Draft

Facilities Master Planning

Beaver Dam School District

Beaver Dam, WI

PRA Project #140092-01 | April, 2015





April, 2015 Beaver Dam School Dis	trict	

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Existing Facilities Survey



Architectural:

Beaver Dam High School was built in 1957 and is located at 500 Gould Street, in Beaver Dam, Wisconsin. The approximately 246,000 square foot facility is located on a site of 42.6 acres. The building contains one floor with a mechanical and team locker room basement underneath the chorus and band areas. There were additions in 1964, 1976, 1980, 1989 and 1998. Science rooms were renovated in 2013.

Exterior:

The aluminum entry systems are generally in good condition. The steel exterior doors are generally in poor condition and should be repaired or replaced (approximately 6). The building façade is in generally good repair with the exception of some brick spalling on the south façade, an area of water staining on the north wall by the science wing exit, another area of water staining on the east façade at the auditorium, and several cracks, most notably at the auditorium and east entry by the FACE classrooms adjacent to the boiler room. These areas of water staining and cracks should be further investigated and repaired.

There is some loose fascia along the western façade that should be repaired. There is also a double-pane window section that has a failed seal which should be replaced. The interior courtyard, contains single-glazed curtain wall which should be either infilled with a masonry wall and windows or replaced with a more energy efficient system. The doors to the courtyard have been repaired. The greenhouse partial height wall shows extensive water staining and freeze/thaw damage. The greenhouse should be demolish, as a new greenhouse has been built.

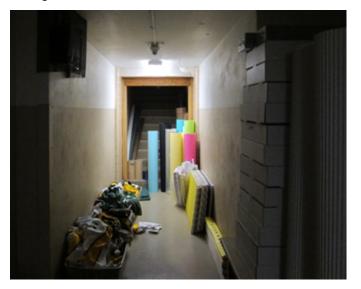
The exterior walls around the auditorium are single wythe block without insulation. Moisture is penetrating in this area and a sealcoat will need to be added to prevent further damage.

Approximately 25 percent of the glazing is single glazed and should be replaced.

Portions of the roof that are 20 years old or older should be replaced.

Lower Level:

The boiler room and football team locker rooms are located in the lower level. This area is generally located below the chorus and band areas. Two open stair wells serve this area, neither of which exits directly to the exterior. A third stair has been covered and turned into a storage room.





This area is not ADA accessible. The level is commonly referred to as 'The Pit' and contains 'Tradition Tunnel". It also contains mechanical rooms, custodial rooms, storage, boys team locker rooms, team showers and a team conference room. The floors are painted concrete or ceramic tile for the shower area. The floors are in fair condition. The restroom adjacent to the locker room is in poor condition. The restroom ceiling is severely water damaged, the partitions are rusty and the doors are delaminated.



The team conference room reportedly has no ventilation. The ceiling within the locker area has exposed piping running through it with peeling paint. Headroom clearance within the locker room areas is limited. These locker rooms should be considered for complete remodeling including addition of an elevator or they should be abandoned and rebuilt in a different location.



The lockers are in fair condition. The shower ceiling needs to be patched and painted.



The main boiler areas and electrical service are located in this lower level. Within the boiler area, the old boilers were left in place when the new boilers were installed. Those boilers should be removed.



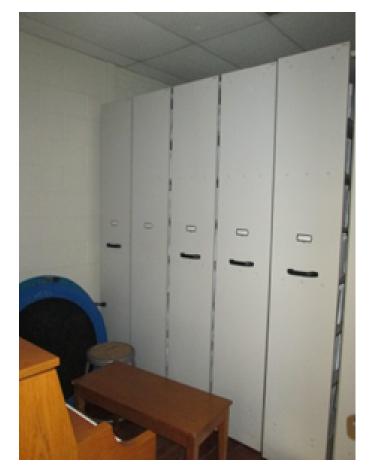
Main Level:

Directly above the Lower Level is the Band, Choir and Music area. The orchestra and band rooms are generally worn and in need of renovation. These spaces have been made accessible by the addition of a lift and a ramp but spatial organization is poor and should be considered for general overhaul. Rooms in this area have either VCT or vinyl asbestos composition tile which are generally in good condition. The ceilings are 1'x1' acoustical tile which is in fair condition. The walls of the band room and practice rooms also have portions covered with the acoustical tile. The orchestra room has painted block walls with small acoustical panels on the walls.



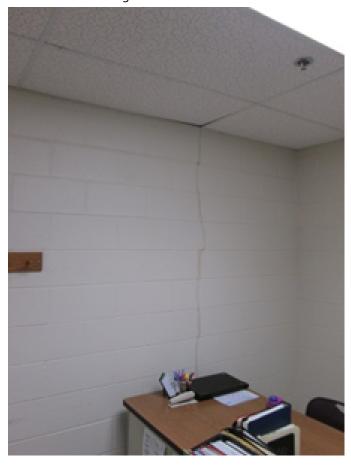


The chorus room is the old stage for the south gym. The chorus room has a wood floor and a 2×4 lay-in acoustical ceiling which are in good condition. The music room has VCT flooring and a 2×2 lay-in acoustical ceiling, both of which are in good condition. One of the practice rooms contains space saving music storage.



There is a lift and ramp in this area to allow for ADA accessibly to the music rooms. Acoustical doors are wood with wood frames and are outdated. There is also wood paneling on the walls.

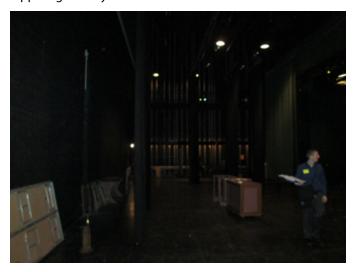
In the speech office there are issues in the masonry wall with vertical cracking at the wall.



The scene shop needs paint and currently is using the mechanical mezzanine for storage. The AHU is being used as a storage area.



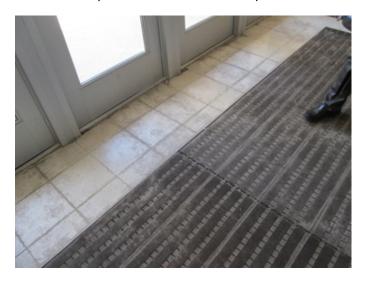
The auditorium has carpeted aisles which are in fair condition. The seating is in good condition. The sealed concrete under the seating is in good condition. Finishes appear generally dated but are otherwise serviceable.



There is an orchestra pit that is not accessible. The dressing rooms are in good condition as are the adjacent ADA compliant single occupancy restrooms. The auditorium is fire sprinkler protected.

The auditorium lobby is poorly design and does not present a welcoming entrance to the community. The space is not on an accessible route. Lighting is poor and should be upgraded as part of an overall renovation project. Like the auditorium house area, finishes are dated in appearance but otherwise serviceable.

The exterior entrance at the auditorium lobby has VCT floor that is in poor condition and needs replacement.



Also, the soffit outside this vestibule is peeling paint and rusting and needs repairs.



The Tech Ed area's main hallway ceiling is an aged 2 x4 layin acoustical ceiling which should be replaced. The toilet rooms adjacent to this hallway are aged, but the tile is in fair condition, the toilet partitions, however, are in poor condition. These toilet rooms need to be renovated.



There is some casework located at in this area that is in poor condition and should be replaced.



All of the exterior swing doors/frames in the Tech Ed areas are rusty and should be repaired and repainted. The graphic arts classroom has 2x2 lay-in acoustical ceiling tile, some of which is water damaged and should be replaced. The areas are in generally good repair. The woods, power and auto mechanics and metal shop all have exposed structural ceilings. Some of the ceiling insulation panels have damage, are peeling and should be repaired.



