

Building Assessment – River Ridge School District - Bloomington Middle School

Introduction ADG and its Consultant – Ring & DuChateau – conducted and documented site observations on at least two occasions the result of this information gathering effort is outlined below. No destructive tests were performed; therefore, all information gathered was visually and/or verbally gathered.

The existing facility was constructed in the early 1960's and no major additions occurred after that construction date. The only significant renovation, was to the roof system which was modified in recent years and now consist of a sloping metal roof. In general, while the structure of the facility is sound and in good condition, the infrastructure and finishes are showing various signs of significant wear and have exceeded their life expectancy. It appears that general maintenance has been lax in recent years this has compounded the degraded appearance witnessed.

I. Exterior Building and Grounds

A. Parking lot: Consists of asphalt paving and most areas are in good condition. Many areas that have cracked over its life-time have been patched or filled and it appears that regular maintenance has occurred. There are areas/locations that required routine maintenance to preserve its integrity, most noted at the drive through areas southwest corner.



Recommendations: At areas of cracking in the asphalt paving, consideration should be given to clearing debris and previous prevention methods within the existing cracks. The cracks should then be sealed with appropriate asphaltic crack filler and the entire parking lot resealed and striped. At the southwest corner at drive-thru, consideration should be given to removing an asphalt area, re-compacting the subgrade and new asphalt installed.

B. Curb and gutter - in general, the poured concrete system is in good condition with limited areas of cracking and distortion.

Recommendations: At areas of cracking, consideration should be given to clearing debris from within the existing cracks. The cracks should then be sealed with appropriate concrete crack filler and sealed.

C. Sidewalks – most areas of sidewalk are in good condition with limited areas of cracking. There does exist areas that have “pulled” away from the building – most noticeably near the overhead door to the maintenance room.

Recommendations: At areas where the sidewalk has pulled away from the building, these areas should be cleaned and a concrete caulk/sealant be applied to prevent water from seeping under the sidewalk and causing additional damage.

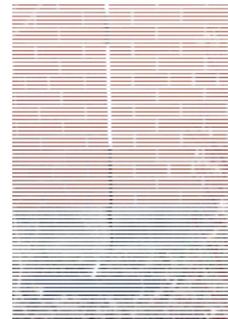


D. Footings and Foundation: Existing construction consists of cast in place/poured concrete and is in generally good condition. There are small areas of cracking and areas at control joints that require cleaning and crack repair measures to be taken.



Recommendations: The areas of cracking and control joints should be cleaned of debris and the cracks and control joints should then be sealed with appropriate concrete crack filler and sealed.

E. Brick Veneer: The existing brick veneer is in generally good condition, there are however, areas that require tuck pointing. At most, if not all, locations of inside corners and control joints, the backer rod and caulk/sealant has been compromised and in most cases is non-existent. This condition has - or will - create much moisture related damage within the cavity between the courses of brick and masonry.



Recommendations: Areas of tuck pointing should be thoroughly documented and a qualified masonry contractor should be engaged to correct the condition. The control joints should be cleaned, a backer rod installed and a caulk/sealant applied to ensure a weather-tight condition exists.

F. Windows: The windows are typically replacement double paned, aluminum frame slider type with insect screen. The windows are not original to the construction date – the installation date could not be determined. There are a handful of original to the building units. The energy efficiency of these units does not meet today's standards and many do not operate as originally designed or installed.

Recommendation: If extensive renovations are pursued, consideration should be given to replacing the window units with energy efficient models which meet today's energy standards.

G. Exterior Doors: The doors and frames associated with the main, the west and the south Vestibules are single pane glazing and aluminum frame – original to the building. The door providing egress to the exterior from the Gymnasium is double wide aluminum frame and insulated double steel door panels with transom – original to the building. The general condition is poor and they lack adequate weather stripping.

Recommendation: If extensive renovations are pursued, consideration should be given to replacing the door units with energy efficient models which meet today's energy standards.

H. Steel Siding and Aluminum Soffit: This system is a recent installation and is in generally good condition.

Recommendation: Continue to monitor condition and make routine repairs as/if required.

I. Steel Roof: This system is a recent installation and is in generally good condition. There is evidence that either the ventilation system or the thermal performance in the attic condition(s) may not meet today's energy efficiency standards – due to the existence of icicles present at the eaves.

