

ENVIRONMENTAL SYNOPSIS

The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



What is the importance of roadside aesthetics to the future of Pennsylvania? That is a question that was explored recently at the Keep Pennsylvania Beautiful Summit. The summit meeting, held in Camp Hill last month, was cosponsored in part by the Joint Conservation Committee (committee). The summit is merely the beginning of discussion as we look for ways to use roadside aesthetics to not only beautify but reinvigorate the Commonwealth.

What does one mean by roadside aesthetics? It goes beyond anti-litter campaigns, clean-up days and programs like Adopt-A-Highway. It goes beyond mowing grass on the medians of interstate highways. These and other programs are a part of roadside aesthetics, but the questions raised and the solutions discussed at the summit go much further.

For example, attendees at the summit heard from Charles Adams, the Maryland Department of Transportation's Director of Environmental Design, who reported that state highway projects in Maryland have always had landscape architects involved in every project and routinely build in landscape components as part of project budgets. Adams also spoke of strategic beautification/landscaping projects designed to encourage visitation and investment at key places, the entrance to Annapolis being an example.

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To learn more about Keep Pennsylvania Beautiful and its mission, visit the KPB website at www.keppabeautiful.org.

Ann Pilcher, Community Relations/Public Affairs director for the Pocono Mountains Vacation Bureau, spoke of the bureau's ongoing campaign – and investment of its own funds - to improve the aesthetics of particular key stretches of highway in response to the complaints and opinions of its members and visitors. Beauty is one positive outcome of the campaign, but the effort is very much a business decision as well, based on economic development and investment and the need to maintain and build a solid regional economy.

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NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, EXECUTIVE DIRECTOR

The state of California is embarking on an ambitious plan to install 3,000 megawatts of solar electric power on roofs throughout the state by the end of 2016. The plan, called the Million Solar Roofs Initiative, is expected to provide substantial economic, energy and environmental benefits to the state by reducing California's power needs during hot summer weekday afternoons.

The primary benefit of the initiative is the savings the state will see by avoiding power generation and transmission investments – estimated at about \$6 billion. Moreover, these savings are expected to climb as fuel prices continue to escalate faster than anticipated. Without the 3,000 megawatts of solar capacity, utilities must construct this generation and transmission infrastructure, as well as operate and fuel the power generation facilities. The costs would ultimately be passed on to ratepayers.

Under the program, excess electricity generated by the solar panels could be traded back to the power grid for credit. Also, it would require builders of large, single family housing tracts to offer solar roof panels as a standard option. About 12,000 photovoltaic systems have already been installed in private

homes and businesses. With a capacity of 93 megawatts, these systems account for over 85 percent of the total installed solar capacity in the United States.

Customer behavior drives the solar market, so incentive levels must be based on economic factors.

The total benefits to California are dependent on the number of solar systems installed, which is directly affected by the combination of incentive funding necessary to generate this level of demand. Supporters of the initiative suggest that the goal is achievable in ten years.

Residential photovoltaic systems cost between \$9,000 and \$15,000 and California has provided more than \$1 billion in subsidies over the past eight years to promote these installations, but it looks like more will be needed. The Million Solar Roofs Initiative would create a \$2.5 billion fund to provide one-time rebates to home owners and businesses that install photovoltaic systems.

California has been blessed with abundant solar resources. However, they are challenged by ongoing energy shortages. Supporters of the program say it is needed to further reduce air pollution and build a strong alternative energy infrastructure. The goal of the initiative is to create incentives for a technology that is currently too expensive for the average homeowner and business to install. Those who oppose the program say that it lacks cost and performance standards and would reduce subsidies available for other renewable energy programs. Because customer behavior drives the solar market, incentive levels must be based on economic factors.

Correction:

In September's Environmental Synopsis, the Joint Conservation Committee's website was listed incorrectly as <http://www.jcc.legis.state.pa.us> in inviting readers to access the 2005 Forestry Task Force Report. The correct website address is <http://jcc.legis.state.pa.us>. To access the Forestry Task Force Report, simply click on "Reports" on the website home page and scroll to the bottom of the page. Other reports are also available on that page.

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.

Are We Being "Driven to Spend"?

– Tony M. Guerrieri, Research Analyst

A report by the Surface Transportation Policy Project examines the role of transportation and housing costs in household budgets nationally and in the 28 largest metropolitan regions. The report, *"Driven to Spend: Pumping Dollars out of Our Households and Communities"*, updates prior transportation cost studies, but for the first time provides information on the effect of gas prices on family budgets.

