. Although the heat pump systems have been very well maintained, all three should be replaced due to their service life and that they use phased out R-22 refrigerant.
3. Split systems' indoor air handling unit sections are not in locations conducive to maintenance: they are above ceilings, in data closets, and rely on condensate pumps for condensate discharge to exterior.
4. There are no apparent outside air intakes for any of the three split systems, therefore there is no outside air being provided into the building for Building Code required ventilation for the occupants.
5. Insulation on all exterior refrigerant piping requires replacement due to deterioration from exposure to UV rays.
6. Office area's HVAC is reported to be problematic for temperature control. The thermostat for this HVAC unit is located in the office area, but the return air grilles for this unit are located in the reception area. When the door between these two areas is closed, temperature control and comfort is sacrificed.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

7. All toilet and restroom spaces have functional individual ceiling exhaust fans controlled by switches on the wall.
8. Main building's attic and above ceiling spaces are used for duct routings. Because these spaces are open to the exterior through soffit and eave vents, they are a prime source for unconditioned outside air to enter the building and condense on HVAC units and ductwork. This is probably why ceiling tiles have water stains on them, especially around supply air diffusers. Supply and return air duct systems should be reinsulated and where possible, vent openings to the exterior should be sealed off.
9. Commercial dryer is LP gas fired. Dryer's exhaust is vented to the exterior but there is not any combustion intake air ducted to the vicinity of the dryer as required.
10. Apparatus Bay:
 - a. Two LP gas fired unit heaters. Even though only one heater is functional, heating in the Bay is reported to be sufficient. Heater on south side is not functional.



- b. One sidewall mounted exhaust fan for ventilation. Fan is controlled by a manual switch on the wall. There are no openings for intake makeup air.
 - c. There are no monitors for CO or NO2 detection or automatic operation of exhaust.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



- d. Plymovent brand system is installed to provide source exhaust from vehicles in the Bay. All three vehicles had their exhaust outlets connected to the system. System is reported to be ten years old and works acceptably.
- 18. Tool/Work Room in back of Apparatus Bay does not have any heat or ventilation.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

III. ELECTRICAL ELECTRICAL ASSESSMENT NOTES

1. The electrical service is provided by the utility company, underground to a CT cabinet located on the exterior West wall of the facility. This service configuration is 120/240 Volts, single phase, 3 wire.
2. The service feeder from the utility CT can supplies an adjacent service disconnect rated 120/240 Volts, single phase, 3 wire 400 Amps.
3. The service disconnect supplies the Normal input of an automatic transfer switch (ATS) located in the Kitchen. The ATS is an Onan model OT 400. This ATS is rated 240 Volts, 400 Amp, 2 poles. The ATS output supplies a main distribution panelboard (MDP) located adjacent to the ATS in the Kitchen.



4. The Emergency input of the ATS is supplied by a generator located outside at the South side of the facility. The generator is an Onan Model 45EM. The generator is fueled by LP gas and is rated 120/240 Volts, 45 kW, 45 kVA. The output of the generator is supplied through a 175 Amp circuit breaker located on the exterior of the building adjacent to the generator. The generator is installed on a concrete pad approximately 2' above grade, presumably to aide in preventing issues due to high water levels. A staff member indicated that the generator has always backed up the facility adequately exhibiting no apparent issues with regard to its capacity.
5. The generator steel enclosure shows signs of past rusting with small holes observed through the metal. It is difficult to keep steel enclosures in acceptable condition in an environment with close proximity to the coast. Obvious painting maintenance efforts are ongoing as the paint currently appears to be in reasonable condition.
6. The main distribution panelboard (MDP) located in the Kitchen is a G.E. Loadcenter rated 120/240 Volts, single phase, 3 wire, 400 Amp bus with a 400 Amp main circuit breaker. This panel supplies miscellaneous 120V and 240V loads throughout the facility.
7. A subpanel is located adjacent to MDP in the Kitchen and is a G.E. Loadcenter rated 120/240 Volts, single phase, 3 wire with a 125 Amp bus. This subpanel supplies miscellaneous 120V loads throughout the facility that were likely considered critical in nature in the past, as it is supplied from panel MDP through a double throw safety switch. We surmise that this would have been prior to the generator and ATS installation that currently backs up the entire facility. Currently, it appears that this panel could be back-filled through a cord/plug connection from a portable generator. This cord is still connected to the bottom of the subpanel enclosure.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

- Interior lighting is provided by a mixture of surface mounted incandescent fixtures, recessed linear fluorescent fixtures, surface linear fluorescent fixtures, suspended linear fluorescent fixtures. Linear fluorescent lamps appear to primarily be T12. Where specific room comments regarding lighting follow, the comments are intended to point out observations that are out of the ordinary.



- Lighted exit signs are located at exterior egress doors. No specific fixtures for emergency egress lighting were observed, as the intent appears to be for the generator to serve as a suitable backup power source.
- Exterior lighting is provided by a mixture of flood lights with double ended halogen lamps, halogen PAR type lamps, wall mounted incandescent fixtures, and LED wall sconce fixtures.
- The NEC requires all panels to have locking covers. The panel in the kitchen next to the generator automatic transfer switch did have a cover during our assessment, but it currently does not. It will need to be replaced to meet codes.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

12. Kitchen: There is a counter in front of the ATS that is in the code required clearance in front of the ATS, and that also prevents fully opening the ATS door. Upon further examination, the counter is not fixed in place and can be moved to provide access as required.



13. Kitchen: There is no outlet serving the counter to the right of the refrigerator. A microwave located on the counter is plugged into a multi-outlet extension unit that is plugged into a receptacle behind the refrigerator.
14. Women's Restroom: The recessed fluorescent light in the ceiling with two U-6 lamps flickers intermittently.
15. Training: The flat screen monitor power cords are routed into the ceiling cavity and plugged into an outlet in the ceiling cavity. Such power cords are not listed for installation in ceiling cavities.
16. Storage Closet off Day Room: Location for telephone / IT equipment.
17. Conference: One residential type smoke detector was observed. This is the only fire detection and alarm device in the facility.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

18. Upper Level Storage: Exposed nonmetallic-sheathed cable was observed, exposed both in wall framing and surface mounted to the ceiling. Nonmetallic-sheathed cable is only permitted by code where concealed in walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.



