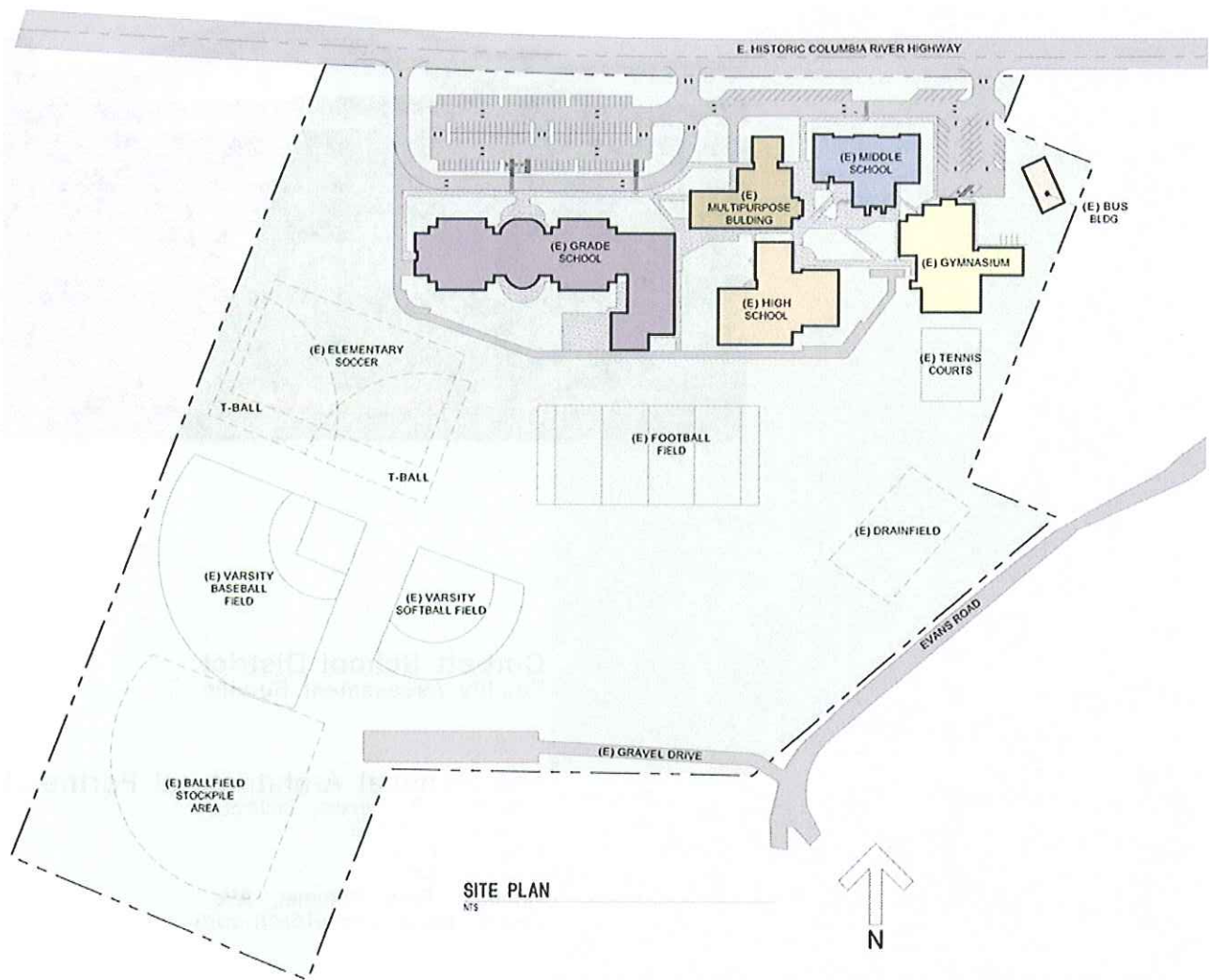




**Corbett School District**  
Facility Assessment Service

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## INTRODUCTION

Corbett School is a K-12 school built along the Columbia River Historic Highway. The campus includes the following buildings: High School, Middle School, Elementary School, a Multi-Purpose building, a Gymnasium and a school bus Maintenance Building. The structures were built between the early 1920's and 1995. Because development has occurred in phases, buildings were designed and constructed under different building codes. A variety of issues were introduced or changed from the time the first structures were built until now. Major changes in the code relate to the American with Disabilities Act, (ADA), and seismic design upgrades. Because the codes have changed over a long period of time, the older the facility, the more it is out of compliance with the existing building code.

