

2010 FACILITY CONSERVATION ACTION PLAN

FACILITY Skagit County Road Department Administration Building 201 Avon Ave., Burlington		SITE ID SC-02	DATE 7-29-10
CURRENT ENERGY USE INDEX (EUI) 23 kBtu/Sq Ft		TARGET EUI 20 kBtu/Sq Ft	AVERAGE EUI (BENCHMARK) FOR THE FACILITY TYPE: <u>TBD</u>
NEXT REVIEW OF PLAN Review and update annually.	FACILITY RCM TEAM MEMBERS (NAME AND POSITION) 1. Ric Boge, SCOG RCM, 2. Mike Elde, ER&R Coordinator 3. Margo Frydenlund, Administrative Supervisor, 4. Ross Bailey, Facilities Ops Supervisor; 5. Katie Hampton, Sustainability Coord.		
WALK THROUGH SUMMARY AND PHOTOS	DATE AND TIME OF WALK THROUGH: <u>6-21-10</u>		METER ON EIS? <u>No</u>

OVERVIEW OF THE SITE VISIT AND OPPORTUNITIES FOR RESOURCE CONSERVATION IN THE FACILITY

The Skagit County Road Department Administration Building is one of four occupied facilities at the Road Department complex located in Burlington. It is a two-story structure about 14,000 square feet in size, plus an attached truck canopy for equipment and a fuel island open 24/7. The bottom floor is made up of large meeting room where the road district field crew of about 20 begins and ends their day, plus the men's locker room, women's restroom, and a small handicap-access restroom. The second floor houses the Road Superintendent, 5 supervisory staff, 2 administrative staff, and 2 other staff assigned to Special Operations. Other than one supervisor and the administrative staff, most of the second floor occupants spend substantial portions of their work day out in the field. The facility is used from 6 am to 5 pm Monday thru Thursday during the summer, with only 2 administrative staff present about the same hours on Fridays.

Three Payne split systems heat and cool the occupied spaces. A Chromalox ceiling-mounted electric unit heats the downstairs crew-quarters. Bathrooms have small, electric baseboard heaters. In 2009 the Road Department Administration Building used 80,939 KWh of electricity and 537 Therms of natural gas for a total cost of \$8,130.

One PSE account services the facility: #635-816-000 (shop meter/rate H095674544/24-E-C). One Cascade Natural Gas account services the facility: #022-0040-1 (main bldg meter/rate #158807/503). Water service is provided by one of 3 Skagit PUD accounts servicing the Road Department complex. Sewer and storm water service is provided by City of Burlington account #17-00012-10. Garbage and recycling service is provided by Waste Management.



Skagit County Road Department Administration Building

Key findings from the Resource Conservation Audit are:

1. Retrofit T-12 linear fluorescent lighting throughout the Facility with more efficient T-8 linear fluorescents.
2. When retrofitting fluorescent lighting, de-lamp several fixtures and add additional switches, especially in the upstairs meeting room to reduce unwanted heat gain and unnecessary lighting.
3. Keep pathway clear from second floor registers to allow unrestricted passage of supply and return air.
4. Install vents above the doors in the upstairs conference room to maintain air circulation when doors are closed.
5. Calibrate the upstairs thermostats; replace thermostat in upstairs conference room if necessary.
6. Add controls for lighting sometimes left on in unoccupied spaces.

POTENTIAL CONSERVATION MEASURES, OPERATIONAL IMPROVEMENTS, OR MODIFICATIONS

MEASURE SUMMARY

FOLLOW UP ACTIONS

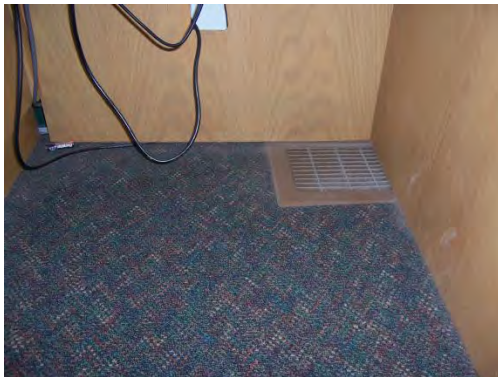
DISPLAYED TO THE RIGHT OF EACH MEASURE

HEATING/VENTILATION/AIR CONDITIONING (HVAC)

1. Keep pathways clear from second floor registers



Partially blocked supply-air register in office area.



