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Interagency Agreement

Date: January 6, 2010

Department of General Administration

Interagency Agreement No: 2010-ERG-572

Interagency Agreement Between the Department of General Administration and the City of Olympia

This Agreement, pursuant to Chapter 39.34 RCW, is made and entered into by and between the Department of General Administration, Division of Facilities, Engineering & Architectural Services, hereinafter referred to as "GA", and the City of Olympia, hereinafter referred to as the "CITY".

The purpose of this Agreement is to contract for GA to provide Energy/Utility Conservation Project Management and Monitoring Services to the CITY.

Now therefore, in consideration of the terms and conditions contained herein, or attached and incorporated by reference and made a part hereof, the above-named parties mutually agree as follows:

1. Statement of Work

GA shall furnish the necessary personnel and services and otherwise do all things necessary for or incidental to the performance of the work set forth in Attachment "A", Project Management Services and Attachment "C", Monitoring Services, attached hereto and incorporated herein by reference. Unless otherwise specified, GA shall be responsible for performing all fiscal and program responsibilities as set forth in Attachment "A" and Attachment "C".

The following projects, set forth in detail in Attachment "D", are hereby authorized:

- 1.1 Energy Conservation Measures projects outlined in Quantum Engineering & Development, Inc., City of Olympia Energy Services Proposal dated December 4, 2009.**
- 1.2 EECBG Project as outlined in Quantum Engineering & Development, Inc., City of Olympia Energy Services Proposal dated December 4, 2009.**

All future projects shall be authorized by Amendment to this Agreement.

2. Terms and Conditions

All rights and obligations of the parties to this Agreement shall be subject to and governed by the terms and conditions contained in the text of this Agreement.

The CITY shall provide the Energy Services Company (ESCO) which is selected pursuant to this agreement for a specific project with any additional contract language necessary to comply with federal requirements under the American Recovery & Reinvestment Act of 2009 (ARRA) and the Energy Efficiency and Conservation Block Grant (EECBG). The ESCO and their subcontractors are required to comply with all applicable federal regulations and reporting procedures.

3. Period of Performance

Subject to its other provisions, the period of performance of this master Agreement shall commence when this Agreement is properly executed and signed by both parties' authorized representatives, and be completed on **December 31, 2012** unless altered or amended as provided herein.

4. Consideration

Compensation for services rendered under this Agreement shall be as follows:

Project Management Services:

For Project Management Services provided by GA under Attachment "A" of this Agreement, the CITY will pay GA a Project Management Fee for services based on the total project value per Project Management Fees Schedule set forth in Attachment "B".

Compensation for Project Management Services for the projects authorized in Section 1 shall be:

4.1 Energy Project Management Fee for Energy Conservation Measures is \$59,900.00.

4.2 EECBG Project Management Fee is zero dollars.

The total compensation for Project Management Services on these projects is \$59,900.00.

Any compensation to GA for Project Management Services on future projects authorized under this Agreement shall be by Amendment to this Agreement for each authorized project. Each Amendment will include a payment schedule for the specific project.

Monitoring Services:

If monitoring services are requested by the CITY and provided by GA under Attachment "C" of this Agreement, the CITY will pay GA \$2,000.00 annually for each year of monitoring services requested.

ESCO Services:

Compensation for services provided by the Energy Service Company (ESCO) shall be paid directly to the ESCO by the CITY, after GA has reviewed, approved and sent the invoices to the CITY for payment.

5. Billing Procedure

GA shall submit a single invoice to the CITY upon completion of each authorized project, unless a project specifies a Special Billing Condition in the Amendment. Each invoice will indicate clearly that it is for the services rendered in performance under this Agreement and shall reflect the Agreement number.

GA will invoice for any remaining services within 60 days of the termination of this Agreement.

6. Payment Procedure

The CITY shall pay all invoices received from GA within 90 days of receipt of properly executed invoice vouchers. The CITY shall notify GA in writing if the CITY cannot pay an invoice within 90 days.

7. Non-Discrimination

In the performance of this Agreement, GA shall comply with the provisions of Title VI of the Civil Rights Act of 1964 (42 USC 200d), Section 504 of the Rehabilitation Act of 1973 (29 USC 794), and Chapter 49.60 RCW, as now or hereafter amended. GA shall not discriminate on the grounds of race, color, national origin, sex, religion, marital status, age, creed, Vietnam-Era and Disabled Veterans status, or the presence of any sensory, mental, or physical disability in:

- a) Any terms or conditions of employment to include taking affirmative action necessary to accomplish the objectives of this part and
- b) Denying an individual the opportunity to participate in any program provided by this Agreement through the provision of services, or otherwise afforded others.

In the event of GA's non-compliance or refusal to comply with the above provisions, this Agreement may be rescinded, canceled, or terminated in whole or in part, and GA declared ineligible for further Agreement with the CITY. GA shall, however, be given a reasonable time in which to cure this noncompliance. Any dispute may be resolved in accordance with the "Disputes" procedure set forth therein.

8. Records Maintenance

The CITY and GA shall each maintain books, records, documents, and other evidence that sufficiently and properly reflect all direct and indirect costs expended by either party in the performance of the services described herein. These records shall be subject to inspection, review, or audit by personnel of both parties, other personnel duly authorized by either party, the Office of the State Auditor, and federal officials so authorized by law. GA will retain all books, records, documents, and other material relevant to this agreement for six years after expiration; and the Office of the State Auditor, federal auditors, and any persons duly authorized by the parties shall have full access and the right to examine any of these materials during this period.

9. Contract Management

- a. The CITY Representative on this Agreement shall be:

City of Olympia
Debbie Sullivan, Director of Technical Services
520 Pear Street
Olympia, WA 98507
Telephone (360) 753-8494

The Representative shall be responsible for working with GA, approving billings and expenses submitted by GA, and accepting any reports from GA.

b. The GA Project Manager on this Agreement shall be:

Donna Albert
Dept. of General Administration
Division of Facilities, E&AS
Engineering and Architectural Services
PO Box 41012
Olympia, WA 98504-1012
Telephone (360) 902-7248

Donna Albert will be the contact person for all communications regarding the conduct of work under this Agreement.

10. Hold Harmless

Each party to this Agreement shall be responsible for its own acts and/or omissions and those of its officers, employees and agents. No party to this Agreement shall be responsible for the acts and/or omissions of entities or individuals not a party to this Agreement.

11. Amendments

The CITY and GA may mutually agree to amend the terms of this Agreement. Amendments shall not be binding unless they are in writing and signed by personnel authorized to bind the CITY and GA or their respective delegates.

The personnel authorized by the CITY is the City Manager or his delegate who may authorize amendments to the scope of energy conservation projects and services, the scope of GA's services, and compensation not exceeding the City Manager's dollar authority as set forth in Olympia Municipal Code 3.16.

12. Termination

Except as otherwise provided in this Agreement, either party may terminate this Agreement upon thirty (30) days written notification. If this Agreement is so terminated, the terminating party shall be liable only for performance in accordance with the terms of this Agreement for performance rendered prior to the effective date of termination.

13. Funding

If funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date of this Agreement and prior to normal completion, either party may terminate the Agreement under the "Termination" clause, subject to renegotiation under those new funding limitations and conditions.

14. Disputes

The parties shall use their reasonable best efforts to cooperatively resolve disputes and problems that arise in connection with this Agreement. In the event that a dispute arises that cannot be resolved by the parties, it shall be determined by a Dispute Board in the following manner: A party

must give written notice to the other party of the issues it wants determined by a Dispute Board. Each party to this agreement shall appoint one member to the Dispute Board. The members so appointed shall jointly appoint an additional member to the Dispute Board. The Dispute Board shall review the facts, Agreement terms, and applicable statutes and rules, and make a determination of the dispute. The determination of the Dispute Board shall be final and binding on the parties hereto. Each party shall share equally in the costs of the Dispute Board. As an alternative to this process, the parties may mutually agree to other alternative dispute resolution. The parties shall have no recourse in the courts.

Order of Precedence

In the event of an inconsistency in this Agreement, unless otherwise provided herein, the inconsistency shall be resolved by giving precedence in the following order:

- a) Applicable Federal and state statutes and rules and CITY Laws and Regulations
- b) Terms and Conditions of the Agreement and any amendments;
- c) Attachment "A", Project Management Scope of Work; Attachments "B", Project Management Fees; and Attachment "C", Monitoring Services Scope of Work, and
- d) Any other provisions of the Agreement incorporated by reference.

16. All Writings Contained Herein

This Agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the parties hereto.

AUTHORIZATION TO PROCEED

The signatory below represents that he/she has the authority to bind the entity named below to this Agreement.

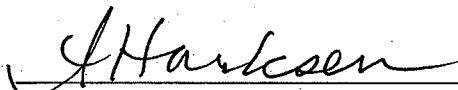
Agreed to and signed by:

City of Olympia



Doug Mah, Mayor

Approved As To Form:

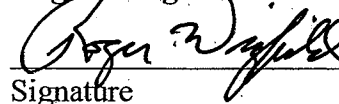


Assistant City Attorney

1-19-10

Date

**Department of General Administration
Division of Facilities
Engineering & Architectural Services**



Signature

Roger Wigfield, P.E.

Name

Energy Program Manager

Title

2/17/10

Date

The Department of General Administration provides equal access for all people without regard to race, creed, color, religion, national origin, age, gender, sex, marital status, or disability. Contract information is available in alternative formats. For more information, please call Andrea Faust at (360) 902-7223.

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ATTACHMENT A

Scope of Work Energy/Utility Conservation Projects Management Services

Statewide Energy Performance Contracting Program Master Energy Services Agreement No. 2009-151

GA will provide the following project management services for each specific project for the CITY. Each individual project shall be authorized either in the Agreement or by subsequent Amendment to the Agreement.

1. Assist the CITY in the selection of an Energy Service Company (ESCO) consistent with the requirements of RCW 39.35A for local governments; or 39.35C for state agencies and school districts.
2. Identify potential energy/utility conservation measures and estimated cost savings.
3. Negotiate scope of work and fee for ESCO audit of the facility(s).
4. Identify appropriate project funding sources and assist with obtaining project funding.
5. Review and recommend approval of ESCO energy/utility audits and Energy Services Proposals.
6. Assist in negotiating the technical, financial and legal issues associated with the ESCO's Energy Services Proposal.
7. Provide assistance during the design, construction and commissioning processes.
8. Review and approve the ESCO invoice vouchers for payment.
9. Assist with final project acceptance.
10. Provide other services as required to complete a successful energy performance contract.