We are reviewing each structure for Fire & Life Safety, ADA access, Energy Efficiency, Structural Design for seismic requirements and hazardous materials. The "American with Disabilities Act" established the design criteria for access for disabled people. Structural & Life Safety criteria is established by the International Building Code with amendments by the State of Oregon. Energy Efficiency & Sustainability criteria is established by the Oregon State Energy & Efficiency Code.

There also exists a site conflict between school bus operations and automobiles delivering or picking up students to or from school. School busses and automobiles operate at different speeds and rhythms and will work much more successfully if each type of vehicle has its own independent circulation.

We have reviewed the school buildings in relationship to the present building code. The implementation of the items listed in the report are necessary to comply with current code, but many times would not be required until a major improvement is made to the building.

The report lists the buildings in the order they were built.

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### **Middle School Building**

Construction Type: V-B, no fire rating  
Building Area: 15,044 s.f. – Main Floor  
15,044 s.f. – Lower Level  
??? - Upper Level  
Year Built: Early 1920's  
Fire Sprinklers: No

The facility was built in the 1920's and we believe there was no building code in effect at that time. Even if there was, it would not contain the requirements that are listed in the existing codes.

This is the oldest building and has the most issues to update to comply with present day building code. At this time, the main level of the school is the only floor that is being used because of the conditions concerning access, exiting and fire resistance of the structure.

Generally, all but one classroom on the main level meet code requirements for exiting into the corridor. However, the corridor is not fire-rated. To obtain the fire-rating, there are two options: first, re-build the corridor walls and replace doors and hardware to meet code requirements or second, install a fire sprinkler system through the entire building. This includes fire-sprinklers in the main floor, the basement plus the upstairs classrooms and the attic space. Presently, there are no fire separation doors or walls in the building.

### **Seismic and Structural**

Since there are no documents available to review for the existing construction details, we have to be very conservative in making structural decisions for improving the building. Structurally the building has no identified seismic resistance and therefore is classified as a dangerous building. Our attached structural report describes the existing conditions and items of work that are required to make the building safe. The exterior wall is unreinforced tile wall construction.

### **Heating and Ventilation**

Regarding the heating system; the boiler is old and not energy efficient. It provides steam to radiators in the classroom which is normal in many schools. Outside air, required by code, is obtained through operable windows on the perimeter of the building. Rooms on the inside of the building do not have any access to fresh air. Heating units in the basement are disconnected from the boiler and not operable. We did not have access to the upper level because the stair is blocked.

### **Building Insulation**

There is no record of insulation in the walls or ceiling. Building a new exterior wall inside the existing with insulation inside the existing exterior wall will provide adequate insulation at the exterior walls. Also, insulation will need to be installed above the ceilings. Wall insulation should be R-19 and ceiling insulation should be R-38. The exterior windows have insulated glazing, but not insulated aluminum frames.

### **ADA Access**

The building is accessible from the highway at the main entry except for the entry walk. ADA allows a 2% slope and the existing slope is about 4%. The southwest side of the building is accessible via a ramp from the other buildings on the campus. Access at the southeast entry does not exist because there are steps from the Main Floor level to the ground level outside the building. Exterior doors do not meet ADA requirements because they exceed five (5) pound pulling force.

None of the restrooms are accessible. The need to have accessible toilet stalls with grab bars, have at least one lavatory mounted at the required height and protection of piping below the sink. Also, at least one mirror, paper towel dispenser, etc. need to have the proper mounting height and the sink that is designated as the accessible lavatory needs accessible plumbing fixtures.

