

Clearwater Township Fire Station & Township Hall

Building Condition Evaluation & Feasibility Study

February 2019



Fire Station



Township Hall

Prepared by:



INTRODUCTION

In November 2018, at the request of Clearwater Township, Fleis & VandenBrink Engineering, Inc., (F&V) conducted a review of the existing Township Hall and Fire Station facility located in Rapid City at 5440 River St. and 8255 Garfield St., respectively. The objective was to determine the program needs for each facility and recommend alterations and additions necessary to meet the Township's needs.

F&V conducted on-site investigations of the facilities to establish general structural condition and review of the building systems. Supplemental to our site visit, the previous design drawings were provided for our use and reference.

Environmental studies or investigations were not performed. The following discussions represent opinions based on visual inspections, interviews with staff and general observations. Neither invasive nor electronic surveying methods were used for this report.

TOWNSHIP HALL

The existing township hall is a former elementary gymnasium building that has been repurposed to serve as the township office and meeting hall.

Located on the north side of River Street, there is a small parking lot with 18 spaces. The comment was made that this is not enough parking for elections.

The building is nominally 102' x 69' (7040 SF) in size and approximately 14' high at the eaves with a 4/12 pitch roof. The structure is a pre-engineered metal frames at 20' O.C. with painted 8" concrete masonry units (block) between the columns. The roof appears to have single-ply membrane roofing. A small wood framed, vinyl sided vestibule is located at the south building entrance.

All but the west 18' of the building is a gymnasium with a hardwood court, that was recently refinished. The exterior walls of the gymnasium have wood board siding on the interior side protection insulation. Along entire length of both the north and south walls are 8', nominal, wide sections of concrete, for bleacher seating. In the northeast corner of the gymnasium are storage rooms, approximately 40' x 8' total. In the 18' area at the west end of the building are a kitchen, custodial room, stage, office, and two single occupant toilets, which are not barrier free. Above the stage area is a mezzanine with two furnaces, with file storage on a mezzanine above the office.





Kitchen:

- The kitchen is dated and in need of remodeling for warm-up and catering.
- Wall, floor and ceiling surfaces should be made to be easily cleaned.
- Casework should be replaced and reconfigured to wrap around the room to provide expanded work surface.
- A residential range is desired.
- The service counter opening needs to be remodeled to be A.D.A. accessible (counter height).



Stage:

- While it is not a staff priority to keep the stage, it has a sentimental value for some community members who remember “graduating on this stage”. A home-schooling group has expressed a desire to use the stage when they hold functions at the hall.
- The stage is 23 FT wide, 18 FT deep, and 9.33 FT high with a hard ceiling. Stairs up from the office and up to the mezzanine take up approximately 6’ x 6’ of the northwest corner of the stage area.
- A stage curtain covers a 23’x9’ opening to the gymnasium.
- The stage level is approximately 3’-8” above the gymnasium floor.
- The stage is not A.D.A. accessible and it may not be technically feasible to make it accessible. The only practical location for a chair lift is in the existing office. However, there is not enough space at the stage’s north wall, with three sets of steps, from office to stage, stage to mezzanine over office (attic storage), and from the mezzanine above the office to the mezzanine above the stage (additional attic space).
 - Locating a chair lift in the gymnasium would interfere with the basketball court and create a hazard at the end of the court.
 - The custodial closet south of the stage has electrical and mechanical equipment that is prohibitively expensive to relocate.
- The lift would comply with code however, there is a liability concern with the fall hazard at the front edge of the stage.
- Should the building official require A.D.A. accessibility, it would be recommended to close off the stage opening and repurpose the space for storage; a function which would not be required to be accessible.

While the gymnasium is in good condition, the western areas need renovation, with the office and restrooms being inadequate to meet the needs of Township business and occupants. The concerns for these areas are:

Township Office:

- Existing Conditions:
 - Lack of a visual prominence of the existing offices. To access this office, people must walk across the gymnasium to a door with a small sign above. There is no service counter with business being conducted at the end of a staff member's desk.
 - The existing office is small with only two desks; causing staff to work from home or out of a storage room. There is insufficient space for frequently accessed file storage and copying/printing.
 - A window type air conditioner has been placed in a wall opening to cool the existing office.
 - Leaks have been observed around the windows.
- Office Needs:
 - Service counter for interacting with the public.
 - Open office area with 5 work stations.
 - One private office.
 - Lateral file storage.
 - Coffee station.
 - Mail/copy/print workroom.
 - Secured storage closet.
 - Secure access control?