ATTACHMENT B

2009-11 Interagency Reimbursement Costs for Project Management Fees to Administer Energy/Utility Conservation Projects

<u>TOTAL PROJECT VALUE</u>		<u>PROJECT MANAGEMENT FEE</u>	<u>TERMINATION</u>
\$5,000,000 - or more		1.1% of project cost	\$25,500
Below	5,000,000	\$68,800	\$25,500
"	4,000,000	64,900	23,600
"	3,000,000	59,900	21,700
"	2,000,000	52,800	19,600
"	1,500,000	47,800	17,150
"	1,000,000	40,800	16,150
"	900,000	38,900	15,000
"	800,000	36,900	13,950
"	700,000	34,600	12,800
"	600,000	31,900	11,500
"	500,000	28,700	10,100
"	400,000	24,800	8,800
"	300,000	19,800	7,300
"	200,000	10,500	4,400
"	100,000	6,500	3,000
"	50,000	4,000	2,000
"	20,000	2,000	1,000

1. These fees cover project management services for energy/utility conservation projects managed by GA's Energy Program.
2. Termination fees cover the selection and project management costs associated with managing the ESCO's investment grade audit and proposal that identifies cost effective conservation measures if the CITY decides not to proceed with the project through GA.
3. If the project meets the CITY's cost effectiveness criteria and the CITY decides not to move forward with a project, then the CITY will be invoiced per Attachment B Termination or \$25,500.00 whichever is less. If the CITY decides to proceed with the project then the Agreement will be amended per Attachment B for Project Management Fee.
4. If the audit fails to produce a project that meets the CITY's established Cost Effectiveness Criteria, then there is no cost to the CITY and no further obligation by the CITY.

ATTACHMENT C

Scope of Work Energy/Utility Conservation Projects Monitoring Services

Statewide Energy Performance Contracting Program Master Energy Services Agreement No. 2009-151

If requested GA will provide the following monitoring services for each specific project for the CITY.

1. Monitor actual energy use and dollar costs, compare with the ESCO's annual Measurement and Verification (M&V) report and any ESCO guarantee, resolve differences, if needed, and approve any vouchers for payment.
2. Monitor facility operations including any changes in operating hours, changes in square footage, additional energy consuming equipment and negotiate changes in baseline energy use which may impact energy savings.
3. Provide annual letter report describing the ESCO's performance, equipment performance and operation, energy savings and additional opportunities, if any, to reduce energy costs.

ATTACHMENT D

EXHIBIT EN- 2009-128 A (1)

ENERGY SERVICES PROPOSAL – CITY OF OLYMPIA

**For: City of Olympia
Olympia Washington**

**By: Quantum Engineering & Development, Inc.
*Quantum Engineering Project Number 041-2008-01***

November 3, 2009

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TABLE 1 Financial Analysis

EXHIBIT 1 Energy Audit (provided separately & incorporated herein)

EXHIBIT 2 Bond Form (provided separately & incorporated herein)

EXHIBIT 3 Energy Services Agreement (provided separately & incorporated herein)

EXECUTIVE SUMMARY

A. SUMMARY & PROPOSED SERVICES

Quantum Engineering & Development, Inc. (Quantum Engineering) is pleased to present this proposal for the implementation of energy efficiency measures for the City of Olympia.

This Proposal follows the outline contained in Section 2 of the Energy Services Agreement. It presents the contractual terms under which Quantum Engineering, the City of Olympia, and the Department of General Administration will work together over the term of the project. This Proposal describes the scope, costs, guarantees, and other aspects of the project.

This proposal breaks out the portion of the overall project that is funded by the Energy Efficiency Community Block Grant (EECBG) funding. In this manner, the money going into this federally funded portion of the project can be separately tracked. The intention is that the EECBG portion of the project be under a separate contract.

The services included in this Proposal include design, construction, system verification, and ongoing services for the first three years. Although the City of Olympia will operate and maintain the new equipment, Quantum Engineering will provide important monitoring services during the first three years to help insure the predicted savings are achieved.

B. PROJECT DESCRIPTION

The project greatly improves comfort and visibility in the City of Olympia Facilities, while saving energy and water. The City Hall, Smith Building, Library, Washington Center, and the Olympia Center all will receive upgrades to their respective heating and ventilation control systems. All of these controls upgrades will be fully commissioned, as will the existing controls at the Main Fire Station. The lighting systems in the City Hall, Municipal Court Services, Police Annex, Smith Building, Library, Washington Center, Olympia Center, Family Support Center, Maintenance Facility, Main Fire Station, West Side Police Station, West Side Fire Station, East Side Fire Station, Command Training Center and the Firing Range will be retrofit to new, T-8 lamps and electronic ballasts and metal halide fixtures will be replaced with new, T-8 fixtures. The plumbing fixtures at City Hall, Municipal Court Services, Police Annex, Smith Building, Library, Washington Center, Olympia Center, Family Support Center, Maintenance Facility, Main Fire Station, West Side Police Station, West Side Fire Station, East Side Fire Station, Command Training Center and the Firing Range will be retrofit and replaced with low consumption fixtures and devices.

C. PROJECT BENEFITS

Financial Benefits

Exhibit 1 shows project cost, estimated utility incentives, and savings related to this project. The guaranteed maximum project cost is \$2,334,438 . Including sales tax, E&A Services project management fees, and three years of technical monitoring and support, the total project cost is \$2,617,765 .

The project is projected to receive incentive payments from Puget Sound Energy in the amount of \$517,792 , and from the City of Olympia and LOTT in the amount of \$90,477 . After the incentive payments, Energy Efficiency and

Conservation Block Grant (EECBG) from the Department of Energy in the amount of \$130,600 , and a cash infusion from the City of Olympia's Capitol Repair and Replacement Fund 129 in the amount of \$319,400 , the amount financed is estimated at \$1,559,496 .

All construction costs will be open book to the Owner, and any cost savings related to savings on our labor & material costs will revert to the Owner at the end of the project.

The project will produce over \$197,061 annually in energy and maintenance related savings. Based on State Treasurer financing and a ten year loan, the project produces a positive cash flow of \$1,681 in the first year of operation. The cash flow grows to \$14,406 in year five due to energy rate increases.

Maintenance Related Benefits

While there will be significant savings in maintenance costs due to replacement of failing HVAC equipment, no HVAC maintenance savings are factored into our analysis. Lighting maintenance savings of \$6,237 per year are estimated due to reduced need for replacement lamps and ballasts for the next five years.

Environmental Benefits

In addition to building improvements and energy savings, there is a significant positive impact on the environment as a result of this project. The energy savings produced as a result of this project will directly reduce the amount of power produced by the Utility. Because much of our electricity in the State of Washington is produced through hydroelectric power, the savings from this project will improve stream and river flows for endangered species such as salmon. The cumulative impact of many of these projects may very well result in saving a species from extinction. Also, reductions in emissions include over 1,303,968 lbs of CO₂ annually, and 279 lbs. of nitrous oxides.

D. GUARANTEES

Quantum Engineering guarantees that the project cost, related specifically to energy savings and the project scope, will not exceed the maximum price of \$2,334,438 (project cost before sales tax, E&AS management fees, and three years technical monitoring and support). Also, Quantum Engineering is guaranteeing that the project will perform such that the energy savings will meet or exceed 833,556 kilowatt hours per year, 2,081 kW per year, 27,912 Therms per year, and 25,367 CCF per year. This corresponds with 90 % of the projected energy savings.

E. CONCLUSION

This project represents an excellent opportunity for the City of Olympia to greatly improve their facilities while saving energy. The project provides over \$2.6 million in facility improvements with limited capital investment. Quantum Engineering looks forward to working with the City of Olympia and General Administration in making this project a success.

I. FACILITY DESCRIPTION

A. BUILDING

Olympia City Hall (CH):

Olympia City Hall is located at 900 Plum Street SE in Olympia, Washington. This single story 26,240 square foot building was built in 1965 and houses legal services for the City of Olympia, the City Jail, Court and Police Services.

The building is constructed of wood framing with an exterior of precast concrete wall panels. Roofing is cast in place structural concrete with reflective surface coating. Windows are single-pane in aluminum frames.

Mechanical systems include a gas fired hot water boiler and associated hot water circulation pump, two multi-zone air handling unit, two single-zone air handling units, finned tube radiators at the perimeter, and multiple rooftop heat pumps. All of the main HVAC equipment is original to the 1965 construction. Combination electronic time clocks and pneumatic controls provide runtime, ventilation and temperature control of the HVAC equipment.

Lighting systems include T-12 and incandescent fixtures in the interior spaces with HID and compact fluorescent lighting outside.

Municipal Court Services Building (MCS):

The Municipal Court Services Building is located at Northeast corner of the City Hall Campus. This is a 1,150 square foot, single story building, of residential-style wood frame construction that was built in the late 1970s or early 1980s. The exterior is painted T111 wood siding with a sloped composition shingle roof. The building's windows are single-pane in aluminum frames.

Mechanical systems consist of a single packaged gas furnace with direct expansion cooling. A programmable thermostat provide system scheduling and temperature control.

Lighting systems includes T-12 and incandescent fixtures in the interior spaces with HID and incandescent lighting outside.

Police Annex Building (PA):

The Police Annex Building is located just east of Olympia City Hall in the Police Department parking lot. This 2,875 square foot two-story wood frame building was relocated to the site during the early 1990s. It is wood framed with a steep composition shingle roof. Windows are single pane with aluminum frames.

Mechanical systems include two forced air furnaces with electric heat and split direct expansion cooling. Programmable thermostats provide system scheduling and temperature control.

Lighting systems include T-12 fluorescent and incandescent fixtures in the interior spaces with HID and incandescent lighting fixtures on the exterior.

Smith Building (SB):

The Smith Building is located at 837 7th Avenue SE in Olympia, Washington. This is a 25,000 square foot, 3 story, brick building with a built up hypalon roof system. Windows are thermal pane with aluminum frames.

Mechanical systems include a single packaged rooftop air handling unit which provides conditioned air to pressure dependant, variable air volume, linear slot diffusers, and three split air conditioning units. Programmable thermostats with remote sensors provide the runtime and temperature control for the HVAC systems.

Lighting systems include T-12 fluorescent and incandescent fixtures in the interior spaces, and HID and incandescent lighting fixtures on the exterior.

Library Building (LB):

The Library is located at 313 8th Avenue SE in Olympia, Washington. Built in 1977, this 22,500 square foot, single-story building is constructed of pre-cast concrete planks on concrete post and beams systems with reinforced masonry shear walls. It has a built-up membrane roof with gravel surface and reflective coating. Windows are thermal pane with aluminum frames.

Mechanical system includes a gas fire hot water boiler and associated hot water circulation pump, an air cooled direct expansion chiller, and a central air handling unit which provides primary air to by-pass terminal units with electric re-heat. A digital time clock and pneumatic controls provide the runtime and temperature control for the HVAC systems.

Lighting consists of T-12 lamps in parabolic fixtures for the interior, and HID and incandescent lighting fixtures on the exterior.

Washington Center Performing Arts Building (WC):

The Washington Center is located at 512 Washington Street SE in Olympia, Washington. Built in the 1980's in two phases, this 40,600 square foot building is constructed of steel framing with concrete and reinforced masonry walls. Multi-layer built-up roof membranes are finished with differing surfaces on the different roof levels. The surfaces are either smooth reflective or granular surfaced cap sheeting.

Mechanical systems include a water cooled chiller with associated circulating pumps and cooling tower, a 100% outside air dressing room air handling system with electric heat and a run-around heat recover loop, and a main air handling system with electric heat which provides primary air to multiple variable air volume terminal units. Runtime for the HVAC systems is performed manually by the staff. Temperature control is accomplished by pneumatic and electronic controls.