Door hardware into activity areas is not compliant with the present code. All locksets need to have lever handles.

### **Hazardous Materials**

The existing building is fraught with hazardous materials. Asbestos exists throughout the school in the vinyl floor tile and piping insulation.

### **Lighting**

It appears that lighting has been upgraded to use fluorescent T-8 lamps. Since the T-8 fluorescent fixtures were installed, more efficient light fixtures have been introduced to the market. T-8 fluorescents with electronic ballasts and LED fixtures are the most efficient in their consumption of power while providing the correct amount of light into the space..

### **Lower Level**

The lower level is presently not being used. Right now it is basically being used for storage.

Issues attached to the lower level are:

- a. Access is limited – no ADA access
- b. Piping hangs in spaces limiting ceiling height
- c. Numerous columns break up open space
- d. Minimal windows – original windows have been removed
- e. No operating heating and ventilating system
- f. Restrooms not accessible
- g. Structure is not seismically reinforced
- h. It is questionable whether there is any reinforcing bars in the foundation

**Upper Level** - No access available



Also attached is the analysis of the existing building code.

### **Original Gymnasium Plus Science Room**

Construction Type: V-B, no fire rating  
Building Area: 12,226 s.f.  
Year Built: 1954 & 1960  
Fire Sprinklers: No

The original gymnasium was built in 1954 and the science room addition was completed in 1960. The facility is not rated with fire resistive construction assemblies.

### **Seismic and Structural**

The building does not have seismic resistance because the east and west exterior walls of the gymnasium do not have a structural connection between the exterior wall and roof. Removing the glass block between the top of the masonry wall and the roof structure and replacing them with seismic panels will make the building structurally sound.

### **Heating and Ventilation**

The heating and ventilation system operates independently from the other buildings on campus. There exist four air handling units, one at each corner of the gym that heat and ventilate the facility. They are old and not energy efficient along with being very noisy when they are operating.

### **Building Insulation**

The original walls and ceiling do not have any insulation. Insulation will need to be installed at the roof. If the heating and ventilation system is upgraded, the exterior wall on the east side could become an interior wall and not need insulation. The west wall is already an interior wall and does not need to be upgraded. Roof insulation should be R-38.

### **ADA Access**

The building is accessible from the parking lot at the main entry. The west side and east side of the building are also accessible. Exterior doors do not meet ADA requirements because they exceed five (5) pound pulling force. Five pounds is not very much force and the wind will have a tendency to cause the doors to partially open when the wind is blowing hard out of the Columbia gorge. In your school buildings, you should probably install door opener systems so the doors will remain closed when the cold winter winds

The corridor along east side of the gymnasium that leads to the wrestling room has a stair and is not accessible. A ramp will be necessary to provide complete access. In the wrestling room, there is an upper level locker room that is not accessible. The addition of an elevator is required to meet the ADA requirement.

None of the restrooms are accessible. The need to have accessible toilet stalls with grab bars, and have at least one lavatory mounted at the designated height and protection of piping

below the sink. Also, at least one mirror, paper towel dispenser, etc. need to have the proper mounting height and the sink that is designated as the accessible lavatory needs accessible plumbing fixtures. Neither the Boys nor the Girls restrooms have an adequate number for fixtures to serve the gymnasium.

Door hardware into activity areas is not compliant with the present code unless the door has panic hardware on it. All locksets need to have lever handles.

#### **Hazardous Materials**

The existing building is fraught with hazardous materials. Asbestos exists in the vinyl floor tile and piping insulation.

#### **Lighting**

The light fixtures inside the Gymnasium are "HID" type and could be upgraded with fluorescent fixtures and provide more efficient lighting. Also, there may be money available from the State of Oregon to complete this option.

