

ASPHALT**topics**

SUMMER 2024 | VOL37 | N02



MUNICIPAL PAVING AWARD

Brantco project wins

NOT JUST A BLACK ROCK

bitumen blending

GLOBAL TRENDS

high RAP mixes

asphalt

ontario rides on us



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COVER PHOTO

Sunset Road - Elgin County Road #4 (Branto/Elgin).

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CHAIR'S CORNER

Steven Manolis
Chair

with highly relevant and contemporary issues including approaches to balanced mix design implementation in Ontario, guidelines and recommendations for field validation and test criteria for balanced mix design implementation from the National Centre for Asphalt Technology (NCAT) in the U.S., as well as updates from the Ontario Asphalt Expert Task Group (OAETG) on mix performance and recovered asphalt testing on Ontario mixes. We also learned about efficient and effective test parameters to identify the best performing asphalt cement binders, and a high RAP mix technology demonstration project that OAPC is planning for 2025.

Thank you to all of the stakeholders who make the time to attend, participate in, and organize these events. The knowledge that we gain, as well as understanding the different perspectives around these topics, is valuable as we navigate the complex issues that we face.

We are in a time of great change with how asphalt in Ontario is specified, tested, and accepted. This has and will continue to lead to changes in the ways our materials are designed, produced and placed. Would a good end goal be to arrive at specifications that both ensure quality and can be realistically and consistently achieved?

Education is so important because educated stakeholders can have meaningful discussions around a matter even when they have different views. One of the valuable non-technical things that I learned from speaker, Thomas Harman, from NCAT at the Asphalt Technical Seminar was that before we get to discussing our differences on an issue, we should find two things we have in common – we might just find that we are closer than we thought.

“It is the mark of an educated mind to be able to entertain a thought without accepting it.” – Aristotle. ■

Education matters

“No task before our nation is more important than expanding and improving the educational opportunities of all our people...it is the mainspring of our economic and social progress...it is at the same time the most profitable investment society can make and the richest reward it can offer.” – John F. Kennedy.

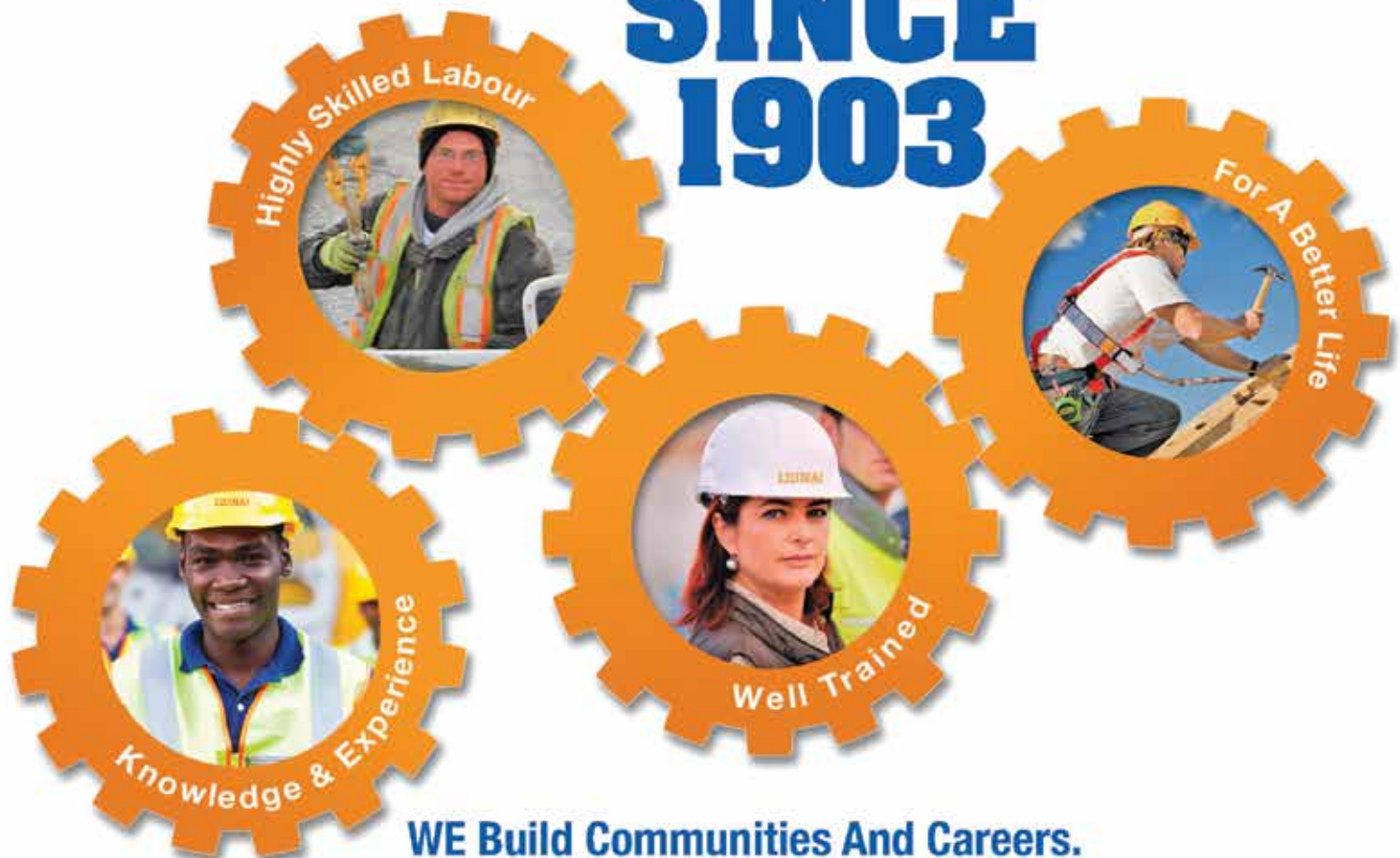
This quote is as highly relevant today as it was some six decades ago for our members, our stakeholders, and all of the capable people who work in the asphalt industry. Education is an OAPC strategic priority.

OAPC presented to our municipal stakeholders at the Good Roads conference in April. We explained our dedication to quality, our Top 10 List of ways to improve the durability of asphalt pavements, and the educational opportunities that we make available to external stakeholders including the Asphalt Technical Symposium and the Fall Asphalt Seminar. We were very fortunate to have Chris Traini, County Engineer from Middlesex County, provide a municipal perspective as a speaker during our panel discussion.

April was a busy month as we also held the Spring Operations Seminar as an educational opportunity for our members. Topics included approaches to the safety culture and practices in the asphalt road building industry, an overview of the new sixth edition of the Environmental Practices Guide, and an update from MTO on 2024 specifications and other Engineering Materials Office (EMO) initiatives. Case studies on projects to reduce natural gas consumption and GHG emissions were presented, as well as a new three-dimensional screed system and how it has been used to improve mat density and smoothness.

In June we hosted the Asphalt Technical Seminar. We had attendees from municipalities, MTO, engineering consultants, researchers from academia, certification bodies, trade associations, asphalt producers, and paving contractors – practically the entire spectrum across our industry! Sessions were cutting edge

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OPERATIONS CORNER

Doubra C. Ambaiowei
Director, Technical Services

Frontiers for quality asphalt

It's unbelievable how time flies! If you have little kids, you may be familiar with the tune from one of Blippi's educational videos: "Summer is here, lets have fun in the sun." For me, there's an alternative chorus that goes: "Summer is here, lets have fun with ASPHALT." Every asphalt enthusiast can understand why! This is the best time for paving, and the reasons are endless.

Leading up to summer, on April 23, OAPC featured at the 2024 Good Roads Conference, pushing forward the frontiers for quality asphalt. This opportunity provided insights into the who, what, why and how OAPC operates to support road-owner agencies, and an opportunity for dialogue. I was honoured to moderate a panel discussion comprised of industry and municipal experts who addressed some of the most important things that can be done to ensure that asphalt pavements are built to last by reviewing the [OAPC Top 10 List: Ways to Get More Durable HMA Pavements](#).

In addition, the panel addressed the challenges, solutions and opportunities that could lead to improved quality and economic benefits, including some of the main environmental and technological considerations to keep in mind when building and maintaining asphalt pavements. Thank you to our panel of experts for their time and contributions to knowledge – Steve Manolis (OAPC Chair & GIP Inc.), Christopher Campbell (OAPC Vice-Chair & Imperial Oil), Peter Hamstra (OAPC Past Chair & Dufferin Construction), and Christopher Triani (Middlesex County).

We kicked-off this summer with an ORBA webinar focused on **The Importance of Borderline Specifications for Asphalt Production** on May 29. The need for this webinar stems from continuing discussions on what changes can be recommended to the OPSS 310 Muni Specification. Key questions for improved quality asphalt production, with emphasis on curbing production variabilities and any extremely punitive measures by road-owner agency specifications, were addressed. On July 17, another webinar showcased the OAPC/Good Roads Municipal HMA Liaison Committee's work on the recently published **Municipal Paving Inspector Checklist**. If you missed or wish to recap an ORBA webinar series, access it [here](#).

Conversations around how to achieve a balanced mix design, accurate assessment of technical performance through appropriate testing methods, and facilitating optimal alignment with the design of asphalt pavement structure to achieve durable asphalt pavements, remain an important OAPC focus. Sincere appreciation is extended to all participants, sponsors and facilitators of the **2024 OAPC – Asphalt Technical Symposium (ATS)** held on June 11. We look forward to implementing and building upon key takeaways from the symposium for future-related efforts. A recap of ATS is anticipated at the upcoming **Fall Asphalt Seminar on November 28**. In the meantime, presentations are now available on the [OAPC website](#).

In pushing forward the frontiers for quality asphalt in Ontario, there needs to be an emphasis on **highlighting the latest trends of techniques and methods in enhancing asphalt material durability**. Collaborative research and consultations fostering healthy debates around technical issues and differences in opinion must be encouraged, with intent to influence specification changes positively. This is why platforms such as the ATS and progressive provincial and municipal partnerships exist. As the voice of the asphalt producers in Ontario, our resolve is strengthened towards navigating processes and initiatives dedicated to promoting excellence in quality and sustainable asphalt products in Ontario.

Please enjoy the contents of this summer edition of your favourite ASPHALTopics magazine and endeavour to make the most of summer. I look forward to hearing from you pertaining to all things asphalt. THANK YOU! ■



ATS



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Asphalt Mix Performance Testing (AMPT)
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Joint and Crack Sealant (ASTM D6690)



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MARCOM MATTERS

Doubra C. Ambaiwei
Director, Technical Services

Phase-two website refresh in development

On March 11, 2024, we launched phase-one of the refreshed ORBA and OAPC websites. This fall or earlier, you can expect the concluding phase of our efforts to deliver an excellent website for our valued members. Our refresh goal recognizes that as technology evolves and design trends change, we need to enhance our user experience to increase our visibility and support our marketing efforts.

If you have engaged with the refreshed websites, a few things stand out. In terms of navigation, both the ORBA and OAPC websites are now intuitive and user-friendly. We have simplified the menu structure to help users find their way around the site effortlessly. For those who access the websites via mobile devices, you would have noticed that our optimized design and layout provides a seamless browsing experience across different screen sizes and resolutions. The association's branding is now more visually pronounced for an engaging visual user experience.

In phase-two, we expect to integrate our Trillium program and quality of asphalt educational videos to create a more positive impression. Content on the site(s) has been strategically streamlined with infographics to enhance user engagement. This is particularly noticeable with how the AC Price Indexing is being displayed. Older information such as event/seminar presentations, reports and webinars are archived in the member-only sections for easy referencing.

