

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



The Joint Legislative Air and Water Pollution Control and Conservation Committee's (Committee) April Environmental Issues Forum featured a presentation by Keep Pennsylvania Beautiful (KPB) Executive Director Julia Marano. Julia spoke eloquently on a number of topics, one of which was roadside aesthetics.

KPB, by the way, is an alliance of state and local governments, business and industry, non-profit organizations and community groups dedicated to exactly what its name states – keeping Pennsylvania beautiful. KPB defines its mission thusly: "Promote and protect Pennsylvania's natural and community environments through education, networking, research, stewardship and influencing public policy, including but not limited to preventing litter, beautifying Pennsylvania and minimizing the negative impacts of waste."

The Committee has partnered with KPB over the past two years in an effort to raise the bar in Pennsylvania when it comes to roadside aesthetics. We believe we can and should do better in that regard and the Committee and KPB are working actively with state government to move roadside aesthetics up the priority list of issues to be addressed in regard to the state's highway system.

At first blush, roadside aesthetics might seem an easy cause to dismiss. Skeptics would say that trees, bushes, plantings, landscaping and the like might be nice and might be pretty but are nothing more than aesthetic. They would question if the issue is deserving of greater state attention and a greater use of state resources.

The evidence, however, justifies investment in roadside aesthetics on several levels. Some of the reasons to take roadside aesthetics seriously are obvious. The state, organizations like KPB and members of their alliance, and Pennsylvania citizens already invest significant resources and sweat equity in projects like the Great Pennsylvania Cleanup, Adopt-A-Highway, Sponsor-A-Highway and anti-litter education and enforcement campaigns. At least one tourism organization in the Pocono Mountains area has recognized the value of roadside aesthetics and is dedicating resources and effort to beautifying roadways in its area because of the effect that has on visitors.

The reasons that all of these organizations do what they do is aesthetic on one level, but economic on another. Why would someone want to spend his or her hard earned money

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NOTES FROM THE DIRECTOR



CRAIG D. BROOKS, EXECUTIVE DIRECTOR

The Interior Department's Office of Surface Mining Reclamation and Enforcement (OSM) has been seeking public comment on how it should develop regulations on the use of coal combustion waste (CCW) in the reclamation of mine sites. The agency intends to propose regulations related to the placement of CCW byproducts on sites with a surface coal mining operations permit under Title V of the Surface Mining Control and Reclamation Act (SMCRA). As many of you may be aware, the Joint Legislative Air and Water Pollution Control and Conservation Committee (Committee) has been involved in the issue of beneficial use of CCW in mine reclamation projects in Pennsylvania. CCW is also sometimes referred to as fly ash or coal ash.

A little over a year ago the National Research Council conducted a study (recommended by the Committee) that endorsed the practice of using coal ash and other CCW during reclamation of mine sites. Coal fired utilities produce more than 120 million tons of such waste each year and most of it is disposed in landfills and surface impoundments regulated by the EPA under the Resource Conservation and Recovery Act. The National Research Council's study says that SMCRA provides the best framework for the use of CCW at mine sites.

OSM says its proposed regulations will include fly ash, fluidized bed combustion materials, certain sludges, and all bottom ash. About 15 states have already endorsed the practice of using CCW to reclaim mine sites. In addition to reducing the need for landfill space and surface impoundments, the practice of using CCW in mine sites can help neutralize water pollution problems caused by acid mine drainage.

The Office of Surface Mining is seeking public comment on development of regulations for the use of coal combustion waste in mine reclamation

Several years ago the Committee was asked to consider a possible moratorium on the use of fly ash in coal mine reclamation projects. We held a public hearing and invited state agencies, industry represen-

tatives, and academic and environmental organizations to present testimony. In doing so, we looked at the scientific, technical, economic and environmental issues surrounding the use of this material as well as the statewide implications of such things as coal mine safety, acid mine drainage, pedestrian safety around abandoned mine workings and mine subsidence.

At the conclusion of our research, we did not support a statewide moratorium on the use of fly ash. While the Committee felt that the improper use of this material can pose a threat to public health and safety, the proper use of fly ash is being adequately enforced in Pennsylvania. We found that DEP has a long-standing and well documented history and proven track record with the use of fly ash. In addition, DEP has an established and comprehensive regulatory program that is marked by detailed design and performance standards.