### **Gymnasium Addition**

Construction Type: V-A 1-Hour Construction  
Allowable Area:  
Building Area: 18,490 s.f. - Main Floor, Locker Rooms & Wrestling Room  
Year Built: 1970  
Fire Sprinklers: No

This addition was built in 1970 with 1-Hour fire resistive construction and a 2-Hour fire resistive wall between the existing building and addition. The addition has an issue with access to the Locker Rooms that are at the lower level and an Equal Opportunity issue with the size of the Boys Locker Room and the Girls Locker Room. There needs to be access to the Locker Rooms for handicap people plus the Boys Locker Room is twice as large as the Girls Locker Room.

### **Seismic and Structural**

The building addition does have adequate strength to resist seismic forces and does not need to be upgraded.

### **Heating and Ventilation**

The heating and ventilation system are off a new boiler located in the Boys Locker Room. Typically a new boiler should last 25 years.

### **Building Insulation**

The existing walls and ceiling insulation is per the code from 1970. Adding insulation to meet the present code is questionable for cost vs. payback. Roof insulation should be R-38.

### **ADA Access**

The building is accessible from the main gymnasium entry and the entry from the High School at the upper level. The locker room level is not accessible. The addition of an elevator is required to meet the ADA requirement.

None of the restrooms are accessible. The need to have accessible toilet stalls with grab bars, and have at least one lavatory mounted at the designated height and protection of piping below the sink. Also, at least one mirror, paper towel dispenser, etc. need to have the proper mounting height and the sink that is designated as the accessible lavatory needs accessible plumbing fixtures. The numbers of plumbing fixtures are inadequate per code requirements.

Door hardware into activity areas is not compliant with the present code unless the door has panic hardware on it. All locksets need to have lever handles.

### **Equal Opportunity Access**

The Girls Locker Room is about half the size of the Boys Locker Room. It will need to be enlarged by approximately 1,660 s.f. to match the size of the Boys Locker Room.



### **Multi-Purpose Facility - 1970 & 1995**

Construction Type: V-A 1-Hour Construction  
Allowable Area:  
Building Area: 10,275 s.f.  
Year Built: 1970 Original & 1995 Addition  
Fire Sprinklers: No in 1970 structure & Yes in the 1995 Addition

The original building was built in 1970 and the Addition was built in 1995 along with the new elementary school. The addition includes the additional multi-purpose room plus a new music room.

#### **Seismic and Structural**

The original building and the addition have adequate strength to resist seismic forces and does not need to be upgraded.

#### **Heating and Ventilation**

The heating and ventilation system are off a new boiler located above the north corridor. A new boiler should last 20-25 years. Fans have a similar life span. The issue with mechanical equipment is that designs get upgraded to be more energy efficient as time goes on.

#### **Building Insulation**

The existing walls and ceiling insulation is per the code from 1970. Adding insulation to meet the present code is questionable for cost vs. payback. The Addition meets the present code requirements.

#### **ADA Access**

The building is accessible from outside along the east and south sides of the original building and the west and south sides of the addition.

Restrooms in the original facility are not accessible. The two restrooms in the addition are completely accessible. The need to have accessible toilet stalls with grab bars, and have at least one lavatory mounted at the designated height and protection of piping below the sink. Also, at least one mirror, paper towel dispenser, etc. need to have the proper mounting height and the sink that is designated as the accessible lavatory needs accessible plumbing fixtures. The number of plumbing fixtures is inadequate per code.

Door hardware into activity areas is not compliant with the present code unless the door has panic hardware on it. All locksets need to have lever handles.

#### **Lighting**

Fixtures are mostly fluorescent type and have T-8 lamps. This type of light fixture was energy efficient when installed. New T-8 fixtures have electronic ballasts and are more energy efficient.

## High School Building

Construction Type: V-A 1-Hour Construction  
Allowable Area:  
Building Area: 25,865 s.f.  
Year Built: 1977  
Fire Sprinklers: No

The building was built in 1977 and has 1-Hour fire resistive construction.

### Seismic and Structural

The building has adequate strength to resist seismic forces and does not need to be upgraded.

