Colonial Fire Company
Fire Engine #18
81 Kuser Road, Hamilton, NJ 08619

Feasibility Study

Prepared by

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December 7, 2017

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Fire Station # 18, Colonial District 8 – 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 # 18, Colonial District 8 – Audit

Executive Summary

Fire Station #18

1. Is located at 801 Kuser Road, Hamilton, NJ
2. The station is Volunteer Fire Company owned.
3. The building was constructed in 1970, and kitchen/meeting room renovations were completed in 1973 and engine room renovations were completed in 1977; 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 apron curbs, the 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 21, 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 20,500 square feet in size. The facility does not have a current property survey.
B. The station has 1 ladder, 2 engine/pumpers and 1 special service vehicle, for a total of 4 vehicles.
C. There are 3 existing truck bays.
D. The station does plan on purchasing 1 additional Class A pumper.
E. The facility is a certified fire station and training facility.
F. There are no current plans to renovate or expand the fire house.

G. The station has 2 shifts/day is a 24/7 facility with 3 firefighters on duty per shift.
H. Currently the staff is comprised of 23 men and 2 female firefighters. The projected ratio of men and women fire fighters per shift is 5 men to 1 women at this time.
I. The Station has a Banquet Hall on the premises.
J. The building is fullly sprinklered.

2. Site Analysis

A. The station does have adequate fire truck maneuverability and turn-around space.
B. The asphalt driveway between the truck concrete apron and street is in in poor condition with several cracks.
C. The concrete curb located between the asphalt apron and street is in poor condition containing many spalls and cracks.
D. There are several cracks and eroded mortar joints in the freestanding brick building sign.
E. The concrete sidewalks around the building are in poor condition with many cracks and spalls.
F. The parking lot is in poor condition with many pot holes and cracks.
H. There is a section of concrete curb located to the right of the banquet hall entrance that is spalled.
G. There are designated parking lot and street barrier free parking spaces.
H. The banquet hall and the main station entrance have barrier free entrances.
I. The facility has a two communication towers on site. The taller tower located in back of the parking lot is owned by T-Mobile.

3. Exterior Building Analysis

A. Building Façade Conditions
1. Kuser Road. Elevation (South Elevation)
i. The overhead truck bay doors all operate properly and in fair condition.
ii. The door lintels are beginning to rust.
iii. The sealant at perimeter of the doors alligatoring and oxidizing causing it to split open.
iv. The hollow metal doors and frames are in need of repainting.
v. There are no issues with this brick façade.

2. East Elevation
i. There are no overhead truck bay doors on this elevation.
ii. The window, louver and door lintels are beginning to rust.
iii. The aluminum windows and louvers are in fair condition.

iv. The expansion joint sealant material is either alligatoring and oxidizing causing it to split open or is missing.
v. The joint above the door lintel need to be resealed.
vi. There are no issues with this brick façade.

3. North Elevation
i. There are no overhead truck bay doors on this elevation.
ii. There are no windows on this facade.
iii. The aluminum personnel doors and storefront are in fair condition, with the exception of a little rusting at the bottom door hinges.
iv. There are several eroded brick mortar joints on this facade.
v. There is one section of trim board at the intersection of the top of metal panel and soffit that has come loose and is hanging downward.

4. West Elevation
i. There are no overhead truck bay doors on this elevation.
ii. The expansion joint sealant material is either alligatoring and oxidizing causing it to split open or is missing.
iii. The aluminum windows are in fair condition.
ii. The window and door lintels require repainting.
vi. The hollow metal doors and frames are in need of repainting.
vii. There are several eroded brick mortar joints on this facade.

B. Roofs
i. An original single ply membrane roofing system with ballast is on all the roofs, with the exception of the banquet hall roof which has a pitched metal standing seam roof and all are in poor condition. These roofs are not under warranty 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 has a sealed concrete floor finish, and the CMU walls and metal roof deck are in fair condition.
2. The station only has only one non barrier free mens bathroom with a shower which is in fair condition.

