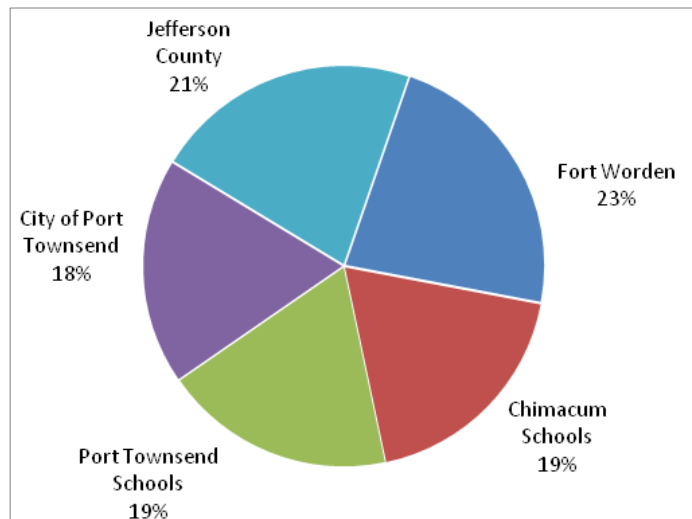# Jefferson County Partnership

Jurisdictions and Geography

The Jefferson County Shared RCM Partnership includes the Chimacum School District, City of Port Townsend, Fort Worden State Park, Jefferson County and the Port Townsend School District. The partners are all located within Jefferson County, on the Olympic Peninsula. The city, state park and school districts are located close to each other on a peninsula in the northeast section of the county bordering Puget Sound.

Partnership Details

Jefferson County is the lead organization and the RCM has office space at the county offices. As Puget Sound Energy (PSE) customers, the partners took advantage of the support offered by the PSE RCM program. PSE provides only electricity to this area of the state; there are no natural gas lines on the Olympic Peninsula.

During the timeframe for this program, a public vote authorized the shift from PSE as the electric power provider in Jefferson County to a public utility. This resulted in PSE ending their program support at the start of the public utility operation, scheduled to occur on April 1, 2013. This loss of funding from PSE has added uncertainty to the future of the program. The new PUD service has not committed funding support for the RCM program.

Allocation of Shared RCM's Time

The RCM hired two summer interns who assisted him with facility assessments, data entry and research projects, such as quantifying the benefit of replacing water fixtures and recycling considerations.

Program Timeline

Project Milestones	
11/19/2009	Phase 1 application received
6/14/2010	Inter-local agreement adopted
6/1/2010	Commerce contract start date
8/9 to 8/25/2010	RCM position posted and open
9/15 to 9/16/2010	Interviews held
11/1/2010	RCM Brian Goldstein started work
11/9/2010	Kick-off meeting
1/19/11	First site technical visit by the WSU Energy Program
6/30/2012	Commerce contract end date

The complete WSU Energy Program report and descriptions of the other partnerships are available at:
http://www.energy.wsu.edu/PublicFacilitiesSupport/ResourceConservation/SharedRCM.aspx

Hiring Process

Five applicants out of the 24 who applied were interviewed for the position. The RCM who was hired, Brian Goldstein, has an engineering degree and worked as a program manager at a major software development firm. He had recently taken Sustainable Building Advisory training and was working as an intern RCM at a school district when he was hired for this position. He is one of the three Shared RCMs in this program with previous RCM experience.

Brian also had experience working with Utility Manager from his RCM internship, so he was able to dive right into setting up the database. Even with this running start, the RCM's first year was dominated by setting up the database, establishing relationships and performing site assessments.

He was one of the last RCMs to begin work. His baseline year ended in October 2010; the baseline year for most of the other RCMs ended in June 2010.

A profile of the Shared RCM titled *Resource Conservation Manager Brian Goldstein: Keeping his eyes on the stars and his feet on the ground*, was produced by WSU Energy Program in June 2012. It is available online at http://www.energy.wsu.edu/Documents/RCM%20Goldstein_12_029.pdf.