The Committee's report on the use of coal combustion waste in mine reclamation is available on our website at <http://jcc.legis.state.pa.us>

With that being said, we did recognize the concerns that citizens were having over the use of this material and decided to recommend added protections to DEP's very inclusive beneficial use program.

First, we recommended that an independent study be conducted to further investigate the placement and use of fly ash in mine reclamation projects, and as noted above, the National Research Council conducted such a study. Second, we recommended a third-party oversight subcommittee to be established through the Mining Reclamation and Advisory Board or the Citizen's Advisory Council here in Pennsylvania with the specific charge of overseeing the state's beneficial use program. Third, we felt the electric utility industry needed to do a better job of educating the public about the use of CCW, its impacts and beneficial uses, and fourth, we recommended that the industry continue to be diligent about appropriate testing and monitoring of mine sites in order to assure the environmental benefits of its CCW placement.

RESEARCH BRIEFS

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the Joint Conservation Committee's mission. Very often, these briefs include references to reports and further research on the topics so that readers may pursue issues on their own.

Recycling Would Save U.S. Airline Industry Thousands of Dollars

– Tony M. Guerrieri, Research Analyst

There is no denying the importance for airports and airlines to consider the types of containers passengers bring **on** a plane. But, according to a report by the Natural Resources Defense Council (NRDC), they should also pay attention to the thousands of cans and bottles and tons of food waste and paper that come **off** airplanes each day. The NRDC report, *"How Airlines and Airports Can Clean Up Their Recycling Programs"*, examines airports across the nation and finds that most are not taking advantage of all possibilities to reduce waste at their facilities.

The report identifies opportunities and barriers to recycling, and spotlights top performers as examples for other facilities to follow. Sixty surveys were sent out to major airports around the country and 30 were returned. And while a few airports are doing a good job of reducing the amount of waste they send to landfills, the report shows that the airline industry lags behind the recycling rate of the rest of the country.

For example, according to the report, airlines in the U.S. throw away enough aluminum cans every year to build 58 new Boeing 747 airplanes. The airline industry threw out 9,000 tons of plastic in 2004, and enough newspapers and magazines to bury a football field more than 230 feet deep. Nationwide, airports generated 425,000 tons of waste in 2004 – a figure expected to increase to 650,000 tons by 2015. Each passenger today leaves behind 1.3 pounds of trash. At this rate of waste generation, the 30 largest airports in the United States generate an amount of waste equal to that of a city the size of Miami.

Seventy five percent of the waste generated by passengers could be recycled or composted, according to the report. Yet the nation's airports have an average recycling rate of 20 percent or less. Contrast that to the national recycling rate for municipal waste of 31 percent.

Because it takes a lot less energy to use recycled rather than virgin resources, better waste strategies offer significant savings in energy and emissions, too. If airports and airlines matched the average U.S. recycling rate, the report estimates it would save enough energy to power 20,000 households. Heat trapping carbon emissions responsible for global warming, equivalent to the pollution from 80,000 cars, would be eliminated.

Some airports are realizing the advantages of centralized waste management, better contracting strategies and effective recycling programs. For example, the report notes that recycling efforts at Florida's Fort Lauderdale Airport saved enough energy in 2004 (from reduced landfill and incinerator use) to power 180 households and reduced greenhouse gas emissions by an amount equal to removing 596 cars from the road for a year.

Airports have an average recycling rate of 20 percent or less... but it is estimated that as much as 75 percent of waste generated by airline passengers could be recycled or composted

Similar results were reported for Washington state's Seattle-Tacoma International Airport (Sea-Tac). Officials at the Sea-Tac, perhaps the nation's leader in airport recycling efforts, say they are saving almost \$178,000 annually – with more yet to come.