3. The dormitory has 4 bunk beds; and currently there is no separate sleeping area for female staff, and is in fair condition.
4. There is a separate mens locker room which is in fair condition.
5. The meeting/lounge room and offices are in fair condition.
6. There is a separate recreational room off the engine/apparatus room which is in fair condition.
7. There are several janitors closets located within the facility.
8. There appears to be adequate storage areas.
9. There is a generator which provides backup to the entire building.

Banquet Hall on the First Floor

1. The banquet hall has an attached commercial kitchen which is also used by the fire fighters when on a shift. The kitchen, and pantry are in fair condition.
2. The halls maximum occupancy 590 with tables and chairs.
3. There are mens and womens non barrier free bathrooms located off the banquet hall which are in fair condition.
4. There is one unisex bathroom located within the kitchen area which is in fair condition.
5. There are several vertical crack in the concrete masonry unit (CMU) hall walls.
6. There are several damaged acoustical ceiling tiles in the general storage room.
7. There are several cracks in the CMU walls of the general storage room.

5. Interior Accessibility of Station

A. The station and banquet hall have entrances that are barrier free accessible.
B. The facility does not have any barrier free mens and womens bathrooms.

6. Building Code Considerations

A. The following items identified below are not in compliance with the latest IBC Building Code, 2015 NJ Edition requirements. – N/A

7. Fire Fighting Equipment and Misc Appliances

A. There are standard clothes washer and dryer which are in fair condition.
B. There is a fire department extractor/gear washer is in fair condition.
C. The facility has hose dryer, adequate equipment storage and a SCBA compressor unit which are in fair condition.
D. 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. There is no separate womens bathroom, locker room and showers.
C. There is no standard kitchen and dining area
D. There is no exercise room.

9. Mechanical Systems

A. Cooling and heating for most of the spaces of the facility is provided by three rooftop units with electric cooling and natural gas heating. Two units are each of 25 ton capacity of Trane make and the third unit is of 8 ton capacity of Carrier make. All the three rooftop units were installed in 2016. Conditioned air is supplied to all the spaces by means of sheet metal ductwork. Three heat pump units, each of about 2 ton capacity, are provided for the Radio Room and communication offices. These units are about 8 years old. Two ductless split units are provided for the control room and TV room. The two units are each of 1 ½ ton capacity and are about 6 years old. There is a window AC unit that serves the commissioner's office. This unit is 2 years old. All units appear to be in good condition. All units work on R410A refrigerant.

B. The fire truck bays are provided only with heating through four ceiling mounted natural gas fired unit heaters. Ceiling fans are also provided to ventilate the truck bays. Plymovent vehicle exhaust systems are provided for the fire trucks. Restrooms as well as truck bays are provided with roof mounted exhaust fans. Exhaust fans appear to be old and about 15 years old.

C. An air compressor unit by Speedaire of 17.1 SCFM at 175 PSI capacity with an 80 gallon storage tank is provided for the facility. The unit is over 16 years old and appeared to be in good working condition.

D. 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.

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

F. As per ASHRAE, median life expectancy of split AC units and roof top units is 15 years and that of exhaust fans is 20 years. Based on this, all units have a few more years of their useful life. However, it is recommended to provide money on an annual basis to cover costs of replacing the units in future.

10. Plumbing Systems

A. The facility is provided with two water heaters, A State 38 gallon capacity natural gas fired water heater installed in 2006 provides hot water to the hall and associated restrooms. Another State 100 gallon natural gas fired water heater installed in 2011 serves the kitchen and restrooms attached to the kitchen Township spaces. Both water heaters appear 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 480v-3 phase 600 amp service. The electrical equipment consists of electrical panels MDP and 10 unlabeled panels, disconnect switch, ATS switch, 45 kva and 30 kva transformers and electric meter.

