5.0 PROJECT BUDGET ANALYSIS

5.1 Assumptions -- The following major assumptions have been made in preparation of a budget analysis for this project.

1. The Project Budget Analysis is based on the preferred option as described in this document. The gross square footage of the preferred option is 127,125 square feet. 102,347 square feet of the project is renovation of the existing building and 24,778 square feet of project is an additional are added on to the original building.

2. The estimate is based on the extent of site development as shown on the Site Plan (see Section 8.0), including development and landscaping in the immediate area of the building.

3. The project will be constructed in two phases with funding procured for Phase 1 in 2009 biennium and Phase 2 funding procured in 2011 biennium. Two separate contracts utilizing the traditional design/bid/build project delivery method we be employed for project delivery (see paragraph 2.10 and 2.11).

4. The systems and materials will be similar to that indicated in the following Outline Specification.

5. A geotechnical report has not been completed for the proposed building site. It is assumed existing soil conditions will allow support of the building addition’s structure on spread concrete footings. Over excavation and replacement of structural fill may be required, pending further soil investigations.

6. Cost of utilities connections are estimated based on the descriptions in the Outline Specifications.

7. The preferred method of stormwater runoff disposal will be discharge into near-surface soils following pre-treatment in grass swales. The City of Cheney’s storm water system will serve excess run-off.

8. It is assumed that no additional square footage beyond the building’s existing mechanical rooms is needed for additional mechanical equipment.

9. No additional parking lots or improvements to existing parking lots are included in the scope of work.

10. Hazardous Material abatement will be included in the construction contract and completed and coordinated by the contractor.

5.2 Outline Specification -- The following is a basic summary of the GC/CM Agreement, sitework, the building structure, exterior shell and roofing, interior partitions and finishes, and major mechanical and electrical systems. It is organized in a “Systems Format” which is common to the construction industry.

0.0 GENERAL

Form of Agreement/General Conditions:

- EWU Standard Agreements and Contracts approved by the Washington State Attorney General’s Office as to form the Owner-Agency/Contractor agreement.

- General Conditions: General Conditions for Washington State Facility Construction, current condition as modified by EWU Supplemental Conditions.
• Bonds: 100% Payment and Performance Bonds.

• Retainage: 5%.

• Contractor’s Liability Insurance: $1,000,000 each and $2,000,000 aggregate minimum. Automobile Liability: $1,000,000 each.

• Owner’s Liability Insurance: Per EWU Supplemental Conditions.

• Property Insurance: Contractor shall purchase “All Risk” Builder’s Insurance.

• Permits: All permits required by the City of Cheney and other jurisdictions by Contractor.

• Wage Rates: Prevailing wage rates in accordance with Department of Labor & Industries.

General Requirements:

• Summary of Work: Renovation of the existing 102,347 square foot building and construction of 24,778 square feet of addition on to the existing building and associated site and utility work around the building.

• Work Excluded from the General Contract:
  - Furnishings, fixtures, and equipment except built-in equipment and built-in cabinets, counters, and other casework indicated.
  - Computer equipment.

• Estimated Construction Duration: 38 months in two separate contracts of 19 months each.

• Anticipated Start Date: October 2009.

• Limitations on Site Use: Adequate staging area is available. Adjacent facilities, parking areas, and roadways will remain in use during construction.

• Working Hours and Noise: 40 hours per week, 72 hours advance notice required for unusually noisy procedures.

• Codes: Work is governed by the International Building Code (with modifications adopted by the Washington State Building Code Council), the National Electric Code, the International Mechanical Code, and the International Plumbing Code or the codes which are currently adopted at the time of construction by the City of Cheney.

• Temporary Facilities:
  - Temporary facilities and utilities to be provided by the Contractor.
  - Job office: Contractor shall provide temporary job office. Telephone with answering machine, computer with internet connection and FAX shall be provided by Contractor.
  - Site control: Contractor shall provide a fence completely enclosing the project site.
  - Temporary fire protection and barriers shall be provided by Contractor.
  - Temporary fences and hoisting facilities shall be provided by Contractor.
  - Parking: Parking for contractor on campus within the campus near the site.
  - Safety: Contractor’s sole responsibility.