The report also recommends specific actions that governments – federal, state and local – can take to reduce the burden on transportation costs for families by investing in more transportation options.

The nation's average-income household spent \$21,213 – or 52 percent of their income – on household expenditures and transportation in 2003. Transportation costs, which are steadily rising due to increasing prices of gasoline, are second to housing costs as a proportion of a family's budget. Separated from housing expenses, transportation costs nationwide took a 19.1 percent share of family budgets in 2003 while housing averaged 32.9 percent. Since then, the price of gasoline has jumped about 30 percent.

Key findings of the report include:

- Households in regions that have invested in public transportation reap financial benefits from having affordable transportation options, even as gasoline prices rise.
- Low-income families are unduly impacted by higher transportation costs since transportation expenditures claim a higher percentage of their family budgets.

For the first time, the report documents the jump in household expenditures due to the recent gasoline price hikes. Los Angeles ranked the highest in 2003 to 2004 with a \$316 total loss in household income due to higher gasoline prices. Families in the Kansas City metro area paid \$312 more -- the second highest increase.

The New York metro area posted the smallest increase at \$220 per household. In Pennsylvania, Pittsburgh families paid \$233 more per household and Philadelphia families paid \$228.

Houston was the highest-cost metro area, with an average of 20.9 percent of every household dollar spent on transportation. That, according to the report, translated into \$9,891 spent a year for transportation for the average Houston-area household, \$2,110 more than the national average of \$7,781.

The report documents for the first time the jump in household expenditures due to recent gasoline price hikes

Houston was followed by the Cleveland and Detroit metro areas at 20.5 percent (\$7,702 and \$9,024 respectively), Tampa at 20.4 percent (about \$7,291), and Kansas City at 20.2 percent (\$8,794). The national average was 19.1 percent (\$7,781). If Houston households would have spent the national average on transportation, they would have saved \$1.2 billion on transportation.

Of the 28 metro areas that were surveyed, Pittsburgh ranked 23rd (16.6 percent) – or about \$6,972 and Philadelphia was 24th (15.9 percent) at \$6,510.

The five areas where families expended the smallest share of their household budgets for transportation services were the Baltimore metro area at 14 percent (or about \$5,605), Portland at 15.1 percent (or \$6,807), and the New York and Washington, DC areas at 15.4 percent (\$7,729 and \$7,853 respectively).

The report finds that only three percent of commuters in Kansas City use public transit. The other 97 percent of Kansas City commuters drive. About 10 percent of Pittsburgh metro residents commute to work on public transit, and 14 percent in Philadelphia. The national average in the 28 cities is nine percent. The highest was 31 percent in New York City, where

the transit system is extensive and housing is dense.

Based on the data collected, the report provides eight recommendations to reduce transportation costs, including federal policies for funding alternatives to autos and ensuring that all transportation options are included in federal transportation planning guidelines. The report encourages state, regional and local governments to take advantage of the flexibility of federal programs to build balanced local transportation systems.

The Surface Transportation Policy Project is a Washington, D.C. based transit advocacy and research organization. The report, *“Driven to Spend: Pumping Dollars out of Our Households and Communities”*, is available at http://www.transact.org/library/reports_pdfs/driven_to_spend/Driven_to_Spend_Report.pdf.

Carbon Storage Can Stabilize Greenhouse Gases

– Craig D. Brooks, Executive Director

The capture and storage of carbon dioxide could help countries stabilize concentrations of greenhouse gases in the atmosphere, according to a report released by an international panel on climate change and greenhouse gases. The report, from the Intergovernmental Panel on Climate Change added, however, that carbon sequestration is only one of several options “in the portfolio of mitigation actions” to reduce greenhouse gas emissions.

Carbon sequestration has the potential to reduce overall costs and increase flexibility in achieving greenhouse gas emissions reductions. Other options include energy efficiency improvements, switching to less carbon-intensive fuels, greater use of nuclear power and renewable energy sources, enhancement of biological sinks, and the reduction of non-CO2 greenhouse gases.