B. The electrical equipment consists of older electrical equipment and appears to be in good condition. Some panel schedules seem inaccurate and others are missing.

C. 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. A 55 KW natural gas generator serves the emergency loads. Manufacturer is Onan. Model No. 55 OKB. The generator is approximately 20 years old and appears to be in fair working condition and is regularly maintained. The station should consider replacing this generator and increasing the size of the generator to accommodate additional loads and due to the size of this facility.

13. Fire Alarm

A. Fire alarm system seems inadequate. There are areas in which horn strobes are missing. Pullstations and smoke detectors are installed thru-out. The fire alarm system 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 LED 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 asphalt driveway in front of the truck apron	$240,000
ii. Replace the concrete curb located between the asphalt apron and street	$15,500
iii. Repoint the freestanding brick building sign	$3,500
iv. Replace the concrete sidewalks around the building	$50,000
v. Replace the parking lot	$2,000,000
vi. Patch the spalled concrete curb	$8,500
B. Facades	
i. Replace the sealant at the expansion joints	$10,000
ii. Scrape and paint the door, window and louver lintels	$20,000
iii. Reseal the perimeter of the doors	$1,050
iv. Repaint hollow metal doors and frames	$6,500
v. Reseal the joint above the door lintel	$800
vi. Replace hinges on the aluminum personnel doors and storefront	$600
vii. Repoint brick mortar joints	$14,000
viii. Secure the loose piece of trim board	$2500
C. Roofs	
i. Replace the single ply membrane roofing system with a built-up roofing system	$400,000
ii. Replace the metal standing seam roof	$335,000
D. Interior	
i. Repair the vertical cracks in the CMU hall and general storage room walls	$9,500
ii. Replace acoustical ceiling tiles and grid	$10,000
E. Interior Accessibility of Station **(*)**	
i. Provide barrier free mens and womens bathrooms	$25,000

F.	Building Shortfalls **(*)**	
i.	Provide a separate sleeping facility for the women staff	$8,500
ii.	Provide a separate womens bathroom, locker room and showers	$12,000
iii.	Provide a standard kitchen and dining area	$25,000
iv.	Provide an exercise room	$20,000
G.	HVAC & Plumbing	
i.	Option 1- Provide low water consuming fixtures & Automatic flushometeres	$11,000
ii.	Replace the Generator	$150,000
H.	Electrical	
i.	Identify all existing circuits and update all electrical panel schedules	$8,500
ii.	Replace the fire alarm control panel and associated devices	$12,500
	Sub-Total Cost Opinion	$3,399,950
	Contingency (20%) 579,990	$679,990
	Total Cost Opinion	**$4,079,940**
	Say	**$4,080,000**

(*) 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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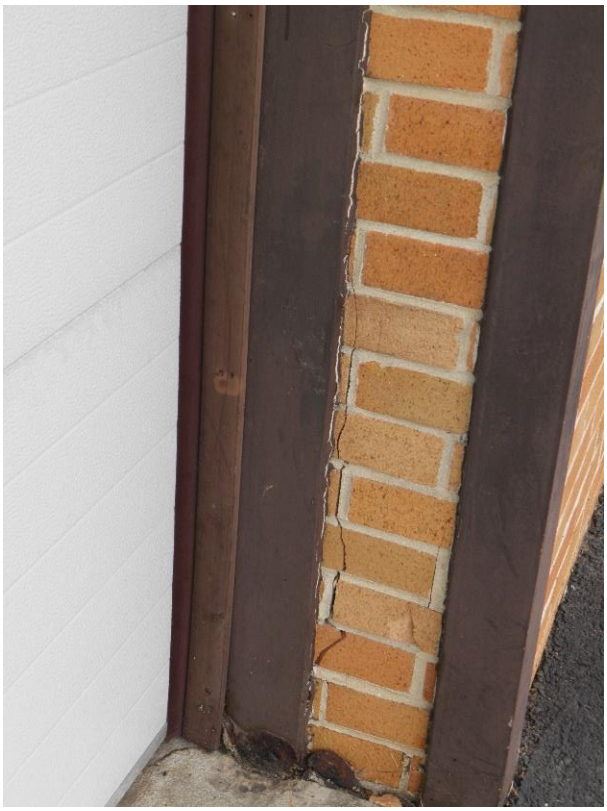
EXTERIOR CONDITIONS

