

Assessment Report
May 18, 2019



Crescent-Villa Fire Authority

Crescent Springs, KY

FACILITY CONDITION ASSESSMENT

THE PROCESS

PROCESS FOR ASSESSMENT

- Interviews with Fire Chief / Staff
- Condition Assessment
- Life Cycle Cost Analysis
- Presentation to Fire Authority
- Programming Study – Next Step
- Estimate of Probable Project Costs – Next Step

Generate
an
Awareness

Build a
Consensus

*Crescent-Villa Fire
Authority*

EXISTING CONDITIONS

SUMMARY

- This report evaluates the station at 777 Overlook Drive owned by the Crescent-Villa Fire Authority.
- The purpose of the report is to assess the existing conditions related to building components and systems, and to note suggested improvements, maintenance and repairs needed to generally meet current code requirements, maintain existing systems and to prevent possible further deterioration of components in need of repair.
- The report is based on visual observations made by professional architects and engineers during an on site walk-through of the building. Information was also obtained from building users and maintenance staff.
- Visual observations and reviews do NOT include:
 - *Detailed evaluation of existing systems*
 - *Detailed building code compliance*
 - *Detailed compliance with ADA Accessibility Standards for Accessible Design*
 - *Hazardous material review*
 - *Destructive material testing*
 - *Environmental review*
 - *Enhanced energy efficiencies*

CONDITION ASSESSMENT

Site

- Overall site drainage
- Site circulation
- Pavement conditions
- Signage

Architectural

- General building envelope
- Exterior doors and windows
- Roofing system
- Interior finishes
- Floors
- Walls
- Ceilings
- Doors and door hardware
- General structure

Mechanical

- HVAC overall building system
- HVAC controls
- Plumbing fixtures and piping
- Fire protection

Electrical & Security

- Power distribution
- Lighting systems
- Generator
- Communication equipment
- Door control system
- Technology
- Fire alarm system

GENERAL INFORMATION



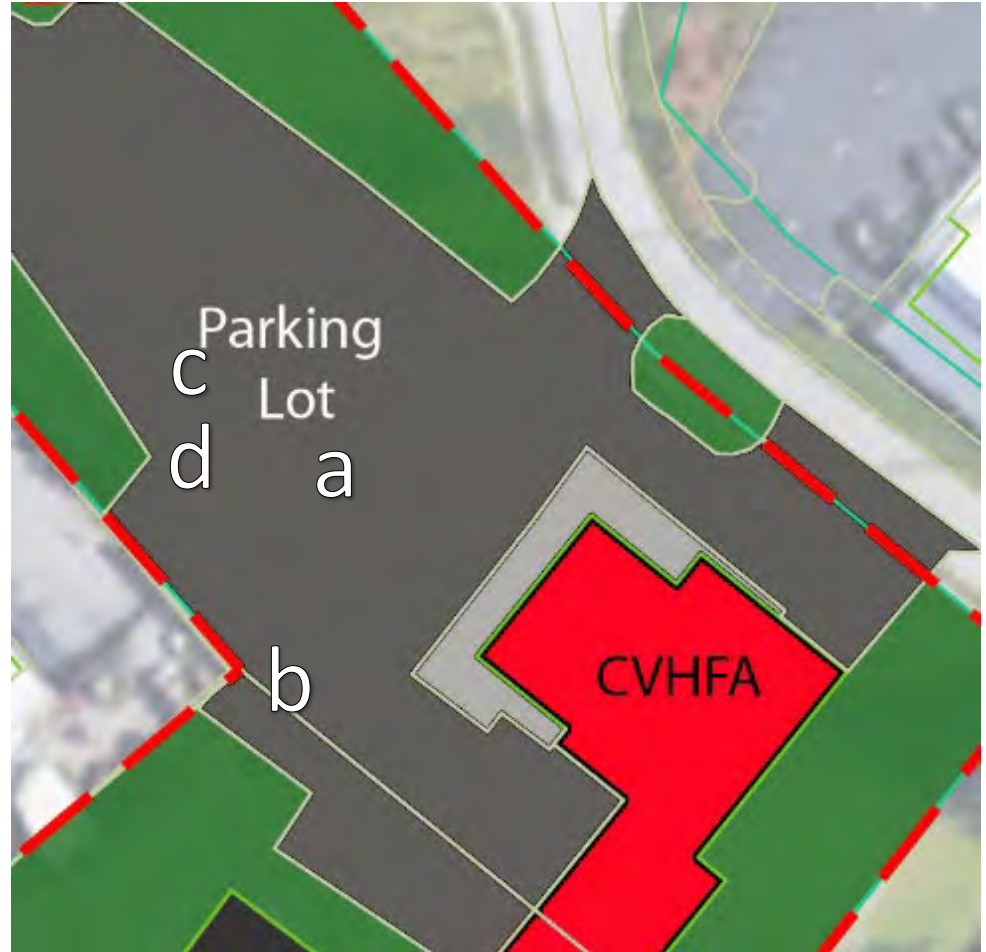
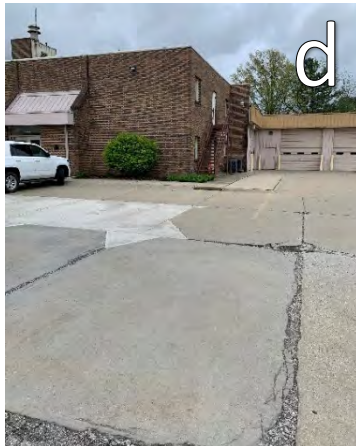
777 Overlook Drive

