

Summary Table

Project Title or Location	Project Components	Project Time Frame	Contact Info
Air Defenders Originated in Wisconsin and Expanded to Great Lakes Basin	Education/ Outreach/ State Regulation	2002 - 2006	Lindsay Haas, Wisconsin Department of Natural Resources, (262) 574-2113 or Lindsay.Haas@dnr.state.wi.us
Akwesasne, New York	Education/ Outreach/ Regulation/ Enforcement	1995 - Present	Angela Benedict-Dunn, St. Regis Mohawk Tribe Environment Division, (518) 358-5937 angela_benedict_dunn@srmtenv.org
Bad River Band of Lake Superior Chippewa Indians	Education/ Outreach/ Regulation/ Enforcement/ Incentive	2001 - Present	Lynn Hall, Bad River Natural Resources Department, (715) 682-7123 cleanair@badriver.com
Big Valley Rancheria, California	Education/ Outreach/ Incentive/ Infrastructure Building/ Survey	2003 - 2005	Sarah Ryan, (707) 263-3924, extension110, sryan@big-valley.net or sarahryan@post.com
Boone County, Kentucky	Outreach/ Regulation/ Enforcement	1996 - Present	Mary F. Shinkle, Boone County Solid Waste Coordinator, (859) 334-3151 or mshinkle@boonecountky.org
California	Education/ Outreach/ Regulation/ Enforcement	2000 - 2004	Tina Suarez-Murias, California Air Resources Board, (916) 323-1495 csuarezm@arb.ca.gov
Chisago County, Minnesota	Incentive/ Regulation/ Enforcement	1995 - 1999	Gary Noren, Chisago County, MN (651) 213-0450 or (651) 237-0836 ghnoren@co.chisago.mn.us
Crawford County, Indiana	Education/ Outreach/ Regulation/ Enforcement	May 2004 - Present	Tina Bowman, Crawford County Solid Waste Management District, (812) 338-2728 or ccswd@earthlink.net
Evansville, Indiana (Vanderburgh County)	Regulation/ Enforcement	Ordinance Revised in 2003	Dona Bergman, Evansville EPA (812) 435-6145 dbergman@evansvillegov.org

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Fond du Lac Reservation, Minnesota	Outreach/ Education/ Incentive/ Regulation/ Enforcement	Ordinance Adopted in 1993 and Revised 2003; Outreach in 2004	Nathan Reinbold, Fond du Lac Reservation (218) 878-8023 nathanreinbold@fdlrez.com
Forsyth County, North Carolina	Outreach/ Education/ Regulation/ Enforcement	1997 - Present	Peter Lloyd, Forsyth County Environmental Affairs Department, (336) 727-8060 lloydpb@hathor.co.forsyth.nc.us
Gila River Indian Community, Arizona	Outreach/ Education/ Enforcement/ Survey	Ordinance Adopted in 1995; Grant Period 2003 - 2005	Candice Bell, (520) 562-2234 ext 247 Candice.bell@gric.nsn.us
Grant County, Kansas	State Regulation/ City Code & Enforcement	1994	David Wagner, Transfer Station Manager, at (620) 353-1069 gtcotran@pld.com
Hubbard County, Minnesota	Outreach/ Education/ Regulation/ Enforcement	~1987 - Present	Vern Massie, Hubbard County Solid Waste Management Department (218) 732-9568 vmassie@co.hubbard.mn.us
Indiana	Outreach/ Education/ State Regulation	May 2004 - Present	Jeff Myers, info@stopburningtrash.org, or Debbie Steinkamp, Spencer County Solid Waste Management District (812) 362-7401 recycle@psci.net
Iola, Kansas	Regulation/ Enforcement	1995	BethAnn Turner, Iola Fire Department (620) 365-4901
Leech Lake Band of Ojibwe	Regulation/ Enforcement/ Outreach	2006	Brandy Toft, Leech Lake Ojibwe, Division of Resource Management, (218) 335-7429 or air@lldrm.org
Mercer, Wisconsin	Incentive/ Regulation	2006	Mercer BP at (715) 476-3437 or Northwest Wisconsin Regional Planning Commission http://www.nwrpc.com/nwrpc/recycling/index.htm
Mount Vernon, Indiana	Regulation/ Enforcement	1993	Patricia Colbert, Posey County Solid Waste District (812) 838-1613 poseyswd@evansville.net

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Northwest Vermont Solid Waste District	Outreach/ Education/ Regulation/ Enforcement/ Survey	1998 - Present	Barry Domino, Northwest Vermont Solid Waste Management District (802) 524-5986 projectspecialist@nswd.org
Otter Tail County, Minnesota	Outreach/ Education/ Regulation/ Incentive/ Enforcement	1994 - Present	Mike Hanan, Solid Waste Department, mhanan@co.ottertail.mn.us or Betsy Bjerkli, bbjerkli@co.ottertail.mn.us
Red Cliff Band of Lake Superior Chippewa Indians	Outreach/ Education/ Incentive/ Voluntary	1992 - Present	www.ruralisc.org/redcliff.htm
Sac and Fox Nation of Missouri in Kansas and Nebraska	Outreach/ Education	2002	Rick Campbell, Sac and Fox National Environmental Department (785) 742-4705 or rick.campbell@sacfoxenviro.org
St. Lawrence County, New York	Outreach/ Education/ State Regulation/ Enforcement/ Survey	2003 - 2004	Jon Montan, St. Lawrence County Planning Office (315) 379-2292 or Jmontan@co.st-lawrence.ny.us
Washington - Central Region	Outreach/ Education/ Incentive/ Regulation/ Enforcement	2000 - Present	Jared Mathey, Washington State Department of Ecology (509) 454-7845 or jama461@ecy.wa.gov
Washington - Olympic Peninsula	Regulatory/ Outreach/ Education	~2000 - Present	Steve Rybolt, Olympic Region Clean Air Agency (360) 586-1044, ext. 110 or steve@orca.org
Washington - Puget Sound Counties	Education/ Regulation/ Enforcement	2000 - Present	Amy Fowler, Puget Sound Clean Air Agency (206) 689-4017 or AmyF@pscleanair.org
Western Lake Superior Sanitary District (WLSSD), Duluth, Minnesota	Outreach/ Education/ Incentive/ Regulation/ Enforcement	1999 - 2005	Gina Temple-Rhodes, Western Lake Superior Sanitary District (218) 740-4784 or gina.temple-rhodes@WLSSD.duluth.mn.us

Air Defenders Program, Wisconsin

Background: Air Defenders is an educational resource tool on open burning, air quality, and respiratory health. It was developed after health officials began to notice a dramatic increase in the number of asthma cases in rural children. Officials believe the widespread practice of open burning/burn barrels in rural Wisconsin is a contributing factor to rising respiratory problems among rural children.

Issue: The Wisconsin Department of Natural Resources (WDNR) estimates that there are approximately 500,000 burn barrels in Wisconsin, primarily in unincorporated rural areas. Many households in these same areas also periodically burn yard debris and wood in open piles. In addition, about one-third of all wildfires in Wisconsin can be attributed to private burning in barrels and piles. Burning of household waste is illegal, but open burning is the primary complaint received by WDNR Air Management. Conservation wardens, police, and fire rangers are authorized to issue citations to individuals without a burning permit. However, eliminating open burning is hindered by a lack of enforcement authority at the local level. Wisconsin officials currently are advocating for citation authority to issue open burning violations on all levels.

Actions: WDNR received funding from fines levied against a company for illegal incineration and determined the best use of the funding would be to launch a burn barrel outreach campaign. WDNR teamed up with the Wisconsin Environmental Health Association (WEHA) to create the Air Defenders program. Air Defenders is an interdisciplinary, multi-media educational program and publicly available website (www.airdefenders.org) for students 10 years of age and up. Air Defenders is designed for health officials, community educators, and teachers to create hands-on classroom lessons for students. The Air Defenders Educator's Kit is a folder of CDs and posters that provides materials and information for educators to develop a curriculum about open burning, air quality, and respiratory health. The program is jointly copyrighted to WEHA and WDNR. The kit contains:

Three CDs:

- An introduction to the Air Defenders program and music curriculum;
- Student and adult information on the environmental and health impacts of burning and the Air Defenders Interactive Educational Game; and
- A trainer's guide to the kit and videos for both student and adult audiences.

Three Posters:

- A promotional poster featuring the Air Defenders characters;
- An illustration of how air pollution triggers asthma; and
- Information about the chemicals released when open burning occurs.

The Air Defenders website allows educators and the public to:

- View or download all Air Defenders Resource Materials;
- View examples of the curriculum;
- Learn how to incorporate the website into a curriculum;
- Sample the Air Defenders songs and download lyrics; and
- Order an Air Defenders kit.

The first kits were distributed in the Spring of 2003. WEHA received \$137,000 to complete the project. WDNR funded a half-time limited-term employee and a quarter-time full-time employee for two years, and covered other project costs (e.g., shipping charges, printing costs, supplies). The total project budget/contribution by both organizations was approximately \$200,000.

As of 2004, a total of 4,500 Air Defenders kits had been distributed around Wisconsin to all K-12 schools (both public and private), all 72 county health departments, all libraries, all WDNR service centers, all colleges/universities offering teaching certification, and teacher and environmental health professional conferences and training events.

Outcome: The Air Defenders kit has received national attention from U.S. EPA for its focus on open burning. In 2004, WDNR received a two-year \$50,000 grant from the U.S. EPA's Great Lakes National Program Office (GLNPO) to generalize the kit contents for use in any state or region. The grant covered the production and distribution of 5,000 additional kits in the Great Lakes Basin (comprised of MN, MI, WI, OH, IL, PA, NY, IN, and Ontario, Canada). In addition, WDNR developed a Train the Trainer curriculum to help non-formal educators use the kit materials and hosted training conferences to distribute the generalized Air Defenders kits with a Train the Trainer DVD included in each kit.

Evaluations are included in each kit and on the Air Defenders website for students, teachers, and environmental health officials. The evaluations are collected to assist WDNR in designing teacher and non-formal educator training in the use of the kit.

For more information about Air Defenders, visit the website (www.airdefenders.org) or contact Lindsay Haas, WDNR, at (262) 574-2113 or Lindsay.Haas@dnr.state.wi.us. For more information on open burning in Wisconsin, go to the WDNR Open Burning web page at <http://dnr.wi.gov/environmentprotect/ob/>.

Akwesasne, New York, St. Regis Mohawk Tribe

Background: Akwesasne, located in the northern most part of New York State and bisected by the United States-Canada border, is a Mohawk Territory community of approximately 10,000 people. The U.S. portion of the Tribe covers approximately 14,000 acres (22 square miles). Akwesasne is divided into the St. Regis Mohawk Tribe and the Mohawk Council of Akwesasne, governed by the Mohawk Nation Council of Chiefs.

Issue: The St. Regis Mohawk Tribe Environment Division began efforts in 1995 to reduce solid waste and to educate residents about the negative impacts of backyard burning. Prior to the 2002 regulation, an estimated 50% of community residents burned trash.

Actions: From 1995 to 1999, with grants from the U.S. EPA, the St. Regis Mohawk Tribe initiated a comprehensive program to reduce trash burning. They presented educational demonstrations to residents, began planning for a transfer station and materials recovery facility, completed a solid waste management plan, drafted solid waste codes and regulations, and developed an environmental education and outreach program. The Tribe's environmental education and outreach program included a popular cartoon strip focusing on the negative impacts of improper waste management practices (e.g., open dumping and burning). The cartoons were published in Reservation newspapers for several weeks.

In 2002, the St. Regis Mohawk Tribe Environment Division issued a Tribal burn regulation that prohibits trash burning except as allowed by permit. The Environment Division may issue permits to burn yard waste or land-clearing materials. The police department may issue a warning or a municipal ticket for violations of the regulation. Residents have complied after being informed of the regulation. Residents are encouraged to report illegal burning to the Environment Division or the police department.

Solid waste collection in Akwesasne began at the same time as implementation of the burn regulation. Road-side trash pickup is available for \$2.00 per bag, and a recycling depot accepts recyclables free of charge.

Construction of a solid waste transfer station began in April 2003, and the facility opened in July 2005. The facility is open six days a week and accepts all nonhazardous waste. Residents and haulers can bring both their garbage and recyclables to the transfer station. The transfer station functions as a holding area for garbage and recyclables, which are loaded into tractor-trailers and shipped to a regulated landfill for disposal or a recycling facility for processing. The primary motivation for constructing the transfer station was to reduce open dumping on the Tribe's fairly limited amount of land. Funding for construction of the transfer station was provided by the U.S. Department of Housing and Urban Development, the U.S. Department of Agriculture, the Indian Health Service, and the U.S. EPA.

Outcome: Since the regulation was passed, complaints by community members have decreased and burn barrels have been removed from the premises of residents. Informing residents of the impact of burn barrels on the health of their families (particularly asthma) was reported to be a major factor in changing behavior.