Fire Engine #18 – Hamilton Township



VISIBLE CRACK IN BRICK WALL

VISIBLE CRACK IN BRICK WALL AND CONCRETE PAVERS

DAMAGED CONCRETE PAVER

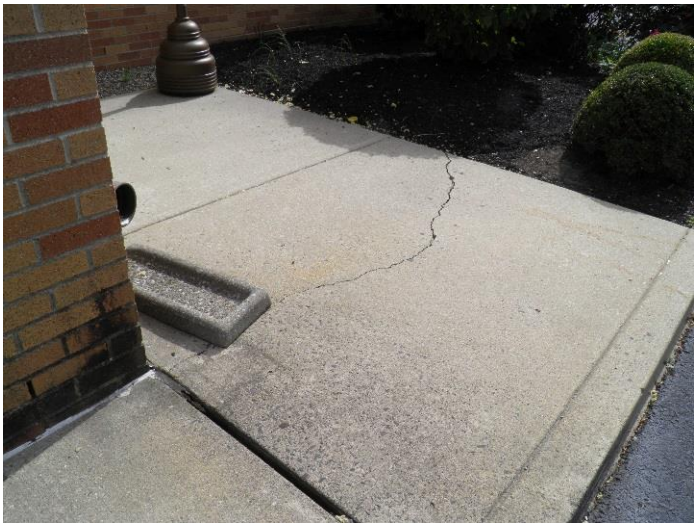
EXPOSED DRAIN PIPE IS A POTENTIAL TRIPPING HAZARD

VISIBLE CRACK IN THE CONCRETE PAVERS & SIGNS OF MOSS GROWTH ON WALL

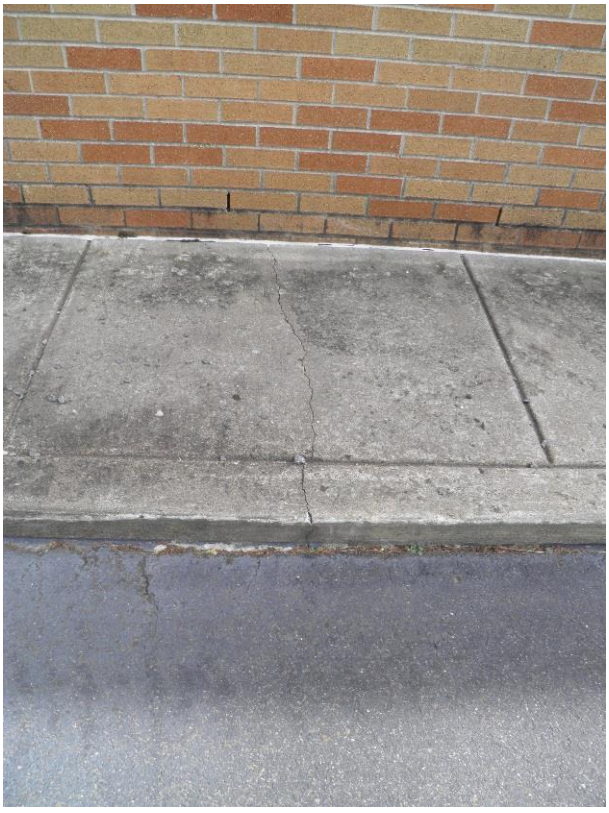
Fire Engine #18 – Hamilton Township

VISIBLE STAIN ON BRICK WALL & GROUND FROM ROOF RUNOFF

VISIBLE CRACK IN THE CONCRETE SIDEWALK



VISIBLE CRACK IN THE CONCRETE SIDEWALK



VISIBLE CRACK IN THE CONCRETE SIDEWALK

VISIBLE CRACK IN THE CONCRETE SIDEWALK

Fire Engine #18 – Hamilton Township

VISIBLE CRACKS IN THE DRIVEWAY

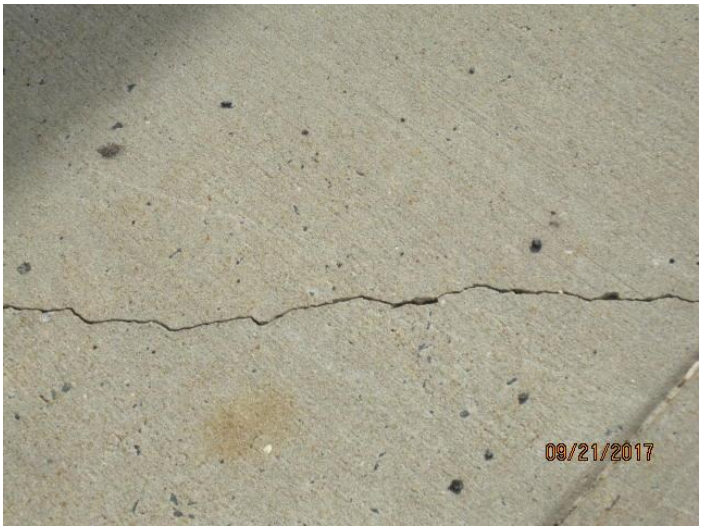
VISIBLE CRACKS IN THE PARKING LOT

VISIBLE CRACKS IN THE PARKING LOT

VISIBLE CRACK IN THE CONCRETE SIDEWALK