- Completed in 1975/1982
- Number of Stories: Two Levels
- Roof: Metal / Membrane
- Exterior Walls: Face Brick and Metal Siding
- Land Area: 3.46 acres
- Building Area: 9,420 SF



PAVEMENT CONDITION

- Parking Area is a mix of several pavement types and patches. All types are in disrepair.



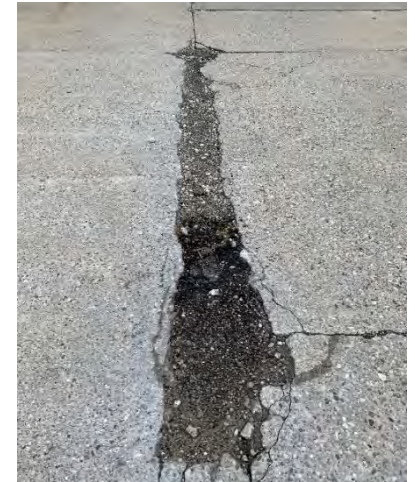
CONCRETE CONDITION

- Poured concrete in need of repairs due to expansion/contraction, corrosive salts, water intrusion, and spalling.
- Concrete failure has resulted in constant replacement of the concrete on the site resulting in a poor appearance on the exterior of the building.



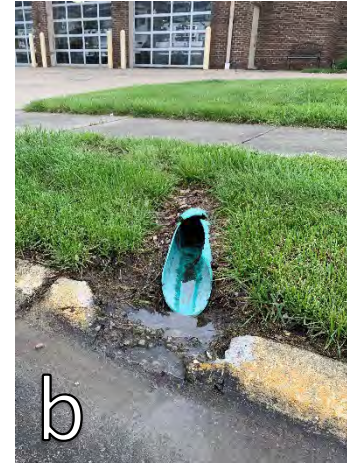
CONCRETE CONDITION

- The concrete apron at the apparatus bays needs to be replaced with heavy duty reinforced concrete designed for fire truck loading.



DRAINAGE ISSUES

- Very few drainage structures on site and water surface flows or ponds in areas.