Recommendation: Continue to monitor condition and make routine repairs as/if required. If extensive renovations are to occur, consideration should be given to increased ventilation and additional insulation installed.

II. Interior Environment

A. Flooring: Substrate (subfloor) is slab-on-grade/cast in place concrete. There is little to no evidence of cracking or settling and is in generally good condition. There is evidence of excessive moisture present under the slab at the corridor exiting near the Shop area. It is undeterminable, without taking potentially destructive measures, to establish the source of the moisture. Also, in discussion with Dan Hermson – a Contractor who installed new urinals in the summer of 2012, I have learned that the traps associated with the original three urinals were corroded, deteriorated and leaking. He indicated that the renovation consisted of removal of the saturated fill and installation of new plumbing infrastructure, new fill material, new urinals and new finished concrete floor inclusive of new tile. He could not determine the extent or the amount sanitation water that escaped due to the defective plumbing components – but did indicate he routinely made trips to the school since the 1970's to unclog the plumbing lines associated with these specific urinals.



Recommendation: Core drilling of the concrete slab in the toilet room associated with the urinal replacement and in the corridor where evidence of moisture is present should be conducted to determine the extent – if any – of sanitation water and/or other water related problems exist under the slab in this facility. Once determined corrective measures – if required – should be determined and performed.

B. Corridors and classroom finish floor mainly consists of 8" x 8" vinyl composite tile (VCT). Tile of this size and era, generally contain asbestos and/or are adhered to the substrate with asbestos containing mastic (glue). This tile is in generally poor condition; tile is releasing from the slab in a few areas – most noted in the Science Storage Room and has lasted beyond its typical life expectancy.

Recommendation: Effective December 14, 1987, the Asbestos Hazard Emergency Response Act (AHERA) ordered that every school building in the United States, whether public or private, be inspected for asbestos. Schools judged to be unsafe were required to draw up abatement plans by October 12, 1988, and to have begun protective action no later than July 19, 1989. If extensive renovations are pursued, the existing VCT should be removed by a qualified asbestos abatement contractor and new finish floor installed.

C. Library finish floor consists of carpet (CPT) and is nearing its life expectancy – with evidence of fraying at seams and general wear.

Recommendation: If extensive renovations are pursued, the existing CPT should be removed and new carpet installed. If the CPT was installed over existing VCT, the VCT should be removed by a qualified asbestos abatement contractor and new finish floor installed over the cleaned slab-on-grade.

D. Toilet Rooms finish floors generally consist of mosaic ceramic tile and, while dated, appears to be in good condition.

Recommendation: If extensive renovations are pursued, consideration should be given to updating the tile.

E. Locker Rooms and Showers and P.E. Office finish floor in Locker Rooms consists of epoxy painted concrete and the shower/toilet rooms in these areas in mosaic ceramic tile. The epoxy painted areas are showing signs of wear and should be repainted.

Recommendation: If extensive renovations are pursued, consideration should be given to updating the tile and the installation of tile in lieu of repainting the concrete floor.

F. Gymnasium: Floor consists of hardwood gymnasium/athletic finish floor over slab-on-grade concrete. The floor is original to the building and is generally good condition – with only minor areas of excessive wear or damaged floor boards.

Recommendation: Since the floor is original to the building consideration should be given to refinishing the floor and damaged areas be corrected as part of the refinishing efforts.

G. Walls: In most areas of the facility the interior and exterior walls consist of painted (PNT), stack bond, concrete masonry units (CMU). Shower room walls consist of ceramic glazed CMU. Structurally, no areas of excessive cracking or settling of walls is apparent and all appear structurally sound. Areas of blistered paint are evident in the corridor; this condition appears to be moisture related and substantially limited to the corridor nearest the interior ramp.



Recommendation: Areas of damaged CMU – most noted in a small area in the Gymnasium – should be corrected. It must be determined if the moisture related

problem in the corridor is an “on-going” situation or if it was present prior to the installation of the new steel roofing system; and corrective measures taken accordingly. In any renovation project, the existing CMU walls would be cleaned and repainted.

H. Base: The floor to wall transition is covered by a vinyl or rubber base material, and is in generally good condition. There are areas where damaged and/or loose base material is evident.

Recommendation: Replace and/or repair damaged or loose base material.