VISIBLE CRACKS IN THE PARKING LOT

Fire Engine #18 – Hamilton Township



VISIBLE CRACK IN THE CONCRETE SIDEWALK

MOSS GROWTH IN CONCRETE SIDEWALK JOINT

VISIBLE DAMAGE TO THE CONCRETE CURB

SIGNS OF CORROSION AT DOOR & FRAME

SIGNS OF CORROSION AND WATER DAMAGE AT WALL AND SIDEWALK

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INTERIOR CONDITIONS

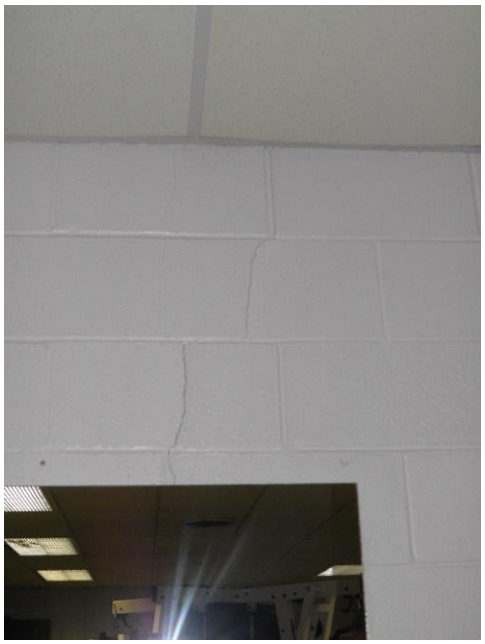
Fire Engine #18 – Hamilton Township

DIRTY AND DAMAGED CEILING TILES

SIGNS OF WATER DAMAGE ON THE CEILING TILES

DAMAGED CEILING TILE

SIGNS OF WATER DAMAGE ON THE CEILING TILES



VISIBLE CRACK IN MASONRY WALL

SIGNS OF WATER DAMAGE ON THE CEILING TILES

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ROOF

PART FLAT ROOF AND PART METAL ROOF
ROOF APPEARS TO BE IN GOOD CONDITION.
NO MAJOR ISSUES OBSERVED