Harmonizing Ontario’s HMA Specifications

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Presentation Outline

- Recap: Present Concerns and Solution
- Why Harmonize?
- Evaluation Focus
- Conclusion
- Next Steps
Recap: Present Concerns

- Dense aggregate gradations that did not provide sufficient room for the asphalt binder in the mixture, leading to mixes that were more susceptible to early cracking,

- The lack of bonding between layers of hot mix asphalt ("HMA"), which were related to the quality of specifications and oversight of tack coat application;

- Cracks that reflected from lower pavement layers through asphalt overlays

ASPHALT CEMENT QUALITY
Recap: Solutions

CONTINUOUS IMPROVEMENT FRAMEWORK

1. Focus on Tack Coat
   - Reinforce specifications
   - Treat as separate contractual item
   - Further research characteristics of tack coat alternatives for Ontario traffic conditions

2. Increase Asphalt Content in the Mix Design
   - Reinforce specifications
   - Regress mixture design asphalt content to 3% Air Voids level
   - Avoid dense aggregate gradations that don’t provide sufficient room for asphalt binder

3. Avoid overuse of REOB, PPA and Shingles in HMA
   - Strengthen specifications around the use of PPA
   - Develop tests to control overuse of Shingles
   - Utilize chemical tests (such as XRF) to identify REOB

4. Improve QA practices at a Municipal level
   - Increase number of inspectors and testing frequency
   - Identify and quantify presence of REOB in AC to prevent overuse
   - Work with CCI to produce QA processes that help quantify the amount of RAP in HMA
   - Increase inspections of AC refineries and terminals

5. Gain consistency in asphalt specifications, and ensure contract enforcement
   - Apply MTO specifications across the province without (or with minimal) variation
   - MTO / ORBA joint research efforts
   - Enhance role of Independent Engineers
   - Avoid changing specifications when industry have concerns
   - Implement designer inspections of underlying pavement prior to overlay

6. Review Owner Procurement and Contract Management Practices that affect Asphalt Quality
   - Municipal Owners to enforce removals when required per contract (lower tolerance for poor quality)
   - Implement third party contract audits to ensure contract compliance by owner and contractor
   - Review contract wording around warranties, removing any design liabilities on bid contracts

7. Implement mandatory asphalt Inspector Training programs for owners across the province
   - MTO/OGRA should work together to identify pavement technician training courses (similar to APAPC’s) that would lead to an accredited certification requirement prior to a supervisor, inspector, or consultant being appointed to supervise, perform testing, or provide oversight reports on a pavement project.
Why Harmonize?
# Evaluation Focus

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<th><strong>PGAC Specification</strong></th>
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Evaluation Focus: Mix Design

Consensus Requirements:
- Increasing Asphalt Cement Content
- Use of Recycled Material
- Mixing and Compaction Temperatures
- Production Technologies
- Use of Additives
- Proportioning Mineral Fillers
- Use of Distinct Specifications - WMA
**Evaluation Focus:** RAP Usage

**Concerns:**
- Premature Cracking
- Limitations to RAP Use
- Additional Test Requirements
- Environmental & Economic Consequences
Evaluation Focus: PGAC Specifications

Concerns:
- Acceptance and Rejectable Criteria
- Inconsistencies with Test Procedures
- AC/Binder Literacy
**Evaluation Focus:** HMA Acceptance Criteria

**Concerns:**
- Need for Adequate QC/QA Practices
- Sampling Methods
- Acceptance Plans
- Imposed Penalties on Non-conformance
**Evaluation Focus:** Tack Coat Specification

**Current Types:**
- SS-1 Emulsified Asphalt
- SS-1 H
- MS-1

**Application Practices:**
- Milled Surfaces
- Padded Surfaces
- Paved Surfaces
Conclusion

The goal of harmonization is to eliminate specification proliferation.

- **Timely Communication of Construction Notices**
- **General Compliance with Latest OPSS Specifications**
  - Selecting Criteria Impacting on Mix Volumetrics and Density Requirements
  - Rationale for Selecting Test Procedures, Setting Criteria and Limits
- **Personnel Training**
- **Strong Commitment from ALL Stakeholders**
Next Steps

- Engage with Specifiers on Ways to Achieve Durable HMA Pavements:
  - Discuss to Better Understand These Specifications
- Encourage the NEED to Harmonize Specifications
THANK YOU FOR LISTENING