

# ENVIRONMENTAL SYNOPSIS

## The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



In an event that I fear (to quote President Abraham Lincoln), "...the world will little note nor long remember...", the recycling and reuse of crumb rubber in Pennsylvania has taken a big step forward. While the world may not sit up and take notice, it is an important advance for all of us interested in increasing recycling and reuse of waste tires and in creating new markets for recycled rubber.

This is by no means new territory for the Joint Legislative Air and Water Pollution Control and Conservation Committee. Ever since 1996, when the committee played an integral role in writing and securing passage of the Waste Tire Recycling Act (Act 190 of 1996), the committee has sought ways to expand and improve recycling and reuse of waste tires.

At several public hearings, going as far back as 1999 and as recently as April 2011, the committee has consistently raised the question about markets for waste tires. In nearly every instance the use of crumb rubber in asphalt has been the use pointed to by industry and by those in the recycling business as the most promising potential market out there. Despite that, it has been a long, hard road (pun intended) in convincing the Department of Transportation (PennDOT) to embrace crumb rubber for highways.

Now, however, thanks to a real team effort – almost a year long - involving several interested parties, in late July PennDOT issued a new special provision allowing the use of crumb rubber as a stabilizer in stone matrix asphalt (SMA) highway mixes. The team effort was facilitated by the Pennsylvania Recycling Markets Center (RMC), and included PennDOT and its Strategic Recycling Program (SRP), the Pennsylvania Department of Environmental Protection's (DEP) Waste Minimization Division, Apex Companies LLC of Malvern, PA (a PennDOT consultant on strategic recycling), and members of the highway construction and rubber recycling industries.

According to the RMC, when the participants got together, they successfully agreed that a new specification was possible and that the state's crumb rubber manufacturers, such as Mahantango Enterprises of Liverpool, PA, a long-time advocate for and producer of crumb rubber, could successfully meet the specification design standards.

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# NOTES FROM THE DIRECTOR

CRAIG D. BROOKS, EXECUTIVE DIRECTOR



Oregon's Department of Transportation (ODOT) is set to launch a pilot program aimed at testing the concept of taxing drivers based on the number of miles traveled rather than the amount of fuel consumed.

The pilot project is a result of diminishing liquid fuels tax dollars due to manufacturers producing vehicles that exceed 50 miles per gallon. According to ODOT, fuel tax revenues will drop somewhere between 20 percent and 50 percent by 2025, and it is inevitable that developing alternative programs will be necessary to compensate for the loss of revenue currently generated through the fuels tax.

Suggestions to raise the fuels tax have been met with skepticism. One reason is that when one discusses increasing the fuels tax, it is being raised on a smaller and smaller base. According to ODOT, changing to a system based on vehicle miles traveled as opposed to fuel used is about making the system more equitable. People would pay the same regardless of the efficiency of the vehicle.

For the foreseeable future, the current fuel tax system would remain in place to create a disincentive for operating inefficient vehicles. Distance-based charges will likely be on fuel efficient vehicles.



Oregon policymakers will be the test subjects for the ODOT pilot. A bipartisan group of state legislators, transportation commissioners and other leaders will have a variety of options for metering their mileage. Metering options include:

- a flat annual tax for unlimited mileage with no metering required;
- purchase of a fixed number of miles, with an in-person check of the odometer at the end of the year;
- installation of an onboard unit that sends odometer readings to ODOT by cellular or Wi-Fi; and
- use of a smartphone application that, when paired with an odometer reader, excludes taxation of out-of-state miles.

The last option is the only one that requires the use of a Global Positioning System (GPS) unit. The use of GPS has not been positive thus far.

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**Oregon is poised to look at a fuels tax based on miles traveled – not amount of fuel consumed**

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A 2006 ODOT pilot project was developed using GPS where only state miles were charged. The system worked, however, it became a privacy issue and the public reaction was cause for concern. The public didn't want to be tracked.

For this program, no GPS technology will be required, except for the last option listed above. ODOT will set standards governing any metering technology that people might want to use such as OnStar.

All test subjects have agreed to pay the mileage charge and in return will receive a rebate or offset for any fuel tax paid.

Information about the pilot program is available at: <http://www.oregon.gov/ODOT/HWY/RUFPP/pages/rucpp.aspx>.