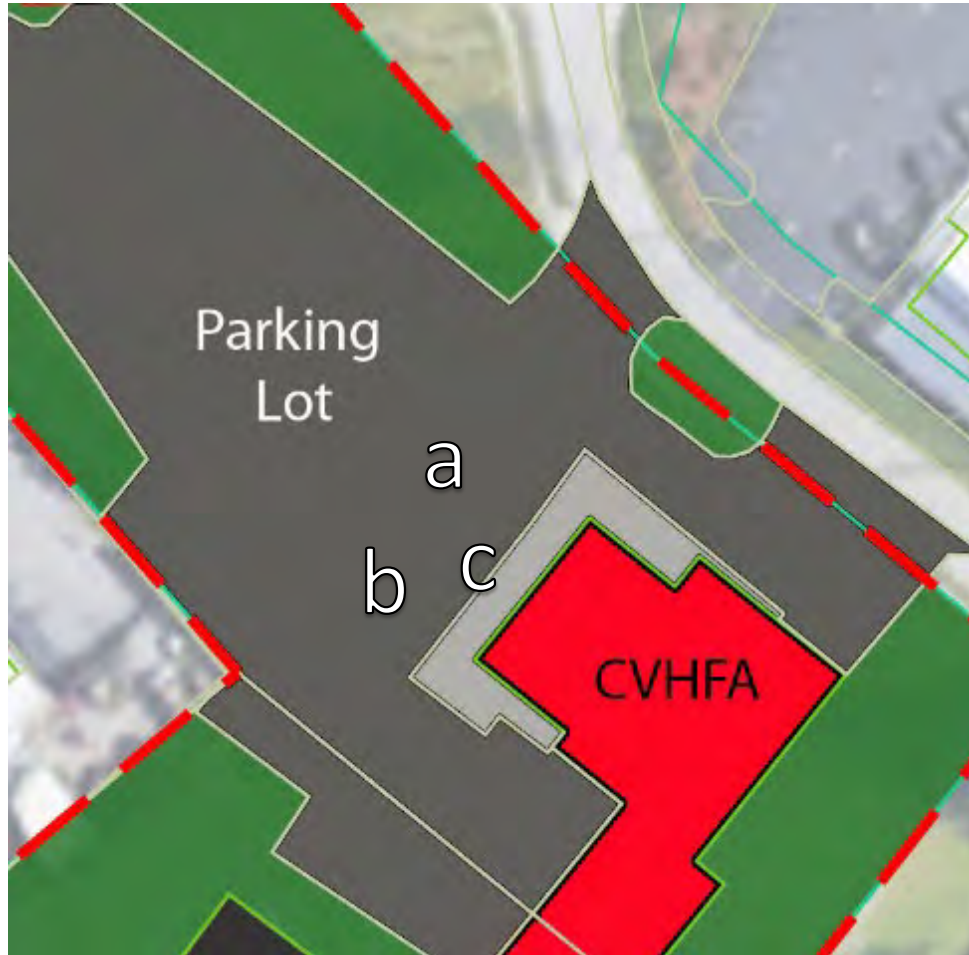
DRAINAGE ISSUES

- Several areas have standing water or are damp.



ADA COMPLIANCE

- Review ADA access and compliance issues. Designated accessible parking or ramps are not provided as required.



SIGNAGE ISSUES

- Improve signage and wayfinding.
- Wayfinding signage is confusing at intersection with service road.
- Overall parking lot vehicular flow is confusing because there isn't any paint for parking spaces or to figure out where the drive lanes are located. One way versus two-way traffic areas are not clear.



EXTERIOR WEAR

- Brick veneer needing repairs, caulking of control and expansion joints, general cleaning. Gutters are failing, rusting is occurring. Bay openings are damaged.



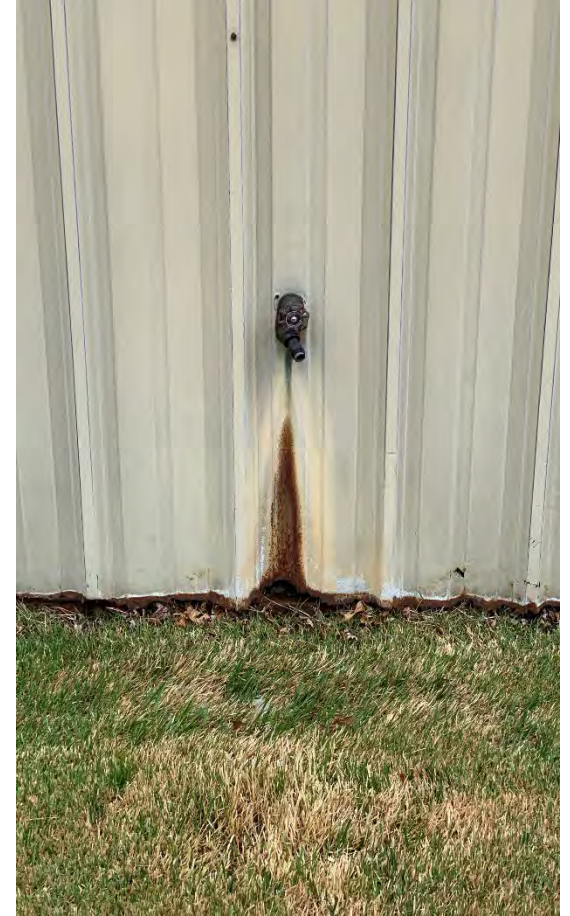
EXIT DOORS AND FRAMES

- Replace deteriorated hollow metal doors, frames, and hardware. Gap between bay doors and frame.



METAL SIDING

- Original metal siding is deteriorated and nearing the end of useful life.



MOISTURE CONTROL

- Existing roof juncture between apparatus bay and firehouse has an on-going and consistent leaking problem.



ADA COMPLIANCE

- The existing restroom access does not meet accessibility guideline clearances.
- Fixtures do not have required accessibility guideline clearances.