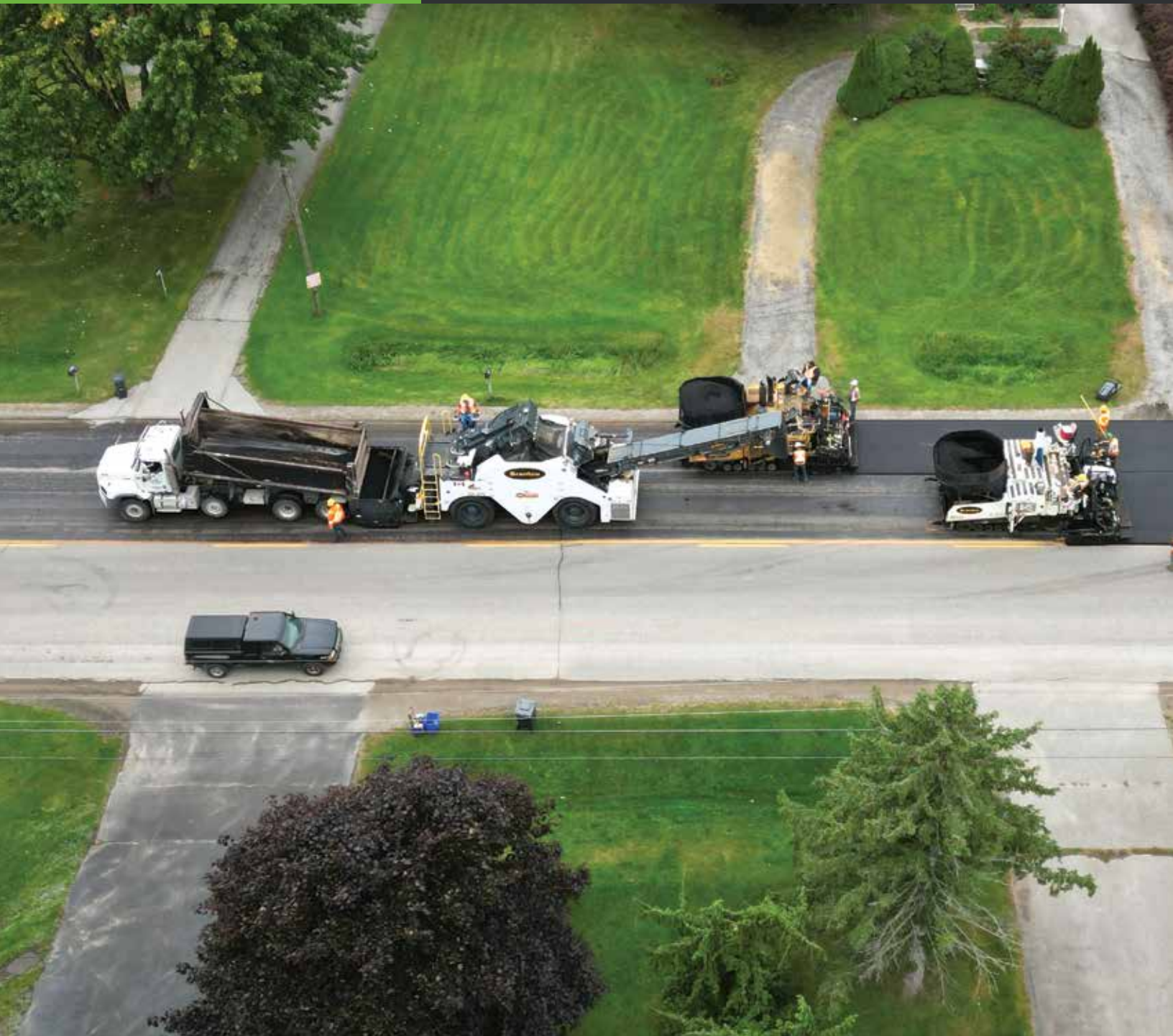
Phase-two developments will also see the integration of the association's social media profiles. This will help amplify our online presence and encourage user engagement. Visitors will be able to share our content, thereby increasing visibility and exposure to our brand. We will implement a searchable members directory for more member visibility and brand awareness. Members can also look forward to a revamped bookstore that enhances access to resources from sister organizations such as the Asphalt Institute (AI) and National Asphalt Pavement Association (NAPA).

A new event registration page is also a feature for phase-two. This will allow for seamless registration, payment and follow-up as required. The ability to gather feedback is an integrated feature as part of phase-two development. Our expectation is that it enhances trust, credibility, and validates our services.

Speaking of feedback, we would be pleased to hear from you regarding the current asphalt plant locator tool. Another important upcoming feature will be the ability to find Trillium-awarded asphalt plants. Please connect with the ORBA membership team to update your facility's details, but more importantly, consider applying and/or renewing your facility's Trillium Award status where applicable. This will ensure you are always visible to your clients and the communities they serve.

Finally, phase-two developments will onboard the complete features to the careers hub to enhance our scholarship program initiatives. The ORBA/OAPC Scholarship Programs were both developed to better engage and educate the younger generation about the asphalt industry as they are making career choices. The program provides students with an excellent opportunity to learn more about the industry and to network with industry leaders. The careers hub looks to bridge the gap between employers and potential employees. Students and job seekers will have the opportunity to create their job profiles and upload their resumes, while employer representatives can download content and engage with preferred candidates. We encourage member companies to consider posting job opportunities via the careers hub. This increases visibility to all interested and eligible candidates.

As a reminder, members are advised to **connect with ORBA's membership team if they are yet to complete onboarding onto the refreshed ORBA/OAPC websites.** You will need a new unique member profile for the best user experience as the earlier login is deactivated. ■



Excellence and innovation are hallmarks of the best paving projects in Ontario. Four of the very best were recognized during the seventh annual Municipal Paving Project of the Year award presented during the Good Roads conference in April 2024.



by **James Careless**

MUNICIPAL PAVING AWARDS RECOGNIZE PAVING EXCELLENCE AND INNOVATION

The 2023 Municipal Paving Project of the Year award winner was Brantco Construction for their resurfacing of 9.9 km of Sunset Road (Elgin County Road #4) in Elgin County. The three finalists were Miller Paving for the reconstruction of Riverside Drive in Timmins; Cox Construction for the rehabilitation of Wellington Road 32 (Wellington County); and Brennan Paving and Construction for their roadside improvements on Ravenshoe Road and Glenwoods Avenue (Town of Georgina).

The Municipal Paving Project of the Year Award recognizes and promotes successful collaborations between asphalt producers, pavers and municipalities for excellence and innovation in Ontario paving projects. Award applicants are assessed on the finished pavement's conformance to the project's specifications, visual appearance, overall quality, innovation and considerations such as night paving, traffic flows, and work windows, among others. »

BRANTCO CONSTRUCTION DELIVERS A SMOOTH RIDE IN ELGIN COUNTY

A smooth ride – that’s what motorists are saying about Sunset Road (Elgin County Road #4), a major arterial roadway between the City of St. Thomas and the Village of Port Stanley. In September 2023, Brantco Construction repaired and resurfaced 9.9 km of Sunset Road under contract to Elgin County.

The resurfacing project used 20,458 tonnes of HL3 hot mix asphalt with 5.3 per cent asphalt cement (AC) as specified by the client. “The county has had success using high AC content virgin mixes for our surface asphalt,” says Peter Dutchak, Elgin County’s Director of Engineering Services. “No RAP content is permitted in our surface courses because we believe that our roads are better served from that type of mix. Base courses are typically 100 per cent cold-in-place recycled so we remain environmentally conscious. Every one of the 45 samples we took passed the OPSS requirements.”

It was the smoothness of Brantco’s work that really impressed Elgin County, which was borne out by International Roughness Index (IRI) tests it conducted before and after the job was done. “Normally we would not have done a smoothness test on a simple resurfacing project, but we understood we were going to be applying for this award and we wanted to have a solid metric to know what sort of smoothness improvements were made,” Dutchak says.

“We were very pleased to find that the initial IRI was 1.84 on this roadway – and that’s metres per kilometre – and after one lift of pavement, we were able to reduce that to 1.05, which was a reduction in roughness of 43 per cent. That was a tremendous improvement which I think was a combination of Brantco using a material handling vehicle (MTV) in concert with paving in echelon using two pavers to eliminate cold joints and achieve fewer stops and starts.”

Achieving this award-winning level of smoothness is impressive in its own right. But this result is particularly noteworthy given the fact that Sunset Road is popular with cottagers heading to and from the shore of Lake Erie. Even though the Sunset Road project began after Labour Day, “there was lots of traffic control to deal with,” says Darcy Miske, Project Manager and Estimator at Brantco Construction, up to 10,000 cars on weekdays and 15,000 daily on weekends according to Elgin County statistics.

“There was also a school close by, so to keep the school accessible, we ended up paving a section of the road on a weekend to help with the school traffic,” Miske continues. “There were train tracks as well, so we had to co-ordinate with the trains to make sure that we weren’t in their way and them in ours. In general, traffic was a nightmare which we controlled by reducing traffic to one lane using a flagging operation and a pilot vehicle. It’s a heavy cycling route as well, so we had to make sure that bicyclists stayed safe while we were occupying lanes and doing our work.”

To achieve Sunset Road’s smoothness, Brantco Construction’s 16-person crew had to first mill and remove old asphalt to blend into existing curbs, gutters and driveways. This operation generated approximately 10,000 tons of RAP which has been stockpiled at an Elgin County facility for use in future projects. As well, Sunset Road’s existing inductive loop sensors (for signalized intersections) were replaced with radar sensors to improve traffic flow, reduce greenhouse gas emissions, and eliminate conflicts with milling and resurfacing operations. In-place steel beam guardrails had to be adjusted to match their heights to the new surface elevation, while AODA (Accessibility for Ontarians with Disabilities Act) concrete ramps and tactile plates were installed to be compliant with provincial disability access regulations.



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(Miller/Timmins)

All told, Brantco Construction's resurfacing of Sunset Road was designed to be award-worthy from the get-go, and the effort paid off for all parties involved in this project. "Elgin County Council recognizes and supports the importance of timely infrastructure investments to maintain a robust road network that benefits our residents, commerce, and tourism," notes Elgin County Warden, Ed Ketchabaw. "The asphalt resurfacing project on Sunset Road exemplifies our commitment to these goals, ensuring safer and more efficient travel for everyone. As part of the project, we improved cycling lanes that form part of the Whistle Stop Trail and added accessibility enhancements for pedestrians at intersections."

MILLER PAVING KEEPS TRAFFIC MOVING ON TIMMINS RIVERSIDE DRIVE

Miller Paving was a finalist for the 2023 Municipal Paving Award for its 1.5 km reconstruction of Riverside Drive from Shirley Street to Government Road in Timmins, Ontario, as part of the city's Connecting Link Project. The project included a full asphalt restoration and stripping of existing pavement, grading and compacting the base with new granular, and reapplying a fresh layer of hot mix asphalt, plus new curb and sidewalk boulevards, water main and drainage works, street light upgrades, and traffic signal improvements. This project also extended approximately 1.6 km of new sidewalk on the north side of the road from Shirley Street to Government Road.

An asphalt thickness of 175 mm was incorporated into three lifts: 70 mm SP19 rich bottom mix, 55 mm SP19 binder, and 50 mm SP12.5 surface. "The asphalt cement used on this project was unique for the area to meet the very strict rut testing as well as the PGAC testing requirements," says Miller Paving Project Manager, Ryan Cote. "Miller designed the mixes using a 64-34XJ from McAsphalt. Echelon paving was also a requirement which added an additional level of co-ordination."

According to this project's Municipal Paving Award submission, "one notable aspect of this project is the minimal disruption it has caused to the abundant local businesses and their entrances. Through meticulous planning and close coordination with the business owners, the construction team has worked diligently to ensure that any potential inconveniences are minimized allowing for the smooth operation of daily business activities." »





This six month project is noteworthy due to the fact that it was successfully completed despite northern Ontario's challenging climate. Miller Paving completed its work on midnight of November 6, 2023, just 10 minutes before Timmins' first major snowstorm of the season began.

In addition to handling traffic disruptions and the weather adeptly, Miller Paving and the City of Timmins faced some serious complications due to buried utilities. "The complications there were having the gas main right underneath the culverts, and also hydro conduits everywhere," says Eryk Rice, the City of Timmins' Project Co-ordinator. "Some of the wires were exposed and outside of their conduits, so we had to wait for Hydro to come and do some of their work prior to us finishing the culvert."

Despite all of these challenges, Miller Paving finished the Riverside Drive project on time and on budget.

COX CONSTRUCTION PROTECTS WELLINGTON COUNTY ROAD 32 FROM REGULAR FLOOD DAMAGE

According to Joe de Koning, Wellington County's Manager of Roads, his jurisdiction's County Road 32 faces serious recurring flood damage in spring. "It goes through a swampy wetland area close to Puslinch Lake," he explains. "As a result, we wanted to bridge the swamp in two areas because a road that should last over 20 years has only lasted 14 before."

