**A State-of-the-Art Review of Cold In-Place Recycling of Asphalt Pavements in the Northern Plains Region**

**Abstract**

Cold In-place Recycling (CIR) is defined as a rehabilitation technique in which the existing pavement materials are reused in-place without the application of heat. The reclaimed asphalt pavement (RAP) material is obtained by milling, planning, or crushing the existing pavement. Virgin aggregate or recycling agent or both are added to the RAP material which is then laid and compacted.

The objectives of this study are:

1. To review the literature and survey practices related to the cold in-place recycling (CIR) of asphalt pavements in the northern tier states and provinces in the U.S. and Canada.

2. To identify key practice, design, construction, monitoring, and research issues related to CIR of asphalt pavements in North Dakota and address the information needs of North Dakota DOT.

The study will entail the following tasks:

**Task 1:** Confer with RAC regarding revised proposal and finalize the budget and scope.

**Task 2:** Do state-of-the art literature review related to CIR of asphalt pavements in the northern-tier states in the U.S. and Canadian provinces neighboring North Dakota.

**Task 3:** Interview key people in northern-tier states in the U.S. and Canadian provinces neighboring North Dakota involved in cold in-place recycling of asphalt pavements.

**Task 4:** Using the gathered information and interaction with North Dakota DOT personnel; highlight and address, to the extent possible, all the relevant design, construction, monitoring, and research issues related to the use of cold in-place recycled asphalt pavements in North Dakota.

**Task 5:** Develop a final report documenting the literature review, survey findings, and issues related to the potential applicability and usefulness of CIR pavements in North Dakota.

**Task 6:** Executive Presentation to North Dakota DOT RAC in November 2002.

While cold asphalt pavement recycling technologies are well established, there is still a need for additional performance information, particularly with regard to creep (rutting resistance), fatigue endurance, and durability. Further investigation is also needed to evaluate the ability of cold in-place recycled mixes to perform on higher traffic volume roadways.

**Key Words**

- Cold In-Place Recycling
- CIR
- Asphalt Pavement