OAK PARK VILLAGE HALL
Property Condition Assessment

Oak Park, Illinois 60304

Final Report
November 9, 2015
WJE No. 2015.0882

Prepared for:
Mr. Vic Sabaliauskas

Prepared by:
Wiss, Janney, Elstner Associates, Inc.
10 South LaSalle Street, Suite 2600
Chicago, Illinois 60603
312.372.0555 tel | 312.372.0873 fax

OAK PARK VILLAGE HALL
Property Condition Assessment

Oak Park, Illinois 60304

Jason Aspin
Senior Associate

Donald Goosman
Senior Associate

Rachel Will
Senior Associate and Project Manager

Final Report
November 9, 2015
WJE No. 2015.0882

Prepared for:
Mr. Vic Sabaliauskas

Prepared by:
Wiss, Janney, Elstner Associates, Inc.
10 South LaSalle Street, Suite 2600
Chicago, Illinois 60603
312.372.0555 tel | 312.372.0873 fax

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS

TABLE OF CONTENTS

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS

OAK PARK VILLAGE HALL
Property Condition Assessment

Oak Park, Illinois 60304

INTRODUCTION

At the request of the Village of Oak Park, (VOP), Wiss, Janney, Elstner Associates, Inc. (WJE) and dbHMS (mechanical, electrical and plumbing consultant) performed a limited property condition assessment of the exterior walls, roof, plaza, fire life safety systems, and mechanical, electrical, and plumbing systems of the Oak Park Village Hall building located at 123 West Madison Street in Oak Park, Illinois. This report summarizes the general condition of specific, accessible portions of the building, and provides repair and maintenance recommendations and general cost estimates to address repair and maintenance over the next ten years.

BUILDING DESCRIPTION

Village Hall is a 73,000 square foot, one-story building plus basement and mezzanine. Designed by architect Harry Weese and constructed circa 1974, Village Hall is on the National Register of Historic Places. The building provides space for Village administration and police functions.

Exterior Envelope

The building is generally C-shaped in plan, with an elevated plaza courtyard in the middle that is vaulted over the basement space. A north annex building, generally triangular in plan, is connected to the main building at the clerestory via an approximately ten foot diameter painted steel tube. An overall roof plan of the building from the original drawings is included as Figure 1. The annex houses the Council Chambers. The structure supporting the first floor consists of reinforced concrete beams and columns; the clerestory and roof structure is exposed engineered wood framed construction. The exterior walls are typically insulated cavity walls clad with face brick and CMU backup with punched windows openings, and are capped with aluminum frame clerestory windows. An aluminum frame window wall system, glazed with single pane glass, includes a recessed revolving door which creates continuity between the interior main level of the building and the exterior plaza level. The remainder of the windows at both portions of the building are all aluminum framed with either single pane (large unique shape) or insulated glazing units (IGUs), and consist of a combination of ribbon windows at the clerestory (courtyard side and exterior facades), fixed lite circular and trapezoidal windows, and square operable casement windows. At the main entrance on the south facade, there is an aluminum frame and glass store front with a revolving door. A painted metal and glass canopy, set on a reinforced concrete slab, spans over the parking garage ramp at the entrance. Additional emergency exit doors exist on the east and north facing masonry walls at the east and north facing portions of the C-shape at the plaza. Overall views of the exterior facades are included in Figure 2 through Figure 10. Typical views of the interior spaces are included in Figure 11 through Figure 13.

The elevated plaza and ramped concrete walkways from the sidewalk to plaza level, and from plaza level to the Council Chambers annex entrance, are sand-set pavers on a reinforced concrete slab. A sand-set paver system also exists at the open area beneath the Council Chambers Annex. Reportedly, this area had previously been a reflecting pool with lighted fountain, which concealed the mechanical tunnels between the Council Chambers annex and the main building, and had since been retrofitted to a sand-set paver system. A semi-covered walkway at the plaza courtyard is created by an exposed wood frame sunshade

spanning between sheet metal clad wood beams and concrete columns, which continues the roofline of the low slope roof. The roofing on the building consists of lead coated copper standing seam panels at the sloped roofs above and below the clerestory windows on the courtyard and the Council Chambers annex. The standing seam roofs have a 3 inch per foot slope, and terminate with lead coated copper metal flashing at the clerestory windows at the top of the exterior walls and between the sections of the lower and upper sloped standing seam roofs. A flat roof area above the main entrance on the south facade is roofed with a TPO roofing membrane. Overall views of the roofing and plaza are included in Figure 14 through Figure 20.

Renovations to the building were reported to have been performed in 1990 and 2001, and generally included mechanical upgrades, minor interior renovations, and reconfiguration of the original reflecting pool and replacement of the fountain to a sand-set paver system. Additionally, the mechanical tunnels below the original reflecting pool were abandoned as part of the mechanical upgrades. Reportedly, some of these abandoned tunnels and voids in the soil have since been infilled with concrete and grout.

Fire and Life Safety

The building is primarily used as Village offices and public spaces on the first floor and mezzanine level. Most of the basement is a police station including offices, meeting rooms, a sally port, holding area, storage areas, and a firing range. The remainder of the basement is storage, offices, and mechanical space. The building has a fire alarm system with occupant notification, and the fire alarm control panel is located in the south lobby entrance. The building is not fully sprinklered, but a wet-pipe sprinkler system is installed in portions of the basement, an antifreeze pre-action sprinkler system is installed in other portions of the basement, and a dry-pipe sprinkler system is installed in the underground parking area. Manual fire extinguishers are located throughout the building.

Mechanical, Electrical and Plumbing

The existing main electrical switchboard is rated for 2000A, 120/208V, 3-phase, 4-wire. The main service feeders enter the switchboard via a concrete encased bus duct. The switchboard is main metered and has five vertical sections plus an automatic transfer switch at one end. A UPS is located in the same room, which is rated for 120A DC, max at 288V DC. The motor control center is in the chiller room, located in the basement. A natural gas generator is located in the boiler room (also located in the basement) and is rated for 475HP. The generator has one 1200A feeder circuit breaker for three sets of 4 inch diameter conduits serving the emergency section of the switchboard. Electrical branch and distribution panels throughout the spaces are recessed in corridor walls. The panels are Square D, 225A, 3-phase, 4-wire panels and have thermal-magnetic main and branch circuit breakers.

The existing mechanical ventilation system is comprised of five hot water heating/chilled water cooling air handling units, all of which are the original equipment that was installed in 1975.

1. S-1 serves the first and mezzanine levels of Village Hall; 44,000 CFM total with dual duct, pneumatic actuated terminal boxes for zone temperature control
2. S-2 serves the police department (lower level); 9,460 CFM total with dual duct, pneumatic actuated terminal boxes for zone temperature control
3. S-3 serves the open areas (lower level); 4,359 CFM total with dual duct, pneumatic actuated terminal boxes for zone temperature control
4. S-4 serves the jail cells (lower level); 1,600 CFM total constant volume
5. S-5 serves the firing range (lower level); 10,000 CFM total constant volume

6. S-6 was removed in 2012-13 and replaced with a new outdoor mounted geothermal heat pump. A new heat pump serves the elevated board room; 8,000 CFM total, constant volume

The existing hot water boilers, original to the building, consist of two 3,348 MBH natural gas-fired boilers, no more than eighty percent efficient, with two hot water distribution pumps. The police department server room is cooled by a Leibert precision cooling system; all components are located in the building (lower level) and the condensing unit is ducted to the south drive ramp.

The original existing chillers (40-ton and 200-ton) have been removed and replaced with two 85-ton water cooled reciprocating chillers this past spring (2015). The existing below-grade cooling tower has also been replaced, and is located in the same pit on the south side of the below-grade police parking structure. The condenser water flow is 480 GPM, and all existing 3-way chilled water pneumatic actuated control valves found on S-1, 2, and 3 have been removed and replaced with new electric actuator 2-way control valves. The original chilled water pumps have been removed and replaced with variable speed pumps, equipped with variable frequency drives for differential pressure flow control and energy savings. The original condenser water pump has also been replaced with a new vertical condenser water pump as part of the complete chiller replacement project that was completed in the spring of 2015.

The existing control system is pneumatic, with a duplex air compressor and air drier located in the boiler mechanical room. All existing temperature controls are pneumatic, including all pneumatic actuators located in all existing dual duct terminal units.

EVALUATION METHODOLOGY

WJE and dbHMS performed the following scope of services as part of our limited property condition assessment:

1. We reviewed documents made available to us by the Village. The intent of the review was to gain a general sense of the original construction details, materials, and history of previous repairs and maintenance for the components being evaluated. Our review did not include a code review, calculations, or detailed evaluation of the various components. Documents provided for review included:
   a. Original construction drawings for the Oak Park Civic Center, prepared by Harry Weese & Associates, dated April 1, 1974
   b. 2001 AME Narrative for Oak Park Village Hall - BU 001
2. During a walk-through of the building, we interviewed the building engineer and Mr. Vic Sabaliauskas, Building Maintenance Superintendent, to discuss previous repairs, maintenance, and evaluations that had been performed at the building.
3. We performed a visual survey of the facades from ground level aid of binoculars, clerestory and portion of the masonry from the roof levels. We did not evaluate concealed wall elements, nor did we perform any destructive or non-destructive testing.
4. We performed a close up visual survey of the roofs and plaza area. We did not evaluate concealed elements, nor did we perform any destructive or non-destructive testing.
5. We performed a visual examination of the fire protection and life safety features of the building. No system testing or intrusive inspections were conducted. Specific information and details regarding the building's systems and features were provided by the building engineer.

6. We performed a visual examination of the mechanical, electrical, and plumbing systems of the building. No system testing or intrusive inspections were conducted. Specific information and details regarding the building's systems and features were provided by the building engineer.

INTERVIEW AND DOCUMENT REVIEW

Significant findings of our interview with Mr. Sabaliauskas and the building engineer, and our review of available documents, are summarized as follows.

1. During a walk-through of the building, we interviewed Mr. Sabaliauskas and the building engineer, who stated the following during our interviews:
   a. There are known active water leaks in the basement beneath the exterior plaza. One of the leak locations aligns with the built-in gutter along the east side of the plaza and the window wall systems at the interface between the building and the plaza. The other known active water leak in the basement is beneath the west skylight at the south perimeter exterior plaza and the revolving doors. Additionally, the building engineer indicated that water stands in the perimeter gutter for long periods after it has rained, and that sealant had been installed on the top side of the skylight at the plaza.
   b. There is a known water infiltration source in the lower level in the east mechanical room; the water is evident at the location of an open electrical conduit junction box.
   c. There are known active water infiltration issues below the standing seam roofing. The leaks occur at the valley rafter timber supports, beneath the clerestory windows on the plaza side of the building, and at the interface of the brick walls at the north facade, the clerestory windows, and the standing seam roof structure. It was reported that these leaks are most active during the winter as the snow begins to melt.
   d. No other active water or significant air infiltration through the exterior facade, roof, or windows was reported.
   e. No major facade or roof repair campaigns have been completed since Mr. Sabaliauskas has been with the VOP. Maintenance and limited repairs have been performed as funding allows. These repairs have included removal of the ivy on the south facade, isolated repointing, isolated sealant replacement at the window perimeters, and isolated cap sealing at deteriorated gaskets at the clerestory windows. Additionally, the roof at the south side of the building has been replaced, including the interface stainless steel counterflashing.
   f. There have been heaving and settlement issues at the sand-set paver system below the Council Chambers, which are associated with the collapse of portions of the previously abandoned mechanical tunnels. Portions of the collapsed tunnels were recently filled with concrete to "infill" the voids caused by the abandoned mechanical tunnels. A few isolated pavers were reset following the completion of the concrete infill, yet the displaced pavers and sand leveling had not been repaired to date.
   g. Isolated pavers are reset when significant displacement or heaving is observed. No wholesale plaza repairs have been completed.
   h. It was reported that the fire alarm system and fire sprinkler systems are tested and maintained as required by applicable NFPA standards. Test reports were not available during our survey.
   i. The new board room heat pump is energy efficient, but the building engineer indicated that it cannot provide the proper heating capacity during cold winter temperatures.
2. A review of the documents provided is summarized as follows:
   a. Original construction drawings for the Oak Park Civic Center, prepared by Harry Weese & Associates, dated April 1, 1974

(1) The original structure consists of reinforced concrete supporting the main level and wood framed timber construction supporting the mezzanine and roof structure.
(2) The roofing consists of 19 inch wide standing seam panels with 1 inch seams on roofing felt over 1/2 inch standard exterior grade plywood with exterior glue; plyclips are for edge support and each 4x8 panel is nailed down with 30d nails spaced at 12 inches o.c. around the perimeter and at 16 inches o.c. intermediate, stagger panel joints over 2 inch rigid insulation between pressure treated wood blocking secured to the interior wood decking
(3) A protection board and 3/4 inch sealant joint is indicated between the plaza board and the wall. Additionally, a waterproofing membrane is indicated below.
(4) The exterior walls from the exterior to interior consist of 4 inch nominal clay face brick with a 2 inch cavity space with 1 inch rigid insulation on 8 inch nominal CMU with regularly spaced 7/8 inch furring channels and 5/8 inch plaster. An L5x5x5/16 shelf angle with through-wall flashing set in the bed joint between the CMU course is anchored to an 8 inch by 8 inch concrete curb at the at the base of the wall which is doweled into the cast-in-place concrete plaza board.
(5) The upper clerestory wall consists of 10 inch thick cavity walls with 4 inch nominal clay face brick on both sides with a 2 inch wide cavity.
(6) The window lintels consist of L5x5x5/16 shelf angle with through-wall flashing, anchored to the CMU bond beam with 7/8 inch diameter anchor bolts at 24 inches on center.
(7) The windows are 1 inch thick insulated glazed units set in extruded aluminum frames anchored to the brick masonry with expansion sleeve anchors at the jambs, head, and sill. Sill pan sheet metal flashing exists over a mortar wash on top of the brick masonry at each of the sills. Through-wall metal flashing is shown at steel angle lintels at the head of the windows.
(8) The window wall at the plaza area consists of 1/4 inch thick single polished plate glass set in extruded aluminum split mullions with 3/16 inch glazing compound and 1/8 inch thick aluminum removable stops fastened at 12 inches o.c. The mullions consist of 1/16 inch thick bent aluminum channels fastened at 6 inches o.c. A continuous sheet metal flashing at the base of the window wall is indicated to tie into the waterproofing membrane below the plaza.
(9) The plaza system is nominally 12 inches thick and consists of 2-1/4 inch thick clay brick pavers on a 3/4 inch mortar bed, set over 1-3/4 inches of gravel over 7-1/4 inch thick insulating fill, over a waterproofing membrane, over a continuous pressure treated wood cant anchored to the concrete slab. The drawing indicates that backer rod and sealant had been installed at the joint between the pavers and the metal frame at the base of the window wall.
(10) The brick clad columns at the plaza level are reinforced concrete columns clad with uniquely shaped 4 inch nominal clay brick.
(11) The clerestory windows consist of 1 inch thick insulated silver mirrored reflective glass in anodized aluminum frames with snap on glazing bead anchored to pressure treated wood blocking.

b. 2001 AME Narrative for Oak Park Village Hall - BU 001 stated the following:
(1) Structural - The exterior walls are brick. The windows are metal framed with non-insulated glazing. The exterior and interior doors are a combination of wood and metal.
(2) Major structural deficiencies include:
(a) Aged and energy inefficient windows
(b) Water seepage on south side of basement
(c) Ivy on exterior walls penetrating window frames and blocking window light
(d) Aged and deteriorated concrete
(e) Aged and deteriorated asphalt paving
(f) Spalled and cracked concrete

(g) Aged and worn carpet

(3) Roof - The roof is divided into six sections. Three roof areas are metal standing seams. One roof area is flat and covered with an TPO system. One roof area is a special glass covering, and one roof area is metal. No major roof deficiencies were noted at this time.

