



NRC-CNRC

*Institute for
Research in
Construction*

Bringing quality
to the
built environment

Effect of Rubber-Modified Binders on Asphalt Concrete

Objective

Assess the effect of rubber-modified binders on asphalt concrete characteristics and performance for Saskatchewan's 2005 demonstration project.

Background

The use of rubber asphalt cement (RAC) in cold climates is currently limited in Canada. Although there has been some research in Alberta, the paving material has yet to be assessed in Saskatchewan. A section of Highway 11 near Findlater, SK, has been overlaid with RAC (using rubber from recycled tires) and research will be conducted on instrumented test sections of both RAC and conventional asphalt over a two-year period to assess the pavement performance. In July 2005, sensors were installed to monitor the temperature, pressure and strain in each test section. In addition, a University of Regina team led by Dr. Liming Dai is assessing the noise reduction achieved by adding rubber to the asphalt.

Statement of Work

The research will consist of the following:

- Examine the structural response of the overlay and the road layers beneath the conventional asphalt and the RAC
- Perform a comparative analysis between the conventional asphalt and RAC-covered sections to assess the long-term performance of the RAC pavement
- Use field data, laboratory analysis and analytical investigations to address issues in RAC mix design and construction techniques, with a focus on the properties of the rubber-modified binder in future RAC projects.

Expected Outcomes

The project will help Saskatchewan Highways and Transportation (SH&T), the City of Regina and other local municipalities to assess the viability of RAC in Saskatchewan and assist in optimizing the characteristics of RAC.

Partners

SH&T, Prairie Rubber Corporation, University of Regina, SK Scrap Tire Corporation, City of Regina and NRC - Centre for Sustainable Infrastructure Research (CSIR). Funding from Communities of Tomorrow: Partners for Sustainability Inc.

Start/Expected Completion Dates

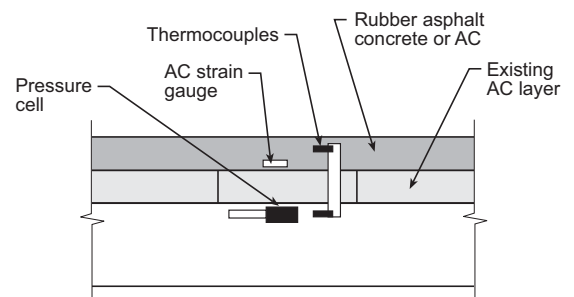
This project began in July 2005 and will be completed in March 2008.

Project Manager

Dr. Morched Zeghal: 613-991-6237; Morched.Zeghal@nrc-cnrc.gc.ca

For more information, see http://irc.nrc-cnrc.gc.ca/ui/ur/rubber_e.html

Factsheet 59, September 2005



Schematic of road section with instrumentation