The Closed-Loop Scoop

Washington Department of Ecology, Waste 2 Resources Program Newsletter

Publication No. 11-07-001

February 2011

Clark County Came Up With Innovative Solutions
Impressive And Inspiring...

Clark County has an interagency Community Litter Cleanup agreement with the Department of Ecology. This biennium, all counties involved in the litter cleanup program took a 50% cut in litter funding. As a result, Clark County crews were still doing litter pickups on a community service basis as often as possible, but were running out of the bags used to collect litter along the highway.

Plastic litter bags are costly. Ecology Youth Corps pays about 55 cents each. Clark County had to get creative because they couldn't buy them. One county crew chief heard about a coffee bean distribution company in Portland that receives shipments in burlap bags. The company tries to recycle them to be more sustainable.

The county contacted the company. The company was more than happy to give the litter crew as many bags as they needed, and even delivered them! The burlap bags are now used in dry weather for litter pickup. And when filled and disposed of, they decompose much faster than plastic bags.

The litter crew also began collecting five-gallon plastic buckets that the county jail kitchen used to store condiments. Now, during wet weather pickup, the buckets are filled with litter and dumped into 65-gallon bins in the litter crew's trailer. The garbage bins are cast-off from the metro recycling. When they are full, the bins are emptied into the large dumpster at the Mabry Corrections Center.

Using the burlap bags, five-gallon buckets, and roller bins has created a win-win situation for the county and the environment. The items Clark County now uses to continue their litter cleanup program would otherwise go to the dump.

Only Rain Down The Drain
New tool Available in the effort to protect our waters

A new poster called *Only Rain Down the Drain* was added to the tools Ecology and its partners can use in the effort to protect and clean up stormwater. The poster is primarily for small to medium-sized businesses to provide them with basic information about what they can do to ensure *only rain* goes down the drain.

According to Darin Rice of the Hazardous Waste and Toxic Reduction Program, who is a member of the leadership committee responsible for the project, "This was a great effort that went across the agency and across regions and involved not only our programs but our stakeholders to get it right. We are very pleased with the re-

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sults and the initial response has been enthusiastic."

Ecology hazardous waste experts estimate there are 65,000 and 100,000 small to medium-sized businesses in the state. Most of them are not regulated under Ecology's Dangerous Waste regulations. This does not mean they do not handle or generate hazardous waste. In many cases they do, but not enough of it on a regular basis to place them under the Dangerous Waste regulations.

"Even if we don't regulate them," says the Water Quality Program's Sandy Howard (another member of the leadership team), "there are enough of these businesses that even a little bit from each one adds up to a lot. Our aim is to get out in front of the curve and get into the hands of business operators the information they need to prevent contaminated stormwater. There are many, many, fine community-oriented businesspeople all over the state who are happy to do what they can if we can get them the right guidance."

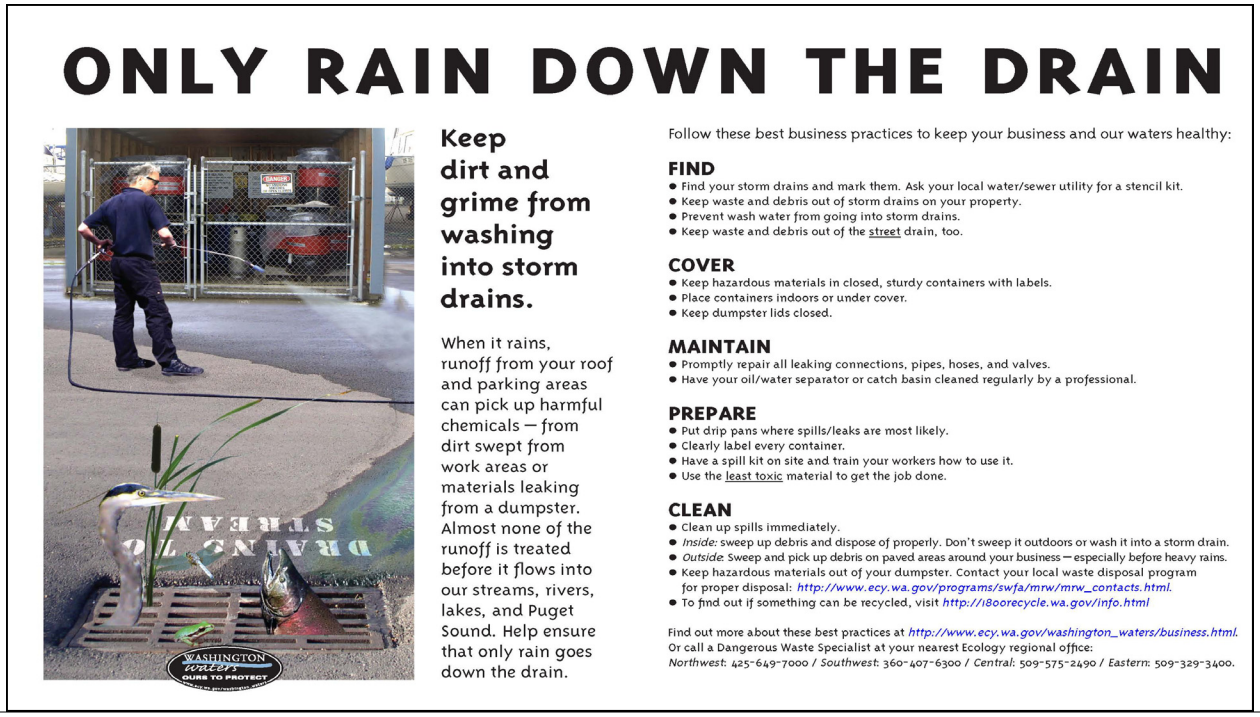
Another member of the leadership team, Barb McGregor, Graphics and Web Coordinator, provided leadership to translate ideas from across the agency and the state into the final visual product. Tom Leonard, Graphic Designer, did the hands-on work.