(4) Electrical - The building's electrical systems include a 1200-amp, 480-volt main electrical service located in room B125. Power is distributed at 120/208 volts to two motor control centers and multiple distribution panels for lighting and power throughout the building. One emergency generator and UPS system supplement the normal electrical service. The building lighting includes fluorescent, incandescent, exit, and emergency light fixtures. Additional systems include local area network, closed circuit television, intercom, and fire alarm.

(5) Major electrical deficiencies include:

(a) Aged lighting and power distribution system with inadequate number and location of receptacles throughout the building. Low illumination levels were evident throughout the building. Mezzanine level experienced lighting difficulties due to window placement.

(b) Multiple electrical receptacles located near a water source without GFCI protection

(c) Several seriously corroded pull and junction boxes

(6) Mechanical - The building mechanical systems include heating, cooling, ventilation, and plumbing systems, a dry pipe fire protection system, an elevator, handicap stairlift, and chairlift. Two 335 MBH gas fired boilers provide hot water for heating through a series of six air handling units and unit heaters. Chillers rated at 250 tons and 40 tons operate in concert with a 270-ton cooling tower to provide chilled water for cooling through a series of six air handling units. One 5-ton water cooled package air conditioning unit provides cooling for the 911 communications equipment. Room and area pneumatic thermostats monitor the heating and cooling systems. The ventilation system includes a network of steel supply and return ducting containing VAV boxes to regulate airflow. The plumbing system includes domestic water, sanitation piping, and fixtures. Domestic hot water is generated by one gas fired domestic water heater with a second gas fired domestic water heater abandoned in place. The building is completely sprinkled with a dry pipe system. An aged 4-stop elevator provides handicap service at the street level in addition to the basement, ground, and mezzanine levels. A handicap stairlift provides access between the basement and ground floor and a handicap chairlift provides access from the ground floor to the council chambers.

(7) Major mechanical deficiencies include:

(a) Aged internally insulated ventilation ducting

(b) Aged and obsolete chiller requires high maintenance

(c) Computer room requires humidified air to reduce winter static electricity

(d) Investigate slow floor drains in underground parking garage which cause flooding during rains

SITE OBSERVATIONS

Facade

WJE performed a limited visual survey to review the existing condition of the exterior facades on July 24, 2015. The limited survey included observations from grade and the building's roof levels with binoculars, as well as representative interior spaces. Significant findings from WJE's site observations of the exterior facade are summarized as follows:

Masonry

1. The brick veneer is supported by a continuous steel shelf angle at the base of the wall. Flashing is evident at multiple locations (Figure 21).
2. There is significant ivy growth on the brick masonry walls on the north, west, and east facades (Figure 22 through Figure 24).
3. Cracked and open mortar joints exist at the return ends of the brick wall at the clerestory at the north and east facades (Figure 25 and Figure 26). The open mortar joints by-pass the deteriorated sealant at the leading edge of the metal counterflashing.
4. The top of the brick cavity wall at the return ends of the north and east facades is open under the roof edge condition (Figure 27 and Figure 28).
5. Isolated cracked and debonded mortar and open joints exist throughout the brick masonry (Figure 29 through Figure 31).
6. Isolated bricks at the base of the east corner above the galvanized shelf angle of the south facade are spalled (Figure 32).
7. A 3/8 inch wide crack exists in the concrete beam at the base of the cavity wall at the intersection of the building with the ramped walkway to the plaza level. Efflorescence, organic growth, and moisture were visible adjacent to the crack (Figure 33 through Figure 35).
8. Significant efflorescence and water staining were visible on brick and concrete at the north wall of the elevated plaza. The brick is supported on a galvanized steel shelf angle (Figure 36 and Figure 37).
9. A portion of the brick cladding at the raised edge of the plaza level at the intersection with the ramped walk way is cracked and spalled (Figure 38).
10. Moisture and efflorescence were observed on the brick at the east wall of the elevated plaza beneath the metal and concrete framed stairs extending between the elevated plaza level and the plaza infilled reflecting pool below the Council Chambers (Figure 39).
11. Areas of previously isolated brick replacement were noticeable at the northwest corner of the Council Chambers annex.
12. Isolated zones have been repointed at the lower portions of the brick piers at the Council Chambers annex and the northeast corner of the building, as evidenced by mismatched mortar smeared over the joints.
13. A 1/4 inch wide vertical crack exists at the southwest corner of the main building.
14. Surface corrosion exists at the metal riser at the top of the brick masonry clad plaza wall (Figure 40).
15. Horizontal cracks, that are generally about 1/8 inch wide, exist at the concrete stair treads at the painted metal frame stringers.
16. The sealant in the vertical expansion sealant joints between sections of brick masonry is typically crazed and poorly tooled.
17. Cracking, spalling, and corrosion staining was noted at the underside of the concrete beam at the north wall of the elevated plaza. This location conceals a plenum space.
18. Incipient spalls are present at the edge near the steel angle supports on the underside of the concrete deck of the ramped walkway leading from the plaza level to the Council Chambers' entrance (Figure 41).
19. Cracking, spalling, corrosion staining, and visible corroded reinforcing bars were noted at the underside of the concrete elevated walkway at the south entrance above the garage ramp entrance (Figure 42 and Figure 43). Additionally, the traffic coating on the top side of the slab at the elevated walkway is bubbling, peeling, and delaminated (Figure 44).
20. Surface corrosion exists on the underside of the painted metal frame supporting the concrete deck at the ramped walkway. Additionally, some surface corrosion was visible at the exposed steel reinforcing bars (Figure 45).

21. Surface corrosion was noted at the painted metal tube hallway connection between the main building and the Council Chambers annex (Figure 46).

Windows

1. Crazing is noticeable at the exterior window sealant at all facades (Figure 47).
2. The sealant is missing from portions of the joint between the steel door frame and the brick masonry on the north portion of the east facade (Figure 48).
3. There is significant crazing and debonding of the perimeter sealant at the clerestory windows. Many of the window gaskets at the clerestory windows are brittle and/or crazed. Additionally, some of the gaskets have been previously cap sealed and the sealant is crazed and debonded (Figure 49 through Figure 53).
4. The joint between the aluminum framing of the window wall and the pavers at the plaza is typically open. There are remnants of previous sealant on the aluminum frame (Figure 54 and Figure 55).
5. Efflorescence and organic growth are present at isolated locations along this joint, near the revolving door on the north facade of the window wall (Figure 56 and Figure 57).
6. Sealant has been smeared over the face of the skylights at the courtyard level (Figure 58 and Figure 59).
7. Corrosion staining, surface corrosion, and efflorescence are present at the base of the aluminum frame storefront with the revolving door at the south facade (Figure 60).

Interior

1. Isolated water staining was noted at the underside of the wood deck at the interface of the valley rafter, the wood decking, and the aluminum frame window wall system (Figure 61 and Figure 63).
2. Isolated water staining exists at the interior timber framing located at the corners of the building, below roof valleys, and at the east and north end walls.
3. Isolated water staining exists at the underside of the wood decking at the interface of the east end wall and the lower roof (Figure 64).
4. Water staining exists at the underside of the wood deck, below the clerestory windows at the west face of the east wing (Figure 65).
5. There is cracked drywall adjacent to the clerestory windows at the east end wall of the north facade (Figure 66).
6. Water staining exists on the underside of the wood decking below the flat roof area on the south facade and at the interface of the canopy edge (Figure 67).

Roof and Plaza

WJE performed a limited visual survey to review the existing condition of the roofs and plaza on July 24, 2015. Significant findings from WJE's site observations of the roof and plaza are summarized as follows:

Roof

The existing standing seam metal roof consists of two sloped roof areas above and below a band of aluminum frame clerestory windows. Both the upper and lower roofs have slopes of 3 in 12 (Figure 68 through Figure 72) and are covered with lead coated copper standing seam panels. The panels are 19 inches wide with 1 inch upturned legs.

Upper Steep Slope Roof

1. The surface of the upper roof is 38 feet long from top to bottom and is typically covered by three standing seam panels joined at transverse seams. The transverse seam locations are staggered between

panels. The surface of the lower roof is 19 feet long and is typically covered by a single standing seam panel.
2. Both the upper and lower roof levels allow water runoff to freely fall off the roof.
3. The standing seam roofing is in serviceable condition.
4. The standing seam panels have a gray patina. The panels include bands of red discoloration that typically appear to align with isolated low areas in the panels (Figure 73). On the Council Chamber annex and the roofing over the north end of the east wing, the discoloration is consistent across the full length of the panels (Figure 74).
5. The panels include a few isolated, small diameter punctures and dents (Figure 75 and Figure 76).
6. Vent stack penetrations are flashed with lead coated copper sleeves that are soldered to the standing seam panels (Figure 77).
7. At the top of the upper roof level, the roof is flat above the exterior walls. At the slope transition in the standing seams, the seams were cut, patched, and soldered (Figure 78). Isolated solder joints around these patches are cracked (Figure 79). The top edges of the panels lock into a metal edge above the windows in the exterior wall. At the top ends of the panels, the standing seams were cut and folded back to close the ends of the standing seams. Where the panels engage the edge metal, the joint between the panels is a lap (Figure 80).
8. At the bottom of the upper roof, the panels engage a metal edge above the clerestory windows (Figure 81). Heat trace cables have been attached to the metal edge below the ends of the standing seam panels.
9. The valley metal is approximately 2 feet wide with a ridge in the center to prevent runoff from one side of the valley from flowing below the panels on the opposite side (Figure 82). Heat trace cables are typically present in the valleys. The valley metal sheets were installed with 8 inch laps (Figure 83 and Figure 84). Roofing felt is present below the valley metal. Previous repairs include applying sealant over the lock between the valley metal and the ends of the standing seam panels. At the upper roof level, the ends of the valleys extend approximately 1 foot past the standing seam panels.

Lower Steep Slope Roof

1. At the top of the lower roof level, the top ends of the standing seam panels are covered by roof-to-wall style sheet metal flashings. The flashings are riveted to the clerestory window frames and include a pocket for sealant (Figure 85). The sealant is typically crazed. The flashings lock into Z-shaped closures soldered to the standing seam panels. The roof-to-wall closure flashings were lapped and soldered. Many of the solder seams in the flashings are split. Some of the joints have been previously repaired with sealant, but in many instances the sealant is also split (Figure 86).
2. At the east and north masonry end walls, the top ends of the standing seam panels are covered with sheet metal counterflashings. The sealant between the counterflashing and the brick masonry is typically debonded, crazed, and split (Figure 87).
3. Water and debris were typically observed under the roof-to-wall closer at the top of the valleys (Figure 88).
4. The ends of the valleys extend into sheet metal pans to carry the runoff water past the wood trellis (Figure 89). The standing seam panels are slit around the perimeter of the pan. The solder over these slits is typically cracked (Figure 90).
5. In the northeast corner of the site, the building end walls are angled. The ends of the standing seam panels lock into a rake edge style sheet metal edge flashing on top of the masonry end walls (Figure 91). Previous repairs include filling the panel to edge metal lock with sealant and applying sealant over the seams in the edge metal.
6. The low steep slope roof extends past the exterior window wall and the rafters extend past the end of the standing seam roofing. The exposed rafters are capped with lead coated copper. Wood timbers

anchored to the top of the exposed rafters form a sunshade. The sunshade is typically decayed and the fasteners are corroded. Sever fastener corrosion has resulted is the shade members loosening and sliding down the rafters (Figure 92). Ivy is growing on portions of the wood framed sunshade (Figure 93).

Low Slope Roof over the South Entrance

The low slope roof over the south entrance is covered with a TPO roofing membrane system.

1. Algae growth and dirt accumulations indicate that water ponds in isolated areas on this roof. Ponded water is water that remains on the surface of a roof for forty-eight hours after a rain event (Figure 94).
2. In the southwest corner, the flashing was cut and folded into the corner. The heat weld along the edge of the sheet is not visibly obvious.
3. At the building walls, the TPO membrane is covered by a surface mounted, stainless steel counterflashing. Significant crazing was noted in the sealant between the counterflashing and the brick masonry.
4. A guardrail is present on the south side of the roof over the south entrance. Surface corrosion is present on the guardrail and the sealant around the post pockets is crazed.

Glass Canopy over the South Entrance

The gutter between the glass canopy above the projecting south entrance way and the brick masonry of the south wall was holding two inches of standing water and debris (Figure 95).

Plaza

1. Significant displacement and heaving of portions of the sand-set pavers below the Council Chambers annex was observed.
2. Significant vegetation growth was noted between pavers at the elevated plaza level.
3. Efflorescence and organic growth was noted on the surface of the pavers at the base of the aluminum wall.
4. There is displacement at the pavers and presumed ponding surrounding drain locations due to the presence of staining and efflorescence (Figure 96).
5. The pavers at the base of the revolving door have settled relative to the concrete curb at the revolving door. The pavers are recessed from the top of the curb at the revolving door approximately 1-1/2 inches (Figure 97 and Figure 98).
6. Standing water and significant biological growth were observed at the built-in trench drain at the perimeter at the elevated plaza (Figure 99 through Figure 101).
7. Many of the solder seams at the lead coated copper liner of the built-in are cracked (Figure 102 and Figure 103).

Fire Protection and Life Safety

WJE performed a limited visual survey to review the existing conditions of the fire protection and life safety systems on July 24, 2015. The survey did not include functional testing or destructive investigation. The current applicable code is the 2009 edition of the International Existing Building Code (IEBC) with local Oak Park amendments. Significant findings from WJE's site observations of the fire protection and life safety systems are summarized below.

Fire Separations

1. Limited original building drawings were available, but the building appeared to be Type VI Heavy Timber construction, as defined by the International Building Code (IBC), Table 601 (Figure 104). The basement level is poured concrete and CMU block construction, while the first and mezzanine levels are heavy timber structural members with brick and CMU block exterior walls.
2. There are nine interior stairs in the main building and two interior stairs in the annex. Six stairs in the main building and both stairs in the annex connect the mezzanine floors to the first floors, and these stairs are not enclosed (Figure 105). A west stair connects the first floor to grade level, and is enclosed in 1-hour fire-rated construction with a 60-minute rated, self-closing fire door. A south stair connects the basement and first floor to grade, and the stair is not enclosed (Figure 106). An east stair connects all floors to grade and is enclosed in 2-hour fire-rated construction with 1-1/2-hour rated, self-closing fire doors. Storage was observed under the east stair (Figure 107).
3. The police portion of the basement was separated from the remainder of the building by 2-hour fire-rated construction with 1-1/2-hour rated, self-closing fire doors, but the door labels were painted (Figure 108). Within the secure space, the holding cell area was separated from the remainder of the secure space by 2-hour fire-rated construction with 1-1/2-hour rated, self-closing fire doors.
4. The elevator shaft and elevator machine room appeared to be enclosed in at least 1-hour fire-rated construction. Doors to the elevator machine room were propped open, the label was removed, and there was an unsealed pipe penetration between the elevator machine room and elevator shaft. The elevator machine room contained storage not related to the elevator system (Figure 109).
5. Vertical duct shafts appeared to be enclosed in 1-hour fire-rated construction.
6. Mechanical rooms and storage rooms were separated from other areas by 2-hour fire-rated construction with 1-1/2-hour rated, self-closing fire doors. Several door labels were painted and the doors were improperly held open. Unsealed conduit penetrations and small holes were observed in several of the rooms (Figure 110).
7. The generator room and main electrical room were separated from other areas by 2-hour fire-rated construction with 1-1/2-hour rated, self-closing fire doors. Unsealed conduit penetrations and other openings were observed in the walls (Figure 111), and door labels to the main electrical room were painted.