### Heating and Ventilation

The heating and ventilation system is connected to the new boiler located in the high school addition. The installation of the new boiler provides adequate heating for the building. According to McKinistry Mechanical the air handling unit could be replaced as a part of a bond issue. If it is replaced, it should last at least 25 years.

### Building Insulation

The existing walls and ceiling insulation is per the code from 1977. Adding insulation to meet the present code is questionable for cost vs. payback. There appears to be 3-1/2" fiberglass insulation in the walls and we would need to verify the kinds of insulation available and the amount or work required to upgrade the insulation to meet code.

### ADA Access

The building is accessible from outside at the north side of the building.

Restrooms in the original facility are not accessible according to the present building code. They need to have accessible toilet stalls with grab bars, and have at least one lavatory mounted at the designated height and protection of piping below the sink. Also, at least one mirror, paper towel dispenser, etc. need to have the proper mounting height and the sink that is designated as the accessible lavatory needs accessible plumbing fixtures. The number of plumbing fixtures is inadequate per code. There are several options for providing accessible restrooms in existing buildings.

Exterior entry doors do not meet ADA requirements because they exceed five (5) pound pulling force to open. Five pounds is not very much force and the wind will have a tendency to cause the doors to partially open when the wind is blowing hard out of the Columbia gorge. In your school buildings, you should probably install door opener systems so the doors will remain closed when the cold winter winds. Providing accessible door openers could address the issue of making the doors accessible.

There exists a ramp from the upper entry level down to the lower level in the commons area. Since the time the building was built, the ADA ramp requirements were created and the ramp is too steep.

Door hardware into activity areas is not compliant with the present code unless the door has panic hardware on it. All locksets need to have lever handles.

### **Elementary School Building**

Construction Type: V-A 1-Hour Construction  
Allowable Area:  
Building Area: s.f.  
Year Built: 1995  
Fire Sprinklers: Yes

The building was built in 1995 and has 1-Hour fire resistive construction.

### **Seismic and Structural**

The building has adequate strength to resist seismic forces and does not need to be upgraded.

### **Heating and Ventilation**

The heating and ventilation system has been in existence for 17 years and should be good for 8-15 years. According to McKinistry Mechanical, the air handling unit could be replaced as a part of a bond issue. If they are replaced, they should last at least 25 years.

### **Building Insulation**

The existing walls and ceiling insulation is per the code from 1995. Adding insulation to meet the present code is questionable for cost vs. payback period.

### **ADA Access**

The building is accessible from outside on all sides of the building.

The restrooms meet ADA access requirements.

Exterior doors do not meet ADA requirements because they exceed five (5) pound pulling force required by code. Five pounds is not very much force and the wind will have a tendency to cause the doors to partially open when the wind is blowing hard out of the Columbia gorge. In your school buildings, you should probably install door opener systems so the doors will remain closed when the cold winter winds

### **Light Fixtures**

Fluorescent lamps are T-8. New T-8 fixtures have electronic ballasts and are more efficient. According to McKinistry Mechanical the lights in the Gymnasium could also be upgraded.



January 13, 2013

Corbett School District  
Existing Building Areas

| Building                       |             | Construction Type | Area        | Allowable Area | Fire Sprinklers      | Year Built  |
|--------------------------------|-------------|-------------------|-------------|----------------|----------------------|-------------|
| Middle School                  | Main Floor  | Type V-B          | 15,044 s.f. |                | No                   | 1920's      |
|                                | Lower Level | Type V-B          | 15,044 s.f. |                |                      |             |
| High School                    |             | Type V-A          | 25,865 s.f. |                | No                   | 1977        |
|                                |             |                   |             |                |                      |             |
| Multi-Purpose                  |             | Type V-A          | 15,528 s.f. |                | Yes in 1995 Addition | 1970 & 1995 |
|                                |             |                   |             |                |                      |             |
| Gymnasium + Science Rms        |             | Type V-B          | 12,226 s.f. |                | No                   | 1954 & 1960 |
| Gymnasium Addition             |             | Type V-A          | 10,275 s.f. |                | No                   | 1970        |
| Gymnasium Addition Lower Level |             | Type V-A          | 5,004 s.f.  |                | No                   | 1970        |
| Wrestling Room                 |             | Type V-A          | 3,168 s.f.  |                | No                   | 1970        |
|                                |             |                   |             |                |                      |             |
| Elementary School              |             | Type V-A          |             |                | Yes                  | 1995        |