# 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.

*Please Note: The information and opinions expressed in the Research Brief articles do not necessarily represent the opinions or positions of the Joint Legislative Air and Water Pollution Control and Conservation Committee, nor those of the Pennsylvania General Assembly.*

## Report: Nation's Mayors Say Cities Should Invest More in Transportation

-- Tony M. Guerrieri, Research Analyst

A generation of failing to invest in the nation's urban transportation network – from maintaining highways to building high-speed rail – threatens to leave the United States lagging behind in the global economy, according to a report by the U.S. Conference of Mayors (USCM).

The report, "*Gross Metropolitan Product, and Critical Role of Transportation Infrastructure*", provides a snapshot of demographic and economic trends impacting the nation's cities and their metro areas. Prepared by the research firm IHS Global Insight, the report focuses on expected urban growth and the role that transportation plays in metropolitan economies.

The report highlights metro economies as a growth engine, saying that of the 100 largest economies in the world, 37 belong to U.S. metro areas. It forecasts that by the end of this year, 300 of the nation's 363 metro areas will experience real economic growth, and predicts that over the remainder of the year the nation's economy will see a 1.4 percent increase in employment and real gross domestic product (GDP) growth of 2.0 percent.

The report shows that the Philadelphia region's gross metro product was \$352.7 billion in 2011 (up \$8.9 billion from 2010), ranking it seventh among the nation's metro areas. The Pittsburgh region generated \$118.8 billion (up \$5.2 billion) ranking it 22<sup>nd</sup> among the 363 metropolitan areas. Ranked 72<sup>nd</sup>, the Allentown area's gross metropolitan product last year totaled \$30.6 billion, up \$1.1 billion. Gross metro product is the metro area equivalent of what the gross domestic product is for the entire U.S. – the total value of an area's combined production for a given period.

America's metros are predicted to experience 32 percent population growth over the next 30 years, adding some 84 million people. More specifically, the report predicts that the population will grow by over 50 percent in 59 areas, over 75 percent in 21, and will more than double in three.

Infrastructure investment was the report's main focus. With traffic congestion already costing more than \$100 billion a year nationally, the report warns that the problems will only worsen with increased population without a proportionate growth in infrastructure investment.

The total congestion cost, which is the value of wasted time and fuel, is estimated to have cost U.S. urban areas \$101 billion in 2010. The average annual congestion cost in U.S. cities is \$713 for each driver. Philadelphia has been characterized as the 14<sup>th</sup> most congested city in the nation, with Philadelphians paying an average of \$864 a year in annual congestion costs. Pittsburgh (31<sup>st</sup>) and Allentown (58<sup>th</sup>) were also among the top 100 in the cost of congestion in 2010. Traffic congestion cost each driver \$641 and \$432 annually in Pittsburgh and Allentown respectively.

Other transportation infrastructure findings include:

- in 2010, congestion caused 4.8 billion hours of travel delay for America;
- over the last two decades, the congestion cost per commuter has increased in 100 of the 101 largest urban areas detailed in the report, and more than doubled in 66;
- congestion costs are highest in big urban areas and top \$1,000 annually for each driver in cities including Washington, Baltimore, and New York on the East Coast, Chicago in the Midwest, Houston in the South, and Los Angeles and San Francisco on the West Coast.

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The report concludes that if the nation fails to dramatically increase its investment in transportation infrastructure, it will see congestion and its costs on families, commuters and businesses skyrocket, potentially doubling over the coming decade.

The report also identifies the chemical and plastics sector as one of the hottest growth areas in the United States. The industry surge this decade in investment, jobs, and incomes has been largely spurred by low natural gas prices, a result of the rapid incorporation of new drilling techniques. The report cites Shell's plans to build a petrochemical processing plant in the Pittsburgh area because of its proximity to shale gas supplies as one example.

Chicago has the highest employment in chemical and plastics with 43,346 jobs, just above Houston at 42,834, the report says. Twenty-eight metros have employment in excess of 10,000 in this sector, and 206 metros employ more than 1,000 in the chemicals and plastics industries. Philadelphia also scored relatively high in this sector. In 2011, the region employed just over 27,000 people in that industry. That puts Philadelphia fourth in the U.S. when it comes to chemicals and plastics employment. Pittsburgh is ranked 25<sup>th</sup> with 10,227 jobs.

To view the full 116-page report, please visit: <http://usmayors.org/metroeconomies/0712/Full-Report.pdf>.

## Renewables Standard in Energy Act Unlikely to Be Met, DOE Report Says

-- **Craig D. Brooks, Executive Director**

**A**n Energy Independence and Security Act of 2007 requirement that mandates 36 billion gallons of biofuel in the nation's fuel supply by 2022 is unlikely to be met, according to a report by the Department of Energy.