Means of Egress

Exit and Exit Access

1. A detailed egress analysis was not performed, but common paths of travel, exit travel distances, and exit remoteness appeared compliant with IBC requirements.
2. The exit capacity and number of exits appeared to satisfy IBC requirements based on the occupancies of the spaces served.
3. Storage was observed in the east stair enclosure (Figure 112) and in an exit corridor in the basement IT area.
4. The first floor lounge appears to have an occupant load of greater than fifty people, but the room is only provided with one exit door to a corridor, which swings into the room, and exit signs are not provided. Two additional doors are provided to the adjacent training room.
5. The first floor east training room has a posted occupant load of eighty-five, but the room only has one exit door, which swings into the room and has a deadbolt lock, and exit signs are not provided (Figure 113). There are other doors from the space, but they exit into other rooms and not to a corridor.
6. On the mezzanine, the north stair discharges to a conference room on the first floor. Also on the mezzanine, the east cubicle area cannot exit to the north due to a locked door, creating a dead end condition in excess of 20 feet.

7. Evacuation signs were posted near stairs and in other spaces in the building (Figure 114).

Exit Enclosures and Exit Discharge

1. The building is provided with nine interior stairs in the main building and two interior stairs in the annex. Six stairs in the main building and both stairs in the annex connect the mezzanine floors to the first floors and discharge in the building on the first floor. A west stair connects the first floor to grade level and discharges to the exterior through a single door at grade. A south stair connects the basement and first floor to grade and discharges to the exterior through two swing doors at grade. There is also a revolving door in the south stair exterior discharge. An east stair connects all floors and discharges to the exterior through a swing door at grade.
2. In addition to the stairs that exit at grade, the first floor has two exit doors that discharge to the exterior. The basement has one access-controlled door from the sally port that discharges to the exterior and goes up a vehicle ramp to grade. The annex has one exterior door that discharges to an exterior ramp to grade, but the exterior door to the ramp opens 90 degrees, which restricts egress based on the angle of the door to the ramp (Figure 115 and Figure 116).
3. The stairs have a minimum width of 36 inches, which is acceptable for existing buildings. Stairs generally provide the necessary rise and run as required by the IBC. Handrails are typically provided on one side of the stair and appear mounted at the appropriate heights as required by the IBC. Headroom of at least 80 inches was observed in the means of egress. Egress from the mezzanine generally meets the travel distance requirements necessary for a mezzanine level.
4. Guardrails in the annex seating balcony area were at least 30 inches in height as required by the IBC for assembly seating areas. Guardrails on the mezzanine walkway were at least 42 inches in height as required by the IBC.
5. Egress from the basement police area has access control as allowed by the IBC for Group I-3 occupancies.
6. Stair doors are not lockable and provide re-entry from the stair to the floor, except the east stair basement level which serves the secure Group I-3 occupancy.

Exit Signage

1. Exit signs directing occupants to exits are provided, but not all signs were illuminated (Figure 117).
2. Exit signs were blocked by storage in corridors in several areas of the basement (Figure 118).

Emergency Lighting

Emergency lighting is provided in the corridor and stairs by a combination of general lighting connected to the building's emergency generator and battery-powered light packs. The spacing appeared to be sufficient. WJE did not functionally test the emergency lighting.

Elevators

1. The building has one automatic passenger elevator that serves the basement, grade level, first floor, and mezzanine level. The elevator machine room is located in the basement. The elevator is provided with Phase I and Phase II recall capabilities with elevator recall automatically activated by a smoke detector in each elevator lobby and the elevator machine room.
2. An inspection tag was not observed for the elevator.
3. Wheelchair lifts are provided in the south stair from the basement to grade and the first floor, and on the east side of the building near the annex from the first floor to the mezzanine level. Call stations are provided for each wheelchair lift (Figure 119).

Fire Alarm System

1. The building is equipped with a fire alarm system using an EST QuickStart fire alarm control panel that is located in the south lobby (Figure 120). Little information was known about the fire alarm system, but it is assumed to have been installed after 2001 since that was when the panel was first manufactured. The panel displayed "Normal" conditions and did not indicate any "Supervisory" or "Trouble" conditions at the time of the survey. Secondary power for the fire alarm panels could not be confirmed, but is assumed to be provided by the building's emergency generator.
2. The fire alarm panel monitors initiating devices, including smoke detectors, heat detectors, beam-type smoke detectors, sprinkler water flow switches, sprinkler valve tamper switches, and manual pull stations. Smoke detectors are located in basement corridors, at the top of each enclosed stairwell, and in each elevator lobby and elevator machine room. Heat detectors are located in miscellaneous offices and rooms. Duct smoke detectors were observed in fan systems. Beam-type smoke detectors are located in the open area above the first floor and adjacent to the mezzanine level (Figure 121). Sprinkler components are located in the riser room, the dry-valve room, and the anti-freeze loop control valve.
3. A smoke detector was missing in the first floor elevator lobby.
4. Occupant notification includes wall-mounted and ceiling-mounted horns and horn/strobes installed throughout the corridors and common areas of the building. Visual notification appliances (strobes) were not observed in several meeting rooms and break rooms. The fire alarm system was not functionally tested to confirm audibility levels.
5. A recent inspection report for the fire alarm system was not provided. The system is reportedly tested annually per the building engineer.

Fire Suppression Systems

1. The building is not fully sprinklered, but has a wet-pipe sprinkler system installed in portions of the basement, an antifreeze pre-action sprinkler system installed in other portions of the basement, and a dry-pipe sprinkler system installed in the underground parking area.
2. The main sprinkler riser is located in the incoming water room on the east side of the basement (Figure 122). Water enters the building via a 4 inch main which splits to feed domestic water and the sprinkler system. An Ames double detectors check valve is provided to separate the sprinkler piping from domestic water. A check valve is provided after the backflow preventer. The sprinkler riser has a water flow switch, valve supervisory switches, and a main drain. The riser feeds the dry-pipe valve as well as sprinklers in the basement. Basement sprinklered areas include miscellaneous storage rooms, offices, bathrooms, and corridors for approximately forty percent of the basement area.
3. Various non-sprinkler related wiring was attached to the sprinkler piping in the north basement records room.
4. A dry-pipe sprinkler valve is located in a basement storage area near the south stair (Figure 123). The dry-valve assembly includes a 4 inch Viking model F-1 dry-pipe valve, associated trim assembly, and Dayton air compressor. The dry-pipe sprinkler system protects the south underground parking garage and includes steel pipe and upright sprinklers. The system appeared to be properly pitched, but had noticeable external sprinkler and pipe corrosion (Figure 124). An auxiliary drain was located on the north end of the system, but did not have an identification sign. An inspector's test connection was located at the most remote part of the system and had a proper identification sign.
5. A pre-action anti-freeze system was located in the south storage area, but what the system protected could not be confirmed (Figure 125). The system had a vertical loop as required by NFPA 13 for anti-freeze sprinkler systems. The anti-freeze solution mixture used could not be confirmed.
6. Sprinklers are typically standard-response type, with upright sprinklers installed for the dry-pipe system, and flush pendent or concealed sprinklers installed for the wet-pipe sprinkler system. Several

sprinklers appeared to be dirty or corroded. It is assumed that most sprinklers were installed at the time of initial construction, so the observed sprinklers are approximately forty years old. A spare sprinkler cabinet was installed in the incoming water room, but sprinklers of each type installed in the system were not observed in the sprinkler cabinet (Figure 126). Several concealed sprinkler cover plates were missing (Figure 127).

7. An inspection tag on the main sprinkler system riser and dry-pipe sprinkler riser indicated that the last inspection was on October 24, 2014. No deficiencies were noted.
8. An inspection tag was not observed for the backflow preventer.

Smoke Control System

A smoke control system is not required by the IBC for this building, nor is a smoke control system provided in the building.

Manual Fire Extinguishers

Manual fire extinguishers are distributed throughout the building, and their spacing is generally in compliance with the IBC and NFPA 10. Fire extinguishers were last inspected in October 2014 (Figure 128). A fire extinguisher outside the generator room was sitting on the floor (Figure 129) and a fire extinguisher on the south wall of the basement south storage area was obstructed.

Emergency Power

The building has a 475 HP Cummins natural gas emergency generator (Figure 130). The generator reportedly had a major overhaul in 2014. A test report was not available for the most recent test, but a tag on the generator indicated it was inspected in April 2014. The generator reportedly provides power for the entire building except for the chillers.

Mechanical, Electrical, and Plumbing Systems

A visual survey was performed by dbHMS on July 24, 2015 to review the existing condition of the mechanical, electrical, and plumbing (MEP) systems. The survey did not include any functional testing or destructive investigation of the MEP systems. Significant findings from dbHMS's site observations of the MEP systems are summarized as follows:

Electrical

1. The generator batteries are reaching their serviceable life (Figure 131).
2. Back of house lighting fixtures are older and typically linear fluorescent fixtures, which do not provide adequate lighting (Figure 132 through Figure 134).
3. In many areas, exit sign bulbs are incandescent and not LEDs (Figure 135).
4. Branch and distribution panel boards are deteriorating and reaching their useful life expectancy. All electrical panels which have not been replaced within the last fifteen years are beginning to show signs of deterioration (Figure 136).
5. UPS system batteries are nearing their serviceable lifetime expectancy (Figure 137).
6. Panel board schedules are missing for many of the panels (Figure 138).

Mechanical

1. The S-1 chilled water cooling coil condensate drain pipe is not properly trapped, causing metal casing wall deterioration (Figure 139).

2. The S-2 chilled water cooling coil condensate drain pipe is properly trapped, yet condensate pipe spills water on the concrete floor (Figure 140).
3. Internal AHU S-1 and S-2 components are typical (Figure 141 through Figure 143).
4. All supply and return/exhaust fans are controlled by pneumatic actuated inlet guide vanes (Figure 144).
5. S-5 is currently being renovated, adding outdoor air and MERV 13 filtration for the removal of lead particles from the return airstream.
6. The new S-6 heat pump is remote mounted in a concrete vault below grade (Figure 145).

Plumbing

1. The building plumbing systems are generally in working order (Figure 146 and Figure 147).
2. Isolated portions (typically at connections) of the existing piping are corroded (Figure 148 through Figure 151).
3. The water heaters were repaired in 2007 but isolated damage to the metal jacketing was observed near the base of the units. They are exceeding their life expectancy (Figure 152).
4. Plumbing fixtures do not fully comply with ADA (Figure 153 and Figure 154).

DISCUSSION

Facade

In general, the facade of the Oak Park Village Hall building is in serviceable condition, given the age of the building. The construction of the Oak Park Village Hall building's facade is consistent with the standards of the time it was built. The distress observed in the facade generally appears to be the result of cyclical thermal movement of the cladding system and improper or deferred maintenance.

The vertical cracking at the southwest corner of the building is likely caused by the volumetric changes of the building materials. There are vertical but no horizontal expansion joints to accommodate differential movement. Furthermore, the structural (timber and reinforced concrete) frame will displace slightly with prolonged loading, and masonry will expand in the first few years after construction is complete. Since the masonry cladding system of the building is integral with the structural system, stresses will develop as the two systems move differentially. All building materials experience cyclical volume changes due to internal and external influences, including temperature fluctuations, moisture ingress, and elastic deformations due to loading and inadequate (or differential) restraint. Given the age of the building, most of the permanent movement of the building structure and cladding is complete.

Much of the cracked and deteriorated mortar is due to weathering and improper maintenance, as well as the significant ivy growth on the exterior walls. The ivy obscures much of the masonry, so much of the masonry is not visible to determine if there is mortar or brick distress, but ivy can lead to moisture penetration problems or masonry deterioration. Ivy roots enter voids in mortar joints. Over time they can loosen and displace brick and mortar. Ivy can also conduct moisture into walls, and hold moisture against and within walls, which can contribute to efflorescence, accelerated weathering of the mortar, and subsequent freeze-thaw related deterioration.

The efflorescence and weathered mortar joints, spalled brick faces, and general deterioration of the masonry at the perimeter of the elevated plaza, is likely due to unrestricted water infiltration into the wall from inadequate drainage and the use of deicing salts of the elevated mortar-set paver plaza system.

Sealant used between different materials and at opening perimeters should be replaced when it reaches the end of its useful service life in order to limit the potential for water infiltration. The average service life of sealant joints is between ten and twenty years, depending upon the type of sealant (butyl, urethane, and silicone), installation, and exposure.

The perimeter sealant and gaskets of the clerestory windows at the courtyard side of the building are significantly deteriorated. Many of the gaskets have been cap sealed as a previous repair. The deteriorated gaskets and subsequent sealant at the glazing has likely resulted in some of the water infiltration observed at the underside of the wood decking on the interior that is beneath the clerestory windows.

The windows at the building are glazed with insulated glass and are generally in serviceable condition aside from the clerestory windows. While no water infiltration or air leakage were reported through the operable and fixed windows, the effective useful life for the seals of an IGU and gaskets varies between fifteen and thirty years. Prolonged exposure of the window systems to ultraviolet radiation, water, pollution, and thermal cycles inevitably results in deterioration of gaskets, stops, and sealants. Because the condition of these materials is critical to the performance of the window system, as deterioration progresses they are more susceptible to leakage. Replacement of the gaskets requires removal of the glass, removal of the existing glazing tape and gaskets, and installation of new materials. Cap sealing is a viable remedial repair for addressing deteriorated gaskets, but requires a more frequent maintenance.

Some of the additional water staining on the interior may be a result of condensation related issues due the lack of thermal separation of the single pane aluminum window wall system and clerestory windows. The presence of condensation related issues on the interior would require further evaluation during the winter weather conditions.

Roofing and Plaza

The sloped standing seam lead coated copper roofing and the TPO flat roofing and related flashings are in serviceable condition. With routine inspection and maintenance, WJE estimates that the copper standing seam roofing could have a service life of up to seventy-five years and the TPO roofing on the low slope roof over the south entrance could have a service life of as many as twenty years.

The water staining and previously observed water infiltration at the valley beams is likely a result of splashing at the interface of the upper sloped roof, the clerestory windows, and the lower sloped roof at the valley locations. The other interior water staining is likely a result of the deteriorated gaskets and sealants at the clerestory windows, rather than roofing. We recommend a phased approach to address the water infiltration. First remove and replace all deteriorated sealant around the perimeter of the clerestory and between the clerestory and the roof-to-wall lead coated copper flashing. Also apply preformed silicone sealant or lead coated copper caps over the exposed lap seams in the roof-to-wall flashing. We recommend performing these repairs and then observing the interior for a year for signs of continued water leaks. The leaks may be related to damming. Ice and snow accumulations in the sheet metal pans at the bases of the valleys may cause melt water to back up below the valley metal. If the leaks continue after the deteriorated sealant and open seams are addressed, consider removing and replacing the valley flashings and the adjacent metal panels. This repair may also be necessary at the rake edges at the end walls.

The red discoloration of the standing seam panels does not appear to be related to corrosion. It does not appear to originate at seams, fasteners, adjacent ferrous metals, or from contact between dissimilar metals. The discoloration may be the formation of a natural red lead patina. A red lead patina will not reduce the

service life of the panels. We understand that a red lead patina can be cleaned and removed but is expected to reoccur. WJE recommends that a sample of the standing seam panels be examined in a laboratory to identify the cause of the discoloration.

The interior leaks in the basement and associated heaving and displaced pavers, and poorly maintained trench drain at the paved plaza, are a result of a deteriorated setting bed and waterproofing membrane below the existing pavers. The as-designed waterproofing has reached the end of its serviceable life and has led to water infiltration at isolated locations in the basement.