• LEED Silver Certification requirements to be adhered to during construction with documentation to be collected by the General Contractor, reviewed and submitted to complete USGBC certification.
  - 75% construction waste management.
  - Enhanced Commissioning of entire project to increased level for LEED credit.
20% Recycled Content documentation.
20% Regional Materials documentation.
Certified Wood documentation
Construction Indoor Air Quality Management during construction.
Low Emitting Materials documentation for Adhesives and Sealants, Paints and Coatings, Carpet Systems,
and Composite Wood and Agrifiber Products.

1.0 FOUNDATIONS

Footings and Foundations:

- Cast-in-place, reinforced 4000-psi concrete. Bear footings on rock or native soil material.

Excavation and Backfill:

- Contractor prepare health and safety plan to address potential contact with soils above environmental cleanup levels.
- Excess excavated soils to be used on site that are above cleanup levels for petroleum hydrocarbons may be required to be used only for specific purposed, i.e. – under paved parking areas, roads, or as backfill under foundation or slab.
- Compacted fill:
  - Against foundation walls, in trenches and below slab-on-grade and paving: 95%
  - General site and against retaining walls: 90%
  - Landscape areas: 80 to 85%

Foundation Drainage:

- 4-inch perforated PVC around entire perimeter of building. Wrap filter fabric around drainage fill.
- Dampproofing of perimeter foundation walls required.
- Waterproofing on below-grade exterior walls of interior occupied spaces.

2.0 SUBSTRUCTURE

Slab on Grade:

- Concrete with #4 bars at 16 inch spacing each direction with reinforced vapor barrier.

3.0 SUPERSTRUCTURE

Elevated Floors:

- Steel beams and joists.
- Concrete-filled steel deck.
- Cast-in-place reinforced concrete shear walls for lateral loads.

Roofs:

- Steel beams and joists.
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5.0 ROOFING

Roof Coverings:

- Tremco Burmastic cold-applied fiberglass multi-ply roof per campus standards.

6.0 INTERIOR CONSTRUCTION

- Steel deck or concrete-filled steel deck.

Roof Insulation:

- R-30 rigid.

Stairs:

- Interior: Concrete filled metal pan treads with steel stringer.

4.0 EXTERIOR CLOSURE

Walls - Brick Veneer and Concrete Masonry Unit or Steel Stud Cavity Wall:

- New face brick veneer or existing brick at where double wythe brick walls are preserved.
- Architectural precast concrete accents.
- 2” air space.
- Reinforced concrete masonry walls with rigid insulation on exterior face and steel stud furring on interior face or gypsum sheathing on 6” minimum steel studs at 16” o.c. with R-19 fiberglass batt insulation and 6-mil polyethylene vapor barrier or 3-1/2” stud furring with R-13 fiberglass batt insulation added to interior double wythe reinforced brick walls.
- Gypsum wallboard interior.

Exterior Soffits:

- Metal Panel System, custom Kynar paint finish or exterior gypsum base with acrylic latex veneer plaster.

Doors:

- Public entries: Medium stile anodized aluminum doors with power-assisted door operators and panic devices. A card-key access system may be utilized.
- Service doors: Hollow metal doors and frames.

Windows and Curtainwall:

- Thermally broken, anodized or custom Kynar painted aluminum frames, with low emissivity insulating glass units with clear float glass.
- Operable windows in office and classrooms areas where exterior windows occur.
Partitions:

- Typical partition, not sound rated: 5/8” gypsum wallboard each side of 3-1/2” metal studs at 16” o.c. 6” minimum metal studs at plumbing walls.
- Sound rated partitions between offices, conference rooms, classrooms, computer laboratories, and public restrooms: Partitions full height with gypsum wallboard one side only and sound insulation.
- Veneer plaster where needed in public corridors and stairs.
- Fire-rated corridor partitions shall be 1-hour rated fire resistive construction where required by code.
- Stair Shafts: 2-hour rated with 2 layers 5/8” gypsum wallboard each side of 3-1/2” minimum metal studs.
- Elevator and Mechanical Shafts: 2-hour rated gypsum shaft wall system using C-H metal studs, 1” gypsum panel and 2 layers 5/8” gypsum wallboard on one side.