Lighting systems consist of a combination of T-12, T-8, compact fluorescent, incandescent and HID lighting for the interior, and HID and incandescent lighting outside.

Olympia Center - Community Center (CC):

The Olympia Center is located at 222 Columbia Street NW in Olympia, Washington. This two-story 56,147 square foot building was built in 1985 of steel beam, concrete and reinforced masonry construction. It contains several meeting and classroom spaces as well as senior services, a gymnasium and several multipurpose rooms. The roof is a single-ply membrane with gravel surfacing. Windows are thermal pane with aluminum frames.

Mechanical system consists of a gas-fired boiler, chiller with heat recovery, four multi-zone air handling units, two single zone air handling units, multiple return and exhaust fans, and two Gas-fired evaporative cooling make-up air handling units. Runtime and temperature control is accomplished with an antiquated hybrid pneumatic/ electronic control system.

Lighting in the spaces has been updated since construction and is largely T-8 with electronic ballast. HID and compact fluorescent fixtures illuminate the building's exterior.

Family Support Center (FSC):

The Family Support Center is located at 108 State Avenue NW in Olympia, Washington. Originally built in 1911 for the Olympia Fire Department, this 14,790 square foot, two-story building is constructed of wood framing with unreinforced masonry walls. Some seismic improvements have been made in the interim. The roofing is smooth surfaced torch grade membrane. The single-paned windows are wood framed.

Mechanical systems consist of five packaged rooftop heat pumps, and electric baseboard heaters at the perimeter. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consists of T-12 and T-8 fixtures at the interior, and incandescent and HID exterior lighting.

Maintenance Facility (MF):

The Maintenance Facility is located at 1401 Eastside Street SE in Olympia, Washington. This is a 51,396 square foot facility built in 1975. The front portion of the facility is two stories and house multiple offices and conference rooms for the administration staff. The remainder of the building is shops, storage and office space for the maintenance staff. Building construction is steel post and beam with metal siding and a metal roof.

Mechanical systems consist of a variety of systems including multiple heating and ventilation units, exhaust fans, and gas fired radiant heaters for the shop bays. The administration portion of the building is served by multiple gas fired forced air furnaces with direct expansion cooling. Manual and programmable thermostats provide the runtime and temperature control for the HVAC systems.

Interior lighting consists of T-12 fluorescent fixtures with some HID lighting in the shop bays. Perimeter lighting consists mainly of HID wall packs and parking lot lights.

Main Fire Station (MFS):

The main Fire Station is located at 100 Eastside Street NE in Olympia, Washington. This 26,500 square foot building was built in 1992 of wood framing, lap siding and a metal roof. Windows are thermal pane with vinyl frames.

Mechanical Systems consist of multiple gas fired forced air furnaces with split direct expansion cooling. The vehicle bays are served by gas-fired radiant heat and vehicle exhaust systems. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consist of T-8 and compact fluorescent fixtures through-out the interior, and HID lighting at the exterior.

Police Station - West Side (WPS):

The West Side Police Station is located at 221 North Perry in Olympia, Washington. This 2,000 square foot single story building was built in 1947. It was originally a fire station and was constructed of wood framing with reinforced concrete shear walls. The roof surface consists of a smooth surfaced torch grade membrane. Windows are thermal pane with vinyl frames.

Mechanical systems consist of one forced air gas fired furnace with split direct expansion cooling, and one packaged rooftop unit with gas heat and direct expansion cooling. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Interior lighting consists mainly of T-12 and incandescent fixtures. The exterior lighting is HID.

Fire Station - West Side (WFS):

The West Side Fire Station is located at 330 Kenyon Street NW in Olympia, Washington. This 1991 single story building is wood framed with structural brick masonry shear walls. The sloped roof assembly is tiled. Windows are vinyl framed double pane.

Mechanical Systems consist of multiple gas fired forced air furnaces with split direct expansion cooling. The vehicle bays are served by gas-fired radiant heat and vehicle exhaust systems. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consist of T-8 and compact fluorescent fixtures through-out the interior, and HID lighting at the exterior.

Fire Station - East Side (EFS):

The East Side Fire Station is located at 2525 22nd Avenue SE in Olympia, Washington. This two-story building, built in 1992 is constructed of wood framing with T111 wood siding. A single-story exercise addition was added in 2001. The roof is steep-sloped with composition shingles.

Mechanical Systems consist of a single gas fired forced air furnaces with split direct expansion cooling. The vehicle bay is served by a gas-fired radiant heater and vehicle exhaust systems. Programmable thermostats provide the runtime and temperature control for the HVAC systems.

Lighting systems consist of T-12 fluorescent, compact fluorescent, and incandescent fixtures through-out the interior, and incandescent and HID lighting at the exterior.

B. MECHANICAL SYSTEMS

City Hall (CH):

Mechanical systems at Olympia City Hall consist of a gas fired boiler (B-1) with an associated heating water circulation pump (CP-1), multiple finned tube radiators, two large multi-zone air handling units (AH-1 and AH-2), two single-zone air handling units (AH-3 and AH-4), and multiple packaged and split system heat pumps. Domestic hot water for the building is provided by two domestic hot water heaters; one gas and one electric.

Building Controls

Control for the HVAC systems at City Hall consist of an antiquated pneumatic and electronic control system. Start and stop control is accomplished with electronic time clocks. The start/stop "dogs" for the time clocks have been removed; enabling the associated equipment to operate 24 hours a day, 365 days a year. Ventilation and temperature control is accomplished with pneumatic controls.

The perimeter finned tube radiators are broke up into three zones and are controlled based on outside air temperature in lieu of individual space temperature control.

This type of control system is a maintenance burden and lacks remote monitoring capability. The proposed conservation measure will replace the existing control system with a new Direct Digital Control (DDC) System, and ties the new controls to a city wide Energy Management System (EMS). The new control will also implement proper runtime schedules and enhance control sequences to allow the HVAC system to better respond to occupant needs, and save energy at the same time.

Cooling System

Cooling for Olympia City Hall is accomplished by circulating domestic water through cooling coils at the main air handling units then dumping the water down the storm drain; commonly referred to as single pass cooling.

Water for cooling is sub-metered and billed separately for water usage only. The billing average for 2007-2008 indicates the single pass cooling system consumed more that 25,000 CCF annually.

Heating System

Heating hot water for the Olympia City Hall is generated by an Industrial Combustion Incorporated gas fired boiler, model 40H. This boiler was manufactured in 1965 and has a rated input capacity of 1,670,000 BTU/Hr. Combustion efficiency testing indicates that this boiler is currently operating at 82% combustion efficiency.

Heating hot water is circulated through-out the City Hall campus by CP-1; a constant volume, base mounted, end suction pump manufactured by Paco. CP-1 is equipped with a 5.0 horsepower motor, and is rated for 170 GPM at 56 feet of head.

Air Handling Units

AH-1 is a dual deck, constant volume, multi-zone air handling unit equipped with a 5.0 horsepower supply fan, hot deck with an associated hot water heating coil and three-way control valve, cold deck with an associated single pass, domestic chilled water cooling coil and two-way control valve, mixing dampers with full economizer capability, and six associated control zones.

AH-2 is a dual deck, constant volume, multi-zone air handling unit equipped with a two-speed (high and low) 15.0 horsepower supply fan, hot deck with an associated hot water heating coil and three-way control valve, cold deck with an associated single pass, domestic chilled water cooling coil and two-way control valve, mixing dampers with full economizer capability and seven associated control zones.

AH-3 is a single zone, constant volume air handling unit manufactured by the Dunham-Bush Co. This unit is equipped with a 5.0 horsepower supply fan, hot water heating coil with an associated three-way control valve, single pass, domestic chilled water cooling coil with an associated two-way control valve, and mixing dampers with full economizer capability.

AH-4 is a single zone, constant volume air handling unit manufactured by the Dunham-Bush Co. This unit is equipped with a 5.0 horsepower supply fan, hot water heating coil with an associated three-way control valve, single pass, domestic chilled water cooling coil with an associated two-way control valve, and mixing dampers with full economizer capability.

Domestic Water Heaters

DWH-1 is a gas fired domestic water heater manufactured by A.O Smith; model BTR 198 110. This water heater has a storage capacity of 110 gallons and has a BTU input rating of 199,000.

DWH-2 is an electric domestic water heater manufactured by Rheem; model 81MV52D. This water heater is equipped with a 4.5 kW heating element driven by 240 volt single phase power, and has a 50 gallon storage capacity.

Municipal Court Services Building (MCS):

The Municipal Court Service Building is served by a single, 3-ton Trane gas pack (GP-1); model number YCC036F1H0BH.

GP-1 is equipped with a fractional horsepower supply fan; gas fired heat exchanger, direct expansion (DX) cooling, and mixing dampers with full economizer capability. A programmable thermostat provides runtime and temperature control. Minimum outside air and economizer operation is accomplished with microprocessor and enthalpy controls internal to the unit.

Police Annex Building (PA):

The Police Annex is served by two forced air furnaces; F-1 and F-2.

Furnace F-1 is split heat pump, forced air furnace manufactured by Carrier; model 40YR024300. This unit is equipped with a .25 horsepower supply fan, evaporator coil with associated split heat pump, a 6.0 kW electric strip heater, and fixed minimum outside air ductwork. A programmable thermostat provides the runtime and temperature control for F-1.

Furnace F-2 is split heat pump, forced air furnace manufactured by Trane; model 4TEC3F48. This unit is equipped with a .50 horsepower supply fan, evaporator coil with associated split heat pump, a 15.0 kW electric strip heater, and fixed minimum outside air ductwork. A programmable thermostat provides the runtime and temperature control for F-2.

Smith Building (SB):

The Smith Building is served by a packaged rooftop air handling unit (AHU-1).

Air handling unit AHU-1 is a Carrier unit; model 50DD024400NC. This unit is equipped with a 10 horsepower supply fan, direct expansion cooling, electric resistance heat and mixing dampers with full economizer capability.

Library Building (LB):

Mechanical system for the Library Building include a gas fired hot water boiler (B-1), a direct expansion (DX) air cooled chiller (CH-1), a constant volume air handling unit (AHU-1), twenty-two associated by-pass terminal units; seven of which are equipped with electric resistance heat, and several electric radiators for perimeter heat. Domestic hot water is provided by an electric domestic water heater located in the main mechanical room.

Building Controls

Controls for the Library consist of a hybrid digital and pneumatic control system. Runtime control for the HVAC equipment is accomplished with a 365 day digital time clock, while pneumatics with electronic interface provide temperature control for the occupied spaces and the air handling system.

These controls are inefficient, out of calibration, and are no longer supported by the manufacturer.

Heating Water System

Heating hot water for the Library Building is provided by a gas fired Kewanee boiler; model 3R3-KG0. This boiler provides hot water for the main air handling unit only and has a rated capacity of 468,000 BTU's.

Cooling System

Cooling for the AHU-1 is provided by an air cooled, direct expansion chiller manufactured by Trane; model RAUA-5004-RB. This chiller is equipped with a single compressor and six associated 1.5 horsepower condensing fans.

