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Resource Conservation Manager Ron Major: Raising the Bar for Washington State

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Tasks don't come much taller than this: come up with fresh ideas to save resources for the agency responsible for the smooth operation of scores of buildings that house thousands of people who get things done for the state. But this is the task that Ron Major, the Resource Conservation Manager (RCM) at the Washington State Department of General Administration (GA), tackles every day.

As the central support agency for Washington's state government, GA serves state agencies, city and county governments, school districts, colleges and universities, and not-for-profit organizations in addition to managing the Capitol Campus and other state-owned buildings throughout the state. As GA's RCM, Ron is quick to point out that he is part of a team composed of executive and administrative staffs, fiscal managers, policy makers and on-site technical and custodial staffs who are instrumental in changing how the work of the state gets done. Here he gives us a snapshot of the methods he's employing to save money, staff time and environmental resources at GA-managed facilities.

Ron Major measures the light levels in a GA office area.

> **It's impossible to do resource conservation management without the support of HVAC and control technicians and custodial staff. They are eager and have good ideas.**
>
> Ron Major

Upgrading utility metering

Resource conservation management is about more than energy use, but that is a big component. "We can't manage what we don't measure," Ron says when discussing one of his primary responsibilities – itemizing and tracking energy use in GA-managed facilities. This was a big challenge when he started out. "There was one meter for natural gas at the central steam plant and one for electricity for the entire Capitol Campus," Ron tells us. "Without sub-metering, we couldn't determine how much energy an individual building was using or if operational changes were effective."

Utility costs were invisible to tenants because utility bills were rolled into lease payments. And because the tenants were not aware of the resources they were using, they likely used more than necessary.

Ron worked with the facilities staff to equip all buildings with sub-meters for steam, electricity and chilled water. While the sub-metering did not provide direct savings, the information that is now available from the separate meters has helped create awareness about energy efficiency among each building's staff.

By decoupling utilities from leases, the actual resource use was clear. Ron hopes that all stakeholders will share the incentive to reduce consumption. "This takes lots of dedication, focus and time," he adds. "We're not quite there yet, but we expect this move to make a difference."

These separate bills also support Ron's case when he has to approach a utility about a billing error. "The best example of this is a refund the state got from Puget Sound Energy (PSE) due to a metering issue at the substation," Ron notes, adding that PSE was very helpful in this process. "Between their data and ours, we were able to come to a resolution that returned $400,000 to the state."

Developing an in-house building tune-up program

Other early steps in the process of making the buildings that GA manages more energy efficient included programing the building control systems (BCSs) so they provide conditioned air only when people are in a building and adjusting lighting schedules so lights go off when people go home.

When instituting changes that everyone can buy into and that really pay off, Ron takes a team approach. "We assembled a team to perform functional testing of the heating, ventilating and air conditioning (HVAC) equipment and the BCS at the Natural Resources Building," Ron says, following an approach to improve building efficiency developed by the Pacific Northwest National Laboratory.

When GA's team found that some equipment wasn't functioning optimally, they made no-cost or low-cost adjustments that have led to improved comfort, better air quality and enhanced energy efficiency in many GA-managed buildings. The payoff? Adjusting the mechanical systems at the Natural Resources Building alone is saving $30,000 per year in utility costs.

Similar measures are now used by staff who work to optimize the efficiency of the mechanical systems in other GA-managed buildings.

Savings resulting from GA's RCM Program

"These and other measures have saved the taxpayers of Washington $1.9 million since 2006. If not for this focus on resource conservation management, most of these changes and savings would not have happened." – Ron Major

These savings include:

- One-time return of funding from metering error: $400,000.
- Adjusting mechanical systems at the Natural Resources Building saves $30,000 per year in utility costs.
- Separating domestic water from irrigation water at Plaza Garage saved over $39,000 the first year.
- Water savings from performance contract changes save $71,000 in utility costs annually.
- Composting food waste is saving the state nearly $20,000 in landfill disposal fees each year.

Ron Major

Paying for irrigation water separate from domestic water

The Capitol Campus uses water for domestic purposes and for irrigation. Domestic water usage is billed at a higher rate because sewer charges are added, so it is vital that water for domestic and irrigation uses be measured and billed separately.

By analyzing the Capitol Campus water bills, Ron found that the state had been paying domestic water rates and sewer charges for water that was used for irrigation. "We worked with the City of Olympia to change out water meters to separate domestic and irrigation water," Ron says. The Plaza Garage is a great example of the financial impact this change has made.