Fire Protection and Life Safety

Building/Fire Department Violations

WJE is not aware of any outstanding building department or fire department violations for the building from the local authorities having jurisdiction (AHJs).

Fire Separations

Buildings of Type IV construction have an allowable height of three stories and an allowable area of 36,000 square feet per story for business occupancies by the current IBC. While the building complies with these requirements, it is assumed the building was constructed under a building code other than the IBC, and it is assumed that the construction type was in accordance with the applicable code at the time of construction.

Mezzanines are allowed when they do not exceed one-third of the floor area in which they are located, and are required to be open to the area in which they are located. In addition, there are specific travel distance requirements for mezzanines, and stairs are not required to be enclosed between the mezzanine level and the floor in which they are located. This building generally complies with all mezzanine requirements in the IBC.

Means of Egress

The north stair from the mezzanine discharges to a conference room on the first floor. This stair is a required means of egress on the mezzanine level; otherwise, a dead end in excess of 20 feet would be created. This condition is not permitted by the IBC, but it should be verified that this existing condition and arrangement was previously approved by the local AHJ. For the east mezzanine area with a dead end in excess of 20 feet, it appears that the north corridor used to be useable in an emergency condition, but the door has been locked.

The IBC requires two means of egress for assembly and business areas with an occupant load of fifty or greater. Doors in rooms with occupant loads of fifty or greater are required to swing in the direction of egress travel, and the doors are required to have panic hardware for assembly occupancies if the door has a latch or lock. Egress is generally required from the room to a corridor and not through an intervening space. The training room and lounge have doors connecting the rooms, but these rooms are not accessory to each other so a second exit door to a corridor would normally be required. This is an existing condition that appears to have been in place since the original construction, and it is assumed that this existing condition has been reviewed and approved by the local AHJ.

The annex door to the exterior is installed in an angled wall and the door opens ninety degrees, so it limits egress width when fully open. This door serves an assembly space with a posted occupant load of 204. This

door does not meet egress requirements in the IBC, but it should be verified that this existing condition was previously approved by the local AHJ.

Access-controlled doors are provided for the secure police area in the basement, which is allowed by the IBC for Group I-3 occupancies. It appears that the secure area complies with egress requirements for Group I-3 occupancies.

Exit signs are required to be internally or externally illuminated by the IBC. Several exit signs were not illuminated or the internal illumination was burnt out.

Fire Alarm System

The fire alarm panel is assumed to be ten to fifteen years old and its expected useful life is typically twenty-five years. EST currently supports the QuickStart panel and it is expected to continue to provide support (service and parts) for at least the next ten years.

Fire alarm systems are required to be tested per NFPA 72, 2007 edition, with some components required to be tested quarterly and other required to be tested annually. Records of testing are required to be maintained. A copy of current as-built drawings for the fire alarm system is also required per NFPA 72.

Fire Suppression Systems

As discussed, sprinklers are installed in part of the basement and the south garage. While not required for existing buildings, sprinklers would be required throughout the building if this were a new building based on an Oak Park amendment to the IBC requiring sprinklers throughout buildings with Group A-3 occupancies that have an occupant load greater than 100. If a major renovation or addition occurred, sprinklers would be required throughout the building.

NFPA 25 provides requirements for inspection and testing of water-based systems. In addition, NFPA 25 requires annual testing of the antifreeze solution and the preaction valve. NFPA 25 also requires sprinklers using standard-response elements that have been in service for fifty years to be replaced, or a representative sample tested. This sprinkler testing will need to be performed in the next ten years.

The dry-pipe sprinkler system showed external signs of corrosion on the piping. Sprinklers also appeared to have some corrosion, but this was based on observation from the floor level. NFPA 25 requires pipe to be free from corrosion. NFPA 25 also requires a full-flow trip test of the dry-pipe valve to be performed every three years, along with an air leakage test. Documentation for these tests were not available during the survey.

The effectiveness of anti-freeze sprinkler systems has been debated recently, with specific discussion on the type of anti-freeze solution used. Anti-freeze solutions are typically a good option when protecting a very small number of sprinklers from freezing conditions. As noted in this report, the exact area protected by the anti-freeze system could not be determined, but it is recommended to research the feasibility of replacing the anti-freeze system with a dry-pipe sprinkler system.

Finally, NFPA 25 requires that records be maintained of all system testing. It also requires that as-built system drawings be retained for the life of the system. As-built drawings were not available for the sprinkler systems at the time of our survey.

Electrical

The electrical systems are generally in serviceable condition. The batteries for the generator are generally in good condition but will have to be replaced or maintained regularly according to the manufacturer's recommendations. The majority of the facility is illuminated with linear fluorescent lighting fixtures, some of which are not functioning in the back of house areas. The panel boards are in working condition but are reaching their serviceable lifetime. Some panels are developing rust and some have missing panel schedules. All batteries in the facility, including those installed within lighting fixtures and exit signs, should be tested and replaced once their useful life expectancy has been reached.

Mechanical

The mechanical systems are in serviceable condition. Some of the systems have been replaced recently and other mechanical systems are scheduled for replacement within the next five years. The existing two main air-handling systems mounted on the basement floor are original equipment that have been operating for forty years, and the coil, damper, and filter sections are displaying signs of deterioration and water/air leakage and will require replacement in the next ten years. All controls are pneumatic, slow responding, and inefficient. The boilers are original equipment, have operated past their recommended useful life, and are less than eighty percent efficient. The new chillers and cooling tower, installed in 2015, are energy efficient and sized to meet the current building load.

CONCLUSIONS

The recommended repairs listed are most likely to be phased repairs of ongoing maintenance based on the severity of the distress. All of these repairs should be performed within the next ten years, unless noted otherwise below. Additionally, based on the supplied documentation, we are unaware of any significant exterior facade, roof, or plaza work. Repairs and upgrades to some of the fire and life safety systems and MEP systems were completed as recently as 2015.

In addition, normal testing and maintenance required for fire protection and life safety systems should be performed in accordance with the testing schedule established by the applicable codes and standards, and documentation for the testing should be maintained.

The electrical systems are generally in working order. Several issues that result in non-functioning lighting should be replaced as soon as possible.

The chillers and cooling tower were replaced in 2015, and are providing energy efficient cooling to all existing air-handling systems. All five existing air handling systems function, but have inefficient electric motors, pneumatic controls, and casings that are deteriorated and will require replacement within the next ten years.

REPAIR RECOMMENDATIONS

Facade

Based on WJE's limited site observations, the information and data provided regarding the exterior facades and windows, and discussions with the building engineer, we recommend the following repairs to help maintain the exterior envelope of the Village Hall of Oak Park over the next ten years.

Masonry

1. A portion of the ivy should be removed to determine the condition of the masonry obscured by the ivy. There is significant ivy growth on the brick masonry walls on the north, west, and east facades. Based on the findings upon removal of the ivy, it may be recommended that removal of the ivy and repointing of 100 percent of the brick masonry facades would be needed to help limit water and air infiltration.
2. Repoint cracked and open mortar joints at the return ends of the brick wall at the clerestory at the north and east facades.
3. Install flashing at the top of the cavity at open areas to prevent water infiltration
4. Repoint deteriorated mortar joints. To create a more uniform appearance, defined geometric zones should be pointed rather than individual joints.
5. Remove and replace isolated spalled bricks at the base of the east corner above the galvanized shelf angle of the south facade.
6. At a minimum, epoxy inject the crack (approximately 3/8 inch wide) in the concrete beam at the base of the cavity wall at the intersection of the building with the ramped walkway to the plaza level.
7. Remove and replace cracked and spalled brick cladding at the raised edge of the plaza level at the intersection with the ramped walkway. Clean and paint the existing steel supports and install new brick with stainless steel anchorages.
8. Rebuild the brick veneer at the vertical crack at the southwest corner of the building. Consider installing vertical expansion joints at the northwest, southwest, and southeast corners of the building.
9. Clean and paint all exposed portions of the metal pan stairs and exposed metal on the elevated walkway.
10. Rout and seal cracks at concrete treads at metal pan stairs.
11. Replace the existing sealant at all vertical expansion joints.
12. Install proper edge flashing systems as part of the plaza replacement to limit water migration through the brick masonry veneer.
13. Repair cracks and spalls in the concrete beam at the north wall of the elevated plaza.
14. Remove incipient spalls at the underside of the concrete deck of the elevated walkway near the steel angle supports. Clean and paint all exposed steel and install new concrete formed patches.
15. Clean and paint the metal tube hallway connection between the main building and the Council Chambers annex.

Windows

1. Replace all sealant at the window and door perimeters.
2. As necessary, replace IGUs that have failed seals or cracked/broken glass.
3. Conduct an evaluation of the condensation related moisture on the interior of the window wall system during winter weather conditions to determine potential ventilation and repair options.
4. Remove all glass at existing clerestory windows and install new gaskets. Due to the reports of interior condensation, the replacement glass should consist of insulating glazing units. Alternatively, use a wet sealing approach that includes cutting the gasket flush and installing a fillet bead of sealant between the metal frame and the glass over the existing gaskets. Where windows have been previously wet sealed, the sealant will need to be removed and replaced.
5. During the repairs and replacement of the existing paver system at the plaza, install a new base flashing at the window wall and install backer rod and sealant between the aluminum framing of the window wall and the pavers at the plaza.
6. Reglaze or wet-seal the existing window wall at the plaza level. Due to the reports of interior condensation, an additional evaluation during winter weather conditions should be conducted to determine if the replacement glass consisting of insulating glazing units, along with interior ventilation requirements, will address the condensation.

7. Remove and reset the revolving door as part of the plaza replacement in order to properly flash the revolving door.
8. Reglaze or replace existing skylights in conjunction with the plaza replacements.

Interior

1. Conduct water testing to determine the potential source(s) of water infiltration at the valleys. Additionally, this will help to determine if some of the water staining may be caused by condensation during the winter.
2. Upon completion of exterior masonry, window, and roof repairs, clean and refinish the wood decking to remove isolated water staining.
3. Upon completion of the exterior repairs, replace or patch cracked drywall.

Roof and Plaza

Based on WJE's limited site observations, the information and data provided regarding the plazas and roof, and discussions with the building engineer, we recommend the following repairs to the roofing and exterior plazas of the Village Hall of Oak Park over the next ten years.

Roof

1. Remove and replace deteriorated wood members at the sunshade with new treated wood. Supplement all existing fasteners with noncorrosive metal fasteners. Some of the sheet metal caps may need to be removed and reinstalled/replaced to facilitate the replacement of the exposed wood rafters.
2. Remove all existing ivy growth at the wood framed sunshade to limit moisture and subsequent further decay of the wood framing.
3. Install lead coated copper patches, soldered to the existing standing seam roofing, at isolated locations with evidence of impact damage at the west side of the upper portion of the sloped roof.
4. Submit a sample of the lead coated copper panels to a laboratory to determine the cause of the red discoloration on the surface of the panels.
5. Remove and replace all sealant at the counterflashing at the brick masonry piers.
6. Repair split solder seams at the roof-to-wall flashing at the base clerestory windows.
7. Remove and replace all sealant at the existing counterflashing at the TPO roofing.
8. Retain a qualified roofing contractor to inspect the hot-air welded seams in the corners of the TPO roofing.

Plaza

1. Conduct an in-depth evaluation of the existing plaza and trench drain to determine cost effective repair/replacement options.
2. WJE anticipates that an in-depth evaluation of the plaza will recommend removing and replacing the existing overburden and waterproofing, and repairs to the existing trench drain. The project will likely including removing the pavers, sand setting bed, and waterproofing to expose the structural slab. The structural slab should be repaired as necessary before installing a new waterproofing membrane system. The existing pavers can be reinstalled or new paving systems can be considered.

Fire Protection and Life Safety

Based on the site visit, the information and data provided for the fire protection/life safety systems, and discussions with the building engineer, the following recommendations are provided to achieve a

reasonable level of life safety. The recommendations are sorted by priority, with Priority 1 being the highest, as follows:

Priority 1

Priority 1 recommendations should be addressed immediately. These recommendations are considered essential with respect to maintaining an acceptable level of life safety and property protection.

1. Remove storage from under all stairs, from within all stair enclosures, and from the basement IT area exit corridor. Maintain egress paths clear of obstructions.
2. Replace door to the elevator machine room with new 1-hour rated, self-closing fire door.
3. Properly firestop all unsealed penetrations in fire-rated walls, including the elevator machine room, generator room, mechanical rooms, storage rooms, and stair enclosures.
4. Remove all wedges and tie-wires holding open fire-rated doors.
5. Based on a posted occupant load of eighty-five for the first floor training room, provide a second means of egress from the space, revise doors to swing in the direction of egress, provide panic hardware for doors if they have latches or locks, and install exit signs over each door. If necessary for the second means of egress, create a new corridor leading to an exit to avoid exiting through an intervening room.
6. Provide a second means of egress from the east cubicle area on the mezzanine level or build a suite wall to limit the dead end to a maximum of 20 feet.
7. Provide illuminated exit signs throughout the facility. Provide a secondary power source for exit signs, either by local battery back-up or by connection to the building's emergency generator. Estimated cost assumes fifty exit signs.
8. Remove storage that is obstructing exit signs. Maintain exit signs in a clear, visible condition.
9. Perform current inspection for the building's elevator and wheel chair lifts, and display the inspection certificates.
10. Install a smoke detector in the first floor elevator lobby that is programmed to initiate automatic elevator recall, similar to other elevator lobby smoke detectors.
11. Perform annual test of the building's fire alarm system as required by NFPA 72 and maintain record of the test. Correct any deficiencies noted during testing.
12. Have a sprinkler contractor review the south parking dry-pipe sprinkler system piping and sprinklers for corrosion. Replace corroded sections of pipe, sprinklers, and hangers where necessary. Test the water supply for MIC. Estimated cost is a budget number assuming some replacement is required, but actual costs cannot be determine until additional inspections and testing are performed.
13. Perform annual inspection of the sprinkler systems as required by NFPA 25 and maintain record of the test. This includes annual test of the anti-freeze system, a full trip-test of the dry-pipe sprinkler system, and an air leakage test of the dry-pipe system piping.
14. Perform annual test of the backflow preventer as required by the Illinois Plumbing Code and maintain record of the test.
15. Mount the fire extinguisher sitting on the floor near the generator room and remove obstructions from the fire extinguisher in the south basement storage room near the sally port.
16. In approximately ten years, perform a representative functional test of the standard-response sprinklers based on an assumed age of forty years, or at that time replace all standard-response sprinklers with new quick-response sprinklers. Estimated cost assumes representative test is performed and the sprinklers pass the test.

Priority 2

Priority 2 recommendations should be addressed in a reasonable amount of time. These recommendations are considered necessary to meet the requirements for fire protection and life safety as provided by the applicable codes.

1. Remove paint from rated door labels. This is a typical condition for most rated doors. If paint cannot be removed, then replace door with new fire-rated doors based on required hourly rating for the fire-rated enclosure, or have the doors field certified. Estimated cost is based on removing paint only.
2. Install visual notification appliances (strobes) in conference and meeting rooms. Estimated cost assumes ten rooms and assumes that sufficient spare capacity is available in the existing fire alarm control panel.
3. Prepare and maintain current as-built drawings of the building fire alarm system as required by NFPA 72.
4. Remove non-sprinkler related wires and other attachments to sprinkler piping in the basement north records room.
5. Provide identification signs for the sprinkler systems and their components. Signs include riser calculation placards, control valve signs, drain valve signs, and auxiliary drain signs.
6. Install missing sprinkler cover plates in the basement.
7. Provide at least one sprinkler of each type installed in the sprinkler systems in the spare sprinkler cabinet.
8. Prepare and maintain current as-built drawings of the building sprinkler systems as required by NFPA 25.