For more information, contact Angela Benedict-Dunn, Air Quality Program Manager, St. Regis Mohawk Tribe Environment Division, at (518) 358-5937 or angela_benedict_dunn@srmtenv.org or visit <http://www.SRMTENV.org>. A summary of the St. Regis Mohawk Tribe's waste management efforts can be found at <http://www.epa.gov/tribalmsw/thirds/stregis2.htm>.

Bad River Band of Lake Superior Chippewa Indians

Background: The Bad River Band of Lake Superior Chippewa Indians occupies 124,000 acres (approximately 194 square miles) in Odanah, Wisconsin, near Lake Superior. A total population (Tribal and non-Tribal) of 2,758 resides on the Reservation. Nearly half of the population belongs to the Tribe (approximately 1,200). The Bad River Air Quality Department operates with a budget of approximately \$136,000 annually.

Issue: In 2001, the Bad River Air Quality Department identified burn barrels as one of the pollution sources on the Reservation. The Air Quality Department began to develop a conservation code for open burning, burn barrels, and fire prevention as part of an effort to reduce particulate matter and dioxin pollution and, at the same time, educate the community about pollution from their own backyards and ways to reduce it.

Actions: The Bad River Tribal Council passed the Open Burning, Burn Barrels, and Fire Prevention ordinance in May of 2002. Implementation of the ordinance, including a permit program, began shortly thereafter. To promote pollution prevention, the Bad River Solid Waste and Recycling Department helped implement a burn barrel exchange/clean-up. This allowed band members' burn barrels to be brought up to code as stated in the ordinance. 113 people in the community participated in the clean-up effort. Information about the hazards of burning and proper recycling practices was and continues to be distributed. Several articles about burn barrels and the hazards of burning recyclables and household waste were published in the Tribal newspaper, "News From the Sloughs". The 2002 clean-up was funded in part by a grant from the U.S. EPA, which covered \$4,000 of the clean-up costs. This did not include staff time to administer the program and perform the clean-up effort.

Prior to the ordinance, Band members burned virtually all waste, including recyclables and household waste, despite full garbage service provided to the community by the Tribe's solid waste department (which includes weekly curbside pickup for trash and recyclables). Residents must use designated clear trash bags that cost \$2.00 per bag. Recyclables are free of charge.

In addition to curbside pickup, a transfer station is open weekdays during regular business hours for residents to drop off extra garbage or recyclables. The transfer station offers a wide variety of trash collection services including: aluminum cans, batteries, fluorescent bulbs, hazardous waste (i.e., paints, chemicals, etc.), recyclables, and household trash. The transfer station also offers a spring clean-up every year during which staff will pick up old appliances, trash (e.g., bicycles, mattresses, tires), and other waste from residents' homes.

To date, burn barrels continue to be allowed on the Reservation as long as the restrictions in the ordinance are followed and the owner has a burn permit and complies with the permit guidelines. Approximately 100 people request burn permits annually. The permit program, run by the Air Quality Department, restricts open and barrel burning to certain times, outlines items that can and cannot be burned, and provides guidelines for burning. These guidelines instruct residents to be prepared if a fire gets out of control, to

locate a barrel properly (e.g., maintaining a 10 foot clear area and minimum distance to buildings), to restrict the size of open burn piles, and to refrain from burning when winds are over 10 mph. Permits can be obtained free of charge from the Bad River Natural Resources Office.

Difficulty with enforcement is one of the biggest barriers to eliminating burning on the Reservation. Although the Bad River Fire Warden, Tribal Conservation Wardens, and Bad River Police Department are all authorized to issue burning citations, responsibility for the majority of burning complaints is left to two conservation wardens who serve the entire Reservation. Several citations have been issued for garbage burning and/or fires that have gotten out of control and a number of warnings have been issued for garbage or recyclables sitting by a burn barrel. The community has been enlisted to help in the enforcement effort by calling to report a burning violation. On average, the Air Quality Department receives about three calls a month from neighbors reporting burning violations.

The Tribal Court has jurisdiction to hear all matters and may impose any of the following penalties for burning violations: immediate injunction against burning, seizure of a burn barrel, restitution for damages caused by violations, and civil forfeiture not to exceed \$1,000.

In 2005, the Air Quality Department implemented a voluntary burn barrel ban called the "Bad River Burn Barrel Buy-Back Program." In this program, Tribal members have the opportunity to voluntarily turn in their burn barrels and receive \$40 worth of trash bags (20 bags) or a combination of trash bags and a recycling bin that can be used at the Tribe's transfer station. When residents turn in their burn barrels, they sign a pledge acknowledging the harmful dangers of using backyard burn barrels to both people and the environment. They agree to use alternative means to dispose of their waste such as recycling, using the Tribe's transfer station, curbside pickup, or compost piles. Participants receive a participation/recognition certificate, incentives (trash bags, recycling bins, and other promotional items), and free pickup and disposal of their burn barrel. An outreach/education portion that promotes good solid waste practices and the discontinuation of burn barrels also is being conducted throughout the program. The program is being funded by a U.S. EPA grant in the amount of \$16,324.

Outcome: Together, the solid waste and natural resources staffs are working to achieve a "burn free community." The numerous articles published in the Tribal newspaper, brochures distributed with permits, and incentives such as new up-to-code barrels or garbage bags in return for a burn barrel help to promote the program and make residents aware of efforts to eliminate burning on the Reservation. Informational gatherings, such as environmental open houses, also help to increase community awareness of the dangers of burn barrels.

For more information, contact Lynn Hall of the Bad River Natural Resources Department, Bad River Band of Lake Superior Chippewa Indians, at (715) 682-7123 or cleanair@badriver.com.

Big Valley Rancheria, California Pomo Indian Tribe

Background: The Big Valley Rancheria (BVR) is a federally recognized Pomo Indian Tribe comprised of 364 voting members. Tribal lands cover 375 acres in Lake County, California. The BVR is governed by a four-member Tribal Council led by a chairman. Per capita income is approximately \$16,500 per year.

Issue: Barrel burning is prohibited under Article 6 of the BVR Public Safety Ordinance. However, trash burning was still being practiced for various reasons. Lack of enforcement and the lack of a recycling infrastructure were two reasons that led the BVR to look for other methods to further reduce household trash burning.

Actions: In 2003, the U.S. EPA awarded the BVR Environmental Protection Agency (BVR EPA) a Resource Conservation Grant in the amount of \$27,700 for two projects: 1) Burn Barrel Management Program, and 2) Tribal Household Recycling Infrastructure.

The BVR EPA hoped to eliminate remaining burn barrels on the Rancheria through the burn barrel management program by working with each household to review its solid waste disposal methods and, with a household's input, determine possible alternatives to burning. The program also included education via flyers, workshops, and surveys concerning barrel burning and its effects such as pollution and adverse health outcomes.

The recycling infrastructure initiative complemented the Burn Barrel Management Program by promoting community-wide household recycling. The initiative was designed to educate the community on the benefits and procedures for recycling, help Tribal members to identify recyclable items in their household trash, and to provide recycling bins (for paper, glass, aluminum, and plastics) and options for drop-off. The program also provided an analysis of volunteer households' solid waste streams and offered regular recycling collection to support Tribal households' efforts. By monitoring 10 volunteer families, the initiative helped the BVR EPA better understand recycling habits and obstacles. Overall, through education and outreach efforts such as workshops and development of a recycling infrastructure, the initiative promoted a more sustainable waste management system for the BVR.

The BVR EPA surveyed all households to determine their solid waste disposal methods. To encourage survey participation, the BVR EPA provided incentives, including recycling bins and garbage bags. 80% of Tribal households participated. The data provided a better understanding of household waste management practices, such as use of dumpsters, recycling, and trash burning.

The survey included 35 households representing 121 people. Results showed that 45% of households practiced barrel burning. None of these households reported burning plastics. A few reasons noted for burning green yard waste included household heating purposes and the cost of trash collection service. 82% of households surveyed reported to recycle and 69% said that they would recycle more if changes were made to the recycling program. Of the households surveyed, 48% felt that they needed more recycling bins while 37% felt that they needed more information.

The survey uncovered many reasons why households continue to burn trash, ranging from physical inability to take trash to dumpsters to lack of knowledge of the consequences of burning. In response, the BVR EPA staff created a recycling workshop to discuss obstacles to recycling while finding solutions by collaborating with workshop participants. Other efforts undertaken by the BVR EPA include distributing flyers with information on recycling and the hazards of burning. Overall, the BVR EPA successfully used survey results and education and set up an infrastructure to promote community-wide recycling and to eliminate burning.

The survey results clearly show that the BVR community became more involved in the effort for efficient waste management. The majority of the community recycles and does not burn unless alternatives are not available. Education programs have effectively made recycling at home a regular practice. However, as noted above, many households surveyed would recycle more if changes were made to the recycling program. Residents who continue burning mostly burn green yard waste and paper. Survey respondents requested wood chipping services as an alternative to green yard waste burning.

As for enforcement, a violation may be issued for any action that is detrimental to the health, safety, or well-being of Tribal members and the community. Tribal members can be fined up to \$500 per violation. Burn barrel usage at BVR was significantly reduced as a result of the ordinance.

Outcome: Sarah Ryan, the BVR Assistant Environmental Director, commented: “The household recycling was very successful, especially because of the face to face contacts. It gave us a real idea of where the families stood in terms of waste management and helped us effectively pass on information. Another successful aspect of the program was our recycling flyer. The flyer was actually geared towards what tribal members utilized, and as a result was understood by the community without difficulty. One aspect that could have been done differently would involve having more meetings with the 10 families. The families themselves felt that more meetings would help create a support group, as well as a place to exchange information and methods in waste management.”

In addition, Ryan suggested: “One resource we could have used was more information about the negative environmental effects that occur as a result from burning. Another factor that could have helped was more money for incentives. The complimentary trash bags and gift cards were very successful in drawing in the families, and more incentives would only strengthen the program. Also, a wood chipper would help enormously in helping eliminate the burning of green waste.”

For more information, visit <http://www.big-valley.net/epa/solid.htm> or contact Sarah Ryan, Assistant Environmental Director, at (707) 263-3924, extension 109, or sryan@big-valley.net.

Boone County, Kentucky

Background: Located in the largest bend of the Ohio River a few miles downstream from Cincinnati, Boone County is the northernmost county in Kentucky. With a population of 105,684, Boone County covers 246 square miles. The development of the Cincinnati Airport in northeastern Boone County in 1947 and the construction of Interstates 71 and 75 in the late 1960s helped Boone County to become one of the fastest-growing counties in the nation. Today, residential, commercial, and industrial development continues to change the rural landscape of Boone County.

Boone County is governed by a “Fiscal Court,” comprised of a County Judge or Executive and three County Commissioners. The Fiscal Court is responsible for setting policy, enacting ordinances, approving the budget, and voting on all fiscal matters pertaining to direct and indirect county services. The Boone County Public Works Division of Solid Waste Management coordinates services, events, and enforcement activities related to trash, recycling, litter, and illegal dumping.

Issue: In 1991, Kentucky passed a law requiring counties to take responsibility for their solid waste, develop state-regulated Solid Waste Plans, and develop solid waste ordinances. Boone County responded that same year by passing a Solid Waste Ordinance (Chapter 50 of the Boone County Code of Ordinances). Despite these laws, county residents were frequently observed disposing of trash improperly (i.e. burning or illegally dumping) throughout the early to mid-1990s. Many burn barrels were discovered by the Division of Solid Waste Management; these barrels were being used increasingly to dispose of extremely toxic materials. More recently, Boone County has experienced problems with building contractors who burn wood scrap, a practice that currently is legal but generates enough smoke to constitute a public nuisance.

Actions: The Boone County Solid Waste Ordinance was amended in 1996 to address open burning. Specifically, the ordinance prohibits the burning of solid waste unless an approved incinerator is used or unless a variance has been obtained from the Kentucky Division for Air Quality. The ordinance is enforced primarily by the Boone County Sheriff and the Public Works Code Enforcement and Solid Waste Management divisions, though local fire departments often cooperate with enforcement actions as well. Violators can be cited daily and face a penalty of up to \$1,000 for each violation. In reality, such fines are rarely imposed by District Judges.

Since the ordinance was amended, the Solid Waste Management division has conducted public outreach in the form of paid advertisements, newspaper columns, and online information educating people about the dangers to human health and the environment as a result of open burning. Outreach efforts are intensified each year during the months of May through September, when state law prohibits open burning of any kind. The Solid Waste Management division has obtained additional outreach materials, including posters and artwork, from the Kentucky Division for Air Quality and plans to use these materials in future efforts.

To educate contractors about open burning, Solid Waste Management sends out mailers each April to the Homebuilders Association, posts alerts on its website, and runs advertisements in the local newspaper. The division is considering formulating a nuisance ordinance to address the hazards of noxious smoke. Solid Waste Management staff also plan to deliver a presentation on open burning to the Homebuilders Association in March of 2007.