Restrooms:

- Existing Conditions:
 - The two existing restrooms are single occupant and not A.D.A. accessible.
 - Both restrooms are too small, and lack required clearances for fixtures and doors.
 - Both restrooms lack required grab bars.
 - The floors of both restrooms are depressed with a distinct ledge at the doors.
 - The number of fixtures is not adequate to meet the requirements of the MI Plumbing Code.
- Restroom Requirements:
 - The Building Code calculates the occupancy load for a space with seating at tables at a rate of 15 SF per occupant.
 - The existing gymnasium is 5740 SF, with an occupancy load of 353 people (177 female & 177 male).
 - For an Assembly A3, lecture hall, the Plumbing Code requires three water closets and one lavatory for women, and two water closets/urinals and one lavatory for men.
 - The restrooms are required to comply with A.D.A. & ICC A117.1 for barrier-free accessibility.

Recommend Alterations & Addition for Township Office & Restrooms:

There is insufficient space within the existing building on all four sides for additional office space without adversely affecting the gymnasium (by eliminating the regulation

basketball court). To provide for larger office space and properly sized restrooms, an addition on the north side of the building is recommended. An advantage to locating the offices on the north side of the building is that it will change the main entrance to a new larger parking lot between the building and Center Street. This parking lot could have approximately 50 spaces and would be better able to accommodate election day needs. The community tennis courts would have to be located elsewhere.

Located on the north side of the existing building, the proposed 1500 SF office addition would be a 24'x64' wood framed structure, with the 64' length running along the length of the gymnasium wall. The 8'x24' Entry Lobby would align with existing exterior door in the north wall. Two 10'x16' restrooms would be located west of the Entry Lobby, and north of the existing office space. The 24'x40' Township Office would be east of the Entry Lobby. An L-shape service counter would allow staff to interact with the public, who could remain in the Entry Lobby. The Open Office area would be five 6'x6' workstations, along with an island of eight three-drawer lateral file cabinets. Worksurfaces on top of the file cabinet would allow the island. Along the south (interior) side of the Open Office would be a Coffee station alcove, a Mail/Copy/Print alcove, and Secure Storage room. In the south east corner would be a single 9.5'x12' private office.

With the office and restrooms being relocated to the addition, these three spaces can be remodeled into a meeting room with a new mechanical closet for a furnace with A/C for the addition and meeting room. The resulting meeting room would be 14'x21', taking over the meeting activity currently happening on the stage.

Recommend Exterior Improvements:

- **Roof:**
The roof appears to be single ply membrane. There were no visible signs of failure. There were no reports from staff on problems nor any recollection of repairs.
- **Exterior Walls:**
Water leaks at office windows were reported. Proper masonry flashing and weep holes were not evident in the masonry construction. Water that drains down the masonry cores is stopped at the lintels over the windows and is directed to the inside face of the wall. There are two options to address this situation:
 - The less costly and less reliable method would be to tuck-point cracked mortar joints and paint the entire exterior walls with a sealing paint. While this will solve the problem in the short term, new cracks in mortar joints will occur, and the walls will need repainting.
 - While costing more, a more reliable method would be to cover the exterior walls with metal siding. With proper flashing, the siding would prevent rain water from contacting the masonry. Other types of siding could be used, they tend to cost even more.
- **Additional Parking:**
The 18 parking spaces along the south side of the building is insufficient for elections and events. There is no addition space to expand this parking area. The need for more parking, combined with the office addition, it is recommended to construct a new parking lot on township owned land north of the building.



- This parking lot could provide approximately 50 parking spaces oriented in two rows.
- Driveways from both Center Avenue and First Street would provide access.
- Directional signage would be provided to reroute traffic to the new parking lot and building entry.