Priority 3

Priority 3 recommendations should be considered long-term (ten year) objectives. These recommendations may not be an immediate risk to life safety, property protection, or continuity of business operations; however, such recommendations are either code recommendations or are considered good engineering practice.

1. Install automatic sprinklers throughout the building to improve the overall life safety for occupants in the building.
2. Replace the anti-freeze sprinkler system with a dry-pipe sprinkler system. Estimated cost is a budget number until the area protected can be confirmed.

Mechanical, Electrical, and Plumbing Systems

Based on dbHMS's limited observations, we recommend the following repairs to the MEP systems of the Oak Park Village Hall.

Electrical

1. The generator batteries must be replaced according to the manufacturer's recommendations and results of regular battery maintenance testing. The lifetime of the battery cells should not exceed an additional ten years.
2. The back of house lighting needs to be upgraded to correct short-circuit problems and issues with lights not working. Areas with lighting circuit issues include but are not limited to: motorcycle storage and the underground parking structure.

3. The exit signs are recommended to be replaced within the next decade with LED exit signs to avoid maintenance on non-LED bulbs.
4. Branch and distribution panel boards that were not replaced within the last ten years or have noticeable damage should be replaced during the next renovation or the next ten years, whichever comes first.
5. UPS system batteries are recommended to be replaced according to the manufacturer's recommendations and results of regular battery maintenance testing.
6. Panel board schedules to be printed and filled out completely with all relevant information for ease of maintenance.

Mechanical

1. S-1 and S-2 air-handling units need to be replaced. The two main air-handling units have outlived their recommended useful life span, and catastrophic failures will begin to occur as the wall casings keep deteriorating.
2. Remove and replace the existing pneumatic control system with a new direct digital control system. This upgrade will provide remote access to monitor and get electronic alarm notifications, provide VFD fan speed controls, and reduce energy consumption.
3. Replace original boilers with a new hot water condensing style boiler plant. Increase energy efficiency to ninety-six percent, provide primary/secondary pumping, and reduce natural gas consumption. It is our understanding per information provided by you, that the design of a new boiler system is underway and funds are budgeted in 2016 for the replacement of both boilers.

Plumbing

1. Replace isolated poorly functioning plumbing fixtures.
2. Schedule existing sump pump system to be replaced within the next three years.
3. Immediately replace existing piping in areas where leaks are occurring, and/or where section loss to due corrosion can be observed. Schedule other areas for replacement under future projects, as budgets allow, to replace all of the domestic piping within the building within the next five years. Waste and vent piping should be good for approximately another ten years.
4. Replace damaged pipe insulation in all areas. If damage is from pipe leaks, replace the piping. If damage is from other sources, replace or repair the source of the damage before replacing the insulation. Initiate an asbestos evaluation by a qualified and licensed remediation agency, prior to removing any insulation that may contain asbestos.
5. Replace existing valves that are showing degradation, such as the incoming water service gave valve. This valve should be replaced with a butterfly valve. Other valves should be butterfly or ball valves.
6. Replace existing water heaters and recirculation pumps. The water heaters were repaired in 2007 but damage to the jacketing was observed. They have exceeded their useful life span and failure is imminent.
7. The existing sewage ejector pit was recently replaced. The pumps appear to be in good operating condition, but should be scheduled for maintenance with a major servicing call within the next five years.
8. The existing waste piping in the garage shows signs of severe corrosion and should be replaced. The structure needs to be sealed in order to prevent re-occurrence.
9. All new work proposed by architectural, structural, fire safety, plumbing, and other trades should include provisions to update any required electrical systems also affected by the proposed work.

PRELIMINARY COST ESTIMATES

General repair methods are included to develop an opinion of estimated costs to correct the deficiencies observed. These methods may or may not be the best method of remediation, and should not be considered as a repair recommendation. All repairs should be designed by a licensed professional. An opinion of probable costs is presented in this report to assist in future budgeting. Costs are given in present-day dollars and are not modified for cost increases in the future. Cost estimates were made by either reference to a standard estimating guide or from experience with costs of similar work. Costs were not obtained from a contractor bidding on a set of repair drawings and specifications and were not made by a professional cost estimator. Competitive bids using a set of repair drawings and specifications should be obtained if more-accurate costs are required. See Appendix A for a summary of estimated costs of conditions observed.

LIMITATION OF PROPERTY CONDITION ASSESSMENTS

It should be understood by the client that the property condition assessment process is a review and not an investigation, thereby limiting the potential to uncover all ailments of the building. Likewise, WJE must rely on information provided by the seller in regards to past water/air leakage issues, past repairs, and recorded documentation and/or testimony. WJE has interviewed the existing management and building personnel made available to us in order to ascertain the past history; however, WJE is not responsible for false testimony provided by the seller's representatives.

FIGURES

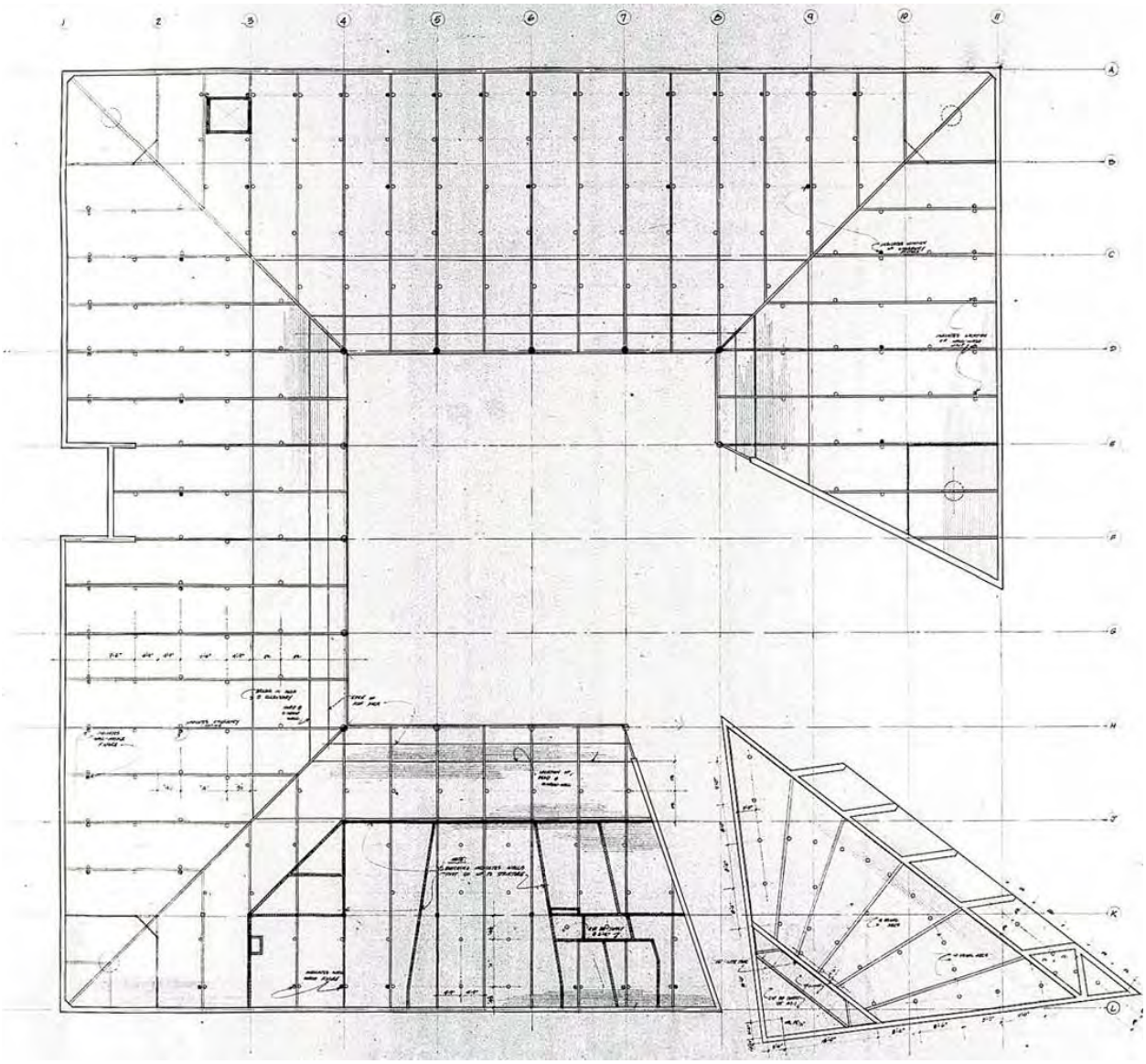

Figure 1. Overall roof plan of the building. The plan is oriented such that North is to the right. The Council Chambers Annex is triangular plan at the lower right portion of the plan.

Figure 2. Overall view of east facade of Council Chambers Annex

Figure 3. View of north facade of council Chambers Annex with ramped walkway

Figure 4. Overall view of north facade

Figure 5. View of west facade

Figure 6. View of entrance canopy at south facade

Figure 7. Overall view of east half of south facade

Figure 8. View of west half of south facade

Figure 9. Overall view of east facade

Figure 10. View of north end of east facade

Figure 11. View of interior looking up at mezzanine

Figure 12. View of interior looking down from mezzanine

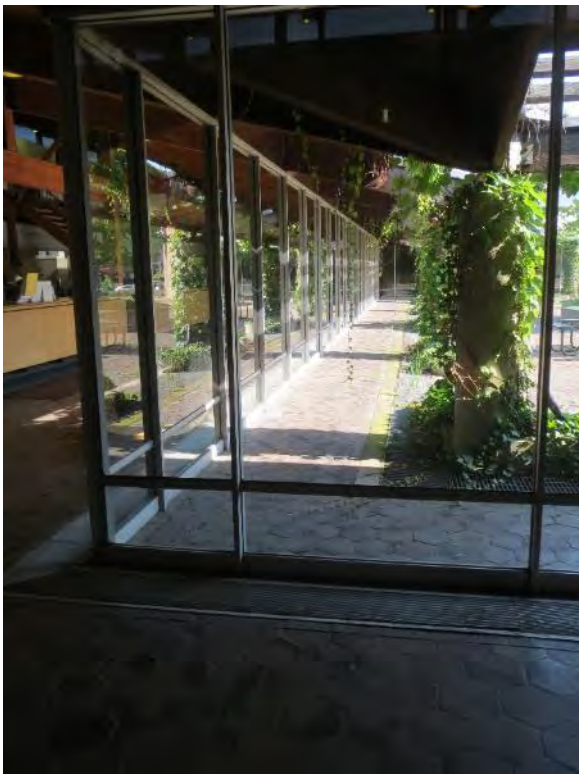

Figure 13. View of curtain wall at plaza level

Figure 14. Overall view of roof and elevated plaza

Figure 15. Overall view of roof and elevated plaza

Figure 16. View lower and upper sloped roofs and clerestory windows

Figure 17. View north end of elevated plaza

Figure 18. Typical view of elevated plaza with concrete walkways and planters

Figure 19. View of wood framed sunshade over window wall at plaza level

Figure 20. View of window wall, built-in gutters at plaza

Figure 21. Close up view of brick at steel shelf angle. Note the flashing on the shelf angle.

Figure 22. View of ivy on east facade

Figure 23. Close up view of ivy at north facade

Figure 24. View of extensive ivy growth at west facade

Figure 25. View of cracked and debonded mortar joints at the masonry piers at the north and east ends of the clerestory windows

Figure 26. View of cracked and debonded mortar joints at the masonry piers at the north and east ends of the clerestory windows

Figure 27. Counterflashing/ roof termination at the masonry piers and the top of the clerestory windows

Figure 28. Voids exist between the top of the masonry pier and the roofing termination

Figure 29. Typical cracked and debonded mortar joints

Figure 30. Typical cracked and debonded mortar joints

Figure 31. Typical cracked and debonded mortar joints

Figure 32. Face spalling of brick masonry above the shelf angle at the east end of the south facade

Figure 33. Crack at concrete foundation wall at the intersection of the base of the ramp

Figure 34. Moisture, biological growth and efflorescence at the crack at the concrete foundation wall

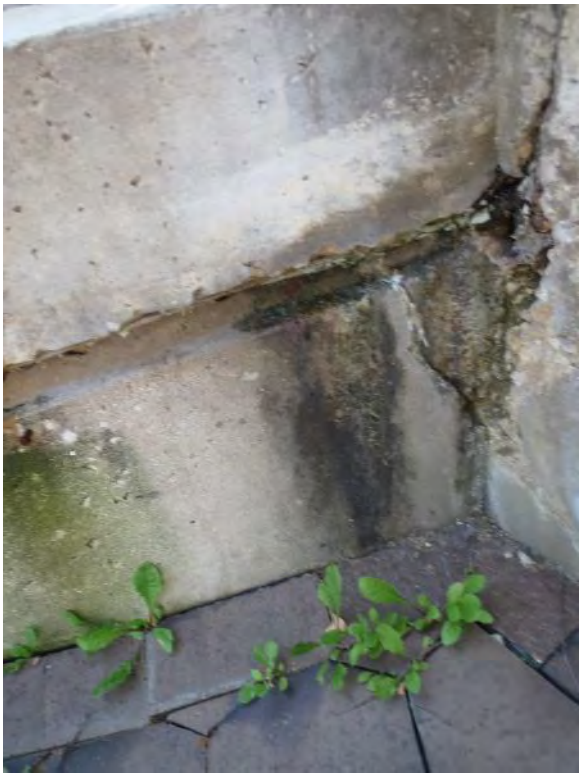

Figure 35. Moisture, biological growth and efflorescence at the crack at the concrete foundation wall

Figure 36. View of efflorescence at the brick cladding at the edge of the elevated plaza level

Figure 37. View of efflorescence at the brick cladding at the edge of the elevated plaza level

Figure 38. Spalled brick at base of masonry pier near elevated plaza level

Figure 39. Moisture and efflorescence at the masonry cladding of the elevated plaza below the concrete stairs

Figure 40. Corrosion scaling at the metal panning of the stairs between the elevated plaza level and the original reflecting pool plaza area

Figure 41. Spalling and efflorescence at steel angle at concrete beam at the ramped walkway

Figure 42. Overall view of elevated entrance platform at south facade

Figure 43. View of incipient spalls and corrosion of steel reinforcing bars at underside of the slab elevated entrance bridge at south facade

Figure 44. View of deteriorated traffic coating at the top side of the slab at the entrance bridge

Figure 45. View of incipient spalls and corrosion of steel support at underside of the slab elevated ramped walkway at the Council Chambers Annex

Figure 46. Surface corrosion at the painted steel tube connecting link between the council chambers annex and the main Village Hall building

Figure 47. View of typical crazed sealant at window and door perimeters

Figure 48. View of missing sealant at door perimeter on east facade

Figure 49. View of clerestory windows

Figure 50. Significantly crazed sealant at the base of the clerestory windows

Figure 51. Deteriorated and debonded gaskets at the clerestory windows

Figure 52. Crazed sealant at counterflashing at the base of the clerestory windows and deteriorated gaskets/wet seals at the metal to glass joints at the clerestory windows at a valley location

Figure 53. Missing fasteners and severely debonded sealant at the counterflashing at the base of the clerestory windows

Figure 54. Missing sealant in the joint between base of window wall and pavers

Figure 55. Missing fillet sealant in the joint between base of window wall and pavers. Note the significant organic growth and efflorescence.

Figure 56. Missing fillet sealant in the joint between base of window wall and pavers. Note the significant organic growth and efflorescence.