RCM Accomplishments

Facility Assessments
The RCM tracked facility assessments on his monthly summary reports. He began assessments of facilities in February 2011, a few months after beginning employment. By September 2011, he had done 94 facility assessment site visits across the five partner organizations. This accounts for all of the sites except a few less energy-intensive sites on the Fort Worden campus.

Data Tracking
As a PSE customer, the partnership was eligible for a PSE RCM grant, which included the Utility Manager software program. As with the other PSE RCMs, there was some delay in downloading data. Energy Interval Service (EIS) was set up through PSE on most meters at the partner facilities. EIS allows for real-time viewing of energy use, usually every 15 minutes. Use of EIS can identify times of greatest use, which can contribute to high demand charges and unnecessary holiday and evening energy use. With the EIS service, the RCM was able to facilitate scheduling changes for equipment start-up, thereby saving on demand charges.

Reports
The RCM's monthly reports were clearly written and included summary information, accomplishments of the previous month, goals for the next month, and a tally of how many facility assessments and action plans were done to date. Brian often thanked people who helped during the month, which promoted positive relationships with various partner leads and staff.

In his facility action plans (FAPs), the RCM employed a matrix identifying action items by no cost, low cost or capital measures, and the impact each had on reducing resource use to help with project prioritization. For example, optimizing a heating schedule could be a no-cost measure with a high-

impact result. Conversely, repairing leaky faucets could be a low-cost measure that delivers a low-impact result. A sample matrix is shown below.

Action Item	No cost	Low cost	Capital project	Impact
Optimize bus heat up schedule	x			High
Reduce shop oil bay venting	x			Med
Remove lights in overlit areas	x			Med
Replace 2-yard garbage bin with 1.5-yard bins	x			Med
Disconnect display lights in vending	x			Low
Start recycling in office	x			Low
Replace bus engine heater timer		x		High
Install timer for shop ceiling fans		x		Med
Install occupancy sensors in shop		x		Med
Repair water damage in break room		x		Low
Upgrade bus heater system			x	High
Replace office T12 lights			x	Med

When reporting on measures taken, the RCM noted which partner organization it was for, but not which facility. This makes it more difficult to match the implemented measure with savings in a specific building.

In his annual reports, the RCM reported the percentage of time spent on each type of task, as illustrated in the table below. The RCM was busy the first year gathering data, doing assessments and identifying efficiency measures; in the second year, the RCM worked to engage and encourage the partners to implement the changes.

Percent RCM Time per Task	Year 1	Year 2
1. Cultivate partner engagement and management support	5	25
2. Contacting utility providers to review offerings, rate schedules	3	
3. Gathering historical and quarterly utility information in utility database	12	
4. Gathering and reviewing quarterly utility information in utility database		15
5. Site assessment of facilities	20	15
6. Preparing facility action plans	30	
7. Preparing resource management plans	10	10
8. Summer intern program	5	
9. Reporting and presentations	10	10
10. Outreach	5	10
11. Engaging with building contractors		10
12. Training		5

Information in the FAPs and other reports about facilities, energy use and optimal measures will make these documents useful for years to come.

Resource Conservation Projects

The RCM found that the top three no-cost actions with the largest impact were:

- Optimizing building heating schedules by reducing heating during unoccupied periods and adjusting zone heating schedules to reduce demand charges.
- Minimizing fresh air to air handlers while maintaining adequate ventilation.
- Removing lamps in overlit areas while maintaining state standards for light levels.

For solid waste, the top three action items were:

- Reducing the number of pickups per week,
- Reducing the size of containers, and
- Increasing recycling stream to enable the other two action items.

Data loggers were used extensively by the RCM. Data loggers are set in place for a period of time to track metrics such as temperature and power use at regular intervals. By setting data loggers in some of Fort Worden's rental units to track temperature, the RCM was able to determine that the heating system could be started hours later on days that the units were rented.

The newest building at Fort Worden also appeared to be the most energy intensive. By identifying problems with the HVAC system controls, the RCM was able to help come up with solutions that saved $4,500 over a three-month period and saved $30,000 in propane costs in 2012 compared to 2011.

