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ASPHALT PAVEMENT
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Overview

Asphalt has always been and continues to be the pavement of choice for America. At present, 94 percent of the roads in America are surfaced with asphalt and for those who know the benefits of asphalt, there is no substitute. Difficult economic times are causing some to suggest that owners and specifiers take a second look when it comes to pavement type selection. In the asphalt community, we welcome this opportunity to discuss the benefits of our product and why asphalt pavement is right for America right now and into the future.

There is no doubt that societal trends and economic realities will shape the market going forward. Those driving factors include public funding issues, an emphasis on sustainable growth and livability, unemployment trends, and future supply/capacity. Accounting for all of these factors, asphalt is perfectly positioned to address future markets in both highways and other infrastructure.

Crisis in Funding Will Place Emphasis on Pavement Preservation, Rehabilitation and Maintenance over New Construction.

Publicly funded highway programs make up about 65 percent of the asphalt pavement market and that funding is challenged like never before. Figure 1 shows the sources of highway capital spending for 2007.

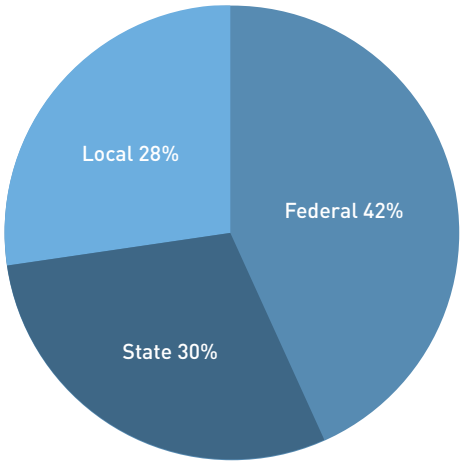

FIGURE 1: SOURCES OF HIGHWAY CAPITAL SPENDING
SOURCE: FEDERAL HIGHWAY ADMINISTRATION

The bulk of funding at the federal level comes from the Highway Trust Fund (HTF) which is financed primarily by the federal gas tax. Unfortunately, the federal gas tax, which has not been raised since 1993, has failed to keep pace with inflation and the soaring costs of construction and materials. The value of the 18.3 cents federal gas tax rate will have declined 55 percent to 8.3 cents between 1998 and the end of 2015. Federal gas tax receipts are also negatively impacted by a reduction of vehicle miles traveled due to the recession and increased fuel efficiency encouraged by government-mandated CAFÉ standards.

18.3¢ Does Not Buy As Much
Purchase Reduction in Purchasing Power
Between 1993–2015

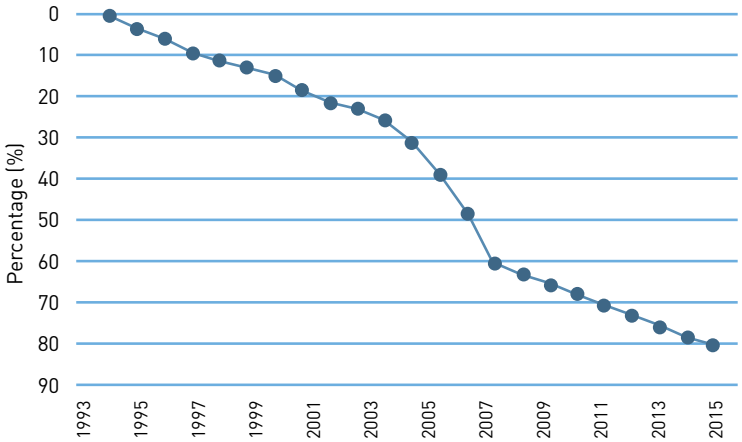

FIGURE 2: REDUCTION IN PURCHASING POWER OF GAS TAX

The remainder of highway funding comes from state and local governments. State revenues (in the second quarter of 2009) were down 18 percent compared to the prior year as a result of the economic recession. The National Governors Association projects that revenues will not return to pre-recession levels until 2014 or 2015. Nineteen states reduced their own highway spending in 2009 and 25 states plan to cut transportation spending in 2010. (Source: Fiscal Survey of States Preliminary Data, National Governors Association/ National Association of State Budget Officers, Dec. 2009). Figure 3, produced by the Center on Budget and Policy Priorities, compares the size and duration of the shortfalls that occurred in the recession of the first part of this decade to current shortfalls. In the early 2000s, as in the early 1990s and early 1980s, state fiscal problems lasted for several years after the recession ended. The same will undoubtedly be the case this time, since the current recession is more severe — deeper and longer — than the

last one, and state fiscal problems have proven to be worse and are likely to remain so.