I. Finished Ceilings: In most areas of the facility, the finish ceiling consists of a suspended type of tile with integral lighting original to the date of construction. Investigation should occur to determine if the existing tile contains asbestos. The ceiling tile in the Music Classroom Office is falling down. Areas of exposed piping are present in the corridors.

Recommendation: The existing ceiling system has reached its life expectancy and consideration should be given to its replacement with a new suspended system complete with updated lighting. Areas of exposed structure should be repainted as a part of any renovation project.



J. Interior Doors: The existing interior doors typically are wood and are provided with the appropriate handicap accessible hardware. Generally, these units are in good condition with some units showing signs of heavy to excessive wear. The frame height is 80”, which allows for a door height of 78” – today’s code requires door heights – in commercial applications – to be 80”. At some classroom locations the proper A.D.A. handicap clearance at the latch side of the door of 18” does not exist.



Recommendation: As a component of any renovation project, consideration should be given to the replacement of heavily worn units and the refinishing of all existing doors. Consideration could also be given to changing the swing direction of the non-A.D.A. compliant units.

K. Casework: In classrooms containing casework original to the building, this casework shows signs of excessive wear and is in generally poor condition. In rooms/areas of replaced casework, the counter top height of 36” above finish floor exceeds current code limits.

Recommendation: If extensive renovations are pursued, consideration should be given to replacing the casework with new code compliant units.

L. American with Disabilities Act – A.D.A.: Currently, none of the Toilet Rooms meet today's size standards for handicap accessibility. The Showers in the men's and women's Locker Rooms are non-compliant due to the 4" curb at entrance. The bleachers are original to the building and do not meet present day code standards for accessibility. The Stage is not handicap accessible.

Recommendation: If extensive renovations are pursued, the design should consist of making all areas of the facility handicap accessible.



III. HVAC SYSTEM

Site observations, construction plan review, and interviews with staff were all used in the preparation of this report. The purpose for the visit was to assess the facilities HVAC & Plumbing systems current conditions.

A. Heating System Existing Data:

In general, the HVAC equipment serving the facility is original to the building construction and showing signs of age and in need of replacement.

1. Heating: The boiler's primary fuel source is natural gas. A central boiler located in the basement of the 1960 building serves the facility. The central boiler plant consists of (1) Cleaver Brooks Hot water Boiler, Model L36167-200, Installed 8/3/1960. A boiler room make-up air louver provides combustion ventilation air for the boiler room. Piping and pumping capacities for the hot water heating system serving the building are adequate. The hot water distribution system doesn't have a stand-by pump for redundancy. Perimeter hot water heating elements are installed for supplementary heating throughout the building.

2. Air Handling Units (AHU) and Conditioning Systems: Unit Ventilators located on the exterior wall provide ventilation, hot water heating and outside air ventilation for the classrooms. Unit Ventilators are original to the building. Window AC units are installed in the classrooms and administration areas. Window air conditioning units do not provide the code minimum outside air ventilation requirements for occupancy. The unit ventilators would need to operate to provide this outside air requirement. Relief air from the classrooms is transferred through the corridor via door or transom grilles to relief hoods or provides make-up air for various exhaust systems. Terminal exhaust fans are located on the roof and provide corridor relief air and general exhaust for the lab, toilet rooms and locker rooms. The facility has no energy recovery systems. Two AHU's that provide

ventilation, hot water heating and outside air ventilation for the Gym. AHU air filtration provided a minimum filtration level.

3. Controls: Honeywell pneumatic control system is installed and original in the building. Two temperature control compressors support the buildings pneumatic controls with manual lead / lag start – stop operation. Exhaust fans have gravity back draft dampers installed on fan inlets. Classrooms are individually controlled with wall mounted pneumatic thermostats serving the Unit Ventilators. General design indicates the Unit Ventilator's outside air intakes have gravity back draft dampers.