The poster represents an extensive partnership involving Ecology's Water Quality and Hazardous Waste and Toxic Reduction programs, Communication and Education, Urban Waters Inspectors, regional offices, local Source Control Specialists, stormwater permitees and feedback from operators of small businesses. The poster is backed up by a website created by Northwest Regional Office's Justine Asohmbom.

The poster's message is a combination of awareness and education. Not all business operators and, for that matter much of the general public, are aware of any storm drains on their property, what they do, and what belongs in them -- Only Rain.

The graphic on the poster shows a worker against a backdrop of storage drums, power washing off asphalt into a stenciled storm drain, out of which poke the heads of a salmon, a heron, a frog and a cattail. The poster offers basic guidance in the form of best management practices for reducing polluted runoff to storm drains. Pointers include proper storage of materials, routine maintenance of oil/water separators and catch basins, and putting together a spill kit and training staff to use it.

The next phase of this project is now underway: distribution to small and medium-sized businesses around the state. This effort will again involve many agency staff and agency partners, especially those doing field work. So far, the results are encouraging. The new poster is already headed for its second printing.



Lewiston's Public Works Utilizes Glass Crusher

Adapted and published with permission from the City of Lewiston

Lewiston, Idaho is located where the Snake and Clearwater rivers meet. Lewiston shares its regional treasures with Clarkston, Washington, its border neighbor. The area is called the Lewis Clark Valley, named after the explorers Lewis and Clark.

In early 2009, Lewiston's Public Works Department first considered using crushed glass bottles in some of its projects. Potential projects included curbs, gutters and sidewalks; permeable parking lots; pipeline beddings; sand traps and others.

Glass bottles are made of sand, soda ash and limestone, making them100% recyclable. Recycling glass bottles saves energy and resources.

Currently, the Public Works Department collects an estimated 180 tons per year of all types and colors of glass bottles through its residential curbside recycling program. The bottles are broken and used as road base at a local C&D landfill. However, they dispose an estimated 1,200 tons per year through garbage collection programs.

Early on, a lot of attention was focused on the tons of glass bottles diverted from the waste stream. However, avoided disposal costs plus potential savings from using crushed glass materials instead of purchased aggregate materials in public works projects was also worth considering.

The Public Works Department spends thousands of dollars annually to dispose of glass bottles and purchase aggregate materials. At a glass disposal cost of $50 per ton plus an aggregate purchase price of $5 per ton, the Department estimates the break even amount at 17 tons per month between disposal of glass bottles and crushing them for reuse.

In October 2010, the Public Works Department decided to purchase a glass crusher. They selected a Glass Aggregate Systems H-100VT Glass Processor with 3/8 inch screen and one ton per hour capacity.

The Public Works Department set a goal to use crushed glass bottle material in one public works project by September 2011.

Building public and employee support is critical to the new glass crushing program's success. The Public Works Department hopes the program will help change the way our region thinks about solid waste management.

Calendar of Events

-February 10-11, 2011, Portland Organicology, the Study of Sustainable Food Future will be held in Portland, OR. To learn more, or visit the website at www.organicology.org.