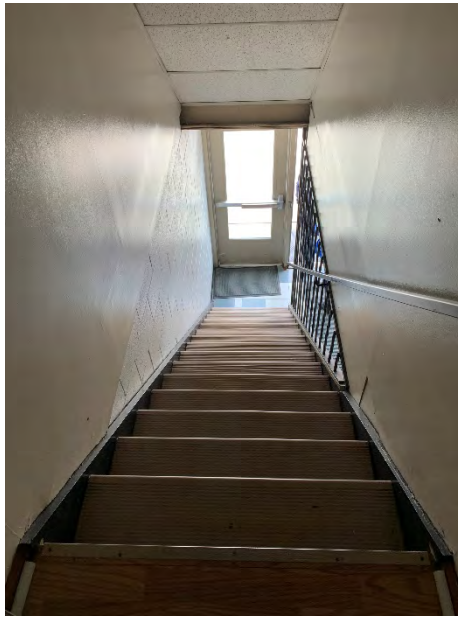
OVERHEAD DOOR SAFETY

- No safety features to prevent entrapment and / or injury at apparatus bay doors.
- Insufficient clearance provided around each vehicle.



FIRE EGRESS / EXITING

- Existing exits for level 2 do not comply with current building code requirements.
- Lack of interior stair handrails and inadequate landing area.
- Inadequate landing at exterior stair and lack of weather cover.



HOUSING AREAS

- Existing station is lacking in dedicated sleeping areas.
- No gender-specific sleeping or shower areas.
- No private lactation space provided.



DECONTAMINATION

The existing facility has poor decontamination systems in place.

- Lack of physical separation between possible contamination of apparatus bay (hot zone) and firehouse (cold zone).
- Lack of HVAC / other systems to support HOT / COLD separation.
- Insufficient personal shower facilities.

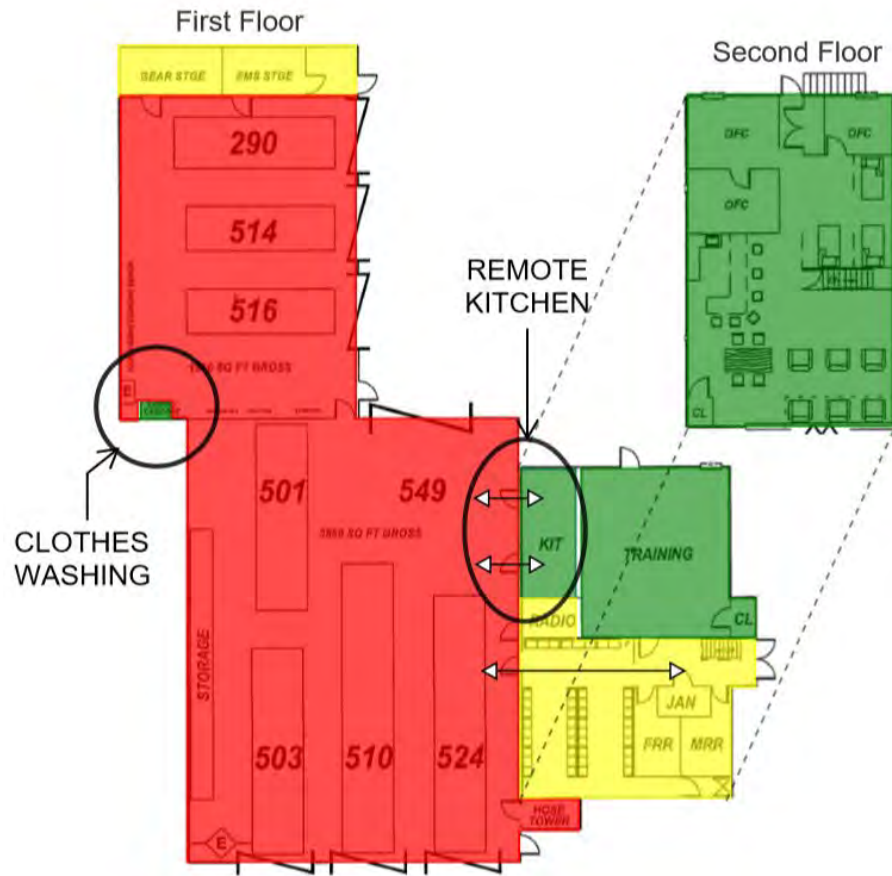


DECONTAMINATION

- No direct or source exhaust capture system.



