Advancing Opportunities and Collaborations for a High-RAP Mix Technology Demonstration Trial in Ontario.

Doubra C. Ambaiowei, Ph.D., P.Eng.

Director, Technical Services, ORBA/OAPC & ATS Co-Chair

Growing RAP Stockpiles in Ontario – Concerns, Opportunities and Risks!

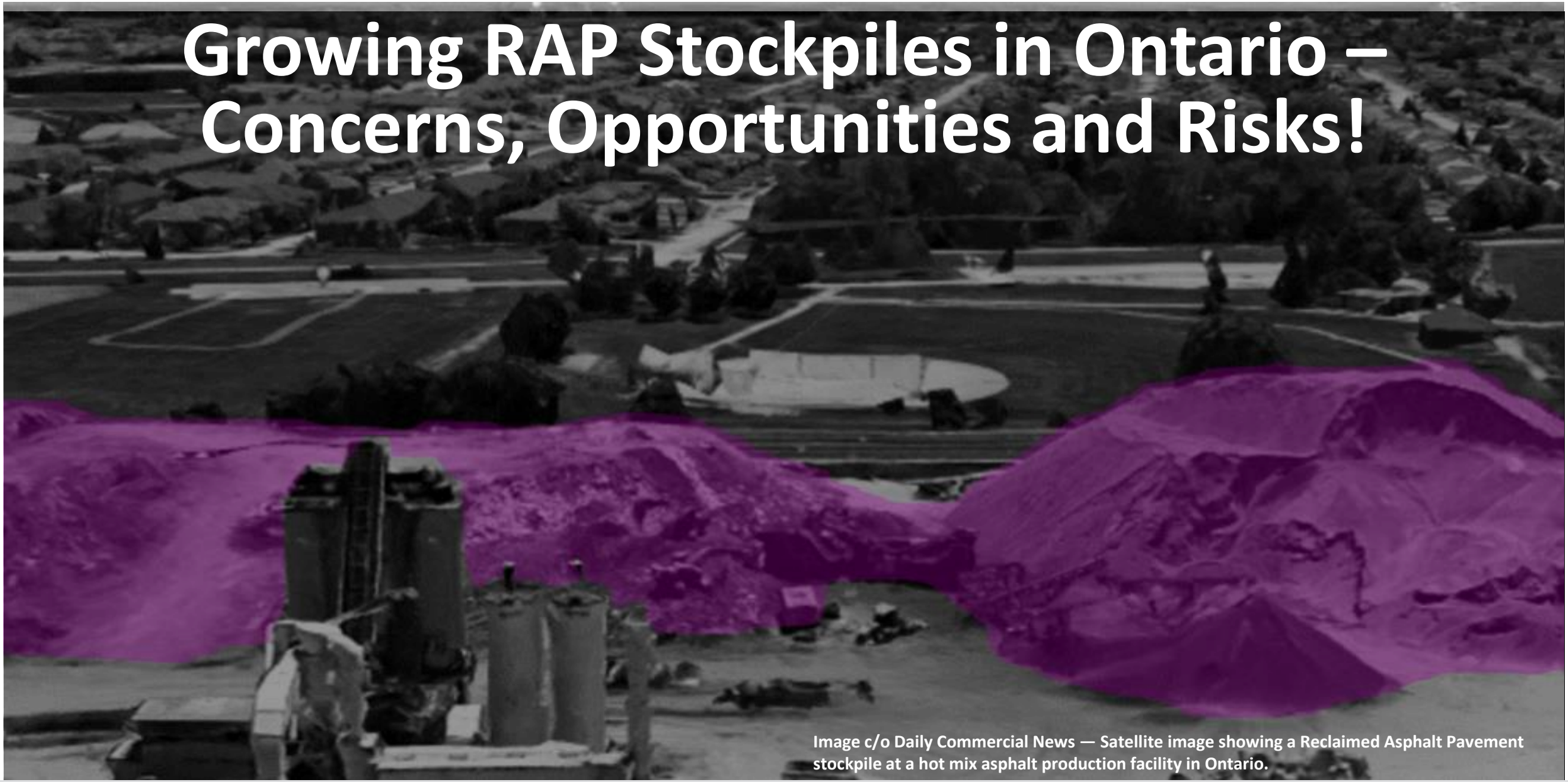
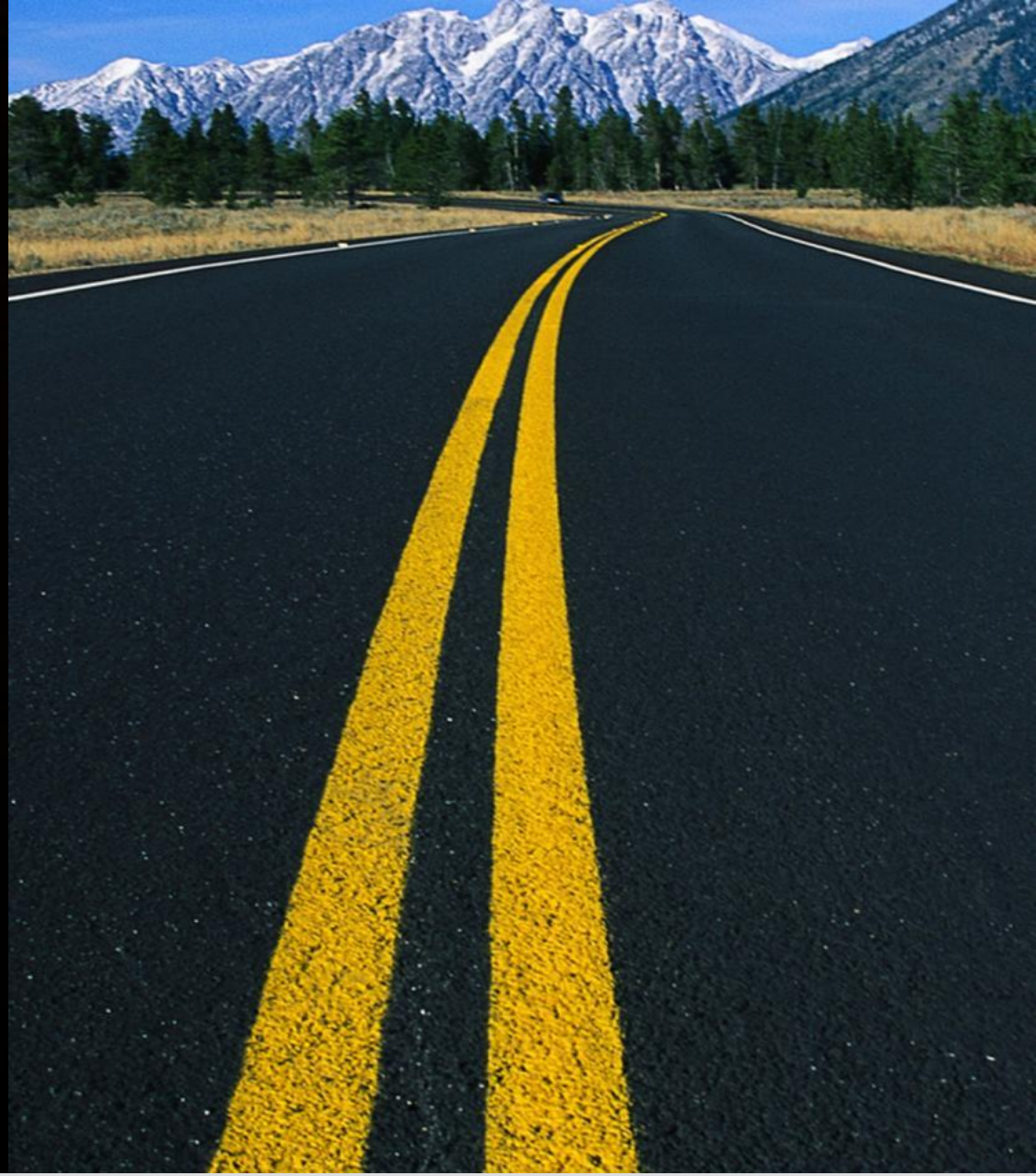


Image c/o Daily Commercial News — Satellite image showing a Reclaimed Asphalt Pavement stockpile at a hot mix asphalt production facility in Ontario.