Boone County residents and contractors have access to various waste disposal services. The county enjoys some of the lowest rates for trash pickup in the state. Monthly fees for trash service range from about \$5.00 to \$9.00 per month in major cities such as Florence and Union to about \$12.00 per month in unincorporated areas. Residents also may subscribe to a recycling service (at approximately \$2.50 per month) or drop off recyclables at various drop boxes located throughout the county. Drop boxes are free and accessible 24 hours per day.

Outcome: Each year, Solid Waste Management receives an increasing number of complaints about open burning, likely as a result of the division's ongoing educational efforts. During "no burn" season (May – September), the division receives at least two complaints each week. Although the county still has difficulty convincing commercial builders to discontinue burning, they have observed noticeable reductions in residential burning.

For more information, contact Mary F. Shinkle, Boone County Solid Waste Coordinator, at (859) 334-3151 or mshinkle@boonecountyky.org, or visit the Division of Solid Waste Management website at <http://www.boonecountyky.org/bcswm/default.aspx>.

California Air Resources Board

Background: The California Air Resources Board (ARB) is California's clean air agency, established by the State legislature in 1967.

Issue: Concerns raised by local air districts led ARB to approve a Statewide Airborne Toxic Control Measure (ATCM) to reduce air emissions of dioxins and other toxic substances from outdoor residential waste burning. In January 2002, ARB staff prepared a risk assessment in an Initial Statement of Reasons for Rulemaking which evaluates five of the toxic air contaminants that are produced from burning mixed household waste in burn barrels. This risk assessment provides the scientific basis for the ATCM.

Actions: With input from the local air districts, the California Integrated Waste Management Board and other interested parties held workshops throughout the State. The Secretary of State accepted the ATCM for codification in 2003. Implementation of the rule as of January 1, 2004 allowed additional time for public education and outreach in 2003.

Provisions of the measure include:

- Eliminating outdoor residential burning of all household waste except vegetation;
- Eliminating the use of burn barrels because they facilitate the illegal burning of waste materials;
- Requiring all residential burning to take place on a day authorized for burning by ARB and the local air district; and
- Requiring residents to use ignition devices approved by the local air district for residential burning.

The measure allows two potential exemptions for: 1) burning dry, non-glossy paper and cardboard; and 2) limited use of a burn barrel or backyard incinerator, but only in exemption areas. The measure limits exemption areas to rural areas throughout the State, as determined by population density. No exemptions are allowed in incorporated places or zip codes where the population density is greater than 10 persons per square mile.

In accordance with the rule, ARB and local air districts in California began a public education and outreach program to educate the public about the health risks associated with residential burning, to inform residents of implementation of the control measure, and to suggest available alternatives to burning. During rule development, participants considered adding a fourth leg, Research, to the three-legged stool of Education, Regulation, and Infrastructure. The backing of a strong rule and the disincentive of a stiff fine supported the educational effort. Coordination between air quality protection and waste disposal management with phased-in implementation of the ATCM allowed needed improvements to be made to local waste collection systems.

A year prior to the ban taking effect, a statewide Residential Burning Public Education Committee was formed. The Committee coordinated a phased, low-key statewide publicity campaign using template news advisories and news releases that contained the

same message but could be adapted with local information by the air districts. The air districts shared their outreach and burn barrel ban ideas, and the Committee developed templates for door hangers, warning stickers, fact sheets, and a trifold brochure that all the local air districts could adapt and use easily. ARB also translated key public outreach materials into Spanish. In addition to providing materials for local air districts, the Committee developed a website (<http://www.arb.ca.gov/smp/resburn/resburn.htm>) for the public to use. Together with the affected air districts, ARB maintains the website as a resource for residents to identify local contacts that can help find alternative waste disposal options in a community. The website is searchable by county and zip code, and can identify fire departments, waste management providers, and air district contacts in an area.

Outcome: One critical benefit of the Statewide ATCM is that it standardized what can and cannot be burned as residential waste statewide. State air toxic control measures are implemented by the local air districts unless they substitute a more stringent local rule. The ATCM also gives local air districts additional enforcement clout; the minimum and maximum daily fines for violations are higher than those in other types of open burning regulations.

The rule also limited the frequency of residential burning to "burn days" only. This resulted in unquantified emission reductions by reducing the volume of waste burned and the occurrence of residential waste burning. The statewide rule dampened some local political resistance by emphasizing the health concerns associated with unrestricted residential burning. Feedback from the implementation outreach effort indicates that many residents were not aware of the health effects of burning but are now sensitized to the risks, whether from their own burning or their neighbors' burning activities.

For more information about ARB's Airborne Toxic Control Measure, contact Tina Suarez-Murias of the California Air Resources Board at (916) 323-1495 or csuarezm@arb.ca.gov.

Chisago County, Minnesota

Background: Chisago County covers 444 square miles in east-central Minnesota, with a population of approximately 45,000.

Issue: Burning trash was a common practice in Chisago County. The County estimated that in 1996, 5,000 residents burned approximately 1643 tons of garbage per year.

Actions: From 1996 to 1999, with a grant from the Minnesota Office of Environmental Assistance, Chisago County conducted a Burn Barrel Buy-Back (4Bs) Program at an estimated cost of \$10,000. The program offered a financial incentive of six months of half-price trash service in exchange for a burn barrel taken out of service. Half of this cost was subsidized by trash haulers, who agreed to pick up burn barrels from new customers. The program was appealing to trash haulers, many of which were already offering several months of free service to new customers, because of the potential for new customers and the publicity.

Initially, there was no regulation requiring residents to forfeit their burn barrels. A volunteer Committee On Recycling Education (CORE) helped the county approach and educate the County Board of Commissioners. It took three years for the board to pass a resolution against trash burning in the county. Following the 1996 resolution, enforcement by a conservation officer played a key role in the success of Chisago County's efforts to ban trash burning. The conservation officer also assisted in training the sheriff's department, which shares enforcement authority. Based on neighbors' complaints of burn barrel smoke, letters were sent to alleged offenders. The letters informed alleged violators that garbage burning is illegal.

As part of the 4Bs Program, a guide entitled "Stop Backyard Garbage Burning" was developed for other counties interested in reducing onsite garbage disposal. The guide describes the combination of education, outreach, incentives, and enforcement actions that were used in Chisago County to reduce the number of people who used backyard burning and on-site dumping to manage their household wastes.

Chisago County employed the following methods to promote the program:

- Developing cards describing the program and the illegality of garbage burning. These were used to facilitate informational exchange with the public by county environmental services staff, sheriff's department, garbage haulers, conservation officer, and fire wardens.
- Publishing news releases and advertisements in local newspapers.
- Showing an eight-minute video entitled "Waste Not, Burn Not" to community organizations.
- Making the "Waste Not, Burn Not" video available to the local cable access company.
- Developing and distributing inserts for local advertisers.
- Setting up displays at local home shows, county fairs, and clean air/water fairs.

- Developing and distributing inserts for county property tax statements. The inserts reached all county property owners and resulted in many calls for referrals to Chisago County garbage haulers.
- Mailing letters to all county residents with five or more acres of property to reach residents who would be the most likely to be burning or burying garbage onsite.

Outcome: The 4Bs Program provided a unique public/private approach to eliminating burn barrels that benefited both parties at minimal cost. From 1996 to 1999, 170 households took advantage of the Burn 4Bs Program. Approximately 13% of the population burned trash before the program. In 2004, an estimated 1,500 residents, or 3% of the current population, disposed of garbage onsite (by burning or burying).

For details of Chisago County's Burn Barrel Buyback Program, visit www.moea.state.mn.us/reduce/burnbarrel-guide.cfm. For more information, contact Gary Noren of Chisago County, MN, at (651) 213-0450 or ghnoren@co.chisago.mn.us.

Crawford County, Indiana

Background: Crawford County, located in southern Indiana, covers 306 square miles with a population of approximately 11,000.

Issue: Crawford County wanted to reduce trash burning and increase recycling rates in the county.

Actions: In 2004, the Crawford County Solid Waste Management District and Crawford County commissioners passed a joint ordinance prohibiting burning within the county. Notice of the ordinance was disseminated via newspaper, flyer, and information booths at the county fair.

The ordinance authorizes the following actions: a letter of warning for first offenses with a requirement to show proof of use of a trash hauler or recycling center; a fine for second offenses; and court appearance for third offenses. A compliance officer with the Crawford County Solid Waste Management District is responsible for enforcement, although the ordinance allows the fire, police, and health departments to enforce the ordinance as well.

In place of burning, three recycling centers are available in Crawford County for residents to dispose of trash or to recycle. Recyclable materials are accepted free of charge. Trash is accepted for \$1.25 per bag (up to a 30-gallon size, and no special bag is required). Residents may also contract with a private trash service.

Educational materials were provided through a grant from the Indiana Department of Environmental Management. Other than the cost to advertise the ordinance in the newspaper, no additional costs associated with passing the ordinance were incurred.

Outcome: Success of the ordinance has been evidenced by an increase in recycling and by residents forfeiting burn barrels to the county.

For more information about Crawford County's burning ordinance, contact Tina Bowman, Director, Crawford County Solid Waste Management District, at (812) 338-2728, ccswd@earthlink.net.

Evansville, Vanderburgh County, Indiana

Background: Located in rural southern Indiana, the city of Evansville encompasses the majority of Vanderburgh County.

Issue: Although a city ordinance enacted in 1962 regulated burning within four miles of Evansville city limits, approximately 90% of residents burned trash.

Actions: In 2003, the city revised the ordinance and increased enforcement. The ordinance allows no routine burning of residential or business waste. Small recreational fires by private citizens are allowed after notifying the Evansville EPA (EEPA). Outside the city limits, but within the EEPA's jurisdiction, Open Burn Variances and Air Curtain Destructor permits are available for a fee and after inspection.

The EEPA is responsible for enforcing the burning ordinance. The agency relies on neighbor complaints and fire run reports faxed to the EEPA by fire departments. The EEPA will respond to open burning complaints within two days and accepts as evidence for a violation fire run reports that indicate trash burning. Penalties for burning include a Letter of Violation and fine, starting at \$50 and increasing to \$2,500 per violation per day.

For Evansville residents, city trash pickup (curbside pickup, leaf vacuum, and heavy trash disposal) and sidewalk recycling are included in a household utility bill. Evansville contracts with a private hauler for these services and the city's trash is disposed in a privately operated landfill located in the county.

The EEPA maintains a good relationship with suburban volunteer fire fighters, encouraging them to fax reports of fires caused by trash burning. Some burning of trash in wood-burning stoves and fireplaces is thought to occur, but this is beyond the jurisdiction and resources of the EEPA. In 2003, the EEPA spent approximately \$2,000 to operate its open burning program.

Outcome: Whereas close to 90% of residents burned trash prior to the ordinance, enforcement of the ordinance is reported to have deterred residents and small businesses alike.

For more details about Evansville's open burning program, contact Dona Bergman of the Evansville EPA at (812) 435-6145 or dbergman@evansvillegov.org.

Fond du Lac Reservation, Minnesota

Background: The Fond du Lac Band of Lake Superior Chippewa Reservation lies in Northeastern Minnesota adjacent to the city of Cloquet, Minnesota, 25 miles southwest of Duluth, MN. The Fond du Lac Reservation Resource Management Division has responsibility for solid waste and open burning issues.

Issue: Prior to adoption of ordinances and a burn barrel outreach campaign, trash burning was a common method of disposal on the Reservation.

Actions: The Fond du Lac Band of Lake Superior Chippewa Waste Management and Recycling Ordinance was adopted in May 1993 and amended in 2003. Burning of any waste is prohibited on the Reservation. The rule requires that solid waste be delivered to waste management facilities and that recyclable material be separated from mixed waste. Businesses and public establishments must provide containers for recyclable materials. A permit from the Fond du Lac Forestry Department is required for some forms of burning and the permits strictly prohibit the burning of wastes.

Conservation and law enforcement officers enforce the ordinance, with one conservation officer in particular considered the official “garbage cop.” This officer is in charge of gathering evidence, writing letters to offenders for cleanup, and making recommendations to Tribal Council and Tribal Court for fines. Violators receive a warning upon first offense and are given five days to correct the violation. Citations are issued for non-compliance, and require the violator to appear in Tribal Court. If an offender is not a Fond du Lac Reservation member, federal or State courts may enforce their laws on the offender. This system has worked for years to enforce the ordinance.

Fond du Lac has a progressive approach to environmental education and outreach involving all staff of the Resource Management Division (which includes the conservation officers). A strong anti-burn barrel campaign was conducted in 2004. The campaign included advertising in newspapers, community event booths, and promotional items focusing on clean air and solid waste. The division has also been quite proactive with composting education, distributing hundreds of composting bins, vermicomposting bins, and composting literature. With a grant from the Bureau of Indian Affairs, the Resource Management Division is in the planning phases of a large-scale yard waste composting and community garden site.

The Fond du Lac Reservation has a waste collection site and recycling shed for enrolled Band members only. The site is primarily for community household generated wastes and is currently not set up to handle large waste generators on the Reservation, such as the casinos. The site includes dumpsters for bagged trash and larger construction waste, a household hazardous waste facility (including a waste oil tank), a recycling facility, and an electronic waste drop-off site and processing area. The site also accepts white goods (appliances, including air conditioning units) and waste tires, and recycles scrap metal.

