

# ASPHALT

## The Sustainable Pavement



ENERGY & RECYCLING



PERFORMANCE



WATER QUALITY



CLEAN AIR & COOL CITIES



## Recycling & Energy Reduction



**Asphalt pavements are America's most recycled product**

According to the U.S.

Environmental Protection Agency and the Federal Highway Administration, about 90 million tons of asphalt pavement is reclaimed each year, and over 80 percent of that total is recycled.<sup>1</sup>

Reclaimed asphalt pavement (RAP) can be recycled into pavement that is as high, or even higher, in quality as pavements made of all-virgin materials. And, the same material can be recycled again and again; it never loses its value. The asphalt cement—the glue that holds the pavement together—retains its ability to function as glue or cement, so that it is reused for its original purpose. The aggregates (rocks, sand and gravel) in the original pavement are also conserved. Many pavements that are more than 20 years old are actually worth more than they were when originally constructed.

It is estimated that recycling of asphalt pavements saves the American taxpayer \$1.8 billion per year. It also saves hundreds of acres of landfill space each year.

Materials from other industries are routinely recycled into asphalt pavements instead of going into landfills. Some of the most common are rubber from used tires, glass, asphalt roofing shingles, and blast furnace slag.



Asphalt plants also recycle the fine mineral particles that are generated in the process of producing asphalt pavement material. This routine recycling of co-generated material helps to conserve natural resources.

### **Less energy consumed in building pavements**

Asphalt pavements require about 20 percent less energy to produce and construct than other pavements.<sup>2</sup>

Rubblization of concrete pavement with an asphalt overlay also saves energy. The rubblized pavement does not need to be hauled away; new base material does not need to be trucked in; and landfill space is saved. In addition, the need for mining, crushing, and processing of virgin materials is reduced.<sup>3</sup>

# Recycling & Energy Reduction

## Less energy consumed by the traveling public

Reducing congestion—which wastes fuel—by constructing asphalt pavements just makes sense. Asphalt pavements are faster to construct and rehabilitate.

Asphalt pavement rehabilitation can be accomplished during off-peak hours. On highly traveled routes, much of this work can be done at night. One or more lanes can be closed after the evening rush hour, milled for recycling, resurfaced, and then

opened for traffic the following morning. Most motorists do not have to deal with the inconvenience of construction delay.

Because a new or newly rehabilitated asphalt pavement can be opened to traffic as soon as it has been compacted and cooled, there is no question of waiting for days or weeks, with traffic being detoured or squeezed into fewer lanes, for the material to cure.

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## REFERENCES

1. *A Study of the Use of Recycled Paving Material: Report to Congress*, June 1993, Federal Highway Administration and United States Environmental Protection Agency, Washington, DC. FHWA-RD-93-147 and EPA/600/R-93/095.
2. Gambatese, John A. and Sathyanarayanan Rajendran, "Sustainable Roadway Construction: Energy Consumption and Material Waste Generation of Roadways," American Society of Civil Engineers, Reston, VA. Proceedings of 2005 Construction Research Congress. (<http://www.pubs.asce.org/WWWdisplay.cgi?0520020>. Downloaded June 22, 2006.)
3. Decker, Dale, *Rubblization: Design and Construction Guidelines on Rubblizing and Overlaying PCC Pavements with Hot-Mix Asphalt (IS-132)*. National Asphalt Pavement Association, Lanham, MD. 2006.