Interior Doors:

- Interior Doors: 1-3/4” thick solid core, custom grade, veneer with varnish finish in welded hollow metal frames with relites. Closers at rated doors.
- Access Doors: Wall or ceiling fire-rated flush metal access doors. 24” x 24”, UL labeled, with key operated locks, factory primed, for drywall construction.

Wall Finishes:

- Typical: Painted, smooth finish gypsum wallboard. Latex eggshell stipple paint in typical rooms.
- Ceramic Tile: Full height at toilet room walls, 4-1/4” x 4-1/4” glazed ceramic tile, thinset on water resistant gypsum wallboard. Surface bullnose at edges, mitered at corners. Coved ceramic base at all walls.
- Wood Paneling: Commons/Lobby.
- Wood Wainscot: First and second floor corridors.
- Wood Chair Rail Molding: Classrooms and computer laboratories.
- Soundsoak acoustical wall panels, 1” fiberglass, fabric covered at classrooms.
- Base: 4” resilient base typical. Wood base with clear finish in public areas.

Floor Finishes:

- Terrazzo or Large Dimension Tile: Commons/Lobby, all public corridors, and open stairwells.
- Ceramic Tile: Toilet rooms.
- Carpet: At reception/clerical areas, offices, conference rooms, and library.
- Sealed Concrete Slab: Mechanical spaces.
- Resilient Flooring: At all remaining spaces.

Ceiling Finishes:
• Metal Panel Ceiling System or clear stained wood panels with gypsum board soffit surrounds: Commons/Lobby.
• GWB Ceilings: At toilet rooms, smooth finish.
• Acoustic Lay-In: 2 x 2 with gypsum board soffit surrounds.

Casework:
• Plastic Laminate Base and Uppers
• Epoxy resin tops in Forensics Lab
• Wood Veneer Base and Uppers in Board Room, Library, and other public or special areas.

7.0 CONVEYING
• Refurbish two existing hydraulic elevators, 3 stop passenger, to meet ADA current ADA accessibility requirements.

8.0 MECHANICAL

Plumbing

• The existing domestic water service mains serving the building will be re-utilized. Backflow prevention devices will be provided in accordance with the City of Cheney requirements.
• The existing building sanitary sewer mains serving the building will be re-utilized.
• The building will be provided with a complete sanitary waste and vent system serving all plumbing fixtures and floor drains within the building.
• Central campus steam will provide domestic hot water to the facility via a steam to water converter and storage tank. A recirculation loop will distribute the hot water to the plumbing fixtures throughout the building.
• Building roof drain and overflow drain leaders will terminate 5 feet outside the building and connect to the campus site storm drainage system.

Plumbing fixtures:
  o Water Closet: Wall & floor mounted, china, ADA compliant, Sensor flush valve.
  o Sinks: Stainless Steel, single or double compartment, gooseneck.
  o Lavatory: Counter/Wall mounted, ADA compliant, china, sensor/metered.
  o Urinal: Wall mounted, china, ADA compliant, Sensor flush valve.
  o Drinking Fountain: Dual & single height, ADA compliant.
  o Mop Sink: Floor mounted, china, rim guard, stainless steel back-splash.

Fire Protection
• The entire facility will be fire sprinkled.
Central campus steam will provide the heat for the facility via a steam to water converter. Heating water will be delivered to the building heating water coils via base mounted pumps.

Central campus chilled water will be used to cool the facility. This water will be circulated to chilled water coils located throughout the facility via base mounted pumps located in the mechanical room.

The primary HVAC system for the facility will utilize dedicated outdoor air systems (DOAS) to filter, temper and deliver outside air to 4-pipe fan coil units located throughout the building that will provide individual zone control of the space temperature.

The dedicated outdoor air systems (DOAS) will draw outside air into the building through a set of filters and then pass through a heat recovery system that preheats the air with the waste heat from the building exhaust system. Next the air is passed through heating and cooling coils which temper the air (55°F to 65°F). A supply fan is then used to distribute the tempered outside air through a medium pressure ductwork system to the fan coil units. Because the DOAS systems temper the outside air, the heating and cooling capacity of each fan coil unit need only be sized to condition the envelope and internal loads associated with each space.