DECONTAMINATION

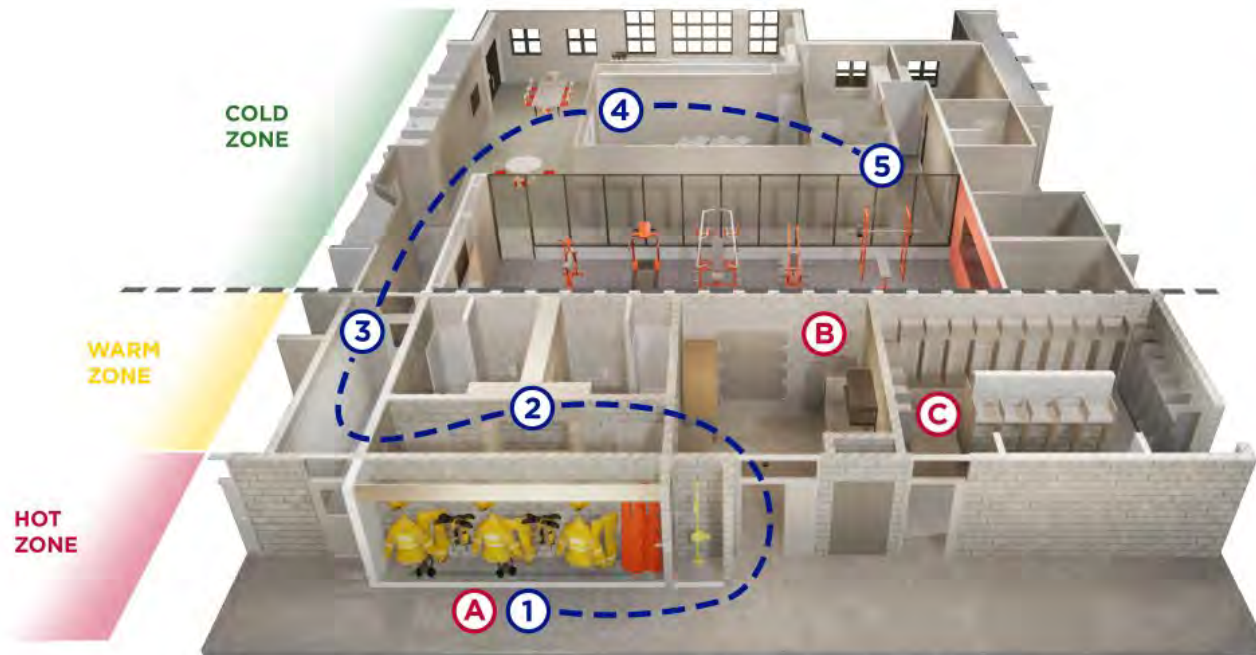


EXISTING LAYOUT



SUGGESTED LAYOUT

DECONTAMINATION



DECONTAMINATION - DESIGN FEATURES

- (A) GROSS DECONTAMINATION**
As the first step of the decontamination process for both firefighters and their gear, this area provides a space to clean large particle contaminants. Early cleaning here prevents contaminants from tracking throughout the facility and helps keep the 'Hot Zone' cleaner.
- (1) SHOWER STALLS AND LOCKERS**
Cold showers are recommended after each run. A set of civilian clothes are stored here and no garments worn on a run ever enter the cool zone.
- (B) EQUIPMENT WASHING**
All 'Hot Zone' items are washed and dried in this room. This includes all gear and clothes worn on a run, as well as cleaning rags and other items used in the apparatus bays.
- (C) GEAR TURNOUT**
Once gear has been properly cleaned and dried it is stored in this room ready for use on the next run. This space has also been hardened to act as a tornado shelter in case of emergency, and is sized to hold the entire operating staff of the facility.
- (2) AIR PARTITIONED VESTIBULE**
Positive air pressure prevents airborne contaminants from flowing from the 'Hot Zone' into the 'Cool Zone' of the living spaces.
- (3) HYDRATION AND RELAXATION**
Recovery is an important step for maintaining firefighter health. These spaces allow for critical hydration and team bonding.
- (4) WORKOUT AREAS**
After sufficient recovery time, firefighters need a space to maintain physical fitness. This space is clearly visible from surrounding areas and allows firefighters to safely increase muscle, lung, and heart health.

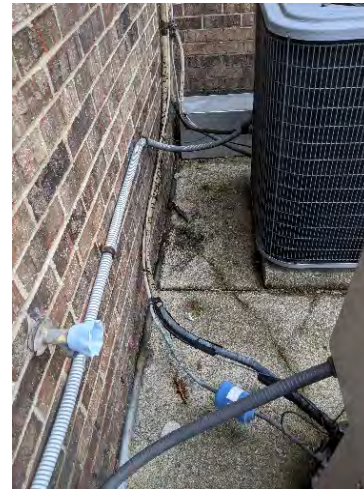
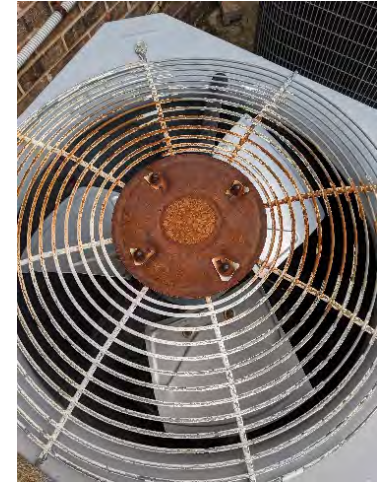
HEATING / COOLING

- There are two air handling units hanging on wall above apparatus bay that provide heating and cooling for living space.
- A 35 year old furnace serving training room.
- A window unit serving EMS storage.