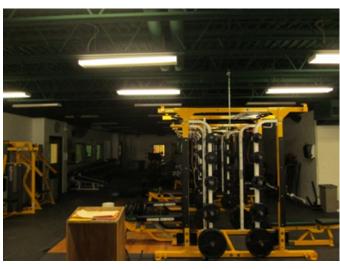
The north gym has a wood floor which is in good condition. The adjacent locker rooms have poured floors, which are in good condition. The ceilings are vinyl wrapped gypsum board lay-in and are in good/fair condition, approximately 30% of the ceiling panels are damaged and should be replaced within the boys locker room. Within the boys team locker area approximately 20% of the lockers are damaged and should be replaced.





The locker room restrooms do not meet current accessibility requirements. The girls locker room is significantly smaller than the boys locker room and are inadequate by current standards. An enlargement and general renovation of the girls locker room should be considered as part of Title IX compliance. Both locker rooms should be painted.

There is a fitness/weight room adjacent to the north gym which has rubber flooring and an open ceiling. Both the room and the equipment are in good condition. There is an aerobics room south of the north gym which also has a rubber floor and has a 2x4 lay-in acoustical ceiling, both of which are in good condition.



The kitchen area is adjacent to the loading area across the hall. The high school kitchen prepares meals for the entire district. The kitchen and storage area are undersized for the size of the high school. Access is difficult for deliveries.



The ceiling in the storage area is a 2 x 4 lay-in acoustical ceiling which is in poor condition. This ceiling should be washable, it is not. Some of the freezer/refrigerator panels are rusting and should be repaired. There are wall sections missing due to remodeling that should be repaired. The flooring throughout the storage and kitchen areas is quarry tile which is in good condition. There is inadequate storage. The entire loading / unloading / storage / kitchen / serving / dish washing area should be redesigned and remodeled to the correct size and configuration to meet the building and district food service expectations.

The loading area for the dining service also serves as a general loading area for the building. The exterior door/frame are severely rusted and should be replaced.

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If possible, the dining loading area and the general purpose area should not be the same. The flooring is sealed concrete.

The art rooms have painted concrete floors some of which are worn and should be re-painted. The ceilings are exposed structure, 1'x1' acoustical tile or a 2 x 4 lay-in acoustical ceiling some of which should be replaced due to water damage.



Most of the casework is damaged and should be replaced. There is also damage that needs to be repaired where the exposed structure meets the masonry wall.



The general purpose classrooms (Math, English and Social Studies), the EEN area by the FACE rooms and the Business Education and Health Rooms have vinyl composition tile, vinyl asbestos composition tile or carpet all of which are in fair/good condition. These classrooms have either 2 x 2 acoustical lay-in ceiling tile which is in fair condition or 1 x 1 acoustical tile which is in fair/poor condition.

Four of the science classrooms were renovated in 2013, creating physics, two chemistry and a biology lab. The other science classrooms have either VCT or asbestos vinyl composition tile flooring, which is in good condition. The casework/countertops are in fair/poor condition. The countertops are in poor condition. The ceilings are either 2×4 lay-in acoustical or $1' \times 1'$ acoustical tile.

The former chemistry and biology classrooms are undersized to provide a pod type work area and lecture area. The science prep areas have damaged countertops and casework some of which are inappropriate to their current use, which should be reconfigured and replaced. The existing fume hood in the former chemistry room has been abandoned in place. This are should be considered for either relocation to new science lab space or a complete renovation similar to the 2013 Project should take place.

The cognitively disabled area has VCT and carpet which are in good condition. The ceiling is a 2 x 2 lay-in acoustical ceiling in good condition, however about 5% is water damaged. There is some damaged casework in the restroom/cleanup area that should be repaired.

The career center and alternative education area are located on the far west of the building. The area is carpeted which is in good condition. The ceiling is a 2×2 lay-in acoustic ceiling. These classrooms appear to be oversized and underutilized but are otherwise in generally good condition.



The family and consumer education (FACE) rooms have either VCT or vinyl asbestos composition tile flooring which are in good condition. The 2 x 4 acoustical lay-in ceiling is also in good condition. The casework is in poor condition and should be replaced. There is no dedicated ADA compliant workstation. The cooking teaching station is built on a raised platform and is not accessible.

The cafeteria area which also serves as a study hall has a ceramic floor in half of the area which is in good condition and a VCT floor in the other half which is in good condition with the exception of the boundary between the two floors which is cracked and chipped out along its entire length. This transition should be replaced. The ceilings are either a 2 x 2 lay-in acoustical ceiling (which is in good condition) or a 2 x 4 lay-in acoustical ceiling (which is in fair/poor condition, 5% of which is damaged and should be replaced). There is damage to the west wall which should be repaired/repainted. The food serving and dish return areas are located both in the cafeteria (north wall and within the dining area) and in the corridor to the north of the cafeteria (along the east wall of the kitchen). This makes for difficult traffic flow and difficult supervision. There is an ancillary serving area to the east of the cafeteria which further complicates the traffic flow across the main corridor. The overall space is dated and poorly configured for use as a modern student commons.

The south gym has a wood floor which is in good condition, however the entry vestibules to the gym from the west (main hallway) are vinyl asbestos composition tile and are in poor condition, with many of the tiles cracked or missing and should be replaced. There is an old fold-out divider for the gym which is in poor condition and reportedly there are no replacement parts available for the divider due to it's age. There are cracks in the masonry walls adjacent to the divider. The locker room to the north of this gym is used as a changing area only. There is an ADA compliant restroom within this locker room. The flooring is terrazzo which is in good condition. The lockers are old but serviceable. The ceiling is in good condition.

Above the gym to the west is an area for aerobic cycling. The area shares the gym ceiling and the floor is painted concrete. This area is not ADA accessible. If this area is to remain as an educational space, an elevator should be added.

The main office area has a 2 x 4 acoustical ceiling tile in fair condition. The flooring is carpeting which is in fair condition. The casework is in fair condition. The offices flanking the main office area have carpet which is in fair/

good condition, the ceilings are either 2 x 2 lay-in acoustical ceilings which are in good condition or $1' \times 1'$ acoustical ceilings which are in fair condition. There are restrooms which are not ADA compliant and have finishes which are in fair/poor condition.

The guidance and health area has some newer carpet and a 2x2 acoustical lay-in ceiling in good condition. The adjacent restroom is not ADA compliant.

The IMC and reading area appear to be too small or badly configured. This area needs to be reconfigured and renovated. The flooring is carpet and the ceiling is a 2 x 2 lay-in acoustical ceiling, both of which are in good condition. The casework is in fair/good condition.



Overall Building Components:

In general the interior door frames and doors are in fair/poor condition and should be repainted/refinished. Also, in most areas, ceiling tiles are stained and some of the grid needs to be replaced.



In corridors, there are a lot of instances of VCT tile being chipped and needs to be repaired.



Most of the interior of the building (approximately 90%) is located on an accessible path. Most of the interior door hardware is ADA compliant (approximately 10% is not). Most of the restrooms are not ADA compliant. Most of the drinking fountains are not ADA compliant. As part of a building-wide renovation program, accessibility should be addressed.

Most of the restrooms are in fair condition., but need to be made ADA compliant. All but the north gym restrooms should be repainted. There are rusty partitions which should be replaced and the existing piping is failing forcing the elimination of in-floor fixtures.

The building is not fire sprinklered other than the auditorium.

The main corridors are adequately sized. Student storage is accomplished with lockers. The corridor floors are asbestos vinyl composition tile or VCT all of which is in fair/ poor condition. There are large sections of the VCT which are wavy or buckled and smaller sections of the asbestos vinyl composition tile which have cracked out and are missing. Approximately 50% of the corridors are asbestos vinyl composition tile. Approximately 15% of the corridors are buckled VCT (west corridors). The ceilings are 2 x 2 layin acoustical ceiling (good condition), 2 x 4 lay-in acoustical ceiling (fair/good condition) or 1' x 1' acoustical ceiling (fair/poor condition). Overall approximately 5% of the 2 x 2, 10% of the 2 x 4 and 20% of the 1 x 1 ceiling tiles should be replaced due to damage or water staining. There are a couple of damaged soffits at the entries to classrooms in the west wing which should be repaired and repainted.