Sea-Tac uses both conventional and creative ways to cut its waste. For example, airport vendors generate up to seven tons of used coffee grounds each month. Airport managers discovered composting coffee grounds costs the airport just \$20 per ton, compared with the \$80 per ton it would cost to landfill the coffee grounds. Similarly, the used cooking oil from airport restaurants is picked up free of charge by a company which makes it into diesel fuel, compared with the cost of \$100 per ton for cooking oil to be collected and disposed of by a rendering plant. Since hiring a new waste management contractor, the amount of waste diverted for recycling at Sea-Tac has increased by 800 percent – from 100 tons in 2000 to 900 tons in 2005.

By putting all its waste up for bid under one contract and by increasing its recycling efforts, the airport authority in Oakland, California has been able to negotiate lower waste management fees for the airlines. The savings from adopting a larger waste disposal and recycling contract are so substantial that airlines have seen their monthly waste disposal bills drop by more than 50 percent. Costs have decreased for one airline from \$7,700 per month to \$2,500, and another airline's monthly costs have dropped from \$2,300 to \$1,000.

These examples and others provide case studies and a comprehensive reference for other airlines and airports to enable them to begin taking advantage of similar savings opportunities.

The NRDC report, *"Trash Landings: How Airlines and Airports Can Clean Up Their Recycling Programs"*, is available at: <http://www.nrdc.org/cities/recycling/airline/airline.pdf>.

Report Shows Emissions Benefits of Various Air Pollution Control Strategies

– Craig D. Brooks, Executive Director

Nationally, on-road transportation sources are responsible for 27 percent of volatile organic compound (VOC) emissions, 35 percent of nitrogen oxide (NO_x) emissions and 55 percent of carbon monoxide (CO) emissions. Although emissions from most transportation sources have been declining for the past two decades, and are projected to continue to decline due to the beneficial effects of improved emission control technologies and more stringent emission regulations, transportation will still continue to be a major contributor to regional air pollution.

According to the Federal Highway Administration, curbing vehicle miles traveled and vehicle idling reduced emissions of all of seven air pollutants tested

The Federal Highway Administration has released a report that analyzes pollutant-specific impacts of air pollution control strategies for transportation. The report found, among other things, that curbing vehicle miles traveled is more effective than policies governing vehicle speeds in reducing emissions. The *"Multi-Pollutant Emissions Benefits of Transportation Strategies"*

report lists 35 transportation related control strategies and identifies the effects of each on seven pollutants – VOC's, NO_x, CO, particulate matter (PM-10 and PM-25), sulfur dioxides(SO_x) and ammonia (NH₃), as identified by the National Ambient Air Quality Standards (NAAQS). The NAAQS are federal standards that set allowable concentrations and exposure limits for certain pollutants.

The report analyzed the pollutant-specific effects of 35 strategies. They were grouped into the following categories:

- Transportation demand management strategies – which focused on reducing vehicle travel using different approaches such as park and ride facilities, high occupancy vehicle (HOV) lanes, ridesharing programs and incentives, and new or expanded transit services.
- Transportation system management strategies – which focused on improving operating characteristics of vehicles such as those affecting traffic flow or vehicle speeds or idling.
- Vehicle technology and fuels strategies – which focused on reducing vehicle emissions by changing fuel composition or the rate of retirement or replacement of fleet or heavy duty vehicles.
- Non-road transportation strategies – which looked at railroads, marine vessels and other non-road engines.
- Road dust reduction strategies – which dealt specifically with reducing fugitive dust emissions from paved and unpaved roads.

After looking at each strategy, generally speaking, the report found that strategies that focused on reducing vehicle miles traveled or those that curbed vehicle idling reduced emissions of all pollutants. Strategies affecting vehicle travel speeds generally showed no effect on PM, SO_x, and NH₃ but might result in both increases and decreases in CO, NO_x and VOC's depending on such factors as vehicle speed and traffic flow. The report found that strategies that focus on vehicle technologies and fuels will have different impacts on different pollutants, and certain types of technologies can be targeted to reduce specific pollutants.

Finally, the report suggests that strategies that target road dust can be effective in reducing PM emissions but have essentially no effect on other pollutants.

The Federal Highway Administration's report is available at http://www.fhwa.dot.gov/environment/conformity/mpe_benefits/index.htm.

Carbon Dioxide Emissions in the U.S.