HEATING / COOLING

- There are two Carrier 4-ton air cooled condensing units outside on 2x4s.
- One 2005 and another one 2011 unit.
- Refrigeration lines and insulation appear in poor condition.
- Breaker in poor condition.



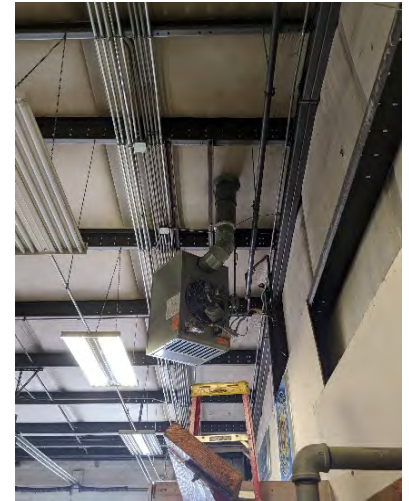
KITCHEN HVAC

- Fairly poor condition.



APPARATUS BAY HEATERS

- Gas unit heater in various stages of condition.



CEILING AIR DEVICES

- Ceiling air device in poor condition.



HVAC CONTROLS

- Wall thermostats in poor condition.



HVAC REGISTERS / GRILLES

- HVAC wall registers and grilles in poor condition.



ELECTRICAL

- The existing Square D main service disconnect switch in good condition. The switch is rated 400A, 240Vac, 3-phase. The Owner indicated they have to unplug one piece of equipment to run another.
- The existing Square D Type NQO main panelboard is in good condition. The panel is rated 400A, 120/208V, 3-phase, 4-wire.
- The existing subpanel load center is currently maxed out. The panel has space for 24 circuits, but currently has 28 breakers. The load center currently does not have the code required clearance.



ELECTRICAL

- The existing Kohler 25KW natural gas generator is in good condition. Staff noted the unit is under a service contract to be tested and maintained. Staff noted the unit is approximately 14 years old.
- The existing Kohler automatic transfer switch is in good condition. The switch is tested and maintained by the generator service contract.
- The existing Cutler-Hammer emergency distribution panel is in good condition. The panel is rated 200A, 120/208V, 3-phase, 4-wire.
- The Kohler automatic transfer switch and Cutler-Hammer emergency distribution panel currently do not have the proper code required clearances.



ELECTRICAL

- The existing addition Siemens panel is in good condition. The panel is rated 125A, 120/208V, 1-phase, 3-wire.
- The existing Silent Knight fire alarm panel is in good condition. Staff noted the system has been installed for approximately 5 years.
- Staff noted the antenna and radio system are due for an upgrade. They noted a project is in the works to replace them.
- Staff noted the existing branch circuit wiring is a mix of wire types, noting they used whatever was on hand.



ELECTRICAL

- The existing T12 interior lighting have been replaced with T8 fluorescent fixtures. Some fixtures were showing signs of age.
- The existing exterior lighting has been replaced with all LED fixtures and are in good condition.



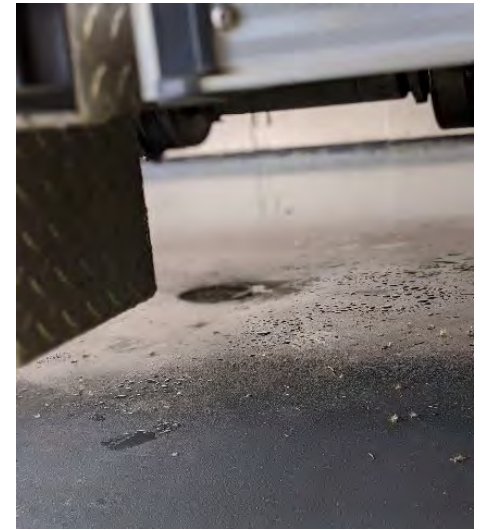
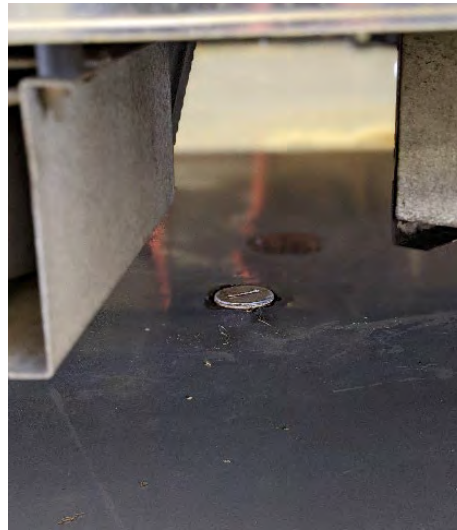
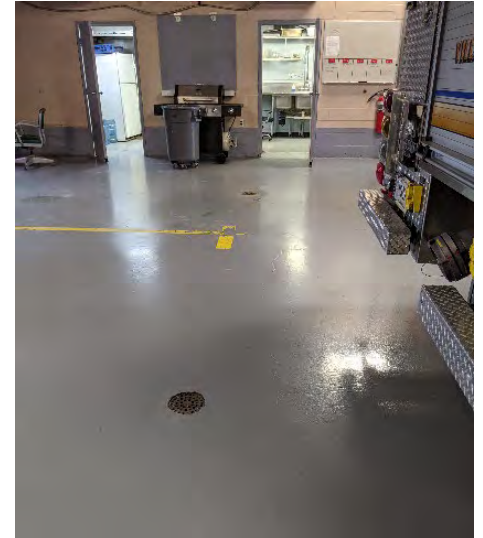
DATA NETWORK