The Band does not provide curbside pickup of household hazardous waste, regular bagged trash, or recyclable material. A private waste hauler provides curbside pickup of

regular bagged trash and recyclable material, however very few people utilize curbside service, which costs approximately \$11 a month for a typical household. Pre-arranged pickup of materials such as appliances, furniture, construction and demolition wastes, carpeting, and metals is provided free of charge for Band members who live within the boundaries of the Reservation. For non-Band members who live on or near the Reservation, there are two county waste transfer stations located just outside the north and south boundaries of the Reservation.

Increased economic opportunities on the Reservation (e.g., casinos) have led to the development of effective waste management containment systems and programs. Trash that was once disposed in open dumps is now transferred from Fond du Lac's waste collection site to a landfill in Wisconsin or to appropriate recycling facilities.

Funding for solid waste services for Band members comes primarily from the Tribal Council, including the waste collection site and recycling shed. The waste collection site operates at a cost of \$800,000 to \$1 million per year. Fond du Lac has received U.S. EPA Tribal solid waste grants and Bureau of Indian Affairs grants that have helped pay for household hazardous waste collections and infrastructure, the oil waste facility, composting services and outreach, pollution prevention services, and other outreach. Funding for educational components of the Resource Management Division's waste program, which includes burning, comes from an on-going grant from the Minnesota Chippewa Tribe. This supports one-half of a full time staff person to conduct educational outreach and pollution prevention activities.

Outcome: Since the creation of the Fond du Lac waste collection site, ordinance, and proactive educational outreach program, the number of people who burn on the Reservation is minimal. Offering a wide range of free services has provided an incentive for proper waste management and a decrease in burning or illegal dumping. Numerous community members have voluntarily brought in old burn barrels and said they will no longer burn.

For more information, contact Nathan Reinbold of the Fond du Lac Reservation Division of Resource Management at (218) 878-8023 or nathanreinbold@fdlrez.com. For information about the Fond du Lac Reservation, visit the Fond du Lac Band of Lake Superior Chippewa Reservation website at <http://www.fdlrez.com/>.

Forsyth County, North Carolina

Background: Forsyth County, in the Greensboro/Winston-Salem/High Point metropolitan area of North Carolina, has a land area of 410 square miles and a population of approximately 318,000.

Issue: Since 1972, it has been illegal to burn non-vegetative materials, such as garbage and building materials, in the state of North Carolina. Homeowners generally can burn yard trimmings if air quality conditions or local circumstances do not make burning hazardous, local ordinances allow it, and no public pickup is available. Other allowable burning includes fireplaces, campfires, outdoor barbecues, and bonfires.

Since June 1, 2004, outdoor burning has been prohibited in Forsyth County, as well as in other major metropolitan areas across North Carolina, when air quality forecasts call for high levels of ozone or particle pollution in those areas. The burning rule, adopted by the North Carolina Environmental Management Commission, is one of a series of steps the state has taken to bring areas back into compliance with national air quality standards. The rule affects 39 counties in metropolitan areas of the state, as illustrated by the map posted at <http://daq.state.nc.us/airaware/ozone/monitors/>.

The rule prohibits burning when air quality is expected to be poor or when a burn ban is in effect. State and local air quality programs issue color-coded air quality forecasts, and burning is only allowed when air quality is forecast to be moderate (yellow) or good (green). Burn bans are authorized by the Forsyth County Fire Department and/or the North Carolina Division of Forest Resources when atmospheric conditions or local circumstances make burning hazardous.

Actions: In Forsyth County, garbage pickup is provided to all residents either as a public service or for a modest fee. It is illegal to burn debris if public pickup is available. Shredding/chipping and composting are encouraged as alternatives to burning. Chippers or shredders can be rented at neighborhood rental agencies.

In the mid-1990's, Forsyth County began educating building contractors about construction burning. The County worked with the Home Builders Association to disseminate information to construction professionals and to include a question about burning regulations on the general contractor exam. Ongoing outreach activities include:

- maintaining a website of open burning regulations and information at <http://www.co.forsyth.nc.us/EnvAffairs/burn/default.htm>;
- placing flyers in tax bills and automobile registration notices;
- staffing a booth at the county fair;
- airing public service announcements on a local cable channel; and
- distributing information to libraries, schools, and communities.

Funding for open burning issues is provided primarily through U.S. EPA grants, and to a small extent by the county.

Forsyth County Environmental Affairs Department enforces open burning regulations by responding to citizen complaints. Under the State's open burning rule, first-time offenses can result in fines ranging from \$100 to \$10,000 per violation. Larger fines can be assessed in cases involving repeat violations and for people who knowingly violate the law. Commercial organizations found violating burning regulations are issued a penalty of \$250 for a first offense, with no warning, and larger fines (e.g., \$500) are issued if a company is burning materials other than lumber (e.g., plastics). The Fire Department, the Forestry Service, and the Solid Waste Division of the Health Department can also report trash fires to the Environmental Affairs Department, which can then issue fines without actually being present at the burning.

Outcome: In the past several years, Forsyth County has received an average of 10 complaints per month, with few complaints of construction burns. The County tracks complaints and the resulting actions to gauge the effectiveness of the program and solicits feedback from many of the complainants and violators about their experiences with open burning staff.

For more information about Forsyth County's efforts to eliminate backyard burning, visit <http://www.epa.gov/msw/backyard/pubs/forsyth.htm>. For additional details, contact Peter Lloyd of the Forsyth County Environmental Affairs Department at (336) 727-8060 or visit <http://www.co.forsyth.nc.us/EnvAffairs/burn/default.htm>.

Gila River Indian Community, Arizona

Background: The Gila River Indian Community (GRIC) is a federally recognized Tribal nation comprised of the members of two Tribes, the Pima and Maricopas. Numbering 14,000 members within 581 square miles, the GRIC is the fourth most populous American Indian Reservation in the US.

Issue: In response to excessive burning, in 1995 the GRIC prohibited burning solid waste under its Solid Waste Ordinance (SWO). However, burning continued and became a serious public safety issue as a drought resulted in hot, dry summer months.

Actions: In October 2003, the U.S. EPA awarded \$30,000 to the GRIC Department of Environmental Quality (DEQ). The goal of the grant project was to reduce the burning of residential waste through workshops, community meetings, pamphlets, and other educational outlets.

The DEQ held seven presentations at community meetings in each of the community's districts. An informational booth was prepared to address waste burning, its toxic effects, and possible alternatives. Another workshop was held for enforcement staff, which focused on enforcement of the SWO and effective outreach methods.

The DEQ and the fire department jointly issued free burn permits for burning yard waste only. To maximize compliance, the GRIC DEQ developed a burn permit kit, which outlined burn permit requirements specified in the SWO.

The outreach and educational materials were well received by community members. Trash cans, t-shirts, magnets, coffee cups, and vehicle trash bags successfully encouraged community members to participate in the information sessions. Each community meeting was attended by 10 to 20 people.

DEQ staff surveyed program participants on their waste management practices prior to receiving outreach materials. Survey results indicated that:

- the majority of the community would like to know more about the SWO
- about 70% of community residents surveyed continued to burn some type of waste, but only 10% continued to burn trash
- 22% of those surveyed felt burning affected their health
- 69% felt that they were affected by burning in some way

The survey indicated that community members want to continue burning waste, but they are aware that they can be cited for illegal burning without a permit. As part of the development of an Open Burning Ordinance, DEQ will track data such as the number of burn complaints (which had not yet shown a change during the grant period). As a result of the project's educational efforts, community members are more aware of permit requirements. Reflecting this, the DEQ saw a slight increase in the number of burn permits issued over the grant period.

The project also revealed that burning could be reduced with a strong, integrated recycling program. The GRIC currently only recycles cardboard from Tribal offices and enterprises. Recycling services are not offered for community members. The project survey found that 95% of those surveyed would like to recycle cans, bottles, plastic bottles, or newspapers. These results suggest that curbside collection of recyclable materials would not only help eliminate barrel burning but also produce less waste.

Outcome: GRIC Environmental Quality Specialist Candice Bell felt that providing an alternate method of waste management in the community was a key issue in promoting the ban on trash burning. The GRIC provides trash collection services twice a week, as well as bulk trash pickup every six weeks. These services have made GRIC's ban on burning more effective and realistic.

Bell suggested that another method to reach more people with education materials would be to make presentations in schools. This would help ensure that outreach materials reached a majority of the community.

The project was educational for both community members and DEQ staff. It revealed the impact of community members' perceptions on successful ordinance development. Such ordinances will be more effective if community members know more about the laws, health effects, and alternative ways of reducing solid waste and residential burning.

For more information, contact Candice Bell, Environmental Quality Specialist, at (520) 562-2234 extension 247, or Candice.bell@gric.nsn.us.

Grant County, Kansas

Background: Grant County spans 24 square miles with a population of approximately 7,800. The major population center is the town of Ulysses (population of approximately 6,000). Funded through county taxes, a board of county commissioners has responsibility for county government functions. Before a Statewide regulation prohibiting the open burning of solid waste, municipal solid waste in Grant County was picked up and hauled to open trenches where it was burned. Farm waste was also burned in trenches, either a public, “municipal” trench or private trenches used by one or more farms. These trenches were reported to be burning or smoldering continuously year-round.

Issue: When a Statewide ban on burning was implemented in 1994, Grant County needed to find an alternative means of trash disposal. More than 20 tons/day of municipal solid waste is generated in Ulysses, which exceeds the disposal rate allowed for arid landfills. Ground water sampling revealed a contamination problem requiring that the county build either a transfer station or a Subtitle D landfill.

Actions: A transfer station was built in 1994 to accept municipal solid waste and transfer it by truck to regional permitted landfills. Construction was funded through county taxes. The county owns and operates the transfer station with estimated annual operating costs ranging between \$350,000 and \$500,000. Disposal fees at the transfer station vary by type of waste material (e.g., metals, tires). For example, the fee for trash in general is \$44/ton with a \$7.50/ton minimum. (Fee pricing is listed at <http://www.grantcoks.org> under “Public Works: Transfer Station.”) Grass and tree disposals are accepted at no cost and are turned into compost to sell.

City code requires the owner or occupant of each premise in Ulysses to dispose of trash in the city containers or dumpsters. While the city has the authority to fine or imprison persons violating the city refuse code, instances of burning have been handled by a law enforcement official visiting a resident and informing them of the city code.

Presently, no trash burning occurs inside Ulysses city limits. All residential and commercial units in Ulysses are required to pay a monthly refuse fee. The fee includes a service charge for collection and disposal of refuse from dumpsters (except if the individual/business does not have a dumpster). The refuse fee is \$12.25 per residential unit per month for trash pickup twice a week. For commercial establishments, the refuse fee is based on dumpster size and pickup frequency required for each business.

Trash collection service outside Ulysses city limits is also available at 1.5 times the rate assessed similar residential or commercial users within the city limits. Rural residents may also utilize the county transfer station for the posted fees. Continued trash burning is reported to occur in rural areas of Grant County where the Ulysses city code does not apply and the State burning regulation is not enforced.

Farm residents may use dumpsters, which are collected by an independent sanitation company and hauled to the transfer station for a fee, or farms may haul their waste directly to the transfer station and pay a disposal fee.

Outcome: A 60% to 70% reduction in burning on farms has been achieved since the transfer station was built. Overall, success is reported to be very good, representing a major change from the previous practice of all trash being burned in open trenches.

For more details, contact David Wagner, Transfer Station Manager, at (620) 353-1069 or gtcotran@pld.com, or visit www.cityofulysses.com/.

Hubbard County, Minnesota

Background: Hubbard County has a land area of 1,008 square miles and a population of approximately 21,130, which more than doubles in size in the summer months due to tourism. The board of commissioners has control over county matters subject only to limitations imposed by state law.

Issue: A Minnesota law passed in 1969 banned the burning of solid waste under certain conditions. Hubbard County passed an open garbage burning ban under a solid waste ordinance in 1994. Hubbard County's ordinance is perhaps unique in that open burning of garbage is prohibited in both cities and rural areas. Hubbard County has been enforcing its burn ban since it was enacted. Some cities have followed with bans on burning leaves and other material.

Actions: Hubbard County has a long history of providing alternatives to trash burning. Still, most communities, townships, cities, and rural residents used open dumps and burned waste until two sanitary landfills were built by private owner/operators in 1972. It is estimated that 100% of county residents burned trash, if open burning at the township and city open dumps is included in the approximation. After the open dumps were closed in 1972, about 60% of the county population reportedly continued to burn their waste. Today, the practice of open burning appears to have ended.

Two sanitary landfills served the county from 1972 until 1987. In 1987, the county built two transfer stations to serve its residents, conveniently located for most of the county population. Hubbard County borrowed funds to build the transfer stations but has since repaid the loans and expanded and improved operations at both facilities. Also in 1987, the county established a special assessment on county taxes for all residential structures and/or commercial businesses. Assessments range from \$105 annually to \$70,000 per year for a large commercial business. Funds go towards payment of all expenses associated with solid waste operations. Hubbard County's solid waste operating budget is \$1.7 million per year.