Corbett School District  
Facility Analysis Re-Cap

In reviewing the existing school's structures, the older the building, the more out of compliance they are when compared with the present building code. Non-compliance items include many of the building code revisions that have been adopted over the years. Upgraded elements include ADA access, energy efficiency, fire resistive construction, use of hazardous materials, and structural design. Structural design is the code area that has changed the most with lateral (wind) and seismic (earthquake) design loads being the elements that have changed the most. Neither the original gymnasium nor the present middle schools come close to meeting the present building code. The Gymnasium can be upgraded to resist the lateral loads with reasonable costs, but the Middle School has large number of issues that need to be upgraded to make the school safe. Presently, the structure is classified as dangerous because of the lack structural resistance. Also, there is no way to structurally upgrade the existing structure to meet the building code requirements.

Virtually all the door locksets need to be replaced to provide ADA access into each room. Also, the present code requires all school buildings exceeding 12,000 s.f. have fire sprinklers. The elementary school plus the additions to the Multi-Purpose Facility have fire sprinklers.

In the existing buildings, most are not insulated to meet today's code requirements. The gymnasium addition and the High School appear to have an R-11 rating in the walls. Today's code requires R-19. Improving the thickness is an issue to review for the cost vs. the length of the payback period.

Light fixtures in many areas have been updated to improve efficiency.

Site development requires providing a specific number of Handicap Accessible Parking spaces plus a certain number of Van Parking spaces adjacent to the building main entry of each building.

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### **Gymnasiums, Science Classroom and Maintenance Office - 1954**

The original gymnasium has glass block at the east and west walls at the top and so the roof and walls are not rigidly connected. Structural analysis will determine how this connection can be accomplished.

American with Disability Act access is also deficient. Toilet rooms in the lobby are not accessible according to ADA and do not have an adequate number of fixtures. These are the only restrooms on the first floor and serve both gymnasiums, the science classroom, and the wrestling room. Since the door to the gymnasium lobby from the corridor is usually locked, there are no accessible restrooms in the building.

There is no Handicap Accessible seating in the gymnasium.

The HVAC units in the gymnasium are old, noisy and not very energy efficient.

The corridor between the original gymnasium and the wrestling room has steps in it and therefore not accessible.

### ***Proposed Upgrades***

1. Structurally upgrade the connection between the exterior walls and the roof to meet seismic design criteria.
2. Structurally upgrade walls to resist lateral and seismic forces.
3. Add toilet rooms to meet ADA requirements.
4. Replace door locksets to meet ADA requirements.
5. Replace HVAC system.
6. Provide ramp in east corridor by Wrestling Room.
7. Provide ADA access to the Locker Rooms.
8. Increase the size of the Girl's Locker Room to meet Equal Opportunity requirements.
9. Install fire-sprinkler system.



### **Gymnasium Addition - 1970**

The gymnasium addition, built in 1970, is accessible on the upper level, however, the locker rooms are not. The locker rooms are at a lower level and only have stairs for access to them, therefore, they are not accessible. Also, the Boy's Locker Room is twice as big as the Girl's Locker Room creating an Equal Opportunity issue. To make the locker rooms equal, it will require an additional square feet of locker room for the Girls. In addition, the restrooms are not adequate to meet today's code requirements.

This last year, there was a new boiler system was placed in the Boy's Locker Room area to serve the Gymnasium building plus the High School and so far, it appears to be working properly.

