

The Bituminous Report

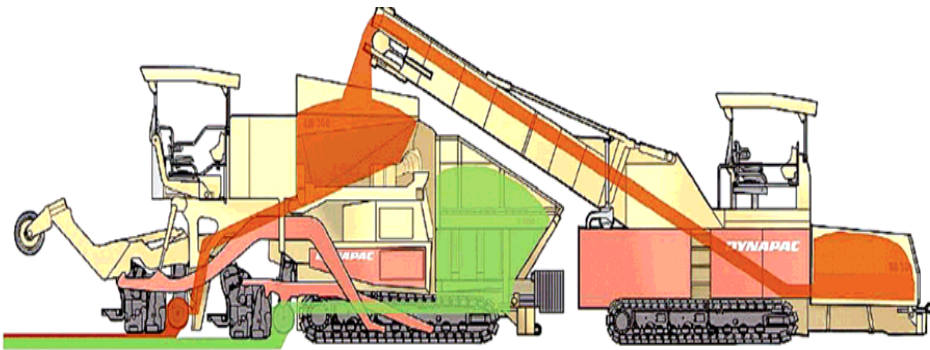
2013 Road Tour
Pamela Marks, Head
Bituminous Section
MERO, MTO

Outline

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

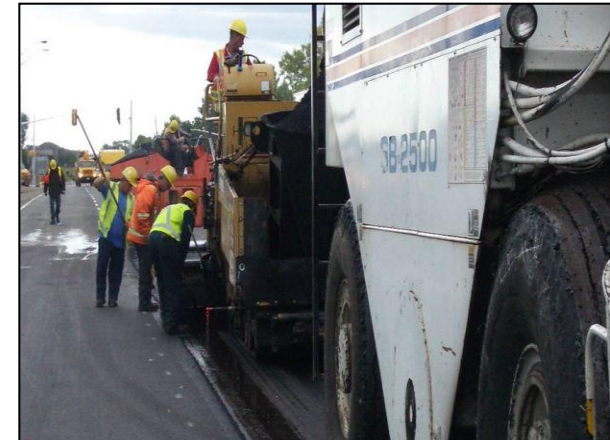
Hot on Hot Paving

- 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

iVision Home | etcbtdcapmdw32/iVision/#/Home

Fugro Roadware iVision | Year * | Level 10 | Linear Reference 41999.959

Map

Bing Map | Road | Aerial | Aerial With Labels

New Chart

Legend: IRI Right (red), IRI Left (blue)

ROW

ForwardRight | LCMPavement | ROW

IDSegment	BeginChainage	EndChainage	Elevation	Grade	Heading	Crossfall	IRI Right	IRI Left	Latitude	Longitude	RUT Right	RUT Left	MPD	RMS	Pitch	Roll	Speed	FaultHeight	FaultCount	LHRS
3953	41940.000	41950.000	309.661	0.639	30.676	2.090	2.375	1.949	43.502	-81.169					0.366	1.198	96.550	0.000	0.000	24530.000
3954	41950.000	41960.000	309.700	0.998	30.668	1.899	2.189	2.642	43.502	-81.169					0.572	1.088	96.217	0.000	0.000	24530.000
3955	41960.000	41970.000	309.739	0.839	30.626	1.905	2.395	3.773	43.503	-81.169					0.481	1.091	96.192	0.000	0.000	24530.000
3956	41970.000	41980.000	309.778	0.930	30.578	1.903	1.962	3.879	43.503	-81.169					0.533	1.090	96.314	0.000	0.000	24530.000
3957	41980.000	41990.000	309.817	0.862	30.704	1.363	1.437	4.581	43.503	-81.169					0.494	0.781	96.494	5.268	1.000	24530.000
3958	41990.000	42000.000	309.856	0.870	30.819	1.583	5.328	4.998	43.503	-81.169					0.498	0.907	96.597	5.415	1.000	24530.000

Segments

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?