FIRE STATION

Station 5 is located on the southwest corner of Aarwood Road and Garfield Street in Rapid City. The original building appears to be about 40 years old and is a nominal 40' x 85' with a nominal 10' x 20' office on the east side of the building. The office, day room, kitchen, and restrooms are in a 20' section going across the middle of the building. There is a nominal 30' x 40' two-stall apparatus bay north of the dayroom, and another 35' x 40' two-stall apparatus bay to the south of the dayroom. Both bays discharge onto Garfield Road. In 1999, a nominal 40' x 32' addition was built on the south end of the west elevation. This expanded the south apparatus bay to have two addition stalls that discharge to the west. The associated drive also provided parking along the west side of the original building. The current building has a nominally 4900 SF footprint. There are storage rooms and mezzanines in both apparatus bays, which bring the overall building area over 5000 SF. The roof appears to be metal. No disrepair was observed or noted.



The existing building is wood post-frame (pole barn) construction. The truss-bearing (ceiling) height is approximately 13'-3", allowing 12' high garage doors having low headroom tracks.

The facility is showing the wear and tear of several years of service and needs updating. In addition to refurbishing finishes, the facility is not A.D.A. accessible. The exterior doors have a 3-inch nominal raised wood threshold that not only prevents accessibility, but also is a tripping hazard that violates current building codes.

Two key concerns for the fire department are:

- Upgrading the facilities to support 24-hour staffing, particularly for ambulance service.
- A meeting room for staff training.

Previous design drawings presented showed:

- Dividing the existing office into two dormitory rooms for the 24-hour staff.
- Upgrading/providing to single occupant restrooms to include showers.
- Relocating the displaced office into the north apparatus bay and repurposing the balance of the space into a training room.
- Construct a four-stall addition at the west end of the south apparatus bay.

While the general approach of the previous design drawings was appropriate, there are several concerns regarding functionality, value, code requirements, and constructability.

Recommended Fire Station Improvements:

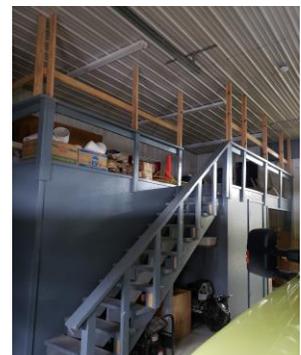
A Building Code change that occurred in the 2015 edition of the MI Building Code (effective: September 2017) added Condition 4 to Section 903.2.9.1 which requires fire protection sprinklers in *fire areas* over 5000 SF in which commercial vehicles are parked (fire-fighting vehicle are equivalent to commercial vehicles). The existing building is already at the 5000 SF limit and precludes any addition without installing a sprinkler system. Per International Fire Code 2015 Appendix B Table B105.1(2), the fire sprinkler system would require a fire pump and 300,000-gallon water storage tank(s), to serve the entire building (2500 GPM, 2-hour duration). In lieu of the sprinkler system, a 3-hour fire-resistance-rated wall could be built to separate the addition from the existing building, thereby creating two spaces that are each less than 5000 SF.

Apparatus Bay Addition:

- Located at the west end of the existing west apparatus bay.
- New 3-hour fire-resistance-rated masonry *fire barrier* wall between the existing building and addition.
- Pre-engineered metal building, 46' x 62', single pitch roof sloping from 18' high eave on the north down to 16' eave on the south, avoiding rain and snow dropping in front of the doors.
 - Four stalls for vehicles, including all three 33' long engines and tanker.
 - The 62' dimension would extend west from the existing, allowing the vehicles to exit through doors on the north side, directly towards Aarwood Road.
 - There would be 5' nominal clearance between and on both sides of the vehicles.
 - The 46' building depth allows 3' clearance in front of the 33' long engines and tanker with 8' of clearance behind. Allowing equipment and hose storage along the back wall, with room to put hose and equipment off the back of the engines.
 - 4-foot high concrete bump wall to be provided, protecting the exterior wall panels from damage.
 - Addition to comply with the MI Energy Code for insulation and daylight requirements.
- Addition to be heated and have required ventilation for vehicle storage.