The majority of the structure of the building is masonry load bearing with brick exterior. The tech education portion of the building is metal sheeting on metal structure. The entrance to the building faces south and has a lobby adjacent to the main office. There is no direct connection from the main vestibule to the office. Security is accomplished through the use of a remote magnetic lock and closed circuit cameras. The flooring in the entry vestibule is terrazzo, which is in good condition. The flooring in the lobby is asbestos vinyl composition tile which is in fair condition. The recessed entry mats are in poor condition and should be replaced. Consideration should be given to moving the inner set of doors further inward to the lobby, thus allowing direct access from the entry vestibule into the main office for visitor security.

Heating, Ventilation and Air Conditioning:

Heating System:

The High School is heated by two 10,000 MBH (300 BHP) Cleaver Brooks fire tube steam boilers installed in 1989. Per discussions with maintenance staff the boilers were retubed roughly 7-8 years ago and the remaining components of the boilers appear to be in good working condition. The original coal fired steam boilers are abandoned in place and have been disconnected from service. The steam boilers are natural gas fired, but have the ability to operate with fuel oil if required. Fuel oil was added when the District was billed on an interruptible rate by the local gas utility. However, per discussions with the maintenance staff the District is now billed on a noninterruptible rate and thus the fuel oil is no longer required. An existing fuel oil tank is present in the basement mechanical room to serve the steam boilers with fuel oil if required.

The steam boilers feed three steam-to-hot water heat exchangers in the basement mechanical room. The heat exchangers are original to the building and two are in poor condition. One of the heat exchangers was recently rebuilt to extend its useful life. Heating water is pumped through the heat exchangers and distributed throughout the building in tunnels and above the first floor ceilings. The heating water serves unit ventilators, radiation, reheat coils, and air handling unit heating coils that have been added to the building during building additions and renovations.

The steam boilers also serve steam piping that is distributed throughout the building to steam radiators, unit ventilators, and air handling units. The steam piping is routed through pipe tunnels under the school and in the ceiling of basement areas. Most of the terminal steam equipment is original to the building and in poor condition. Steam condensate from terminal equipment and heat exchangers flows back to a condensate pump located in the basement mechanical room. Numerous steam pipes in the basement have insulation that is exposed and damaged.

Gas fired rooftop units are located in the northeast and northwest wings of the building.

Ventilation System and Air Conditioning System:

The original building classrooms are served by unit ventilators located at either the floor or ceiling. Outside air intakes serving unit ventilators are either extended through the exterior wall or ducted to a roof hood. There are a few interior unit ventilators that do not appear to have outside air ducted to the room. The unit ventilators in the building do not have any air conditioning.

Several indoor air handling units are located in the building to provide space conditioning and ventilation air. The units include hot water heating coils, but do not contain air conditioning. Spaces served by the indoor air handling units include the Gyms, Tech Ed Areas, Graphic Arts Area, and the 500 series interior classrooms. Many of these units are single zone constant volume units that serve multiple classrooms resulting in poor temperature control in those spaces. The unit serving the 500 series interior classroom is a multizone unit. The gym units also do not include return fans so economizer function requires pressurization of the space from relief hoods on the roof. The other units do not appear to have return or relief fans so economizer functionality is limited. The air handling units all appear to be installed prior to 1976.

An indoor air handling unit located in a mezzanine serves the Auditorium. The unit includes a hot water coil and a cooling coil connected to a roof mounted condensing unit. The unit was installed in 1989 during the auditorium addition.

Several gas fired rooftop units with direct expansion air conditioning serve the northwest and southwest wings of the building, the Science Wing, Library, and the Dressing area. All units except the Science Wing are constant volume single zone units or constant volume single zone units with bypass type VAV control. The Science wing includes a variable volume gas fired roof top unit with terminal air boxes and hot water reheat coils serving each classroom. The Science wing roof top unit was installed in 2013 and is in good working condition. The remaining roof top units were installed prior to 1998.



The Tech Ed Areas include exhaust purge fans that are controlled by manual switches in each shop. The wood shop includes an outdoor dust collector. Toilet, janitor, and locker rooms areas included exhaust fans, but odors were present in almost all areas indicating inadequate exhaust and ventilation in the spaces. In reviewing the site it was noted that numerous exhaust fans were not operating during the time of the site visit. These included but are not limited to the men's locker room and the music storage room. Maintenance staff also indicated that humidity is a concern in the basement locker room and storage areas during the summer months.

Pottery Room 413 was not provided with any exhaust system. Instead a unit ventilator and recirculating type air cleaners where provided in the room. This was not adequate for the dust in the room. Maintenance staff and teachers noted that air in the classroom gets 'dirty' when the classroom is in use.

The data rooms throughout the facility are served from adjacent air handling units which typically do not have any cooling. This creates poor environmental conditions for the data equipment which shortens the life of the equipment.

A few duct free mini split air conditioning units are located in the building to provide space cooling. These rooms include the Chorus Room, Weight Room, and Training Room. Condensing units are located on the roof to serve each individual duct free mini split system.

Automatic Temperature Controls:

Automatic temperature controls for the building consists a combination of direct digital controls (DDC) and pneumatic controls. The DDC system serves all areas renovated after 1989 while the pneumatic system served the original building and renovations prior to 1989. Most of the air handling equipment prior to 1989 has been partially converted to the DDC system, but the valve and damper actuators are still the original pneumatic system. Reliable Controls is the digital control system manufacturer within the school.

Plumbing:

Sanitary Drainage System:

The building sanitary drain system flows by gravity to the City sanitary sewer system. A sewage ejector is located in a pit across the corridor from the mechanical room and appears to serve the basement plumbing fixtures. The sewage ejector pumps to the gravity drain system under the first floor slab. The maintenance staff indicated the

sanitary main from the kitchen area freezes during extreme cold weather due to the minimal depth of the piping. Maintenance staff also indicated the sanitary piping in Rooms 411 and 413 plugs regularly.

The sanitary piping underground is assumed to be cast iron with hub and spigot fittings. The piping is original to the building and thus is over 50 years old. Maintenance staff indicated that some areas of the building have developed leaks and required repair. Due to the age of the existing underfloor piping additional leaks are likely to continue to occur in the future.

Storm Drainage System:

Roof drains are combined and routed below grade to the City storm sewer system. It was unclear from the drawings and building tour if a secondary storm system was present throughout the facility. Based on the age of the building a scupper system may have been originally utilized for secondary storm overflow.

The maintenance staff also indicated a high volume of water enters a sump pump in the mechanical room via drain tile. It is a concern to the staff as if the sump pump fails the basement could flood damaging the equipment in the basement.

Domestic Water System:

The High School is provided with domestic water from the Beaver Dam Water Utility. The building does not have any water softeners. Two A.O. Smith high efficiency gas fired water heaters that were installed in 2005 provide the building with hot water. The water heaters are connected to a storage tank in the mechanical room to provide adequate capacity for the building. Three circulation pumps are located near the water heaters and storage tank to recirculate water through the domestic water system. A separate A.O. Smith high efficiency gas fired water heater serves the kitchen with higher temperature water and this water heater appears to be the same vintage as the other two water heaters. The water heaters are having some maintenance issues per discussions with the maintenance staff.

The domestic water piping is original to the building and consists of a mixture of galvanized steel pipe and copper pipe. Maintenance staff indicated the quantity of leaks within the domestic water system is starting to increase. This is likely due to the age of the piping.