19. Truck Bays: A subpanel located here is a Square D QO Load center rated 120/240 Volts, single phase, 3 wire with a 125 Amp bus. This subpanel supplies miscellaneous 120V and 240V loads throughout the truck bays.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

20. Truck Bays: Two low bay metal halide light fixtures and seven 8' suspended fluorescent fixtures provide lighting.
21. Truck Bay: A receptacle installed by the utility sink is not GFCI type. There are two circuit breakers in the truck bay subpanel that are labeled "GFCI Protected Outlet", and it's possible that this particular receptacle is supplied by one of those breakers.
22. Truck Bay Exterior Southeast Corner: There is an abandoned PAR type dual flood light fixture with no lamps.
23. Truck Bay Exterior Northeast Corner: There is an abandoned PAR type single flood light fixture with no lamp.
24. Exterior Main Entry, East & North Sides: LED wall sconces were operating during daylight conditions. Energy code requirements limit operation of exterior lights from dusk to dawn.
25. Exterior North Side: One GFCI receptacle does not have an "in-use" cover that is required by current codes.
26. Exterior West Side: One quad receptacle has cords connected from pickup trucks and SUV's parked in an adjacent parking lot.
27. Exterior South Side: Telephone service entry is located near the generator.



28. Exterior East Side: A Rohn type antenna tower is located on a concrete foundation near the front entry. Three solid copper ground conductors are bonded to the tower and routed into the ground, presumably to ground rods or a ground ring.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



29. Exterior East Side: An electrical enclosure is located adjacent to a sump basin. The enclosure is thoroughly rusted.
30. Overall facility energy efficiency could be improved significantly through lighting retrofit upgrades. LED technology offers the opportunity of reduced energy consumption while also easing maintenance requirements due to long lamp life. Occupancy sensors prevent lights from operating when no person is present. Dominion Virginia Power offers rebates for lighting upgrades that can help offset the cost of new light fixtures and occupancy sensors. A thorough evaluation with life cycle cost estimates would provide guidance on the value of such a retrofit project.
31. In general, electrical system equipment and circuitry appear to be in reasonable condition. The distribution system is sized adequately for loads supported. A staff member indicated that there have been instances of branch breaker tripping. It's likely that this is the result of extending existing circuits over the years to accommodate new loads as needs in the facility have evolved. The existing panels have space for the addition of branch breakers to accommodate new loads, but new circuitry installation in an existing facility can be challenging and expensive. If breakers continue to trip consistently, resolving the issue requires the addition of new branch circuitry to divide loads among circuits.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

PME CONDITIONS ASSESSMENT Southern Shores VFD East Station Southern Shores, North Carolina

I. PLUMBING

PLUMBING ASSESSMENT NOTES

1. Cold and hot water piping is copper at connections to fixtures, therefore it is logical to assume water piping is copper throughout the building. Did not observe any insulation on water piping.
2. Waste piping is PVC.



3. Plumbing fixtures are a mixture of residential types with tank type water closets and manual type faucets on lavatories and sinks.
4. Hot water for building is provided by a single electric storage type heater.
5. Washer and dryer are residential type. Dryer is electric.
6. Although there is some water stained ceiling areas in the building, no water leaks were observed.
7. Truck bays have three floor drains. The floor drains do not appear to have any sand or oil intercepting capabilities.

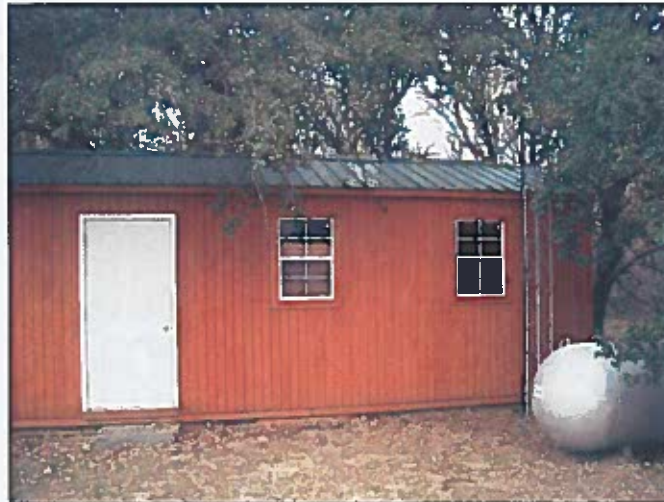


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



8. Ice machine in Fire Department truck bay drains to exterior grade.
9. In either the Fire Department or EMS truck bays, there are no emergency eyewash/shower station for personnel decontamination. The only decon apparatus is manual squeeze bottles for eyewash at the lavatory in the Fire Department truck bay restroom and an eyewash on the faucet of the utility sink in the EMS truck bay area.
10. Fire Department truck bay has one air compressor for general duty.
11. Water for the building is provided by the Town's system. Sewer is to an onsite septic tank and field.
12. Gas for building generator and Fire Department truck bay heater is LP from onsite aboveground storage tank located in north corner of the site, next to the newest facility on site.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



13. Multiple cylinders of oxygen are stored in the EMS truck bay, with no protective bollards. This is not only very hazardous, but a code violation.

II. MECHANICAL

MECHANICAL ASSESSMENT NOTES

1. EMS area of the building is conditioned by two split system heat pumps:
 - a. Heil 2-1/2 ton system manufactured in 2016 serves the front living space. System's refrigerant is R-410a. Outdoor condensing unit is constructed especially for coastal environments.
 - b. Goodman 1-1/2 ton system with unknown manufacture date serves the back sleeping areas. System's refrigerant is R-22.



2. The Heil 2-1/2 ton heat pump system is new and should last many years.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS



3. The Goodman 1-1/2 ton heat pump system should be replaced due to its service life and that it uses phased out R-22 refrigerant.
4. Split systems' indoor air handling unit sections are not in locations conducive to maintenance, they are located above a ceiling and in a closet.
5. Two ceiling diffusers have residue which could be dirt or mold. Without being sampled and tested by a certified industrial hygienist, we would be speculating what it is.