Figure 57. Deteriorated sealant at the joint between the concrete curb and the base of revolving door. Note displacement of pavers and organic growth at pavers at revolving door curb.

Figure 58. Sealant has been smeared over the face of the skylight. Debonded sealant in the joint between the concrete curb and the base of the skylight. Note displacement of pavers and organic growth at pavers at skylight.

Figure 59. Deteriorated sealant at the joint between the concrete curb and the base of skylight. Note displacement of pavers and organic growth at pavers at skylight.

Figure 60. Efflorescence, surface corrosion and staining at base of storefront at south entrance

Figure 61. Water staining at underside of wood deck at the valley member above the window wall

Figure 62. Water staining at underside of wood deck at typical rafters above the window wall

Figure 63. Water staining at the valley member above the window wall. Previous water infiltration has been reported at the valley members.

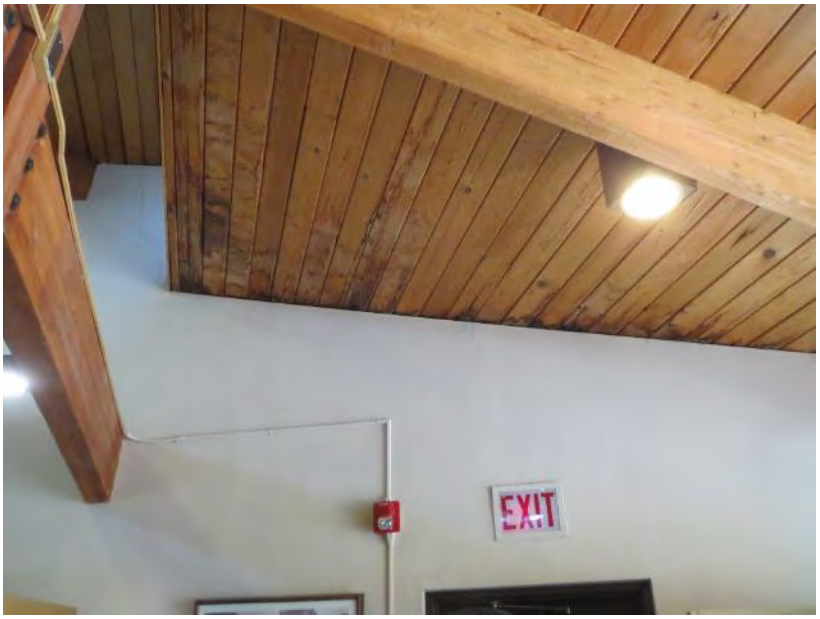

Figure 64. Water staining at the wood deck above the drywall at the east wall at the north portion of the building. This is coincident with a location of previous leaks.

Figure 65. Water staining at the wood decking under the clerestory windows at the east side of the plaza

Figure 66. Cracked drywall finishes at the southwest corner of the building

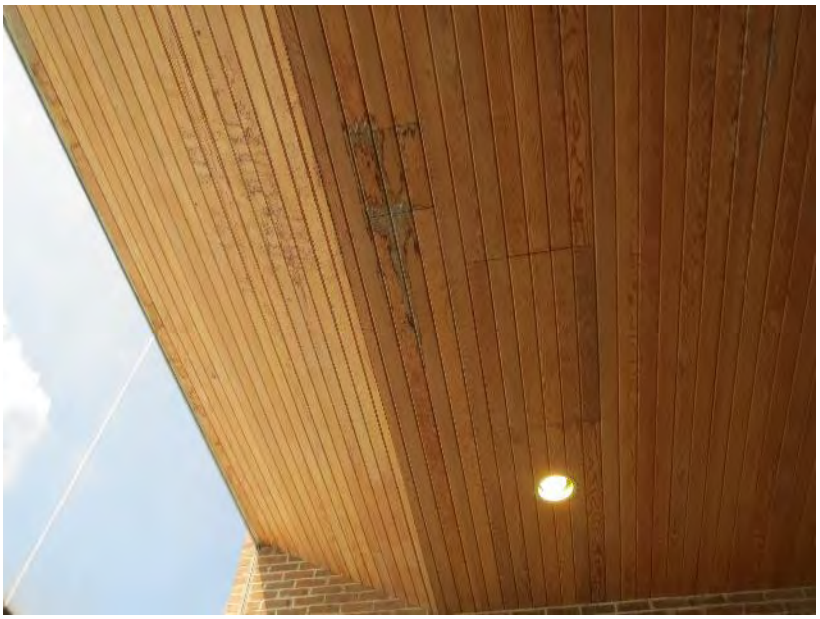

Figure 67. Water staining at the underside of wood decking below the flat roof portion of the building above the south entrance

Figure 68. Overall view of the low slope standing seam metal roof and clerestory windows at the main building

Figure 69. Close up view of the low slope upper standing seam metal roof

Figure 70. View of the standing seam metal roof and skylight above the Council Chambers Annex

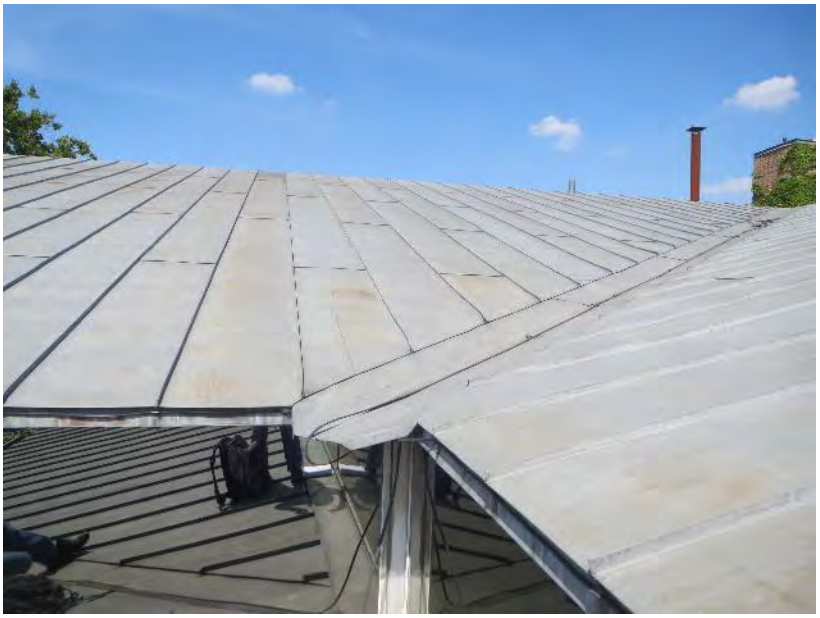

Figure 71. Close up view of typical valley configuration of the upper low slope roof above the clerestory windows

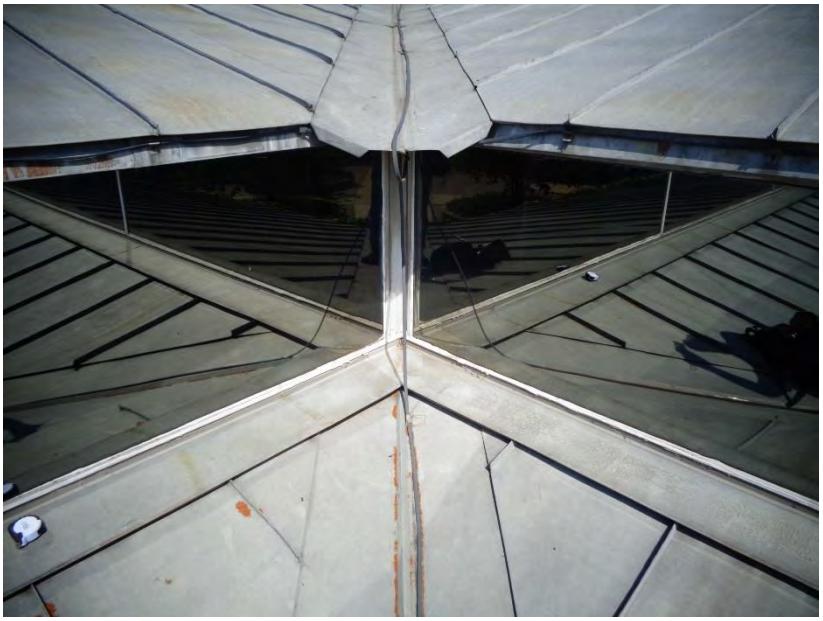

Figure 72. View of valley configuration at lower and upper low slope roofs

Figure 73. Bands of red discoloration on the surface of the standing seam panels on the upper roof on the east side of the building

Figure 74. Consistently discolored panels at the north end of the upper roof on the east side of the building and on the Council Chamber annex (background)

Figure 75. Typical impact damage at sheet metal roofing

Figure 76. Small hole (approximately 1/2 inch) diameter at the west portion of the sheet metal roofing

Figure 77. Vent stack flashing

Figure 78. Flat portion of upper standing seam roofing over the exterior walls

Figure 79. Sheet metal patch on cut standing seam at transition from slope to flat surface

Figure 80. Close-up of cut and folded standing seam at the top of the upper roof level

Figure 81. Close up of edge metal above top of clerestory windows

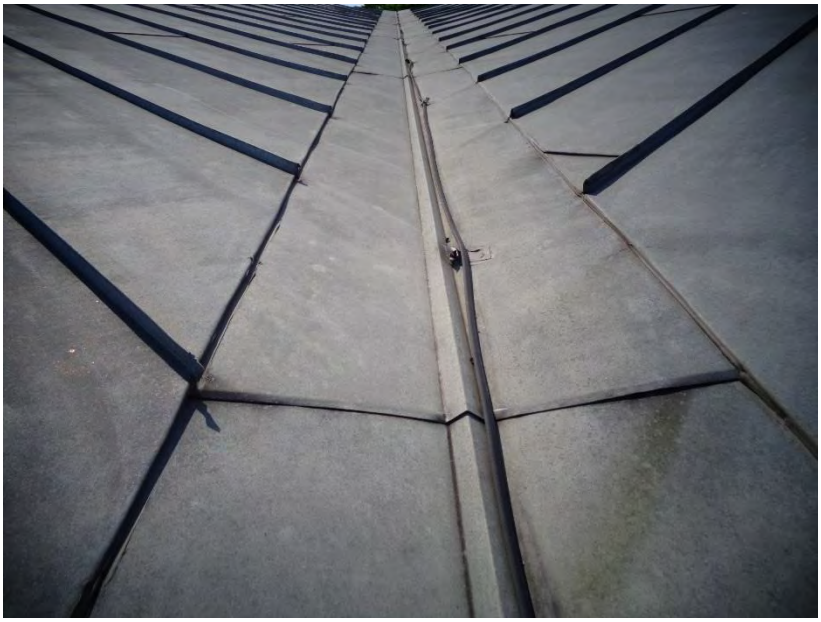

Figure 82. Close-up of sheet metal valley

Figure 83. Valley metal sheets were installed with 8 inch laps

Figure 84. Measuring tape inserted into 8 inch transvers seam in the valley metal

Figure 85. Roof-to-wall sheet metal flashing at the base of the clerestory

Figure 86. Cracked/split solder seam at roof-to-wall flashing which has been previously sealed

Figure 87. Debonded, crazed and split sealant at the roof counterflashing at the base of the masonry pier

Figure 88. Water and debris were typically observed under the roof-to-wall closer at the top of the valleys

Figure 89. The valleys extend into sheet metal pans to carry the runoff water past the wood trellis

Figure 90. Soldered slits in standing seam panels around the pans at the ends of the valleys are typically cracked

Figure 91. Rake-style edge metal at end wall

Figure 92. The end rafter of the wood sunshade is not adequately fastened and has displaced.

Figure 93. View of low slop roof edge and wood framed sunshade. Note how some of the wood framing is clad with sheet metal and significant vine growth.

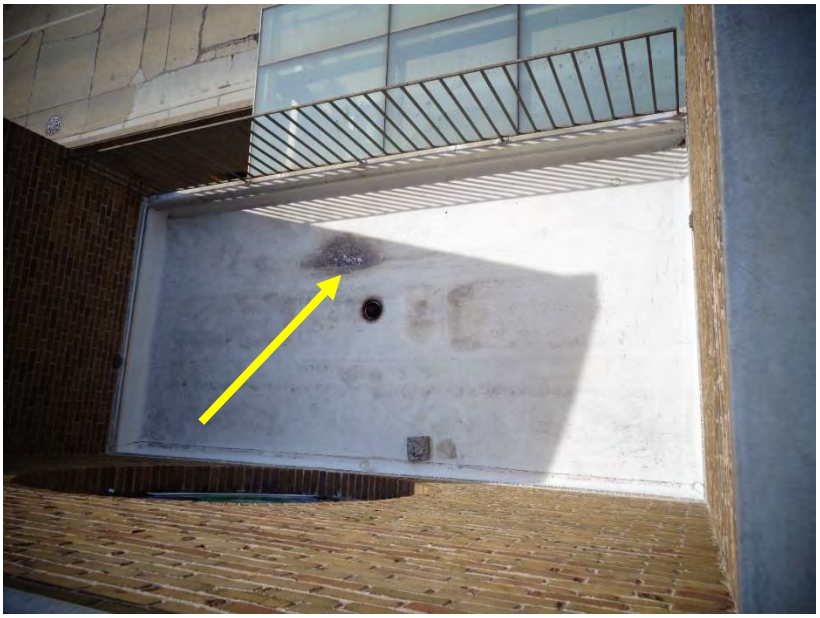

Figure 94. Algae growth and dirt accumulations indicate that water ponds in isolated areas on the roof over the south entrance

Figure 95. Standing water at gutter between the building wall at the glass canopy above the south entrance walkway

Figure 96. View displaced pavers at area drain

Figure 97. Displaced pavers and organic growth at joints between pavers near revolving door at south portion of plaza

Figure 98. Displacement of pavers at concrete curb at revolving door at south side of plaza

Figure 99. Overall view perimeter gutter at plaza. Note the organic growth at the concrete gutter structure and ivy at the sunshade support structure.

Figure 100. Efflorescence at joints between pavers at the window wall side of the gutter

Figure 101. Close up view of perimeter gutter at elevated plaza level

Figure 102. Close up view of open vertical solder seam in gutter liner. Note the plant growth and significant debris.

Figure 103. Close up view of open horizontal lap seam in gutter liner. Note the plant growth and significant debris.