B. Observations:

1. The hot water boiler is in poor condition. Based on its age, replacement parts for the boiler and burner will make it difficult to be maintained. Boiler tubing replacement was completed last summer. Based on the age and style of the boiler, operating efficiencies are between 40 and 50%.
2. There are several visual conditions indicating hot water piping leaks in the boiler room with damaged piping insulation and residue on exposed piping. Exposed piping has significant corrosion on the piping surfaces and is in need of replacement or repair.
3. Boiler water chemical systems are in place and appear not to be functioning as intended.
4. Boiler room make-up air control is not connected and functioning correctly to interface with the boiler.
5. The majority of the piping in the boiler room is in need of repair or not insulated.
6. Thermometers and gauges are present and appear to be working.
7. Valves in the boiler room are not in operational condition and capable of functioning correctly for isolation purposes.
8. Boiler stack is not insulated.
9. Not all of the entries have hot water cabinet unit heaters for heating.
10. A significant number of locations of heating piping insulation in the facility are in need of repair with damaged insulation or duct tape repairs.
11. Wall piping penetrations are not sealed to meet the current life safety code requirements.
12. Unit Ventilator outside air intake ductwork is not insulated.
13. IT Data closet is cooled by a window air conditioning unit with heat being rejected to the corridor.
14. Exhaust system in general maintenance, paint and tractor storage area was not operational. Current exhaust system capacity and ducting configuration do not meet code.
15. Kitchen food service equipment is supported by natural gas. Ventilation hood is provided above the food service equipment. Make-up air is being provided via the corridor.
16. Dish machine and room ventilation is undersized with make-up air is being provided via the corridor.
17. Gymnasium make-up and heating air system appears to be original to the facility and in poor condition.
18. Gymnasium relief air is being transferred thru the corridor.

19. A number of rooms in the facility do not have ventilation (Administration Offices, Staff Offices and support spaces.) All occupied spaces require outside air and general ventilation to meet code.
20. All exhaust and ventilation systems need to be in operation during occupancy to meet code. Gymnasium and general exhaust systems were off during walk thru.
21. Weight room ventilation system is undersized and doesn't meet code.
22. Administration area had plastic/duct tape covering air diffusers to prevent air flow.
23. Piping and HVAC systems should be labeled for proper identification of components.
24. Temperature control compressors and surrounding floor area is covered with oil residue indicating compressor maintenance issue.
25. The control systems are in workable condition. However the pneumatic systems do result in comfort complaints and require frequent calibration to maintain accuracy. The newer digital controls are more accurate and more flexible. In addition, the industry has made such a complete changeover to digital controls that it is becoming difficult to find good pneumatic service technicians.

C. **Code:** In order to bring the facility up to current industry standards and codes the following HVAC recommendations need to be addressed:

1. **Equipment Age & Code Issues:** Boiler, hot water valve, piping & insulation replace and combustion make-up air ventilation upgrade.
2. **Code Issue:** Replace all heating piping insulation in the facility to meet energy and building codes.
3. **Code Issue:** Eliminate classrooms relief air transferred thru the corridor with a dedicated corridor ventilation system and dedicated classroom relief air.
4. **Code Issue:** Sealing of piping penetrations thru life safety walls.
5. **Code Issue:** Kitchen and dish machine room ventilation system upgrade.
6. **Equipment Age Issue:** Unit Ventilator replacement.
7. **Equipment Age Issue:** Gymnasium Ventilation System replacement.
8. **General Issue:** Install IT data closet CRAC unit with condensing unit located outside.
9. **Code Issue:** Replace exhaust fans back draft dampers with motor operated dampers.
10. **General Issue:** Provide DDC temperature control system for building.
11. **General Issue:** Provide duct cleaning.
12. **Code Issue:** System testing and balancing should be completed on all systems to confirm operations are meeting the code minimum requirements.

IV. **Plumbing System:**

In general, the Plumbing equipment serving the facility is in good working condition.

A. **EXISTING DATA**

1. **Water Service:** Municipal city water service provides domestic water to the facility.

2. Water Heating: The building has dedicated domestic water heater to support the building. Booster heater is located near the kitchen to support the dish machine.

3. Water Softener: Are located in the buildings and in appear in poor working condition.

4. Fixtures: Are wall and floor mounted.

5. Distribution: No issues of capacity or pressure are apparent.

B. Observations:

1. Water Heating: Has recently been replaced in the 1960's building.

2. Water Softener: Is in poor operating condition and in need of replacement.



3. Fixtures: Are in good working condition.

However, mineral deposits are apparent on various shower heads and faucets. This could be due to the poor operating condition of the water softener.

C. Distribution:

1. Underground sanitary back up issues had recently occurred. Verification of the integration of the entire underground sanitary piping system needs to be completed.