Repurpose Vacated West Apparatus Bay (1999 addition):

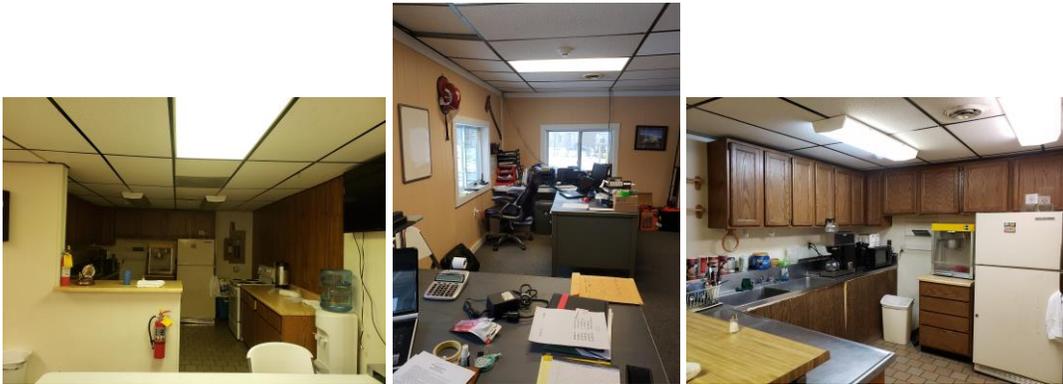
- Laundry room for both personal protection equipment (PPE) gear and convenient washing:
 - Residential washer and dryer for bedding and uniforms
 - Commercial washer (40 or 60 lb.) for PPE gear.
 - PPE dryer (hose dryer with PPE rack).
 - Service sink.
 - Larger water heater.
- Secured Medical Storage Room:
 - 160 SF
 - Climate controlled (heating & cooling)
- Gear Lockers for 24 people (24"W x 20"D x 72"H).
- SCBA air compressor, and bottle storage.
- Tool and Equipment storage.



Existing Southeast Apparatus Bay:

- Lower threshold of existing exterior man door to eliminate tripping hazard.
- Provide additional exhaust ventilation for vehicle parking.
- There is insufficient space to provide a two-person office in this area as shown on the previous design drawings.

Dayroom and Staff Quarters:



The current staff quarters are not designed for 24-hour fire rescue services. The restrooms, day room and kitchen areas are worn, not barrier free, and do not provide sleeping quarters. There is no designated or extra space for fitness/exercises. There is no training room space. Renovation of the existing space for consideration to bring to current fire station standards are as follows:

- Divide and remodel existing offices into two dormitory rooms.
- Replace/update finishes in dayroom.
- Provide new pass-thru counter in north wall to proposed training room.
- Fully remodel kitchen with new cabinets, counters, equipment, and finishes.
- Fully remodel Men's restroom to be A.D.A. accessible with a shower. Relocate door to open from southeast apparatus bay. Function as a unisex decontamination shower room, that can also be used for daily needs.
- Remove service sink and water heater (these have been replaced in laundry).
- Expand Women's restroom into area vacated by service sink and water heater. Remodel to be an A.D.A. accessible unisex toilet with shower.

Repurpose North Apparatus Bay into a Training Room & Offices:

- Demolish the existing storage room and mezzanine from the west side of this space.
- Relocate west entry door and provide a 7' wide vestibule.
- Provide a new 7' x 13' two-person Day Office.
- Provide a new 14' x 13' two-person Officers' Office.
- The new Training Room would occupy the remaining space.
 - Approximately 25' x 28'
 - Using 12 – 60" x 24" folding training tables, 24 people can be seated facing the same direction with 6' in front for a presenter.
 - Using four additional tables, with the tables facing each other, 32 people can be seating for dining.



- The existing garage doors to be removed and infilled with new walls having windows and one exit door.
- A new heating and cooling air handler is necessary for these spaces.
- Remove existing floor drain.
- Prepare floor to receive new flooring.
- Provide new lay-in acoustical panel and grid ceilings.

