How is International Roughness (IRI) Affected by Rehabilitation Treatment Type?

**OUR ANALYSIS AND APPROACH**

- Identify projects for each treatment type and build data base.
- QA data from pre and post.
- Measure pre and post construction IRI for all projects.
- Calculate pre and post construction IRI statistics for all projects within each treatment type and by province.
- Assess 50m average pre and post construction IRI for all projects.
- Identify projects for each treatment type and build data base.
- QA data from pre and post.
- Calculate pre and post construction IRI for all projects.
- Assess 50m average pre and post construction IRI for all projects.

**DATA SOURCES - BC**

- AB 2003 and 2005 construction “projects” - contractor
- Pre-construction IRI mean from network level data collection (PMS) and could be in the year before construction.
- Post-construction IRI from project QA

**DATA SOURCES - AB**

- AB 2005 projects identified by comparing pre (IRI measured with class 1 profiler or non-contact inertial profiler) and 50m average post construction IRI from PMS and could be in the year after construction.
- Pre-construction IRI from pre-construction PMS data collection in each waveband.
- Post-construction IRI from project QA

**CONCLUSIONS**

- Average pre and post construction IRI values ranged from 1.80 (BC, HIP) to 2.18 (AB, HIP area).
- Average pre and post construction IRI values were similar for all treatments and ranged from 1.80 (BC, HIP area) to 2.18 (AB, HIP area).
- IRI measurements in BC were obtained with HIP and HIP has an 85% based structures specification and HIP has a 105% based structures specification.
- Pre and post construction IRI from BC HIP projects also noted the pre (IRI = post/IRI) ranged from 1.8 to 2.18 (IRI)
- Pre and post construction IRI from AB HIP projects also noted the pre (IRI = post/IRI) ranged from 1.8 to 2.18 (IRI)

**DISCUSSION ON CONSTRUCTION SPECS FOR BC AND AB**

- BC - reference Section 502 Asphalt Pavement Construction (EPS) - acceptance based on IRI calculated with the Class 1 profiler or non-contact inertial profiler.
- AB - reference Spec 3.50 Asphalt Concrete Pavement (EPS) - acceptance based on IRI measured by Class 1 profiler.

**TREATMENT DESCRIPTIONS**

- **BC**
  - 2 LIFT (100 MM) Overlay
  - 3 LIFT OVERLAY
  - MILL AND INLAY 50
  - HOT-IN-PLACE RECYCLING (HIP)

- **AB**
  - 1 LIFT OVERLAY
  - 2 LIFT (100 MM)
  - MILL AND INLAY 50
  - RECYCLING (HIP)

**RESULTS**

- The summary of the waveband analysis for each of the four treatments in BC and AB is presented in the table below.

**CONCLUSIONS**

- Different rehabilitation treatments result in different levels of roughness reduction in each waveband of interest. An analysis of the pre and post construction IRI for all projects within each waveband shows the affect of different rehabilitation treatments on the IRI for each project.