- The existing data network is in good condition.
- Staff indicated the existing sound system is in fair condition.
- Some exterior devices are showing signs of corrosion.
- Some exterior receptacles are missing the weatherproof cover.



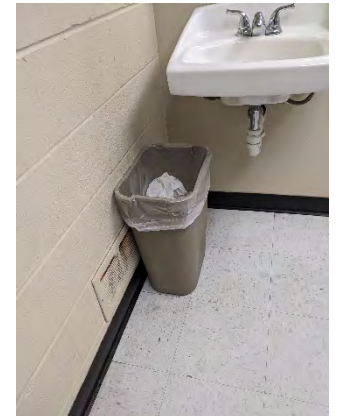
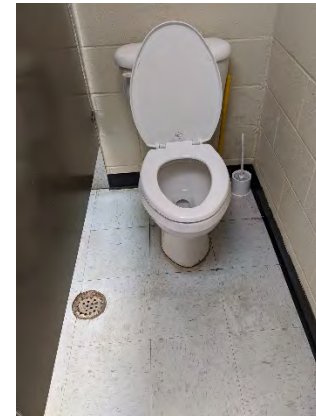
SANITARY DRAINAGE

- Apparatus bay drainage is insufficient, allowing water to build up.



PLUMBING

- The building's hot water system is served by a 40 gallon electric water heater.
- Toilet plumbing fixtures are in fair condition.
- The emergency generator's gas line is in poor condition.



PLUMBING FIXTURES

- Corrosion is occurring on plumbing system.
- Some of the plumbing pipes and valves are in bad shape and need to be replaced and repaired.



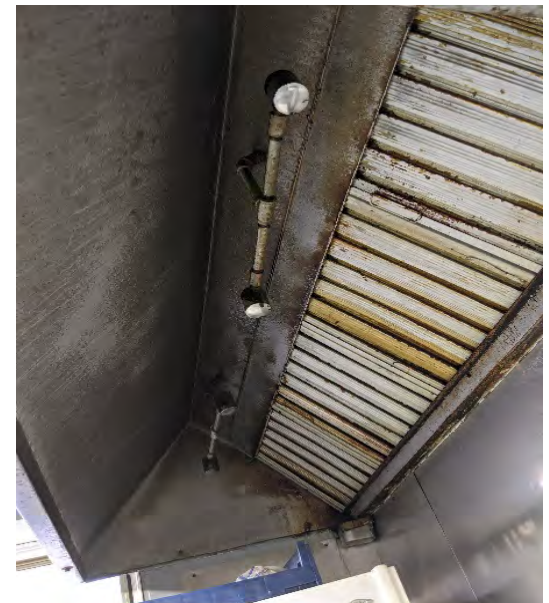
HOSE CONDITIONS

- Rusted and corroded hose bibs.
- Lack of vacuum breakers at hose locations.



FIRE PROTECTION

- The facility is not sprinklered.
- Kitchen hood has a dry chemical fire suppression system with Ansul automatic release dated 2004.