Restroom



Kitchen



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

6. There are no apparent outside air intakes for either of the two split systems, therefore there is no outside air being provided into the EMS area of the building for Building Code required ventilation for the occupants.
7. Insulation on all exterior refrigerant piping requires replacement due to deterioration from exposure to UV rays.
8. All toilet and restroom spaces have functional individual ceiling exhaust fans controlled by switches on the wall.
9. Main building's attic and above ceiling spaces are used for duct routings. Because these spaces are open to the exterior through soffit and eve vents, they are a prime source for unconditioned outside air to enter the building and condense on HVAC units and ductwork. Supply and return air duct systems should be reinsulated and where possible, venting open to the exterior should be sealed off.
10. EMS truck bay is heated with one electric unit heater. It has one ceiling fan.
11. Fire Department truck bay is heated with one LP gas fired unit heater.
12. In either the Fire Department or EMS truck bays, there are no exhaust fans for ventilation or monitors for CO or NO2 detection and automatic operation of exhaust.
13. Plymovent brand system is installed to provide source exhaust from vehicles in both the Fire Department and EMS truck bays. All vehicles in the Fire Department truck bay had their exhaust outlets connected to the system. The two EMS vehicles were not connected to the system. Plymovent system control panel is located in the Fire Department truck bay. Exhaust fan is located in the attic space.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

III. ELECTRICAL

ELECTRICAL ASSESSMENT NOTES

1. The electrical service is provided by the utility company, overhead to a meter base located on the exterior East wall of the facility. This service configuration is 120/240 Volts, single phase, 3 wire. The service drop from the utility pole to the building is routed through tree branches and it is visibly under pressure from those branches.



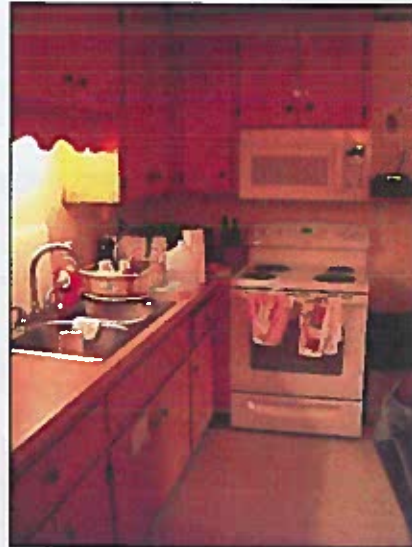
2. The utility service cable is attached to the building and then installed surface mounted to the meter base. This exposed cable surface mounted to the building is not well protected and is subject to physical damage.
3. The meter base supplies two adjacent service disconnects rated 120/240 Volts, single phase, 3 wire 100 Amps. The service disconnects hardware shows signs of rusting.
4. The load side feeders from the service disconnects are surface mounted cable installed vertically up and turned into the building. These unprotected surface mounted cables are subject to physical damage. Where feeders can be observed inside the building, conductors were installed in conduit.
5. One of the 100 Amp service feeders supplies a panel labeled "Panel B" located on the North wall of the East truck bay.
6. The other 100 Amp service feeder supplies the Normal input to an automatic transfer switch (ATS) located on the North wall of the East truck bay. The ATS is an Onan Model OTCU 125B 14G, rated 120/240 Volts, 125 Amps, 2-pole. The ATS output supplies "Panel EM" located adjacent to the ATS.
7. The Emergency input of the ATS is supplied by a generator located in a detached shed on the North side of the facility. The generator is an Onan unit, fueled by LP gas, and rated 120/240 Volts, 20 kW, 20 kVA. The generator is apparently adequately sized for the loads it supports.
8. Center Truck Bay: Receptacles installed within 6' of a utility sink are not GFCI type.
9. Telephone entrance equipment is located on the North wall of the Center truck bay.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

10. A portion of the building is occupied by an EMS department. The bedrooms and day room of that space has residential type smoke detectors installed. There is no detector in the corridor space adjacent to bedrooms.



11. Interior lighting is provided by a mixture of surface mounted incandescent fixtures and surface linear fluorescent fixtures.
12. No specific fixtures for emergency egress lighting were observed.
13. Exterior lighting is provided by a mixture of flood lights with PAR type lamps and one HID cobra head type fixture.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

14. No convenience outlets were observed within 25' of exterior HVAC equipment.
15. There is a broken plug which needs replacement on wood panel wall, between the Apparatus bay and living quarters.



16. Overall facility energy efficiency could be improved significantly through lighting retrofit upgrades. LED technology offers the opportunity of reduced energy consumption while also easing maintenance requirements due to long lamp life. Occupancy sensors prevent lights from operating when no person is present. Dominion Virginia Power offers rebates for lighting upgrades that can help offset the cost of new light fixtures and occupancy sensors. A thorough evaluation with life cycle cost estimates would provide guidance on the value of such a retrofit project.
17. In general, interior electrical system equipment and circuitry appear to be in reasonable condition for the current use of the facility. The distribution system is sized adequately for loads supported.
18. A staff member indicated that there is no apparent logic to installed branch circuit wiring. It would seem logical that one of the interior panels would supply the truck bay portion of the facility, and the other panel would supply the EMS portion of the facility. But that is not the case, as each panel appears to supply circuits to both portions of the facility.
19. For any proposed modifications or renovations to the facility, specific evaluation at that time relative to the proposed use of the facility would be recommended for relevant electrical systems upgrades and replacement.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

PART 3: SITE ASSESSMENT

SITE FINDINGS:

South Station:

Property Information; South Station is located on one parcel 022519012 (PIN 986718406372) in District 20- Southern Shores. The parcel is 30,000 SF in area, including a 17,712 SF asphalt parking area. The facility located here has been functioning as a fire station since its initial construction in 1989.

The Public Works property just west of Fire Station, 27 Pintail Trail, is also one parcel 022519011 (PIN 986718404285) in District 20- Southern Shores. The parcel is 30,000 SF in area as well, with a paved asphalt parking area of 5,000 SF.

Existing Vegetation – There is existing grass on eastern and northern elevations, with trees bordering property on southern and northern elevations. Remaining areas are gravel and pavement.

Existing Pavement – asphalt and concrete drive and parking area, and concrete apron for apparatus', with noticeable cracks and pooling where there is no drainage on lower part of site.

Sanitary Sewer – Sewer is to an onsite septic tank and field. Irrigation is provided by onsite well with pump inside the building in a closet adjacent to the commercial washer.

Storm-water/Site Drainage – Water for the building is provided by the Town's system. Two sump pumps located in front of building must remain operational to keep groundwater/rain water out of the main building's lowest level.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

East Station:

Property Information; East Station is located on one parcel 022110000 (PIN 986819516864) in District 20- Southern Shores. The parcel is 27,000 SF in area, including a 10,100 SF asphalt/ concrete parking area. The facility located here has been functioning as a fire station since its initial construction in 1972.

Existing Vegetation – There is grass on the northern, eastern and western elevation sides of the facility, with trees bordering the northern and eastern property lines. The eastern side is not kept very well, and gravel and dirt have mixed with leaves from the trees.