Plumbing Fixtures:

The plumbing fixtures appear to be original to the time of construction with minimal fixture upgrades throughout the building. Due to the age of the building some of the original construction fixtures do not appear to meet current ADA requirements. Urinals in portions of the original building operate on a door switch or timer for flushing the bank of urinals rather than individual flush valves per urinal. It was noted that some of the janitor mop basin faucets in janitor closets do not have Code compliant backflow preventers.

Fire Protection:

Fire Protection System:

The majority of the building does not contain a sprinkler system. The 1989 addition of the auditorium and associated dressing area included a sprinkler system in the rooms, but corridors were not provided with sprinkler coverage. The sprinkler system is supplied by a dedicated 4" water main located in the corner of the Scene Shop Room 810. It did not appear that the stage area of the auditorium included a fire department standpipe and hose connection as required with modern building code.

Electrical:

Electrical Service and Distribution:

The High School currently has four services serving the building and one that serves the greenhouse and football fields.

Building Service #1 is located in the Boiler Room and originates in Bulldog Electric distribution equipment. This service is 208/120V, 3-phase, 4-wire and is rated at 1000 amps. The service entrance equipment is original to the building and is becoming obsolete.

Building Service #2 is located in the Career Center and originates in Cutler Hammer distribution equipment. This service is 480/277V, 3-phase, 4-wire and is rated at 600 amps. This equipment appears to be in good working condition.

Building Service #3 is located in Receiving and originates in Cutler Hammer distribution equipment. This service is 208/120V, 3-phase, 4-wire and is rated at 800 amps. This equipment appears to be in good working condition.

Building Service #4 is located in the Tech Ed Wing and originates in outdoor Square D distribution equipment. The outdoor switchboard feeds Square D equipment located in the Tech Ed Mezzanine. This service is 208/120V, 3-phase, 4-wire and is rated at 2000 amps. This equipment appears to be in good working condition. It was reported by Facility Staff that branch circuits in this area are at capacity.

Branch panelboards in older portions of the building are original and becoming obsolete. Replacement parts are mostly unavailable.

It was reported by Facility Staff that circuit breaker capacity is limited in the School and may become an issue as additional technologies are added to classrooms and lab spaces.

Emergency Power:

The school does not have a generator or any other alternate source for emergency power. Emergency egress lighting is accomplished by unit equipment. The layout and quantity does not appear to meet current codes. Exit signage locations appeared to be adequate, however all signs did not have battery back-up.

Lighting:

A majority of the spaces utilize T8 fluorescent luminaires. The gymnasium spaces utilize metal halide fixtures. It appeared that the light fixtures are in good working condition and the light levels in the spaces comply with the current IES recommendations.

It did not appear that automatic shut-off controls such as occupancy sensors were installed in areas that are required by current energy code. Facility Staff indicated that they have started to add occupancy sensors to spaces, but the process is on-going.

Fire Alarm:

The fire alarm system is Edwards EST with the main control panel located in the Boiler Room. The system consists of manual pull stations, automatic smoke detection in certain areas, audio notification devices and visual notification devices. It appeared that device locations do not comply with current codes for spacing and ADA requirements for common use spaces. Facility Staff reported the system was in good working condition.



Master Clock System:

The existing master clock/bell system is Lathem and is located in the Main Office. Facility Staff reported that the system is in need of replacement.

Intercom/Paging System:

The existing paging system is Dukane with the head end equipment is located in the Main Office. Facility Staff reported that the system is problematic and is in need of replacement.

Phone System:

The school is currently using a Voice-Over-IP (VOIP) phone system and it is in good working condition.

Structured Cabling System:

The school is currently using a mix of Category-5 and Category-6 cables.

Access Control System:

The existing access control system is Altronix and is approximately 14 years old. Facility Staff indicated that there have been circuit board failures within the system.

Video Surveillance System:

The video surveillance system is Altronix with Honeywell software. Cameras are currently located in the Corridors, Gymnasiums and some exterior locations. Facility Staff indicated that there have been failures with the pan-tilt-zoom cameras.

Architectural Recommendations:

- Redesign the bus drop off and student drop off areas in order to avoid potential pedestrian hazards and to ease congestion.
- 2. Replace the asphalt in poor condition.
- 3. Redesign the loading area to provide for a turnaround.
- 4. Repair the doors, siding, eaves and roofs at the various wood/metal sheds on site.
- 5. Repair/replace the exterior rusty doors/frames.
- 6. Investigate and repair the building façade cracks and water stains.
- 7. Repair the loose fascia and soffit.
- 8. Replace six (6) steel entry doors.
- 9. Remove the greenhouse.
- 10. Replace the single pane glazing with double pane glazing and replace the failed double pane glazing.
- 11. Replace the oldest sections of the roof.
- 12. Apply seal coat to exterior walls at auditorium to prevent further water penetration.
- 13. Provide a secure entry sequence by moving the interior vestibule doors northward, forcing entry to the main office prior to entering the building.
- 14. Remove the existing boilers.
- Remodel the lower level locker rooms, restrooms, showers and team conference area. Consider making this level accessible and the impacts of Title 9.
- 16. Remodel the band, choir and music area.
- 17. Repair damaged wall in speech room.
- 18. Renovate auditorium lobby and replace lighting.
- 19. Repair or replace the casework and countertops within the Tech Ed classroom that are damaged.
- 20. Repair insulated ceiling panels in Tech Ed area.
- 21. Renovate/ Enlarge the girls locker room to Title 9 compliant.
- 22. Review the IMC to reconfigure or enlarge in conjunction with the career center.
- 23. Redesign the food loading/food preparation/cafeteria area and remodel.
- 24. Renovate the remaining science classrooms, agricultural classroom and science prep areas that were not addressed in the 2013 renovation project.

- 25. Repair or replace the casework and countertops within the FACE classroom that are damaged. Provide ADA compliant stations.
- 26. Replace the divider within the south gym, repair the damage to the wall adjacent to the divider.
- 27. Provide ADA access to mezzanine at south gym.
- 28. Within the locker rooms, repair the damaged ceilings and damaged lockers.
- 29. Replace the damaged art room casework.
- 30. Remodel all of the existing restrooms to be ADA compliant and to replace the damaged toilet partitions and repaint the restrooms. Review the existing plumbing in order to review future failures.
- 31. Upgrade building to conform to ADA (Americans with Disabilities Act) accessibility standards, with respect to drinking fountains (high and low), restrooms, door lever hardware and room signage.
- 32. Replace old and/or damaged ceiling tile and grid throughout the building (multiple locations).
- 33. Remove remaining vinyl asbestos floor tile and replace with vinyl composition tile.
- Paint the interior door frames and refinish the interior doors.

Plumbing Recommendations:

- 1. Add code compliant backflow preventers in janitor closets to serve mop basins.
- 2. Upgrade plumbing fixtures throughout the facility as renovations occur to meet current ADA requirements.
- 3. Existing door switch or timer operated urinal flush valves in the original part of the building should be upgraded to individual flush valves per urinal.
- 4. The hot water heaters are nearing the end of their useful life of 10-15 years and should be scheduled for replacement in the future.
- 5. A water softening system should be considered for the facility if major renovations to the plumbing system occur. It is recommended that domestic hot water be softened to extend the life of water heaters and reduce plumbing fixture scaling due to the water hardness in the area. However, the addition of the water softener should be further evaluated depending on the scope of the renovation since the existing domestic water piping is galvanized steel. There have been some documented cases of softened water causing corrosion to galvanized steel piping.

