Groveville Fire Company
Fire Engine #19
4201 Crosswicks Hamilton Square Road
Hamilton, NJ 08691

Feasibility Study

Prepared by

NETTA ARCHITECTS

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December 7, 2017

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Fire Station # 19, Groveville District 9 – Audit

Fire Station Audits

Hamilton, NJ

Hamilton Township has authorized Netta Architects to conduct and prepare a Fire District Facilities Audit of the following fire houses: Fire Stations 12 through 19 to assess the Current conditions of these Fire Stations.

Contents

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Fire Station # 19, Groveville District 9 – Audit

Executive Summary

Fire Station #19

1. Is located at 4201 Crosswicks Hamilton Square Road, Hamilton, NJ
2. The station is District owned.
3. The building was constructed in 1988; the building is one story in height.

This building's current exterior and interior condition is **Fair** as is evident by the several deficient items identified within the Summary of Findings Section, with the exception of the concrete and asphalt aprons, parking lot, roofs and several façade and interior items which are in poor condition.

A description of the Site and Building deficiencies is indicated below and recommendations and cost opinions for repairing these deficiencies is summarized in the recommendation section.

Introduction

This feasibility study considered the following items;

- Architectural: Building and Code deficiency conditions.
- Preliminary probable construction costs for the repairs.

Netta Architects conducted an assessment survey of the Building on September 19, 2017, and Concord Engineering (CCE) conducted their assessment survey on October 4, 2017.

Analysis of Existing Conditions:

(Refer to the Photos located within the Field Report in the Appendix of this report typical)

1. General Station Information

A. The station is approximately 15,570 square feet in size, and has approximately 7.1 acres of property. The facility has a current property survey.
B. The station has 2 engine/pumpers, for a total of 2 trucks.
C. There are 4 existing truck bays. The engine/apparatus room has a front and rear entry access.
D. The station is not planning on purchasing any additional trucks at this time.

E. The Station frequently hosts outside agencies that meet in their meeting/training room on the premises.

F. There are no current plans to renovate or expand the fire house.
G. The station has 1 shifts/day is a 24/7 facility with 4-6 firefighters on duty per shift.
H. Currently the staff is comprised of 4 men and 0 female firefighters. The projected ratio of men and women fire fighters per shift is unknown at this time.
I. This station does not have a Banquet Hall on the premises.
J. The building is only partially sprinklered with the heads located in certain storage rooms.
K. At the time of our field visit the station reported that they had recent mold remediation work completed in the Fire Commissioners Office and were in the process of starting to restore this office.

2. Site Analysis

A. The station does have adequate fire truck maneuverability and turn-around space.
B. The concrete truck aprons are in in poor condition with several cracks and spalls.
C. The asphalt pavement between the street and the concrete truck apron is in poor condition containing many potholes and cracks.
D. The concrete sidewalks around the building are in fair condition with a few cracks and spalls.
E. The parking lot is in poor condition with many pot holes and cracks.
H. There is a drainage issue at the northwest corner of the parking lot where the existing grass swale is emptying onto the pavement and causing extensive flooding on the parking lot.
F. There are designated parking lot and street barrier free parking spaces.
G. There are several entrances that are barrier free including the side entrance adjacent to the meeting/training room, however there are currently no HC parking spaces or curb cut accesses in the vicinity of this entrance.
H. The facility has a communication tower on site.

3. Exterior Building Analysis

A. Building Façade Conditions
    1. Crosswicks Hamilton Square Road. Elevation (South Elevation)
        i. The overhead truck bay doors all operate properly and in fair condition.
        ii. The split rib concrete masonry units at the base of the column at the main building entrance is damaged.

iii. A section of weathersitipping at the base of one of the overhead doors is detached.
iv. There are no issues with this split face CMU and precast concrete panel façade.
v. The aluminum storefront doors and frame are in fair condition.

2. East Elevation
i. There are no overhead truck bay doors on this elevation.
ii. The hollow metal doors and frame are in poor condition and rusting at the door sill and bottom of the door frame.
iii. There are no issues with this split face CMU and precast concrete panel façade.
iv. The precast concrete panel joint sealant material is alligatoring and oxidizing causing it to split open.