#### ***Proposed Upgrades***

1. Provide elevator to provide access to the locker rooms
2. Add about 1,700 s.f. to the Girls Locker Room.
3. Replace door locksets to meet ADA requirements.
4. Improve restrooms to meet ADA requirements.
5. Install fire-sprinkler system.
6. Provide ramp in corridor, east side of Gymnasium.

### **Multi-Purpose Facility - 1970 & 1995**

#### **Phase 1**

The first part of the facility was built in 1970, under the same contract issued for the gymnasium addition. The construction is Type V, 1-Hour.

This structure has a Tectum panel roof system but does not have plywood diaphragm to resist lateral or seismic forces.

Restrooms do not meet code requirements for handicap access.

Locksets on most doors need to be replaced with lever-type hardware.

Light fixtures appear to be the energy efficient type.

Wall insulation appears to be R-11 and ceiling insulation appears to be R-19. We will need to conduct a study to determine the cost of upgrading the insulation vs. how long to see how long it will take to pay for the insulation upgrade.

#### **Phase 2**

The second part of the Multi-Purpose Facility was built in 1995 along with the Elementary School. The Assembly Room and the new Music Room are 1-Hour construction with fire-sprinklers.

This addition has an ADA accessible restrooms for each Boys and Girls.

*Proposed Upgrades*

1. Upgrade restrooms to meet ADA requirements.
2. Replace door locksets to meet ADA requirements.
3. Install fire-sprinkler system in original building.
4. Verify existing wall and ceiling insulation. xx

**High School Building - 1977**

The high school was built in 1977 and has 1-hour fire resistive construction. The building is handicap accessible except for the ramp along the east wall of the Commons Area.

Locksets on most doors need to be replaced with lever-type hardware.

Light fixtures appear to be the energy efficient type.

Restrooms do not meet ADA requirements.

There is no fire-sprinkler system.

*Proposed Upgrades*

1. Rebuild handicap ramp at east side of Commons Area.
2. Replace door locksets to meet ADA requirements.
3. Improve restrooms to meet ADA requirements or add an accessible restroom.
4. Install fire-sprinkler system.
5. Verify existing wall & ceiling insulation.

### **Existing Middle School - Early 1920's**

This building was built in the early 1920's and is the most deficient structure. There are no construction drawings of the building so assumptions on the type of construction need to be very conservative. We assume from reviewing floor plans developed by Broome Selig Oringdolph Architects the upper floor is approximately 15,000 s.f.

Exterior and interior walls of the original building are clay tile with no insulation or reinforcement. Corridors are not fire rated. There is no seismic resistance that can be calculated in the existing structure. The facility is accessible at the main entry and the southwest corner, not the southeast corner. The raised area on the east side of the old gymnasium is not accessible. There are no fire-sprinklers in the building. Door hardware does not meet ADA requirements. Heating system is not energy efficient. There is not building insulation in the walls or ceiling. Hazardous materials are prevalent throughout the facility, mostly in the form of asbestos. Cracks exist in the exterior wall in several places. Some windows have insulated glazing, but not insulated frames.

Also, the lower level is loaded with hazardous materials that should be removed and replaced.

#### ***Proposed Upgrade***

Demolish the existing facility and build a new facility.

### **Elementary School - 1995**

The elementary school was built in 1995 and meets most of the requirements of the building code. Recently the school district upgraded the HVAC control system to provide a more energy efficient system.

#### ***Proposed Upgrade***

1. Provide energy efficient lighting in Gymnasium.
2. Upgrade Air Handlers from inlet Guide Vans to Variable Frequency Drive..



### **Bus Maintenance Facility**

The existing Maintenance Facility is a modular steel building and it does not have large enough doors to get school busses inside to work on for maintenance. A portion of the building contains the district maintenance facility.

The structure could be re-built across the highway and get the bus storage off the main school site. There also may be the possibility of trying to install larger doors.

### ***Proposed Upgrade***

1. Build new facility for bus maintenance across highway on school district property. This will provide for better options for renovation for the whole school.
2. Make ADA access upgrades to the building.
3. Build a new building maintenance facility along east side of original Gymnasium.
- 4.