How Bad Will It Get?

Total state budget shortfall in each fiscal year, in billions

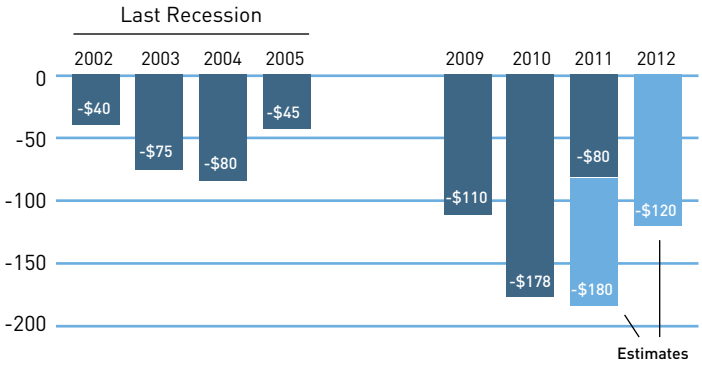

FIGURE 3: STATE BUDGET SHORTFALLS
SOURCE: CBPP SURVEY

What about the stimulus funds? Much of the $27 billion in stimulus funding has gone to make up budget shortfalls at the state level – rather than acting as a stimulus, it is simply financing current state budget operations. In the state of Maryland, for example, lower than anticipated revenues forced the state to cut its entire $185 million pavement preservation budget. Stimulus funds allowed the state to apply $150 million towards pavement resurfacing, but the net effect (after the stimulus) was still a 20 percent decrease.

Uncertainty is also an important factor. The Congress has left in limbo a six-year, $450-billion spending plan for highway construction, mass transit and other projects. Without reauthorization of the highway bill, transportation funding remains at current levels for an indefinite period. That has made states and companies reluctant to start new, long-term projects until they know how much the future funding will be.

According to the National Surface Transportation Policy and Revenue Study Commission of the U.S. Congress, the annual investment required by all levels of government to simply maintain the nation's highways, roads, and bridges is now estimated to be $185 billion per year for the next 50 years. Today, the nation invests $68 billion.

The American Association of State Highway and Transportation Officials (AASHTO) estimates that spending $1 to keep a road in good condition prevents spending $7 to reconstruct it once it has fallen into poor condition. Given the economics and market uncertainties, highway funding priorities for the foreseeable future will revolve around fixing and preserving existing pavements.

Which pavements promote the best state of good repair and provide the greatest economic competitiveness in the long term? The answer is asphalt.

There is approximately 18 billion tons of asphalt pavement on America's roads. Asphalt is the most cost-effective way to build and pave roads, both in the actual material and the cost of traffic delays. Asphalt pavements were always durable, but technology has created pavement structures that, for practical purposes, last forever.

These "Perpetual Pavements" are designed so that any wear and tear is confined to the top layer of the pavement. As a result, only infrequent resurfacing is required (every 15-20 years). Unlike other pavement types that require major thoroughfares to be closed for weeks of repairs or construction, asphalt resurfacing can be performed at off-peak hours so that roads are open for the busiest driving times, saving motorists time and money. And because asphalt is America's most recycled material, it saves taxpayers more than $300 million a year.

The Asphalt Pavement Alliance has awarded its Perpetual Pavement Awards to 69 asphalt pavements since 2001. In order to qualify for this award, the agency must submit documentation showing that the pavement has lasted more than 35 years with no structural failure. These sustainable pavements use fewer resources and have a lower lifetime cost than conventional pavements.

Sustainability and Livable Communities Will Drive the Market.

Sustainability is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It is a term against which highway projects in the future will increasingly be measured. While the U.S. Congress struggles to reach consensus on legislation, the Environmental Protection Agency is moving aggressively with regulations that will link transportation to environmental sustainability in ways like never before.

Sustainable development, which includes green construction practices, tries to balance the needs of people, nature, and the economy. Opportunities to recycle, manage stormwater, mitigate urban heat island effects, and save energy provide great potential for sustainability.