Air Handling Unit

A Trane "Climate Changer" air handling unit provides primary air to by-pass terminal units' through-out the library. This air handling unit is equipped with a 25.0 horsepower supply fan, hot water heating coil, direct expansion (DX) cooling coil, mixing dampers with full economizer capability, and an associated 10.0 horsepower return/exhaust fan.

Washington Center - Performing Arts Building (WC):

Mechanical systems for the Performing Arts Building include a chilled water system, main air handling unit (AHU-1), dressing room air handling unit (AHU-2), two small packages rooftop heat pumps (HP-1 and HP-2) which serve the administration areas, and the auxiliary Stage package heat pump (HP-3). HVAC controls at the Washington Center consist on programmable thermostats and manual controls.

Chilled Water System

The chilled water system at the Washington Center consists of a water chiller (WC-1), cooling tower (CT-1), two condenser water pumps (CWP-1 and CWP-2), and two chilled water pumps (CHWP-1 and CHWP-2).

A 75 ton Dunham-Bush vertical screw chiller model PCWX080 provides chilled water for AHU-1 and AHU-2 in the basement of the Washington Center. Chilled water is distributed to the air handling units via CHWP-1 and CHWP-2; base mounted, end suction pumps manufactured by Paco. These pumps are equipped with 2.0 horsepower motors and are designed to deliver 105 GPM at 44 feet of head.

CT-1 provides the media for cooling the condenser water for WC-1. This is a 75 ton closed circuit water cooler manufactured by Baltimore Air Coil; model J0605B40R. Condenser water is distributed between the chiller and cooling tower by condenser water pumps CWP-1 and CWP-2; base mounted end suction pumps manufactured by Paco. These pumps are equipped with 5.0 horsepower motors and are designed to deliver 125 GPM at 72 feet of head.

Air Handling Units

AHU-1 is a Governair air handling unit; model RSA-06. This unit is equipped with a 40 horsepower supply fan with associated Variable Frequency Drive (VFD), a 75 kW electric resistance heating coil, chilled water cooling coil, and mixing dampers with full economizer capability.

This unit is designed to provide 34,000 CFM of conditioned primary air to pressure independent Variable Air Volume (VAV) terminal units.

AHU-2 and AHU-3 are McQuay air handling units; model LSL104CH. AHU-2 is a 100% outside air supply fan that provide ventilation air for the dressing rooms. This unit is equipped with a 1.5 horsepower supply fan, heat recovery coil, and a 21 kW electric resistance heating coil. AHU-3 is an exhaust fan that provides exhaust air and pressure control for the dressing rooms. This unit is equipped with a 1.5 horsepower exhaust fan and a heat recovery coil.

A run-around heat recovery loop circulates a mixture of water and glycol between the two units to transfer heat from AHU-3 exhaust air to AHU-2 supply air.

HP-1 is a 3 ton packaged rooftop heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, and mixing dampers with full economizer capability. Runtime and temperature control is accomplished via programmable thermostat. Solid state controls internal to the unit modulate the mixing dampers and provide enthalpy economizer control.

Heat Pump HP-2 is a 1-1/2 ton packaged rooftop heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, and mixing dampers with full economizer capability, and is rated for 18,000 Btuh at 980 CFM. Runtime and temperature control is accomplished via programmable thermostat. Solid state controls internal to the unit modulate the mixing dampers and provide enthalpy economizer control.

Heat Pump HP-3 is a 12-1/2 ton packaged rooftop heat pump manufactured by Carrier. This unit is equipped with a 1/2 horsepower supply fan, reversing valve, and mixing dampers with full economizer capability, and is rated for 150,720 Btuh at 8,000 CFM. Runtime and temperature control is accomplished via programmable thermostat. Solid state controls internal to the unit modulate the mixing dampers and provide enthalpy economizer control.

Domestic Water heater

Domestic hot water for the Washington Center is provided by DWH-1; an electric water heater manufactured by A.O. Smith. DWH-1, model DVE-150-1-60, operates on 208 volt three phase power and is equipped with four each 15 kW electric heating elements; 60 kW total.

Olympia Center (OC):

Mechanical systems for the Olympia Center consist of a gas fired boiler (B-1) and associated heating water and boiler circulation pump (HP-1 and HP-2), a heat recovery chiller (CH-1) and associated cooling tower (CT-1) and condenser and chilled water circulating pumps (CDP-1 and CP-1), five main air handling units (ASU-101 through ASU-501), two kitchen make-up air handling systems (ASU-502 and ASU-503), and multiple return and exhaust air handling systems.

Building Controls

The Olympia Center is controlled by an antiquated Barber-Coleman network 8000 control system. This control system utilizes a combination of digital, electronic and pneumatic controls, and is tied to an Energy Management System (EMS) which has remote monitoring capability. Equipment scheduling is performed by the EMS. Electronic thermostats monitor space temperature and pneumatic actuators and valves are utilized at the air handling unit level. This system is original to the construction of the Olympia Center.

Heating Water System

The heating water system at the Olympia Center consist of a gas fired hot water boiler (B-1), a boiler circulating pump (HP-2), a heating water circulating pump (HP-1), and air handling unit heating coil circulating pumps (HP-101 through HP-501).

Boiler B-1 is a Burnham gas fired boiler, model PF-507. This boiler is located in the mechanical penthouse and has a BTU output rating of 1,116 MBH.

Heating water circulating pump HP-1 is a base mounted, end suction circulating pump manufactured by Paco. This pump is equipped with a 3.0 horsepower motor and is rated for 200 GPM at 34 feet of head.

Boiler circulating pump HP-2 is an inline circulating pump manufactured by Paco. This pump is equipped with a 3.0 horsepower motor and is rated for 200 GPM at 25 feet of head.

Chilled Water System

The chilled water system consists of a chiller (CH-1), cooling tower CT-1, condenser water pump (CDP-1), chilled water pump (CP-1), and air handling unit chilled water coil circulating pumps (CP-101 through CP-501).

Chiller CH-1 is a heat recovery chiller manufactured by McQuay. This chiller has a rated capacity of 135 ton of refrigerant effect with 400 GPM of chilled water leaving at 42 degrees F and 400 GPM of condenser water leaving at 85 degrees F. This unit also has a heating capacity and a 1,000 MBH of heating with 200 GPM of heating water leaving at 105 degrees F and 400 GPM of chilled water leaving at 52 degrees F.

Cooling tower CT-1 is a closed circuit cooling tower manufactured by Baltimore Air Coil (BAC). This unit is equipped with a 3.0 horsepower supply fan and is has a cooling capacity of approximately 167 ton at 400 GPM and a 10 degree temperature differential.

Condenser water pump CDP-1 is a base mounted end suction pump manufactured by Paco. This pump is equipped with a 10 horsepower motor and is rated for 400 GPM at 60 feet of head.

Chilled water pump CP-1 is a base mounted end suction pump manufactured by Paco. This pump is equipped with a 5 horsepower motor and is rated for 400 GPM at 30 feet of head.

Air Handling Units

Air handling unit ASU-101 is a Pace constant volume, triple deck multi-zone air handling unit. This unit is equipped with a 15.0 horsepower supply fan, 5.0 horsepower return/exhaust fan, hot deck heating coil with an associated three-way diverting valves and coil circulating pump, cold deck cooling coil with an associated three-way diverting valve and coil circulating pump, ventilation deck for economizer cooling, mixing dampers with full economizer capability, and 11 associated control zones.

Air handling unit ASU-201 is a Pace constant volume, triple deck multi-zone air handling unit. This unit is equipped with a 15.0 horsepower supply fan, 5.0 horsepower return/exhaust fan, hot deck heating coil with an associated three-way diverting valve and coil circulating pump, cold deck cooling coil with an associated three-way diverting valve and coil circulating pump, ventilation deck for economizer cooling, mixing dampers with full economizer capability, and 8 associated control zones.

Air handling unit ASU-301 is a Pace constant volume, triple deck multi-zone air handling unit. This unit is equipped with a 10.0 horsepower supply fan, 3.0 horsepower return/exhaust fan, hot deck heating coil with an associated three-way diverting valve and coil circulating pump, cold deck cooling coil with an associated three-way diverting valve and coil circulating pump, ventilation deck for economizer cooling, mixing dampers with full economizer capability, and 10 associated control zones.

Air handling unit ASU-401 is a Pace constant volume, single-zone air handling unit. This unit is equipped with a 5.0 horsepower supply fan, 1.0 horsepower return/exhaust fan, heating coil with an associated three-way diverting valve and coil circulating pump, cooling coil with an associated three-way diverting valve and coil circulating pump, and mixing dampers with full economizer capability.

Air handling unit ASU-501 is a Pace constant volume, single-zone air handling unit. This unit is equipped with a 2.0 horsepower supply fan, heating coil with an associated three-way diverting valve and coil circulating pump, cooling coil with an associated three-way diverting valve and coil circulating pump, and mixing dampers with full economizer capability.

Domestic Hot Water

Domestic hot water for the Olympia Center is provided by a PVI gas fire water heater; model 40G125A-PG. This water heater has a storage capacity of 125 gallons and a BTU input rating of 400,000. This system is also equipped with an associated domestic hot water circulation pump.

Family Support Center (FSC):

Heating Ventilation and Air Conditioning (HVAC) for the Family Support Center is provided by five rooftop heat pumps (HP-1 through HP-5). Runtime and temperature control is accomplished by programmable thermostats. Microprocessor controls internal to the units provide the economizer operation and minimum outside air.

HP-1 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-2 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-3 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-4 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, Heat pump with associated reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

HP-5 is a constant volume, single zone heat pump manufactured by Carrier. This unit is equipped with a fractional horsepower supply fan, Heat pump with associated reversing valve, an electric resistance heater; utilized during defrost mode, mixing dampers with full economizer capability and enthalpy control.

Maintenance Facility (MF):

Mechanical system at the Maintenance Facility consists of a wide variety of HVAC equipment; including gas fired radiant heaters, gas fired heating and ventilation units, gas fired and electric unit heaters and gas fired forced air furnaces with split direct expansion cooling. The majority of these systems are controlled by 365 day programmable thermostats. There are also a few manual style thermostats.

Main Fire Station (MFS):

The Main Fire Station is served by seven forced air furnaces; HVAC-1 through HVAC-7. These systems are controlled by 365 day programmable thermostats.

HVAC-1 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC040-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-2 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC040-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-3 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model CD5AXA036. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-4 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC100-LG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-5 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC060-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-6 is a constant volume, single zone high efficiency gas furnace manufactured by Carrier; model 58DXC040-GG. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

HVAC-7 is a constant volume, single zone high efficiency gas furnace manufactured by Frigidaire; model FG6RL-080C-16B. This unit is equipped with a fractional horsepower supply fan, gas fired furnace, split system direct expansion cooling, and mixing dampers with full economizer capability.

Police Station - West Side (WPS):

The West Side Police Station is served by a forced air furnace; F-1. This unit is controlled by 365 day programmable thermostat.

Furnace F-1 is a Lennox Pulse direct vent forced air furnace; model C14411FF. This unit is equipped with a fractional horsepower supply fan; gas fired heat exchanger, direct expansion cooling with remote condensing unit, and a fixed minimum outside air damper.