Carbon sequestration, or carbon capture and storage, is the process of separating CO2 from industrial and energy related sources, transporting it to a storage location and isolating it from the atmosphere. Large point sources of CO2 include large fossil fuel or biomass energy facilities, major CO2 emitting industrial processes, natural gas production, synthetic fuel plants and fossil fuel-based hydrogen production plants.

Potential storage methods include: geological storage (geological formations such as oil and gas fields, unminable coal beds and deep saline formations); and ocean storage (direct release into the ocean water col-

umn or onto the deep sea floor). The report suggests that well designed carbon storage sites would retain more than 99 percent of the stored amounts over a 1,000 year period, meaning leakage of stored carbon dioxide would not be a major issue.

What role does the capture and storage of CO2 play in helping to stabilize greenhouse gas concentrations?

There are, however, significant legal and regulatory uncertainties associated with CO2 capture and storage, in regard to issues such as long-term storage liability for leakage, and local environmental impacts of storage facilities. The report noted that there is no agreement on whether carbon dioxide injection into ocean formations is possible under current international law.

Ocean storage could potentially be done in two ways: by injecting and dissolving CO2 into the water column, typically below 1,000 meters via a fixed pipeline; or by depositing it via a fixed pipeline to ocean depths below 3,000 meters where CO2 is denser than water and would form a “lake” that would delay dissolution into the surrounding environment. Ocean storage and its impacts are still under research.

The international panel suggested however, that carbon capture and storage could reduce global greenhouse gas emissions between 15 percent and 55 percent of the cumulative mitigation efforts worldwide through the year 2100. This represents between 220 gigatons and 2,200 gigatons. But, for carbon storage to achieve such success, several hundred to several thousand storage systems would need to be created during the coming century.

Many countries and worldwide organizations are committed to the success of this issue. Canada is very supportive of the technology of carbon dioxide capture and storage and has committed to reduce its greenhouse gas emissions by six percent from 1990 levels by 2012.

A summary of the report, *“IPCC Special Report on Carbon Capture and Storage”*, is available at <http://www.ipcc.ch/activity/srccs/index.htm>.

Commuting Pushes up Emissions in Vermont

– Tony M. Guerrieri, Research Analyst

New emissions standards, routine vehicle maintenance inspections and clean technologies have had great success in cutting vehicle emissions per mile driven. Unfortunately, those gains have been offset by huge increases in driving and commuting.

According to a report by the Vermont Public Interest Research Group, transportation is the number one contributor to global warming emissions in Vermont. The report, *“Driving Global Warming: Commuting in Vermont and its Contribution to Global Warming”*, recommends that Vermont implement policies to reduce driving and encourage development of new transportation technologies if it wants to substantially reduce greenhouse gas emissions.

Such policies are important because no other category of energy use accounts for a larger portion of carbon dioxide emissions than motor vehicle transportation in Vermont. In 2001, transportation-sector emissions represented more than half (55 percent) of Vermont’s emissions of carbon dioxide – the leading global warming gas. Transportation-sector emissions of carbon dioxide increased in the state by 23 percent between 1990 and 2001. No other state in New England derives as large a share of its global warming emissions from the transportation sector and only New Hampshire experienced a larger increase in transportation-sector emissions during this period.

Reducing driving and investing in new alternate transportation technologies are the report’s recommendations for Vermonters

Given recent trends in vehicle fuel economy and vehicle travel, carbon dioxide emissions from transportation can be expected to increase significantly over the next decade, according to the report. The total number of vehicle miles traveled in Vermont is projected to increase by 21 percent between 2005 and 2020 and a correspondingly large increase in carbon dioxide emissions from the transportation sector can be expected.

The development of Vermont’s exurbs, fast-growing towns where old farms and woodlots are being devel-

oped for housing, has led to longer commutes between home and work. Nationally, the average commute is 12 miles in length, compared with 8.55 miles in 1983.

Commuters residing in Vermont were responsible for about 449,000 metric tons of carbon dioxide emissions in 2000. Burlington, for example, is ranked first among the top 15 cities and towns in Vermont whose residents produce the most carbon dioxide. Burlington residents who commute produce a total of 16,241 metric tons of carbon dioxide a year.

Another way to look at the impact of commuting on global warming in Vermont is to review emissions by place of work. For example, workplaces located in or near Burlington attracted the largest number of commuters and generated the largest amount of carbon dioxide emissions - 46,423 metric tons.