Existing Pavement – Existing concrete pavement is in poor condition. Severe cracks are on the apparatus apron on front of station, and joints have moss growth within cracks. Asphalt pavement is in fair condition for parking area.

Sanitary Sewer – Sewer is to an onsite septic tank and field.

Storm-water/Site Drainage – Water for the building is provided by the Town's system. Drainage on the north side where parking meets the building apron pools.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

PART 4: CONCLUSION

South Station- The issues presented in this report represent the fact that the Main Station (South) structurally is in generally acceptable condition for the age of the facility, but does not meet the programmatic needs of the FD today. Many of the existing conditions do not meet generally accepted practice for new stations and should be addressed during the next major addition or renovation project for the station.

The apparatus bay, concrete apron, and asphalt drive durability is a significant point of concern for the facility, as is accessibility. The concrete slabs have already exhibited significant cracking and failure in some areas. The trends in the fire service industry continue toward heavier and larger equipment and as such will continue to impose more loads on these floors and drives.

If this station is to remain in service for many more years, it will require many upgrades, such as installing concrete bollards at bay doors, patching drive apron at bay doors, offering adequate parking spaces including Handicap stalls and loading zones, LED light fixture retrofit, HVAC overhaul and replacement/ installation of new equipment and supply lines, installation of proper ADA ramps, provide grab bars and upgrade hardware and restroom fixtures, significant site drainage modifications, and consideration given to an updated electrical system.

The facility is currently on a septic tank/ field system. If the station is to be demolished and a new station constructed, our suggestion is to investigate tying into the new sewage treatment facility in Landing Trail (near to the Station's property), being constructed by Saga Construction, and tie into the system with new sanitary sewer lines. On-site sewer treatment will likely be very expensive.

East Station- The years are showing in this station, and many areas have issues which will need to be resolved during any improvement efforts. As with the other station, accessibility is a major component for any upgrading to address. There will need to be designated accessible entry/ egress points that meet ADA regulations, as will the common areas within the station. The restrooms do not appear to meet any accessible codes and will need to be redesigned.

Due to the change in elevation for flood protection purposes, ADA ramps will need to be provided.

For any modifications, an extensive plumbing retrofit from residential to commercial quality will need to be addressed, as will installing new commercial fixtures in lieu of the current residential ones. Evaluation of the current electrical systems will also need to be completed for any proposed upgrade of the facility.

Installation of concrete bollards at Bay entrances will add a level of protection and safety, as will placing bollards in front of the oxygen tanks within the EMS truck bay.

The apparatus bay, concrete apron, and asphalt drive durability is a significant point of concern for the facility. The concrete slabs have already exhibited significant cracking and failure in some areas. Consideration of replacing the concrete slabs and subbase is our recommendation.

There also needs to be an installation of proper exhaust monitoring system for truck bays. The Plymovent system is used, but without CO or NO2 level monitoring, safe operations in truck bays may be compromised.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

APPENDIX A: SPACE NEEDS ASSESSMENT

Space Needs Description:

In consultation with the Department Chiefs and Fire Fighter representatives, the consultant identified space standards for the various tasks, personnel, storage needs and apparatus housed at the South station. The standards were based on national norms, information obtained during facility tours, input from the departments, evaluation of the existing stations construction, and the experience of Stewart-Cooper-Newell Architects.

A programmatic station prototype was developed to meet the needs of the fire department. Every room in the facility has been identified and assigned an area based on the tasks, functions, and accommodations that must take place in that particular area. These spaces, each in their net area form, are tabulated at the bottom of the program and then a grossing factor is applied to provide a Total Gross Square Feet for the station.

The grossing factor provides area needed for corridors to connect functional areas, the wall thickness, and the mechanical areas specific to each facility. Typically, the smaller a facility is, the larger the grossing factor will be. A 40% grossing factor has been applied to all areas not including the apparatus bays. A 10% grossing factor has been applied to the apparatus bays because they are in nature large open areas and will not require corridors for circulation.

The results of this programming exercise have shown that the Total Gross Square Feet needed for the Station should be approximately 15,411.f. The existing Station Square Feet is approximately 7,872 s.f. requiring an additional 7,539 square feet in order to meet the department's needs. The following pages will give more detail into each programmed section for the summary given above.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

Written Program:



Southern Shores Fire Department

Draft 10.21.16 rev.

Program Needs

12.02.16

Attendees: Joseph Buckley Patrick Regan, Edward J. Limbacher, Ken Newell

FIRE VEHICLE BAYS	Size	Size
Apparatus Bays (6, 4) Pull through, Double Loaded (80'D x 96'W, 70'D x 76'W)	7,680	5,460
Bay 1: Engine 123 @ 38' & F150 @ 21'		
Bay 2: Engine 124 @ 38' and F250 @ 20'		
Bay 3: Tower 121 @ 33' and Rehab @ 24'		
Bay 4: Tower 12 @ 40' and Yukon @ 17'		
Flourescent Lights (T8)		
Infra Red Gas Tube Heaters		
14x14 OH Doors w/ Remotes Sectional Steel Doors - Full Glass @ front and 2 Rows of View Panels @ rear		
OH Door Controls @ each door, @ entry to bay area		
Normal Built-In Bay Exhaust System		
Plymovent Exhaust System (Reuse)		
Electric Shorelines Junction Boxes (2 per Bay - 30A) - Cord Reels By Owner (BO)		
Airlines Drops - 1 per double Bay		
No sewer, so the Bay Floors will need to be sloped to bay doors and exterior		
Oil Separator is required by AHJ		
Normal Inside/Outside Hosebibbs		
1.5" Truck fill line over each truck		
Sealed Concrete Floors with Stained Traffic Lines		
Height Clearances to Tip Cabs one bay (min.)		
Sprinkler Riser in Bays w/ Bollard protection		
Turn-out Gear Room - (40) Gear Grid Style Turn-Out Lockers (BO)	500	500
Decon/Laundry Room: Dbl. Stainless Stl. Sink w/ sideboards, Emergency Shower/Eyewash, Mop Sink,	230	230
Extractor & Gas Gear Dryer (cuts and equipment BO, installed By GC)		
Compressor Room: SCBA compressor (cuts BO) - storage racks for 20 bottles (BO) - Cascade System (BO)	230	230
(1) Ice Machine (BO), Tool air compressor (BO)		
FD Med. Closet - HVAC, Shelves (BO)	36	36
Tool Shop: 10' workbench, shelving, cabinets, Flammable Storage Cab. (BO)	150	150
Mech/Training/Storage Mezzanine w/ steel stairs from bays	600	400
TOTAL FIRE VEHICLE BAY SQUARE FOOTAGE	9,426	7,008