Fire Station - West Side (WFS):

The West Side Fire Station is served by two forced air furnaces; F-1 and F-2. These systems are controlled by 365 day programmable thermostats

Furnace F-1 is a forced air furnace manufactured by Carrier; model 58MXA1100-20. This unit is equipped with fractional horsepower supply fan, gas fired heat exchanger, direct expansion (DX) cooling with remote condensing unit, and fixed minimum outside air.

Furnace F-2 is a forced air furnace manufactured by American Standard; model AUX060C936C2. This unit is equipped with fractional horsepower supply fan, gas fired heat exchanger, direct expansion (DX) cooling with remote condensing unit, and fixed minimum outside air.

Fire Station - East Side (EFS):

The East Side Fire Station is served by a forced air furnace; F-1. This unit is controlled by a 365 day programmable thermostat.

Furnace F-1 is a forced air furnace manufactured by Rheem; model RAMB-042JBZ. This unit is equipped with a fractional horsepower supply fan, gas fired heat exchanger, direct expansion (DX) cooling with remote condensing unit, and fixed minimum outside air. This unit provides conditioned air to variable air volume terminal units.

Priest Point Park (PPP):

Priest Point Park facilities building and wood shop are served by an old oil fired forced air furnaces; F-1 (Facilities) and F-2 (wood Shop). These units are controlled by 365 day programmable thermostats.

Furnace F-1 is a Toridheet oil fired furnace; model L62-112. This furnace is equipped with a .25 horsepower supply fan, oil fired heat exchanger, and fixed minimum outside air.

The associated programmable thermostat is set up to operate seven day a week from 5:00 Am to 10:00 PM. The day occupied set point is 69 degrees F, and the night setback temperature set point is 62 degrees F.

Furnace F-2 is an old oil fired furnace manufactured by Thermo-pride; model QH5-85. This unit is equipped with a.33 horsepower supply fan, oil fired heat exchanger, and fixed minimum outside air.

C. LIGHTING SYSTEMS

The lighting systems throughout the City of Olympia consist mainly of T-12 lamps with magnetic ballasts. In addition, numerous HID and incandescent lamps were found. The proposed lighting retrofits will replace the T-12 lamps and magnetic ballasts with T-8 lamps and electronic ballast technology resulting in reduced maintenance and improved systems. These retrofits will also enhance lighting levels in many areas that are currently under lit, and will enrich color rendering throughout the facilities. In addition, many HID and incandescent fixtures will be retrofitted or replaced with fluorescent technology.

Exit lights are incandescent, with a few LED fixtures.

Recommended lighting retrofits and replacements will include the following facilities:

- City Hall
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center

D. WATER SYSTEMS

All of the water using systems associated with the City of Olympia energy study consist of interior plumbing (faucets, urinals, water closets), kitchen equipment (dishwashers, disposals, tray sinks), clothes washers and mechanical systems (boiler and chilled water system makeup).

Recommended plumbing retrofits and replacements will include the following facilities:

- City Hall
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

Clothes washers at the Maintenance Facility and the West Side Fire Station will be replaced with water saving cloths washers.

E. BUILDING SHELL

No conservation measures related to the building shell were recommended.

II. ENERGY CONSERVATION MEASURES (ECM's) TO BE INSTALLED

A. HVAC SYSTEMS

City Hall (CH)

ECM-CH-M1 – Controls Upgrade (EECBG FUNDING): This measure will retrofit/replace and upgrade the existing pneumatic and electronic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-CH-M2 – Finned Tube Radiator Control (EECBG FUNDING): This measure will upgrade the existing pneumatic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-CH-M3 – Add Dedicated Chiller: This measure will install a new air cooled chiller to eliminate the city water single pass cooling.

ECM-CH-M5 – Replace Boiler (EECBG FUNDING): This measure will replace the existing boiler with two new high efficiency condensing boiler.

ECM-CH-M9 – Re-pipe HW Circ. Pump: This measure will re-pipe the HW circulating pump to reduce friction losses of the current configuration.

ECM-CH-M10 – VFD for HW Circ. Pump (EECBG FUNDING): This measure will install a VFD on the existing hot water circulation pump.

Smith Building (SB)

ECM-SB-M1 Controls Upgrade - This measure will retrofit/replace and upgrade the existing electronic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS). This performs controls at the main air handling unit level only. The new system will also be fully commissioned for proper operation.

Library Building (LB)

ECM-LB-M1 – Controls Upgrade: This measure will retrofit/replace and upgrade the existing pneumatic and electronic controls with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-LB-M2 – Replace Boiler: This measure will replace the existing boiler with a new high efficiency condensing boiler.

ECM-LB-M3 – VAV Retrofit: This measure will replace the existing by-pass terminal units with new pressure independent VAV terminal units.

Washington Center (WC)

ECM-WC-M1b – Controls Upgrade (AHU Level Only): This measure will retrofit/replace and upgrade the existing pneumatic and electronic controls at the air handling unit level only with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

Olympia Center - Community Center (CC)

ECM-CC-M1 – Controls Upgrade: This measure will replace existing programmable thermostats with new Direct Digital Controls (DDC) and tie the new controls to a city wide Energy Management System (EMS).

ECM-CC-M3 – Control dampers and VFD's: This measure will install VFD's on the supply and return fan, two-position control dampers in specified zones, and occupancy sensors in the associated spaces. The zone dampers will close to minimum position, and the space temperature will be set to a day unoccupied set point when the associated space goes unoccupied.

ECM-CC-M4 – Replace Boiler: This measure will replace the existing boiler with a new high efficiency condensing boiler.

ECM-CC-M5 – Fuel Switch DWH: This measure will replace the existing electric domestic water heater with a new high efficiency gas fired water heater.

Main Fire Station (MFS)

ECM-MFS-M2 – Retro-commissioning: This measure will commission the existing stand-alone controls for proper operation. This measure will only be performed if the control measure is not selected, as that measure includes commissioning.

ECM-MFS-M3 – Replace DWH: This measure will replace the existing standard efficiency gas fired domestic water heater with a new high efficiency gas fired water heater.

B. LIGHTING SYSTEMS

City Wide

ECM-CITY-L1 – Lighting Retrofit/Replacement: This measure will retrofit/replace any remaining T-12, magnetic ballast, and incandescent fixtures with T-8, electronic ballast and compact fluorescent technology. This measure will also replace any incandescent exit signs with new LED exit signs, provide retrofit alternatives for exterior lighting systems, and provide occupancy sensors in areas of fluctuating occupancy.

- All remaining T-12 fixtures will be retrofit or replaced with T-8 lamps and electronic ballasts (new lamps will be 28 watt T-8).
- Existing T-8 fixtures will be retrofit with reflectors to reduce the number of lamps per fixture, and replace 32 watt lamps with 28 watt lamps.
- Interior HID fixture will be replaced with T-8 lamps and electronic ballasts where applicable.
- Incandescent exit signs will be replaced with new LED exit signs.
- Any remaining incandescent fixture will be replaced or retrofit with compact fluorescent technology.

Facilities receiving lighting retrofit/replacements are as follows:

- City Hall; including the Police Department and Jail
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

C. WATER USING SYSTEMS

City Wide

ECM-CITY-W1 – Water Retrofit: This measure will install water conservation devices and replace inefficient systems to save water and reduce energy used for heating water. Recommended retrofits and replacements are as follows:

- Replace existing 3.5 Gallons per Flush (GPF) toilets with new 1.6 GPF toilets, flush valve and toilet seats. The existing 1.6 GPF toilets to remain as-is.
- Replace existing 3.5 GPF urinals with new 1.0 Pint per Flush (PPF) Urinals.
- Install vandal-proof flow ½ Gallons per Minute (GPM) control aerators on faucets. This retrofit applies only to faucets that are used for hand washing.

Facilities receiving water retrofit/replacements are as follows:

- City Hall; including the Police Department and Jail
- Municipal Court Services
- Police Annex
- Smith Building
- Library
- Washington Center
- Olympia Center
- Family Support Center
- Maintenance Facility
- Main Fire Station
- West Side Police Station
- West Side Fire Station
- East Side Fire Station
- Command Training Center
- Firing Range

ECM-CITY-W3 - Replace Clothes Washers - This measure will replace old cloth washers with new high efficiency water saving cloth washers.

D. GENERAL CONSERVATION MEASURES

City Wide

ECM-CW-G3 - Pipe insulation: This measure will insulate any uninsulated hot water, chilled water or domestic hot water piping.

ECM-CW-G5 - Vending Misers: This measure will install vending misers on soda machines to set he machines back during unoccupied times.

III. ESCO (Energy Services Company) SERVICES

Quantum Engineering will provide the following services:

1. Energy Audit: The energy audit is complete and is attached as Exhibit 1.
2. Design Services: Provide a detailed engineering design as needed to obtain Owner review and approval of the proposed system, and to obtain competitive bids. Provide construction support services, start-up, and testing. Provide as-built drawings and relevant O&M manuals.
3. Construction: Provide, or cause to be provided, all material, labor, and equipment, including paying for permits, fees, bonds, and insurance, required for the complete and working installation of the ESCO equipment.
 - a) The ESCO may perform portions of the construction work, or may subcontract portions to qualified firms. In either case, the ESCO will share information regarding actual costs of the work with the Owner.
 - b) The lighting retrofit is substantially a maintenance activity. As such, lighting maintenance workers will be used to perform fixture retrofits. These workers will be paid the applicable Washington State Department of Labor & Industries prevailing wage for the county of the work, under a classification of "Electrical Fixture Maintenance Workers" or equivalent.
 - c) When the ESCO has completed the installation of the Equipment, including start-up and operation verification and training in accordance with the Proposal, the ESCO will provide to Owner a "Notice of Commencement of Energy Savings" and Owner shall have 10 days within which to accept the Notice.
 - d) At the conclusion of the last phase of the project, the ESCO will submit a "Notice of Substantial Completion" to the Owner.
4. Construction Management: Provide construction management services to coordinate and supervise the work. The owner is expected to coordinate day-to-day communications with tenants and any scheduling of tenant relocations in and around occupied areas. The ESCO will provide construction superintendence of the work, and will coordinate any impact upon building tenants with the Owner.
5. Operation training: The ESCO will provide on-going training for the building staff during construction.