– Tony M. Guerrieri, Research Analyst

Domestic emissions of carbon dioxide, a greenhouse gas considered the major driver behind global warming, rose 18 percent (from 4.9 billion metric tons to almost 5.9 billion metric tons) from fossil fuel consumption in the United States between 1990 and 2004, according to a report by the U.S. Public Interest Research Group (PIRG). The PIRG report, *“The Carbon Boom: State and National Trends in Carbon Dioxide Emissions Since 1990”*, used U.S. Department of Energy records of fossil-fuel energy consumption to analyze carbon dioxide emissions nationwide during the 15-year period.

Of the states analyzed by the PIRG report, emissions increased in every state but three: Delaware, Massachusetts, and the District of Columbia.

Regionally, carbon dioxide emissions grew the most in the Southeast, with emissions increasing by 183 million metric tons (MMT). In the Great Lakes/Midwest and Gulf South states, carbon dioxide emissions increased by 171 MMT and 146 MMT respectively - a 16 percent increase in both regions.

Texas’ carbon emissions grew by 98.5 MMT during that period, the largest numerical increase in metric tons of any state, followed by Florida (68.5 MMT), Illinois (41.9 MMT), North Carolina (39.2 MMT) and Georgia (35.7 MMT).

Pennsylvania’s increase in carbon dioxide emissions was the seventh lowest in the nation, but PA ranked 3rd in total CO2 emissions and 4th in CO2 emissions from coal-fired power plants

Fast-growing Nevada ranked first in percentage growth in carbon emissions, at 55 percent, followed by Arizona (54 percent), New Hampshire (50 percent) and South Carolina (45 percent).

The electric power sector – particularly coal-fired power plants - accounted for more than half (55 percent) of the U.S. emissions increase. The Great Lakes/Midwest region experienced the most dramatic increase in carbon dioxide emissions from coal-fired power plants, rising from 450 MMT in 1990 to 556 MMT in 2004, an increase of 23 percent. The states with the largest absolute increases in carbon dioxide emissions from coal-fired power plants during the 15-year period are Illinois

(35.8 MMT), Texas (26.8 MMT), Missouri (26 MMT), North Carolina (23.3 MMT) and Indiana (22.5 MMT).

The transportation sector – particularly cars and light trucks – accounted for 40 percent of the nation’s overall increase in carbon dioxide emissions. Regionally, carbon dioxide emissions from the transportation sector grew most in the Southeast over the 15-year period. The states with the largest absolute increases in carbon dioxide emissions from motor gasoline consumption are Texas (25 MMT), Florida (21 MMT), California (16.9 MMT), Georgia (13.1 MMT) and Arizona (9 MMT).

Pennsylvania’s emissions of carbon dioxide grew five percent from 1990 to 2004, according to the report. The increase was the seventh lowest among the states. Pennsylvania’s carbon dioxide emissions from fossil fuel consumption increased from 262.2 MMT in 1990 to 276.6 MMT in 2004. However, the 276.6 MMT of carbon dioxide emissions in 2004 ranked the commonwealth third nationwide behind Texas (659 MMT) and California (385.4 MMT).

In PA, natural gas-fired power plant emissions rose 465 percent, gasoline consumption emissions 13 percent and vehicle miles traveled 26 percent

Pennsylvania experienced a 12.2 MMT increase in carbon dioxide emissions from coal-fired power plants during the 15-year period, rising from 99.4 MMT in 1990 to 111.6 in 2004. In 2004, Pennsylvania was ranked fourth in releases of carbon dioxide from coal-burning power plants. Only Texas (146.6 MMT), Ohio (121.5 MMT) and Indiana (117.4) produced more.

Carbon dioxide emissions from natural gas-fired power plants in Pennsylvania increased by 465 percent between 1990 and 2004, rising from 0.7 MMT to 4.2 MMT.

In Pennsylvania, emissions from gasoline consumption from motors gained 13 percent between 1990, when they totaled 39.1 MMT, and 2004, when they topped 44 MMT. The statistics also showed that annual “vehicle miles traveled” increased in Pennsylvania by 26 percent, from 85.7 million in 1990 to over 108 million in 2004.