"The Plaza Garage meter served a couple of restrooms and shop sinks; most of the water was used for irrigation. We separated the domestic water from the irrigation water, and saved over $39,000 the first year."

Reducing water use

When GA installed low-flow bathroom fixtures with a $250,000 incentive from the Lacey-Olympia-Tumwater-Thurston County (LOTT) wastewater utility through an Energy Performance Contract, "We saw a 23 percent reduction in domestic water use," Ron notes. "The same project improved our irrigation system, resulting in a 45 percent reduction in irrigation water use." These improvements save $71,000 in utility costs annually. And the amount of water saved by these measures equals the annual water use of about 1,500 Northwest homes!

Composting food waste

When food waste is mixed with other waste in desk-side trash cans, custodians have to empty each trash can every day to prevent odor and sanitation problems. This takes a lot of time, which means it costs a lot of money. What would it take to convert this waste into a resource?

The answer is a pilot food composting program, which began to take shape in January 2009. Ron worked with GA's Custodial and Recycling Manager Cory Noffsinger, custodians and tenant agency representatives in the Natural Resources Building to collect the food waste in a central location. This waste was collected daily and sent to a nearby composting company – Silver Springs Organics in Tenino – that turns it into a landscape product. The project drew in one or two additional buildings per month so, by the end of 2009, all Capitol Campus buildings were participating in the food composting program.

"In 2009 alone, this food composting program saved the state $6,000 in solid waste disposal fees," Ron tells us, adding, "By the end of 2010, more than 220 tons of food waste had been diverted from landfills, saving the state nearly $20,000 in landfill disposal fees."

> **"Stay in touch daily with staff who do the work of managing facilities. Encourage them to watch for anomalies and trends in energy use, and to approach problems through investigation rather than 'band-aid' solutions."**
>
> Ron Major

And since food waste is no longer causing odor or sanitation problems in individual trash cans, desk-side waste collection has been reduced to once per week. Ron says, "Custodians are spending less time emptying trash so the state has effectively gained six FTEs of custodial time. Now custodians have time to do deeper cleaning and take care of other projects to improve building health."

GA is building on this momentum. In its 2009 Sustainability Plan, GA aimed to compost 10 percent of food waste from GA-managed buildings by 2013. They have already met – and far exceeded – this goal, composting close to 90 percent of this food waste by early 2011.

Building a team that thrives on change

An RCM sells change. To succeed at this, an RCM needs to work across departmental lines to identify and capture savings. "It is crucial to pay attention to the challenges and opportunities presented from all perspectives in the organization," Ron says.

To have an enduring impact, resource conservation activities must also be championed by people in all tiers of an organization. "It is essential for executive management to be on board and take an active role in pushing the agenda," Ron stresses. It is equally important that on-site technical and custodial staff have the opportunity to take ownership of certain aspects of the program so it has a firm foundation and is sustainable, Ron adds. "If you work through these changes with on-the-ground staff, the changes become systemic."

Ron relies on in-house communication and education strategies to heighten awareness of resource conservation activities among operations staff, management and occupants. And he attends tenant meetings to let facilities managers know about conservation and savings opportunities and to get buy-in from them.

Making resource conservation the norm

GA is not only strengthening its resource conservation practices in house; it is also serving as an example and resource for other state agencies, providing leadership, services, and technical assistance. GA is also working to integrate resource conservation into Washington State's policies and procedures, including the Capitol Campus Master Plan, GA Strategic Plan, and Historic Landscape Preservation Master Plan, as well as influence capital planning and budget efforts. "By identifying necessary improvements that require funding, GA is able to inform the legislature about how these improvements can save money and resources over the equipment's lifetime," Ron says.

As GA's RCM, Ron plays an important role in finding solutions to reduce costs across the organization and reinvesting the savings to support the mission. So it is fitting to note how Ron brings the spirit of sustainability home: "We set up an RCM revolving fund that is funded by a portion of the savings from past energy efficiency projects," he says. "This account is used as seed money and working capital to fund small energy efficiency projects done with in-house staff. The fund is replenished with utility grant dollars." That's "reduce-reuse-recycle" in action.

More information about RCM

- **Ron Major**, GA Resource Conservation Manager, (360) 239-4134, *ron.major@ga.wa.gov*.
- The Washington State University Extension Energy Program's RCM Network website: *www.energy.wsu.edu/PublicFacilitiesSupport/ResourceConservation.aspx*.
- For further information about Resource Conservation Manager support, contact **Karen Messmer**, *messmerk@energy.wsu.edu*, at (360) 956-2090.

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