3. North Elevation
i. There are 2 overhead truck bay doors on this elevation.
iii. The aluminum awing windows are original and in fair operational condition with no reported water infiltration leaks. The window color has faded with age
iv. There are no issues with this split face CMU and precast concrete panel façade.
v. The precast concrete panel joint sealant material is alligatoring and oxidizing causing it to split open.

4. West Elevation
i. There are no overhead truck bay doors on this elevation.
ii. The aluminum awing windows are original and in fair operational condition with no reported water infiltration leaks. The window color has faded with age
iii. The aluminum storefront doors and frame are in fair condition.
iv. There are no issues with this split face CMU and precast concrete panel façade.
v. The precast concrete panel joint sealant material is alligatoring and oxidizing causing it to split open.

B. Roofs
i. An original single ply membrane roofing system with ballast is on all the roofs and all are in poor condition and require frequent maintenance to keep them water tight,

however there were no reported roof leaks at the time of our field visit.

4. Interior Building Analysis - Program Spaces and Deficiencies

A. Living Spaces

First Floor

1. The Engine/Apparatus Room
   i. The epoxy coated floor finish is in poor condition with many cracks and spalls within the floor.
   ii. The concrete masonry unit (CMU) walls which are in fair condition with the exception of a vertical crack in the portion of the wall.
   iii. The paint on the underside of the metal roof deck is in poor condition and is peeling in many locations.
   iv. There is a pair of hollow metal doors and door frame which are rusting.
2. The mechanical room concrete floor has many cracks and spalls.
3. The mezzanine located in the maintenance storage room has several cracks in the concrete slab and has wooden partitions used to create separate storage areas. It appears that there are no existing fire sprinklers located on the mezzanine.
4. There are many acoustical ceiling tiles that are curling upward and the metal ceiling grid is starting to rust in several locations
5. The wall covering within one of the skylight wells in the corridor that is starting to sag.
6. The kitchen is in fair condition, however the counters are in poor condition and the plastic laminate has delaminated or is missing in several locations. The kitchen appliances are old and in poor condition. The bottom shelf inside the kitchen cabinet is damaged and warping. There is an unbeveled edge at raised floor tile around the kitchen counter island which is a potential tripping hazard.
7. In the lounge area adjacent to the kitchen there are several damaged and scratched VCT floor tiles.
8. There is a dormitory room and currently there is no separate sleeping area for future female staff. The dormitory room is in fair condition, with the exception of the carpet which is soiled and in poor condition.
9. The station has mens and womens barrier free bathrooms with showers and lockers. There are two additional non-barrier free bathrooms; one bathroom with a shower is located off the drivers room, and there is a mens room without a shower in the mechanical room. Both these bathrooms are in fair condition.

However the wall tiles in these bathrooms require regrouting especially at the base of walls.

10. The meeting room and offices are in fair condition.
11. There is a separate exercise room adjacent to the meeting/training room which is in fair condition.
12. There is a radio room however this station does not conduct any dispatching from this facility. The radio room is in fair condition, however the controls appear to be outdated.
13. There is a janitors closets in the facility.
14. There are several other locations in the facility where differing height floor finishes pose a potential tripping hazard.
15. There appears to be adequate storage areas.
16. There is a generator which provides backup to the entire building.

5. Interior Accessibility of Station

A. The station and banquet hall have entrances that are barrier free accessible.

7. Fire Fighting Equipment and Misc Appliances

A. There are 2 standard clothes washers and a dryer which are in fair condition.
B. The station does not have a fire department extractor/gear washer, an air compressor, a hose dryer and a SCBA compressor unit, which are in fair condition.
C. There is one service sink which is in fair condition.

8. Building Shortfalls (In addition to the building's deficiencies indicated in Previous Sections)

A. There is no current separate sleeping facility for the female staff.
B. It is recommended that fire sprinklers be installed within the mezzanine area.

9. Mechanical Systems

A. Cooling for all the spaces in the facility is provided by five air cooled DX split AC units. Four of the condensing units, two of 5 ton capacity each of Goodman and Trane make and two of 4 ton capacity each of Goodman make are installed on the roof and one 1 ½ ton capacity unit is installed on grade. Associated indoor units of the roof mounted condensing units are installed in ceiling. The 1 ½ ton unit is a duct less wall mounted unit serving the weight room. All the units except one 5 ton unit are less than five years old and appear to be in good condition. The 5 ton unit appears to be very old and there is no nameplate to verify it's age. The facility officials stated that the unit is original – approximately 28 years old. All the units except the old 5 ton unit work on R410A refrigerant while the old 5 ton unit works on R-22 refrigerant.