2. The majority of the plumbing piping insulation is in need of repair or insulation in the 1960's building.

3. Valves in the boiler room are not in operational condition and capable of functioning correctly for isolation purposes.

4. Piping and HVAC systems should be labeled for proper identification of components.

V. ELECTRICAL SYSTEM

A. Site observations, construction plan review, and interviews with staff were all used in the preparation of this report.

B. ELECTRICAL SUMMARY: In general, the Electrical equipment serving the facility is original to the building construction and showing signs of age and in need of replacement.

C. EXISTING DATA:

1. **Power:** The facility is served by an 800A, 208Y/120V, 3 phase, 4 wire secondary utility service. The main distribution panel is 800A, 208Y/120V, 3 phase, 4 wire, manufactured by General Electric and is located in the boiler room and subpanels are located throughout the facility. All distribution panelboards are located in various rooms throughout the facility. All distribution is original to the building.
2. **Emergency system:** There is not an emergency power system in the facility.
3. **Lighting:** The existing light fixtures consist primarily of lensed fixtures which utilized T12 fluorescent technology. Controls are line voltage switches only. All light fixtures with the exception of a few instances, and controls are original to the building. Site lighting consists of building mounted fixtures.
4. **Fire Alarm:** The existing fire alarm system is a 120V, conventional horn only system by ACME Fire Alarm. The main control panel is located in the boiler room. The fire alarm system is original to the building.
5. **Clock / Paging system:** The existing central clock / paging system control panel is by Simplex and has been replaced recently. The clocks appear to have been replaced recently; the age of the speakers as the enclosures around the speakers are original.
6. **Security:** Cameras located on exterior of building.
7. **Telecommunications:** Data outlets added to classrooms and other areas for computer use.
8. **Audio / Visual:** Projectors are located in classrooms and teaching areas.

D. Observations:

1. **Power:**
 - a) Generally all electrical equipment dates to the 1960's and is in poor to moderate condition. New parts are not available for much of the equipment; refurbished parts may be difficult to procure. Circuit breakers may not trip due to either a deteriorated condition or not having been actuated regularly.
 - b) The electrical service distribution panelboard is old and in poor shape. Panel appears partially corroded. The service size would not be adequate for a modern building of the same size.
 - c) Panelboards located throughout the facility are old and in poor shape.
 - d) There appears to be no arc-flash warning information on any of the equipment.
 - e) At this age of equipment there is likely inadequate grounding of much of the equipment.

f) Many of the kitchen receptacles are not Ground Fault Circuit Interrupting (GFCI) as required by code.

2. Emergency Power:

a) There is no emergency power system in the facility.

3. Lighting:

a) All lamps are T12 except for a few instances. This technology is outdated, inefficient and is illegal to use new. Lamps are available, but may not be in the near future.

b) Most light fixtures have lenses which are old, cracked and / or yellowed. These conditions contribute to reduced light output.

c) There are no energy saving controls, all lighting is switched only.

d) Exit sign coverage is inadequate and does not meet current code.

e) Except for a few battery units, there is no emergency lighting in the building fed from an alternate power source as required by current code.

f) Lighting levels in many of the areas, specifically classrooms and corridors, do not meet the levels recommended by the Illuminating Engineering Society, or IES, the industry standard. Inadequate lighting in corridors poses a direct hazard to occupants.

g) Site lighting appears inadequate, however, levels were not observed directly during night hours.

4. Fire Alarm:

a) The fire alarm system is very old and outdated, it is unknown if it is functional.

b) Most of the exits have pull stations, but these are above the height allowed by the Americans with Disabilities Act.

c) There are some audible horns throughout the facility and no strobes.

d) There is no smoke detection except for one non-system residential type battery unit in the corridor.

5. Clock / Paging:

a) There is a central clock / paging system. The head end electronics appears to have been recently replaced. The speakers and clocks appear to be in adequate condition.

6. Security:

a) No security devices observed.

7. Telecommunications:

a) Surface mounted conduit and backboxes provided for data outlets provided at various locations, typically at desks.

b) Wireless access points provided throughout.

8. Audio / Visual:

a) Projectors located in classrooms.