To fix the problem, Municipal Paving Award finalist Cox Construction was directed to use lightweight cellular concrete (LCC) as the road's subbase over the soft subsurface soils. Using LCC reduces the loading on Road 32, while LCC's insulation properties also alleviate frost heaving damage.

Following specifications provided by Wellington County's design consultant, LCC was applied in two 300 metre stretches of Road 32 over a total one kilometre distance. "A 250 mm thick LCC road base was designed with a conventional pavement structure over it," Cox Construction's award submission explains. "With the self-levelling, self-compacting and high flowability properties of LCC, the work was scheduled to be completed within a week's time."

The LCC was produced on the job site, and is "resistant to hydrocarbon, sulfate, salt, and freeze and thaw," the award submission says. "For road base construction, LCC placement requires less sub-grade preparation and reduces excavation. With its high on-site production and long-distance pumping capabilities, a significant reduction in overall construction time can be achieved. This also helps to reduce construction traffic congestion and shorten the time closure."

The bottom line: "Cox Construction came in on budget and completed the project on time," says de Koning.



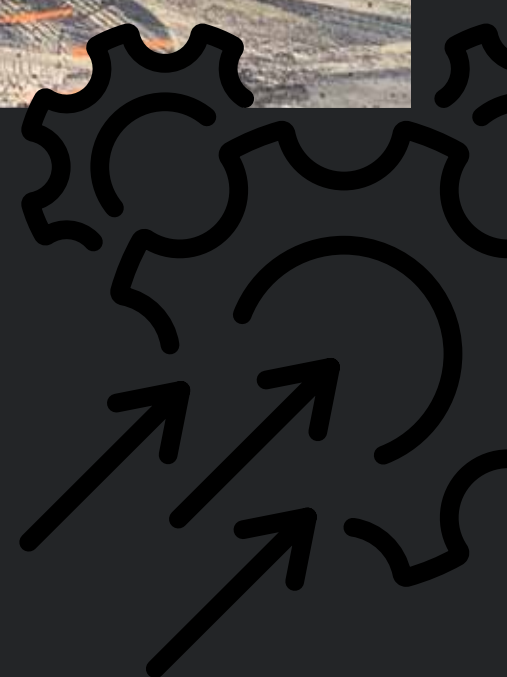
BRENNAN PAVING AND CONSTRUCTION MAKES MAJOR IMPROVEMENTS IN GEORGINA

Traffic is now flowing more easily in the Town of Georgina thanks to a nearly \$5 million contract awarded to Brennan Paving and Construction overseen by The Regional Municipality of York. The project included full depth asphalt removal, warm mix asphalt paving, and intersection improvements along Ravenshoe Road and Glenwood Avenue. The asphalt mixes used were SP 12.5 FC1 Category D (approximately 12,000 tonnes), SP 19.0 Category D (approximately 6,800 tonnes), and SP 25.0 Category C (approximately 11,000 tonnes).

According to the region's Municipal Paving Award submission, the project included the removal and replacement of asphalt over 19.4 lane kilometres of the two lane arterial roads. Upgrades were made to the intersection of Glenwood Avenue and Lowndes Avenue to meet Accessibility for Ontarians with Disabilities Act requirements, such as push button light activations, upgraded walkways, curb depressions, and tactile raised walking surfaces. Other improvements included installation of approximately 200 metres of new steel beam guide rail with MASH SoftStop terminal system end treatment, road shoulder widening using granular, approximately 8,900 square metres of roadway ditching using Terra Seeds, removing and replacing 138 metres of driveway culverts, and adjusting maintenance holes catch basins and valve chambers, plus replacing frames and grates.

"The project was completed on schedule and within budget," the Region's award submission notes. "Since 2019, warm mix asphalt has been used whenever possible for York Region road rehabilitation projects. For this contract, there was an estimated savings of 52,150 litres of gas or 94 tonnes of CO₂ emissions, which is equivalent to 82 homes of electricity use in one year. Paving operations were required during peak traffic hours with complex staging and co-ordination to mitigate traffic disruption and maintain public safety." ■

James Careless is an Ottawa-based freelance writer with credits in the National Post, Toronto Star, and Al's Asphalt magazine.





This year's OAPC Spring Operations Seminar on April 11, 2024, featured an open dialogue on safety culture and practices in the asphalt and road building industry, an overview of energy saving techniques in the asphalt industry with an emphasis on natural gas, and a look at a new three-dimensional screed system. Other presentations included the release of OAPC's 6th Environment Practices Guide, and 2024 MTO updates.

Steve Manolis recognized the 2023 Roads Scholarship Award winners and summarized OAPC's key objectives for 2024. The OAPC plant safety excellence awards were presented followed by an overview of the Trillium Award Program. Following the seminar, participants enjoyed complimentary admission to the National Heavy Equipment show.

Spring Operations Seminar presentations are available on the OAPC website under Event Presentations.

SAFETY CULTURE AND BEST PRACTICES EMPHASIZED AT SPRING OPERATIONS SEMINAR

by **Lara Henry**



L-R: Maxime Pétrin, HMA Equipment of Canada; David Green, Infrastructure Health & Safety Association (IHSA); Donato Rita, Green Infrastructure Partners Inc. (GIP); Han Mak, The Miller Group; Dale Whiteside, Ramudden Canada.

Key highlights of panel on safety culture and practices in the asphalt and road building industry

At the Spring Ops Seminar, a panel of industry experts and safety professionals discussed some of the potential hazards inherent in asphalt production, placement and road building.

“The panel provided excellent insight into the culture of health and safety in our industry. It’s so important that companies and owners are vigilant about the safety of their workers to mitigate any potential hazards,” says Mike Deckert, Vice President of Flo Components Ltd. and moderator of the session.



How can safety awareness be emphasized amongst workers in roadway construction work zones?

- Toolbox talks to discuss hazards & controls.
- Planning for vehicle movements within the construction zone.
- Proper use of PPE.
- Knowledge/use of controlled access points.
- Communication and enforcement of procedures by the general contractor with zero tolerance. »



What are some potential hazards in asphalt production and some measures in-place to mitigate these hazards?

- Exposure to hazardous substances: Ontario's Occupational Health and Safety Act (OHSA) sets regulations for workplace exposure to hazardous substances and compliance.
- Asphalt load-out spills onto the truck cap or windshield: Proper training, strict adherence to safe loading procedures, PPE, and supervision can mitigate these risks.
- Heavy equipment/vehicle movement and vehicle reversing can cause worker injury: Establishing designated loading areas, implementing traffic control measures, and providing training to workers on safe vehicle operation and pedestrian awareness can minimize the risk.



What are some potential hazards in asphalt placement and road construction and some measures in-place to mitigate these hazards?

- Loading and off-loading of equipment: Ensure adequate site and ground conditions, detailed safe work procedures, competent operators, and proper load securement.

- Overhead electrical and underground utilities: Have spotters, maintain proximity of approach distances, ensure accurate locates, and hand dig when necessary.
- Hand/power tools and equipment for cutting/coring: Ensure adherence to manufacturer instructions, safe work procedures, and required PPE.
- Noise: Noise map work environments, have signage up as reminders, designate mandatory hearing protection zones, and provide Class A plugs and/or muffs.
- Fume inhalation, bodily exposure and direct contact: Appropriate PPE must be worn.
- Sun UV exposure and the potential for heat exhaustion and heat stroke: Workers need to stay covered up, and use sun screens and shade structures. Include frequent breaks and opportunities to hydrate and cool down.
- Slips, trips, and falls: Ensure slip-resistant surfaces and adequate hand and foot holds, declutter equipment, work surfaces and catwalks, and ensure three points of contact.
- Vehicle struck-by or third party vehicle intrusions: Mitigating the hazards and challenges associated with struck-by incidents has to be a multipronged approach.
- Proximity and speed of the traveling public to the work zone.
- Lack of enforcement (police).



How do the emerging trends in technology influence health and safety in the road building industry?

- Automatic Flagging Assistance Devices (AFAD) or automatic flagger systems control traffic in work zones without exposing flaggers to the risks of direct traffic management by using remotely operated signaling devices.
- Incursion prevention and warning systems work with current road closure measures where closure points are equipped with a single laser beam system and portable site alarm (PSA). Each crew working within the closure is also equipped with a portable site alarm to receive warnings. As a vehicle intercepts the laser, it instantly communicates to all employees, giving them time to take evasive action.
- Silo sensors prevent possible material discharge from the silos onto the windshield of the truck if it is parked at the wrong location. If the sensors detect that the truck is not in the correct position, the release button remains inactive, preventing material discharge until the driver adjusts their position.
- Map apps showing congestion to prepare drivers for what lies ahead and allow them to make better decisions to avoid the congestion.
- Use of media/social media to advise highway users of full closures and potential congestion due to lane/road closures.

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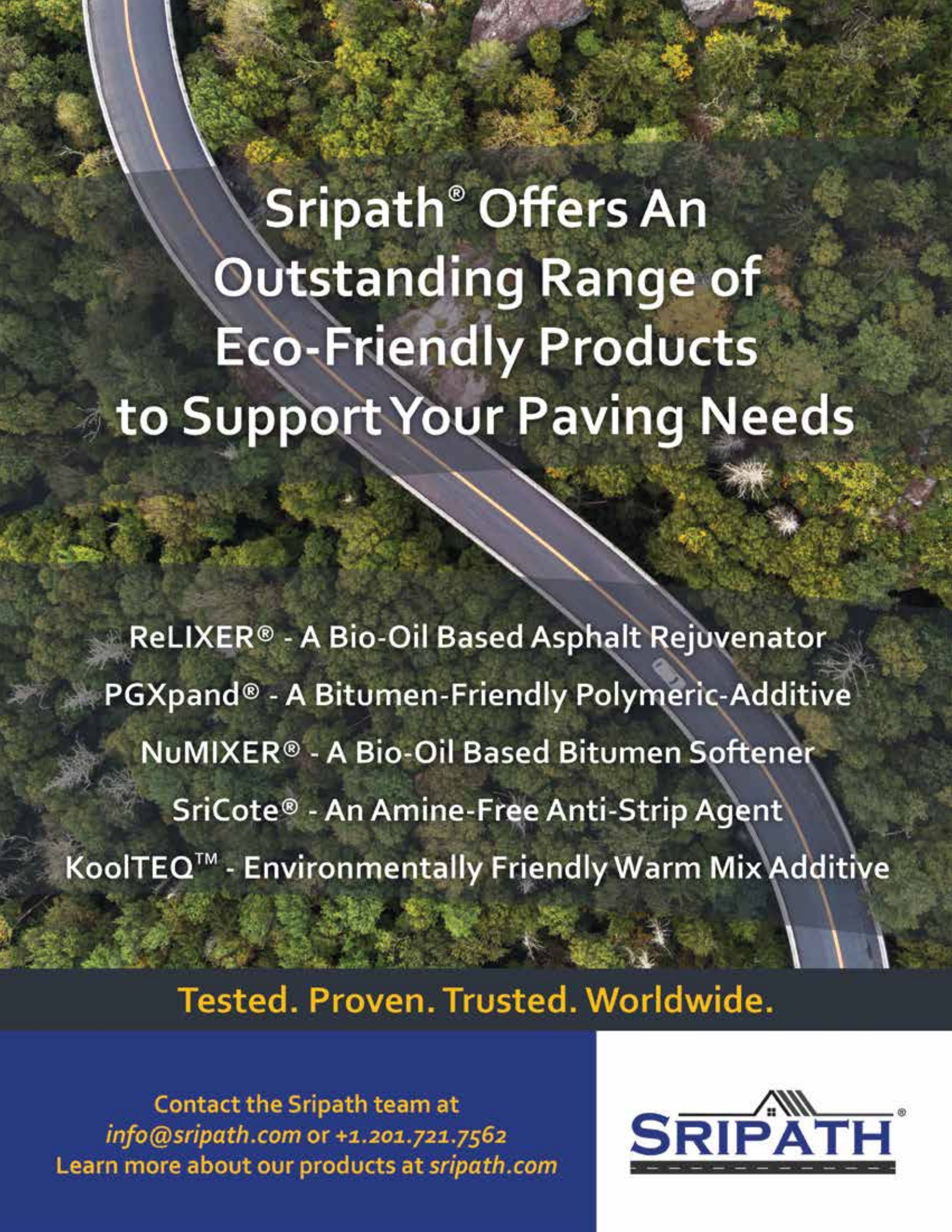
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Are there safety programs in Ontario that assist in the understanding and requirements for traffic control in and around a work zone and how are these enforced and/or reinforced?