6. Performance Maintenance: The ESCO will provide on-going monitoring and support services to help insure the predicted savings are achieved throughout the first year of the agreement. Specific tasks will include:
 - a) Year One (the first year following Notice of Commencement of Energy Savings):
 - (1) *Semi-annual review of Energy Management System (EMS) and system performance.* This will be done via trend logs of system performance. A brief report will indicate system performance for the first six months, with a detailed report at the end of the year.
 - (2) *Semi-annual analysis of functionality of lighting equipment.* This will be done via review of the installed lighting systems.
 - (3) *Attend one annual meeting to review the ESCO equipment performance and reconcile energy savings.*
 - b) Years Two and Three:
 - (1) *Annual review of Energy Management System (EMS) and system performance.* This will be done via trend logs of system performance. A detailed report will be provided at the end of the year.
 - (2) *Annual analysis of functionality of lighting equipment.* This will be done via review of the installed lighting systems.
 - (3) *Attend one annual meeting to review the ESCO equipment performance and reconcile energy savings.*
7. Equipment Maintenance: The ESCO will provide no equipment maintenance or repairs after the warranty period. Following the completion of the installation and Owner acceptance of the Equipment, the Owner shall provide all necessary service, repairs, and adjustments to the Equipment so that the Equipment will perform in the manner and to the extent set forth in the Proposal. The ESCO shall have no obligation to service or maintain the Equipment after the warranty period.
8. Operation and Maintenance Procedures: None provided.
9. Warranty: The ESCO will warrant equipment for one year following Notice of Substantial Completion. The ESCO will specify a 5-year warranty on lighting ballasts. For all other equipment, the ESCO will obtain an extended warranty or service agreement only if this does not cause the Guaranteed Maximum Cost to be exceeded.
10. Hazardous Waste: Should the project require removal or disposal of hazardous material, the ESCO may have the hazardous material or substances removed and disposed of at the request of the Owner. The ESCO will not assume ownership of the material, but may act on behalf of the Owner to properly remove and dispose of the material. The Owner shall pay the ESCO for the cost of such work. The Owner agrees and acknowledges that it has not relied on or employed the ESCO to analyze or identify the presence of any hazardous substance on the Owner's premises. The cost of hazardous material abatement and disposal is not included in this proposal, with the exception of PCB ballasts.

IV. PROJECT COSTS

A. MAXIMUM PROJECT COST

The ESCO guarantees that the Maximum Project Cost will not exceed two million three hundred thirty-four thousand four hundred thirty-eight no/100 Dollars (\$2,334,438). This cost does not include sales tax, E&AS Project Management Fees, or the three years of technical monitoring and support, which are estimated. With sales tax, E&AS fees, and three years technical monitoring and support included, the Project Cost is two million six hundred seventeen thousand seven hundred sixty-five and no/100 Dollars (\$2,617,765). The ESCO does not guarantee the value of sales tax, E&AS fees, or the utility incentive.

B. PROJECT COST TABLE

PROJECT COSTS

	ESPC FUNDING			BLOCK GRANT FUNDING		TOTAL COMBINED PROJECT COSTS
	Mechanical and Water	Lighting	Total Project costs	Mechanical and Water - EECBG	Total Project costs	
Engineering Audit	\$ 47,304	\$ -	\$ 47,304			\$ 47,304
Estimated Labor and Material Cost	\$ 1,161,907	\$ 259,950	\$ 1,421,857	\$ 253,950	\$ 253,950	\$ 1,675,807
Design @ 8.0% of Labor & Material	\$ 92,953	\$ -	\$ 92,953	\$ 20,316	\$ 20,316	\$ 113,269
Design @ 4.00% of Labor & Material	\$ -	\$ 10,398	\$ 10,398			\$ 10,398
Construction Mgt @ 5.0% of Labor & Material	\$ 58,095	\$ 12,997	\$ 71,093	\$ 12,698	\$ 12,698	\$ 83,790
Bonding @ 1.6% of Labor & Material	\$ 18,591	\$ 4,159	\$ 22,750	\$ 4,063	\$ 4,063	\$ 26,813
ESCO overhead and profit @ 17.5% of Labor & Material	\$ 203,334	\$ 45,491	\$ 248,825	\$ 44,441	\$ 44,441	\$ 293,266
	\$ 1,582,184	\$ 332,996	\$ 1,915,179	\$ 335,468	\$ 335,468	\$ 2,250,647
Subtotal:	\$ 58,095	\$ 12,997	\$ 71,093	\$ 12,698	\$ 12,698	\$ 83,790
Construction contingency @ 5% of CC	\$ 1,640,279	\$ 345,993	\$ 1,986,272	\$ 348,166	\$ 348,166	\$ 2,334,438
Subtotal - Maximum Project Cost:	\$ 139,424	\$ 29,409	\$ 168,833	\$ 29,594	\$ 29,594	\$ 198,427
Est. Sales Tax @ 8.50% of Maximum Project Cost			\$ 59,900	\$ -	\$ -	\$ 59,900
E&AS Project Management Fees			\$ 25,000			\$ 25,000
Three (3) Years Technical Monitoring and Support			\$ 2,240,005			\$ 2,617,765
TOTAL PROJECT PRICE:	\$ 1,779,703	\$ 375,403	\$ 2,240,005	\$ 377,760	\$ 377,760	\$ 2,617,765
Estimated Utility Incentive			\$ 514,783			\$ 608,269
Estimated Client Net Cost			\$ 1,725,222			\$ 2,009,496
EECBG Funds			\$ -	\$ 130,600	\$ 130,600	\$ 130,600
Capital Repair and Replacement - Fund 129			\$ 319,400			\$ 319,400
Amount to be financed by client:			\$ 1,405,822	\$ 153,674	\$ 153,674	\$ 1,559,496

C. ITEMS INCLUDED IN MAXIMUM PROJECT COST

1. Maximum project costs include the following:

- a) Engineering audit, including the cost for preparation of this proposal. This is a fixed fee.
- b) Engineering design. This is a fixed fee.
- c) Construction management services. This is a fixed fee.
- d) Installation of the ESCO Equipment including the following costs:
 - (1) All costs paid by the ESCO for the installation of the ESCO equipment. This includes costs paid to subcontractors or directly to ESCO personnel, when related to installation or system verification of the ESCO equipment.
 - (2) The portion of reasonable travel, lodging & meals expenses of the ESCO or of its officers or employees incurred while traveling in discharge of duties connected with the Work.
 - (3) Cost of all equipment, materials, supplies and equipment incorporated in the Work, including costs of transportation thereof.
 - (4) Cost or rental charges, including transportation and maintenance, of all materials, supplies, equipment, temporary facilities and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less salvage value on such items used but not consumed which remain the property of the ESCO.
 - (5) Cost of premiums for all bonds and insurance, which the ESCO is required to purchase and maintain.
 - (6) Sales, use or similar taxes related to the Work and for which the ESCO is liable imposed by a governmental authority.
 - (7) Permit fees, royalties, and deposits lost for causes other than the ESCO's negligence.
 - (8) Losses and expenses not compensated by insurance or otherwise, sustained by the ESCO in connection with the Work, provided they have resulted from causes other than the fault or neglect of the ESCO. Such losses shall include settlements made with the written consent and approval of the Owner. If, however, such loss requires reconstruction and the ESCO is placed in charge thereof, he shall be paid for his services a fee.
 - (9) Minor expenses such as copies, long distance telephone calls, telephone service at the site, express mail services, and similar petty cash items.
 - (10) Demolition cost and cost of removal of all debris.
 - (11) Costs incurred due to an emergency affecting the safety of persons and property.
 - (12) Other costs incurred in the performance of the Work if and to the extent approved in advance in writing by the Owner.

- (13) The cost of construction financing including contingency and an allowance for Owner initiated scope improvements.
- (14) Cost of equipment startup, training, system verification and balancing performed by the ESCO.
- (15) Bonding, Liability Insurance, and Builder's Risk Insurance.
- (16) ESCO fee. This includes the ESCO's remuneration for compensation of personnel, expenses, risks related to the project, and profit. This is a fixed fee.
- (17) Metering equipment costs for any permanent metering or monitoring equipment left on site.
- (18) The ESCO shall provide a Schedule of Values at the end of construction bidding. The schedule of values will include all costs related to the installation of the ESCO equipment, excepting fixed fee items.

D. CONSTRUCTION CONTINGENCY

A construction contingency of \$83,790 (not including sales tax) has been established for this project. The ESCO is authorized to expend the contingency for items necessary to complete the original scope of this project at its sole discretion. The ESCO shall not be allowed to mark-up contingency funds expended for items included in the original Scope of this project. The ESCO and Owner will jointly manage any contingency left after the project scope is completed. The ESCO shall be allowed to mark-up items beyond the original scope and approved by Owner. All unused construction contingency funds shall reduce the overall project cost to the Owner.

E. ONGOING SERVICES

Ongoing monitoring services for the first three years are included in the project fees. After the end of Year 3, the ESCO will present a proposal to the Owner for ongoing monitoring & verification services. These services will monitor energy savings and energy savings measures, provide engineering assistance in maintaining the savings, as described in Section III. The owner may cancel these services at any time.

F. ACCOUNTING RECORDS

The ESCO shall check all material, equipment and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement. The accounting system shall be satisfactory to the Owner. The Owner shall be afforded access to all the ESCO's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating to this Contract, and the Contract shall preserve all such records for a period of three years, or for such longer period as may be required by law, after the final payment.

G. RECONCILIATION OF LABOR & MATERIAL COSTS

1. The financed amount is based on an estimate of Labor & Material costs. In recognition that actual Labor & Material costs may vary from the estimate, the following procedures are established to reconcile this difference:

- a) When actual Labor & Material costs exceed the estimated Labor & Material costs (plus Contingency), the additional expense will be borne by the ESCO without affecting the Owner's payment.
- b) When actual Labor & Material costs are less than the estimated Labor & Material costs (plus Contingency), the remaining funds will be retained by the Owner.

V. RECOMMENDATIONS FOR REPLACEMENT OF EXISTING EQUIPMENT

While this project does greatly improve the controls for the City of Olympia, further control improvements are recommended at the maintenance facility, Police Stations, and Fire Stations to bring the system up to the level of other facilities in the city.

VI. STANDARDS OF COMFORT SERVICE

A. HVAC COMFORT

The heating, ventilating and air conditioning (HVAC) systems provided by the ESCO will provide comfort and indoor air quality in accordance with Exhibit 3. This standard will pertain only to buildings and areas of buildings in which the ESCO is installing new HVAC equipment that has direct control over space comfort conditions. HVAC comfort conditions cannot be guaranteed when operable windows are open, and the outside air temperature is below 60 degrees F. Also, shop area systems will be designed to maintain proper heating conditions, and will not be designed for cooling load.

B. ILLUMINATION LEVELS

The lighting and illumination levels for lighting systems provided by the ESCO will comply with Exhibit 3.

VII. BASELINE ENERGY CONSUMPTION

City Hall

The average annual electrical usage (kWh) and demand (kW) for the City Hall in years 2007 and 2008 was 677,400 kWh and 1,350 kW with an associated cost of \$57,494.

The average annual gas usage for the City Hall in years 2007 and 2008 was 28,549 therms with an associated cost of \$35,127.

The average annual water usage for the City Hall in 2007 and 2008 was 27,111 CCF with an associated cost of \$66,118.

Municipal Court Services

The average annual electrical usage (kWh) for Municipal Court Services in years 2007 and 2008 was 20,267 kWh with an associated cost of \$1,883.

The average annual gas usage for Municipal Court Services in years 2007 and 2008 was 571 therms with an associated cost of \$933.

The average annual water usage for Municipal Court Services in 2007 and 2008 was 84 CCF with an associated cost of \$974.

Smith Building

The average annual electrical usage (kWh) and demand (kW) for the Smith Building in years 2007 and 2008 was 241,360 kWh and 662 kW with an associated cost of \$22,166.

The average annual water usage for the Smith Building in 2007 and 2008 was 164 CCF with an associated cost of \$1,239.

Library

The average annual electrical usage (kWh) and demand (kW) for the Library Building in years 2007 and 2008 was 373,520 kWh and 1,209 kW with an associated cost of \$35,554.