Although the Energy Information Administration (EIA) has predicted that biofuel production will increase substantially, financial and technical hurdles are expected to delay the start of advanced biofuel and cellulosic ethanol production projects.

The law requires that the nation's motor fuel supply is to contain 36 billion gallons of ethanol or other renewable fuel by 2022, including 21 billion gallons

of advanced biofuels, which are made from municipal solid waste, algae, corn stocks or other sources. According to the report, three consecutive years of substantial reductions in the cellulosic biofuels mandate have significantly reduced the possibility that the biofuels requirement set in the renewable fuel standard will be met.

The Environmental Protection Agency has repeatedly reduced the annual biofuels requirement set in the standard, including in 2012, when the agency issued a waiver reducing the requirement for cellulosic biofuels from 500 million gallons to just 5.65 million gallons.

In its report, the EIA predicted only 22.1 billion gallons of biofuels would be generated in 2022, with 15 billion gallons coming from the domestic production of corn-based ethanol. Still, industry representatives and biofuels supporters have argued against changing or modifying the renewable fuels standard.

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### DOE report examines biofuels, renewable energy, and CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>2</sub> emissions

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According to the EIA, electric generation from renewable sources, including hydropower, is expected to increase from 428 billion kilowatt hours in 2010 to 759 billion kilowatt hours in 2035, with an overall annual growth of 2.3 percent. State renewable electricity standards, which require the use of renewable energy, accounted for a large factor in the growth of renewables.

Thirty states and the District of Columbia have enforceable renewable electricity standards or similar laws. In its report, the EIA said it generally assumed that states would meet the renewable targets they set.

In addition, the report said that energy-related carbon dioxide emissions were expected to remain below their 2005 levels through 2035. This is due to a combination of modest economic growth, growing use of renewable technologies and fuels, efficiency improvements, increased use of natural gas and slower growth in electricity demand.

Specifically, the EIA said carbon dioxide emissions are forecast to grow by just over two percent from 2010 to 2035, when they are expected to reach 5,758 million metric tons. That figure represents a more

than nine percent decrease below the 2005 level of 5,996 million metric tons.

Sulfur dioxide and nitrogen dioxide emissions from power plants are projected to fall as well, according to the report. Sulfur dioxide emissions would decrease from 5.1 million short tons in 2010 to 1.7 million short tons in 2035. Nitrogen dioxide emissions are expected to drop from 2.1 million short tons in 2010 to two million short tons in 2035.

The EIA report is available at: [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf).

## Gridlock Eases in Many Metro Areas

-- Tony M. Guerrieri, Research Analyst

**B**elieve it or not - national traffic congestion in the U.S. decreased by an average of 30 percent in 2011, according to the annual *National Traffic Scorecard* conducted by traffic and navigation service provider INRIX in Kirkland, Washington. The INRIX scorecard evaluates the countless hours drivers waste in gridlock on roadways each year.

By using GPS-equipped vehicles to record commuting experiences on the nation's roads, INRIX analysts studied traffic from a database containing approximately 100 million vehicles including taxis, airport shuttles, service delivery vans, long haul trucks and passenger cars.

A 13-mile stretch of the San Diego Freeway outside Los Angeles ranked as the most traffic-choked freeway in the nation. However, drivers in Honolulu spent the most time in traffic, averaging 58 hours a year in stop-and-go traffic, compared with traveling at the speed limit.

The study indicates that urban areas are actually seeing traffic congestion decrease at a significant rate nationwide for the first time since 2008. Seventy of the country's top 100 most populated cities showed a drop in traffic congestion last year while just 30 had increases.

Among the study's findings was that while overall there was a 30 percent drop in traffic congestion nationwide, it came with a cost. Due in part to weak employment and higher fuel prices, there were fewer drivers heading to the office, and those who did not

drive were driving less. In cities, such as Tampa, Houston and Austin, Texas, research showed improved jobless numbers led to busier roadways. And, on average, Americans spend around 40 hours per year behind the wheel in commuter bottlenecks.