At the same time, there is movement to develop more "livable communities" – communities where people can live and work with more transportation options. The current administration, most notably the Secretary of Transportation and the Chairman of the House

Transportation and Infrastructure Committee, have made livable communities – communities where transit, walking, and bike riding are encouraged – a high priority. Asphalt fits very well into livable communities. Buses run on asphalt pavements. Asphalt underlayments help high-speed trains stay on track. Asphalt can keep bicycles and pedestrians out of the mud. Porous asphalt can be used to manage stormwater. And because asphalt is a renewable, sustainable material, it is seen as environmentally friendly.

Asphalt is the Most Sustainable Pavement and Has a Place in Livable Communities.

Long before "sustainability" entered the layman's vocabulary, the asphalt industry was supporting research and field studies to ensure that asphalt pavements and paving practices were environmentally friendly. Asphalt plants produce very low emissions. Since 1970, the asphalt industry has decreased total emissions by 97 percent, while increasing production by 250 percent. Awareness of sustainability issues is being raised by industry-supported efforts such as the Green Highways Partnership that incorporate environmental stewardship in highway planning, design and construction and the AASHTO Center for Environmental Excellence that promotes awareness and provides technical resources to quantify sustainable goals on a project-by-project basis.

Several new technologies are helping to make our industry even greener.

» REUSE/RECYCLING AND RUBBLIZATION

The asphalt industry reuses and recycles nearly 100 million tons of its own product every year, making it America's number one recycler. When reclaimed asphalt pavement (RAP) is incorporated into new pavement, the asphalt cement in the old pavement is reactivated, becoming part of the glue that holds the new pavement together so that all of the product can be reused. Other pavement types cannot make that claim. As figure 4 demonstrates, the use of RAP has increased dramatically over the past few years. In addition to RAP, the asphalt industry recycles materials from other industries—used tires, roofing shingles, glass, and many others—into high-quality pavements.

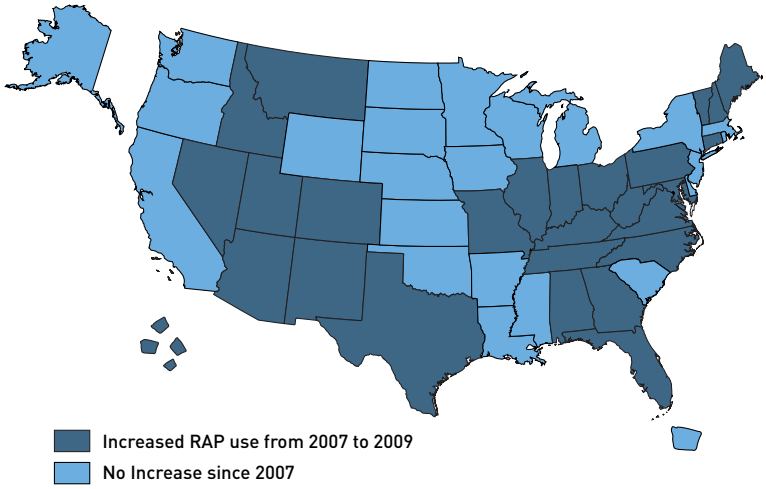

FIGURE 4: STATES ALLOWING INCREASED RAP CONTENT SINCE 2007
SOURCE: JONES 2009 SURVEY

The asphalt industry also helps to recycle concrete pavements through rubblization. When a concrete pavement needs reconstruction or major rehabilitation, rubblizing the concrete and topping it with an asphalt overlay is the easiest, lowest-cost, and most effective way to rehabilitate the pavement in the shortest amount of time. Rubblization also saves energy; the old pavement does not need to be hauled away and new base material does not need to be trucked in. Landfill space is saved and the need for mining and processing of virgin materials is reduced.

» LOWERING THE TEMPERATURE OF ASPHALT

Technologies now allow the producers of asphalt pavement material to lower the temperatures at which the material is mixed and placed on the road. Reductions of 50 to 100 degrees Fahrenheit have been documented. Such drastic reductions have the obvious benefits of cutting fuel consumption and decreasing the production of greenhouse gases. This "warm-mix asphalt" often compacts better; allows paving crews to work at lower temperatures, extending the paving season; and allows more recycled asphalt to be used in the mix. The use of warm mix in the United States has increased dramatically in a very brief span of time. From 2007 to 2009, the number of states holding warm mix demonstrations has grown to 42. There are currently 16 states that either have made or are currently making warm mix a standard practice.