- Ontario Traffic Manual Book 7 is the Temporary Conditions manual containing all the layouts to utilize for specific scopes of work.
- Augmented traffic infraction fines in construction zones.
- Traffic control training for not only practitioners but for all who work in closures.
- Supervision at the field level along with consistent communication and training for all involved.
- Frequent inspection and monitoring to ensure provincial regulations and company policies are being met.
- Road owners all have a responsibility to ensure the requirements for traffic control are properly implemented on the projects being done on their behalf.



What best practices are available in the road building industry that addresses emergency preparedness from time of incident to arrival of first responders?

- Training which includes emergency response activities.
- Toolbox talks to remind employees of the process.
- Site traffic control plans that address emergencies.
- Designated point person to take the lead in an emergency and document information for EMS personnel and later review.



How does mental health contribute to a safety culture?

- When workers are mentally healthy, they make better decisions and manage risks more effectively.
- An open and supportive environment where workers feel their mental health is prioritized can significantly reduce the risk of accidents and improve overall safety culture.
- Promoting mental health encourages open communication among workers, fostering a supportive environment where concerns about safety can be addressed proactively.



What approaches can be introduced to manage public interactions on construction sites?

- Better use of vehicle mitigation measures.
- Tougher fines for third party violators.
- Further speed limit reduction and enforcement.
- Training for workers to deal with highway users.
- Good public relations – better use of signing, portable visible messaging signs, media and social media to allow highway users to make better or different decisions as to where they go.



What additional recommendations or steps can be taken to ensure safer work zones in Ontario?

- A real belief in the internal responsibility system.
- A commitment and dedication to continuous improvement, and lots of oversight, communication and corrective action.
- Education/training for all highway users – workers, drivers, pedestrians, cyclists, emergency personnel and transit.
- Traffic control plans that recognize the needs of ALL highway users that could be in the traffic control zone.
- Traffic control plans that are approved (not just accepted) by the road authority that has local knowledge to be able to identify the intricacies of the area.

Session moderator: Mike Deckert, Flo Components.

Panelists: David Green, Infrastructure Health & Safety Association (IHSA); Han Mak, The Miller Group; Maxime Pétrin, HMA Equipment of Canada; Donato Rita, Green Infrastructure Partners Inc. (GIP); Dale Whiteside, Ramudden Canada. ■

Lara Henry is a communication specialist and editor of ASPHALTOPICS.

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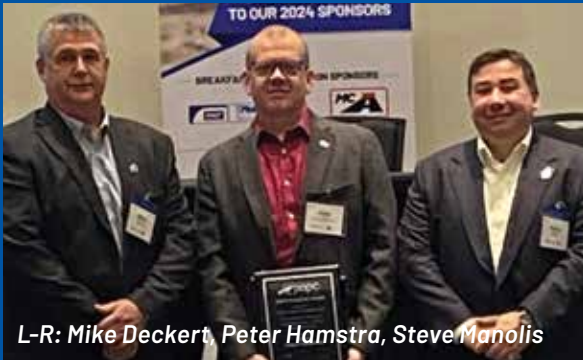
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OAPC Plant Safety Excellence Awards at Spring Ops

The Plant Safety Excellence Award recognizes asphalt plants for their outstanding achievement in plant safety that have gone one year without an accident and those that have reached the milestone of being accident-free for 5, 10, 25 and 30 years.

The 2023 plants that achieved a consecutive five-year threshold with zero lost time.



L-R: Mike Deckert, Peter Hamstra, Steve Manolis

DUFFERIN CONSTRUCTION COMPANY

- Barrie Asphalt Plant
- Lindsay Asphalt Plant
- Holt Asphalt Plant
- Mosport Asphalt Plant



L-R: Mike Deckert, Mate Jurkin, Steve Manolis

THE MILLER GROUP

- Sydenham Asphalt Plant
- North Bay Asphalt Plant
- Port Colborne Asphalt Plant
- Chatham Asphalt Plant
- Dryden Stationary-Sandy Beach Asphalt Plant

The 2023 plant that achieved a consecutive ten-year threshold with zero lost time.



L-R: Mike Deckert, Adam Goodbrand, Steve Manolis

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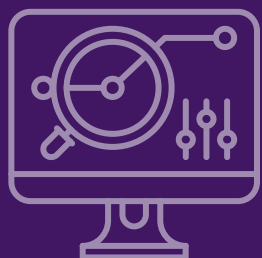
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JIM KARAGEORGOS Steed and Evans

Congratulations to all the 2023 OAPC plant safety excellence award winners.



The value of good SPECIFICATIONS

Quality pavements are the objective of industry members throughout the province. Regardless of your role – supplier, contractor, owner, consultant or academic – you strive to produce and maintain pavements that perform under the given loading and environmental conditions. Numerous factors contribute to this success, one of which is the project specifications.

by **Dr. Vimy Henderson**

Project specifications are valuable to the owner and the contractor. While there are different types of specifications, in general they should describe the project requirements. In addition to describing the requirements, they should present the allowable tolerances to those requirements, borderline tolerances if applicable, and what is deemed rejectable. Specifications include requirements for material characteristics for aggregates, asphalt cements, mineral fillers, other additives, and asphalt mixes. Additionally, they also include requirements for construction, sampling, testing and acceptance.

Generally during asphalt paving in Ontario, both for public and private owned projects, three sets of samples should be collected: Quality Control (QC), Quality Assurance (QA), and referee. The QC samples are tested by and for the benefit of the supplier and contractor to confirm that the materials are as anticipated. The QA samples are for the owner to test to confirm that the materials and construction are in accordance with the specifications. The referee samples are to be tested in the case of a dispute in results. Proposed material properties for asphalt aggregates, asphalt cement and asphalt mixes should be submitted to the owner for review and acceptance in accordance with the specifications in advance of paving. Any deviation or incompatibility should be addressed prior to construction, through the review process. During construction, the materials and construction are accepted based on QA testing in the field and laboratory.

In Ontario, we are fortunate to have the Ontario Provincial Standard Specifications (OPSS) – municipal and provincial versions. OPSS are clear and thorough documents for use throughout material selection and construction of pavements. Special provisions to the specifications provide further requirements or adjustments which may be project specific or jurisdictional.

Municipal jurisdictions may have their own specifications that vary from OPSS based on local experience and conditions. In general, in Ontario, jurisdictional specifications are modified versions of OPSS, with the same intention such as acceptance by QA testing and limited adjustments, such as acceptable material properties.

A common municipal special provision to OPSS is the inclusion of a minimum asphalt cement content for Superpave mixes. During initial implementation, some municipalities observed Superpave mixes were dry.. The use of a minimum asphalt cement content has addressed this challenge and helped produce quality pavements.

Municipalities may require additional compaction testing of longitudinal joints to monitor any inconsistencies during construction, rather than observing premature deterioration and attempting to address it throughout the pavement life.

Municipalities may also require increased frequency of sampling and testing. This is related to the size of projects that are constructed and the quantity of paving carried out in one day. A minimum of three test results should generally be considered. With one or two test results it is not possible to determine if the results are representative of the overall materials and construction.

Well prepared specifications allow owners to clearly present their expectations for paving materials and construction. Well prepared specifications allow contractors to clearly understand the project requirements and the consequences if the requirements are not met.

Engineering judgement should not be disregarded, as situations will always arise that require consideration and interpretation beyond the specifications. Quality specifications provide clear direction for material and construction acceptance and present a consistent expectation for everyone involved in the work.

When specifications are not clear or contradictory, they create more challenges than benefits. Specifications can be large documents, often referencing related specifications and testing procedures. Specifications and testing procedures are updated over time and the date of the specification is important.

Even well written specifications can be intimidating, especially if your background is not in paving materials and construction. Taking the opportunity and time to learn from an experienced professional about the content of the specifications and its interpretation is valuable. With this knowledge, as an owner or owner representative, you can confidently review

asphalt materials and paving, provide direction during construction projects and work alongside contractors to produce quality pavements.

An example in asphalt materials is understanding the meaning and requirements for the Job Mix Formula (JMF) versus those for the plant produced asphalt mix. The contractor will prepare and submit a JMF that is within the requirements of the specified asphalt mix type. The JMF should be reviewed and accepted by the owner that it is within the requirements of the requested asphalt mix type. Once the JMF is accepted, the plant produced asphalt mix is used for construction. All JMF tolerances for construction acceptance are applied to the plant produced asphalt mix. Adjustments to the JMF can be made during construction, assuming those are made in accordance with the requirements of the specifications. The procedure and requirements related to JMF development are advantageous to owners and contractors. It is effective and simple once understood; however, it can be confusing to someone who is inexperienced in this area and then implemented incorrectly. Incorrect implementation can result in challenges for both the owner and contractor.

In addition to specifications being modified to take into account availability of local materials and construction methods, they can also be modified for different loading conditions, environmental conditions, and required level of service. For example, asphalt paving specifications used for airport applications vary from those used for road paving due to the higher level of service required, heavier loads applied by aircrafts, and large pavement areas exposed to the atmosphere. The required asphalt cement content in asphalt mixes used at airports is generally higher than that used for road paving. The increased asphalt cement content requirement is to minimize the rate of oxidation of the asphalt mix and to provide increased long-term durability. Typically, construction smoothness requirements at airports are also more stringent as compared to those for road pavements. Additional smoothness requirements such as Boeing Bump Index (BBI) are added in to account for the significantly larger wheelbase of aircrafts as compared to conventional vehicular traffic.

The purpose of specifications is to aid owners and contractors in the delivery of projects. Specifications are one of the critical components for owners and contractors in producing quality pavements. ■

Vimy Henderson, Ph.D., P.Eng. is Principal Engineer at PTech Engineering Solutions.

Quality specifications provide clear direction for material and construction acceptance and present a consistent expectation for everyone involved in the work.



GLOBAL TRENDS IN ASPHALT & PAVING TECHNOLOGY

What's the rest of the world doing?

PART 2

As an industry, it's important that we stay informed about global trends in asphalt and paving technology, and what the rest of the world is doing. We published our **first article** in the spring issue of *ASPHALT*Topics which focused on asphalt sustainability trends currently happening within the United States. This second article will focus on the technological advances within the asphalt production processes that enable improved quality within mixes where RAP contents exceed 50 per cent.

OWNER ACCEPTANCE AND PRIORITIZATION ON SUSTAINABILITY WITH MAXIMUM RAP CONTENT MIXES

The first Environmental Product Declarations (EPDs) within Canada have recently been published in Ontario which is a great step in the right direction.

South of the border in the USA, the federal government continues to support sustainability through a program where the General Services Administration (GSA) federal agency has \$2.15 billion available through the Inflation Reduction Act to procure lower embodied carbon materials for construction and renovation projects.