Partially blocked return-air register in meeting room.

Funding: Budget neutral

Staff: Road Superintendent and staff using the upstairs space

Schedule: Immediate Action

Note:

Staff mentioned that upstairs spaces are often not comfortable, even though thermostats are set properly and the HVAC equipment is serviced regularly. Part of this problem is due to restricted pathways for supply and return air from/to the heating and cooling equipment. Restricted pathways from the registers reduce the ability of the HVAC equipment to adequately meet the heating and cooling demands placed upon it.

2. Take action to reduce unwanted heat-gain in the upstairs meeting room and to facilitate more air circulation.



Significant heat gain is coming from ten 4-lamp overhead fluorescent fixtures – all on one switch. (When these lights are on, it's like having a 1500W personal space heater running in the room!)

Funding: Budget neutral

Staff: Road Superintendent, Facilities Operations Supervisor, Lighting contractor, staff using the space

Schedule: Immediate Action

Note:

Unwanted heat gain is a major problem in this room, especially when the doors are closed. Staff said the receptionist, located just outside the west door to the room sometimes has conditioned 'cool' air blowing on her, making her uncomfortable, especially during the colder months..... This is because the reception space is controlled by the same thermostat that's in the meeting room space. With a meeting going on, especially with closed doors and several people, the room heats up and the thermostat calls for cooling – no matter what the temperatures are outside that room.



Heat gain in the meeting room is also significant from office equipment – see temperatures recorded the day of the audit shown to the right.

Actions to alleviate the heat-gain problem include:

- Replace the 4 lamp T-12 fixtures with 2-lamp T-8 fixtures.
- Add a switch so not all the overhead lighting needs to be turned on at the same time, as it currently does
- Add vents above the meeting room doors to facilitate upstairs air circulation when the doors are closed (consider a fan for one or both vents as well).
- Move some of the office equipment outside this room, especially the copy machine. When replacement is due, replace office equipment with Energy Star certified models that will not contribute as much heat gain to this space.

Temperatures recorded the day of the audit on surface areas of the office equipment in the room were:

- 107 degrees on the copy machine
- 85 degrees on the printer
- 85 degrees on the fax machine
- 87 degrees on the shredder.

3. Calibrate thermostats with the HVAC system and replace the thermostat in the upstairs conference room if necessary.



Thermostat in upstairs meeting room was set for cooling at 75 degrees. Temperature on the wall above thermostat and the walls surrounding the room was about 80! (Registers were delivering 75 degree air; outside air temperature was about 60 degrees!)

Funding: Budget neutral

Staff: Facilities Operations Supervisor; HVAC Technician

Schedule: Immediate action.

Note:

Despite the HVAC system being serviced regularly, according to staff, the system was not providing adequately cooled air to the meeting room space at the time of the audit.

(Note: the other thermostat on the second floor was cycled off at the time of the audit. It was also set for cooling at 75 degrees in an office space where the room temperature was 72 degrees.)

4. **Kudos** for installing awnings over the windows to help reduce unwanted solar heat gain!



Funding: N/A

Staff: Margo ☺

Schedule: N/A



Note:

This is a good conservation measure for less use of artificial cooling – saves money!

ELECTRICAL & LIGHTING

1. Replace the linear T-12 fluorescent lighting throughout the building with more efficient T-8.



T-12 fluorescents in downstairs crew quarters

Funding: Operating Budget / Capital Budget / PSE grant assistance

Staff: Road Superintendent; ER & R Coordinator; Lighting contractor

Schedule: Immediate action.

Note: replace with fewer T-8 lamps, if possible.

Project is underway!

2. Add reminder labels or install controls to any spaces prone to the lights being left on when unoccupied.

Funding: Budget neutral / Operating budget / possible PSE rebates.

Staff: all staff / Sustainability Coordinator / Lighting contractor

Schedule: Immediate action.

Note: Project underway, led by Sustainability Coordinator!

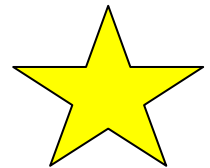
3. **Kudos** for installing a 'vending miser' to the top of the cold drink vending machine in the crew quarters!