- 6. Repair and replace damaged insulation on domestic water piping that is exposed to students and staff.
- Provide new duplex sump pump in existing sump pump basin within the mechanical room basement.
 Connect to the sump pump alarm into the DDC system.
- 8. If a large scale renovation to an area is to occur it is recommended that the existing underground sanitary system be telescoped with a camera system and all sections that are in poor condition be replaced during the renovation.
- 9. If a large scale renovation to an area is to occur it is recommended that the existing underground sanitary main leaving the kitchen be further investigated to determine if the sanitary main can be installed deeper or add insulation above the existing main to prevent the main from freezing.
- 10. Replace the domestic water system in all areas where a renovation occurs due to the age and material type of the piping. If renovations do not occur the existing piping system should continue to be maintained and repaired as leaks develop.

Fire Protection Recommendations:

 If major renovations are pursued, the addition of a fire protection system may be required depending on the scope of the renovation. An upgraded fire alarm system may allow renovations to occur without adding fire protection, however for this type of building we would recommend adding a fire protection system if major renovations are pursued.



HVAC Recommendations:

- 1. The Cleaver Brooks steam boilers and condensate pump are 26 years old. The expected useful life of a boiler is approximately 25-30 years and thus the boiler is nearing the end of its life. However, the boiler was recently re-tubed which should extend its life past the normal life span with continued maintenance. If a large scale mechanical renovation to the building were to occur it is recommended that the steam boilers be replaced with high efficiency condensing style hot water boilers to optimize the energy efficiency of the mechanical system and eliminate the requirement for steam heat exchangers.
- 2. The steam-to-hot water heat exchangers and heating water pumps are past their useful life of 20-25 years. It is recommended that the existing heat exchangers be replaced or eliminated depending on the mechanical system renovation scope. Refer to item 1 above for additional discussion on the elimination of the steam heat exchangers.
- 3. Remove the original steam boilers in the basement mechanical room to free up space for new equipment.
- The terminal equipment (unit ventilators, radiation, convectors) served by the steam system is original to the building and thus past its useful life of 20-25 years. It is suggested that terminal equipment be replaced with equipment served by the heating water system and the steam system be removed back to the boiler room. Refer to item 1 above for additional discussion on the complete steam boiler system removal during a large scale renovation. If air conditioning is desired within the High School replacement of the existing unit ventilators with new unit ventilators with cooling coils and heating coils should be further evaluated to determine if another option is more appropriate. Unit ventilators with cooling coils can have maintenance issues with freezing coils during extreme cold weather and an alternative mechanical system may be better for the facility. An overhead air system with individual zones per classroom is recommended.

- 5. All but one roof top unit was installed prior to 1998 and are nearing the end of their useful life of roughly 15-20 years. These units should be prioritized and scheduled for replacement in the near future. If a large-scale mechanical renovation to the building were to occur or if building wide air condition is being considered replacement of the rooftop units with units connected to the building wide air conditioning system should be further evaluated.
- 6. Replace existing indoor air handling units installed prior to 1976 which are beyond their useful life of roughly 20-25 years. Single zone units serving multiple classrooms should be reviewed and additional controls considered as part of the upgrade. New units should include economizer function to meet current energy code requirements.
- 7. Provide cooling to technology server rooms throughout the High School.
- 8. Replace exhaust fans that are original to the building prior to the 1979 addition. All exhaust fans prior to that are past their useful life of 20-25 years. This will improve the odor issues in the locker rooms and toilet areas.
- Repair and replace damaged insulation on steam and heating water piping that is exposed to students and staff.
- All mechanical system upgrades should include the installation of DDC controls for the equipment being replaced.

Electrical Recommendations:

- 1. Upgrade existing Bulldog Electric distribution equipment that is located in the Boiler Room.
- Add a panel board in the Tech Ed area for additional circuit capacity.
- 3. Replace the branch panel boards that are original to the building. Replacement parts are unavailable.
- 4. Provide additional branch panel boards throughout the School to increase circuit capacity for future loads.
- Add emergency lighting unit equipment so that the light levels along egress paths comply with current codes.
- 6. Replace exit signs that do not have internal battery back-up.
- 7. Replace the existing metal halide gymnasium lighting with T8 fluorescent or LED high-bay fixtures. These fixtures shall have multi-level switching capabilities.
- 8. Add occupancy sensors for automatic shut-off to all areas that are not currently covered.
- 9. Upgrade exterior light fixtures to LED.
- 10. Add fire alarm notification devices to common use spaces that are not currently covered.
- 11. Replace existing master clock/bell system.
- 12. Replace existing intercom/paging system.
- 13. Upgrade existing access control system to address the circuit board failures.
- 14. Upgrade existing video surveillance system to address the PZT failures.



April, 2015 Beaver Dam School Dis	trict	

Educational Space Study



INTRODUCTION

This report is prepared to provide an objective analysis to determine the building capacity at Beaver Dam High School. This analysis has three sections:

- Overview to outline the process and assumptions in determining building capacity
- Building/Program Capacities worksheets and summary
- Building floor plans to identify spaces

OVERVIEW

Through collaboration with the building principal, building tours and space utilization data provided by the District, this capacity analysis provides a quantitative measure of spaces currently located within Beaver Dam High School to support current and potential programming.

The Beaver Dam Unified School District provided the following Class Size Guidelines:

	Normal	Maximum
Subject	Section Range	Student/Class
Agriscience	10-12	28
Alt. Ed / Credit Rec.	5-6	15
Business	20-22	28
English	80-84	26-30
Foreign Language	45-47	28-30
FACS	20-22	20-26
Technical EE	46-50	20-26
Mathematics	78-80	26-28
Music	8+ Lessons	80
Physical Education	35-37	30-35
Health	12-14	30
Science	82-84	28
Social Studies	72-74	28
Special Education	90	8
Targeted Support	10-15	6-8

There are three questions that need to be answered in order to determine a buildings capacity. These questions are:

- Is the existing capacity adequate to service the needs of the district today and in the future? If not, what are the additional space needs required? (Capacity)
- Are there any building space deficiencies that should be addressed as part of a facility master plan? (Deficiency)

3. What facilities will be required in order to accommodate visionary programs? (Vision).

The objective of this study is the creation of a master plan for Beaver Dam High School. As such, the scope of investigation is limited to the High School building and does not consider other outside factors such as space needs or capacity availability at other District buildings.

Current enrollment has been identified for reference, and does not factor in to any capacity calculations. Future enrollment projections provided by the District have also been provided for reference.

The analysis incorporates an operational efficiency based upon the grade levels served by the building. For high school buildings (grades 9-12) the typical utilization factor of 80% is considered to be maximum capacity level to be targeted for optimum building utilization. This utilization factor is used to compensate for scheduling inefficiencies and variations in class size that are natural in upper grade level buildings. Operating a facility at or below these levels allows for the availability of time and space in the building to support teacher preparation and tutoring activities, the flexibility to accommodate scheduling conflicts between events and classes, and unscheduled special assistance to individual or small groups of students.

The method this analysis will be based upon determines the capacity on the current assigned space usage. The number of classrooms is then calculated by the number of students to occupy the room, which has been determined by the Districts Class Size Guidelines. The usage factor is determined by the actual use of a classroom divided by the number of periods that the building operates within an instructional day. The resultant calculation is then multiplied by 80% (which is a planning guideline for the student station utilization factor as explained above). Each classroom or instructional space that has been assigned for scheduled student instruction will be factored in to the calculation. This method will determine how many students are in an assigned instruction space at any one period of the day. After a period has ended, the students rotate to another instructional space. The periods that each instructional space is used will vary depending upon the administrations scheduling of the spaces as will the target class size number which is dependent upon the acceptable number of students assigned.

Target Class Size Formula:

Periods used / Periods in day = Usage Factor %
Number of Rooms * Usage Factor % * Class size = Capacity * 80% = <u>Target Capacity</u>

ANALYSIS ASSUMPTIONS

PRA has made several assumptions in order to create the capacity study below. These assumptions include:

- One teacher per teaching station (typically this means one teacher per room)
- Schedules of classes, usage of rooms and the basic curriculum will remain the same
- Current classroom assignment was verified by the building Principal

The building capacities derived and presented in this Study are predicated on methods of program delivery that have been adopted by the District. These methods of program delivery are linked to specific academic and non-academic goals and reflect community expectations.