The RCM did a garbage audit during the summer at Fort Worden to determine how to reduce solid waste, especially during the tourist season.

Communication Activities

The RCM engaged partner staff in the RCM program using charettes, where facility staff members work collaboratively to draft a solution to a problem. He also used communication tools such as a quarterly green newsletter and the city's web site. He also arranged media and community outreach, such as articles in local newspapers and involvement in a quarterly community energy luncheon.

The RCM keeps the Jefferson County Shared RCM website current (http://jeffcorcm.com/). Included are monthly status reports, annual summary reports, resource management plans, resource conservation newsletters for the three non-school partners, and RCM presentations prepared by Brian or his interns. This website is an excellent way to provide government transparency.

In his second year, the RCM sent out a survey to partners asking for feedback on his performance, which he used to inform his continuing work.

Challenges

Organizational challenges included the departure of top management of three partners, who left their positions in the first 20 months of the program. This led to delays in implementing recommendations. In one case, the replacement staff member declined to meet with the RCM.

Purchasing equipment with a low rate of return was difficult to get approved because of budgetary constraints.

The Jefferson County area is not served with natural gas. Fossil fuel used in partnership facilities is limited to propane and some fuel oil, which are not metered and thus complicated to track. The number of gallons and the date that the tanks are filled is the only real metric currently available.

The RCM was challenged to identify why some facilities showed an increase in resource use and costs over the first year of the project. In particular, Fort Worden State Park showed a 13 to 14 percent increase in energy use, a 4.7 percent increase in water use and a 23 percent increase in solid waste costs over the first year.

One of the greatest challenges in this partnership is energy use at Fort Worden State Park. There is one electrical meter for the entire site, located at the front gate. Over the years, over 30 electric submeters were installed on buildings, which are read on a monthly basis. While this accounts for about 45 percent of the total electricity use in the park, it is not possible to account in detail for the remaining 55 percent of the electricity used unless more submetering occurs.

The park's buildings are old, many are historic, many are rental units, and some are leased by other organizations. They also use a lot of fuel oil and propane, which have had rapid price increases in recent years. This mix created challenges for the RCM to identify problems and to show results from any recommended actions.

Data from Fort Worden skewed results for the entire partnership. The RCM reported in the June 2012 closeout report that projected savings after three years for the whole partnership is estimated at 7.3 percent of the base year (November 2009 through October 2010). Removing Fort Worden from these figures increases cumulative three-year projected savings to 17.2 percent.

A recurring challenge for the RCM is how to get recommended actions into the agency workflow so they can be implemented by facility staff. Each partner has a different workflow methodology.

Results

As detailed in the table below, the Jefferson County partnership showed a cumulative two-year decrease in electricity use of 6.1 percent over the baseline year, yet an overall increase in fossil fuel use of 14.2 percent. There was a great increase in fossil fuels from the baseline to year one, but then fossil fuel use decreased 9.7 percent from year one to year two, indicating a downward trend.

Water use and solid waste costs were down for all jurisdictions except Fort Worden.

Excluding Fort Worden from the calculations gives more favorable results. (Fort Worden problems are described above.) Personnel changes at the City of Port Townsend also contributed to less than optimal results at that jurisdiction.