The fan coil units will utilize two independent coils to deliver the required quantity of heating or cooling to the space. Each fan coil unit will be fitted with a pressure independent air controller (PIAC) on the outside air inlet to convert the medium pressure tempered air to low pressure tempered air. This controller also includes an air volume measuring device so that the ventilation air quantity to each space can be measured and verified.

The exhaust (relief) air from each space would use the existing return air plenum to reach the building exhaust fans located in the DOAS air handling unit. Because of this arrangement, recirculated air from one zone is not shared with any other zone in the building.

The existing ductwork systems will be re-used where feasible (inside chases). All ductwork re-used will be cleaned under this project to maintain a high level of indoor air quality.

Temperature Controls: Direct digital electronic controls by a campus approved control manufacturer. Damper and valve actuators shall be electronic. Room thermostats shall be electronic wall sensors adjustable from a central computer located within the facility. System shall have alarm, trend logging and remote adjustment capability and shall meet EWU standards.

Air and Water Balance: Systems shall be completely balanced in accordance with Associated Air Balance Council or National Environmental Balancing Bureau.

Design Criteria:
• EWU Design Standards
• International Mechanical Code
• Uniform Plumbing Code
• Washington State Non Residential Energy Code
• Washington State Ventilation and Indoor Air Quality Code
• Department of Labor, OSHA, Occupational Safety and Health Standards

Design Conditions:
• Heating Mode
  Outdoor Design Temperature  -10°F DB
  General Occupied Space  70°F DB
  Mechanical and Electrical Space  55°F DB
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- **Cooling Mode**
  - Outdoor Design Temperature: 98°F DB / 65°F WB
  - General Occupied Space: 75°F DB
  - Mechanical and Electrical Space: 88°F DB

**Indoor Air Quality**

- Air Filtration: 2-inch 30% efficient disposable thick pleated media pre-filters and 80% efficient cartridge/bag filters for final filters in all air handling units.

- Ventilation: 15-20 CFM outside air for each occupant in accordance with Washington State Ventilation and Indoor Air Quality Code, plus specific exhaust makeup air requirements.

- Separate building air fresh air intakes from exhaust, and locate away from contaminated areas such as loading docks and dumpsters.

**Equipment**

- **Piping:**
  - Water: Copper “L”
  - DWV: Cast iron
  - Hydronic: Black steel schedule 40, copper “L”

- **Ductwork:** Galvanized steel, SMACNA standards

- **Insulation:** Fiberglass, NFPA, UL 181
  1. Domestic cold water
  2. Domestic hot water
  3. Rainwater leaders
  4. Ductwork
  5. Chilled water
  6. Heating water

- **Air and Water Balance:** Systems shall be completely balanced in accordance with Associated Air Balance Council or National Environmental Balancing Bureau.

9.0  **ELECTRICAL**

**Electrical Service:**

- The building service will consist of one incoming voltage: 480Y/277 VAC. The service transformer will connect to the campus primary feeder distribution system.

**Electrical Distribution:**

- Surge protection is to be provided at the main service entrance and on all branch 208-volt panelboards serving sensitive loads.

- Transformers serving computer loads are to be K rated for 100% harmonic load, with ground shields between primary secondary windings. Transformers for standard load usage are to be similar construction, K rated for 33% harmonic load.

- 480Y/277 VAC panelboards for lighting circuits.
• 480Y/277 VAC distribution panelboards and motor control centers for mechanical equipment circuits.
• 208Y/120 VAC panel boards for receptacle and miscellaneous circuits.
• Panelboards will be copper bussed with door-in-door construction per campus standards.
• Dry type low voltage transformers will be used to step the voltage down to from 480Y/277 volt to 208Y/120 volt systems. These transformers will be copper wound with 80 degree C rise NEMA 2 enclosures and located in select electrical rooms.

Emergency Electrical System:

• 208Y/120 VAC to serve exit/egress lighting and life safety systems. Connected to an existing on-site LPG standby power generator. Generator will not serve elevators.
• Branch panelboards will be located in strategic locations in the building to serve the loads required by code to be connected to the NAC 700 system.

Uninterruptible Power System:

• No UPS system is envisioned

Fire Pump Service:

• No fire pump service is envisioned.