By analyzing traffic in the nation's 100 largest metropolitan areas in 2011, INRIX determined the "Top 10 Worst U.S. Traffic Cities", including hours spent in gridlocked traffic and worst 15-minute traffic intervals were:

Honolulu: Drivers waste 58 hours in traffic; Worst Hour – Tuesday, 5:15-5:30 pm

New York: 57 hours wasted; Worst Hour – Friday, 5:30-5:45 pm

Los Angeles: 56 hours wasted; Worst Hour – Thursday, 5:45-6 pm

San Francisco: 48 hours wasted; Worst Hour – Thursday, 5:45-6 pm

Washington, D.C.: 45 hours wasted; Worst Hour – Thursday, 5:45-6 pm

Bridgeport, Connecticut: 42 hours wasted; Worst Hour – Friday, 5:30-5:45 pm

Chicago: 36 hours wasted; Worst Hour – Thursday, 5:30-5:45 pm

Boston: 35 hours wasted; Worst Hour – Thursday, 5:30-5:45 pm

Seattle: 33 hours wasted; Worst Hour – Thursday, 5:30-5:45 pm

Austin, Texas: 30 hours wasted; Worst Hour – Thursday, 5:30-5:45 pm

Pennsylvania has two of the top 50 worst cities in which to get stuck in traffic. Philadelphia is ranked 11<sup>th</sup> and Pittsburgh is 27<sup>th</sup> among the worst cities to drive in.

Nationwide, Americans traveling the nation's worst traffic corridors experience up to 60 hours of delay annually on their afternoon commutes alone, according to INRIX figures. Of the 162 corridors of at least three miles in length that experience heavy traffic congestion every day, Los Angeles and New York each had four of the 10 most congested traffic corridors. A three mile stretch of the Parkway West in Pittsburgh, formerly Interstate 279, between Lydia Street/Exit 2, and Route 19/Exit 5 in the morning commute was the ninth-most congested route in the U.S.

The scorecard also takes a micro look at traffic problems all across the country – zooming in on the worst day of the week for commuting and average speeds for the top 100 cities along with hundreds of other details. Unique patterns evolving out of U.S.

traffic congestion include:

- Worst Traffic Day: Friday
- Worst Morning Commute: Tuesday
- Worst Evening Commute: Friday
- Worst Hour: Friday 5-6 p.m.
- Best Traffic Day: Monday
- Best Morning Commute: Friday
- Best Evening Commute: Monday
- Best Hour: Friday 6-7 a.m.

Dynamic, monthly updated scorecard information on how cities compare is available online. The fifth annual INRIX National Traffic Scorecard is available at: <http://scorecard.inrix.com/scorecard/>.

## National Low-Carbon Fuel Standard Would Reduce Gas Prices, Report Says

-- **Craig D. Brooks, Executive Director**

A national low-carbon fuel standard would reduce gasoline prices and decrease greenhouse gas emissions more than an existing requirement to incorporate renewable fuels into the national supply, according to two new reports. The reports contend that a national low-carbon fuel standard along with the congressionally mandated renewable fuel standard would reduce emissions by 4.5 percent, over three percentage points more than the renewable fuel requirements alone.

The reports, *“National Low Carbon Fuel Standard: Policy Design Recommendations”*, and *“National Low Carbon Fuel Standard: Technical Analysis Report”*, detail how the national program could be implemented. They also recommend a low-carbon fuel standard that would reduce the carbon intensity of fuels by 10 percent to 15 percent by 2030.

According to the reports, the design of a low carbon fuel standard is premised on the use of technology-neutral performance standards and credit trading, with the intent of harnessing market forces and providing industry with flexibility. Rather than setting renewable fuel consumption mandates, a low-carbon standard would allow the fuel producers the flexibility to determine which fuels are most economical to produce, provided they meet the required carbon intensity requirements.

Fuel producers could meet the carbon intensity requirements in a number of ways, such as carbon

capture and storage, reducing flaring, improving the efficiency of refineries and oil fields or purchasing credits from other producers.

The reports further suggest that a low-carbon fuel standard could also reduce gasoline consumption and drive down the cost of fuel for consumers. The Environmental Protection Agency’s (EPA) renewable fuels standard is expected to reduce gasoline consumption by eight percent and diesel fuel consumption by one percent. Adding a low-carbon fuel standard would lead to larger reductions.

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**The reports contend that a national low-carbon fuel standard paired with the renewable fuel standard would be more effective at reducing greenhouse gas emissions**

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The renewable fuel standard is expected to reduce the price of gasoline and diesel fuel by 10 percent. Adding the low-carbon fuel standard would lower gasoline prices by another seven percent and diesel prices by 13 percent.

The reports suggest that policymakers may need other programs to stimulate low-carbon fuels, such as regulations to spur investment in new vehicles and fuels or research and development money for new technologies. Maximizing the benefits of a low-carbon fuel standard may also require EPA or Congress to modify the implementation of the renewable fuel standard requirements.

