

## Energy Savings

- **Less energy consumed by the traveling public**  
Definitive studies sponsored by government agencies show that pavement smoothness can reduce fuel consumption. Vehicles traveling on smooth pavements consume up to 4.5 percent less fuel than when traveling on rough pavements. Asphalt pavements start out smooth and stay smooth over the long haul.
- **Lower emissions from vehicles**  
When vehicles consume less fuel, they produce lower emissions. Reducing emissions from vehicles would reduce greenhouse gas production and have a tremendous impact on global climate change. Smoothing out all our rough old pavements with asphalt overlays would be an energy-efficient investment.
- **Less energy consumed in building pavements**  
Over the pavement's life cycle, asphalt pavements require only about half the energy to produce and construct than other pavements. Because asphalt pavements are perpetual, less energy is consumed in maintenance and reconstruction. Associated emissions are reduced as well. An asphalt pavement's life-cycle carbon footprint is merely a fraction compared to other pavements'.
- **CO<sub>2</sub> sequestration**  
The Department of Energy recognizes asphalt as a top material that sequesters carbon. Asphalt pavement is a permanent resource that will never be consumed and will never emit greenhouse gases. Instead, it can be reused and recycled over and over again.

## Warm Mix

- **Asphalt's big chill**  
Asphalt is cooling down the mix with innovative warm-mix asphalt pavement technologies. These new processes and products reduce the temperatures at which pavement material is produced and placed. Warm mix conserves 15 to 30 percent of the energy required at the mixing plant, reduces emissions, and yields construction benefits including a longer paving season in cool climates plus better performance and longer life for the pavements.



*The National Asphalt Pavement Association is the leading advocate for the asphalt pavement material producer/contractor on the national level. NAPA supports an active research program designed to improve the quality of asphalt pavements used in the construction of roads, streets, highways, parking lots, airports, and environmental facilities.*

*The association, which counts more than 1,100 companies as its members, was founded in 1955.*

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ENERGY SAVINGS AND LOWER EMISSIONS

CLEANER AIR, COOL CITIES

REUSE/RECYCLING

TRAFFIC RELIEF

WARM MIX

WATER QUALITY

PUBLIC SAFETY

PERFORMANCE



## Asphalt is *the* sustainable material for constructing pavements.

From the production of the paving material, to the placement of the pavement on the road, to rehabilitation, through reuse/recycling, asphalt pavements minimize impact on the environment.

### Reuse/Recycling

- **America's leading recycler**

The asphalt industry reuses and recycles nearly 100 million tons of its own product every year, making it America's number one recycler.

Reclaimed asphalt pavement (RAP) actually reduces the amount of virgin asphalt cement needed for constructing new roadways. When 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 and replacing some of the virgin asphalt cement that would otherwise be required. This makes the final product less vulnerable to market fluctuations in raw material prices while conserving precious natural resources.

Other materials – including rubber from used tires, glass, and asphalt roofing shingles – are recycled into asphalt pavements.

### Public Safety

- **Asphalt reduces crashes**

Smooth asphalt roads give vehicle tires superior contact with the road, improving safety. Open-graded asphalt surfaces allow rainwater to drain through the pavement surface, reducing the amount of splash and spray kicked up by vehicles. Resurfacing with open-graded asphalt has been shown to reduce crashes and fatalities on highways.

### Performance

- **The road doesn't wear out**

Perpetual Pavements constructed from asphalt are the ultimate in sustainability. When appropriately designed and constructed, the road itself doesn't wear out. For maintenance, the top layer is removed for reuse/recycling, then replaced quickly without causing traffic congestion.

- **Noise reduction**

Asphalt is *the* quiet pavement. Studies show that the noise-reducing properties of asphalt last for many years. Noise reductions of 3 to 10 dB(a) are common. Reducing noise by 3 dB(a) is about the same as doubling the distance from the road to the listener, or reducing traffic volume by 50 percent.

### Traffic Relief

- **Asphalt moves traffic along**

In crowded urban areas, where closing a road for rehabilitation or reconstruction would dump increased traffic on to neighboring routes, asphalt is the answer. Highways and roads can be milled for reuse/recycling, then overlaid, during off-peak hours. An entire freeway can be resurfaced without commuters ever being inconvenienced.

In congested conditions, cars and trucks consume fuel and produce excess greenhouse gases. Asphalt's speed of construction allows planners and managers a way to fix congestion hot spots and bottlenecks, quickly and cost-effectively.

## Water Quality

- **Stormwater management with porous asphalt**

Porous asphalt pavement systems are recognized by the U.S. EPA as a best management practice (BMP) for stormwater management. When used for parking lots, roads, walking/biking paths, and other applications, porous pavements can turn runoff into infiltration; restore the hydrology of a site, or even improve it; improve water quality; and eliminate the need for detention basins.

- **Environmental Applications**

Drinking water reservoirs are often lined with asphalt, and asphalt cement is used to line water pipes that supply potable water to humans. Landfills are often lined and capped with asphalt. Some state fish and wildlife agencies even use asphalt pavement to line their fish rearing ponds.

## Cleaner Air, Cool Cities

- **Asphalt plants are environmentally sound**

Emissions from asphalt plants, including greenhouse gases, are very low and well-controlled. Since 1970, the asphalt industry has decreased total emissions by 97 percent while increasing production by 250 percent. Emissions from asphalt plants are so low, the EPA removed asphalt plants from its list of major sources of hazardous air pollutants.

- **Cool cities**

The urban heat island effect is not a black and white issue. Not just color and reflectivity but also thickness, density, and heat capacity all play a role in pavement heat retention. Another consideration is that highly reflective pavements pose potential safety and health risks because of increases in glare and ground-level UV radiation scatter.

>> For more information on the environmental benefits of asphalt pavements, visit:  
[www.PaveGreen.com](http://www.PaveGreen.com) >> [www.QuietPavement.com](http://www.QuietPavement.com) >> [www.BeyondRoads.com](http://www.BeyondRoads.com)