A number of asphalt producers and Department of Transportation agencies (DOTs) have adopted various applications for high RAP mixes. In the case of Los Angeles, the high rap mix is used for local street maintenance to utilize the millings. In New York, the highest RAP mix is used for utilities coverage to get streets back into service quickly. In these two cities, the populations are dense, and resources are limited and difficult to effectively transport into the core, so these mixes have become essential. Toronto is considered in the infancy stage of their infrastructure development when compared to these two behemoth cities, but is a place where we could get ahead of the curve and learn from the best practices that have already been adopted and implemented.

by **Mike Varner** and **Mate Jurkin**

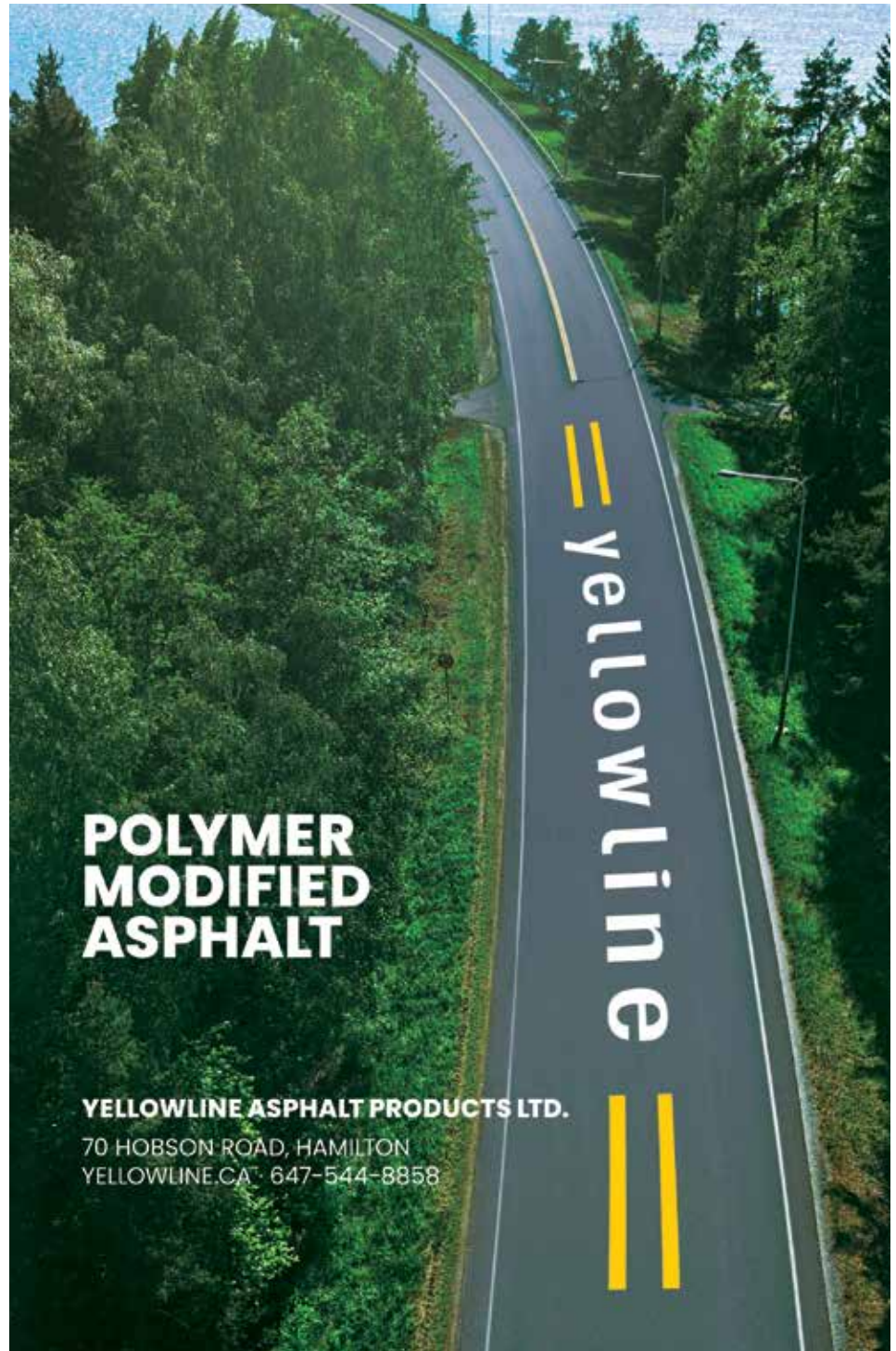
Other applications have been within the private sector for parking lots, driveways, pedestrian pathways and cycling tracks. More RAP without diminishing quality entails a lower carbon footprint based on less virgin aggregates and less virgin asphalt cement. These are ideal for LEED projects. Some owners have tested the cold-in-place application (typically used in rural settings) for their parking lot rehab with great success.

However, usage of RAP in cold-in-place is not just limited to rural settings. The Virginia Department of Transportation (VDOT) has been the vanguard of research and application of cold-in-place technology on their heavily travelled interstate system. In 2011, VDOT executed a project to rehabilitate part of Interstate 81 near Staunton, Virginia, documented by the Virginia Center for Transportation Innovation and Research (VCTIR) in a comprehensive report. Utilizing three different cold-in-place techniques including cold central plant recycling (CCPR), a near four mile stretch of the heavily travelled north-south corridor served as the first time all three techniques were incorporated into a single project. Success with this first project led to cold-in-place also being used as a crucial part of a 21-mile widening project on the east-west Interstate 64 starting in 2015 in the region of Hampton Roads and finishing in December 2021. Copious testing and embedded pavement sensors are being utilized by researchers to monitor performance on these test sections.

ASPHALT PLANT TECHNOLOGIES WITHIN THE MILLENNIAL ERA

A common myth attributed to asphalt is that once placed, it comes with an expiration date. Last we checked, the aggregates which comprise 95 per cent of all asphalt mixes do not expire and only a fraction of the in-situ asphalt

cement oxidizes over time. This means that less than 0.5 per cent of the overall HMA mix gets tired over its intended lifecycle and could develop into the cracking that we see on our roads. »



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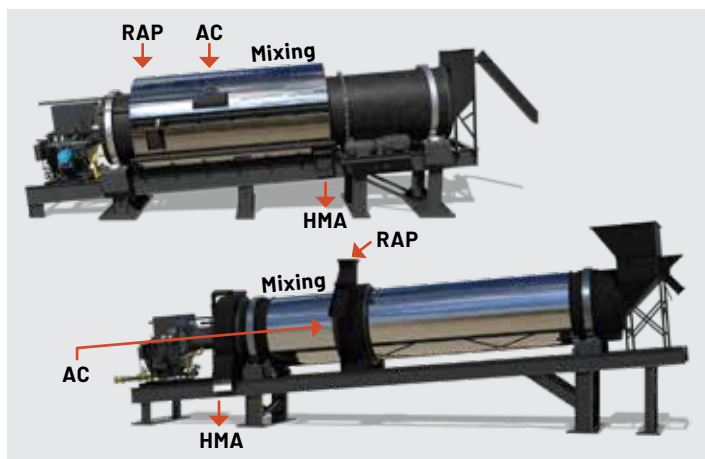
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Technology has advanced to cope with the oxidization of the in-situ asphalt cement with rejuvenators and more importantly better equipment to improve the bonding process between new virgin asphalt cement and the asphalt cement from the processed RAP.

From an equipment standpoint, one need not have the latest and greatest designs to increase RAP percentages. Conventional equipment with modest process and component adjustments can add RAP capability for significant impact on profitability and sustainability. The heavy lift, from a capability perspective, is handling the steam that is produced when higher levels of RAP are being processed. In fact, the ability to accommodate the evacuation of steam is contingent on the basic plant configuration – specifically the dryer/mixer.

When liquid water becomes steam at typical exhaust temperatures, its volume increases by nearly 1,800 times. The higher the moisture content at which the RAP arrives, the more difficult the task is. Less RAP moisture and less RAP steam mean higher RAP potential. Of course, keeping millings and processed RAP as dry as possible is key.

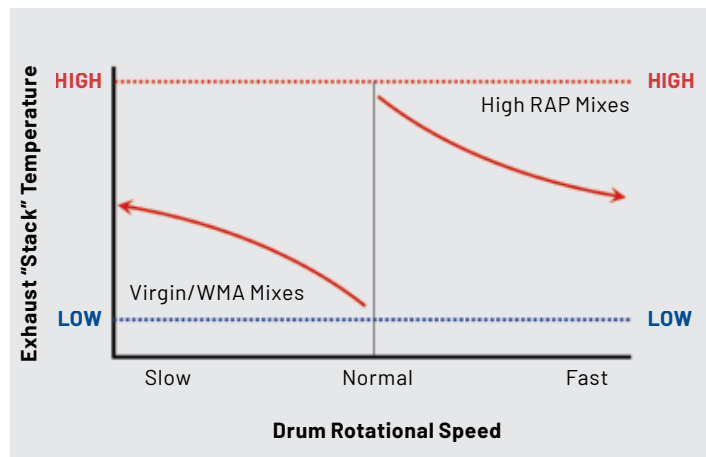
Continuous dryer/mixer configurations where the dryer and the mixer are two separate pieces of equipment where RAP is introduced into the mixer can struggle above 30 per cent RAP as the RAP steam must be scavenged out of the mixer and returned to the process. In contrast, configurations where the aggregate dryer and RAP mixer are combined into one piece of equipment often have a processing advantage due to the simpler way steam is scavenged. This advantage can mean a maximum percentage RAP capability of 50 per cent to 60 per cent.



Conventional HMA production facilities with dryer/mixers are capable of producing up to 50 to 60 per cent RAP mixes with no additional equipment necessary to scavenge RAP steam.

When moving to higher percentage RAP in any plant, the overall strategy is to get as much of the available heat from the burner fuel into the material as practical. This journey may start with flighting modifications and proceed to a variable frequency

drum drive which can effectively extend the time in the dryer by 50 per cent. Additional dryer modifications may include flights with enhanced performance. The good news is that the same proven strategies, tactics, and technologies used on one configuration may be similarly applied to others.

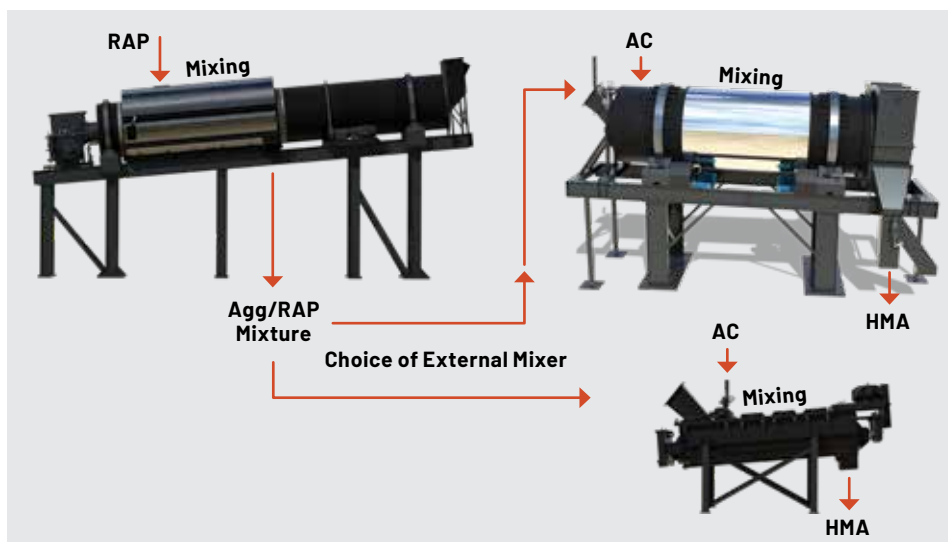


Regardless of plant vintage or flight type, variable frequency drives (VFD) may be used to change drum speed to effectively lengthen a dryer to optimize thermal efficiency.

Due to varying specifications that limit and or promote the use of RAP at varying levels, it is very difficult to be able to switch from one extreme to the next during production and maintain the baghouse temperature at the same time. By having your drum on a variable frequency drive as depicted on the graph shown, one will be able to speed up the drum when the baghouse temperature gets too high and alternatively slow it down when more heat is needed to keep it above dew point.

Enhancing the capability of a batch plant presents unique challenges. Drying drum thermal performance improvement is accomplished in the same manner as for a continuous plant. However, introduction of the RAP to the mixer presents a similar conundrum as to how to manage the RAP steam. At low levels of recycle (10% to 15%), RAP may be introduced into the hot elevator. Steam can be effectively scavenged by the existing tower scavenge. Beyond this modest percentage of RAP, equipment additions may be necessary. One of the most effective systems meters the RAP into the batch mixer at a constant rate so that the release of RAP steam is controlled and manageable. Depending upon the level of RAP moisture, percentage RAP as high as 45 per cent RAP may be achieved.

Pushing the limits of RAP percentage to 60 per cent and beyond has led to the development of staged mixing. Staged mixing entails longer drying drums, mixing virgin aggregate and RAP together for longer times to allow for enhanced heat transfer and binder transfer between the two followed by secondary mixing in an external mixing device. To further enhance RAP capability, a RAP pre-dryer may be utilized to pre-dry and pre-heat the RAP prior to combining it with the heated virgin aggregate.



For levels of RAP beyond 60 per cent, staged mixing provides longer dryer time in addition to VFD control of drum rotational speed, increased aggregate-RAP mixing length, and an external drum mixer or coater for necessary mixing and heat transfer.

