The Bituminous Report

2013 Road Tour
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Outline

• Hot on Hot Paving
• Warm Mix Asphalt (WMA)
• Stone Mastic Asphalt (SMA)
• Rubber Modified Asphalt (RMA)
• Asphalt Cement Testing
• GreenPave
• iVision
• Other
Hot on Hot Paving

- Hot on Hot is an integral paving process that consists of placing two layers of asphalt in a single paving pass.
- Hot on Hot reduces closure time, provides better interface bond and allows for reduced thickness.
- Projects completed to date:
  - Hwy 12 Midland (2011)
  - QEW Fort Erie (2012) and
  - Future opportunities being considered (Contract Bulletin).
Warm Mix Asphalt (WMA)

- MTO’s trials have been successful, with 400,000 tonnes paved to date
- Compared to HMA, WMA:
  - Improves compaction and joint quality
  - Facilitates late season paving
  - Reduces cracking potential
  - Reduces fuel consumption
  - Reduces emissions at asphalt plant and paving site
- MTO permits WMA wherever HMA is specified
- MTO will continue to specify use of WMA on up to 15% of contracts in 2013 and 2014 to assist contractors in becoming comfortable with technology
Stone Mastic Asphalt (SMA)

• A temporary pause was placed on use of SMA due to concerns with early age friction
• Investigation resulted in construction of several test sections
• Based on trials to date, a grit coated with asphalt cement (1%), embedded on the SMA surface has proven to be an effective method to significantly improve early age friction
• MTO will continue monitoring these sections
• Moving forward with additional contracts for 2013
Rubber Modified Asphalt (RMA)

• Since 2008, MTO has paved 11 trials using semi-wet, wet-terminal blend, a combination of dry and wet-terminal blend and wet-field blend
• MTO, OHMPA and Ontario Tire Stewardship (OTS) worked together to address technical challenges identified with RMA
• OTS, in partnership with MTO, has funded several studies on RMA including use of WMA technologies
• Trials being monitored
• MTO would like to build one or two warm mix RMA sections in 2014 using wet-terminal blend method
Asphalt Cement Testing

• Collaboration with our stakeholders resulted in leading edge solutions to better characterize asphalt cement for cracking
• 33 trials being used to evaluate effectiveness of 3 strategies
• Data collected from trials was compared with video taken of the highways
• Found no definite trends, although better test results for the new tests seemed to show more favourable performance
• One year is too soon to draw any conclusions that use of a particular test can predict a better performing pavement
• Trials will continue to be monitored
• Results to assist with development of performance specifications addressing premature cracking
• No changes expected for 2013
GreenPave

• Over 90 design projects assessed using an MTO developed simple points-based rating system for sustainability of pavement design and construction alternatives

• Point awarding system being finalized in relation to construction methods and activities for:
  • Actual mass of recycled materials
  • Pollution reduction due to retrofitted equipment / alternative fuels
  • Sustainable practices / innovations beyond project requirements
  • Improvements to conventional processes

• Anticipating a future launch of GreenPave to include on-line availability of promotional materials - Overview Presentation, GreenPave Reference Guide and GreenPave Worksheet

• External training strategy being developed is considering webinar format and joint workshop with OGRA
iVision – Pavement Conditions

- iVision is a web-based application for deployment of synchronized map, video and pavement condition data
- Video and pavement condition data are captured using the Automatic Road Analyzer (ARAN)
- Pavement performance metrics can be presented as charts, tables or numerical indices to determine performance trends
- Allows for open collaboration/use by offices across the OPS
- Beta tested in December 2012
- MTO Regional Offices deployment planned for April 2013
iVision – IRI Pavement Performance Chart
Others

• As of 2012, MTO uses high speed inertial profilers to evaluate and accept pavement smoothness on all new contracts

• 2013 contractor bulletin stating MTO’s interest in contractor change proposals for:
  • Hot on Hot paving
  • Multiple Stress Creep Recovery (MSCR) test for High Temperature Performance
  • High Performance Polymer Modified Asphalt Cement
  • Post-Consumer Shingles
Others

• **Hot on Hot/Integral Paving**
  • Binder and surface paved in one operation using integral paving equipment

• **Multiple Stress Creep Recovery (MSCR) Test**
  • Tighter MSCR testing criteria used instead of “double bump” of PGAC for very heavy traffic i.e. PG 58-28 meeting very heavy traffic MSCR criteria instead of PG 70-28
Others

• **High Performance Polymer Modified Asphalt**
  Cement
  • Use MSCR and DENT criteria to characterize high strength asphalt for high performance HMA
  • US trials indicate lift thickness can be reduced

• **Post Consumer Shingle Material**
  • While MTO permits manufactured shingles, MTO specifications currently do not permit use of used shingles which contain harder AC
  • Some US agencies permit post consumer shingles
  • MTO interested in evaluating
Concluding Remarks

• MTO is particularly interested in evaluating benefits of innovative and green technologies and materials
• Ministry staff are working closely with industry to implement these initiatives
• This consultation process is working well and we will continue to work closely with our partners to achieve quality roadways

Questions?