Grounding:

• The grounding system is to be in accordance with the National Electrical Code. The building ground is to consist of a Ufer ground system with other grounding electrodes consisting of water service, building steel, and driven ground rods. Interior metallic systems will be bonded together per NEC requirements. A telecommunication grounding riser will be provided with copper ground bars located as each telecommunication room.
• Grounding of conduit systems and panelboards is to consist of an insulated green grounding conductor routed with the phase conductors and bonded at each panelboard and at intermediate pull boxes. The conduit system shall not be used as the sole means of grounding.
• Cable trays throughout the building are to be bonded to building steel at multiple locations to create a low impedance signal ground in addition to being grounded at the main service. A bare copper ground wire will be routed with the cable tray and bonded to each section of the tray.
• A communication grounding system is to be provided per TIA/EIA-607 standards bonding all communications rooms to service ground and building steel. Ground bus bars are to be provided in each communication room.
• An isolated ground distribution system and isolated ground receptacles will not be required.

Lightning Protection:

• A lightning protection system will not be provided.

Power:
• Wall receptacles are to be provided in offices, computer rooms, and classroom spaces. Floor boxes are to be located in classrooms at the podium and any overhead projector locations.

• Science classroom benches if required are to be provided with dual channel aluminum surface metal raceways. Single and three phase 208-volt receptacles are to be provided in laboratory spaces per lab plan. Dedicated circuits shall be provided to serve equipment areas.

• 120-volt receptacles are to be provided on the building exterior for electric vehicle charging.

• Power poles are not to be used.

**Interior Lighting:**

• The lighting system shall use 32-watt fluorescent T8 low mercury lamps with electronic ballasts and compact fluorescent lamps served at 277 volts. T5 and T5HO luminaires will not be used.

• Lamp color shall be the University standard, 3500ºK with a minimum CRI of 80.

• Exit lights with LED lamps and emergency egress pathway lighting are to be provided and connected to the emergency distribution system. Exit lights shall be green letters on a white face.

• The lighting system shall meet current State energy codes.

• Parabolic troffers are to be used in offices, laboratories and other selected areas.

• Fluorescent luminaires are to be used in corridors and controlled via motion sensors.

• Life safety exit and egress lighting to be unswitched and remain on 24/7.

• Direct/indirect pendant mounted linear fluorescent fixtures with specular louvers on the downlight component in classrooms, computer laboratories and rooms, and conference rooms.

• Markerboard lighting to be provided.

• Recessed fluorescent accent downlighting to be used where applicable.

• Multi-level daylight zone controls for classrooms, computer laboratories, and office lighting are to be provided.

• Zone controls are to be provided for classrooms to allow select regions to be independently controlled. Small classrooms shall allow the front third to be controlled independently. Large classrooms shall allow the front quarter to be controlled independently.

• Mediated classrooms are to be provided dimmable or multiple level switching note taking incandescent lighting. Incandescent lighting will be interlocked with fluorescent to minimize use to accommodate energy code.

• Manual lighting switches to control all lights and projection screens are to be provided at the room entrance and duplicated on the wall adjacent to the instructor's podium

• Dimmable fluorescent shall not be used.

• Building interior lighting is to be controlled by DDC via a low voltage control system with computer control, relay panels and local low voltage switching, for compliance with energy code.

• Occupancy sensors will be used in offices, conference/work rooms, corridors and restrooms per University recommendations.

• Excessive brightness and glare shall be controlled in all instructional areas.
Lighting levels will follow Washington Administrative Code (WAC) and Illuminating Engineering Society of North America (IESNA) recommended levels. Follow are the general guidelines:

- a. Lighting levels in classrooms will be 30 - 50 foot-candles.
- b. Lighting levels in offices will be 30 - 50 foot-candles.
- c. Lighting levels in stairwells and corridors will be 10 - 20 foot-candles.
- d. Lighting levels in mechanical equipment and electrical rooms will be 20 - 30 foot-candles.
- e. Lighting levels in telecommunications rooms will be 40 - 50 foot-candles.
- f. Lighting levels in labs will be 70 - 100 foot-candles.
- g. Lighting levels in locker type rooms will be 10 - 20 foot-candles.
- h. Lighting levels in library type rooms will be 30 - 50 foot-candles.
- i. Lighting levels in food service/kitchen area will be 50 - 70 foot-candles.
- j. Lighting levels at building exterior entrances will be 2 – 5 foot-candles.
- k. Lighting levels at building exterior pathways will be 1 – 2 foot-candles.