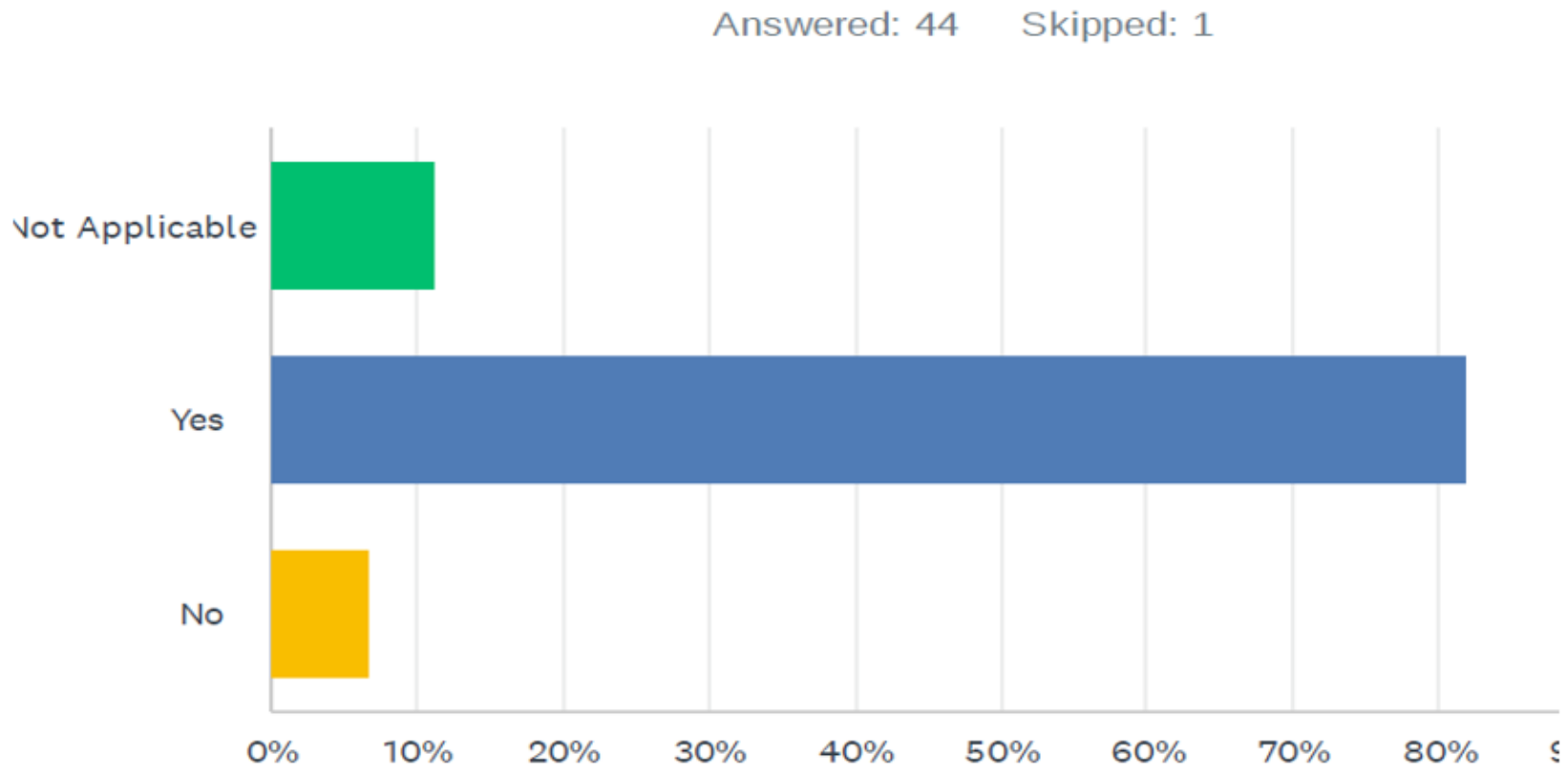
THERE IS ALWAYS ROOM FOR IMPROVEMENT

PictureQuotes.com



Q4 – Collaboration on RAP Use

- **Would you subscribe to collaborating with the OAPC on RAP pilot projects to further the success of experiences that show the durability of HMA is not compromised by incorporating and/or increasing amount of RAP that is currently allowed?**



Building Momentum for a High-RAP Pave-in in Ontario

Council is seeking collaboration from interested road owners to stimulate specifications towards optimizing the use of RAP and Warm Mix Asphalt (WMA).

