City of Tumwater
INVESTMENT GRADE AUDIT PROPOSAL

Energy Efficiency Upgrades

March 27, 2023

Prepared For

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Prepared By

MacDonald-Miller
FACILITY SOLUTIONS

MacDonald-Miller FACILITY SOLUTIONS®

We make buildings work better.

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Sustainability Coordinator
City of Tumwater
Tumwater, WA

Bernard Jackson
State of Washington
Department of Enterprise Services
Olympia, WA 98504

Subject: **Investment Grade Audit Proposal - City of Tumwater**

Dear Alyssa,

MacDonald-Miler Facility Solutions, is pleased to provide the following Investment Grade Audit proposal to the City of Tumwater. The purpose of this proposal is to perform an Investment Grade Audit (IGA) at various locations in Tumwater. All work associated with this effort will be developed in coordination with the City of Tumwater and State of Washington's Energy Services Performance Contracting (ESPC) program.

The purpose of the IGA is to develop a detailed engineering study that will identify the scope of work, energy savings, maintenance savings and financial case that meets the City of Tumwater financial and operational goals. Upon completion of the IGA, an Energy Savings Proposal (ESP) will be delivered that includes all associated project guaranteed cost and savings.

MacDonald-Miller partners with building owners to identify cost effective operational investments and financing strategies. These investments save energy, support sustainability objectives, improve comfort and extend the life expectancy of equipment; while achieving the goal of operational excellence.

Developing a detailed scope of work and reliable budget pricing at an early stage of a project is an innate strength of our company. The historical in-house cost systems and performance matrix provide us with the ability to budget multiple design sets to help the owner make informed decisions on their HVAC, Lighting systems, and building envelope improvements in terms of cost and long-term performance.

We are honored to have the opportunity to work with you on this and future projects. Please contact us with any questions you might have.

Best regards,

Andy Kaplowitz
Public Sector Account Executive

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PROJECT UNDERSTANDING

MacDonald-Miller has been working closely with the City of Tumwater to help them address their financial and operational goals. These goals are defined as follows:

- Increase occupant comfort.
- Address aging inefficient building systems and components.
- Reduce the overall energy, water and operational costs, reflective of the city of Tumwater's goals of a 2% annual reduction in electricity consumption, or 20% from 2019 levels by 2030, and a 3% annual reduction in potable water consumption, or 33% from 2019 levels by 2030.
- Reduce carbon emissions.
- Reduce overall Financial and Operational costs.
- Identify potential funding sources (including but not limited to capital funds, utility incentives, energy/operational savings and other state or federal grants as applicable).
- Phasing of projects to meet the City's financial funding if necessary.

MacDonald-Miller has been working in collaboration with the City of Tumwater to identify the next phase of energy efficiency measures that meet the above goals. These measures are identified below. This list may be expanded once additional knowledge is gained during the audit, or some measures may be deleted or modified due to high payback or other Owner concerns.

City Hall Campus

- **Decarbonization** – Convert existing HVAC system to Variable Refrigerant Flow (VRF) system.
- **Lighting and Controls Upgrade** – Upgrade the remaining compact fluorescent, florescent, incandescent, or HID lighting fixtures to LED technology and add controls**.**
  Exterior Lighting and Controls Upgrade – Upgrade the exterior lighting fixtures to LED.
- **Controls Upgrade** – Replace existing HVAC controls with Honeywell DDC.
- **Smart Building Analytics, Utility Tracking, and Continuous Commissioning** – Provide fault analytics and monitoring on major equipment to reduce energy waste. Optimize controls via continuous commissioning. Provide a new dashboard with equipment health score and cost forecasting for deferred maintenance.
- **Water Conservation Measures** – Retrofit existing fixtures to low flow, higher efficiency fixtures to reduce water consumption.
- **Irrigation System Water Conservation Measures** – Investigate irrigation systems for potential opportunities for water conservation.

Tumwater Library

- **Smart Building Analytics, Utility Tracking, and Continuous Commissioning** – Provide fault analytics and monitoring on major equipment to reduce energy waste. Optimize controls via continuous commissioning. Provide a new dashboard with equipment health score and cost forecasting for deferred maintenance.

- **Water Conservation Measures** – Retrofit existing fixtures to low flow, higher efficiency fixtures to reduce water consumption.

Parks and Facilities Building

- **Decarbonization** – Convert existing natural gas-using HVAC systems and equipment to electric.
- **Lighting and Controls Upgrade** – Upgrade the remaining compact fluorescent, florescent, incandescent, or HID lighting fixtures to LED technology and add controls**.**
  Exterior Lighting and Controls Upgrade – Upgrade the exterior lighting fixtures to LED.
- **Water Conservation Measures** – Retrofit existing fixtures to low flow, higher efficiency fixtures to reduce water consumption.
- **Upgrade Domestic Hot Water Heater** – Replace existing domestic hot water heater with new, higher efficiency heat pump water heater.