**Exterior Lighting:**

- Automatically-controlled, pole-mounted, high pressure sodium perimeter and area lighting around building, along mall, and within parking area.

**Fire Alarm System:**

- Multiplexed, addressable fire alarm system with mylar speakers and strobes to comply with ADA and local codes.
- Corridor and common area smoke detection is required as a minimum. If there is a significant number of duct smoke detectors required by the mechanical system layout, then total area coverage will be used instead.
- Fire separation doors will have 120 VAC electro-magnetic hold open devices which will be released by the fire alarm system. 24 VDC door holders. Power supply sized to carry door holder load for ½ hr.
- System will be connected to elevator recall, stair pressurization fans, and any atrium systems required. System will monitor sprinkler system.
- Fire/smoke dampers will be a zoned shutoff system. Position switches to confirm open and closed for motorized dampers are to be provided.
- System will be a voice alarm system to allow paging and emergency announcements throughout the building.
- Fire alarm system will be based on an Edwards System Technology EST3 campus fire alarm system standard. The system will be tied to the campus fire alarm with University central reporting system. This connection will be made in the tunnel.

**Telecommunications:**

- Copper and optical fiber horizontal distribution system within the building to support voice and data networks. A Telephone/Data Main Distribution Frame (MDF) entrance room shall be provided on the first level with access to the tunnel system. Distributed communication Intermediate Distribution Frame (IDF) rooms shall be provided at each floor level of each building and located to minimize cable runs to 90 meters. This 90 meter length to be total length including patch cords of up to 5 meters.
- IDF communication rooms shall be located toward the center of the building and not at the edges of each floor where possible, and shall be stacked vertically for facilitate interconnection between rooms.
• A complete telephone and data cabling system shall be provided throughout the facility. System shall be installed in accordance with TIA/EIA 568B standards, and in general will include Category 6 cable runs to all workstations and printer locations, terminated at station outlet jacks and 110 blocks at the IDF communication rooms. Phone and data cabling shall be terminated in wall-mounted equipment. The system will be designed to support 1 GB/s distribution. Fiber optic backbone cable will be provided between the entrance room and all distributed communication rooms. MM & SM Fiber optic cables will also be provided to server rooms and certain dedicated workstations where higher level of future bandwidth is anticipated.

• Standard station outlets will include two data, and one telephone jack.

• A complete cable tray and raceway system shall be provided for the facility.

• Cable tray and conduit shall be routed from the MDF entrance room to all distributed IDF communication rooms. Distribution cable tray shall be run from distributed communication rooms to areas with large concentrations of outlets or through main corridors as to provide easy access with minimal occupant disruption. Where possible, cabling shall be routed below raised floors and rated for the environment.

• Raceways shall be provided from cable trays to all outlets. Ladder rack shall be provided in all communication rooms.

• WiFi LAN system based on 802.11b standards will be required for interior hallways, common spaces and other select rooms that require wireless access points (WAPs) for wireless networking primarily used by the students. Offices will generally not be provided with wireless provisions. Some offices rooms may be able to utilize the wireless system based on the distribution locations for the WAPs. The wireless network will use power over Ethernet (PoE) for powering the WAPs.

• 3 data cables to each WAP are required.

• An exterior building mounted WAP for wireless LAN access in the exterior quad area is required.

• Category 6 copper UTP cabling will be used for horizontal cabling. Some select locations will be provided with fiber optic data ports.

• Telephone handsets, and personal computers will be provided by EWU.

CATV System:

• CATV outlets with two-way transmission are to be provided in conference rooms, training facilities and selected classrooms.

• CATV outlets are not required in offices.

• The system is to receive its signal from the campus television system via a fiber node, The system is to be a standard broadband 1 GHz send and receive system with all amplification and distribution.

• One additional RG-11 coax cable is to be provided in all cable tray runs and all media closets.