PIRG is a non-profit advocacy organization with state affiliates that focuses on environmental protection, consumerism and politics. The report, *“The Carbon Boom: State and National Trends in Carbon Dioxide Emissions Since 1990”*, is available at

<http://www.uspirg.org/uploads/up/WJ/upWJ1agKj7szel-OU5n1A/carbonboom07.pdf>.

Report Says \$12 Billion is Needed to Clean Up Leaking Tanks

– Craig D. Brooks, Executive Director

A report from the Government Accountability Office (GAO) says it will cost at least \$12 billion in state and federal funds to clean up known releases of gasoline and other hazardous substances from leaking underground storage tanks nationwide.

The report estimates that public funds will be needed to clean up 54,000 of the 117,000 known releases from service stations and other facilities with leaking underground storage tanks. Tank owners and operators would be responsible for most but not all of the remaining 63,000 known leaks because an unknown number of releases lack a viable owner.

The Environmental Protection Agency (EPA) estimates that it costs an average of \$125,000 to fully clean up a single release. However, because a number of releases lack a viable owner and the full extent of the cost for cleanup is unknown, more public funds will likely be needed. A tank owner may not be viable because the owner fails to maintain adequate financial responsibility coverage which is intended to provide some assurance that the owner has money available to pay for cleanup.

Question: The estimated nationwide cost in state and federal funds of releases of gasoline and other hazardous substances from leaking underground storage tanks?

Answer: \$12 billion

The Resource Conservation and Recovery Act requires that underground tank owners and operators obtain some form of insurance or financial coverage to cover any necessary remediation work, but most states do not check if coverage is current. According to the report, only 16 states require annual proof of coverage while 25 states check owner coverage less often or not at all.

And the \$12 billion price tag is expected to increase as more sites are identified. Forty three states are expected to confirm more than 16,000 new releases over the next five years.

According to the report, at least 47 states have

established financial assurance funds – mainly from state gasoline taxes – to pay for remediation work. States reported that they spent an estimated \$1 billion from financial assurance funds to clean up tank releases in 2005. Overall fund revenues totaled about \$1.4 billion in 2005, of which about \$1.3 billion came from gasoline taxes.

However, the report suggests that financial assurance funds in some states are not sufficient to ensure a timely cleanup. In the event of a release, tank owners covered by state financial assurance funds pay a relatively small deductible while being guaranteed the assurance of a payoff if a leak occurs. The report suggests that these low deductibles do not provide enough incentive for tank owners to prevent releases.

In addition to their own funds, states sometime use resources from the federal government. According to the report, EPA distributed \$58 million to the states from the Leaking Underground Storage Tank (LUST) fund. This account, which is funded by a federal tax on gasoline of one-tenth of a cent per gallon, had an unspent balance of \$2.5 billion at the end of 2005 but is expected to have a surplus of \$3 billion by the end of 2008.

GAO has estimated that EPA and the states have paid out more than \$10 billion to clean up underground storage tank releases over the past 20 years.

The report also says that cleanup costs involving the gasoline additive methyl tertiary butyl ether (MTBE) are generally higher but vary greatly depending on the site. In California, for example, average site cleanup costs are about \$174,000 per site, but average \$583,000 when MTBE is involved.

The GAO report (GAO-07-152) is available at <http://www.gao.gov/new.items/d07152.pdf>.

News to Use in the Environmental Synopsis... share it with a friend

The *Environmental Synopsis* is issued monthly.

The newsletter examines timely issues concerning environmental protection and natural resources.

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ON THE HORIZON . . .

A LOOK AT UPCOMING EVENTS

- ✓ Monday, June 11, 12 noon, Room 60, Capitol East Wing, Capitol complex, Harrisburg, PA – Environmental Issues Forum. John Quigley, the Pennsylvania Department of Conservation and Natural Resources' (DCNR) Director of Operations, will discuss the future of the use of carbon sequestration in Pennsylvania and DCNR's potential role in its use.
- ✓ Thursday, June 21 (tentative), 10 a.m., Conference Room 107, Penn Stater Conference Center, 215 Innovation Boulevard, State College, PA - Sewage Management and Treatment Task Force Meeting.

Environmental Issues Forums are open to the public.
Please call the committee office at (717) 787-7570 if you would like to attend.