B. Heating for the facility is through heating hot water provided by one natural gas fired cast iron boiler with an output rating of 875 MBH. The boiler is original to the building and is over 28 years old. The boiler appears to be in good working condition. Heating hot water is circulated to all the spaces by hot water pumps, a network of hot water piping and convectors and finned tube radiators.

C. The fire truck bays are provided only with heating through eight ceiling mounted hot water unit heaters. Five ceiling fans are also provided to ventilate the truck bays. A no smoke system is provided for the fire truck exhausts. Restrooms as well as truck bays are provided with roof mounted exhaust fans. Exhaust fans appear to be old and about 15 years old.

D. An air compressor unit by Le Rio with a rating of 23 SCFM at 175 PSI capacity with an 60 gallon storage tank is provided for the facility. The unit is over 28 years old and appeared to be in good working condition.

E. There were no records to indicate the age of the units. CCE used the nameplate data on the units to estimate the age of the units. Age of units that had no nameplates was based on interview with the Fire Station officials.

F. All the installed equipment appears to be in good condition and well maintained. The Fire Station officials stated that the air conditioning units, hot water boilers associated pumps and equipment perform satisfactorily and that there are no major issues with them. Maintenance service is provided by an outside contractor.

G. As per ASHRAE, median life expectancy of split AC units is 15 years and that of exhaust fans is 20 years. Based on this only the old 5 ton unit has exceeded it's useful life. The old 5 ton unit works on R-22 refrigerant that is no longer produced.

10. Plumbing Systems

A. The facility is provided with one Bradford White natural gas fired water heater of 75 gallon capacity that supplies domestic hot water to all the spaces. The water heater was installed in 2013. The water heater appears to be in good working condition.

B. Urinals and water closets are provided with manual flushometers and wash basins are provided with manual faucets. The fixtures appear to be in good working condition.

11. Electrical Service

A. Electrical service is comprised of 208v-3 phase 400 amp service. The electrical equipment consists of electrical panels MDP, LP1A, LP1B, PP1A, PP1B, EMON, EMOFF and electric meter.

B. The electrical equipment consists of relatively new equipment in good condition.

C. Panel schedules seem accurate and up to date.

D. The electrical loads consists of lighting, site lighting, general receptacles, TV outlets, roll up doors, mechanical and plumbing equipment (rooftop units, fans, air conditioners, boilers, water heaters, heaters etc), cooking equipment and other miscellaneous loads. The electrical service seems adequate for the existing electrical loads.

12. Emergency Generator

A. An 18.5 KW natural gas generator serves the emergency loads. The generator is at least 20 years old but is in good working condition and is regularly maintained.

13. Fire Alarm

A. The existing fire alarm control panel is relatively new. Fire alarm devices seem to be a mix of older and newer devices. The existing system is comprised of horn strobes, pullstations and smoke detectors. Fire alarm devices provide code compliant fire alarm coverage thru-out the facility. The older fire alarm devices have exceeded it's life expectancy.

14. Lighting

A. Interior lighting fixtures are comprised of 2x4, 1x4, exit lights and recessed lighting fixtures. Exterior lighting fixtures are comprised of outdoor wall packs. All seem to be relatively new with energy efficient lamps. There is adequate lighting coverage thru-out the facility. Light switches are installed thru-out the facility for lighting controls