	Fort Worden	Chimacum Schools	Port Townsend Schools	City of Port Townsend	Jefferson County	Totals
Electricity Use (Kwh)						
Base year	2,248,929	3,701,630	2,713,537	2,081,013	1,849,655	12,594,764
Year 1	2,309,623	3,613,516	2,787,487	2,098,556	1,618,789	12,427,971
Year 2	2,253,939	3,445,319	2,538,540	2,026,666	1,723,013	11,987,477
Cumulative change	*65,704*	*-344,425*	*-101,047*	*-36,804*	*-357,508*	*-774,080*
% Change Year 1	2.7%	-2.4%	2.7%	0.8%	-12.5%	-1.3%
% Change Year 2	0.2%	-6.9%	-6.4%	-2.6%	-6.8%	-4.8%
Cumulative 2-year % change	*2.9%*	*-9.3%*	*-3.7%*	*-1.8%*	*-19.3%*	*-6.1%*
Fossil Fuel Use (Mbtu)						
Base year	10,985		1,079	4,124	1,965	18,153
Year 1	12,691		1,128	4,387	2,225	20,430
Year 2	11,229		975	4,381	1,863	18,448
Cumulative change	*1,950*		*-54*	*519*	*158*	*2,573*
% Change Year 1	15.5%		4.6%	6.4%	13.2%	12.5%
% Change Year 2	2.2%		-9.6%	6.2%	-5.2%	1.6%
Cumulative 2-year % change	*17.8%*		*-5.0%*	*12.6%*	*8.0%*	*14.2%*
Energy Use (Mbtu)						
Base year	18,665	12,641	10,346	11,231	8,276	61,158
Year 1	20,578	12,327	10,648	11,547	8,471	63,571
Year 2	18,927	11,766	9,644	11,302	7,742	59,380
Cumulative change	*2,175*	*-1,189*	*-400*	*388*	*-339*	*634*
% Change Year 1	10.2%	-2.5%	2.9%	2.8%	2.4%	3.9%
% Change Year 2	1.4%	-6.9%	-6.8%	0.6%	-6.5%	-2.9%
Cumulative 2-year % change	*11.7%*	*-9.4%*	*-3.9%*	*3.5%*	*-4.1%*	*1.0%*
Water Use (gal)						
Base year	7,407,191	5,222,885	3,105,156	3,294,412	6,706,268	25,735,912
Year 1	7,753,538	3,779,897	2,959,286	2,311,475	6,304,565	23,108,761
Year 2	8,622,772	4,762,086	1,190,148	1,964,379	6,150,467	22,689,853
Cumulative change	*1,561,928*	*-1,903,787*	*-2,060,878*	*-2,312,971*	*-957,504*	*-5,673,211*
% Change Year 1	4.7%	-27.6%	-4.7%	-29.8%	-6.0%	-10.2%
% Change Year 2	16.4%	-8.8%	-61.7%	-40.4%	-8.3%	-11.8%
Cumulative 2-year % change	*21.1%*	*-36.5%*	*-66.4%*	*-70.2%*	*-14.3%*	*-22.0%*

The above numbers are from Utility Manager database, comparing the baseline year, 11/1/2009 through 10/31/2010, with the following two years. The difference in use or cost of year one compared to the baseline plus the difference in use or cost of year two compared to the baseline. Facilities included are the primary non-water utility sites with complete data.