Building Momentum for a High-RAP Pave-in in Ontario

Partnership/Project Considerations and Objectives

Council proposes for consideration by interested road-owners and industry partners, a **"Pave-in: Technology Demonstration Day"** focused on *reviewing the challenges, evaluating, and implementing the opportunities with designing, producing and placing high-RAP asphalt mixtures in Ontario*.

Building Momentum for a High-RAP Pave-in in Ontario

Partnership/Project Considerations and Objectives

Mix Consideration(s): Superpave Surface and/or Base mix incorporating RAP up to 50 percent, with opportunities to evaluate the impact from incorporating recycling agents.

RAP Content (%)	Base Virgin Binder PG Grade			
Surface – Control (No RAP)	58 - 28	58-34	52-34	52-40
15 - Surface				
25 - Surface				
40 - Surface				
40 – Base (Lab Focus)?				
50 – Base (Lab Focus)?				

- **15% RAP:** Worth considering to push toward a minimum 20% RAP increase in Ontario HMA specifications that are otherwise currently hostile.
- **PGAC:** Conservative approach for High RAP consideration, with grade change considerations per Ontario's PGAC guidelines.
- **RECYCLING AGENTS:** This could be instrumental in pushing for RAP use above 25% and up to 40%, with opportunity to see the impact of using rejuvenators. Optimal dosage for the selected rejuvenating agent should be a design consideration.
- Use of Blending Chart for Binder selection is emphasized.

Building Momentum for a High-RAP Pave-in in Ontario

Partnership/Project Considerations

Performance Testing and Monitoring Plan!

- ❑ Implement a Balanced Mix Design (BMD), with focus on *selecting the final asphalt content after optimizing the mix density, rutting, and cracking requirement(s)*.

- ❑ Construct field trial/demo sections containing different levels of RAP to demonstrate and validate the balanced RAP mix design.

- ❑ Consider an instrumentation plan to monitor both structural and environmental behaviours post-construction.

- ❑ Implement an agreeable performance testing requirement(s) on the plant produced mixes, including a recovery and testing plan on the binders, as well as other standard sampling and testing project requirements.

Building Momentum for a High-RAP Pave-in in Ontario

Partnership/Project Considerations

Opportunities and The Missing Link!

- ORBA/OAPC is 100% Committed!
- Three (3) Recycling Agent Supplier(s) are 100% Supportive - Bio Diffusion Technologies, Sripath Technologies, and Cargill Anova Asphalt Solutions: All Bio Based Rejuvenators.
- There is an opportunity for Collaboration with the National Research Council Canada (NRC) as part of their commitment to support decarbonizing the construction industry.
- Industry (Consultant/Contractor/Producer) Willingness for Involvement.
- Road Owner Collaboration NOT YET SECURED!

Building Momentum for a High-RAP Pave-in in Ontario

Partnership/Project Timelines

Expectations for Implementing an OAPC Pave-in is July/August 2025

Confirm Road Owner Involvement and Other Collaborators: August/September 2024.

Agree on Partnership and Project Plans: December 2024 or Earlier.

Building Momentum for a High-RAP Pave-in in Ontario

- 2024 Ontario Paving Report: https://goodroads.ca/news_articles/2024pavingreport/
- Developing High RAP Mixtures Using International Experiences: Literature Review
- International Experiences with High RAP Content Mixtures
- ATS Presentations From Inception-to-Date: https://www.onasphalt.org/presentations

Building Momentum for a High-RAP Pave-in in Ontario

To learn more and/or if interested in joining forces towards realizing the objectives of a high-RAP Pave-in Project in Ontario, please connect with ORBA/OAPC Technical Director at: Doubra.Ambaiowei@orba.org

https://www.onasphalt.org/publications/spring2024

FOR ANY INQUIRIES ABOUT OAPC, PLEASE E-MAIL:
INFO@ONASPHALT.ORG

VISIT OUR REFRESHED WEBSITE TO LEARN MORE:
WWW.ONASPHALT.ORG