The average annual gas usage for the Library Building in years 2007 and 2008 was 8,337 therms with an associated cost of \$10,466.

The average annual water usage for the Library Building in 2007 and 2008 was 575 CCF with an associated cost of \$5,474.

Washington Center

The average annual electrical usage (kWh) and demand (kW) for the Washington Center in years 2007 and 2008 was 621,900 kWh and 2,585 kW with an associated cost of \$64,118.

The average annual gas usage for the Washington Center in years 2007 and 2008 was 124 therms with an associated cost of \$392.

The average annual water usage for the Washington Center in 2007 and 2008 was 451 CCF with an associated cost of \$3,785.

Olympia Center

The average annual electrical usage (kWh) and demand (kW) for the Olympia Center in years 2007 and 2008 was 890,174 kWh and 2,695 kW with an associated cost of \$83,486.

The average annual gas usage for the Olympia Center in years 2007 and 2008 was 40,385 therms with an associated cost of \$50,032.

The average annual water usage for the Olympia Center in 2007 and 2008 was 1,551 CCF with an associated cost of \$10,975.

Family Support Center

The average annual electrical usage (kWh) and demand (kW) for the Family Support Center in years 2007 and 2008 was 166,620 kWh and 843 kW with an associated cost of \$17,302.

The average annual gas usage for the Family Support Center in years 2007 and 2008 was 690 therms with an associated cost of \$1,086.

The average annual water usage for the Family Support Center in 2007 and 2008 was 319 CCF with an associated cost of \$2,428.

Maintenance Facility

The average annual electrical usage (kWh) and demand (kW) for the Maintenance Facility in years 2007 and 2008 was 443,920 kWh and 1,208 kW with an associated cost of \$40,450.

The average annual gas usage for the Maintenance Facility in years 2007 and 2008 was 20,074 therms with an associated cost of \$24,708.

The average annual water usage for the Maintenance Facility in 2007 and 2008 was 1,391 CCF with an associated cost of \$19,022.

OFD Headquarters

The average annual electrical usage (kWh) for the OFD Headquarters in years 2007 and 2008 was 181,960 kWh with an associated cost of \$16,333.

The average annual gas usage for the OFD Headquarters in years 2007 and 2008 was 8,736 therms with an associated cost of \$10,865.

The average annual water usage for the OFD Headquarters in 2007 and 2008 was 675 CCF with an associated cost of \$6,336.

OPD West Side

The average annual electrical usage (kWh) for the OPD West Side in years 2007 and 2008 was 42,500 kWh with an associated cost of \$3,874.

The average annual gas usage for the OPD West Side in years 2007 and 2008 was 730 therms with an associated cost of \$1,134.

The average annual water usage for the OPD West Side in 2007 and 2008 was 44 CCF with an associated cost of \$673.

OFD West Side

The average annual electrical usage (kWh) for the OFD West Side in years 2007 and 2008 was 68,838 kWh with an associated cost of \$6,200.

The average annual gas usage for the OFD West Side in years 2007 and 2008 was 3,033 therms with an associated cost of \$3,941.

The average annual water usage for the OFD West Side in 2007 and 2008 was 498 CCF with an associated cost of \$2,836.

OFD East Side

The average annual electrical usage (kWh) for the OFD East Side in years 2007 and 2008 was 42,362 kWh with an associated cost of \$3,851.

The average annual gas usage for the OFD East Side in years 2007 and 2008 was 1,553 therms with an associated cost of \$2,138.

The average annual water usage for the OFD East Side in 2007 and 2008 was 577 CCF with an associated cost of \$3,053.

Fire Command Training Center

The average annual electrical usage (kWh) for the Fire Command Training Center in years 2007 and 2008 was 6,780 kWh with an associated cost of \$692.

The average annual gas usage for the Fire Command Training Center in years 2007 and 2008 was 666 therms with an associated cost of \$1,054.

The average annual water usage for the Fire Command Training Center in 2007 and 2008 was 12 CCF with an associated cost of \$585.

Priest Point Park

The average annual electrical usage (kWh) for Priest Point Park in years 2007 and 2008 was 99,013 kWh with an associated cost of \$9,074.

The average annual fuel oil usage Priest Point Park in years 2007 and 2008 was 2,094 gallons with an associated cost of \$7,784.

The average annual water usage for the Priest Point Park in 2007 and 2008 was 229 CCF with an associated cost of \$2,046.

VIII. ESTIMATED ANNUAL SAVINGS AMOUNT AND UTILITY INCENTIVE

1. The ESCO estimates that annual electrical costs will be reduced by \$77,379. This estimate is based on an annual consumption being reduced by 926,173 kWh and demand being reduced by 2,312 kW (based on the sum of the monthly peak demand).
2. The ESCO estimates that annual gas cost will be reduced by \$37,116. This estimate is based on the annual consumption being reduced by 31,013 Therms.
3. The ESCO estimates that annual water and sewer cost will be reduced by \$76,329. This estimate is based on the annual consumption being reduced by 28,186 CCF (hundred cubic feet).
4. The ESCO estimates that an incentive in the amount of \$517,792 will be provided by Puget Sound Energy, and \$90,477 will be provided by the City of Olympia and LOTT.

IX. METHOD OF CALCULATING ENERGY SAVINGS AND ENERGY COST SAVINGS

A. ENERGY AUDIT

The energy cost savings are calculated in Exhibit 1. These savings calculations have been reviewed and accepted by the Owner and the ESCO.

B. CALCULATION OF SAVINGS

1. The Owner and the ESCO agree that the energy savings exist if the ESCO equipment performs as described below:
 - a) Lighting Systems installed by the ESCO: The lighting systems being replaced perform properly when new components with efficiencies at or greater than those in Exhibit 1 are installed.
 - b) Energy Management System: The energy management system performs properly when HVAC systems are able to properly perform the following functions:
 - Start/Stop based on programmed schedule and/or occupancy sensors.
 - Night Setback operation to maintain minimum heating and cooling temperatures.
 - Economizer control operation that provides minimum outside air when the building is in a heating mode.
 - c) Boiler System: The boiler system performs properly when the boiler combustion efficiency meets or exceeds 92%.
 - d) Domestic Hot Water System: The domestic hot water system performs properly when the domestic hot water heater combustion efficiency meets or exceeds 90%.
 - e) Water Conservation Components installed by the ESCO: The water conservation components being replaced perform properly when new components with efficiencies at or greater than those in Exhibit 1 are installed.
2. The Owner and the ESCO agree that the energy savings will be reduced at the rates listed below when the ESCO installed equipment is not performing as a result of the sole failure of the ESCO installed equipment. The Owner agrees to notify the ESCO by telephone within 2 working days of detecting any non-performing ESCO installed equipment, with a follow-up in writing within three business days. Should the ESCO installed equipment not perform in accordance with this Section, the Energy Cost Savings will be reduced by:
 - a) HVAC & Controls: \$0.01141 per square foot per failed area per week.
 - b) Lighting: \$0.00352 per square foot per failed area per week.
 - c) Water: \$0.00166 per square foot per failed area per week.
3. The ESCO shall have two weeks from notification to repair the ESCO equipment without reduction of savings.

4. Modifications to Baseline by Owner: The Owner shall maintain all existing facilities and installed equipment during the term of this contract at or above current maintenance levels. Owner agrees to maintain the energy efficiency of the systems installed.

X. FINANCING

Project financing will be provided by the Owner.

XI. ENERGY SAVINGS GUARANTEE

1. The ESCO guarantees that the equipment will perform as indicated in Section IX - Method of Calculating Energy Savings and Energy Cost Savings. This performance level is guaranteed for one year following the notice of commencement of savings (defined as Years 1). Based on this performance, and as indicated in Exhibit 1, the electrical energy savings will not be less than 833,556 kilowatt-hours per year, and cumulative 2,081 kW per year; gas savings will be not less than 27,912 Therms per year, and water savings will not be less than 25,367 CCF per year. This amount is ninety percent (90%) of the estimated first year savings.
2. In the event that the guaranteed performance in year one, pursuant to Section IX Method of Calculating Energy Savings and Energy Cost Savings, is less than the guaranteed minimum, the ESCO shall pay the Owner the difference between the actual cost savings and the guaranteed amount.

XII. ESCO COMPENSATION

A. PAYMENTS

1. Owner agrees to make progress payments based on completion of each ECM as listed in Section II., and one subsequent payment for retention.
2. Retention will be released within 30 days after receipt of all lien releases, L&I, Revenue and Employment Security certificates and releases by Owner.

B. TAX INCENTIVES

1. Owner agrees to relinquish any and all tax credits and deductions associated with the project scope to the ESCO. This includes any tax deductions associated with the Federal Energy Policy Act of 2005. Upon determination of the value of these credits or deductions, the ESCO will credit a portion of these tax benefits back to the Owner.

XIII. TERM OF AGREEMENT

Subject to the following sentence, the term of this Contract shall be one year; measured beginning with the Notification of Commencement of Energy Savings. Nonetheless, the Contract shall be effective and binding upon the parties immediately upon its execution, and the period from contract execution until the Commencement Date shall be known as the "Interim Period". All energy savings achieved during the interim period will be fully credited to Customer, and may be

used to offset any loss of energy savings; as mutually agreed to by the Owner and the ESCO.

XIV. TERMINATION VALUE

1. Upon commencement of energy savings, Owner may at any time terminate this Agreement.
2. Any termination shall fully and finally terminate and extinguish all of the Owner's rights and all of the ESCO's obligations under this agreement.

XV. PROJECT SCHEDULE

The ESCO will complete design work within six months of Notice to Proceed, and construction work will be substantially completed within twelve months of design acceptance. Final completion will be within thirteen months of design acceptance.

XVI. EXTENT OF SUBCONTRACTING

1. The ESCO may subcontract the design, construction management, start-up and training portions of this Contract to qualified firms at its sole discretion. Construction subcontracts will be awarded competitively.
2. The ESCO will endeavor to satisfy the MWBE goals of Washington State. The ESCO will not be required to meet these goals if the project budget is exceeded and cost effectiveness is impaired.

XVII. INSURANCE AND BONDING

1. The ESCO shall provide a payment and performance bond in accordance with Exhibit 3. Builders Risk Insurance will also be provided by the ESCO.
2. For the purposes of this Agreement, the "Sum Amount of Bond" shall be \$1,847,343 . This amount does not include any construction contingencies.
 - (1) The bond amount consists of the following:

Labor and Material and Bond Cost	\$1,702,620
Sales Tax	\$144,723
Bond Total	\$1,847,343
 - (2) Certificates of General Liability Insurance will be provided prior to Contract Signing. The State Of Washington shall be named as An Additional Insured on all insurance certificates.