CARBON IMPACT AT THE ASPHALT PLANT SUPPLY POINT EXPLAINED THROUGH EPDS

The following table describes the impact RAP as a percentage of asphalt produced affects potential Global Warming and Ozone Creation at one specific site:

MIX DESCRIPTION	PLANT LOCATION	RAP CONTENT	EPD REFERENCE	GWP-100	POCP
24014_HL8_R0_58-28	Tapscott	0	310.978.3863 v1	63.43	4.90
24014_HL8_R20_58-28	Tapscott	20	310.978.3864 v1	54.84	4.17
24014_HL8_R30_52-34	Tapscott	30	310.978.3865 v2	50.59	3.78
24014_HL8_R40_52-34	Tapscott	40	310.978.3866 v1	46.41	3.47

Notes: Data was obtained from NAPA EPD Website for Miller Paving Limited – Tapscott Asphalt Plant

GWP-100: Global Warming Potential in kg CO₂ Equivalent – The warming (relative to CO₂) that chemicals contribute to the atmospheric greenhouse effect by trapping the earth's heat.

POCP: Photochemical Ozone Creation Potential in kg O₃ Equivalent – The release of hydrocarbons and nitrogen oxides that react with sunlight to produce photochemical oxidants, which can cause or aggravate health problems, plant toxicity, and deterioration of certain materials.

What does saving 17.02 kg of CO₂ Equivalent mean for every tonne of 40 per cent RAP mix produced in lieu of 0 per cent RAP – saving 70 km driven by an average gasoline-powered passenger vehicle as per the United States Environmental Protection Agency.

Alternatively, if we were to compare the same mix type from different facilities as per the below table, we can see that the carbon impact from Whitby is less than Tapscott due to the composition of their raw materials and where they are transported from. We can also start making decisions based on lowest carbon output based on job location:

MIX DESCRIPTION	PLANT LOCATION	RAP CONTENT	EPD REFERENCE	GWP-100	POCP
24095_HL8_R20_58-28	Whitby	20	310.967.3750 v6	52.84	3.71
24014_HL8_R20_58-28	Tapscott	20	310.978.3864 v1	54.84	4.17
24098_HL8_R40_52-34	Whitby	40	310.967.3751 v4	45.74	3.22
24014_HL8_R40_52-34	Tapscott	40	310.978.3866 v1	46.41	3.47

Why is it important to reduce CO₂ emissions? As sunlight filters into the atmosphere and bounces off the surface of the earth, greenhouse gases like CO₂ absorb and re-emit that radiation—and the heat it holds—before it can escape to space. So less CO₂ means less heat bouncing around the atmosphere, and colder temperatures here at the surface. ■

Mike Varner is Engineering Director – Asphalt Products of Astec Industries Inc. and Mate Jurkin, P.Eng., is GTA Asphalt Plants Manager of The Miller Group.

DIFFUSION BLENDING AND HIGH RAP MIXTURES – IT’S STILL NOT JUST A

BLACK ROCK

by Sandy Brown



It seems that the topic of RAP and its use is one that must be re-examined every once in a while. From the point of view of reuse of a valuable asset, it’s almost a no-brainer; however, a recent article I read in *Asphalt* magazine by Dr. Grover Allen (April 5, 2024) re-introduces the concept “Is RAP just a Black Rock?”

It seems that the topic of RAP and its use is one that must be re-examined every once in a while. From the point of view of reuse of a valuable asset, it’s almost a no-brainer; however, a recent article I read in *Asphalt* magazine by Dr. Grover Allen (April 5, 2024) re-introduces the concept “Is RAP just a Black Rock?”

I think that question was answered 10 and 11 years ago by some meticulous lab work carried out at the Imperial Oil Sarnia Research Laboratory under the direction of Dr. Pavel Kriz. I first heard of the work at the Peterson Conference in 2013 and Kriz published the work in a paper presented at the 2014 AAPT Conference¹. Pavel carried out a parallel plate experiment in the DSR to determine if aged and virgin bitumen could be mixed sufficiently in the plant to ensure that the asphalt cement is adequately blended. He discovered that there was insufficient time to ensure complete blending by shear mixing.

Rather than stop there, Kriz explored what effect diffusion would have on bitumen blending. I describe the experiment in more detail in my technical article in the fall 2013 issue of *ASPHALT*Topics magazine but in brief, through a series of meticulous measurements, he determined the diffusion rate of a mixture of RAP and neat asphalt cement at various temperatures. Diffusion is based on temperature and the diffusion path length. Using an simulated path length of 100 μm and the estimated temperature profile of a typical hot mix (Mulicool software), Kriz calculated that with a typical mixing time (RAP preheated and mixed with virgin aggregate at 160°C) followed by 1 hour in the silo storage and a delivery time of 15 minutes, followed by placement and compaction (completed in 25 minutes), the mixture would be completely blended by the time the compaction was complete.

One interesting note is that Kriz performed the same computation for diffusive blending using the same schedule

but for a warm mix temperature profile, and the calculations showed that the bitumen would not be fully blended at the end of placement. This conclusion seems to support the results of other researchers at about the same time that found that surrogate performance prediction testing carried out on warm mix samples showed differing results based on the time the mix spent at room temperature (samples left on the bench for days to weeks) between compaction and testing.

Basing conclusions on an assumed path length of 100 μm did not seem sufficient to address the problem, so Kriz did more work on mix prisms tested in the DSR². This work showed the average diffusion path length in a mix was about 800 μm . It was only possible to determine an average value given the complexity of bitumen bending in a mix. However, using the calculated path length of 800 μm , calculations indicated that for diffusion blending to be complete by the end of placement, extended silo storage (12 hours) was required. This may result in evaporation or aging (stiffening) of the bitumen blend. Without the extended time at elevated temperatures in the silo, weeks of time would be required to ensure complete blending by diffusion after placement. The 800 μm path length could either be caused by RAP agglomerations that were not reduced in size during mechanical mixing or perhaps by the bitumen absorbed on the surface and in the voids of the RAP aggregate having an extended diffusion time due to polar associations with the aggregate.

This suggests that using a finer gradation of RAP, either from millings or from crushing and fractionation of the RAP, and using a grizzly on the primary feed may result in reduced diffusion path length and thus the time for diffusion blending to be complete.

That still leaves the question of why there is a perception that the bitumen in the RAP is not fully mobilized. This is likely due

¹ Kriz P, Grant DL, Veloza BA, Gale MJ, Blahey AG, Brownie JH, Shirts RD, Maccarrone S. “Blending and Diffusion of Reclaimed Asphalt Pavement and Virgin Asphalt Binders”, Journal, Association of Asphalt Paving Technologists, 89 (2014).

² Kriz P, Grant D, Gale M, Lavorato S, Pahalan A. “Reclaimed Asphalt Pavement – Virgin Binder Diffusion in Asphalt Mixtures”, Proceedings, Canadian Technical Asphalt Association, (2014).

to when the material is sampled and tested and what testing is carried out. Testing of recovered bitumen will likely always show the same rheological properties because the process of solvent extraction and recovery will always blend the bitumen. However, any surrogate mix performance testing will likely indicate that mix is softer than expected for samples taken at the plant versus those taken near placement even after allowing for changes that occur as the mix goes through the plant. This is consistent with Kriz's work that showed that the softer bitumen acted in the manner of a lubricant and showed lower stiffness values until diffusion allowed total blending.

The end result is that agencies specify a higher virgin bitumen addition. This is not necessarily a bad thing. However, having a serendipitous outcome without knowing the cause is not necessarily a good thing. If your roses aren't red, spray painting may cure the problem in the short term but fertilizing them is likely a much better solution in the long term.

So it seems that the issue of RAP being a black rock has been answered if you look at the properties of the final product on the road at least a six months to a year after placement. The closer one prepares samples to the time of initial mixing, the lower the stiffness of the mix, giving the appearance of non-mobilized bitumen in the RAP. But this problem will be resolved within the first year of paving even with the reduced environmental temperatures associated with Ontario winters which will slow diffusion.

There are still some issues that need to be addressed as we move to higher RAP contents, and for this we have to look at what happens to asphalt cement as it ages. There are several ways to look at asphalt cement composition. One model looks at bitumen as a colloidal suspension of mutually soluble constituents. In this model, asphalt can be divided into four carbon compound constituents: cyclics, saturates, asphaltenes and resins. Saturates are not generally considered to be involved in asphalt

mix performance and aging because they are generally chemically inert. The cyclics are the major component in which the other components are solubilized and are considered to be responsible for the flexibility of the bitumen. Asphaltenes are the heaviest constituents and are considered to provide the stiffness that allows the bitumen to support loads. However, asphaltenes are not soluble in the cyclics and tend to agglomerate. The asphaltenes are kept in solution by affiliation with the resins which are soluble in the cyclics. Thus, cyclics, resins and asphaltenes are necessary in the right ratios to have a well performing bitumen and hence a well performing pavement.

The problem arises with aging over the years. There is a chemical change in the cyclics and resins in the long term and they decrease while the asphaltenes tend »

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to grow and agglomerate. This results in additional stiffness and reduced flexibility in the mix which can eventually result in cracking. Adding softer bitumen can help to restore the ratio but not completely as the softer bitumen still has its own ratio of constituents and is also aging. At lower RAP contents, experience over the last 30 years suggests that this doesn't present much of an issue. However, as the RAP addition rises, the ratio of cyclics:resins:asphaltenes should be addressed. This leads to the role of rejuvenators in the long-term performance of pavements incorporating RAP.

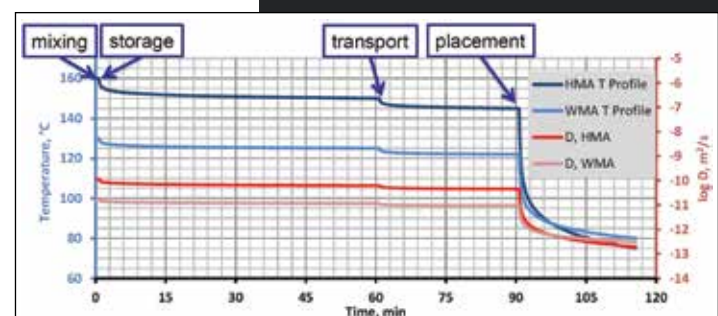
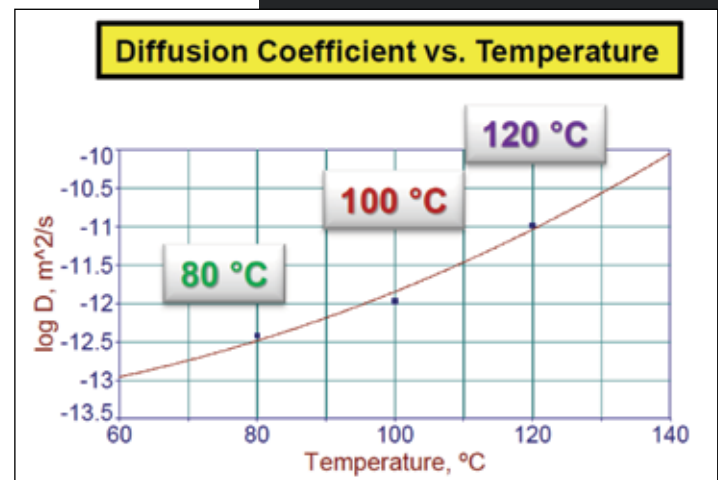
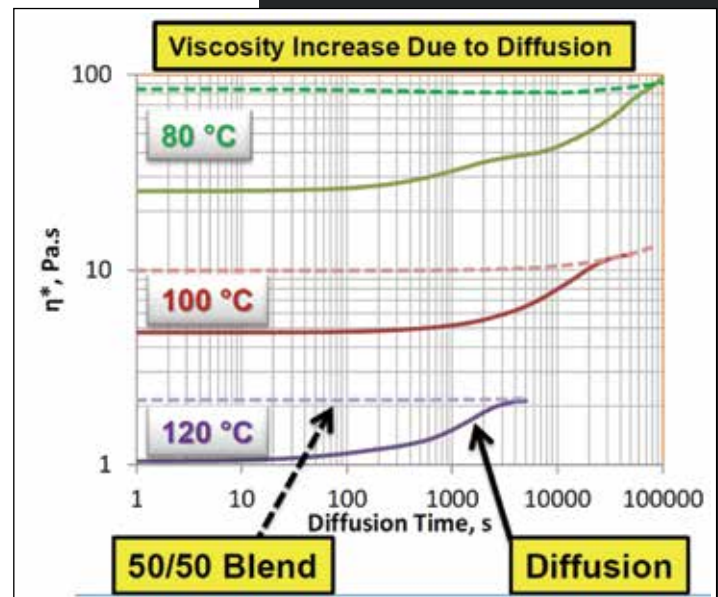
Rejuvenators are not softeners but they do end up reducing the stiffness of aged bitumen. Most rejuvenators (also known as recycling agents) are rich in resins as well as cyclics to balance the increased asphaltenes in the bitumen in the aged asphalt mix. If the rejuvenator is added to the virgin bitumen, it will first need to diffuse and blend. Given the nature of the two materials, this is expected to be very rapid at the temperatures used in hot mix plants. The blended material will have a different and likely faster diffusion rate than the original virgin bitumen, but this would need to be verified with the work already carried out. Then this new diffusion rate could be applied to the mix blending calculation.