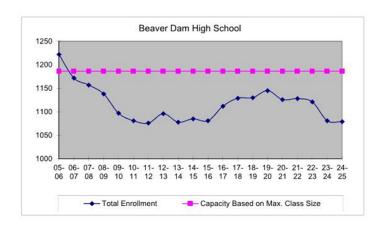
This Study does not determine capacity by utilizing building or fire code "life safety" building capacities, nor by merely counting the number of rooms and multiplying by an average student to teacher ratio. Those methods, while useful insofar as they provide an upward limit for capacity, are very limited in their utility in providing a practical capacity based on current program delivery. In short, the Beaver Dam Unified School District Board of Education and community expect that the program and delivery model will largely drive the use of building space, not that building space will dictate the program model and delivery. Therefore, the following assumptions are embedded in the derivation of the High School building capacities:

- 7 periods of classes in an academic day
- Regular classroom space is dedicated to special education
- Regular classroom space is dedicated to at-risk programming
- Capacities are based on 80% room usage efficiency
- Teachers have at least one prep period in their classroom thus taking that classroom out of use for that period
- Some classes have specialized space needs and thus cannot be placed in just any regular classroom. This includes such classes as ceramics, video production and chemistry labs for example

BEAVER DAM HIGH SCHOOL CAPACITY DETERMINATION

As shown in the proceeding charts, each educational space has been identified, its utilization rate and maximum class size determined and finally, all available spaces summed to determine the total building capacity. The determined "Target Building Capacity" for Beaver Dam High School is 1,186 students. With a student enrollment for the 2014/2015 school year of 1,085 students, some available capacity does currently exist.

Future enrollment trends are projected to be reasonably steady as shown on enrollment data matrix and the subsequent graph. This data shows that it is reasonable to expect some flexibility in repurposing or allocating existing





Current Enrollment and Room Usage - Year 2014/15

	Current
Program	Enrollment
Ninth Grade	275
Tenth Grade	256
Eleventh Grade	260
Twelfth Grade	294
Totals:	1,085

Enrollment Capaci	y based on Maximum and	Target Class Size
-------------------	------------------------	-------------------

Num of	Periods	Periods		sage	Target	Maximum	Efficiency	Target
Rooms Program	Per Day	Used	F	actor	Class Size	Capacity	Factor	Capacity
Core Curriculum								
6 Math Classroom		7	6	86%	28	144	80%	115
8 English Classroom		7	6	86%	28	192	80%	154
7 Social Studies Classroom		7	6	86%	28	168	80%	134
7 Science		7	6	86%	28	168	80%	134
1 Agriculture		7	6	86%	28	24	80%	19
Physical Education								
4 Phy-ed Stations (Gym)		7	5	71%	35	100	80%	80
1 Weight		7	5	71%	35	25	80%	20
3 Fitness		7	5	71%	35	75	80%	60
1 Health		7	5	71%	28	20	80%	16
Specials								
4 Foreign Language		7	6	86%	30	103	80%	82
2 Business Education		7	6	86%	28	48	80%	38
1 Computer Lab		7	0	0%	28	0	80%	C
1 Career Center		7	0	0%	28	0	80%	C
2 FACE		7	5	71%	26	37	80%	30
3 Art		7	5	71%	26	56	80%	45
2 Band		7	4	57%	80	91	80%	73
1 Orchestra		7	2	29%	80	23	80%	18
1 Choir		7	2	29%	80	23	80%	18
Technical Education								
2 Wood Shop		7	5	71%	26	37	80%	30
1 Metals Shop		7	5	71%	26	19	80%	15
1 Metals Classroom		7	5	71%	26	19	80%	15
2 Tech Ed Classrooms		7	5	71%	26	37	80%	30
1 Graphic Arts		7	5	71%	26	19	80%	15
Special Education								
6 Special Education		7	7	100%	8	48	80%	38
1 Reading Support		7	7	100%	8	8	80%	6

Target Capacity 1,186

											Projected Enrollment									
	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25
Twelfth Grade	340	339	290	332	289	305	258	281	282	294	260	256	275	290	291	273	276	305	272	275
Eleventh Grade	322	255	315	270	286	243	271	274	280	260	256	275	290	291	273	276	305	272	275	269
Tenth Grade	255	304	270	280	249	272	272	276	261	256	275	290	291	273	276	305	272	275	269	265
Ninth Grade	305	274	282	256	273	261	275	265	255	275	290	291	273	276	305	272	275	269	265	270
Total Enrollment	1222	1172	1157	1138	1097	1081	1076	1096	1078	1085	1081	1112	1129	1130	1145	1126	1128	1121	1081	1079
Capacity Based on Max. Class	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186	1186

Note: Enrollment history and projections are provided by the District.

SPACE DEFICIENCIES

Are there any building space deficiencies that should be addressed? Utilizing floor plan analysis and national room size standards, the following list of spaces provided on the proceeding pages have been identified as undersized for their intended use.

It should be noted that spatial requirements are changing along with modern educational delivery and as such should be considered carefully as part of the overall facility master plan development process. Previous standards are identified in the proceeding charts. Typical classrooms for student centered learning environments range from 900—1,000 SF. Larger class rooms allow for greater flexibility in furniture placement and support multiple learning activities occurring simultaneously.

Similar to typical classrooms noted above, other areas of the building are functionally obsolete and while they may not be significantly deficient in space, consideration should be given to updating these spaces to better facilitate modern learning activities. The following areas should be considered:

- Cafeteria / Student Dining Commons
- Preparation and Serving Kitchen
- Remaining Science Labs not renovated in 2013
- Locker Facilities for the South Gymnasium
- Girls Locker Facilities for the North Gymnasium
- Tech Ed Wing
- Music Suite
- Library / IMC

VISION

Beaver Dam High School was built to serve a different period of educational delivery. Curriculum, technology and social expectations and requirements have changed significantly since the building was originally designed. As part of the Master Planning Process, consideration needs to be given to the long range vision of the Beaver Dam Unified School District and the greater community that it serves.



				Recomme		
Function/Grade	Qty.	Rm. Area (SF)	Tot. Area (SF)	Area (SF)	Exten. (SF)	Room Number
ALTHETIC STORAGE	1	1,530	1,530	1,530	1530	L100
STORAGE	1	626	626	626	626	L101
BOYS LOCKERS	1	2,358	2,358	2,358	2358	L102
TRAINING	1	425	425	425	425	L102A
COACH	1	191	191	191	191	L102B
TEAM ROOM	1	1,421	1,421	1,421	1421	L103
MAINT.	1	547	547	547	547	L104
BOILER	1	1,591	1,591	1,591	1591	L105
MECH	1	1,443	1,443	1,443	1443	L106
STOR	1	290	290	290	290	52
MAIN OFFICE	1	2705	2,705	2705	2705	100-112
LIBRARY	1	4,535	4,535	10850	10850	117, 119
GUIDANCE	1	1355	1,355	1355	1355	120A-J
STORAGE	1	221	221	221	221	121
ENGLISH STORAGE	1	431	431	431	431	122
ENGLISH	2	740	1,480	800	1600	124, 126
CAREER CENTER	1	2,803	2,803	2,803	2803	127 A-D
FOREIGN LANGUAGE	1	745	745	800	800	128
FOREIGN LANGUAGE	1	789	789	800	800	130
FOREIGN LANGUAGE	2	687	1,374	800	1600	134, 136
FOREIGN LANGUAGE OFFICE	1	145	145	145	145	130A
FOREIGN LANGUAGE OFFICE	1	126	126	126	126	130B
STORAGE	1	295	295	295	295	129
COMPUTER LAB	1	708	708	1000	1000	133
READING SUPPORT	1	1,223	1,223	1223	1223	135
ENGLISH	6	740	4,440	800	4800	138, 140, 141, 143, 144, 145
STORAGE	1	240	240	240	240	139
ELL	1	740	740	800	800	142
SPECIAL ED	1	2,105	2,105	2,105	2105	146 A-C
MATH	1	1,073	1,073	800	800	147
MATH	1	746	746	800	800	148
MATH	3	740	2,220	800	2400	149, 150, 152
MATH	1	722	722	800	800	151
STORAGE	1	140	140	140	140	153