The personal decisions that determine commuting behavior, such as where to live, where to work and how to travel between home and work also impact other aspects of vehicle travel, the report said. Individuals who chose to live in densely populated neighborhoods are more likely to walk or bicycle to engage in shopping, recreation or other opportunities.

The average commute in Vermont is eight miles, but 22,000 Vermonters travel more than 20 miles to work. That means eight percent of Vermont’s commuters generate 27 percent of the state’s commuting-related emissions.

The report singled out Starksboro, 22 miles south of Burlington, as an example of exurban development that has led to long commutes. The vast majority of carbon dioxide emissions – 92 percent – from residents of this town are from trips to cities and regional employment centers at least 15 miles away, the report said.

The report, which used 2000 Census data as a basis for its information, found that most commuters drive to work alone and few are carpooling or using park-and-ride facilities. About 75 percent of Vermont commuters drive alone to work. In Hartford, 80 percent of commuters drive alone. In Hartland, 75 percent drive alone, and in Sharon, Vermont, it’s 79 percent.

To counteract those trends, the report recommends several policy approaches, including:

- o Adopting vehicle global warming emissions standards to make all cars produce less carbon dioxide per mile.
- o Adopting a sliding scale system of incentives (or “feebates”) to encourage the purchase of more efficient vehicles.

- o Expanding rail service and bus service.
- o Developing programs to encourage residents to live near their workplaces and to encourage employers to implement telecommuting and commute reduction plans.

The Vermont Public Interest Research Group report, *“Driving Global Warming: Commuting in Vermont and its Contribution to Global Warming”*, is available on the Internet at http://www.vpirg.org/pubs/6.27.2005_driving%20global%20warming%20full%20merge.pdf.

EPA NOx Emission Rule Improved Air Quality in 2004

– Craig D. Brooks, Executive Director

A U.S. Environmental Protection Agency (EPA) rule issued in 1998 to reduce ozone-forming emissions of nitrogen oxides has yielded improved air quality for more than 100 million people in the eastern United States this past year. Known as the NOx SIP (State Implementation Plan) Call, the rule was designed to reduce nitrogen oxide emissions from power plants and other large industrial sources in 22 states and the District of Columbia by 1 million tons per year.

A new report, *“Evaluating Ozone Control Programs in the Eastern United States: Focus on the NOx Budget Trading Program, 2004”*, analyzes the effectiveness of the control program designed to reduce emissions that contribute to the formation of ground-level ozone. Specifically, the report focuses on the progress made in reducing NOx emissions in the East under the NOx SIP Call.

Section 110 of the Clean Air Act authorizes the EPA to require submission of, or “call-in”, plans by which individual states propose to meet federal air quality standards – i.e., SIPs for certain pollutants including ground-level ozone. The NOx SIP Call defines caps for summertime NOx emissions from 22 central and eastern states and the District of Columbia. Compliance with the NOx SIP Call began in May 2003 for 12 states and the District of Columbia but was delayed until May 2004 for the remaining states due to pending litigation.

According to the report, NOx emissions for the power industry during the region’s 2004 ozone season fell about 30 percent from the level in 2003, when fewer states were subject to NOx SIP Call requirements. In addition, the 2004 emissions were 50 percent lower than

the total in 2000 and 70 percent lower than in 1990. This is before the implementation of the NOx SIP Call and the Clean Air Act Amendments.

EPA credits the significant drop in the power industry summertime emissions in 2004 to the NOx budget trading program, which is a mechanism used in the EPA rule to allow for efficient and effective emission reductions without economic harm. The trading program allows sources to choose from a variety of compliance options to meet emission reduction targets.

The EPA study shows improved air quality in the Eastern U.S. from the NOx State Implementation Plan Call

Some options include reducing actual generation from certain units, modifying the combustion process to reduce NOx formation, using add-on controls, or purchasing additional emission allowances from sources that reduce emissions below their allocations.

According to EPA, there was close to 100 percent compliance with the rule’s program. Of the more than 2,500 units participating in the trading program in 2004, nearly all held sufficient allowances to cover their emissions. In addition, as participation in the program increased, the level of “banked” or saved allowances also increased in 2004.

The trading program is another example of how market-based programs are helping to significantly reduce emissions of air pollutants.

The EPA report is available at: <http://www.epa.gov/airtrends/2005/ozonenbp/>.

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

If someone you know would like to receive a copy of the *Synopsis* each month, please contact the committee office at 717-787-7570.