But how much rejuvenator should be added? This depends on the composition of the aged bitumen and the compatibility of the rejuvenator with both the virgin and aged bitumen. It will also depend on the use and environmental conditions at the time of paving. Rutting of the newly placed pavement is the greatest concern and this is dependant on traffic and temperature. One solution would be to reduce the addition of rejuvenator but that would likely not result in good long-term performance. Using rejuvenator with standard grade bitumen (no softening of the binder as is currently specified) could also reduce the potential for early age rutting but this would require additional testing to determine the new diffusion rates. Finally, additional silo time could allow more diffusion blending to take place in advance of paving.

In the end, a balanced mix design procedure is required and the use of a surrogate performance test to determine the maximum addition of rejuvenator. But the sample must be aged at elevated temperature to simulate the diffusion blending that occurs in the plant and silo. Its also necessary to look at the performance in the field. Perhaps several rounds of falling weight reflectometer testing carried out during the first year could be used to back-calculate the stiffness of the asphalt layers.

It's important to remember the history of work that has been done and apply these lessons to the rational we use to extend into new areas. I don't believe that RAP is just a black rock. But it might appear to be one if it's not sampled and tested correctly. A little bit of extra work is required if we want to use this valuable product to its full advantage. ■

A.W. (Sandy) Brown, P.Eng., is a geotechnical and materials engineer and consultant.





Hebner takes on modern industry with old-school commitment

A simple statement seems to sum up the career of Jeff Hebner. “He’s a new, old-school guy.” These words from colleague James Gordon carry a lot of weight when you consider the asphalt industry relies just as much on tradition as it does on planning for the future.

Gordon, Material Sales and Technical Manager for Fowler Construction in Bracebridge, says that Hebner brings both the skill and attitude of a worker beyond his years, but is still young enough to adapt to change and implement it when called on.

“He really is a mixture of generations,” Gordon explains. “His approach to the job is very old-school, like the guys who went before him. I can’t remember him ever calling in sick or being late. He comes to work early and he gets everything done. You never have to worry about the things he’s working on. He’s always ahead of the problems and troubleshooting and accountable for the decisions he makes.”

“You still run into guys like this in our business,” Gordon continues. “You describe what you need and they make it happen. They draw from their experience and what they’ve learned, but they add their own methods to it.”

As the Huntsville asphalt plant foreman, it’s Hebner’s job to keep things running smoothly. It’s here where he has embraced new operating methods and launched his own initiatives including truck loading procedures and safety measures.

Hebner also takes on the role of mentor, teaching up-and-comers the tricks-of-the-trade and making sure that others can step in to perform if the situation requires it. In the winter, Hebner switches roles and becomes a supervisor for road maintenance, and with the often snowy conditions in that part of central Ontario, keeping the roads clear and safe becomes his priority.

Hebner began his career 20 years ago much like the way many others start in the business — by working out on the road. He was on the crusher when Fowler stalwart Roger Brassard approached him.

“He came up to me and asked if I had ever been inside an asphalt plant,” Hebner says. “I hadn’t and he told me, ‘Monday morning you’re coming with me to the portable plant.’ I spent a number of years at the portable plant before going back to the crusher for a while. Then they asked me to come back to the Huntsville plant and I have stuck around.”

Hebner says the days are busy running regular maintenance, ordering parts and material, checking specifications, scheduling workers and making sure orders are met. He says he has been doing the work long enough now that it has become second nature and instinctive but not routine as circumstances change each day.

“I try to be prepared for whatever might happen and when it does, you just do what it takes,” Hebner says. “You never think about it; you just do it. If something’s breaks, you keep working at it until it is fixed.”

Hebner says his work ethic comes from those who taught him, especially Brassard. “He was really old school. He could be tough but he knew how to do the job right and he taught me a lot about how to be a good worker.”

With a lengthy career path still in front of him, Hebner says a simple motivation keeps him looking forward to what lies ahead. “You know, I like driving over the roads that we paved,” he says. “It gives me a sense of satisfaction knowing that we accomplished something good. As long as I feel that way about the job then I am happy.” ■

Steve Pecar is a Mississauga-based writer, editor and designer.

ASPHALT SUSTAINABILITY:

Is it possible to develop “pave

In a previous edition of this [column in Asphalt magazine](#), Dr. Mark Buncher discussed materials Environmental Product Declarations (EPDs), laying out the appropriateness of comparing material EPDs. Now we continue the conversation by asking ourselves two questions:

1. What would be the appropriate scope to compare EPDs?
2. Who should oversee the development of an EPD and its Product Category Rules (PCR) beyond cradle to gate?

Product Category Rules provide over-arching rules such as the scope of products/services covered and others to develop construction products and services EPDs. PCRs are developed through a consensus-based effort by involving public agencies and third-party interested groups.

CORE RULES FOR EPDS

Section 5.5 of ISO Standard 21930 (2017)¹ is critical for our civil engineering domain stakeholders:

“Comparison of construction products using an EPD shall be carried out in the context of the construction works. Consequently, a comparison of the environmental performance of construction products using the EPD shall consider all the relevant information modules over the full life cycle of the products within the construction works. Such a comparison requires scenarios in the construction works context.”

Section 5.5 further details that only EPDs that have “the same functional unit” shall be comparable.

Terms used in ISO 21930 may be unfamiliar to our typical readers whose domain of expertise is pavements and not life cycle assessment (LCA). Thus, let me decode words such as “construction products”, “construction works”, “full life cycle”, “scenarios”, “declared vs. functional unit”, and “information modules” for the context of a pavement.

“Construction products” would include asphalt binder, aggregates, asphalt mixtures and other materials used in pavement construction.

“Construction works” would refer to an entire pavement structure consisting of a surface layer, binder course, base, sub-base and subgrade.

“Full life cycle” of asphalt binder would include manufacturing of asphalt binder (crude oil extraction, refining, terminal operations), its application in subsequent products and works such as asphalt mixture and asphalt pavement/ asphalt shingles through to its disposal (recycling, reusing, or landfilling).

“Scenarios” would refer to alternative pavement treatment/maintenance scenarios determined by a state agency.



pavement-level” PCRs and EPDs?

- An example for “Declared unit” is “metric ton” or “Kg” of a product, while an example for “Functional unit” would be “**A** lane-mile of a pavement structure serving **B** amounts of traffic under **C** climatic conditions for **X** years of service life.”
- “*Information Module*” would refer to a data entity pertaining to a specific portion of the pavement life cycle. Cradle-to-gate LCA results of asphalt binder would be an example of an information module.

Section 5.5 re-emphasizes the need to consider a “full life cycle” scope to achieve “holistic” pavement sustainability as defined by the Federal Highway Administration². This means considering all four aspects of sustainability (performance, cost, environmental and social impacts) over the full life cycle.

RESPONSIBILITY FOR DEVELOPING PAVEMENT-LEVEL PCRS AND EPDS

Previous columns detailed the implications of existing federal^{3,4} and state level^{5,6} Buy Clean legislations requiring cradle-to-gate EPDs. Various trade associations are currently working with their memberships to meet these legislative requirements.

Trade associations represent the manufacturers of material and house the relevant body of knowledge regarding the supply chain of that material required to develop cradle-to-gate EPDs. Likewise, the responsibility for developing post-gate pavement level PCRs falls on public agencies who are the owners of the pavement system. Relevant stakeholders for developing pavement-level EPDs would include contractors that build and maintain the roadway infrastructure. Different divisions within a public agency (e.g., material procurement division, design division, pavement management systems division) will have to work together to develop PCRs beyond cradle to gate. Hence, to credibly develop and implement PCRs and EPDs beyond the “gate,” two things are necessary:

1. Establishing a transparent knowledge and data transfer between these divisions within a public agency (e.g., establishing an efficient feedback loop between pavement management systems and procurement and design decisions)

2. Accountability and transparent reporting on the performance of a pavement structure for a longer duration.

THE TALE OF COMPLEXITY

How many times have you heard someone say: “But it’s too complex” after you propose a new idea? Complexity should not be the reason we do not pursue a methodology that provides a more complete approach to pavement sustainability.

While the logic for advocating, developing and using just cradle-to-gate EPDs as part of green public procurement may be that of faster implementation, it is important to remember the overall big-picture objective. Comparing EPDs of materials that may have different long-term performance periods can lead to unintended consequences and be detrimental to the big picture of true sustainability.

“Complexity” being used as a reason for not implementing a more holistic methodology is not new to the asphalt pavement industry. The same “it’s too complex” logic led to a less-than-complete approach to address cracking in the development of Superpave specifications over 30 years ago. Many have said Superpave fixed the rutting problem but at the expense of cracking. We now are seeing many cracking tests being developed and evaluated as part of the more holistic Balanced Mix Design (BMD) method for designing asphalt mixtures⁷.

THE CHALLENGE

As an industry, we need to challenge ourselves to think beyond the scope of material cradle-to-gate EPDs by exploring a more holistic approach to sustainability that uses pavement-level PCRs and EPDs. This is especially true when using EPDs as part of green public procurement and policy. Not doing so may be easier but will not achieve true sustainability. ■

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Chait Bhat, Ph.D., LCACP is Sustainability Engineer for the Asphalt Institute. This article appeared in the summer 2023 issue of Asphalt magazine and is reprinted here with permission from the author and publication.

Complexity should not be the reason we do not pursue a methodology that provides a more complete approach to pavement sustainability.

by Thomas Harman

JOIN THE CONVERSATION WITH



WHAT IS YOUR WHY?

"If you are like me, you may have asked yourself, What are the most important things we can do to achieve more sustainable asphalt pavements? Sustainability considers the intersection of economic, environmental, and social concerns. Although it is a BIG PICTURE concept, it is an achievable goal. Many practices and technologies can be adopted to improve sustainability, and it's important to think about the big picture as we make decisions to help us move toward these priorities." – Randy C. West, Ph.D., P.E. NCAT Director and Research Professor (2021)

WHAT IS CAPRI?

The Consortium for Asphalt Pavement Research and Implementation (CAPRI) was formed in late 2020. CAPRI is a forum that engages all stakeholders to discuss and develop priorities for research and implementation activities that advance asphalt pavement technologies. Whether you think more attention should be focused on sustainability, improving construction quality, advancing balanced mix design, better utilization of pavement preservation treatment options, or something else, CAPRI is the place where you can be part of the debate and influence decisions through open discussions among all [stakeholder groups](#).

HOW DOES CAPRI WORK?

Members of CAPRI come together twice a year to network, discuss, and debate current and evolving specifications, develop asphalt pavement research needs, conduct studies to address knowledge gaps or explore new topics, foster the implementation of practical research findings, and much more. CAPRI has four subcommittees that drive the conversation:

Critical Issues



Identify aspects of asphalt pavement performance and sustainability that need to be improved.

Technology Evaluation



Identify technologies that can improve asphalt pavement performance and sustainability, evaluate the readiness level of those technology levels, and recommend strategies to move those technologies toward implementation.

Technology Transfer



Identify technologies and best practices ready for implementation and recommend strategies to move those into practice.

Research Roadmap



Assemble research and technology transfer recommendations from other CAPRI subcommittees and sources.

CAPRI PRODUCTS FOR YOU!

Through CAPRI, you will find implementation resources on [Balanced Mix Design, Density, and Longitudinal Joints](#).

JOINING CAPRI?