				Recommer		
			T . 4 (0E)		E . (8E)	Room
Function/Grade	-		Tot. Area (SF)			Number
GEN SCIENCE	1	1,380	1,380	1700	1700	
GEN SCIENCE	1	1,232	1,232	1700	1700	
PREP/STORAGE	1			part of abo		155A
PREP	1			part of abo		156
GREENHOUSE	1		330	330		155B
STOR	2	108	216	108		156A, 156B
STOR	2	130	260	130	260	156C, 156D
STOR	1	93	93	93		157A
RECEIVING & STORAGE	1	1,348	1,348	1348	1348	158
BEHAVIORAL INTERVENTION CENTER	1	280	280	280	280	202
SPECIAL ED	1	1,147	1,147	1147	1147	204
EEN	1	300	300	300	300	206
SPECIAL ED	2	727	1,454	727	1454	208, 210
SPECIAL ED	1	967	967	967	967	212
FCE	1	1,147	1,147	1147	1147	214
FCE	1	1,207	1,207	1207	1207	216
CHOIR	1	2,062	2,062	2062	2062	211A-C
BAND	1	3,851	3,851	3851	3851	213 A-K
BAND	1	2,937	2,937	2937	2937	414 A-E
ORCH	1	1,726	1,726	1726	1726	215
DRESS	1	520	520	520	520	217
SPEECH	1	336	336	336	336	219
DRESS	1	264	264	264	264	221
SCENE SHOP	1	1,530	1,530	1530	1530	223
TOOL STORAGE	1	120	120	120		224
SOUTH GYM	1	10,823	10,823	10823	10823	
GYM STORAGE	1		240	240		300A
STORAGE	1	415	415	415	415	
CAFETERIA	1		5,809	5809		302, 306
CUSTODIAL	1	-	692	692		309
KITCHEN	1		1,105	2000	2000	
KITCHEN STORAGE	1	1,277	1,277	1277	1277	
CAFÉ SERVING	1	382	382	382		303
BUSINESS	1		1,177	1177	1177	
STOR	1	208	208	208		401A
SPECIAL ED			717	717		403
	1				1846	
GIRLS LOCKER ROOM	1		1,846	1846		
HEALTH	1	974	974	974	974	405



			Recommended					
Function/Grade Q	tv.	Rm. Area (SF)	Tot. Area (SE)	Area (SF)	Exten. (SF)	Room Number		
OFFICE	1	125	125	125	1 /	405A		
DISTRICT PRINT SHOP	1	624	624	624		406		
BUSINESS	1	1,264	1,264	1264	1264			
OFFICE	1	111	111	111		407A		
ART	1	1,157	1,157		1157			
2D ART	1	1,759	1,759			411 A-B		
3D ART	1	2,066	2,066			413 A-C		
FACULTY LOUNGE	1	852	852			416		
STAGE	1	2,775	2,775		2775			
AUDITORIUM	1	5,266	5,266		5266			
CONTROL	1	247	247			420A		
PROP ROOM	1	378	378			420B		
S.S.	1	763	763			501		
S.S.		805	805			503		
S.S.	1	676	676			506		
S.S.	1	756	756			508		
S.S.	1					510		
	1	752	752					
S.S	1	775	775			511		
S.S.	1	766	766			513		
STOR	1	392	392			501A		
STOR	1	288	288			504		
OFFICE	1	126	126			505		
FITNESS	1	1,374	1,374		1374			
FITNESS	1	692	692			512		
FITNESS	1	684	684			514		
INSTRUCT FITNESS	1	1,401	1,401	1401	1401			
CHEM	1	1,420	1,420		1420			
PREP	1	326	326			602		
CHEM	1	1,339	1,339		1339			
PREP	1	376	376			606		
BIO	1	1,424	1,424		1424			
PHYS	1	1,262	1,262		1262			
AG STOR	1	174	174			611		
AG	1	1,169	1,169		1700			
STOR	1	125	125			613		
BOY'S LOCKER ROOM	1	2,573	2,573	2573		614 A-I		
STOR	1	44	44	44		615A		
TRAINER	1	240	240	240	240	617		

				Recomme		
5 11 15 1	۵.	D 4 (65)	T (0E)	. (65)		Room
Function/Grade					Exten. (SF)	Number
NORTH GYM	1	16,830	16,830	16830		
NORTH GYM STORAGE	1	789	789	789		700A
GIRL'S LOCKER ROOM	1	1,978	1,978	2,573		702 A-H
PHYSICS & ROBOTICS	1	2,089	2,089	2089		
PHYS STOR	1	117	117	117	117	705A
OFFICE	1	152	152	152	152	707
GRAPHIC ARTS	1	3,141	3,141	3141	3141	714 A-D
METALS	1	1,377	1,377	1377	1377	715
METALS	1	4,367	4,367	4367	4367	717 A-C
POWER/ AUTO MECHANICS	1	3,776	3,776	3776	3776	719
POWER/ AUTO OFFICE	1	96	96	96	96	719A
WOODS	1	4,109	4,109	4109	4109	721 A-F
WOODS	1	2,002	2,002	2002	2002	724
TECH CLASS	1	685	685	685	685	722
TECH	1	163	163	163	163	722A
TECH	1	432	432	432	432	723
TECH CLASS	1	746	746	746	746	726
TECH	1	153	153	153	153	726A
JAN	1	61	61	61	61	J02
JAN	1	64	64	64	64	J05
SOUTH GYM MEZZANINE	1	1798	1,798	1798	1,798	
Net Assistant Le (CT)			175.264	C.E.	104713	CE
Net Assignable (SF)			175,264		184,713	
Building Gross Area (SF)			246,113	SF	259,373	or .
Acreage			42.58			
Net Assignable/Gross			71.2%			



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Cost Estimates



April, 2015 | Beaver Dam School District

OVERVIEW

Recommendations listed in the preceding reports have been summarized in the following lists. Estimated costs to address these items are also provided.

Project cost estimates have been calculated for each maintenance item. The estimates included the following factors:

- Cost of construction based on qualified contractors performing the work.
- 2. Cost reflects 2015 construction costs (they do not include inflation factors for construction which will take place in the future).
- 3. A contingency due to the early stage of planning.
- 4. Architectural and engineering fees to provide detailed construction drawings, specifications, bidding assistance and construction observation.
- 5. Cost of State and local permits.
- Costs based on the square footage of space indicated.

Not included in estimates are movable equipment, such as kitchen equipment, furniture and electronic equipment such as TV's, Smartboards and computers. The costs do not include site acquisition or land costs. The costs do not include any hazardous materials abatement. Operational and staffing expenses are not addressed as part of this maintenance list.

