

# Green Expressway

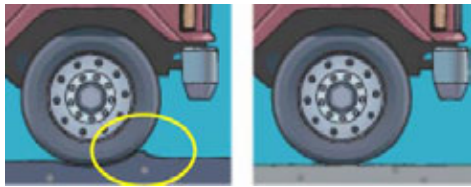
Fuel savings and reduced emissions translate into real opportunities for greening our highway infrastructure

## Triangle Expressway

The proposed Triangle Expressway is comprised of three sections, namely the Triangle Parkway, the Northern Wake Expressway and the Western Wake Parkway. The 19 mile toll-way will connect Holly Springs at NC 55 in the south to I-40 near Durham in the north.

## Fuel Efficiency & Green Highways

Highway agencies can realize significant economic and environmental benefits for the public during highway improvements with concrete pavements. Concrete's low rolling resistance reduces truck fuel consumption rates compared to asphalt surfaces. These reduced consumption rates translate into direct dollar savings as well as reductions in various engine pollutants.



**Flexible Asphalt Absorbs Energy – Rigid Concrete Doesn't**

Results of an analysis for the Triangle Expressway (shown on right) present a compelling case for the concrete pavements. The charts show a range of potential annual fuel savings and reductions in pollutant emissions that could be achieved if the Triangle Expressway was paved with concrete rather than asphalt. The case study is based on results from a study performed by the National Research Council of Canada (NRC) - Centre for Surface Transportation Technology (CSTT) in January 2006. The research concluded that trucks use on average 3.85% less fuel on rigid concrete pavements when compared to flexible asphalt pavements, due to concrete's lower rolling resistance.

### Sources

Wilbur Smith Associates, Traffic And Revenue Study, March 30, 2006  
 EPA 420-F-05-001, February 2005  
 NRC-Canada, CSTT-HVC-TR-068, Taylor and Patten, January 2006

The annual savings/reductions presented below are based on a traffic volume of 25,000 vehicles per day with 15% trucks, truck fuel mileage of 5.5 miles/gallon, and a local fuel price of \$2.99/gallon (as of Spring 2007).

**Fuel Savings (gal/yr)**



**Dollar Savings per Year**



**CO<sub>2</sub> Reductions (tons/yr)**



**NO<sub>x</sub> Reductions (tons/yr)**



**SO<sub>2</sub> Reductions (tons/yr)**

