

Earth Day 2009 Special

Online Calculator Estimates Fuel, Cost Savings on Roadways

The American Concrete Pavement Association (ACPA) today introduced an online calculator that allows agencies, planning organizations, roadbuilders, and others to calculate the estimated fuel- and cost-savings associated with building a concrete pavement versus an asphalt pavement.

ACPA's Green Streets Calculator™ is an online calculator that can be accessed at www.pavements4life.com/GreenStreets. The unique calculator illustrates two fundamental benefits of concrete pavements:

- Concrete roads deflect less under loading, allowing trucks to get better fuel mileage.
- Concrete roads require less fuel to construct than asphalt roads do.

With more attention than ever being focused on energy conservation, vehicle fuel efficiency, and new alternatives—such as hybrid cars and bio-diesel—public attention has turned to sustainable development, and within it, the use of environmentally responsible construction materials. Even so, few people realize the significance of road-type on fossil fuel consumption, as well as the related emissions.

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In addition to the calculator, the web page includes information about how pavement type extends beyond fuel- and cost-savings, the result being some significant environment impacts. For example, concrete pavements can contribute to a sharp reduction in fuel consumption by trucks that travel across highways and roadways. Concrete pavements also can sharply reduce emissions of carbon dioxide (CO₂), nitrogen oxide, and sulfur oxide.

About the Green Streets Calculator

ACPA's online calculator considers a whole host of key considerations in highway/roadway design, including net road length, total road width, concrete thickness, comparable asphalt thickness, traffic, and fuel costs. The web-based calculator will then automatically determine the minimum, average, or maximum impact of using concrete versus asphalt as it relates to fuel usage and the resultant environmental impact.

In addition to calculated savings, the web page underscores a number of key points about concrete and asphalt, including longevity, which has a particularly significant impact on fuel consumption and harmful emissions.

The Bigger Picture

The web page also cites Federal Highway Administration estimates that approximately 500 million tons of asphalt are placed in the U.S. transportation network annually. If, instead of placing these 500 million tons of asphalt, departments of transportation placed 500 million tons of concrete roads, the savings in fuel consumption from construction operations alone would be about 1.20 billion gallons of diesel fuel each year. This would also reduce CO₂ emissions by an estimated 13.8 million tons each year.

The National Highway System is the primary system for the delivery of goods by truck in the U.S. Some 80% of U.S. communities can be accessed only by truck for deliveries.

The system presently consists of approximately 160,000 lineal miles of pavement, 59% of which has an asphalt surface. If these asphalt surfaces were reconstructed with concrete pavements instead of asphalt pavements, it would reduce our dependence on foreign oil,

lower the emissions from vehicles, and decrease the cost of transporting goods. In fact, if the National Highway System were 100% concrete tomorrow, it would result in an additional savings of 2.1 billion gallons of diesel fuel and a reduction of 15 million tons of CO₂ per year.

Over the last three years, the United States has imported an average of 2.52 billion gallons of refined low or ultra-low sulfur diesel fuel. Thus, the nation would realize a potential savings of over 3.0 billion gallons of diesel fuel a year if our National Highway System had fuel-efficient concrete pavement surfaces. In addition to a longer-term and less-costly solution over its lifetime, we would greatly reduce the nation's dependency on foreign oil, while also seeing a reduction of almost 30 million tons of CO₂ per year from decreased fuel usage.

About the ACPA

The American Concrete Pavement Association is the national trade association for the concrete pavement industry. The primary mission of the ACPA is to create and maintain a strong national presence through dynamic, strategic leadership; effective technical expertise and resources; and persuasive advocacy on behalf of the concrete pavement industry.

Founded in 1964, the American Concrete Pavement Association is headquartered in Chicago at 5420 Old Orchard Road, Skokie, IL 60077. Telephone: 847/966-2272. Fax: 847/966-9970. The Association's Washington, DC office is located at 500 New Jersey Ave., NW , 7th Floor, Washington, DC 20001. Phone: 202-638-2272. Fax: 202-638-2688. Visit our technical website at www.acpa.org. Visit our public website at www.pavements4life.com.

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