The special assessment allows county tax payers (residents and businesses) to drop off many types of waste (garbage, recycling, demolition and construction debris, yard waste, diseased trees, brush, tires, household hazardous waste, scrap metals, electronics, white goods, and any reusable items for exchange), without paying an additional fee. Several private waste haulers provide pickup service for a fee. There is a charge for commercially hauled demolition debris. Out-of-county residents are charged a nominal fee to use the transfer stations.

For 10 years, Hubbard County contracted with an incinerator and initially held a "put or pay" agreement in which the county was penalized for the lost tonnage being burned by residents. For several years Hubbard County switched to hauling waste to a sorting facility. Finally, the county returned to landfilling waste that is processed through the transfer stations. This is the method of disposal currently in place.

In 1992 the county built a recycling center and established 14 recycling drop sheds at sponsored locations throughout the county. Sponsors include businesses, neighborhood taverns/cafes, or townships which maintain the sheds. Recycling sites are open 24 hours/7 days a week at no cost to residents. A Development Achievement Center (DAC) for the handicapped provides curbside recycling and pickup at commercial sites and sheds once a month in cities. Through the special assessment on county taxes, the DAC is paid on a per ton basis under a contract, and earns additional income from the sale of recyclable items.

In the event of a burning violation, the county solid waste administrator is responsible for inspecting complaints and filing violation letters with alleged violators. If violations persist, the case is turned over for prosecution. Violations reaching prosecution at the county attorney's office are considered misdemeanors subject to a \$700 fine and/or 90 days in jail. The county may also engage the county sheriff, city police, and game wardens, who have the authority to issue citations.

Brochures stressing the convenience of recycling and the availability of two transfer stations are provided to all county residents.

Outcome: Overall, the burning ban has been received positively in Hubbard County due in part to the fact that residents are not charged a tip fee at county transfer stations and recycling centers, and to a lesser degree because the county refused to accept ashes from burn barrels. Outreach and education activities increased acceptance of the ban. It was also important to provide reasonable and viable alternatives (transfer stations and recycling drop sheds) in areas that are convenient for residents. Complaints of burning or illegal dumping in Hubbard County have essentially disappeared, and the sight of a burn barrel is rare. Fires attributed to garbage burning have ended as well.

For more information, contact Vern Massie, Solid Waste Administrator of Hubbard County Solid Waste Management Department at (218) 732-9568, or visit the Hubbard County website at www.co.hubbard.mn.us.

Indiana

Background: Backyard burning of household trash has been illegal in Indiana since the 1960's. The Indiana General Assembly created the Indiana Air Pollution Control Board to assist air pollution agencies of towns, cities, and counties within their jurisdictions.

Issue: Most local units of government have not actively taken the initiative to prohibit open burning. Enforcement resources are generally lacking and most areas have insufficient local commitment from prosecutors to support officers who issue violations. Residential, agricultural, and small business burning of waste, though illegal, continues in most areas. An estimated 40% of homes in small towns and rural unincorporated areas in Indiana use illegal burning as their primary waste disposal method.

Recognizing that the issue had too long been ignored, the solid waste management districts were motivated by a duty to prevent pollution and promote proper solid waste management. Backyard trash burning was recognized as an impediment to growth in rural recycling programs. Another significant motivation was the recent research on dioxin emissions. Addressing pollution from illegal burning was also important for many communities with local ozone problems.

Actions: In May 2004, the Indiana Department of Environmental Management (IDEM) launched a public education campaign that targeted the burning of trash in Indiana. The campaign involved 27 participating solid waste management districts in Indiana with a combined population of over 2.1 million. This represents approximately one-third of Indiana's population.

The "Stop Burning Trash" project uses various media (e.g., newspaper, television, radio, billboards, website) to educate citizens. Other program materials include an interactive file with open burning web references, photos, documents, and presentations. The presentations can be customized for specific audiences. A DVD was also created as part of the project and features testimonials including the state fire marshal, a pulmonary specialist, and a mother of a child affected by burning smoke. Presentations and meetings are being held to educate fire fighters, fire chiefs, cities and towns, county commissioners, health officials and others. Each district also sponsors its own activities, such as burn barrel amnesties that allow residents to trade burn barrels for recycling bins. In the early stages of the campaign, approximately 10-15 citizen complaints were received through the project website each week. Citizens are encouraged to recycle, rather than burn, and to contact their local officials. A generic model ordinance regulating open burning has also been developed and is available on the project website at <http://www.stopburningtrash.org/index.html>.

Indiana communities provide a number of alternatives to trash burning. Waste collection is universally available in all areas of Indiana (at fees of \$13 to \$22 per month). IDEM surveys indicate that 90% of Indiana's population lives within eight miles of a recycling drop off center. Many major towns and cities offer curbside recycling. In addition, many counties offer "convenience centers" for trash drop off and recycling.

Several factors drove the solid waste management districts to participate in the campaign. The statewide cooperative effort allowed pooling of resources (each district contributed \$1,396 in cash match), which allowed the project to leverage regional group advertisement purchases for the public awareness campaign. The two-year campaign, estimated to cost \$140,000, was funded in part by participating solid waste management districts and through a grant from the IDEM.

Outcome: Recycling is reported to have increased with residents' growing awareness of the state's burning laws and the dangers posed by burning trash. Outreach materials have been successful in educating community and county leaders about the need to eliminate trash burning. Several counties and communities have adopted local burn ban ordinances since the campaign began. Many others are considering stricter local enforcement efforts. Some districts are also continuing to re-run "Stop Burning Trash" campaign materials.

For most partner communities and counties, the level of regional cooperation, partnership building, and interagency coordination and support are unique and have contributed to the dissemination of the "Stop Burning Trash" message across Indiana. Like most other states confronting this problem, Indiana recognized that this project is just the beginning step of a long-term commitment to changing a long-ingrained cultural habit. Public education is believed to be the key.

For more information contact either Jeff Myers at info@stopburningtrash.org or Debbie Steinkamp of Spencer County Solid Waste Management District at (812) 362-7401 or recycle@psci.net.

Iola, Kansas

Background: The City of Iola, in southeast Kansas, has a population of approximately 6,400 and a land area of 3.5 square miles. The governing body of Iola consists of one mayor and two commissioners, who act together to make or change policy. The City of Iola operates with an annual budget of approximately \$23.8 million.

Issue: No open burning is permitted inside Iola city limits. Burning was first regulated by the city in the 1970's, when many residents burned trash. The city ordinance was revised in 1995 and again in 2004, in conjunction with the development of specific fire codes (e.g., restrictions on the volume of propane permitted on premises). Burning within city limits is only allowed with a permit issued by the fire chief.

Actions: The Iola Fire Department is responsible for enforcing the burning ordinance. Warnings are typically sufficient to prevent repeat occurrences. No citations for burning have been issued.

The city provides residents with pickup of solid waste twice a week for a small fee (less than \$5 per month). Trash is disposed in the county landfill. Trash removal includes yard waste, if it is bagged, or residents may transport wastes to the landfill themselves. A compost facility was available to residents at one time, but a large fire forced it to close. The City of Iola does not provide waste removal for residents who live outside the city limits or for commercial or industrial customers, but service may be contracted through private haulers. Recycling facilities are limited to aluminum cans, which are collected at the city fire department. There is no recycling of paper or plastics.

The city also offers residents a Reserve-A-Truck program and provides two clean-up weeks per year. In the Reserve-A-Truck program, a city dump truck is parked at a citizen's home to be loaded by the resident over the weekend. The city picks up the dump truck on Monday morning and transports the contents to the landfill, free of charge. During the city's two clean-up weeks, material is picked up from residents' property and hauled to the landfill.

Outcome: Presently, the only burning reported to occur within the city limits is permitted on a local golf course. The fire department receives no complaints of burning in the city and has had no fire runs resulting from trash burning inside the city limits. Small incinerators in Iola have ceased to operate.

For more information, contact Beth Ann Turner of the Iola Fire Department at (620) 365-4901, or visit the City of Iola website at <http://www.cityofiola.com/solidwaste.html>.

Leech Lake Band of Ojibwe

Background: The Leech Lake Band of Ojibwe Indians is a constituted band of the Minnesota Chippewa Tribe. The Leech Lake Reservation covers approximately 864,158 acres of Central Pine-Hardwoods forest in north central Minnesota, including parts of the counties of Beltrami, Cass, Hubbard, and Itasca. Approximately 75% of the 666,524-acre National Chippewa Forest lies within the reservation.

According to the 2000 Census data, the reservation has a population of 10,205. The tribal headquarters are located in Cass Lake, Minnesota, the largest of 11 communities within the Reservation, and the Band is governed by the Leech Lake Tribal Council.

Issue: The burning of household garbage, demolition materials, and recyclables is illegal in Minnesota and on the Leech Lake Reservation. However, in 2005, 40% of wildfires in Minnesota were started by open burning, so it was clear that backyard burning was still occurring.

Actions: In February 2006, the Leech Lake Band of Ojibwe passed an updated Open Burning, Burn Barrel, and Fire Prevention Ordinance. The updated ordinance details new burning practices, requiring a permit and burn barrel certification to conduct any backyard burning. This also includes a \$50 annual fee for the permit. Burning without a permit and certification may result in \$100 to \$250 fines.

To handle household trash and other solid waste on the Leech Lake Reservation, transfer stations are located in the Cass Lake, Onigum, Inger, Bena, and Ball Club communities. In the spring of 2006, the Leech Lake Air Program also initiated a free burn barrel trade-out program in an effort to curb backyard burning and encourage recycling. The program allows residents to trade in burn barrels for two 18-gallon recycling bins (one for paper and the other for containers). Program participants also pledge not to burn household garbage.

Since the ordinance took effect on April 1, 2006, the Leech Lake Air Program has conducted ten outreach events on backyard burning both on and off the Reservation. Stationed at a booth with posters and a mini-burn barrel, Leech Lake Program staff distributed pamphlets and other materials such as magnets and yo-yos. To increase awareness, Leech Lake highlighted their accomplishments in local newspapers.

Outcome: As of May 2006, the Leech Lake Air Program had obtained 10 burn barrels through the trade out (exchange for recycling bin) program. Leech Lake also held two collection events during 2006 in which 20 burn barrels and their contents were collected from residences, barrels were recycled if possible, and the contents of collected burn barrels were properly disposed of at a certified transfer station. The trade out collection goal for 2006, to collect 20 burn barrels in exchange for 40 recycling bins, was met. The program will seek to match that accomplishment in 2007. In terms of enforcement, at least 10 fines have been issued to residents caught burning since the ordinance took effect in April. Verbal and written warnings have also been issued.

Additional information is available from Brandy Toft, Leech Lake Band of Ojibwe Division of Resource Management, at air@lldrm.org or (218) 335-7429.



Mercer, Wisconsin

Background: The Town of Mercer, Wisconsin, is located in the “lakes region” of Iron County, one of the northernmost counties of Wisconsin. It is approximately 200 miles northwest of Green Bay, Wisconsin, and 285 miles northeast of Minneapolis, Minnesota. The population of Mercer was 1,732 as of the 2000 census, representing approximately 25 percent of Iron County’s total population of 6,861. The area is heavily forested, and has more than 59 lakes over 10 acres in size. Due to the desirability of the area for second homes for recreational purposes and for retirement homes, Mercer has experienced greatly increased development pressure over the past several years. About 46 percent of all new residential building permits by Iron County issued between 2000 and 2003 were issued in the Town of Mercer.

Issue: Prior to 1970, solid waste management in the region consisted primarily of individuals hauling to open municipal landfills. Since then, more restrictive state and federal codes regulating landfills have been enacted, and all 10 landfill sites near the Town of Mercer are currently closed. Private waste containers can be rented for individual properties and emptied by private waste haulers for a monthly fee in most nearby areas. Solid waste that is collected is sent to either Timberline Trails Landfill in Ladysmith, WI (about 100 miles away) or K & W Landfill in Ontonagon, MI (about 85 miles away). A recycling program is also available in Iron County, consisting of five drop-off recycling sites located in the communities of Hurley, Mercer, Oma, Saxon, and Sherman. Items accepted at these sites include: plastics, glass, cardboard, newspaper, tin, aluminum, and magazines.

Despite the availability of alternatives, the use of burn barrels continues in this region, largely due to perceived convenience and the view of this method as traditional, especially in the more remote or rural areas. Under current State of Wisconsin burning rules, homeowners may apply for a season-long permit to burn approved materials in barrels, but they must apply for separate three-day permits for yard waste burning activities. Non-permitted wastes include: wet combustibles (such as wet cardboard or paper), oily substances (such as greasy rags or oil filters), asphalt (such as shingles or tar paper), plastics of any kind, and rubber products.