CCTV System:

• Multiple closed-circuit television (CCTV) systems will not be provided

Audio/Video:

• Mediated classrooms (classroom selection as not been made at this time) shall be equipped with presentation systems consisting of a video/graphics projection system and multimedia sources, including document camera, VCR's, DVD/CD players and connections for personal computers or laptops. All mediated classrooms shall be provided with program audio systems and larger classrooms shall also be provided with voice reinforcement systems.
• Mediated classrooms will be a raceway only system. All active components, cabling, programming, etc. will be provided in a separate contract and will utilize the raceway systems installed in this project.

• Mediated classrooms shall be provided with control systems based on the existing University standard. Multimedia sources shall be located in the Instructor's podium and other audio/video switching, amplification and processing equipment will be located in a local equipment closet or projection booth as required.

• Assistive listening systems shall be provided in all rooms with 40 seats or more. Headsets are checked out to an individual user for use throughout the campus.

Public Address System:

• The building will not be provided with a public address system. If paging is required, then a dedicated paging system will be provided based on University standards.

Clock System:

• Individual classroom (secondary) clocks. The clocks are to be powered from 120 volt clock circuits within the building with hardwired correction by the campus correction system.

• This connection is to be made in the tunnel. Large clocks are to be located at general areas and are not planned for any rooms. Clock system will be based on a synchronous wired system. Depending on current campus standards the system may use radio synchronization in select areas.

• Clock correction to be connected to the building automation system.

Security Access Control System:

• The building requires an exterior access control system for selected doors. Access control will be via proximity cards. The access control and security system will be based on current campus standards.

• 24-hour battery backup in addition to generator power will be required for the access control system.

• Perimeter doors and select interior corridor doors are to be provided with door switches and proximity card reader access control.

11.0 SPECIALTIES AND EQUIPMENT

• Projection Screens.

• White Boards.

• Vertical blinds.

• Recessed Fire Extinguisher Cabinets.

• Mirrors at public toilet rooms.

• Toilet Room Accessories: Typical commercial stainless steel accessories by Bobrick or similar, including grab bar sets.

• Toilet Partitions: HDPE or factory-painted steel, overhead braced and floor anchored.
• Classroom Electronic Equipment and Accessories.
• Residential Kitchen Equipment at Conference Rooms, Staff Kitchenettes/Break Rooms.
• Seating: Fixed seating at Lecture Hall.
• Tables: Fixed tables in Tiered Classrooms.
• Interior and exterior signs and directory.
• Fume Hoods in Forensics Lab.

12.0 SITEWORK

Demolition:
• Install fencing around existing trees, shrub beds and art installations to remain, to prevent damage above and below grade.
• Any work done under driplines of existing trees within the fenced area will take place in the presence of a project Arborist.
• To the extent practical, recycle materials from improvements to be demolished.

Earthwork:
• The following are included as part of the work:
  Protection of existing utilities, survey monuments and existing vegetation to remain.
  Cutting of existing pavement as necessary.
  Addition/removal of excess or shortage of earth as necessary.
  Stockpile existing topsoil. Dispose of contaminated soil off-site as required. Redistribute and supplement as allowed and as necessary.
  Fill as required, compacting as noted in Section 1.0.
  Grading of the site.
  Retaining walls as required.

• If stockpiling and grading of contaminated soil is required, appropriate health and safety precautions will be necessary. Trenching for utilities may require techniques to prevent contact should future maintenance be required. Placement of soil shall be conducted in accordance with Section 1.0, Excavation and Backfill.

Site Drainage:
• Use of grassed percolation swales for treatment and disposal of stormwater runoff.
• Storm piping system as necessary, to convey runoff to disposal areas. Surface flows will be minimized, to prevent creation of icy areas during freezing conditions.
• Site drainage system to include capacity for displaced sections of existing system.
• Design of systems to handle stormwater and general site drainage need to consider alternatives to mitigate contact between water and contaminated soil that may be present.

Site Grading:
• Excavation and embankment to conform to applicable standards.
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- Erosion control practices to conform to local ordinances.

Roads and Parking:
- New service drive: 6” reinforced concrete.
- Reinforced concrete curbs to match existing.