California adopted a low-carbon fuel standard in 2006. That standard, which took effect January 1, 2011, requires transportation fuels to be 10 percent less carbon-intensive by 2020. The standard establishes methodologies for calculating lifecycle emissions of all vehicle fuels and sets increasingly stricter annual performance standards for fuels through 2020.

The reports were prepared by the National Low Carbon Fuel Standard Project, a collaboration between the Oak Laboratory, the University of California at Davis, the University of Illinois at Urbana-Champaign, the University of Maine, Carnegie-Mellon University, and the International Food Policy Research Institute.

The Technical Analysis Report is available at: <http://op.bna.com/env.nsf/r?Open=fwhe-8wbkam>. The Policy Design Recommendations are available at: <http://op.bna.com/env.nsf/r?Open=fwhe-8wbk9g>.

# ON THE HORIZON...

A LOOK AT UPCOMING EVENTS

No events are scheduled at this time.

Check the Committee website at <http://jcc.legis.state.pa.us> for events that may be added to the schedule.

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Website visitors will find information such as the Environmental Issues Forums schedule; the *Environmental Synopsis* monthly newsletter; Committee members; current events; Committee reports; staff contact information; Committee history and mission; and links to other helpful sites.

The website address is <http://jcc.legis.state.pa.us>. Stop by the website often to keep up with Committee information and events.

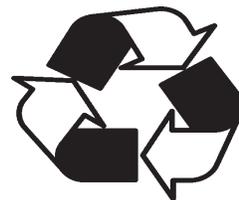


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RMC Executive Director Bob Bylone praised the effort of all involved. "The key to successfully bringing crumb rubber into Pennsylvania asphalt was the collaborative efforts of PennDOT's Strategic Recycling Program and Apex while the RMC simultaneously brought together crumb rubber industry representatives and asphalt contractors. We are fortunate this group was able to work through what at times was an energetic dialogue," Bylone said. "The RMC now looks forward to assisting crumb rubber producers to get their recycled...products approved with PennDOT."

Those involved in the discussions agreed that PennDOT's Chief of the Strategic Environmental Management Section, Ken Thornton, was a key player in moving the process forward and eventually coming to agreement on a workable specification. Thornton said his program encourages the use of recyclables in civil engineering applications when practical, economical and environmentally sound, noting that sometimes that involves a fundamental change in engineering. The focus, he said, is to maintain the state's roadways in the most cost effective manner so as to extend the life of the roadways.

Thornton also noted that PennDOT will begin a project this month using crumb rubber in an asphalt overlay project on I-78 in Lebanon and Berks counties. That project will use 467.5 tons of crumb rubber, equivalent to about 60,000 waste tires.

DEP was excited by the new specifications, calling it a "great step." The department noted the process, while lengthy, provided a chance for everyone's concerns to be met. The new specifications will open the door to a variety of projects and allow crumb rubber recyclers to be on a level playing field with everyone else in the industry.

From the industry perspective, Greg Brouse of Eastern Industries, headquartered in Center Valley, was a big advocate for the use of crumb rubber. Brouse had successfully used it – or helped other contractors use it - in projects in PennDOT District 1 and District 3, and has worked closely with Mahantango Enterprises for several years to help keep crumb rubber use on highways on the radar screen. He feels the use of crumb rubber as a stabilizer in SMA mixes (which are often used on interstate highways) offers definite benefits and is often less expensive and more effective than some other current stabilizers. He optimistically said, "All we got to do is get it started."

Mahantango Enterprises' Vice-president Troy Hess said the new specifications were "really positive" and a great opportunity for crumb rubber manufacturers to get their foot in the door. He said that there have to be markets for all sizes of recycled rubber, and it is most important to develop higher end markets in small sizes.

"If this is successful and we start doing multiple roads, we're looking at thousands of tons. It's a big deal," Hess said enthusiastically.

The Environmental Protection Agency agrees, noting that crumb rubber in asphalt is the single largest market for ground rubber, consuming an estimated 220 million pounds or approximately 12 million waste tires in the United States.

In Pennsylvania, while waste tire remediation has been very successful, crumb rubber in asphalt has largely not been a part of the recycling-reuse picture. The committee agrees with Mr. Hess that this is a "big deal" and ultimately should result in that nationwide number increasing significantly as this new, high value market for crumb rubber develops over time here in Pennsylvania.

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