Public Works Building #2

- **Decarbonization** – Convert existing natural gas-using HVAC systems and equipment to electric.
- **Lighting and Controls Upgrade** – Upgrade the remaining compact fluorescent, florescent, incandescent, or HID lighting fixtures to LED technology and add controls**.**
  Exterior Lighting and Controls Upgrade – Upgrade the exterior lighting fixtures to LED.
- **Door Control Upgrade** – Add door switches to deactivate heating elements when bay doors are open.
- **Water Conservation Measures** – Retrofit existing fixtures to low flow, higher efficiency fixtures to reduce water consumption.
- **Upgrade Domestic Hot Water Heater** – Replace existing domestic hot water heater with new, higher efficiency heat pump water heater.

Public Works Building #3

- **Decarbonization** – Convert existing natural gas-using HVAC systems and equipment to electric.
- **Lighting and Controls Upgrade** – Upgrade the remaining compact fluorescent, florescent, incandescent, or HID lighting fixtures to LED technology and add controls**.**
  Exterior Lighting and Controls Upgrade – Upgrade the exterior lighting fixtures to LED.
- **Door Control Upgrade** – Add door switches to deactivate heating elements when bay doors are open.
- **Water Conservation Measures** – Retrofit existing fixtures to low flow, higher efficiency fixtures to reduce water consumption.

Tumwater Valley Golf Club

- **Decarbonization** – Convert existing HVAC system to Variable Refrigerant Flow (VRF) system. Investigate possibility of converting gas-consuming kitchen equipment to electric (will require consultation and approval by tenant.)
- **Lighting and Controls Upgrade** – Upgrade the remaining compact fluorescent, florescent, incandescent, or HID lighting fixtures to LED technology and add controls**.**

  Exterior Lighting and Controls Upgrade – Upgrade the exterior lighting fixtures to LED.
- **Controls Upgrade** – Replace existing HVAC controls with Honeywell DDC.
- **Smart Building Analytics, Utility Tracking, and Continuous Commissioning** – Provide fault analytics and monitoring on major equipment to reduce energy waste. Optimize controls via continuous commissioning. Provide a new dashboard with equipment health score and cost forecasting for deferred maintenance.
- **Water Conservation Measures** – Retrofit existing fixtures to low flow, higher efficiency fixtures to reduce water consumption.

INVESTMENT GRADE AUDIT SCOPE OF WORK

MacDonald-Miller will work closely with the City of Tumwater and DES to perform an Investment Grade Audit (IGA) that meets the client's needs. The following actions will be completed in the development of the Investment Grade Audit.

- Perform a targeted energy audit of the facility infrastructure that directly pertains to the proposed measures; including all systems that directly or indirectly affect the usage of energy (electricity, natural gas, fuel oil, etc.) or water/wastewater.
- Collect and analyze trends, drawings and other information that provide insight into the operation of the facility.
- Review facility design documents, specifications and O&M manuals.
- Measure and monitor the energy usage of select equipment to quantify actual operating parameters.
- Analyze, identify, and recommend energy conservation measures that meet the project goals.
- Identify available grants, utility incentives, and other funding sources as applicable. Coordinate with the grant providers and local utilities to obtain these funds to help pay for the proposed project.
- Interview facility/plant operating and engineering staff to understand and prioritize the following:
    1. Equipment issues or deficiencies that need to be resolved.
    2. Gain an understanding of past and current operation.
    3. Solicit infrastructure upgrade/modification recommendations.
    4. Survey occupants to understand comfort issues or concerns.
    5. Coordinate with facility personnel and staff to prevent disruptions to work schedules during audit and implementation.

The Investment Grade Audit/Energy Service Proposal will include the following:

- The recommended conservation measures to be installed and a description of the conservation measures analyzed but disqualified and a reason they were disqualified.
- Recommendations for replacement of existing equipment, along with recommendations for improvements to existing equipment and operating conditions.
- The baseline energy consumption for the facility, including the data, methodology and variables used to compute the baseline, and the baseline calendar period that will not be less than twelve months.
- The energy savings and estimated energy cost savings that are expected to result from the installation of the energy efficiency equipment and an explanation of the method or methods used to calculate these savings.