Walks, Terraces, Hard Surfaces:
- New sidewalks: pedestrian only - 4” concrete
  emergency vehicle access - 8” reinforced concrete or asphalt
- New plaza areas: specialty unit pavers
- Decomposed granite with stabilizer

Landscaping and Irrigation:
- Soil preparation, landscaping and irrigation of entire site. All plant material and irrigation equipment will be specified in accordance with WSU standards.
- All trees, shrubs, and groundcover to comply with recommendations and requirements of ANSI A60.1, “American Standard for Nursery Stock.”
- Areas damaged due to construction to be restored to previous or better condition.

Site Improvements:
- Bicycle racks
- Benches
- Tree Grates

5.3 Detailed Cost Estimate -- OFM Form C-100 has been completed and is included on the following pages.

The total project cost is $60,727,402. $200,000 of the project cost was previously funded in the 2005-07 biennium for pre-design services leaving the remaining funding necessary to complete the project at $60,527,402.

Careful consideration has been given to the funding schedule and construction schedule for Patterson Hall. Because the project funding for construction is proposed over two biennia, the first phase to be funded in 2009-11 and the second phase funded in 2011-13, the construction will require two separate construction contracts for each phase. This extends the overall construction time required to complete the project, increasing the total escalation period and resulting project cost. However, completing the project in two phases significantly decreases the necessity for EWU to sink money into expensive surge space to temporarily house current building classroom space and office occupants. The sunk cost for this temporary construction of surge space serves no long term purpose or benefit to EWU and can thus be reduced using a phased approach, resulting in a lower overall project cost. However, though added escalation results in a higher cost per square foot than what might normally be expected.
The Maximum Allowable Construction Cost (MACC) for the project in today’s dollars before escalation, contingencies and sales tax is within State recognized cost control guidelines. However, it is our experience that the State directed escalation formulas do not adequately reflect the actual construction market forces that have existed over the past 2-3 years and still exist today. As evidence of substantially greater escalation in construction costs, in a recent 12 month period ending the spring of 2006, the average square foot cost for elementary schools in Washington State increased 22% - far out-pacing the escalation built into the C-100 form. Because of our experience throughout the current construction market, the cost incorporated into the C-100 estimate has been escalated to more appropriately reflect current market conditions in Eastern Washington to help ensure that adequate funding is available through the extended two-biennium, two-phase construction delivery process to building occupancy in 2013.

To decrease the added escalation costs incorporated into the C-100 cost estimate is to risk inadequately funding the project so it is only partially completed or, perhaps worse, continue with an under-funded project at a lower cost with less durable, less efficient systems, increasing the campus operations and maintenance costs over the expected 50-year building life. This scenario would essentially perpetuate many of the inadequacies of the existing Patterson Hall building.

While the increased escalation cost to the project for construction of the project in two separate contracts is significant, it is far less cost than building temporary surge space for the additional 20 classrooms and approximately 80 occupants that would have to be displaced into temporarily constructed, leased or portable spaces should the project be constructed entirely in one phase forcing 100% of the building occupants to be relocated.

5.4 Cost Benefit Analysis/Life Cycle Cost Analysis

5.4.1 Description of Existing Program and Facilities -- Refer to Section 2.2 for a description of existing programs and facilities.

5.4.2 Most appropriate alternative to solve problem -- As noted in previous sections of this report, renovation of the existing facility with a small addition is the most appropriate and the only alternative which solves the problems stated in Section 2.4.1. The construction will be completed in two phases by two separate contracts funded in two consecutive biennia, 2009-11 and 2011-13.

5.4.3 Other Alternatives Studied -- In the estimating process, three alternatives were explored. Alternative 1 explored the cost of constructing the entire project in one phase assuming that adequate surge space is available at other campus locations for the classrooms and offices currently located in Patterson Hall. Alternative 2 explored the cost of completing construction for the project in two phases assuming that there is only enough surge space on campus to accommodate half of the existing classrooms and offices currently in Patterson Hall. The alternative to do nothing is not an option as described above. Due to a lack of significantly different alternatives, a Cost Benefit Analysis or Life Cycle Cost Analysis has not been completed. A more detailed Life Cycle Cost Analysis will be completed during the design phase of the project, concentrating on materials, systems, and methods, when this type of information is known and can be adequately evaluated.