MAINTENANCE BUDGET Beaver Dam High School

3/31/2015 ALL COST ITEMS EXPRESSED AS 2015 COSTS

Item Description	Price/Unit Level 1 Level 2 Level 3										
Area/Room	Pric	e/Unit			Level 1	١ '	Level 2		Level 3		
ARCHITECTURAL											
Redesign the bus drop off and student drop off											
areas.	Allo	wance						\$	120,000		
Replace the asphalt in poor condition.	\$	4.00	SF			\$	40,000				
Redesign the loading area paving to provide for											
a turnaround.	Allo	wance	SF					\$	400,000		
Repair the doors, siding, eaves and roofs at the											
various wood/metal sheds on site.		wance				\$	8,000				
Replace the exterior rusty doors/frames.	\$	2,000.00	Unit			\$	10,000				
Investigate and repair the building façade cracks											
and water stains.		wance		\$	15,000						
Repair the loose fascia and soffit.	_	wance		\$	5,000						
Demolish greenhouse	_	wance		\$	15,000						
Replace the single glazed window system.	\$	60.00						\$	4,680		
Replace the oldest sections of the roof.	\$	7.00	_	\$	245,000						
Apply seal coat to exterior walls at auditorium	\$	6.00	SF	\$	36,000						
Remove the existing boilers.	Allo	wance						\$	10,000		
Remodel the lower level locker rooms,											
restrooms, showers and team conference area.	_	wance						\$	300,000		
Repair damaged wall in speech room	_	wance				\$	15,000				
Lighting upgrade at auditorium lobby	\$	8.00	SF					\$	9,600		
Repair/replace damaged Tech Ed casework and											
insulated ceiling panels	\$	450.00	LF			\$	54,000				
Repair or replace the casework and countertops											
within the (2) remaining science classrooms,	١.			١.							
agricultural classroom and science prep areas	\$	300.00	LF	\$	75,000						
Review the IMC to reconfigure or enlarge in											
conjunction with the career center.	Allo	wance						\$	60,000		
Paint the interior door frames and refinish the											
interior doors.	\$	200.00	LF					\$	95,000		
Repair or replace the casework and countertops											
within the FACE classroom that are damaged.	١.			١.							
Provide ADA compliant stations.	\$	300.00	LF	\$	24,000						
Bankara dha dhiidhaa dhii dha dh											
Replace the divider within the south gym, repair	١.										
the damage to the wall adjacent to the divider.	\$	18.00	SF					\$	45,000		
Repair/replace damaged floors/ceilings/lockers	l										
in the locker rooms.	_	wance	1.5				45.000	\$	15,000		
Replace the damaged art room casework. Add elevator to lower level locker room and	\$	300.00	LF			\$	45,000				
		F0 000 00						,	150.000		
south gym mezzanine	\$ 1	50,000.00	each					\$	150,000		
Remodel all existing restrooms to be ADA											
compliant including review of existing plumbing.	l			Ś	300,000						



MAINTENANCE BUDGET Beaver Dam High School

3/31/2015 ALL COST ITEMS EXPRESSED AS 2015 COSTS

Item Description								
Area/Room		Price/Unit		Level 1			Level 2	Level 3
Upgrade building to conform to ADA standards with respect to drinking fountains areas, door lever hardware and room signage.	ė	1.00	SF	Ļ	246,000			
Repair old and/or damaged ceiling tile and grid	ş	1.00	31	٦	240,000			
throughout the building.	\$	8.00	SF			\$	120,000	
Abate areas with aesbestos composion tile and								
replace with vinyl composition tile.	\$	16.00	SF					\$ 560,000
Total				\$	961,000	\$	292,000	\$ 1,769,280

ADDITIONAL RECOMMENDATIONS Beaver Dam High School

3/30/2011 ALL COST ITEMS EXPRESSED AS 2015 COSTS

Item Description					
Area/Room	Г	Price/Unit		SF	Cost
ARCHITECTURAL					
Band, choir and music renovation	\$	90.00	SF	14000 SF	\$ 1,260,000
Renovation & enlargement of girls locker room	\$	185.00	SF	2400 SF	\$ 444,000
Remodel & redesign the food loading/food					
preparation/cafeteria area.	\$	120.00	SF	9800 SF	\$ 1,176,000
Provide a secure entry sequence	\$	90,000.00			\$ 90,000
Redesign science, agriculture and science prep rooms.	\$	200,000.00	ROOM		\$ 400,000
Total					\$ 3,370,000

BEAVER DAM UNIFIED SCHOOL DISTRICT FACILITY MAINTENANCE LIST

MAINTENANCE BUDGET

3/26/2015

Beaver Dam High School

ALL COST ITEMS EXPRESSED AS 2015 COSTS

tem Description	2					
Area/Room	Price/Unit		Lev	el 1	Level 2	Level 3
IVAC SYSTEMS						
Add air conditioning throughout the existing building to areas currently not air conditioned and to areas served by roof top units installed prior to 1998. Budget cost assumes new overehead air system to serve those spaces plus central chiller plant and electrical upgrades.						
						\$ 7,600,00
Replace existing steam-to-hot water heat exchangers and existing heating water pumps in the basement mechanical room.		S	\$ 280,000			
Remove the original steam boilers and associated housekeeping pad in the basement mechanical room.						\$ 23,00
4. Replace existing terminal equipment (unit ventilators, radiation, convectors) with new hot water terminal equipment in existing locations. Replace existing steam piping with heating water piping. No air conditioning assumed in this cost						
				\$ 750	,000,	
 Reinsulate exisiting piping where exposed or damaged within the occupied spaces of the basement. 	Allowance		\$ 20,000			
6. Provide cooling to technology server rooms.	\$ 7,500	Unit	\$ 22,500			
7. Replace existing multizone air handling unit and asociated ductwork serving the 500 series interior classrooms with VAV air handling unit. No air conditioning assumed in this cost.						
0.20	\$ 30.00	Unit	\$ 270,000			
 Replace existing interior air handling units serving Gyms, Tech Ed Areas, and Graphics Area. Provide additional zoning for units serving multiple classrooms. 						
	\$ 65,000	Unit		\$ 4	55,000	
Replace existing rooftop units installed prior to 1998.	\$45,000	Unit		\$ 3	60,000	
10. Replace steam boilers with condensing style hot water boilers.						\$ 650,00
Il. Replace/repair exhaust fans original to building.	\$ 3,500	Unit	\$ 56,000			
Notes:						
(1) If item 1 above is accepted items $4,7$, 8 , and 9 a	re not required	•0)				
(2) If item 10 is accepted items 2 is not required.						
Total			\$	648,500 \$	1,565,000 \$	8,273,00



PLUMBING												
Add code compliant backflow preventers in												
ADA compliant plumbing system fixtures &												
Urinal electric flush valve replacement. \$	500	Fix.	\$		8,000	ě						
Replace existing water heaters with similar												
Add water softener system to serve domestic												
Reinsulate exisiting piping where exposed												
Replace existing sump pump with new												
Total			\$		175,500	\$	57	,000	\$		34	
FIRE PROTECTION												
Add sprinkler system to existing building	g	\$	3.25	SF							\$	741,000
Tot	tal				\$		1.0	\$		120	\$	741,000
ELECTRICAL											1000	
Upgrade original electrical distribution equipment that	is						\$ 42,0	00				
Add panelboard in the Tech Ed area for additional circu	ıit						\$ 9,70	0				
Replace the branch panelboards that are original to the	3						\$ 49,0	00				
Provide additional branch panelboards												\$ 37,400
Add emergency lighting unit equipment.				\$	1	2,500						
Replace exit signs that do not have internal battery back	c-up.											
Gymnasium #l lighting upgrades.							\$ 60,0	00				
Gymnasium #2 lighting upgrades.							\$ 45,0	00				
Add occupancy sensors for automatic shut- off.							\$ 75,0	00				
Upgrade exterior light fixtures to LED.												\$ 50,000
Add fire alarm notification devices to				\$ 36	59,000							
Replace the intercom/paging system.							\$ 50,0	00				
Replace the master clock/bell system.							\$ 25,0	00				
Upgrade existing access control system.							\$ 40,0	00				
Upgrade existing video surveillance system.							\$ 30,0	00				
Total					\$	3	381,500	\$	4.	25,700	\$	87,400
GRAND TOTAL			\$		1,205,50	0 \$	2,04	7,700	\$	9,	101,400	