FIRE PUBLIC SPACES	Size	Size
Lobby/Airlock (2 Seated Visitors) w/ Water Cooler	120	120
Public Restroom - HC accessible	64	64
Receptionist Office: 2 Desks, 2 File Cabs., Closet - w/ Pass Window to Lobby - Furniture (BO)	200	400
Radio/Report Room: 3 Built-in Workstations, 3 File Cabs. Closet - Base Radio & Chargers	225	225
Chief's Office: Desk w/ return, 4 File Cabs., Small Conf. Area w/ table, Closet	252	252
Training Room: Table & Chairs for 48p w/ Storage Closet plus Table & Chair Stor. Rm (100 sf)	1,200	1,200
Conference Room: Table & Chairs for 10p - Full A/V	200	200
(2) Study Alcoves	32	32
TOTAL FIRE PUBLIC SPACES SQUARE FOOTAGE	2,293	2,493



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

FIRE PRIVATE SPACES	Size	Size
Dayroom: 10 people at recliners - TV - separate from kitchen/dining	420	420
Kitchen/Dining with exterior door to Patio	625	625
1 Double Sink Deep & 1 HC Food Prep Sink		
Solid Surface Counter tops		
Disposal		
Suppression Hood		
(2) Gas Ovens w/ 4 Burner each		
Connection for Bunn Coffee Machine		
3 Refrigerator/Freezers w/ Ice Makers		
Wide Dining table for 10 people		
1 Built-in MW Oven (Low)		
1 Dishwashers		
Covered Outside Patio w/ low walls, gas grill connection, and 3 picnic tables	300	300
Individual Sleep Rooms - 1 bed, 3 lockers, 1 desk, wired for TV Outlets (4 @ 430 sf each, 1 @ 130 sf and 3 @ 100 sf ea)	520	430
Individual Toilet/Shower Rooms - 1 tl., 1 sink, 1 shower (3x5), 1 bench (2 @ 120 sf each)	240	240
Exercise Room: (5) workout stations - Equip BO (wired for TV & DVD)	500	500
Residential Laundry / Linen, Residential Washer/Dryer (BO), Tub Sink, Base & Upper Cabs. for linen and supply storage	100	100
Janitor's Closet: Mop Sink and Shelving	64	64
TOTAL FIRE PRIVATE SPACES SQUARE FOOTAGE	2,769	2,678
Total Net Square Feet	14,488	12,178
Mechanical / Circulation 40% not including Apparatus Bays	2,723	2,687
Grossing Factor Bays Only - 10%	768	546
Total Gross Square Feet	17,979	15,411
Projected Base Construction Costs		
Low Range - New Construction Costs @ \$275 / sf	4,944,225	4,238,025
High Range - New Construction Costs @ \$325 / sf	5,843,175	5,008,575

SITE:

- 50' min. Concrete Aprons front and rear
- All Apparatus Driveways to be heavy-duty asphalt
- Asphalt Paving for non-Apparatus Circulation
- On-site Fire Hydrant at front & rear of station (water by City)
- Building & Yard Signage
- 1 Flagpole (Marine) w/ lighting
- Conc. Filled Steel Bollards at Bay Doors
- FD Parking: 25 paved car spaces & Overflow grass spaces
- Additional Parking for 1 visiting apparatus
- Full Building Propane Gas Generator w/ screen wall
- Dumpster enclosure
- Site Locations for Training Tower & Props
- Ham Radio Tower
- 37' Height Limit on Bldg

GENERAL NOTES:

- All gas appliances and equipment possible
- Integral Corner Guards and Chair Rail Guards at Corridors
- All furniture & equipment by owner Unless Noted Otherwise (UNO)
- As many incorporated training scenarios as possible: confined space - ropes/rapelling - ground ladder evolutions - stokes basket - etc.

POTENTIAL ALTERNATES:

- Fueling Station
- All Concrete Paving



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

APPENDIX B: NARRATIVE

South Station: Renovations and Additions

The Written Program has identified that the total space needs for the South Station to function properly as a modern, headquarters fire station would be approximately 15,411 Square Feet (SF). The total size of the current facilities is 7,872 SF. If renovations and additions were an option on this site, it would require additions of at least 7,539 SF. In order to meet the current handicapped accessibility standards, it would also require that elevators or lifts be installed in order to access the multiple levels that exist for the current facility. As seen from the aerial photos of the existing facilities, the current station is located in such a position on the site that makes additions totaling 7,539 SF extremely difficult, and likely impossible as a functioning station. As seen in the following site Options, the foot print of the necessary drive-thru Apparatus Bays will not fit on the site if the existing station is to remain.

Based on the above reasons and the preceding facility evaluation, we feel that Renovations and Additions is not a viable option for the South Station. Therefore, the following Options presented require the demolition of the existing facility and temporary housing of personnel and equipment during the construction of a new station on site.

The cost of demolition and temporary housing is TBD based on several factors, such as; identification and abatement of hazardous materials in the existing facilities, availability and location of temporary facilities, and the design Option selected.

The estimated construction costs identified in the following Options do not include demolition or any other "non-construction" costs, such as temporary housing, furniture/fixtures/equipment, design fees, contingencies, etc.



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

South Station: Option A

The purpose of identifying Option A is to show that a one-story station of 15,411 SF will not fit on the lot currently occupied by the South Station, even with less than a required number of parking spaces shown off of the lot. Approximately 12,400 SF is the largest one-story station that fits within the setbacks and fulfills the Apparatus Bay requirements.