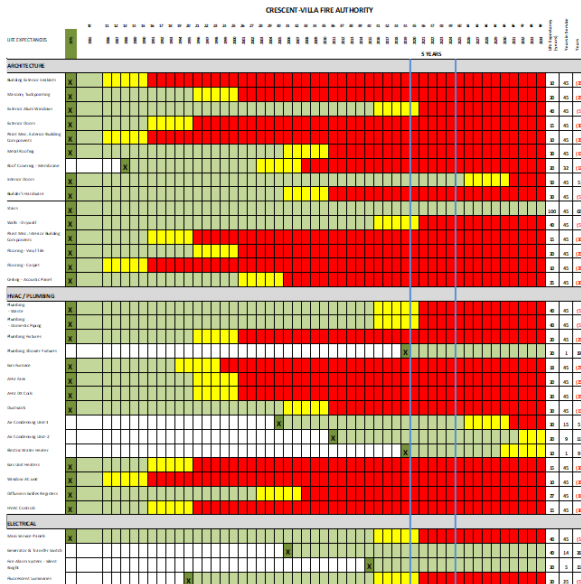


LIFE EXPECTANCY MATRIX

LIFE EXPECTANCY MATRIX

Life Expectancy of Building Components

- All building systems or components have a life expectancy or estimated number of years of service. When the life expectancy is reached or exceeded, but equipment remains in service, the number of repairs and the overall cost of maintaining the building increases.



Reference Life Expectancy Matrix

- The “Green” bar represents the anticipated minimum life expectancy of the component.
- The “Yellow” bar represents the range between anticipated minimum and maximum life expectancy of the component.
- The “Red” bar represents when the component exceeds its anticipated maximum life expectancy.

The “Blue” vertical “5-Year” bars represent the current 5 year period starting in 2020.

MATRIX COMPONENTS

CRESCENT-VILLA FIRE AUTHORITY

[illegible]

MATRIX COMPONENTS

CRESCENT-VILLA FIRE AUTHORITY

| LIFE EXPECTANCIES | 1975 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | Life Expectancy (years) | Years in Service | Years Remaining | | | | |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|-------------------------|------------------|-----------------|----|------|--|--|
| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | | | | | | | | |
| HVAC / PLUMBING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Plumbing - Waste | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 40 | 45 | (5) | | |
| Plumbing - Domestic Piping | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 40 | 45 | (5) | | |
| Plumbing Fixtures | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 45 | (25) | | |
| Plumbing Shower Fixtures | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | 20 | 1 | 19 | | |
| Gas Furnace | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 18 | 45 | (27) | | |
| AHU Fans | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 45 | (25) | | |
| AHU DX Coils | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 45 | (25) | | |
| Ductwork | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 30 | 45 | (15) | | |
| Air Condensing Unit-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 15 | 5 | | |
| Air Condensing Unit-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 9 | 11 | | |
| Electric Water Heater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | 1 | 9 | | |
| Gas Unit Heaters | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 45 | (30) | | |
| Window AC unit | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | 45 | (35) | | |
| Diffusers Grilles Registers | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 27 | 45 | (18) | | |
| HVAC Controls | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 45 | (30) | | |
| ELECTRICAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Main Service Panels | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 40 | 45 | (5) | | |
| Generator & Transfer Switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 40 | 14 | 26 | | |
| Fire Alarm System - Silent Knight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 5 | 15 | | |
| Fluorescent Luminaries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 25 | (5) | | |

ASSESSMENT SUMMARY

SUMMARY

- The site parking and concrete apparatus apron are in need of repair. There are ADA compliance issues including no dedicated parking. There are minor site drainage issues.
- The facility architecture is nearing the end of its useful life with signage, brick, metal siding, and moisture control issues.
- The MEP / Data systems are also nearing the end of their useful life with aged and inefficient equipment.
- Life safety issues are a concern, including fire egress and general exiting, along with no overhead door safety features.
- The housing areas lack dedicated sleeping areas and have no gender specific features.
- Other support amenities such as kitchen, relaxation, lactation, and stress relief features are lacking.
- The decontamination systems are insufficient including exhaust capture, HVAC support, and ventilation systems.
- In addition, HOT / COLD separation concepts to reduce migration of contamination from apparatus bay to firehouse are insufficient.

RECOMMENDATIONS

There are several factors that make renovating the Station problematic and not a good option for renovation including:

- In addition to site surfaces in disrepair, the adjacent site available area for phasing an expansion to the existing facility is lacking on both the north and east sides. Given the size needed for a viable expansion, an expansion to the west would jeopardize vehicular access to the City's maintenance facility.
- The existing usable area of the entire station is approximately 50% of what a new station would require with proper clearances in the apparatus bays and sufficient areas for decontamination, housing, and wellness.
- Besides the material and system deficiencies, the plan organization and the spatial and safety deficiencies do not justify an expansion to the south of the EMS bays.

DLZ recommends the construction of new fire station on a to be determined site in lieu of renovating the existing facility. The new fire station will provide the required rooms and spaces that consider current trends and operations of the fire department and will meet the demands of your fire operations. It will better serve the community's public fire safety needs today and into the future.