At the conclusion of the Investment Grade Audit, an Energy Service Proposal will be developed that will include the following:

- A detailed project scope.
- A guaranteed implementation cost and associated guaranteed energy savings for the project scope.
- The maximum allowable construction cost, itemized in detail including an itemization by EEM.
- Preliminary system/equipment selections, schematic drawings as needed to describe the work and preliminary control sequences to achieve the proposed savings.
- Develop a preliminary project schedule that identifies the timeline and steps required to implement the project.
- Identify maintenance requirements for the proposed equipment upgrades.
- The standards of comfort and service appropriate for the facility.
- Options for financing of the project (through the state local loan program or 3rd party low interest financing) as appropriate and as requested by owner.
- A measurement and verification plan that with describe how the savings will be verified during the term of the energy services agreement.

COST EFFECTIVENESS CRITERIA

There are three potential outcomes of the IGA:

- If a facility does not have measures that meet the cost-effectiveness criteria established by the client agency, there is no cost to the Client for the audit. This is true unless the client agency, DES and the ESCO agree to other arrangements. In that case these special arrangements must be reflected in the contract documents.
- If the ESCO identifies cost-effective measures and the client agency decides not to proceed, the ESCO will be reimbursed for the audit.
- If the ESCO identifies cost-effective measures and the client decides to proceed, an energy services proposal is completed and presented.

The cost effectiveness criteria for this project is “lifecycle cost effective”. This is defined as the measure having a net positive present value over the economic lifetime of the measure. For purposes of determining economic lifetime, ESCOs rely on generally accepted engineering practice as is guided by entities such as the American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE), or other national or international standard setting bodies.

Owner Goals
Cost Effectiveness Criteria goals stipulated by City of Tumwater include:

- 2% reduction in electricity consumption annually, or 20% from 2019 levels by 2030
- Decrease potable water consumption 3% annually, or 33% from 2019 levels by 2030
- Reduce GHG emissions 45% by 2030

The following criteria will be used to determine the cost-effectiveness of the measures proposed in the ESP.

- The Client may use any combination of the following funding and payment options to discharge its obligations under the Energy Services Agreement, including but not limited to:
    - ESCO financing;
    - State Treasurer's LOCAL Program;
    - Energy cost savings, utility cost savings, and approved O&M savings to pay off any of the above debt structures;
    - Grants, loans and/or incentives from utilities or other funding sources; and
    - The Client capital budget or any other funds at the Client discretion.
- The loan term may not exceed the economic life of the measure, unless otherwise approved by the Client and DES.
- Not more than 90% of the energy cost savings may be used to repay the loan, unless approved by the Client and DES.
- Up to 100% of utility grants may be used to defray project costs or to repay the loan.
- Labor cost savings shall not be included in energy cost savings for the purpose of determining cost-effectiveness, unless specifically approved by the Client. Material cost savings will typically represent costs for purchased parts and service contracts, but not internal labor costs.
- The cost of the measures will include: the cost of the IGA and preparation of the ESP; project design; construction; ESCO's construction and project administration; DES's project management fee; system commissioning; bidding; bonding; overhead and profit; permits; taxes; training; cost and saving guarantees, and other costs that may be agreed to by the ESCO PM, DES and the Client.
- The Client cash flow including savings, utility contributions, cost of measurement and verification services, cost of measures, and loan repayments shall be neutral or positive with respect to the baseline cash flow and based on guaranteed savings.
- Current utility rates shall be used for the purpose of calculating energy and utility cost savings. Energy and utility cost inflation factors shall not be used without the Client expressed approval.

INFORMATION PROVIDED BY OWNER

In developing the IGA, MacDonald-Miller assumes the following information will be provided as required:

- Access to Energy Star Portfolio (if available)
- Hours the facility is occupied (historic and projected)
- Occupancy rates (historic and projected)
- Required heating and cooling set points
- As-built design documents of the mechanical, electrical and controls
- Hazardous Materials Assessment Report for the buildings being audited
- Access to facility, HVAC systems & control systems.

PRELIMINARY SCHEDULE

The following schedule is based on receiving a signed IGA contract by April 10, 2023:

Preliminary Schedule	
Description	**Date**
Deliver Investment Grade Audit Proposal	March 27, 2023
Investment Grade Audit Kickoff	April 24, 2023
Preliminary Cost and Savings	July 13, 2023
Investment Grade Audit Completion	August 3,2023
Energy Service Proposal Delivery	September 6, 2023

MEASUREMENT AND VERIFICATION

MacDonald-Miller conforms to the International Performance Measurement and Verification Protocol (IPMVP) when documenting the energy savings of the installed measures. The proposed length of M&V is one year. IMVP options and term may change during the development of the IGA.

AUDIT FEE

The fee to develop an Investment Grade Audit will be **Forty-two Thousand Eight Hundred Sixty-Three Dollars**. All fees will be included and shown in the ESPC implementation costs.

PRICING	
Investment Grade Audit	$42,863

If this proposal is acceptable, please process the appropriate documents.

We look forward to working with the City of Tumwater and DES on developing and implementing this project.