Site Improvements:

- Expand existing asphalt drive and parking area to accommodate access from the addition, include a turnout area to allow firefighting vehicle to back into addition.
- Remove building identification signage from Garfield Street and provide new signage at the Aarwood Road drive.
- Relocate the flag pole to the Aarwood Road elevation.
- Consider replacing entrance canopy to direct visitors to the west side entrance. A gable over the sidewalk would direct rain water and snow away from pedestrians.
- Review storm water management for proper distribution and run off of melted snow and storm water.

COST – RANGE OF MAGNITUDE

The total renovated areas and proposed new areas of both buildings are as noted below. Based upon location, our recent cost histories, and the 2017 RS Means Cost Data for new construction and renovation of similar building types, our opinion of costs (2019) falls within the ranges as follows:

TOWNSHIP HALL

Description	Estimate
Kitchen Renovation: Lump sum	\$40,000-\$50,000
Stage Improvement: Lump sum	\$8,000-\$10,000
Repurpose Township Offices/Restrooms: Lump sum	\$15,000-\$20,000
Exterior and Site Improvements: Lump sum	\$150,000-\$200,000
Restroom and Offices Addition: 1500 sf	\$250,000-\$350,000
Total	\$470,000-\$575,000

FIRE STATION

Description	Estimate
Apparatus Bay Addition: 2850 sf	\$350,000-\$450,000
Repurpose West Apparatus Bay: Lump sum	\$50,000-\$60,000
SE Apparatus Bay Improvements: Lump sum	\$5,000-\$10,000
Dayroom and Staff Quarters: Lump sum	\$90,000-\$110,000
Repurpose North Apparatus Bay: Lump sum	\$80,000-\$100,000
Site related improvements: Lump sum	\$50,000-\$75,000
Total	\$535,000-\$665,000

	Estimate
Specialties (lift, stage, etc.): Allowance	\$50,000-\$75,000
Hazardous material abatement: Allowance	\$10,000-\$20,000
Professional design fees: Allowance	\$65,000-\$125,000
Total	\$130,000-\$185,000

Theatrical (Stage) equipment was not estimated. Cost range refinement will need to be performed as part of the design process as the project scope and funding are developed. Phasing of the project could be considered to spread the cost of the project over several years.

SUMMARY

Township Hall:

- The building is capable of renovation and expansion.
- 1500 SF addition on the north side of the existing building, with a new entry, township office suite and restrooms.
- New 50 space parking lot on the north side of building.
- Combine existing office and toilet rooms into a single meeting room.
- The existing stage to remain as is and not A.D.A. accessible. If accessibility is required, infill stage opening and repurpose the space for additional file storage.
- Completely remodel the existing kitchen with new finishes cabinetry, counters, and appliances.
- Patch and repair existing interior gymnasium wall as necessary for remodeling of office and kitchen spaces.
- New exterior wall finishes either:
 - Tuck-pointing masonry joints and sealer/paint, or
 - New metal siding with appropriate flashing and trim.

Fire Station:

- The building is capable of renovation and expansion.
- New pre-engineered metal building addition with a four-stall apparatus bay.
- Repurpose the southwest apparatus bay into support spaces (laundry and storage).
- Improve exhaust ventilation of the southeast apparatus bay.
- Remodel day room and staff quarter for 24-hour staffing:
 - Remodel existing office into dormitory rooms.
 - Remodel day room.
 - Completely remodel kitchen.
 - Remodel both restrooms to be A.D.A. compliant and add showers.
- Repurpose north apparatus bay for offices and a new training room:
 - New entry vestibule.
 - New two-person day office.
 - New two-person officer's office.
 - New training room (24 people training and 32 people dining).
- Expand asphalt drive and parking to allow access from apparatus bay addition.

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The above assessment does not represent or imply all conditions noted reflect a comprehensive evaluation. Building conditions not uncovered, hidden, or not observed may affect future use or value. Additional improvements may be needed. This assessment does not provide a comprehensive code review. Cost projections are based on pre-design assumptions of scope and are not to be considered as price quotes. The author of this report, Fleis & VandenBrink is not responsible for any reuse of this document.