In addition to health concerns associated with waste combustion, risk of wildfire is also a large concern throughout the State of Wisconsin. The burning of brush, debris, and other materials is the number one cause of wildfire in Wisconsin.

Actions: In a “yellow-bag” program initiated in 2006, the Mercer BP gas station on Highway 51 began facilitating the disposal of household waste for a small fee per bag. Special yellow bags, which hold approximately three kitchen bags full of garbage each, may be purchased at the BP store for \$1.75 each and disposed in the designated dumpster adjacent to the BP property. This dumpster, contracted by the local municipal government, is emptied by a local private waste hauler, Waste Management, Inc.

Outcome: Although no efforts have been made to quantify reductions in open burning that may have resulted from the availability of this yellow-bag garbage disposal program in Mercer, the 10-15 cubic yard dumpster is filled and emptied approximately twice a week. Additional information on the yellow-bag program is available from the

Mercer BP at (715) 476-3437 and on area recycling programs from the Northwest Wisconsin Regional Planning Commission website at <http://www.nwrpc.com/nwrpc/recycling/index.htm>



Mount Vernon, Indiana

Background: Mount Vernon in rural southern Indiana is a small town with a population of approximately 7,500 and a land area of 2.5 square miles. The city is governed by a city council and mayor with an operating budget of \$2.7 million (2004).

Issue: An ordinance against trash burning within the city limits was passed in 1993. Unlimited curbside pickup and unlimited access to the county landfill were available before the ordinance was enacted, yet many residents burned their trash. An estimated 75% of the population burned prior to the ordinance. Some residents would burn their trash and put the ashes in the curbside pickup.

Actions: One main motivation for the ordinance was a fire in a hauler truck caused by hot ashes from a burn barrel. The fire department enforces the ordinance, dispatching a fire truck for burning violations. Violators may be fined for second and subsequent violations.

The cost of trash pickup for residents did not change as a result of the ordinance. City trash pickup (of unlimited quantities) costs \$5.60/month for curbside pickup, leaf vacuum and metal and appliance pickup. Since the county landfill closed in 1993, trash that is picked up is disposed in a landfill in another county.

The cost to enact Mount Vernon's burning ordinance has not been estimated (funded through the city's operating budget), but it has resulted in fewer costs for fire runs.

Outcome: There is no longer burning within Mount Vernon city limits.

For more details, contact Patricia Colbert of the Posey County Solid Waste District at (812) 838-1613 or poseyswd@evansville.net.

Northwest Vermont Solid Waste Management District

Background: The Northwest Vermont Solid Waste Management District (NWSWD) is comprised of 13 member towns throughout Franklin and Grand Isle Counties. Franklin County covers 637.1 square miles and had a population of 46,694 in 2002. Next to Franklin County, on Lake Champlain, Grand Isle County has 82.6 square miles in land area and a population of 7,333 (in 2002). NWSWD operates with a budget of approximately \$400,000 per year.

Issue: Under State laws, NWSWD has authority to manage and regulate the collection, storage, transportation, resource recovery, recycling, and disposal of solid waste generated within the district. In 1998, NWSWD enacted an illegal burning and dumping ordinance to protect public health and safety and to promote responsible use of resources and protection of the environment.

Actions: The ordinance requires every person who generates solid waste within the district to separate out recyclables. Both recyclables and remaining solid waste are either placed in a designated area for collection by a hauler, or otherwise delivered to a facility that is legally authorized and permitted to accept such waste. NWSWD estimated costs associated with the ordinance were \$12,000 for fiscal year 2003, \$20,000 for fiscal year 2004, and \$15,000 was budgeted for fiscal year 2005. These costs included programs for recycling and preventing illegal dumping, as well as eliminating open burning; an estimated one-third of the costs given above were directed toward burning issues (e.g., \$5,000 in fiscal year 2005).

Enforcement activities for the illegal burning and dumping ordinance began in July 1998 using existing NWSWD staff. In June 1999, Franklin County and Grand Isle County sheriffs were contracted to provide additional enforcement. NWSWD also encourages residents to report information on illegal dumping or burning activity. Active enforcement began in 2000, including timely responses to complaints, patrols seeking illegal activity, written and verbal warnings, and violations for repeat offenses. Initial warnings are educational in nature; officers explain the issues with open burning and provide educational materials. A municipal fine of \$75 may be issued for repeat offenses. Only one such violation has been issued for illegal burning since NWSWD's ordinance was implemented.

Prior to enforcement, NWSWD used several outreach methods to inform residents of the ordinance (e.g., newspapers, newsletters, town meetings, flyers, radio messages). NWSWD also recruited support from other local officials to discourage burning, such as town councils, fire departments, and health officers. Furthermore, NWSWD took proactive steps to look for burn barrels and log their existence. During active patrols, each barrel, burn pit, and outdoor furnace was logged.

NWSWD received two grants (2001-2002, 2003-2004) from the Vermont Agency of Natural Resources to conduct burn barrel surveys, to actively enforce the NWSWD ordinance, and to increase outreach and education in Grand Isle County. The 2001-2002 survey of Franklin County showed that 8% of households were potential trash burners;

656 residential and business properties were found to have one or more visible burning barrels or pits. Of the 656 burning devices discovered in Franklin County, all but 35 have been verified as removed or inactive – a decrease of 95%. The Franklin County follow-up survey found additional burning devices that were not discovered in the initial survey. The total number of burning devices discovered in Franklin County between July 2001 and March 2004 (from the two surveys) was 924. Results of the 2003-2004 survey of Grand Isle County found 169 residential and business properties with one or more visible burning barrels or pits; this represented 8.6% of households.

NWSWD does not collect trash for member town residents but provides information about waste reduction, recycling, household hazardous products, and proper disposal options. An estimated 75% of residents contract with a private hauler for curbside pickup. NWSWD operates five drop-off facilities for Franklin County residents. These facilities accept both bagged trash and recyclables with the following fee structure: \$3.50 for one bag of trash (no recycling); \$2.50 for one bag of trash (up to 32 gallons) and recyclables (one paid bag of trash allows up to 64 gallons of free recycling). The fee is \$1.50 for up to 32 gallons (four paper bags) of recyclables alone. One other drop-off facility and two full-service transfer stations (not operated by NWSWD) are also available to NWSWD residents. In addition, NWSWD offers several special collections and household hazardous waste collections. NWSWD also provides free environmental education and waste reduction programs to local schools.

Outcome: After a year of enforcement and education work, a follow-up road survey was conducted, visiting each place that was known to have a burn barrel. This follow-up survey showed that most burn barrels had been removed and that most of those still present were not in use and had not been used for some time. At every chance, enforcement officers spoke with residents about the dangers of burning (e.g., if a burn barrel was observed at a residence). NWSWD's outreach efforts are ongoing, including newsletter and local newspaper articles. More information and presentations from this forum can be found at <http://www.anr.state.vt.us/air/htm/OpenBurnForumPresentations.htm>.

For additional details, contact Michael Loner, project specialist at Northwest Solid Waste Management District, at (802) 524-5986 or projectspecialist@nswd.org.

Otter Tail County, Minnesota

Background: Otter Tail County is located in west central Minnesota, and has a resident year-round population of 57,160. The estimated seasonal (summer) population is 200,000. Otter Tail County is governed by a county board of commissioners. The Otter Tail County Solid Waste Department, which is responsible for open burning issues, has an annual operating budget of about \$3.8 million and is funded by tipping fees, service fees, and state grant dollars.

Issue: Burning of solid waste has been illegal since 1969 by Minnesota statute (Chapter 88.171), which prohibits the burning of most types of debris and household wastes. In accordance with state law, if garbage service is available to residents, including farmers, then burning or burying of household or farm waste is illegal.

Prior to the mid-1980's, an estimated one-half of the county population disposed of some or all of their wastes onsite by burning or burying. The primary concern was that space in the two landfills was diminishing. Additionally, issues of groundwater pollution and local Not in My Backyard sentiment spurred Otter Tail County to look for alternatives to landfilling solid waste.

Actions: The County adopted a solid waste ordinance in 1994 that prohibits the burning of all solid waste. The ordinance also applies to recreational campfires, fireplaces, and wood stoves.

Otter Tail County currently owns five permitted transfer stations and has one permitted transfer station owned by the City of Fergus Falls. Fees at the transfer stations and landfills range from \$2 for a 30-gallon bag to \$52 for a ton of household waste. Varying fees apply for demolition debris, white goods, batteries, tires, scrap metals, furniture, and electronics. Yard waste is accepted free of charge. Additionally, Otter Tail County constructed two resource recovery incinerators in 1986 and 1987. These facilities accept trash from the transfer stations, and ash is disposed in the landfills.

Pickup service is available in Otter Tail County by contracting with a private solid waste hauler for a fee. The number of licensed private and municipal garbage haulers increased from approximately four to five in 1980 to 14 in 2004.

The county's ordinance imposed an annual solid waste service fee, which is collected as a special assessment on real estate property taxes. Funds are used for solid waste management programs. These include recycling, household hazardous waste, maintenance of transfer stations, solid waste and recycling education, and partial subsidy of tipping fees for solid waste disposal in Otter Tail County.

The service fee is determined by a point system based on tons of waste generated. Year-round residents pay about \$40 per year; seasonal residents pay about \$24 per year, and businesses range from approximately \$24 per year to \$40,000 per year. The residential rate is based on a countywide average for residential waste generation. The business rate is based on tonnage as reported in records provided by waste haulers.

Under the Otter Tail County ordinance, household waste burning is a misdemeanor punishable by fine up to \$1,000 and/or 90 days in jail. The Solid Waste Department handles formal complaints of illegal burning. Information about Minnesota statutes and the county ordinance is sent to alleged violators. If a resident continues to burn waste, a complaint is filed with the Otter Tail County Attorney's Office.

Around 1994, Otter Tail County began to distribute newsletters and brochures regarding the dangers and environmental issues associated with open burning. The County continues its educational efforts both in schools and in the community through newsletters, flyers, and other means. In 1997 and 1998, Otter Tail County conducted a burn barrel amnesty program and accepted barrels and ash for disposal without question or penalty. The program cost \$12,000 to \$14,000 per year. It was well-received by some and resulted in a reduction in burn barrel usage, as reported by licensed waste haulers who signed up new customers.

Otter Tail County is dependent on its lakes and rivers, and this motivates the county commissioners to support the solid waste efforts described above. Also, the board is influenced by the considerable efforts towards making reasonably priced, environmentally sound waste disposal options available to all county residents. Condoning onsite disposal would be contrary to those efforts. Finally, the board is compelled by constituent complaints, which generate considerable interest and response in Otter Tail County.

Outcome: It is estimated that less than 10% of Otter Tail County residents presently use open burning to dispose of waste. The county attributes its success to a number of factors:

- access to legal means of disposal has been made easier;
- a comprehensive plan is in place to handle offenders;
- part of the program relies on county residents to report offenders;
- residents can anonymously report illegal burning, which encourages them to speak up; and
- most residents do not want burn barrels in their "backyard".

For additional information about waste burning in Otter Tail County, contact Mike Hanan, Solid Waste Department director, at mhanan@co.ottertail.mn.us, or Betsy Bjerklie, public information/education officer, at bbjerkli@co.ottertail.mn.us, or visit the website at <http://www.co.otter-tail.mn.us/solidwaste/>.

Red Cliff Band of Lake Superior Chippewa Indians

Background: Located on the shores of Lake Superior in northern Wisconsin, the Red Cliff Band of Lake Superior Chippewa Indians has an estimated Tribal membership of 5,200, with approximately 2,500 members living on the Reservation. The Reservation spans 22 square miles, of which approximately half is owned by the Tribe. A Tribal Council of nine elected members governs the Tribe. The Red Cliff Reservation has a history of high unemployment and a poor economy.

Issue: After federal municipal solid waste regulations forced the closure of the Tribe's open dumps in 1991, illegal dumping and burning increased significantly.

Actions: With the help of a grant from the Wisconsin Department of Natural Resources (WDNR), the Tribe began a recycling program in 1992. The recycling program succeeded in reducing the amount of garbage on the Reservation. In 1996, through construction grants from the Indian Health Service, the Tribe opened a transfer station on the site of a former open dump within the Reservation. Residents, who were accustomed to bringing their garbage to the site, began using the Red Cliff Transfer Station to dispose of their waste. The transfer station accepts garbage and recyclables from all Tribal members (whether they live on the Reservation or not), residents living within the Reservation boundaries, and Tribal employees. The transfer station is also open to small businesses and garbage trucks that collect waste from the Reservation housing areas. Official Red Cliff garbage bags, sold at the transfer station for \$2 each, must be used for waste disposal. Through grants from the U.S. EPA and WDNR, recycling at the transfer station is a free service. The transfer station also accepts scrap metal and contains an area designated for composting. While compost disposal is available at the transfer station, such as for yard waste, additional educational efforts are needed to increase participation in composting efforts. Items that are not accepted at the transfer station are directed to a proper disposal site. For example, customers are directed to area service stations to recycle used oil.