3. The ESCO shall provide a payment and performance bond in the amount of 100% of the construction cost, as defined in the Energy Services Agreement Addendum. The amount shall include all authorized changes and state sales tax. The Bond shall be in the form attached to the Conditions of the Energy Services Agreement. The Contract listed on the bond form shall be the Addendum No. and Agreement No. which incorporates the work and the "Contract Date" shall be the date of the Addendum. The full and just sum of the Bond shall be as defined above and shall include the actual cost of purchasing and installing the ESCO Equipment, job superintendent and state sales tax. The Bond shall specifically exclude coverage for those portions of the Energy Services Agreement and/or Energy Services Agreement Addendum pertaining to design services, energy cost savings guarantee, maintenance guarantee, utility incentives, efficiency guarantees, and any other clauses which do not relate specifically to construction management and supervision of work for purchasing and installing of the ESCO Equipment, or for work to be accomplished by the Owner. The Bond shall be with a Surety or Bonding Company that is registered with the State of Washington Insurance Commissioner's Office.

XVIII. RENEGOTIATION

Both parties recognize that during the project implementation, the Owner and the ESCO may mutually agree to various modifications and that the energy savings may change as a result. Further, local code officials may require unanticipated changes to the project scope. In either event, both parties shall negotiate in good faith to restructure the project to maintain the intent of this Agreement.

XIX. EXHIBITS AND TABLES

Please see attached exhibits & tables

TABLE 1

Financial Analysis (Project Costs)

FINANCIAL ANALYSIS:													
Project Name: City of Olympia - Energy Services													
Date: October 1, 2009													
Energy Services Project													
Recommended Measures													
I. PROJECT COSTS & ENERGY SAVINGS													
PROJECT COSTS	ESPC FUNDING			BLOCK GRANT FUNDING			TOTAL COMBINED PROJECT COSTS	ESPC FUNDING CONTRACT VALUES			EECBG FUNDING CONTRACT VALUES		
	Mechanical and Water	Lighting	Total Project costs	Mechanical and Water - EECBG	Total Project costs	Total Project costs		Contract Values - Services	Contract Values - Construction	Contract Values - Contingency	Contract Values - Services	Contract Values - Construction	Contract Values - Contingency
Engineering Audit	\$ 47,304	\$ -	\$ 47,304	\$ -	\$ -	\$ 47,304	\$ 47,304	\$ -	\$ -	\$ -	\$ -	\$ -	
Estimated Labor and Material Cost	\$ 1,161,907	\$ 259,950	\$ 1,421,857	\$ 259,950	\$ 259,950	\$ 1,681,807	\$ 1,421,857	\$ -	\$ -	\$ -	\$ 259,950	\$ -	
Design @ 8.0% of Labor & Material	\$ 92,953	\$ -	\$ 92,953	\$ 20,316	\$ 20,316	\$ 113,269	\$ 92,953	\$ -	\$ -	\$ -	\$ 20,316	\$ -	
Design @ 4.0% of Labor & Material	\$ -	\$ 10,398	\$ 10,398	\$ -	\$ 10,398	\$ 10,398	\$ 10,398	\$ -	\$ -	\$ -	\$ -	\$ -	
Construction Mgt @ 3.0% of Labor & Material	\$ 58,095	\$ 12,997	\$ 71,093	\$ 12,698	\$ 12,698	\$ 83,791	\$ 71,093	\$ -	\$ -	\$ -	\$ 12,698	\$ -	
Bonding @ 1.6% of Labor & Material	\$ 18,581	\$ 4,159	\$ 22,750	\$ 4,063	\$ 4,063	\$ 26,813	\$ 22,750	\$ -	\$ -	\$ -	\$ 4,063	\$ -	
ESCO overhead and profit @ 17.5% of Labor & Material	\$ 203,334	\$ 45,491	\$ 248,825	\$ 44,441	\$ 44,441	\$ 293,266	\$ 248,825	\$ -	\$ -	\$ -	\$ 44,441	\$ -	
Subtotal	\$ 1,582,184	\$ 332,996	\$ 1,915,179	\$ 335,468	\$ 335,468	\$ 2,250,647	\$ 1,915,179	\$ 1,444,607	\$ 71,093	\$ 71,093	\$ 259,013	\$ -	
Construction contingency @ 5% of CC	\$ 58,095	\$ 12,997	\$ 71,093	\$ 12,698	\$ 12,698	\$ 83,791	\$ 71,093	\$ -	\$ -	\$ -	\$ 12,698	\$ -	
Subtotal - Maximum Project Cost:	\$ 1,640,279	\$ 345,993	\$ 1,986,272	\$ 348,166	\$ 348,166	\$ 2,334,438	\$ 1,986,272	\$ 1,444,607	\$ 71,093	\$ 71,093	\$ 259,013	\$ 12,698	
Est. Sales Tax @ 8.50% of Maximum Project Cost	\$ 139,424	\$ 29,408	\$ 168,833	\$ 29,594	\$ 29,594	\$ 198,427	\$ 168,833	\$ 122,792	\$ 6,043	\$ 6,043	\$ 21,931	\$ 1,079	
E&AS Project Management Fees	\$ -	\$ 59,900	\$ 59,900	\$ -	\$ -	\$ 59,900	\$ 59,900	\$ -	\$ -	\$ -	\$ -	\$ -	
Three (3) Years Technical Monitoring and Support	\$ -	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	
TOTAL PROJECT PRICE:	\$ 1,779,703	\$ 375,403	\$ 2,155,106	\$ 377,760	\$ 377,760	\$ 2,532,866	\$ 2,155,106	\$ 1,657,998	\$ 77,138	\$ 77,138	\$ 279,944	\$ 13,777	
Estimated Utility Incentive	\$ -	\$ 514,783	\$ 514,783	\$ 93,486	\$ 93,486	\$ 608,269	\$ 514,783	\$ -	\$ -	\$ -	\$ -	\$ -	
Estimated Client Net Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EECBG Funds	\$ -	\$ -	\$ -	\$ 130,600	\$ 130,600	\$ 130,600	\$ 130,600	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Repair and Replacement - Fund 129	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Amount to be financed by client	\$ -	\$ -	\$ -	\$ 153,674	\$ 153,674	\$ 153,674	\$ 153,674	\$ -	\$ -	\$ -	\$ -	\$ -	
Incentive Amounts	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Puget Sound Energy	\$ -	\$ -	\$ -	\$ 517,792	\$ 517,792	\$ 517,792	\$ 517,792	\$ -	\$ -	\$ -	\$ -	\$ -	
City of Olympia and LOTT	\$ -	\$ -	\$ -	\$ 90,477	\$ 90,477	\$ 90,477	\$ 90,477	\$ -	\$ -	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	\$ 608,269	\$ 608,269	\$ 608,269	\$ 608,269	\$ -	\$ -	\$ -	\$ -	\$ -	

TABLE 1
Financial Analysis (Years 1 through 6)

ECONOMIC ASSUMPTIONS							
Interest Rate:	4.50%						
Financing Term:	10 years						
Payments/year:	2						
Inflation Rate:	3.50%						
Est Annual Rate of Energy Increases:	1.50%						
Client Discount Rate:	4.50%						
Client initial cash payment:	0.00%						
ANNUAL ENERGY SAVINGS							
Unit Price	Lighting	HVAC	Water & Chemicals	Total	Annual \$	Utility Costs	
Electrical Savings - PSE Rate Schedule 24 (kWh and \$)	0	0	0	0	\$ -	\$0.0878/kW-hr	
Electrical Savings - PSE Rate Schedule 25 (kWh and \$)	574,467	333,179	18,527	926,173	\$ 60,580	\$0.0654/kW-hr	
Electrical Savings - PSE Rate Schedule 25 (kW and \$)	2,232	80	0	2,312	\$ 16,799	\$7.265/kW	
Natural Gas Savings (Therms and \$)	-2,945	32,501	1,457	31,013	\$ 37,116	\$1.197 therm	
Fuel Oil Savings (Gals. And \$)	0	0	0	0	\$ -	\$3.660 therm	
Water Only & Chemical Cost Savings	0	25,466	0	25,466	\$ 55,543	\$2.185/CCF	
Water, Sewer & Chemical Cost Savings	0	0	2,720	2,720	\$ 20,686	\$7.605/CCF	
	\$ 50,269	\$ 116,914	\$ 23,641	\$ 190,824	\$ 190,824		
Project Name: City of Olympia - Energy Services							
Date: October 1, 2009							
II. PROJECT CASH FLOW							
Year ending	2009	2010	2011	2012	2013	2014	2015
Reference year	0	1	2	3	4	5	6
PROJECT SAVINGS							
Lighting Energy Savings	\$0	\$ 50,269	\$ 51,023	\$ 51,788	\$ 52,565	\$ 53,353	\$ 54,154
HVAC & Water Savings	\$0	\$ 140,556	\$ 142,664	\$ 144,804	\$ 146,976	\$ 149,181	\$ 151,418
Lighting Maint. Savings:	\$0	\$ 6,237	\$ 6,237	\$ 6,237	\$ 6,237	\$ 7,252	\$ 7,028
HVAC Maint. Savings:	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Lighting Deferred Equip Savings:	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Savings:	\$0						
Total Savings:	0	\$197,061	\$199,924	\$202,829	\$205,778	\$209,786	\$212,600
ANNUAL PROJECT COSTS							
Amount Financed	(\$1,559,496.04)						
Cash Payment	(\$319,400.00)						
Annual Financing Costs		(\$195,380)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)
Total Annual Costs to Client	(\$319,400.00)	(\$195,380)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)
NET ANNUAL CASH FLOW WHEN FINANCING PROJECT:							
Based on savings from Utility & Maint. Equip. Costs		\$1,681	\$4,544	\$7,449	\$10,398	\$14,406	\$17,220

TABLE 1

Financial Analysis (Years 7 through 15)

II. PROJECT CASH FLOW										
	Year									
Year ending	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Reference year	7	8	9	10	11	12	13	14	15	
PROJECT SAVINGS										
Lighting Energy Savings:	\$ 54,966	\$ 55,790	\$ 56,627	\$ 57,477	\$ 58,339	\$ 59,214	\$ 60,102	\$ 61,004	\$ 61,919	
HVAC & Water Savings:	\$ 153,690	\$ 155,995	\$ 158,335	\$ 160,710	\$ 163,121	\$ 165,567	\$ 168,051	\$ 170,572	\$ 173,130	
Lighting Maint. Savings:	\$ 5,880	\$ 5,880	\$ 4,115	\$ 4,115	\$ 4,176	\$ 4,239	\$ 4,303	\$ 4,367	\$ 4,433	
HVAC Maint. Savings:	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Lighting Deferred Equip Savings:	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Other Savings:										
Total Savings:	\$214,535	\$217,565	\$219,077	\$222,301	\$225,636	\$229,020	\$232,456	\$235,943	\$239,482	
ANNUAL PROJECT COSTS										
Amount Financed:										
Cash Payment:										
Annual Financing Costs:	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Annual Costs to Client:	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	(\$195,380.12)	\$0	\$0	\$0	\$0	\$0	
NET ANNUAL CASH FLOW WHEN FINANCING PROJECT:										
Based on savings from Utility & Maint. Equip. Costs	\$19,155	\$22,285	\$23,697	\$26,921	\$225,636	\$229,020	\$232,456	\$235,943	\$239,482	

EXHIBIT 1

Energy Audit (Incorporated herein)

EXHIBIT 2

Bond Form

(Incorporated herein (AIA A312))

EXHIBIT 3

Energy Services Agreement

(Incorporated herein)