-February 13-15, 2011, 11th Annual Pesticide & Ag Plastics Stewardship Conference will be held in San Antonio, TX. To learn more, visit the website at http://tpsalliance.org.

-February 16-17, 2011, Thinking Outside the Blue Box: The Road to Zero Waste will be held in Los Angeles, CA. To learn more, visit the website at www.thinkingoutsidethebluebox.org/.

-March 1-2, 2011, Plastics Recycling 2011 Conference will be held in New Orleans, LA. To learn more, visit the website at http://plasticsrecycling.com.

-March 6-9, 2011, Southeast Recycling Conference will be held in Destin, FL. To learn more, visit the website at http://southeastrecycling.com/.

-March 29-31, 2011, Residential Recycling Conference will be held in Nashville, TN. To learn more, visit the website at www.residentialrecyclingconference.com.

-April 5, 2011, Grease Summit 2011 will be held in Bellevue, WA. To learn more, visit the website at www.apwa-wa.org/training/training_schedule.aspx?cid=220.

-April 11-14, 2011, BioCycle Global 2011 will be held in San Diego, CA. To learn more, visit the website at www.biocycleglobal.com.

Shingles in Paving Demonstration Yields Promising Initial Results

Adapted and published with permission from King County

History is being made on a stretch of road near Enumclaw. This is the first public roadway in Washington to be paved using recycled asphalt shingles (RAS) in hot mix asphalt (HMA). The early results of the study, along with testing on how this road performs over the next three years, will steer the course for the future use of this valuable and abundant material.

An estimated 40,000 tons of asphalt shingle waste is generated each year in King County, outside Seattle. It is unclear exactly how much of that material is currently recycled, but it's believed to be a small percentage.

Two years ago, King County's LinkUp embarked on the Shingles in Paving Demonstration as a way to increase the recycling of asphalt shingles. Working with the King County Road Services Division and other key project partners, the paving project was completed in September 2009 and the project report was completed early this year.

"We see great potential for the recycling of tear-off asphalt shingles," said Kris Beatty, LinkUp program manager. "This demonstration is the first step toward developing a strong, local hot mix asphalt market for recycled asphalt shingles that captures the resource value of the material and diverts it from landfills."

The paving demonstration was a controlled experimental study. Careful attention was paid to selecting a roadway and developing project standards that would meet the study's objectives. There were three key project objectives: Align the demonstration with the interests and standards of participating agencies and stakeholders, evaluate the performance of RAS-modified HMA with a high degree of certainty and capture objective engineering data to gain wide acceptance of the test results.

Putting together a strong project team and study methodology was critical to the project's success. The core project team included King County Solid Waste Division, King County Road Services Division, Washington State Department of Transportation (WSDOT) and paving contractor Woodworth & Company. The project advisory group, made up of King County staff, technical experts and industry stakeholders provided valuable input on design and development of all aspects of the demonstration.

With a team in place and study methodology created, the project focus turned to developing RAS and HMA material specifications, including sampling and testing protocols. The RAS specification had several requirements, due to potential health risks – asbestos is known to be in some roofing products – and because the quality of the material was so critical to the success of the project. Only tear-off shingles could be used in the project. Also, all incoming loads of shingles were inspected and tested for asbestos. A requirement was also set for the ground size of the material, and limits were established on content for extraneous waste materials and moisture.

For the HMA specification, the WSDOT Materials Lab tested samples of RAS from three potential suppliers to see how closely their products matched the draft specification that had been developed. Ultimately, WSDOT used this information to develop the HMA specification that the paving contractor, Woodworth & Company, used to develop their mix design.

"We are trying to get the benefit of the oil and the mineral aggregates out of the recycled shingles," said Kevin Kelsey, an engineer with King County Road Services Division. "We came up with a certain percentage of RAS to add to the mix."

Sampling and testing requirements were put in place to verify that the materials met the established quality specifications. There were also steps taken to meet solid waste regulation compliance and ensure that the processor met all safety, health and environmental regulations.

Paving took place in late

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Shingles In Paving Demonstration (Continued.)

September 2009. Approximately 1,000 tons of HMA was used on each of the four test sections, in a single two-inch overlay. The experimental test sections were paved with HMA that included three percent RAS. Both the experimental and control test sections included 15 percent reclaimed asphalt pavement (RAP), a recycled material that is commonly used in HMA mixes in King County.

"We want to see if see can get the performance when we are using recycled asphalt or reused materials from building construction," said Joe DeVol, State Bituminous Engineer with WSDOT. "This fits into the realm of technology development that we are always busy working to enhance."