15. Receptacles

A. All receptacles are in good condition. There is adequate receptacle coverage thru-out the facility.

Deficiency Repair Recommendations and Estimated Cost Opinion

1. The following repairs are required based on Netta Architects' evaluation of the existing building's condition;

Work Item		Estimated Cost Opinion
A.	Site	
i.	Replace the concrete truck apron	$75,000
ii.	Replace the asphalt pavement between the street and the concrete truck apron	$200,000
iii.	Repair the concrete sidewalks around the building	$5,500
iv.	Replace the parking lot	$1,200,000
v.	Resolve the drainage issue at the northwest corner of the parking lot	$30,000
vi.	Provide a HC parking space and curb cut at the side entrance adjacent to the meeting/training room	$8,500
B.	Facades	
i.	Repair the split rib concrete masonry units (CMU) at the base of the column at the main building entrance	$1,200
ii.	Reattach the section of weathersitipping at base of overhead door	$750
iii.	Replace the hollow metal doors and frame	$3,000
iv.	Replace the aluminum windows	$6,500
v.	Replace the sealant at the expansion joints	$2,000
C.	Roofs	
i.	Replace the single ply membrane roofing system with a built-up roofing system	$470,000
D.	Interior	
i.	Repair the epoxy coated floor finish Engine/Apparatus Room	$2,500
ii.	Repair the vertical crack in the (CMU) walls	$3,500
iii.	Install a suspended acoustical ceiling within the Engine/Apparatus Room	$30,000
iv.	Replace the pair of hollow metal doors and frame	$6,500
v.	Replace acoustical ceiling tiles and replace ceiling grid	$5,500
vi.	Repair the wall covering within the skylight well	$600
vii.	Replace the kitchen counters and cabinets	$15,500
viii.	Install a beveled termination piece at the differing floor finish locations	$800
ix.	Replace the VCT floor finish in the lounge area	$2,500
x.	Replace the carpet in the dormitory	$7,500
xi.	Regrout the bathroom wall tiles	$3,500

E.	Building Shortfalls **(*)**		
i.	Provide a separate sleeping facility for the women staff		$9,500
ii.	It is recommended that fire sprinklers be installed within the mezzanine area		$10,500
F.	HVAC & Plumbing		
i.	Replace one older air conditioning unit		$10,500
ii.	Replace the ducted split A/C unit serving the exercise room		$8,500
iii.	Replace the hot water heater		$6,500
iv.	Option 1- Provide low water consuming fixtures & Automatic flushometeres		$6,500
G.	Electrical		
i.	Replace the fire alarm control panel and associated devices		$7,500
	Sub-Total Cost Opinion		$2,140,350
	Contingency (20%)		$428,070
	Total Cost Opinion		**$2,568,420**
		Say	**$2,569,000**

(*) The Building Shortfalls and Interior Barrier Free Accessibility renovation estimate costs are not based on a design for these items and therefore the costs are only a suggested budget cost and will certainly vary in cost based on actual design drawings.

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Appendix A

Field Photographical Report

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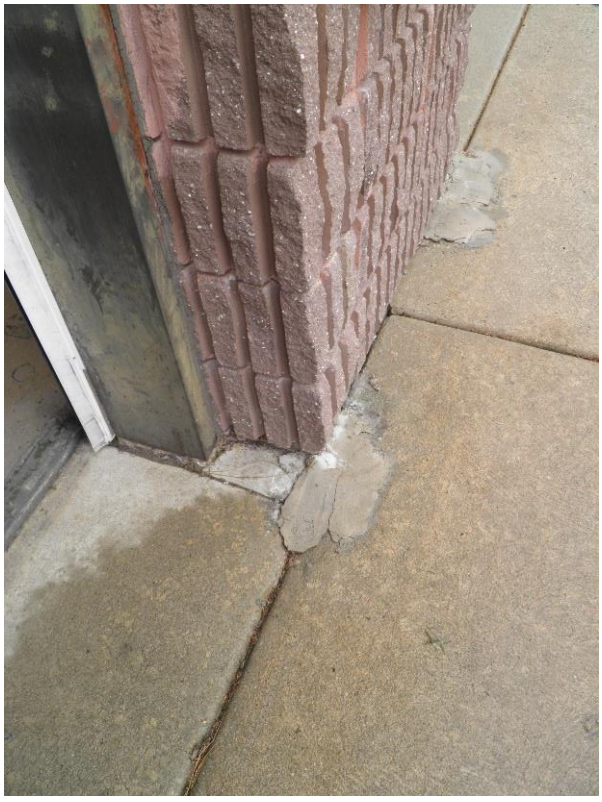
EXTERIOR CONDITIONS