» POROUS PAVEMENTS

Porous asphalt pavements are made so that water can actually drain through the pavement. They are of great interest to site planners and public-works departments because they provide cost-effective storm-water management systems that promote infiltration, improve water quality, and many times eliminate

the need for a detention basin. Like other asphalt pavements, they are versatile and can be designed for many situations.

Because of the open structure of the pavement, porous asphalt offers a "cooler" pavement choice. By replenishing water tables and aquifers rather than forcing rainfall into storm sewers, porous asphalt helps to helps to improve water quality in streams and communities.

The asphalt industry is committed to the U.S. Department of Transportation's comprehensive national energy and environmental policy that emphasizes reducing carbon emissions and consumption of fossil fuels as well as protecting and enhancing natural resources.

High Unemployment Threatens to Derail Economic Recovery.

The worst recession since the Great Depression has already claimed almost 8 million jobs, and analysts figure another 750,000 jobs could disappear over the next six months. The U.S. unemployment rate was 9.7 percent in January, according to the Labor Department, with construction unemployment at a staggering 24.7 percent.

Highway Investment Creates Jobs.

Highway investment has been shown to stimulate the economy more than any other fiscal policy. According to the Department of Transportation, each $1 billion in federal highway investment accompanied by the state match supports 34,779 jobs. In addition, each dollar invested in highway construction generates $1.80 of gross domestic product (GDP) in the short term (Source: Standard & Poor's DRI).

On December 2, 2009, AASHTO presented Congress with a list provided by state transportation departments that identified 9,500 highway, bridge, transit, port, rail, and aviation projects worth more than $69 billion that, if funded, could be used to create hundreds of thousands of jobs across the country. "Ready-to-go" means a project that can move through the federal approval process within 120 days of enactment of authorizing legislation, thus enabling the state to proceed toward construction.

Asphalt jobs are good jobs. The asphalt pavement industry is made up of asphalt plant managers, administrators, road crews, researchers, and an army of support personnel – all of whom play critical roles in building and maintaining the roads we use every day. Jobs in the asphalt pavement industry are not limited to road work. Many civil engineers, technologists, and researchers with advanced degrees are necessary to ensure the quality and safety of our road system.

Conclusion: Asphalt for America's Future.

It is only a matter of time before the global economy begins to recover and intense global competition resumes. China was investing 9 percent of its GDP in the country's infrastructure prior to the recession while the U.S. spent less than 1 percent.

The U.S. must invest to maintain our existing infrastructure in a state of good repair. Our nation has built one of the most extensive and productive highway systems in the world, representing billions of dollars of public and private investment. It is essential that we adequately maintain and modernize this vast, existing pavement system to maximize its reliability, capacity, and performance; to reduce operational and replacement costs; and to extend the pavement's useful life.

The nation must also seek to achieve the maximum economic impact from our transportation investments and lay the groundwork for long-term economic growth and prosperity. It is essential to determine which investments yield the greatest benefits to the transportation network, especially during this period of economic hardship and with difficult budget choices occurring at all levels of government. Asphalt is a good investment for America. Finally, having witnessed the volatile nature of oil prices before this economic crisis, the industry is better prepared for future price increases. Reuse/recycling offers a way to maintain better stability for any liquid asphalt cost increases that may happen. Using 10 percent RAP could offer a saving of about 8 percent on materials costs over using no RAP. Using 20 percent RAP potentially doubles that saving and each increase thereafter has a proportional impact. Furthermore, the binder in the RAP is "locked in" and not subject to supply uncertainties sometime present in volatile markets.

Our nation's competitiveness depends on a solid fundamental infrastructure. Industry built the system that was responsible for this country's greatness. The asphalt industry has roughly 4,000 asphalt production sites and the immediate ability to produce over 500 million metric tons per year. We have the capacity. We are ready to build, ready to work, and ready to get America moving again.

For More Information Contact Us.

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For More Information About Asphalt Pavement and the Industry.

» **Warm-mix asphalt**
www.warmmixasphalt.com

» **Asphalt as the sustainable pavement**
www.pavegreen.com

» **Porous asphalt pavements**
www.porouspavement.net

» **Noise reduction and asphalt pavements**
www.quietpavement.com

» **For members of the community to learn about asphalt plants**
www.beyondroads.com

» **National Center for Asphalt Technology**
www.ncat.us

» **Increasing percentage of RAP**
www.morerap.us

» **Jobs in the asphalt industry**
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» **Asphalt Institute**
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