Despite construction of the Red Cliff Transfer Station in 1996, Tribal members continued to use burn barrels for burning garbage. In 2000, working with U.S. EPA Region 5, the Tribe began a voluntary Burn Barrel Incentive Program. The program was introduced to the public and the benefits of eliminating burn barrels were explained in a community meeting. The ongoing program asks Tribal members to turn in their burn barrels and sign a pledge acknowledging the pollution concerns of open burning. In exchange, program participants receive a certificate along with 10 free Red Cliff garbage bags to use at the Red Cliff Transfer Station.

A Junior Tribal Council (with elected members aged 16-25 years old) has championed the issue of banning burn barrels and has been instrumental in promoting the cause. While the Junior Tribal Council has approved a ban on trash burning, the Tribal Council has not. Most members of the Tribe have complied voluntarily. However, some Tribal households and the three main businesses of the Reservation continue to burn recyclable materials. Law enforcement currently issues permits for burning, and there is a one-year permit to legally operate a burn barrel.

Outcome: As an indication of the incentive program's success, 45 burn barrels have been collected from the public housing area since 2000, which is estimated to account for 90% of the burn barrels estimated to be present in the public housing area. In total, over 60 burn barrels have been collected.

For more information about the Red Cliff Band of Lake Superior Chippewa Indians, visit their website at <http://www.redcliff-nsn.gov/>.

Sac and Fox Nation of Missouri in Kansas and Nebraska

Background: The Sac and Fox reservation is located partially in Brown County, Kansas, and Richardson County, Nebraska. The Nation owns 1,446 acres of land, which is primarily used for farming. Tribal housing, a museum, and the tribal offices are located nearby (less than a mile outside the reservation's southwest border) in Reserve, Kansas. The Sac and Fox Nation has approximately 435 enrolled members. The reservation's tribal housing is occupied by approximately 50 tribal members and 50 non-members. The governing body of the Sac and Fox reservation is the Tribal Council, which consists of five tribal members.

Issue: The Sac and Fox Environmental Department was receiving complaints about a property owner in the town of Reserve who was using both burn barrels and uncontained burn piles to dispose of trash. The individual was burning various materials, including insulated wire, tires, and other plastics. Smoke from the fires was creating a nuisance to nearby residents, to visitors of the museum, and to a ceremonial site used by the tribe. The Sac and Fox Environmental Department staff used this incident as an opportunity to educate the community about open burning.

Actions: Staff from the Tribe's Environmental Department partnered with the city council of Reserve, Kansas, and the Kansas Department of Health and Environment to work with the landowner to stop the burning. The Environmental Department also created a pamphlet and distributed it throughout the community. The pamphlet describes the health hazards associated with burn barrels and prescribes a five-pronged approach in lieu of backyard burning:

- 1) reduce household waste – in particular, avoid purchasing products packaged in plastic;
- 2) reuse materials to the extent possible, and compost organic kitchen and yard waste;
- 3) recycle paper, plastic, glass, and metal containers;
- 4) avoid burning plastic items; and
- 5) educate neighbors on the effects of smoke from burn barrels.

Ironically, the day the pamphlet was completed, a burning incident at a residence blazed out of control and spread to the owner's garage.

Rural trash service is available to residents in Reserve, Kansas. The Sac and Fox Nation also has a recycling program in place. Residents may drop off recyclables at five permanent recycling trailers located at various points in and around Reserve; a mobile bulk trailer is also available for special home and office pickups. The recycling trailers accept plastic, aluminum, paper, and cardboard.

Outcome: The Environmental Department's outreach efforts were successful in educating local residents about the impacts of open burning. Open burning is no longer considered to be a major concern in the community.

For more information, contact Rick Campbell, Sac and Fox Nation Environmental Department, at (785) 742-4705 or rick.campbell@sacfoxenviro.org.

St. Lawrence County, New York

Background: St. Lawrence County, comprised of rural farms, forests, and small towns, is the largest county by area in New York State, covering 2,686 square miles. The St. Lawrence River forms the boundary with the Province of Ontario, Canada. The population of St. Lawrence County in 2002 was 111,173. An elected board of legislators governs the county, and operated with a budget of approximately \$152 million in 2004.

Issue: In New York State, burning of trash is prohibited in incorporated villages and cities; however, burning of municipal solid wastes generated on premises is currently permitted by state law in towns with less than 20,000 residents. St. Lawrence County is comprised of 47 municipalities (32 towns, one city, and 14 villages). The 14 villages and the City of Ogdensburg prohibit trash burning. In addition, six towns have passed local laws that prohibit trash burning. 26 towns have no regulations against trash burning.

In April 2002, the Operations Committee of the St. Lawrence County Board of Legislators decided that a county law regulating the open burning of solid waste was not feasible, but that funding for an education effort would be appropriate.

Actions: A committee formed to develop a range of educational and public awareness alternatives conveying information on the hazards of municipal solid waste burning. The information targets four primary audiences: children, seniors, the agricultural community, and rural residents. A two-year Open Burning Awareness Campaign began in 2003 with a budget of \$33,000, funded by the St. Lawrence County Board of Legislators. The campaign is perhaps unique in that it is a relatively large project for a predominantly rural county and it includes both pre- and post-campaign surveys to assess its effectiveness.

The campaign involved the Clarkson Center for the Environment, State University of New York (SUNY) Potsdam Department of Community Health, members of a joint County Planning Board and Environmental Management Council Committee on open burning education, and interested persons, with overall coordination provided by staff of the St. Lawrence County Planning Office. Students at Clarkson completed two reports, including a PowerPoint presentation on the hazards of open burning that was shown to several adult and school groups. A SUNY Potsdam student helped to develop public awareness messages for posters and radio. The work of the Planning Office staff included: responding to questions, fulfilling speaking engagements, testifying at state hearings, developing and disseminating information (e.g., literature, posters, bumper stickers, radio messages, newspaper and billboard advertisements), soliciting support from the local and state farm bureaus, and conducting pre- and post-campaign surveys to evaluate the effectiveness of the campaign.

The New York State Department of Environmental Conservation is responsible for enforcement of state open burning laws, which is typically performed by conservation officers or fire rangers. In the larger villages, police and code enforcers can also enforce open burning laws; the smaller villages have only a code enforcement officer, which is often a part-time, appointed position.

While cities and villages in St. Lawrence County are reasonably effective at enforcement, there is not effective enforcement in the six towns where trash burning is prohibited. Elected boards (e.g., city council, village or town board) enforce the local laws. In towns with fewer than 20,000 residents, where open burning of trash is permitted, enforcement officers generally respond to complaints by informing the burner that they are causing a nuisance and degrading air quality in violation of state law.

A 1993 survey of open burning in St. Lawrence County found that 48% of 427 observed residences had visible burn barrels (that may or may not have been in use at the time of the survey). The survey used statistically chosen drive-by observations of burn barrels at residences to estimate the total number of county households that practice open burning. A final report of the survey is available at <http://www.burnbarrel.org/Surveys/Surveys.html>. 10 years later (in 2003), a follow-up survey observed the same percentage (48%) of visible burn barrel usage in the county. Currently, there are an estimated 10,000 burn barrels in St. Lawrence County, based on the number of rural households.

Municipal trash collection is not available in the county. Private waste haulers may be contracted, and recycling facilities are available to residents at county transfer stations for a fee. Trash burning is seldom observed in incorporated villages or in the City of Ogdensburg where trash burning is prohibited by state law.

Outcome: Interested volunteers initiated a number of efforts associated with but not officially part of the open burning awareness campaign. These included writing letters to the editor and organizing a "Tour de Burn Barrel" bicycle ride to lobby the State Senate to pass legislation that would prohibit trash burning and provide a statewide education/awareness program.

More information about the Open Burning Awareness Campaign can be found at <http://www.co.st-lawrence.ny.us/Planning/OpenBurningAwareness/OpenBurning.html>. The website includes campaign materials to download and links to scientific reports. For additional details, contact Jon Montan of the St. Lawrence County Planning Office at (315) 379-2292 or Jmontan@co.st-lawrence.ny.us.

Washington- Central Region

Background: The Washington State Department of Ecology (DoE), Central Regional Office, is responsible for implementing the state's burning regulations in the central region of Washington.

Issue: On January 1, 2001, to comply with changes to the state Clean Air Act, the Washington State Legislature prohibited residential and land-clearing burning in Urban Growth Areas (UGAs) in cities with 10,000 people or more. UGAs are urbanized areas (incorporated cities, suburbs, and adjacent areas) that were established under the state's Growth Management Act. A second statewide burning regulation, which prohibits residential and land-clearing burning in all UGAs, took effect January 1, 2007.

Other state-regulated outdoor burning prohibitions include:

- Burning of plastic, paper, cardboard, treated wood, rubber products, petroleum products, dead animals, asphalt, and building materials);
- Use of a burn barrel;
- Transporting yard waste or land-clearing debris to a rural area in order to burn it;
- Burning during an air-quality burn ban or fire-safety burn ban; and
- Burning that causes a nuisance.

State law further requires that, every three years, the DoE and air pollution control authorities identify areas where reasonable alternatives to burning are available and add them to the no-burn areas.

Actions: Prior to the 2001 regulation, the Central Regional Office of the Washington State DoE displayed notices and flyers (recyclable inserts) in newspapers. (Newspaper inserts are significantly less expensive than newspaper ads, and they provide residents with a handy reference on burning and disposal options.) A website includes information on burn barrels and alternatives to burning (e.g., lists of recycling and compost facilities), media materials (newspaper and television ads, news release, public service announcements), scientific reports, links for additional information, and a toll free line for complaints and comments about outdoor burning smoke. While it is legal to burn vegetation outside of a UGA, alternatives to burning are encouraged and guidelines apply. Local fire districts may also have permit and safety requirements.

Enforcement of State regulations by the DoE may consist of a notice of correction, notice of violation, or a penalty. Prior to enforcement, violators are typically informed of the regulation and offered alternatives to illegal burning. Penalty authority is up to a maximum of \$10,000 per day per violation. Such enforcement actions have been pursued by the DoE for large land-clearing burns.

The DoE relies on local partners to enforce the burning regulation. For example, fire departments may provide reports and photographs for use in enforcement actions. The Wenatchee fire department has taken an active role in enforcement, responding to smoke complaints and issuing burning permits. Local officials in Wenatchee also

facilitated compliance, preparing for the burning regulation by instituting a neighborhood chipping program for residents to dispose of yard waste.

In Ellensburg, a college town with a population of nearly 15,000, the fire department obtained a grant from U.S. EPA to implement a burn permit program for residential outdoor burning. Then, prior to the 2001 burn regulation taking effect, the fire department began notifying residents of the deadline on burning. The DoE does not receive many burning complaints from the Ellensburg area.

Many enforcement actions and complaints in the central region have occurred in East Wenatchee, a smaller town adjacent to Wenatchee. The county commissioners and fire department in East Wenatchee believe that burning should be allowed to continue and do not enforce the State burning regulation. Disposal of yard waste is a particular town problem, because fruit trees are abundant. Chipping of orchard tear-out debris is one alternative to burning but presently is not cost-effective.

Municipal curbside trash pickup is required for residents in all three cities. Recycling facilities are primarily limited to aluminum cans and newspapers. A few areas accept some types of plastics. Trash disposal alternatives may be limited for residents outside of city limits but within the boundaries of a UGA affected by the State burn regulation.

Funding for the DoE's burning program comes primarily from the State's general fund. An estimated 2.5 full-time staff members in the Central Regional Office are dedicated to technical assistance and enforcement of burning regulations.

In 2003, the DoE began a burn barrel campaign in Bridgeport, a city of about 2,250 that is not required to comply with the 2001 State burn regulation but will be affected by the 2007 regulation. Bridgeport had a high number of burn barrels in comparison to other cities in the region. Educational materials describing the health effects of burning and presenting alternatives were mailed to residents. In the spring of 2004, the city, county, and DoE co-sponsored a burn barrel collection event, led by local officials. The city distributed flyers announcing the event. The county prepared the flyers, as well as a public service announcement, and provided compost bins which residents received in exchange for burn barrels. The DoE staffed the event and paid for disposal of the forfeited burn barrels, which were crushed onsite and transported to a landfill.

Outcome: The Bridgeport event was a success: 51 of the estimated 100 burn barrels in Bridgeport were collected. The success of the campaign has been attributed to the combined support of State, county, and local governments. As a result, similar burn barrel collection campaigns have been initiated around the State.

For additional details about outdoor burning in Washington State, contact Jared Mathey of the Washington State Department of Ecology, Central Regional Office, at (509) 454-7845 or jama461@ecy.wa.gov or visit http://www.ecy.wa.gov/programs/air/outdoor_woodsmoke/residentialburn.htm.

Washington – Olympic Peninsula

Background: The Olympic Peninsula is the large arm of land in western Washington State across Puget Sound from Seattle. It is comprised of 60% rural or undeveloped land, 25% suburban, and 15% urban areas, although parts of the landscape are currently changing from rural to suburban. At the center of the Olympic Peninsula are Olympic National Park and Olympic National Forest, which make up over two million square miles of undeveloped public lands. In 2000, the combined population in the six-county region (Clallam, Grays Harbor, Jefferson, Mason, Pacific, and Thurston Counties) was 435,416, and average per capita income was \$19,387.