COMMITTEE CHRONICLES . . .

REVIEW OF SOME MEMORABLE
COMMITTEE EVENTS

The Committee's Forestry Task Force (FTF) and Advisory Board met recently and discussed several issues.



At left, Executive Assistant Anne Ketchum of the Department of Conservation and Natural Resources' (DCNR) Bureau of Forestry made a presentation to the FTF on the bureau's land acquisition strategy. Acting State Forester Dan Devlin (at right) followed up with a review of DCNR's major acquisitions and the Bureau of Forestry's goals and objectives for the future management of the lands purchased. Also making presentations were Paul Lyskava, executive director of the Pennsylvania Forest Products Association, who gave an overview of timber harvesting ordinances, and Dennis Brehm, head forester for



Weaver, Inc., who spoke about the impact of municipal ordinances on forestry activities. The presentations provoked a number of questions from the FTF members and Committee staff. Pictured at right are (l. to r.): Committee Executive Director Craig Brooks; FTF member Rep. Gary Haluska; FTF Chairman Sen. Roger Madigan; Committee Chairman Rep. Scott Hutchinson; and FTF member Rep. Kathy Rapp.



to visit or stay in a state whose first impression is of littered, filthy highways? Why visit a state park or forest where one finds illegal dumps and rubbish? Tourism is big business in Pennsylvania and appearance is a big part of tourism.

In addition, the study of other states' experiences, such as Maryland, where greater emphasis on aspects of roadside aesthetics in highway projects is routine, show the value of such emphasis.

Respondents to questions posed by the Committee in the 2006 Mansfield University Statewide Survey bear out the importance of placing greater emphasis on roadside aesthetics. Respondents told us that they notice litter along highways and are bothered by it. They notice landscaping as well and said Pennsylvania could do better, and a majority felt that better roadside aesthetics would improve business and tourism.

But, are there other reasons to pay more attention to roadside aesthetics? What about highway safety, for example? KPB recently shared two scientific studies that posed such questions. The first is entitled *"The Restorative Effects of Roadside Vegetation – Implications for Automobile Driver Anger and Frustration."* Its authors are Jean Marie Cackowski, the managing editor of the Journal of Planning Literature, and Jack L. Nasar, a professor of city and regional planning at Ohio State University. They conducted tests showing varied types of roadside vegetation and man-made material to 106 random participants and then examining the participants' responses. The results suggest that exposure to vegetation can facilitate recovery from stress and fatigue and have restorative effects in reducing driver frustration. The results corroborate other studies cited that demonstrated the preference of drivers to vegetation and the restorative effects of vegetation. The head of the National Highway Traffic Safety Administration stated in testimony following a 1997 study, "When driver expectations are unmet, anger and aggression can be unleashed."

"It is a scientific fact that the occasional contemplation of natural scenes of an impressive character...is favorable to the health and vigor of men...the reinvigoration which results from such scenes is readily comprehended."

*Fredrick Law Olmstead – 1865
landscape architect, parkway advocate, designer of Central Park*

Another study conducted by five Texas A&M professors entitled *"The View From the Road: Implications for Stress Recovery and Immunization"* notes that according to a well-known 1938 study by a researcher named Gubbels, a concern for roadside aesthetics was considered one of the four main functions of the landscape engineer in the early development of roads for automobile travel. Their own study findings also indicated that drivers exposed to artifact-dominated roadside environments showed more signs of stress than those exposed to nature-dominated roadside environments. Further findings indicated that visual exposure to natural environments can be stress-reducing and that roadside environments dominated by natural elements can mitigate travel-related stress.

Among the study's conclusions: "...these findings suggest to transportation and urban planners that the roadside elements they design and manage may well influence the psychological and physiological well-being of automobile commuters, irrespective of the objective and subjective travel impedance characteristics of commuter routes."

The point is that roadside aesthetics are important to Pennsylvania on a multitude of levels, not just beautification. The role of roadside aesthetics needs to be considered in highway construction and improvement projects, in Pennsylvania's economic development and job creation strategy, in tourism campaigns, and in driver behavior and highway safety efforts. The Committee and KPB plan to continue to work with state policy-makers to further that point of view.

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