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ON THE HORIZON . . .

A LOOK AT UPCOMING EVENTS



✓ **Monday, December 12, 12 noon, Room 205, Matthew J. Ryan Building – Environmental Issues Forum.** Officials from the new PA Recycling Markets Center (RMC) located at Penn State’s Harrisburg campus will describe the ramp up of the RMC.

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 Keep Pennsylvania Beautiful (KPB) Summit (see The Chairman’s Corner on page 1) presented a good opportunity to discuss a strategic approach to improving Pennsylvania’s roadside aesthetics with key partners and others with field-based experience.

In the photo at right, committee Chairman Rep. Scott Hutchinson (right) and committee Executive Director Craig Brooks (left) discuss Maryland’s experience with Charles Adams, the Maryland Department of Transportation’s Director of Environmental Design.



At lower right, Rep. Hutchinson (2nd from left) poses with (l. to r.) KPB Co-chairman Bill Heenan of the Steel Recycling Institute, Keep America Beautiful’s Program Director for Affiliate Services Carrie Gallagher Sussman, who was a guest speaker at the summit, and KPB Executive Director and summit organizer Julia Marano.



A distinguished panel addressed the summit’s plenary session under KPB Executive Director Julia Marano’s (at podium) guidance. Members of the panel were (l. to r.): New



Mexico Department of Transportation’s (DOT) Director of Highway Beautification Molly Harris; Sandy Tosca with PennDOT’s Bureau of Maintenance and Operations; Charles Adams, Maryland DOT’s Director of Environmental Design; AAA-Mid Atlantic’s Ron Kosh; and Ann Pilcher with the Pocono Mountain Vacation Bureau.

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Other issues that arose from the summit are ways to strengthen and improve enforcement, whether it is at the police, magisterial or higher court level. Pennsylvania has long had a stiff \$300 fine for littering, but is it effective? Can a system like Allentown's "SWEEP" program, which seeks to minimize the paperwork and delays of the traditional citation system in favor of a streamlined education/enforcement effort with lower fines, work better? Does New Mexico's effort to better educate and involve judges in enforcement represent a way to go? Cincinnati is partnering its police department with its communities and using GIS technology to reduce both litter and crime. Is such an approach one to examine in Pennsylvania?

Keep Pennsylvania Beautiful (KPB) is a statewide alliance working to promote and protect Pennsylvania's natural and community environments in three focus areas: cleaning up and preventing litter and illegal dumps; enhancing and beautifying Pennsylvania communities; and promoting proper waste handling. KPB, for example, is a driving force behind the annual Great Pennsylvania Cleanup days.

Now, KPB, with the committee's support and assistance, is seeking to take the next step and formulate a strategic and comprehensive approach to roadside aesthetics in Pennsylvania. While anti-litter efforts would continue to be part of the mix, roadside plantings and landscaping will be examined as well. The association is meeting with the Pennsylvania Department of Transportation and other partners to discuss existing programs, ferret out problem areas and seek to move forward in a "big picture" approach. What can we learn from other states? What have we been doing that is good? What can we do that we haven't been doing? What can we do better?

The impacts of advances in roadside aesthetics go beyond putting a pretty face on Pennsylvania. It is a part of community building. This is illustrated in a recent study conducted by the University of Pennsylvania's Wharton School of Business for the Pennsylvania Horticultural Society. The results show that among other things, cleaning up a vacant lot can raise the value of neighboring houses by 30 percent and planting a tree within 50 feet can raise values by nine percent.

Roadside aesthetics is part of economic development, both by Pennsylvania residents and visitors. Tourism, for example, is Pennsylvania's second largest industry and if it can be expanded by a better system of roadside aesthetics, that's good business for all Pennsylvanians. If people like what they see when they enter the state or a particular community, they will likely do more than just pass through on the way to somewhere else.

Education is also a part of roadside aesthetics. Education about how to keep our state clean and beautiful, about why it is important to keep it that way, about how to improve enforcement, about how to build grassroots organizations, and about how to be a part of the effort are key.

The committee is looking forward to working with KPB and its Executive Director Julia Marano and with KPB's partners in furthering the roadside aesthetic effort and keeping the debate up front and relevant. We hope Pennsylvanians from across the state will join with us.



Committee chairman Rep. Scott Hutchinson welcomes attendees to the Keep Pennsylvania Beautiful Summit.

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