The Olympic Region Clean Air Agency (ORCAA) has regulatory and enforcement authority in the six-county region. By authority of state law, the agency is responsible for enforcing federal, state, and local air pollution standards and governing air pollutant emissions. A nine-member Board of Directors establishes the policies and oversees the operations of the agency. ORCAA's proposed budget for fiscal year 2006 was \$1.9 million.

Issue: On January 1, 2001, to comply with changes to the state Clean Air Act, the Washington State legislature prohibited residential and land-clearing burning in Urban Growth Areas (UGAs) in cities with 10,000 people or more. UGAs are urbanized areas (incorporated cities, suburbs, and adjacent areas) that were established under the state's Growth Management Act. A second statewide burning regulation, which prohibits residential and land-clearing burning in all UGAs, took effect January 1, 2007.

Other state-regulated outdoor burning prohibitions include:

- Burning of plastic, paper, cardboard, treated wood, rubber products, petroleum products, dead animals, asphalt, and building materials;
- Use of a burn barrel;
- Transporting yard waste or land-clearing debris to a rural area in order to burn it;
- Burning during an air-quality burn ban or fire-safety burn ban; and
- Burning that causes a nuisance.

ORCAA also restricts other types of open burning, such as agricultural burns used to reduce excess plant material and inhibit pest infestations after harvest. Agricultural burns may be subject to permitting requirements, as well as certain size and location restrictions.

ORCAA estimated that approximately 29% of the air quality complaints received in 1999 were the result of outdoor burning, and that outdoor burning accounts for approximately 10% of the state's air pollution. Many urban areas have landfills for trash disposal, but disposal options in rural and suburban areas are more limited. In these areas, trash may be taken to landfills or transfer sites, but there are tipping fees, and it is estimated that individuals burn trash about 60% of the time. Currently there are few alternatives to burning in these areas. Chipping is the major alternative, but it is still more expensive than burning.

Actions: ORCAA began focusing on the issue of residential burning in 2000 and initiated a public education and outreach campaign using brochures. When State legislation prohibiting burning in UGAs was first enacted in 2001, ORCAA implemented programs for open burning regulations that include enforcement of UGA burn bans, burn permit requirements in areas where burns are allowed, fines and warnings for non-compliance, and court actions when necessary. Violations of outdoor burning laws may result in fines up to \$10,000 per violation. ORCAA also had a person on call 24 hours a day to answer open burning questions.

ORCAA is currently working with multiple agencies in the state and in Canada to develop television ads and radio spots as well as giveaways that provide information about open burning regulations. ORCAA provides information on trash disposal alternatives, which include curbside pick-up, recycling, self-hauling to a landfill or transfer site, commercial hauling, chipping and grinding, and composting (a list of alternatives by county is posted at <http://www.orcaa.org/noburnareas.html>). The estimated cost of ORCAA's outdoor burning efforts is \$100,000 plus overtime for agency staff.

Outcome: Much of the success in reducing outdoor burning in the Olympic Peninsula, as reflected by the reduced number of smoke nuisance and other open burning related complaints received, is the result of regulations instituted by the State and enforcement actions by ORCAA. Many of the cities that are more urbanized are making “good” progress, and fire departments have been instrumental in educating the public. Other rural areas, however, are still experiencing resistance to changing their traditional waste disposal practices. While acceptance issues such as these are difficult to address at first, progress is being made using general education efforts in addition to enforcement tools such as fines. ORCAA has also mapped the complaints received using geographic information systems (GIS) to determine “hot spots” and areas where future efforts should be focused.

For more information, contact Steve Rybolt at (360) 586-1044, extension 110, steve@orcaa.org or visit the Olympic Region Clean Air Agency website at www.orcaa.org.

Washington- Puget Sound Counties

Background: The Puget Sound Clean Air Agency is a multi-county municipal authority chartered under state law for the purpose of air pollution prevention and control. The Puget Sound Clean Air Agency serves 3.4 million people in King, Kitsap, Pierce, and Snohomish counties, spanning 6,300 square miles in the State of Washington. The agency's budget was \$10.3 million for fiscal year 2004 (from July 2003 through June 2004). Funding is provided through federal, state, and local grants; permit and registration fees; and other fees.

Issue: On January 1, 2001, to comply with changes to the state Clean Air Act, the Washington State legislature prohibited residential and land-clearing burning in Urban Growth Areas (UGAs) in cities with 10,000 people or more. UGAs are urbanized areas (incorporated cities, suburbs, and adjacent areas) that were established under the state's Growth Management Act. A second statewide burning regulation, which prohibits residential and land-clearing burning in all UGAs, took effect January 1, 2007.

Other state-regulated outdoor burning prohibitions include:

- Burning of plastic, paper, cardboard, treated wood, rubber products, petroleum products, dead animals, asphalt, and building materials;
- Use of a burn barrel;
- Transporting yard waste or land-clearing debris to a rural area in order to burn it;
- Burning during an air-quality burn ban or fire-safety burn ban; and
- Burning that causes a nuisance.

State law further requires that, every three years, the Washington State Department of Ecology and air pollution control authorities identify areas where reasonable alternatives to burning are available and add them to the no-burn areas.

Actions: The Puget Sound Clean Air Agency is responsible for implementing the state's burning regulations in King, Kitsap, Pierce, and Snohomish counties. Three to 3.5 full-time agency employees address outdoor burning issues. These staff come from the inspection group, legal department, communications, and regulatory development team.

More than half of the population in the Puget Sound Clean Air Agency's service area lives in urban areas where outdoor burning is prohibited by the 2001 State burning regulation. Instances of trash burning occur primarily in rural areas where burning of yard waste is permitted by State law. In these areas, burning yard waste requires a permit from the local fire district. However, some fire districts choose to prohibit outdoor burning within their jurisdictions. Many calls are placed to local fire departments each year by people complaining of smoke from an open burning fire.

Enforcement of outdoor burning policy in Puget Sound counties typically begins with the fire department responding to a fire or complaint. For first-time offenses, the fire department may inform a violator of applicable open burning regulations and suggest alternatives to illegal burning. The Puget Sound Clean Air Agency provides fire

departments with copies of an outdoor burning brochure to use for this purpose. For repeat offenses, the fire department may document and report a fire to the Puget Sound Clean Air Agency, which issues a penalty. Some penalties have portions suspended, so the average final penalty is approximately \$2,500. Fines include the cost to reimburse the fire department for its response efforts (approximately \$500 per case). The agency presently pursues about 25 cases of outdoor burning violations per year to the point of issuing a civil penalty (this does not include violations resolved through education, without penalty). Due to the efforts of many fire agencies that assist the agency in enforcing open burning rules, compliance is believed to be high (>90%).

Options for garbage disposal in the area served by the agency include curbside garbage collection and recycling, drop-off facilities, and household hazardous waste collection events. Typical costs to residents for curbside garbage collection and recycling are about \$25 per month. Several options are also available for yard waste disposal. In most areas, curbside pickup of yard debris can be obtained for less than \$10 a month (in addition to the cost of garbage collection service). County transfer stations, private hauler drop-boxes, mobile chipping services, and home composting are other alternatives for disposing of yard waste.

As mandated by the State, the Puget Sound Clean Air Agency conducted an assessment of alternatives to burning land-clearing debris and expected to issue its findings by December 2004. More than 40 businesses accept land-clearing debris for recycling in the central Puget Sound region (for a fee). If reasonable alternatives to burning land-clearing debris are found to exist, the agency may expand the areas where such burning is prohibited.

Outcome: The key to the agency's enforcement of the state ban on garbage burning is the relationships that the agency has built with the numerous fire districts in its jurisdiction. The Puget Sound Clean Air Agency relies on fire districts to respond to complaints and educate citizens when necessary; the fire districts rely on the agency to provide outreach materials that meet their needs and to follow through with penalties in cases where punitive action is warranted. In short, successful enforcement of the State rules by the agency requires maintaining a positive partnership with fire districts. To do this, the agency visits fire stations, attends commissioners' meetings, provides free education materials, and consults with fire districts about any changes to burning rules in their areas.

Information about outdoor burning is provided by the Puget Sound Clean Air Agency at <http://www.pscleanair.org/burning/outdoor/index.shtml>. For additional details, contact Amy Fowler at (206) 689-4017 or AmyF@pscleanair.org.

Western Lake Superior Sanitary District, Duluth, Minnesota

Background: The Western Lake Superior Sanitary District (WLSSD) is a special-purpose unit of government created by the Minnesota Legislature in 1971 to address environmental pollution problems in the lower St. Louis River Basin. WLSSD's responsibilities include providing planning and services for solid waste management. WLSSD is operated by a board of directors, and total expenditures in 2001 were \$26.4 million. WLSSD is funded through wastewater customer user fees and residential solid waste management fees. The WLSSD covers a 520 square mile region around Duluth, Minnesota.

Issue: A 1969 Minnesota law banned the burning of solid waste under certain conditions. The burning of most types of debris and household wastes is prohibited, where garbage service is available. Exceptions include brush and other vegetative materials and some untreated or unpainted wood.

Actions: WLSSD maintains a local ordinance governing solid waste management and recycling, which was last updated in 1998. WLSSD's ordinance includes the following requirements:

- residents are required to separate recyclable items from household trash;
- residents must contract with haulers for mandatory collection of solid waste;
- businesses and public establishments must provide containers for recyclable materials; and
- burning of solid waste, yard waste, prunings, or leaves is not allowed.

Within the WLSSD boundaries, enforcement is primarily the responsibility of the County Sheriff's Environmental Enforcement Deputy. The deputy will respond to a complaint by issuing a citation immediately if a burn barrel is present, with the possibility of dismissing the citation if the homeowner can produce evidence that the burn barrel was properly disposed. WLSSD received an estimated 30 complaints from 2001 to 2004. Complaints to WLSSD are directed to the proper enforcement authority depending upon the type and location of the complaint. Rural complaints are forwarded to county deputies or Department of Natural Resources conservation officers. Complaints within city limits are forwarded to the local fire department.

A survey conducted in late 1999 and early 2000 found that 37% of those responding from northern Wisconsin and 18% of those from northern Minnesota admitted to burning trash. Overall, 31% of the homeowners surveyed were burning, and 8% of renters surveyed indicated that they burn as well.

Alternatives to garbage burning are available and mandatory within the WLSSD service area. A solid waste transfer station is located in Duluth, Minnesota. As described above, residents are required to have garbage collection service and to separate recyclables from solid waste. For municipal residents, typical costs are \$18 a month for weekly trash pick-up and curbside recycling provided by a private hauler. For rural residents, typical costs are \$22 a month and do not usually include recycling services. Rural residents

may take recyclables to 10 different recycling sheds for free. These were open for an average of 10 hours per week in 2000, and an average of about 20 hours per week in 2004.

From 1999 to 2001, WLSSD conducted a Burn Barrel Campaign with a \$75,000 grant from the U.S. EPA and \$8,000 in-kind contributions from WLSSD. The Burn Barrel Campaign included outreach, education, and a voluntary burn barrel amnesty program. The main focus of the campaign was educating the public about the health and environmental dangers of burn barrels using an animated character called "Bernie the Burn Barrel." A short animated television ad and a media print ad were created with Bernie. These ads ran on air and in newspapers and magazines over a six week period. Associated fact sheets were mailed to 11,000 rural residents. In addition, the informational fact sheets included a coupon that allowed residents to turn in a burn barrel free of charge.

WLSSD continued to pursue burn barrel related activities from 2002 to 2005 through a second grant of \$55,000 from the U.S. EPA. The second grant was intended to increase visibility of their Bernie campaign.

In late 2002, WLSSD surveyed area government officials to evaluate the results of the campaign. Only 25% were aware of any sort of education campaign, including the WLSSD campaign. In late 2004, a statewide survey of rural Minnesota residents was conducted by the Minnesota Office of Environmental Assistance. The survey was based upon the earlier surveys conducted by WLSSD. This survey found that statewide, 45% of the rural Minnesota residents surveyed admitted to burning.

Outcome: In 2005, WLSSD hosted an Open Garbage Burning Workshop in Duluth. Approximately 80 participants attended the workshop and another 20 requested materials. The target audience was local governments in Michigan, Wisconsin, and Minnesota. The event featured over 20 presenters from state, local, and Tribal agencies and facilitated the sharing of materials and experiences among different jurisdictions. Workshop materials are posted at http://www.wlssd.duluth.mn.us/Open_Burning/OB_Workshop.htm. WLSSD has also compiled information gathered through the workshop into a general guide on reducing backyard burning that is applicable to all jurisdictions.

For more information, visit <http://www.wlssd.com>. For additional details, contact Gina Temple-Rhodes, Environmental Program Coordinator, WLSSD, at (218) 740-4784 or gina.temple-rhodes@wlssd.duluth.mn.us.