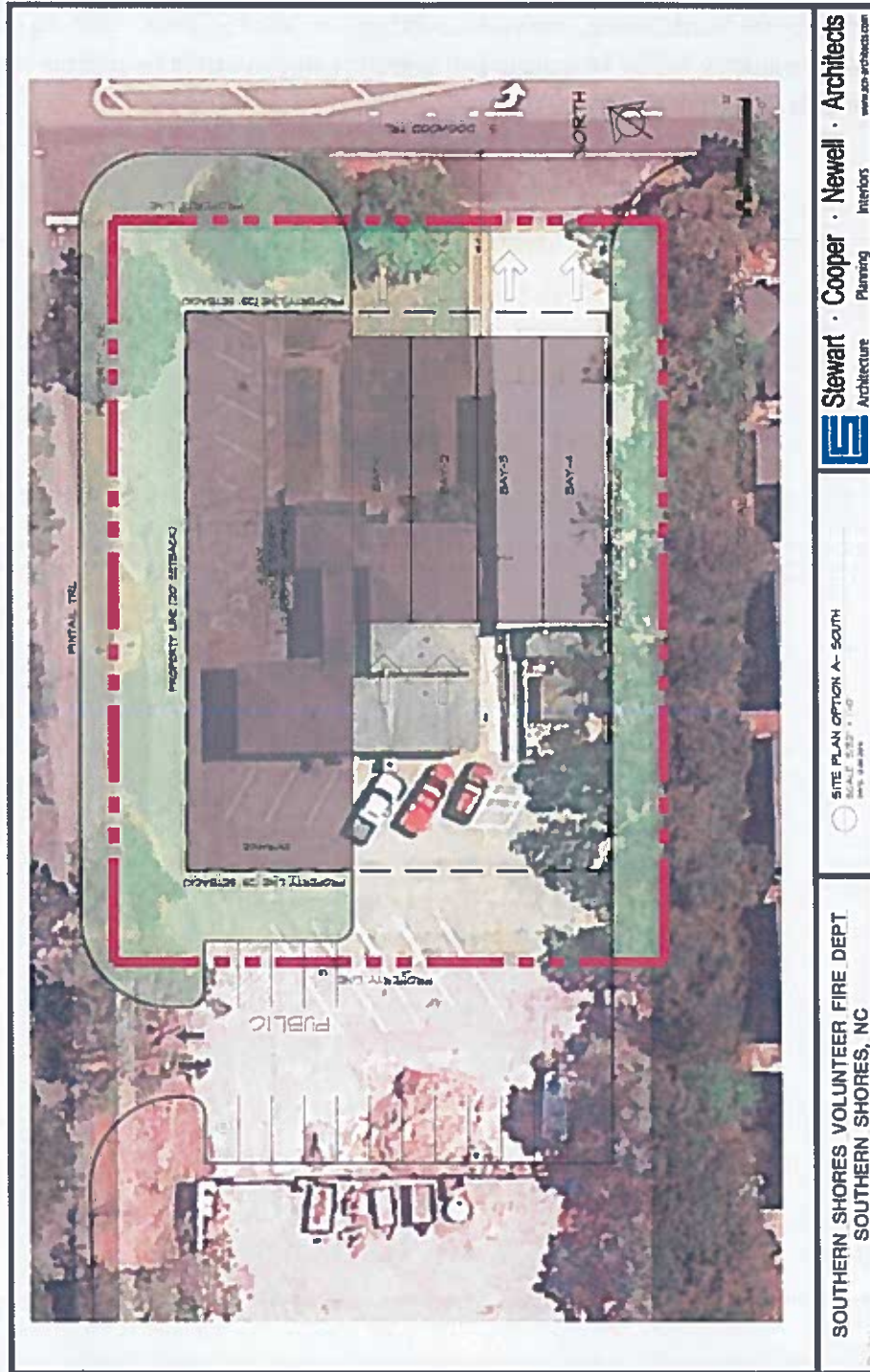


SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

APPENDIX B: SOUTH STATION EXPANSION/ REPLACEMENT SKETCHES

OPTION A:



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

South Station: Option B

This Options shows that a two-story station of 15,411 SF could fit on the existing lot. Option B is only two-story at the structure North of the Apparatus Bays and will not require a second floor above the taller Apparatus Bays. This is beneficial since a 37' height limitation for buildings exist for this location. This scheme would also require the use of the Town's Public Works parking area to satisfy the total parking needs of the Fire Department. One of several drawbacks to this scheme is that the public entry to the site and the station would be located on the West elevation and not visible from Dogwood Trail, the main roadway. This also results in unsightly visibility to the Public Works facility storage yard. This scheme leaves no site room for the existing training props.

Estimated Construction Costs:

15,411 SF x \$300 to \$325/SF = \$4,623,300 to \$5,008,575

(two-story station are more costly than one-story stations)



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

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OPTION B:



Stewart · Cooper · Newell · Architects
Architecture Planning Interiors
www.scn-architects.com

SITE PLAN OPTION B- SOUTH
02.12.2022
JOHN J. BERRY

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SOUTHERN SHORES, NC



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EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

South Station: Option C

Option C shows that a two-story station of 15,411 SF could fit on the existing lot. Option C is different from Option B in that it is fully two-story for the entire building, thus requiring a smaller footprint on site. This allows more onsite parking, although not enough to satisfy the program needs. Since the second floor in this Option would be higher to be over the Apparatus Bays, the 37' height restriction may become difficult to follow. Like Option B, the public parking and entry would occur at the station "rear" and still allows visibility to Public Works. Again, no room remains on site for the training props.

Estimated Construction Costs:

15,411 SF x \$300 to \$325/SF = \$4,623,300 to \$5,008,575

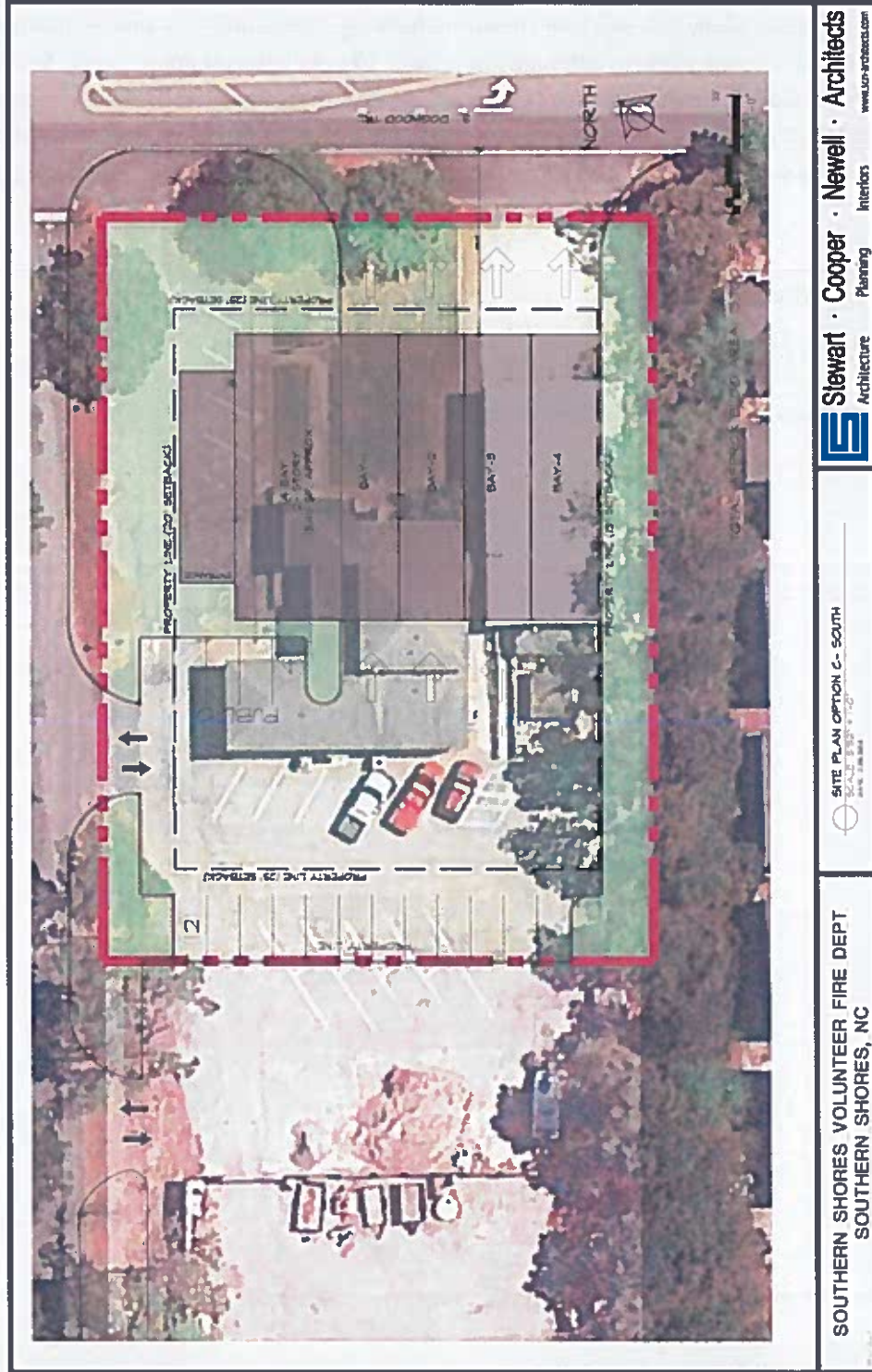
(two-story station are more costly than one-story stations)



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

OPTION C:



Stewart · Cooper · Newell · Architects
Architecture Planning Interiors
www.scnw.com

○ SITE PLAN OPTION C - SOUTH
DATE: 10/12/10

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EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

South Station: Option D

Option D shows an increased project site by utilizing both the Fire and Public Works lots. This allows a one-story, 15,411 SF station to be built, thus saving in construction costs. This scheme also preserves the Public Works building, but eliminates their storage yard, which is converted into parking. Depending on the required number of parking spaces for Public Works, the parking count for Option D may be short. Unfortunately, this scheme still requires public parking and entry at the “rear” of the station, along with visibility to Public Works and no space for the fire training props. The “private” living portions of the station would be closest to Dogwood Trail and the shown Patio would have a high screen wall which visually separates it from the public roadway.

Estimated Construction Costs:

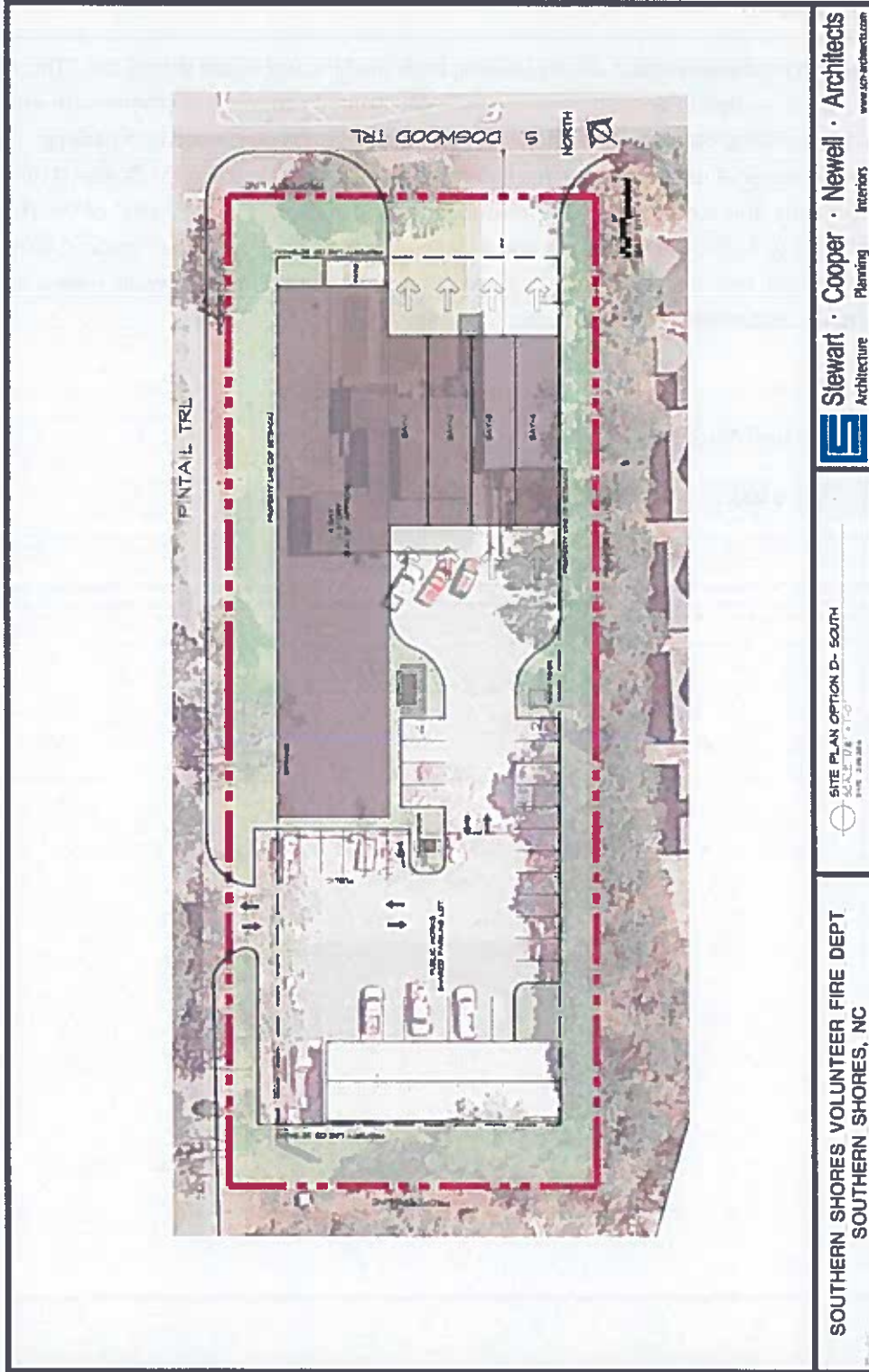
15,411 SF x \$275 to \$300/SF = \$4,238,025 to \$4,623,300