Funding: N/A

Staff: staff responsible.

Schedule: N/A



Note:

Vending misers are occupancy sensors that power-down cold drink vending machines during periods of unoccupancy. Each cold drink vending machine with a miser installed can save up to \$150/year on electricity!

4. In conformance with County policy, restrict use of personal space heaters to those that use 250W or less. (example below)



Photo shows 100W white infrared radiant heat panel that can be mounted under desk to help keep desk user comfortable.

Funding: Budget neutral / operating budget

Staff: Road Superintendent / Purchasing staff

Schedule: As required

Note:

Infrared radiant heating is much more efficient than personal space heaters. It heats surfaces in line with the radiant heat rather than the air.

5. Use only *Energy Star* rated appliances.



Small, non-Energy Star older fridge under counter

Funding: Budget neutral.

Staff: Purchasing staff

Schedule: When replacement is due.

Note: Energy Star is a rating given by the Environmental Protection Agency to appliances guaranteed to use less energy than the average of similar, non-Energy Star appliances.

WATER & SEWER

1. Keep the water heater servicing washrooms set not to exceed 120°F.



55g electric hot water tank in men's locker room


Funding: Budget neutral

Staff: Solid Waste Division Manager

Schedule: Immediate Action

Note:

Consider replacing the electric hot water tank with a natural gas-fired tank when replacement is due to save money.

<p>2. Convert plumbing fixtures to efficient but effective low flow models to conserve water usage.</p>  <p><i>Faucets in men's restroom</i></p>	<p>Funding: Operating budget.</p> <p>Staff: Outside contractor / vendor.</p> <p>Schedule: When replacement is due</p>
<p>3. Report building plumbing and irrigation equipment leaks immediately. Investigate and repair as soon as possible.</p>	<p>Note:</p> <hr/> <p>Funding: Budget neutral</p> <p>Staff: All staff report leaks.</p> <p>Schedule: Ongoing</p> <hr/> <p>Note: Ongoing water leaks can add up to a big waste of money!</p>

SOLID WASTE & RECYCLING

<p>1. Increase recycling and report on progress to occupants.</p>	<p>Funding: Budget neutral</p> <p>Staff: Office staff, Sustainability Coordinator, and Recycling Coordinator</p> <p>Schedule: Immediate Action</p>
<p>2. Practice double-sided printing and copying, and waste reduction such as using both sides of paper before recycling.</p>	<p>Note: The County's Sustainability team is about to purchase new interior recycling containers for County buildings. Post and distribute recycling educational information to staff when the new containers are installed.</p> <hr/> <p>Funding: Budget neutral.</p> <p>Staff: all staff</p> <p>Schedule: Immediate action.</p> <hr/> <p>Note:</p>

RESOURCE

FOLLOW UP BY

1. Education and Communication

- Frequent communication with occupants on viability of these conservation measures to secure and maintain 'buy-in' and to make minor modifications as needed.
- Periodically, post energy usage and cost reports on this facility for occupants to see any impacts from the conservation measures
- Consistent feedback to staff from Road Superintendent and ER & R Coordinator regarding the implementation of action plan initiatives.
- Include SCOG RCM in review of any renovation or new construction projects to ensure conservation measures are built in from the get-go.
- Reward success and good conservation-at-work behavior with awards or formal recognition by the Board of County Commissioners.

1. Road Superintendent, ER & R Coordinator, Facilities Operations Supervisor, Sustainability Coordinator, other assigned Staff, SCOG RCM assistance as appropriate.

2. Funding

- Interact with utility companies to determine applicability of custom grant or prescriptive rebate funding for specific energy efficiency upgrades.
- Track savings from conservation and efficiency measures and challenge other County departments to exceed % savings achieved at the Road Dept. Administration Building.
- Propose to the Board of County Commissioners that ½ of all \$ savings from conservation and efficiency measures be credited back to the Department/Division that achieved the savings for use towards other needs such as equipment or personnel.

2. Road Superintendent, ER & R Coordinator, Sustainability Coordinator, SCOG RCM assistance as appropriate.

3. Utility Use Data – see attached reports.

3. Additional and detailed usage data for energy and other utilities is available from the SCOG RCM (Ric Boge).