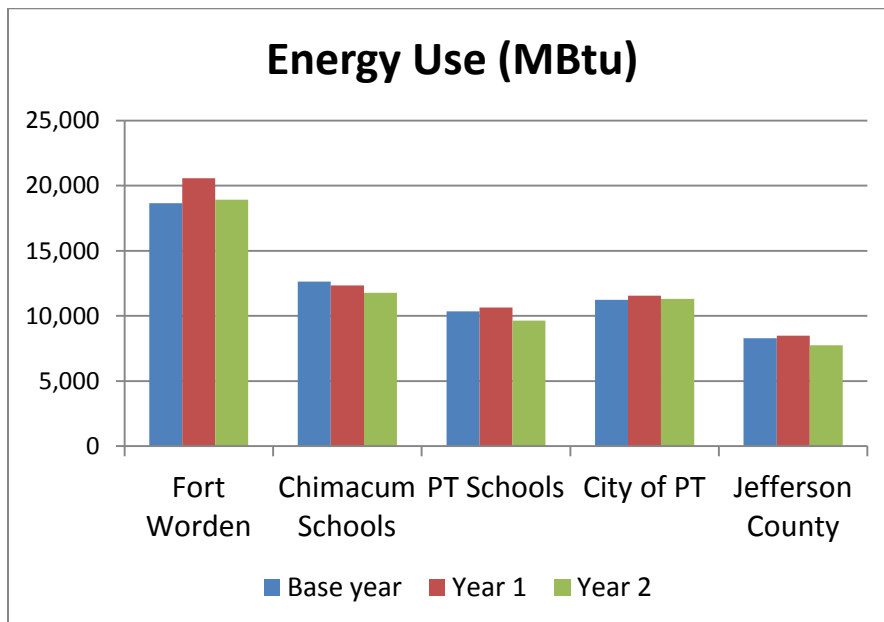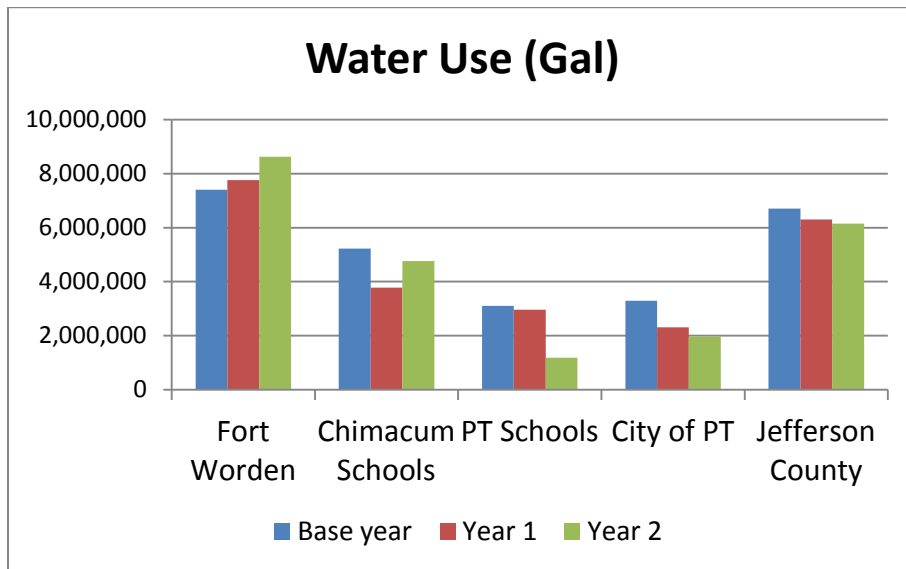Specific measures that produced positive results include:

- Energy use at the Fort Worden Commons, one of the biggest challenge buildings, decreased due to upgrading the building management system and training facility staff on the best way to use the system.
- Propane use at the Fort Worden Commons was reduced by 14 percent in year two through retro-commissioning and adding demand heating logic controls.
- A WSU Energy Program engineer diagnosed the reason for compact fluorescent bulb failures at the Fort Worden Commons as the wrong lamps for the fixtures. The correction will help reduce electricity use.
- Heating costs for a number of rental buildings at Fort Worden were reduced after the RCM used data loggers to determine how well heating cycles corresponded to occupancy. Based on this information, the start-up times for the heating systems were adjusted.
- The RCM addressed water efficiency right away, in part by reducing irrigation. Water use in the city of Port Townsend decreased 40 percent the first year, mostly due to completion of construction projects. It decreased another 15 percent the next year.
- Heating and lighting expenses at the Chimacum School District were reduced when the facility operation staff members worked with the RCM to more closely align heating and lighting schedules with building occupancy and delamp where appropriate.

In the energy use graph below, although year one energy use increased for all but one of the partners, it decreased for all partners in year two compared to year one.

Aside from Fort Worden, water use at the other four partners was lower in year one and year two compared to the baseline year.

Water Use (Gal)

Looking Ahead

The transition from PSE, an investor-owned utility company, to the new public utility district has resulted in a loss of program grant funding. The Jefferson County partnership had entered into a PSE RCM grant agreement, but because the transition is occurring before the planned end of that agreement, much of the funding will not be realized. It is a credit to the partnership organizations and the Shared RCM that the RCM's position is ending as scheduled on October 31, 2013 and not before. The future of RCM services after that date is uncertain. Conservation funding will be offered by the PUD, but at this time the nature of those expenditures is undetermined.