E. Recommendations: In order to bring the facility up to current industry standards and codes the following Electrical recommendations need to be addressed:

1. **Power:**
 - a) Equipment Age: Replace entire distribution system including all panelboards and feeders. Upgrade as needed to accommodate new HVAC equipment.
 - b) General Safety / Code Issue: Analyze and test grounding system to ensure continuity.
 - c) Facility Personnel Safety: Perform short circuit and arc flash studies, provide arc-flash warning information on all distribution equipment.
 - d) General safety / Code Issue: Provide Ground Fault Circuit Interrupter receptacles for all 120V receptacles in kitchen areas and other area required by code such as toilets and the garage.

2. **Emergency Power:**
 - a) Safety / Code Issue: Provide an alternate source of emergency power in the facility for egress lighting and exit sign use. This source may be batteries internal to emergency light fixture and exit signs, a center inverter system or an emergency generator. Run time shall be 90 minutes minimum.

3. **Lighting:**
 - a) Equipment Age / Industry Standards / Safety Issue: Replace all light fixtures with new and provide illumination levels in all areas to comply with Illuminating Engineering Society of North America (IESNA) standards. Recommended minimum is to utilize fluorescent T8 lamps with electronic ballasts.
 - b) Code Issue: Provide controls to meet Wisconsin Safety and Professional Services Chapter 363, Energy Conservation.
 - c) Code Issue: Provide code required lighting levels for all interior paths of egress, interior common areas and all exterior doors per International Building Code Chapter 10. Emergency fixtures shall provide 90 minutes of illumination per code.
 - d) Code Issue: Replace all exit signs and provide quantities as required. Exit signs shall provide 90 minutes of illumination per code.
 - e) Code / Safety Issue: Provide proper illumination the exterior walkways and parking lot. Provide controls for dusk to dawn operation.

4. **Fire Alarm:**
 - a) Code Issue: Replace entire fire alarm system with new addressable system.
 - b) Security
 - c) Safety Issue: Review system requirements with appropriate authority and provide system to match needs.

5. **Telecommunications:**
 - a) Functionality: Review system installation and standards and review if system meets needs.

VI. SUMMARY

- A.** Typically, this report would be categorized with deficiencies identified as follows:
- 1. P-1:** These are code related concerns, life safety concerns and/or building maintenance issues that **must** be addressed should major renovations occur.
 - 2. P-2:** These are items that consideration **could** be given should major renovations and/or building addition(s) occur.
 - 3. P-3:** These are items that would be **nice** to include should budget allow.
 - 4. O&M:** These are items that should be addressed and/or maintained through normal Operations and Maintenance.

The existing infrastructure condition of this building is such that, if consideration is given to the continued use of this facility for educational and/or other public purposes, a complete renovation must take place. This renovation should consist of the following:

- 1.** Exterior masonry should cleaned, tuck-pointed and expansion joints sealed and caulked.
- 2.** The facility does not meet today’s level energy efficiency; including exterior walls and ceiling insulation, window and door systems, HVAC and electrical systems. These components should be updated and/or replaced.
- 3.** All infrastructure components HVAC, plumbing and electrical systems are at and/or beyond their intended life expectancy and should be replaced.
- 4.** The facility has many deficiencies related to A.D.A. compliance – facility must be brought into compliance.
- 5.** The facility’s light levels do not meet present code, further the existing light levels present a life-safety concern.
- 6.** All life-safety code requirements must be met including, but not necessarily limited to, light levels, fire alarm system, security measures, indoor air quality; and a fire suppression system must be installed.
- 7.** The finish floor and potentially the original finish ceiling is suspect to – or does - contain asbestos. These conditions must be tested for asbestos and remediated accordingly.

B. Cost Summary:

1.	Exterior Grounds:		
	a) Parking Lot and Sidewalks	Allowance	\$20,000
2.	Exterior Masonry Maintenance	Allowance	\$12,000
3.	Asbestos Abatement	19,000 sq.ft. x \$12/ sq.ft.	\$228,000
4.	Interior Demolition	36,100 sq.ft. x \$5/sq.ft.	\$180,500
5.	Building Renovation	36,100 sq.ft. x \$70/sq.ft.	<u>\$2,500,000</u>
		Sub-Total	\$2,940,500
6.	Contingency	10%	\$290,000
7.	Architectural/Engineering Fees	8%	\$235,200
8.	Reprographics	Allowance	\$10,000
9.	Permits and State Review Fees	Allowance	<u>\$5,000</u>
		Sub-Total	\$540,200

Estimated Total Project Budget \$3,480,700