Figure 104. First floor and mezzanine level

Figure 105. Typical unenclosed stair from mezzanine to first floor

Figure 106. South unenclosed stair to exterior

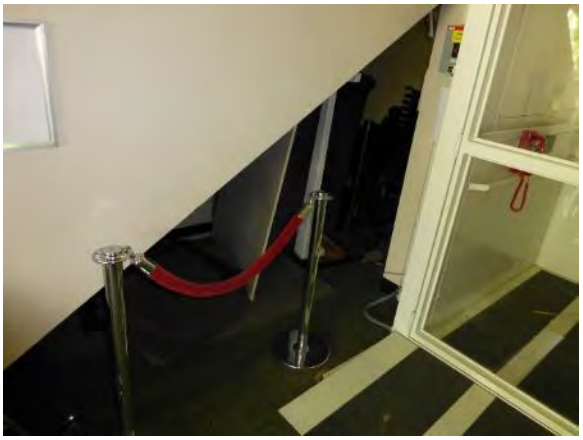

Figure 107. Storage under east stair to mezzanine

Figure 108. Painted door label in secure police area fire-rated enclosure

Figure 109. Storage in elevator machine room

Figure 110. Unsealed penetration in mechanical room

Figure 111. Unsealed penetrations in generator room

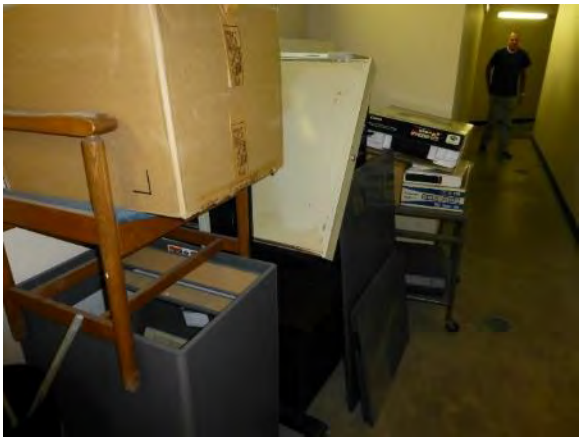

Figure 112. Storage in east stair enclosure

Figure 113. First floor training room exit door

Figure 114. Typical evacuation plan sign

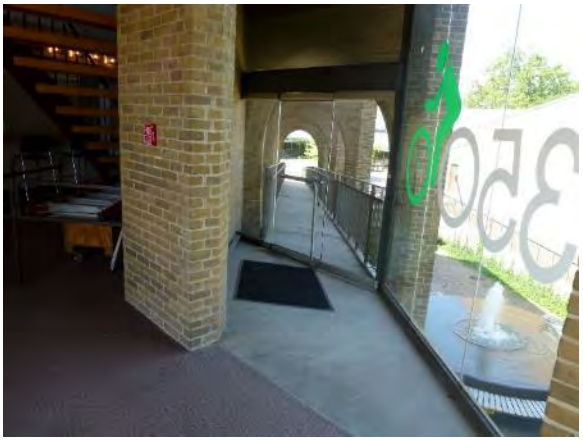

Figure 115. North stair door from annex area

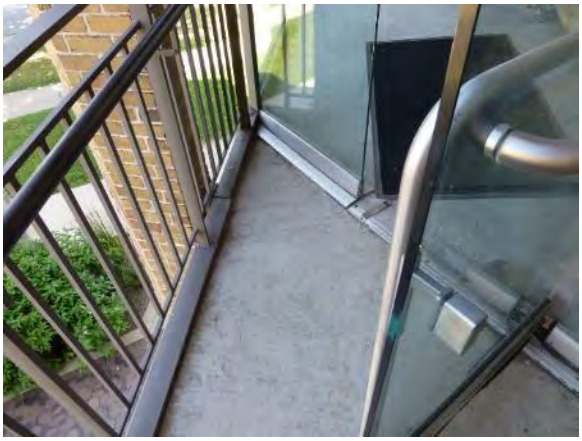

Figure 116. North stair door from annex in fully opened position

Figure 117. Non-illuminated exit sign

Figure 118. Exit sign obstructed by storage

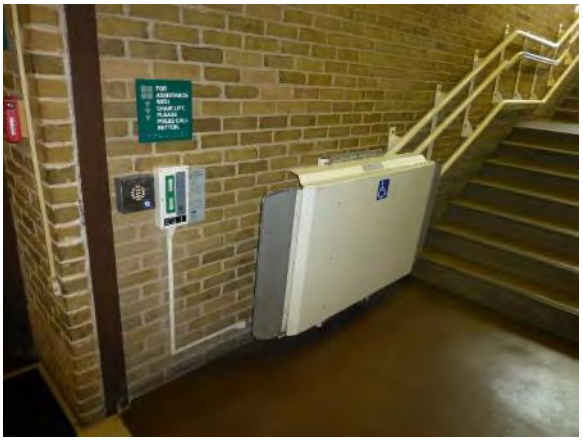

Figure 119. Wheel chair lift

Figure 120. Fire alarm control panel in south lobby

Figure 121. Beam-type smoke detectors

Figure 122. Wet-pipe sprinkler system riser

Figure 123. Dry-pipe sprinkler system riser

Figure 124. Sprinkler and piping with corrosion in south garage dry-pipe sprinkler system

Figure 125. Anti-freeze sprinkler system

Figure 126. Spare sprinkler cabinet

Figure 127. Concealed sprinkler without concealed cover plate

Figure 128. Fire extinguisher with current inspection tag

Figure 129. Fire extinguisher on floor outside generator room

Figure 130. Emergency generator

Figure 131. Close up view of generator batteries

Figure 132. Motorcycle storage lighting (not functioning)

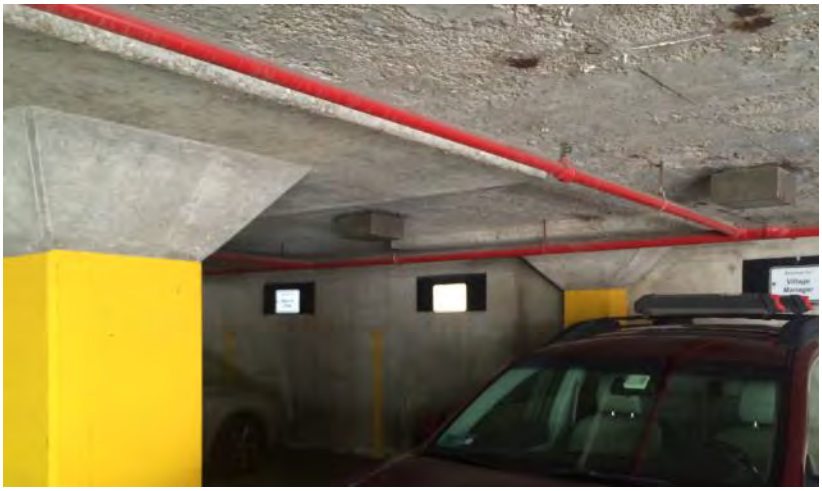

Figure 133. Underground parking structure lighting (not functioning)

Figure 134. Underground parking structure lighting conduits (damaged)

Figure 135. Exit signs and fire alarm notifiers (typical)

Figure 136. Branch panel boards (reaching limit of serviceable lifetime)

Figure 137. UPS batteries to be maintained or replaced regularly according to manufacturer's recommendations.

Figure 138. Panel schedules missing

Figure 139. S-1 chilled water coil section and condensate drain (un-trapped)

Figure 140. S-2 chilled water coil section and condensate drain

Figure 141. View of air handling units

Figure 142. View of air handling units

Figure 143. View of air handling units

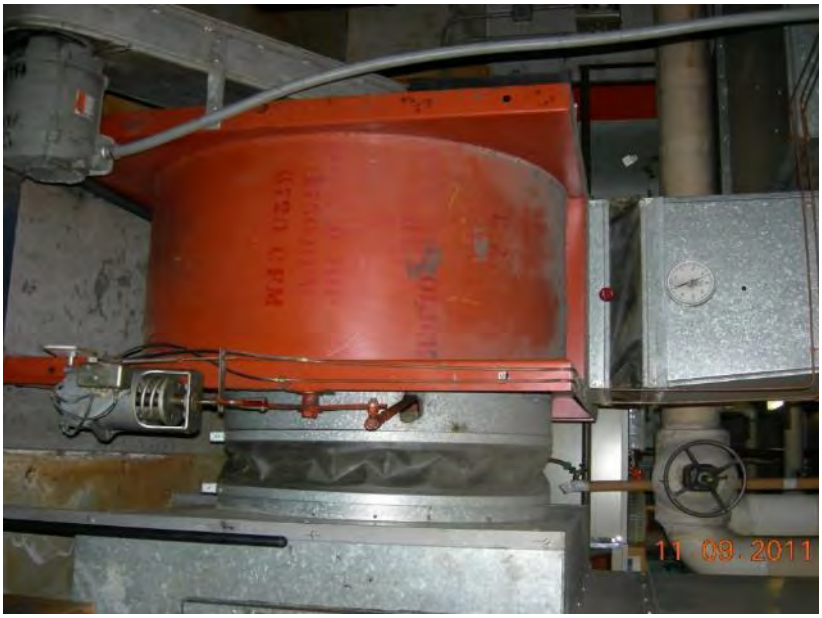

Figure 144. Typical pneumatic actuated return/exhaust fan damper

Figure 145. S-6 geothermal vault mounted heat pump

Figure 146. Existing sump pump system

Figure 147. Sewage ejector pumps

Figure 148. Pipe corrosion

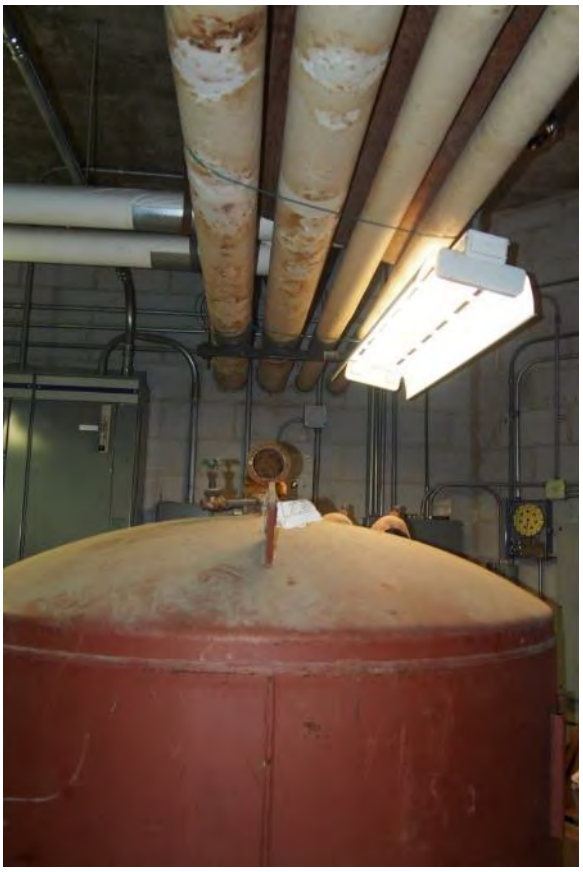

Figure 149. Pipe corrosion and deterioration of insulation

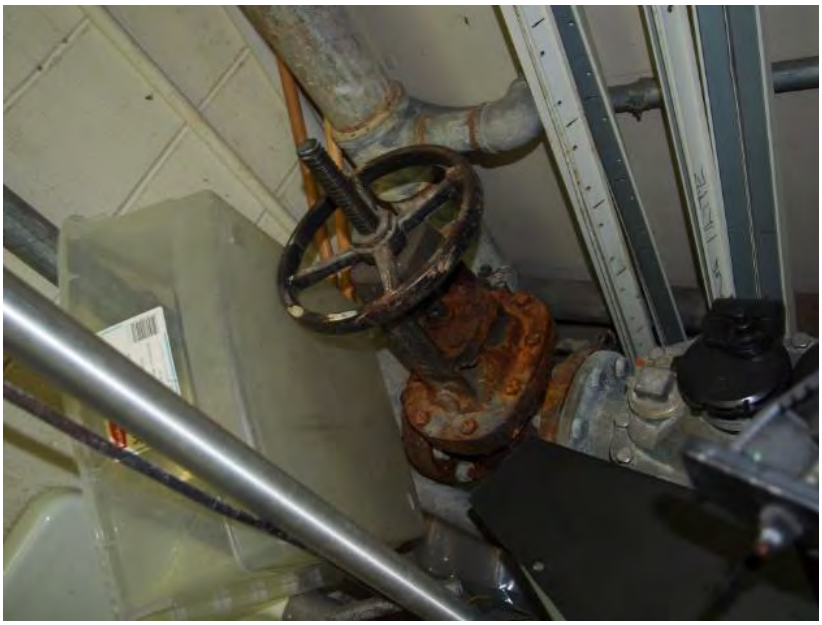

Figure 150. Pipe corrosion at incoming service

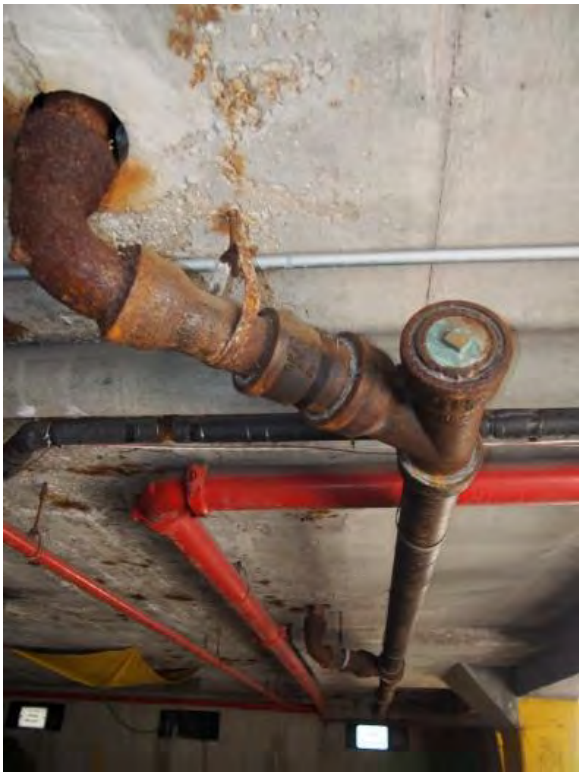

Figure 151. Corrosion of waste piping at garage ceiling

Figure 152. Close up view of existing water heaters

Figure 153. Existing sink at finger printing

Figure 154. Existing sink at finger printing

APPENDIX A - ESTIMATED COSTS OF CONDITIONS OBSERVED

CAPITAL RESERVE ANALYSIS
Oak Park Village Hall
123 Madison Street, Oak Park, Illinois 60304