Fire Engine #19 – Hamilton Township

VISIBLE DAMAGE TO MASONRY WALL

VISIBLE PATCHES IN DAMAGED CONCRETE

DAMAGED CONCRETE PAVER



VISIBLE PATCHES IN DAMAGED CONCRETE

VISIBLE CRACK IN THE CONCRETE PAVERS

Fire Engine #19 – Hamilton Township

VISIBLE RUST ON DOOR FRAME AND DAMAGE TO THE DOOR SEAL

VISIBLE CRACKS THE PARKING LOT

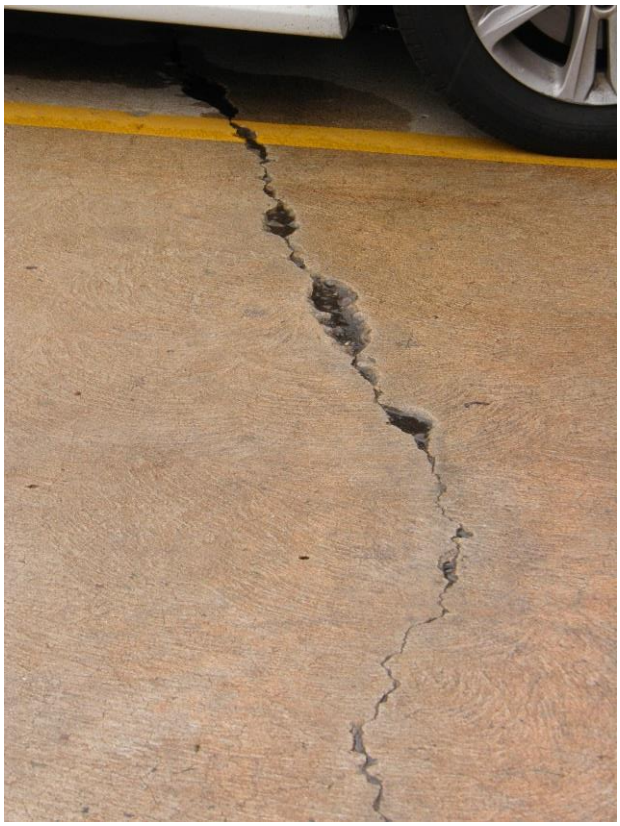
VISIBLE CRACKS THE PARKING LOT

VISIBLE DAMAGE TO THE JOINT THE CONCRETE DRIVEWAY

VISIBLE CRACKS IN THE CONCRETE SIDEWALK AND THE PARKING LOT

Fire Engine #19 – Hamilton Township

VISIBLE CRACKS IN THE DRIVEWAY



VISIBLE CRACKS IN THE CONCRETE DRIVEWAY

VISIBLE CRACK IN THE CONCRETE DRIVEWAY

VISIBLE CRACKS IN THE CONCRETE DRIVEWAY

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INTERIOR CONDITIONS

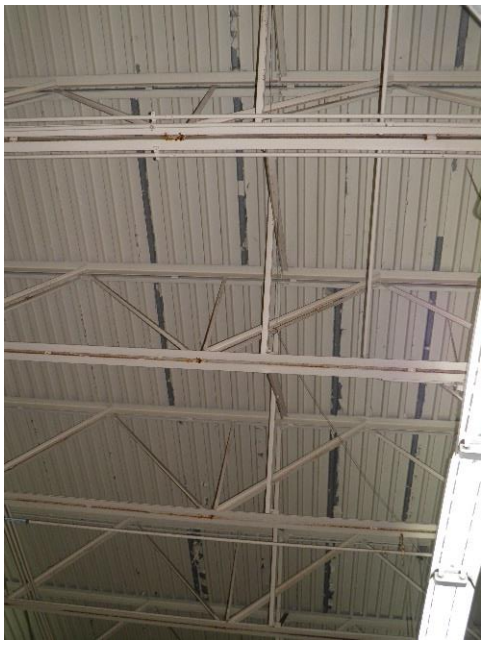
Fire Engine #19 – Hamilton Township

SIGNS OF WATER DAMAGE ON THE CEILING TILES

SIGNS OF RUST ON THE CEILING RUNNER FROM WATER LEAK

DAMAGED TO MILLWORK

RUSTED DOOR AND FRAME



PAINT PEELING OFF ROOF METAL DECK

DIRT AND SPIDER WEB ON DOOR FRAME

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ROOF

Fire Engine #19 – Hamilton Township

DISPLACED GRAVEL EXPOSING ROOF MEMBRANE AND CRACKED WALK PADS

DISPLACED GRAVEL EXPOSING ROOF MEMBRANE AND DAMAGED WALK PADS

DISPLACED GRAVEL EXPOSING ROOF MEMBRANE

EXPOSED ROOF MEMBRANE AND WATER PONDING

DAMAGED AND CRACKED WALK PADS

EXPOSED ROOF MEMBRANE AND WATER PONDING