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

OPTION D:



Stewart · Cooper · Newell · Architectics
Architecture Planning Interiors
www.sch-architect.com

SITE PLAN OPTION D- SOUTH
SCALE: 1/8" = 1'-0"
DATE: 2/16/2016

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SOUTHERN SHORES, NC



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EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

South Station: Option E

Option E completely utilizes the combined Fire and Public Works sites and shows the best fulfillment of the Written Program needs. This scheme shows a one-story station of 15,411 SF, a separate public parking area entry at the front of the station, space for all of the required site elements, and good vehicular circulation patterns. Additional off-street parking along Pintail Trail is shown to satisfy the programmed parking needs for staff.

Estimated Construction Costs:

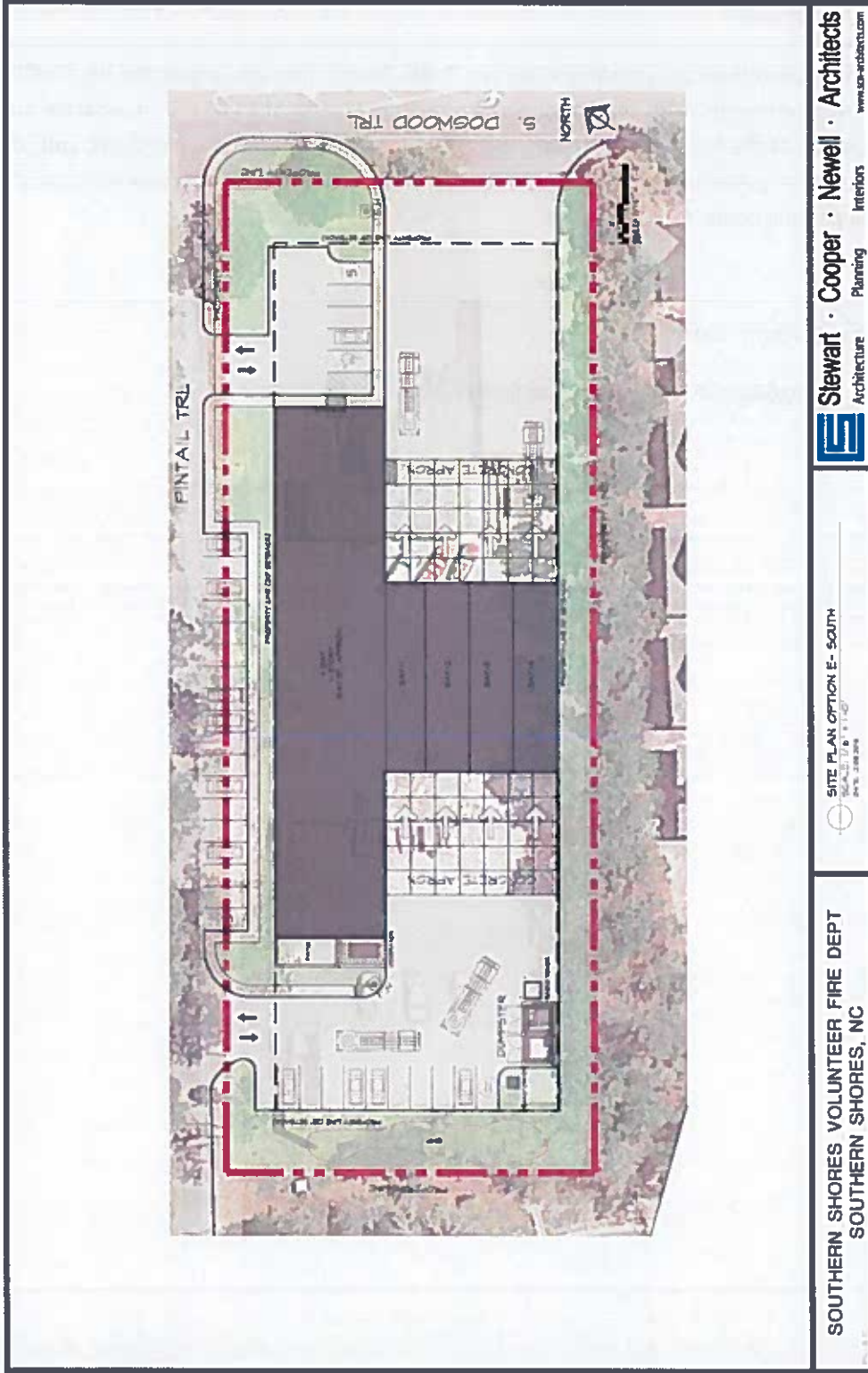
15,411 SF x \$275 to \$300/SF = \$4,238,025 to \$4,623,300



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

OPTION E:



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SOUTHERN SHORES, NC

STEWART · COOPER · NEWELL · ARCHITECTS
Architecture Planning Interiors
www.ssn-architect.com



SITE PLAN OPTION E- SOUTH
1/8" = 1'-0"
DATE: 2.28.2018



SOUTHERN SHORES VOLUNTEER FIRE DEPARTMENT

EXISTING FACILITY ASSESSMENTS ON 2 STATIONS

APPENDIX C: EAST STATION: RENOVATIONS & UPGRADES

No programming needs have been identified for the East Station. Based on the facility assessment and recommendations included in this report, if the station is to be utilized for its current activities, consideration should be given to perform major renovations in order to meet the current code requirements, satisfy accessibility requirements, meet public safety performance standards, and increase the functional lifespan of the facility.

Estimated Construction Costs*:

4,091 SF x \$100 to \$150/SF = \$409,100 to \$613,650

* Assumes that the local inspections Dept. would not require the structure meet the code requirements for and "essential facility."