Immediately following paving, samples were collected from the test sections. Sixteen samples measured the pavement thickness, six exploratory borings were made to better understand subsurface soil conditions, and falling weight deflectometer tests were performed to evaluate the physical properties of the pavement near the surface soils.

Paving Demonstration Core Team members pose for a group photo in front of a stockpile of recycled asphalt shingles at Woodworth & Company's HMA plant in Lakewood, WA.

Initial materials testing performed by the team indicate that the tear-off shingles can successfully be incorporated into HMA and that using RAS as a part of the HMA mix had no negative effect on pavement performance.

"The results we have seen to date are promising," Beatty said. "The lessons learned from this project will help us to further the development of infrastructure and end markets for recycling tear-off shingles."

The test roadway will continue to be monitored and data will be collected for at least three years.

To learn more about the Paving Demonstration, see a short video about it and read the final report, visit LinkUp Paving Demonstration.

State's Recycling Rate Holds Steady

According to the Washington Department of Ecology (Ecology), the recession has affected the amount of waste produced, driving both disposal and recycling down. Numbers released in November show Washington's recycling rate stayed level in 2009, at 45 percent. The total amount of municipal waste generated by state residents fell by more than 700,000 tons in 2009, or about 8 percent from last year. A 1989 Washington State law established a statewide recycling goal of 50 percent. The national average was 33 percent in 2008.

Overall waste diverted from disposal rose to the highest amount ever -- 55 percent in 2009. This is because we are diverting more construction and demolition related materials than we are disposing. Asphalt and concrete accounted for 72 percent of the increase in diversion from landfilling.

Ecology's data showed that recycling rates increased for organic materials such as food scraps, electronics, and nonferrous metals. Materials disposed from the construction, demolition and organics sectors declined in 2009 by more than 1 million tons.

"We're pleased to see success around those materials being recycled that are specifically targeted by our statewide solid and hazardous waste plan, Beyond Waste," said Laurie Davies, Ecology's Waste 2 Resources Program manager. "Our program has increasingly focused on keeping these materials out of landfills."

Recycling in Washington continues to result in important environmental gains. In 2009, recycling materials instead of sending them to landfills helped us avoid emitting 2.8 million tons of greenhouse gases into the atmosphere. Also, recycling saved 132 billion British thermal units of energy. This is equivalent to con-

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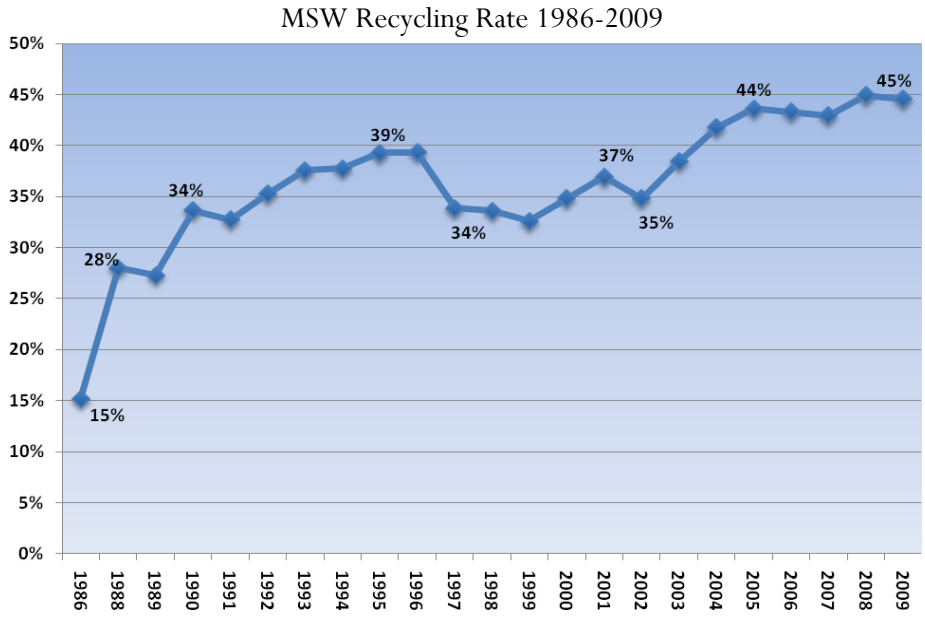
States Recycling Rate Holds Steady (Continued.)

serving 1 billion gallons of gasoline – enough to power more than 1 million homes for a year.