Rpt. Sect. No.	Property Component	Immediate Repairs (1)	Units	Unit Cost ($)	Quantity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Future Total (Y1-Y10)	Future Plus Immediate	Suggested Upgrades (Optional)(2)
	MASONRY/CONCRETE																	
E1.1	Remove portion of ivy and conduct an assessment of exterior brick masonry.	$ 15,000	ALLOWANCE	$ 15,000	1											$0	$15,000	
E1.2	Grind and point 100 PERCENT OF MORTAR JOINTS that exist throughout the brick masonry at the main building.		SQ FT	$ 15.00	15000			$75,000			$75,000			$75,000		$225,000	$225,000	
E1.3	Install flashing at the top of the cavity at the return ends of the north and east facades.	$ 2,000	ALLOWANCE	$ 1,000.00	2											$0	$2,000	
E1.4	Grind and point 100 PERCENT OF MORTAR JOINTS that exist throughout the brick masonry at the Council Chambers annex and elevated plaza.		SQ FT	$ 15.00	5000				$37,500			$37,500		$75,000		$150,000	$150,000	
E1.5	Remove and replace isolated spalled bricks at the base of east corner above the galvanized shelf angle of the south facade.		SQ FT	$ 110.00	50					$5,500						$5,500	$5,500	
E1.6	Epoxy inject concrete beam at the base of the cavity wall at the intersection of the building with the ramped walkway to the plaza level.	$ 2,500	ALLOWANCE	$ 2,500.00	1											$0	$2,500	
E1.7	Remove and replace cracked and spalled brick cladding at the raised edge of the plaza level at the intersection with the ramped walkway.		SQ FT	$ 110.00	100					$11,000						$11,000	$11,000	
E1.8	Rebuild brick veneer at vertical crack at southwest corner of building.		SQ FT	$ 110.00	100			$11,000								$11,000	$11,000	
E1.9	Clean and paint all exposed portions of the metal pan stairs and exposed metal on the elevated walkway.		ALLOWANCE	$ 5,000.00	1	$5,000										$5,000	$5,000	
E1.10	Rout and seal minor cracks at concrete treads at metal pan stairs.		ALLOWANCE	$ 1,000.00	1	$1,000										$1,000	$1,000	
E1.11	Remove existing sealant at all vertical expansion joints. Install backer rod and sealant at all vertical expansion joints.		LN FT	$ 15.00	1500						$22,500					$22,500	$22,500	
E1.12	Install proper edge flashing systems as part of the plaza replacement to limit water migration through the brick masonry veneer.		ALLOWANCE	$ 10,000.00	1		$10,000									$10,000	$10,000	
E1.13	Perform concrete patching repairs of exposed beams at elevated plaza level.		ALLOWANCE	$ 5,000.00	1		$5,000									$5,000	$5,000	
E1.14	Repair concrete and steel at underside of the elevated walkway between the plaza and Council Chambers annex.	$ 10,000.00	ALLOWANCE	$ 10,000.00	1											$0	$10,000	
E1.15	Clean and paint the metal tube hallway connection between the main building and the Council Chambers annex.		ALLOWANCE	$ 7,500.00	1					$7,500						$7,500	$7,500	
	SUBTOTAL MASONRY/CONCRETE REPAIRS	$ 29,500	$ -	$ 57,375	$ 21,760	$6,000	$15,000	$86,000	$37,500	$24,000	$97,500	$37,500	$0	$150,000	$0	$453,500	$483,000	
	WINDOW REPAIRS																	
W2.0	Conduct an evaluation to determine potential condensation sources at the window wall to determine if window replacement is a viable option.	$ 7,500.00	ALLOWANCE														$7,500	
W2.1	Remove and replace all backer rod and sealant at all window perimeters.		LN FT	$ 15.00	1000			$15,000			$15,000			$15,000		$45,000	$45,000	
W2.2	As necessary, replace IGUs that have failed seals or cracked/ broken glass.		ALLOWANCE	$ 1,500.00	1	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500		$0	
W2.3A	Remove and replace all glass, gaskets, and perimeter sealant at existing clerestory windows (plaza side and exterior perimeter).		ALLOWANCE	$ 250.00	1000	$250,000										$250,000	$250,000	
W2.3B	Wet seal all existing clerestory windows (plaza side and exterior perimeter) and replace perimeter sealant.		LN FT	$ 12.00	4000	$48,000											$0	ALTERNATE
W2.4	Install new base flashing at the window wall and install backer rod and sealant between the aluminum framing of the window wall. This should happen concurrent with plaza replacement.		LN FT	$ 25.00	400		$10,000									$10,000	$10,000	
W2.5A	Remove and replace all glass, gaskets and perimeter sealant at existing window wall at plaza level.		ALLOWANCE	$ 300.00	400		$120,000									$120,000	$120,000	
W2.5B	Wet seal all joints at the existing window wall and replace perimeter sealant.		LN FT	$ 12.00	2400		$28,800										$0	ALTERNATE
W2.6	Remove and reset or replace the revolving door as part of the plaza replacement to properly flash the revolving door.		ALLOWANCE	$ 10,000.00	1		$10,000									$10,000	$10,000	
W2.7	Replace existing skylights in conjunction with the plaza replacement.		ALLOWANCE	$ 5,000.00	2		$10,000									$10,000	$10,000	
	SUBTOTAL WINDOW REPAIRS	$7,500				$251,500	$151,500	$16,500	$1,500	$1,500	$16,500	$1,500	$1,500	$16,500	$1,500	$445,000	$452,500	

Rpt. Sect. No.	Property Component	Immediate Repairs (1)	Units	Unit Cost ($)	Quantity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Future Total (Y1-Y10)	Future Plus Immediate	Suggested Upgrades (Optional)(2)
	INTERIOR																	
I3.1	Conduct water testing to determine the potential source(s) of water infiltration at the valleys. Additionally, this will help to determine if some of the water staining may be caused by condensation during the winter.	$ 7,500.00	ALLOWANCE	$ 7,500.00	1											$0	$7,500	
I3.2	Upon completion of exterior masonry, window, and roof repairs, clean and refinish wood decking to remove isolated water staining.		ALLOWANCE	$ 5,000.00	1					$5,000					$5,000	$5,000	$5,000	
I3.3	Upon completion of the exterior repairs, replace or patch cracked drywall.		ALLOWANCE	$ 1,500.00	1					$1,500						$1,500	$1,500	
	SUBTOTAL INTERIOR REPAIRS	$ 7,500.00	$ -	$ 14,000.00	$ 3.00	$ -	$ -	$ -	$ -	$ 6,500.00	$ -	$ -	$ -	$ -	$ 5,000.00	$ 6,500.00	$ 14,000.00	
	ROOFING REPAIRS																	
R4.1	Remove and replace deteriorated wood members at the sunshade with new treated wood. Install new stainless steel fasteners.		ALLOWANCE	$ 10,000.00	1	$10,000										$10,000	$10,000	
R4.2	Remove all existing ivy growth at the wood framed sunshade.		ALLOWANCE	Included Above	1											$0	Included Above	
R4.3	Install lead coated copper patches, soldered to existing standing seam roofing at isolated locations with evidence of impact damage.		ALLOWANCE	$ 3,000.00		$3,000		$3,000		$3,000		$3,000		$3,000		$15,000	$15,000	
R4.4	Submit a sample of the lead coated copper panels to a laboratory to determine the cause of the red discoloration on the surface of the panels		ALLOWANCE	$ 5,000.00													$5,000	
R4.5	Remove and replace all sealant at the counterflashing at the brick masonry piers.		LN FT	$ 15.00	1500	$22,500										$22,500	$22,500	
R4.6	Repair split solder seams at the counterflashing at the base clerestory windows.		ALLOWANCE	$ 5,000.00		$5,000				$5,000				$5,000		$15,000	$15,000	
R4.7	Replace sealant at counterflashing around guardrail posts.		ALLOWANCE	$ 15.00	100			$1,500								$1,500	$1,500	
R4.8	Retain a qualified roofing contractor to inspect the hot-air welded seams in the corners of the TPO roofing.	2500	ALLOWANCE	Included Above								$0				$0	Included Above	
	SUBTOTAL ROOFING REPAIRS	$ 2,500				$40,500	$0	$4,500	$0	$8,000	$0	$3,000	$0	$8,000	$0	$64,000	$69,000	$ -
	PLAZA REPAIRS																	
P5.1	Conduct an evaluation of the existing plaza and trench drain, including inspection openings, water testing, recommendation of repair options.	$ 15,000	ALLOWANCE	$ 15,000	1											$ -	$ 15,000.00	
P5.2	Remove the pavers, sand setting bed, and waterproofing to expose the structural slab. Repair the structural slab as necessary. Install a new waterproofing system. Reinstall the existing pavers on a new sand setting bed or consider new paving systems.		SQ FT	$ 55.00	10000		$ 550,000.00									$ 550,000.00	$ 550,000.00	
	SUBTOTAL PLAZA REPAIRS	$ 15,000	$ -			$ -	$ 550,000	$ -	$ -	$ -	$ -		$ -	$ -	$ -	$ 550,000	$565,000.00	
	FIRE PROTECTION																	
F1.1	Remove storage from under all stairs, from within all stair enclosures, and from the basement IT area exit corridor. Maintain egress paths clear of obstructions.	O&M	O&M													$0	**O&M**	
F1.2	Replace door to the elevator machine room with new 1-hour rated, self-closing fire door.	$500	Each	$500	1											$0	**$500**	
F1.3	Properly firestop all unsealed penetrations in fire-rated walls, including the elevator machine room, generator room, mechanical rooms, storage rooms, and stair enclosures.	$2,500	Allowance	$2,500	1											$0	**$2,500**	
F1.4	Remove all wedges and tie-wires holding open fire-rated doors.	O&M	O&M													$0	**O&M**	
F1.5	Based on a posted occupant load of eighty-five for the first floor training room, provide a second means of egress from the space, revise doors to swing in the direction of egress, provide panic hardware for doors if they have latches or locks, and install exit signs over each door. If necessary for the second means of egress, create a new corridor leading to an exit to avoid exiting through an intervening room.	$5,000	Allowance	$5,000	1											$0	**$5,000**	
F1.6	Provide a second means of egress from the east cubicle area on the mezzanine level or build a suite wall to limit the dead end to a maximum of 20 feet.	$2,500	Allowance	$2,500	1											$0	**$2,500**	

Rpt. Sect. No.	Property Component	Immediate Repairs (1)	Units	Unit Cost ($)	Quantity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Future Total (Y1-Y10)	Future Plus Immediate	Suggested Upgrades (Optional)(2)
F1.7	Provide illuminated exit signs throughout the facility. Provide a secondary power source for exit signs, either by local battery back-up or by connection to the building's emergency generator. Estimated cost assumes fifty exit signs.	$25,000	Each	$500	50											$0	**$25,000**	
F1.8	Remove storage obstructing exit signs. Maintain exit signs in a clear, visible condition.	O&M	O&M													$0	**O&M**	
F1.9	Perform current inspection for the building's elevator and wheel chair lifts, and display the inspection certificates.	$3,000	Allowance	$3,000	1											$0	**$3,000**	
F1.10	Install smoke detector in first floor elevator lobby which is programmed to initiate automatic elevator recall similar to other elevator lobby smoke detectors.	$500	Each	$500	1											$0	**$500**	
F1.11	Perform annual test of the building's fire alarm system as required by NFPA 72 and maintain record of the test. Correct any deficiencies noted during testing.	$1,000	Allowance	$1,000	1											$0	**$1,000**	
F1.12	Have a sprinkler contractor review the south parking dry-pipe sprinkler system piping and sprinklers for corrosion. Replace corroded sections of pipe, sprinklers, and hangers where necessary. Test the water supply for MIC. Estimated cost is a budget number assuming some replacement required, but actual costs cannot be determine until additional inspections and testing are performed.	$5,000	Allowance	$5,000	1											$0	**$5,000**	
F1.13	Perform annual inspection of the sprinkler systems as required by NFPA 25 and maintain record of the test. This includes an annual test of the anti-freeze system, a full trip-test of the dry-pipe sprinkler system, and an air leakage test of the dry-pipe system piping.	$2,500	Allowance	$2,500	1											$0	**$2,500**	
F1.14	Perform annual test of the backflow preventer as required by the Illinois Plumbing Code and maintain record of the test.	$1,000	Allowance	$1,000	1											$0	**$1,000**	
F1.15	Mount fire extinguisher sitting on the floor near the generator room and remove obstructions from fire extinguisher in the south basement storage room near the sally port.	O&M	O&M													$0	**O&M**	
F1.16	In approximately ten years, perform a representative functional test of standard-response sprinklers based on an assumed age of forty years, or at that time replace all standard-response sprinklers with new quick-response sprinklers. Estimated cost assumes that a representative test is performed and the sprinklers pass the test.	$2,500	Allowance	$2,500	1											$0	**$2,500**	
F2.1	Remove paint from rated door labels. This is a typical condition for most rated doors. If paint cannot be removed, then replace door with new fire-rated doors based on required hourly rating for the fire-rated enclosure, or have the doors field certified. Estimated cost is based on removing paint only.		O&M			O&M										$0	**O&M**	
F2.2	Install visual notification appliances (strobes) in conference and meeting rooms. Estimated cost assumes ten rooms and assumes sufficient spare capacity is available in the existing fire alarm control panel.		Each	$500	10	$5,000										$5,000	**$5,000**	
F2.3	Prepare and maintain current as-built drawings of the building fire alarm system as required by NFPA 72.		Allowance	$1,500	1	$1,500										$1,500	**$1,500**	
F2.4	Remove non-sprinkler related wires and other attachments to sprinkler piping in the basement north records room.		O&M			O&M										$0	**O&M**	
F2.5	Provide identification signs for the sprinkler systems and their components. Signs include riser calculation placards, control valve signs, drain valve signs, and auxiliary drain signs.		Allowance	$2,500	1	$2,500										$2,500	**$2,500**	
F2.6	Install missing sprinkler cover plates in the basement.		Each	$100	10	$1,000										$1,000	**$1,000**	
F2.7	Provide at least one sprinkler of each type installed in the sprinkler systems in the spare sprinkler cabinet.		Allowance	$500	1	$500										$500	**$500**	
F2.8	Prepare and maintain current as-built drawings of the building sprinkler systems as required by NFPA 25.		Allowance	$1,500	1	$1,500										$1,500	**$1,500**	

Rpt. Sect. No.	Property Component	Immediate Repairs (1)	Units	Unit Cost ($)	Quantity	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Future Total (Y1-Y10)	Future Plus Immediate	Suggested Upgrades (Optional)(2)
F3.1	Install automatic sprinklers throughout the building to improve the overall life safety for occupants in the building.		Allowance	$100,000	1					$100,000						$100,000	**$100,000**	
F3.2	Replace the anti-freeze sprinkler system with a dry-pipe sprinkler system. Estimated cost is a budget number until area protected can be confirmed.		Allowance	$20,000	1			$20,000								$20,000	**$20,000**	
	SUBTOTAL FIRE PROTECTION	$51,000				$12,000	$0	$20,000	$0	$100,000	$0	$0	$0	$0	$0	$132,000	**$183,000**	**$0**
	MEP REPAIRS																	
E.1	Generator batteries		2	$500	1							$1,000				$1,000	**$1,000**	
E.2	Back of house lighting short circuits (parking structure)		1	$20,000	1	$20,000										$20,000	**$20,000**	
E.3	Exit sign updates		30	$500	1											$0	**$0**	$15,000
E.4	Distribution panel updates		5	$10,000	1											$0	**$0**	$50,000
E.5	UPS batteries		10	$500	1										$5,000	$5,000	**$5,000**	
E.6	Panel schedules		NA	NA	1											$0	**$0**	
P.1	Plumbing fixtures		20 (EST)	$2,000												$0	**$0**	
P.2	Sump pump system		1	$10,000												$0	**$0**	
P.3	Water piping		1	$40,000												$0	**$0**	
P.4	Waste and vent piping		1	$40,000												$0	**$0**	
P.5	Damaged pipe insulation in all areas	$20,000	NA	$20,000												$0	**$20,000**	$0
P.6	Valves that are showing degradation	$10,000	NA	$10,000												$0	**$10,000**	
P.7	Water heaters and recirculation pumps	$5,000	2	$5,000												$0	**$5,000**	
P.8	Sewage ejector pump system		1	$5,000												$0	**$0**	
P.9	Waste piping in the garage	$10,000	1	$10,000												$0	**$10,000**	
M.1.14	S-1 AHU removal and replacement	$3,000	1	$88,000	1			$176,000								$176,000	**$179,000**	
M.1.15	S-2 AHU removal and replacement	$3,000	1	$17,500	1			$35,000								$35,000	**$38,000**	
M.1.16	S-3 AHU removal and replacement		1	$8,500	1					$20,000						$20,000	**$20,000**	
M.1.17	S-4 AHU removal and replacement		1	$4,000	1					$10,000						$10,000	**$10,000**	
M.1.18	S-5 AHU removal and replacement		1	$20,000	1										$45,000	$45,000	**$45,000**	
M.1.19	Remove and replace existing B-1, B-2, & HW pumps.		2	$27,500	2					$95,000						$95,000	**$95,000**	
M.1.20	Upgrade controls from pneumatic to digital.		1	$300,000	1				$300,000							$300,000	**$300,000**	
	SUBTOTAL MEP REPAIRS	$51,000														$681,000	**$732,000**	$65,000

Notes:
(1) "Immediate Repairs" column is intended to capture immediate needs, as compared to "Capital Reserve" columns intended to capture normal, planned capital replacements. "Immediate Repairs" are deferred maintenance necessary to restore the property element to normal operating condition, or a legally required ADA upgrade.
(2) "Suggested Upgrades (Optional)" are items that are not necessary for the proper operation of the property but are recommended for other reasons. Examples would include energy saving upgrades, replacements to improve maintenance costs or items to enhance visibility or marketing.