While the tons collected in the recycling system are staying steady, a report by Ecology in June 2010 indicates a certain amount of residential commingled recycling does not end up being recycled. Between 5 and 20 percent of some materials may not ultimately be recycled into new products. Such materials are either those the market cannot recycle yet and are collected anyway, or don't make it through the sorting system to the right market.



"This economic recession continues to be difficult for our state, and especially those struggling to make ends meet," Davies said. "However, it has put a new emphasis on thrift, re-use and waste reduction. With continued education and innovative solutions, we hope to capitalize on this momentum, even as the economy improves."

For more information, email Layne Slone at lnak461@ecy.wa.gov or visit our website at

http://www.ecy.wa.gov/programs/swfa/solidwastedata/.

Solid Waste In Washington State

The *Solid Waste in Washington State 19th Annual Status Report* is available at http://www.ecy.wa.gov/programs/swfa/solidwastedata/report.asp. If you would like to request a printed copy, please contact Millie White at miwh461@ecy.wa.gov.

Cash Awards Available For Sustainable School Projects

It's time for public and private schools around the state to apply for the 2011 Terry Husseman Sustainable School Awards!

Past winners have used their awards in many ways to benefit the environment. In Whitman County, Garfield Middle School students used their award to monitor the Palouse River, using scientific techniques to measure the health of the ecosystem. Gatewood Elementary in King County diverted more than 20,000 pounds of compostable waste and significantly increased recycling rates since receiving their award. And students at Neah Bay Elementary in Clallam County reduced plastic bag use by using their award to purchase reusable shopping bags adorned with the school mascot for students and staff.

Awards are presented in three categories:

- **Seed Awards** fund startup costs for programs promoting waste reduction, recycling, and sustainability both within the school and in the community.
- **Sustainable School Awards** recognize ongoing efforts to maintain and expand programs that focus on waste reduction, recycling, and sustainability.

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- **Creative Environmental Curriculum Awards** recognize original curricula that introduce students, teachers, staff, and administrators to the concepts of waste reduction, reuse, recycling, and sustainability. Ecology supports curricula that inspire a sense of environmental stewardship in students.

Applications are due to the Department of Ecology at 300 Desmond Drive SE, Lacey, WA 98503 no later than 5 p.m. on February 28, 2011.

We expect to distribute close to $30,000 for the 2011 award cycle. Awards range from $100 to $5,000. Award recipients are recognized at a ceremony on the Capitol Campus in May. Learn more about the program or get application materials.

Here are two more examples of what recent award winners have done:

Creston School, Lincoln County — 2010 Seed Award $3,150

This award allowed students to operate a successful recycling program.

Creston students receive their award from Ted Sturdevant, Ecology Director, at the ceremony on May 21, 2010.

"The year (2010) has been very productive already with regards to recycling at Creston School. First, we purchased a metal storage building to organize and protect our collected materials. Next, the shop class built a recycle pick-up bin with wheels so the Creston Environmental Sustainability Program (CRESP) crew can efficiently collect materials weekly. The class also has constructed a large bin to house cardboard until we take it to the recycle company. Our lunchroom milk distributor has donated the use of 25 bins to assist the classrooms in sorting white paper to assist the CRESP crew.

We have established a shared relationship with the local recycling company to lower the number of trips into Spokane to deliver materials. This will save us 50% of the number of trips which amounts to 150 miles round-trip times 20 trips, or 3,000 miles per year. It also provides the local recycler with materials they can accumulate and sell to recycle brokers. This is a win-win situation for everyone.

We will begin accepting recycle materials from the community of Creston on December 1, 2010 which will increase the volume of collected materials significantly. We are, however, up to the challenge. Overall, the year has picked up where we left off last June and the level of excitement is growing." — Earl Hill

Cape Horn-Skye Elementary, Clark County — 2009 Seed Award $1,302

Fifth graders placing leaves into their compost bin.

This award allowed students to purchase a composter bin, educational materials, and supplies. They partnered with knowledgeable representatives from Clark County Solid Waste and the Master Gardener programs for educational assistance.

"In the fall, students and teachers collected leaves from our campus and students also brought leaves from home. We put them in plastic bags to use later in the winter/spring when brown matter is scarce. Fourth and fifth grade teachers and students are the leaders in our school for the composting project. Each day, they collect apple cores, lettuce, etc. from K-5 classes and students take turns putting food scraps and leaves into the composter." — Mary Lou Woody

Students learn about composting from the county's organics specialist, Greg Hayward.

Read this newsletter online!

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Printed on paper containing 50% postconsumer waste and 50% sugar cane paper, using vegetable-based ink.

Department of Ecology
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