Currently, CAPRI includes 29 highway agencies, ten contractors, eight industry associations, five materials or equipment suppliers, and three academic research organizations. If you are interested in becoming a part of the conversation, check out <https://www.eng.auburn.edu/capri/join.html>. There are a range of membership opportunities. ■

Thomas Harman is Senior Research Engineer, National Center for Asphalt Technology at Auburn University.



TECHNICALLY SPEAKING

Doubra C. Ambaiowei
Director, Technical Services

Pathways to decarbonize and lessons learned

Early this summer, I was privileged to take part in the Federal Highway Administration (FHWA) Climate Challenge & Everyday Counts Round 7 (EDC-7) Environmental Product Declarations (EPDs) for Sustainable Project Delivery National Symposium, as well as the FHWA - Sustainable Pavements Technical Working Group (SPTWG) spring meeting. These opportunities were particularly rewarding as their goals highlighted the lessons learned from various participating U.S. state Department of Transportation (DOTs) and local agencies.

The symposium featured discussions from industry and academia on implementing projects that quantify the environmental impacts of pavements using Life Cycle Assessment (LCA) and EPDs. Session topics included getting started with LCA and EPDs, benchmarks and baseline Global Warming Potential (GWP), exploring innovative materials, and Green Public Procurement (GPP). The SPTWG forum looks to advance the knowledge and practice of designing, constructing, and supporting more sustainable pavements through stakeholder engagement, education, and the development of guidance and tools.

Since completing the symposium, I have thought about the Ontario asphalt industry's approach to decarbonizing. A priority OAPC sustainability goal aims to **develop a sustainability plan to meet government's commitment to net-zero by 2050**

with an emphasis on developing EPDs for asphalt mixtures in Ontario. The OAPC Environment Committee is working on an action plan towards realizing this goal including a partnership with the National Research Council Canada (NRC) on **Canadian Construction Life Cycle Inventory (LCI) product datasets with focus on Ontario asphalt mixtures.** This initiative is expected to support the industry in lowering greenhouse gas emissions, enhance competitiveness through environmental performance transparency, and provide harmonized, quality LCA/LCI datasets.

The path to decarbonizing the road building industry may have its challenges, but it is a path we must courageously take. In anticipation of the NRC partnership kickoff, it is important to think through other pathways to advance a low-carbon future in the asphalt paving industry ideally before the fall. We must explore those challenges the paving industry must combat to decarbonize sustainably by refining current operations and using more efficient technologies and processes, aimed at realizing **quality, performance, cost savings and enhanced profitability.** We must encourage partnership investments in research and development to advance sustainable transportation practices **including studying new materials, technologies, and strategies that can improve environmental performance of asphalt pavements.** »

Notable takeaways from my recent FHWA engagements for possible exploration include:

- **A closer look at the use of stage-related efforts in pavements with an emphasis on the basics of Pavement Vehicle Interaction (PVI).** PVI is the interrelationship between a vehicle system (tires, suspension, mass) and the pavement (surface characteristics, structural response). The factors and/or measurements include pavement roughness, pavement structural response, and pavement texture. It affects vehicle fuel consumption (and associated GHG emissions), pavement life,

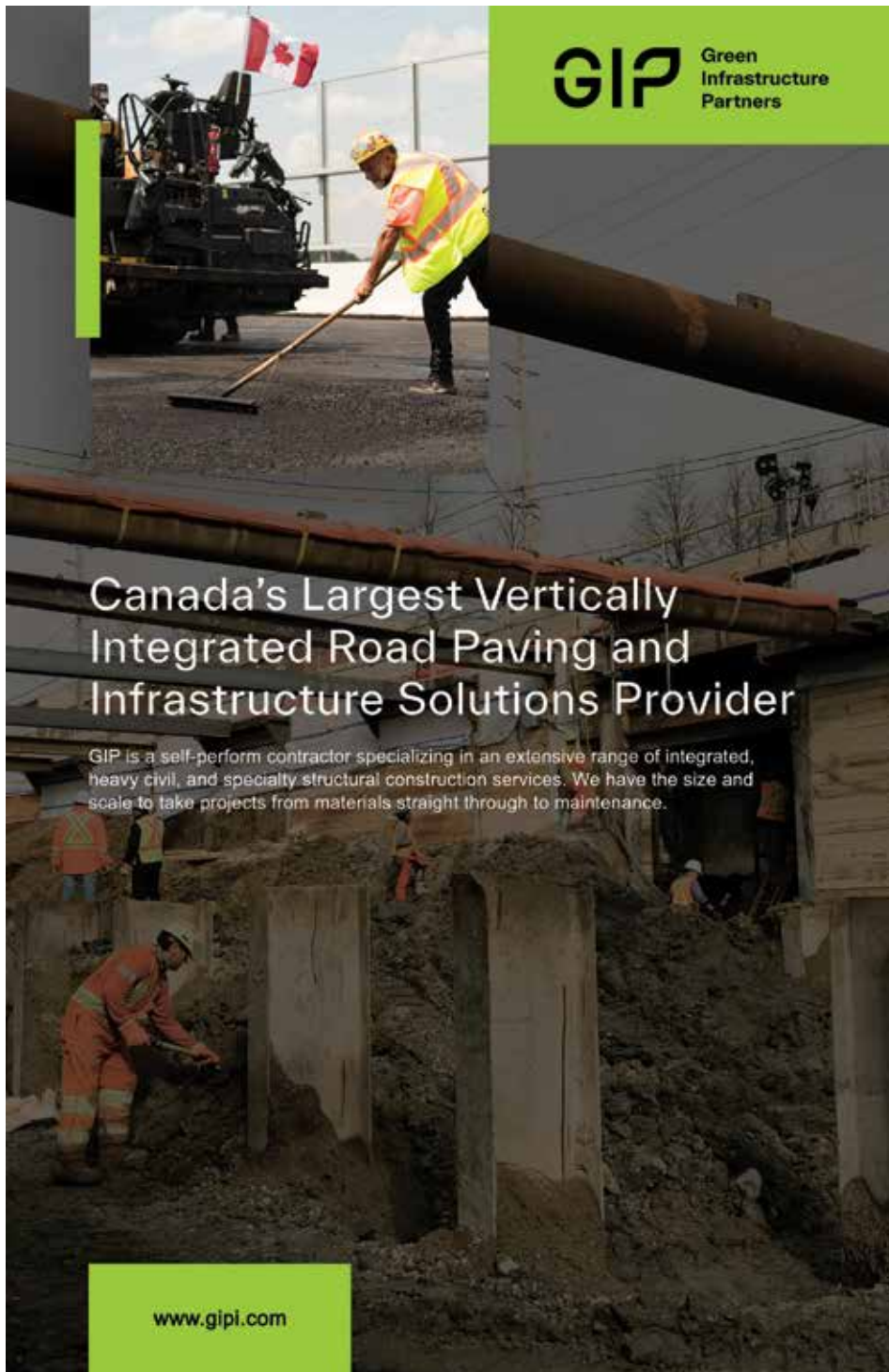
maintenance, damage to freight, human comfort, driver safety, and tire/pavement noise. There is a lot to unpack with respect to changes to pavement roughness, structural response, and texture. Another potential future consideration would include Electrical Vehicle (EV) effects on pavements. I will be following the conversations to better understand and outline the approach for use in decision-making.

- **Implementation of network-level LCA in pavement management systems.**

The goals here are to evaluate network-level policies and budgets, help improve PMS (optimal triggers, actions, etc.), and highlight projects with potential GHG savings. A key interest taken from the presentations relates to how GWP calculations can be programmed into PMS as well as how potential treatments can be evaluated to provide an “efficiency frontier” based on Life Cycle Cost Analysis (LCCA).

- **Approaches to establish industry average thresholds.** There was a lot to unpack here, but to start I would encourage a background review of the [FHWA's LCTM \(Low Carbon Transportation Materials\) Program](#). With regard to asphalt, I was interested in the discussions around comparability between EPDs that comply with the Product Category Rules (PCR) and those expected to meet similar functional design performance criteria as specified by the customer. It was emphasized that comparability may be limited by the presence of data gaps, and EPDs with data gaps should not be compared to each other unless the composition and quantity of material ingredients with data gaps are known to be the same for all products being compared. This is instructive! FHWA's EPD Benchmark Report is expected by the end of 2024 — something to look forward to.

The National Asphalt Pavement Association (NAPA) approach deconstructs the benchmark by lifecycle phases. The design phase



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(A1) benchmarks the impact of mix design parameters by using the most appropriate “generic” mix type relevant to the region or allowing agencies to develop mix type-specific values, either through average/target values for each mix type, or historical data from approved mix designs. The transportation phase (A2) benchmarks the impact of raw material transportation data based on plant-level averages, and agencies can develop mix-specific numbers based on approved mix designs. The production phase (A3) benchmarks the impact of climate region on GWP.

These approaches demonstrate the new dimensions of evaluating materials and how road-owner agencies are going about ensuring quality of their EPD data. **Asphalt producers in Ontario, especially ORBA/OAPC member facilities, have an opportunity to participate voluntarily in the NRC/ORBA/OAPC LCA/LCI partnership project** which would allow for the generation of EPDs, including an opportunity to collectively improve the NAPA EPD calculator. The more datasets we can capture, the better our average baselines ahead of any potential EPD mandates from road-owner agencies.

• **Other EPD updates of interest.** The focus to develop LCA/LCI, create PCR, and create/update industry average EPDs and tools has been shared by organizations such as the Geosynthetic Materials Association (GMA), the Association of Modified Asphalt Producers (AMAP), the Asphalt Recycling and Reclaiming Association (ARRA), the Asphalt Emulsion Manufacturers Association (AEMA), the Asphalt Institute (AI), and the National Stone, Sand, & Gravel Association (NSSGA). This is important in Ontario’s path to decarbonize as the conversations must aim to understand the focus of all parties that make up the road building industry.

AI is working to produce a PCR on asphalt binders and update its LCA, all linked to its EPD tool on asphalt binders. This update is important to Ontario relative to the upcoming NRC-ORBA/OAPC partnership project. To learn more, please browse the [AI sustainability webpage](#).

Additional takeaways that may be of interest to Ontario include:

- NAPA published [The Carbon Footprint of Asphalt Pavements: A Reference Document for Decarbonization](#) in March 2024.
- NAPA has been in communication with groups at AASHTO regarding its e-ticketing standard as it relates to EPDs.
- NAPA will host a workshop with a public beta version of the Emerald Eco-Label tool—which will be available at a reasonable price point—for people to simulate what happens in the EPD software.
- Pavement Preservation and Recycling’s (PPRA) [RoadResource.org](#) is a network management tool which includes a [Pavement LCCA Calculator](#).

My recent engagements with the FHWA’s forums were indeed enlightening, and I hope this feedback encourages Ontario to step up its game. EPDs are a sustainable step in the right direction but should not be the only focus on our pathway to decarbonize the asphalt paving industry and/or road building industry generally. Emphasis must also be placed on how to more effectively locate, optimize, utilize and innovate with other materials. ■

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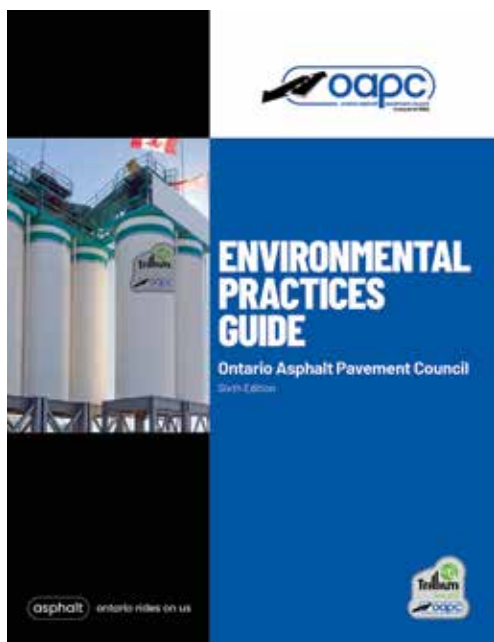


ENVIRONMENTAL ESSENTIALS

Steven Manolis

Executive Vice President,
GIP Materials Engineering

New 6th edition of the Environmental Practices Guide



OAPC unveiled the new 6th edition of the Environmental Practices Guide (EPG) at the Spring Operations Seminar in April 2024. The EPG assists plant operators in operating and maintaining asphalt facilities in an environmentally responsible manner and is available under the Publications section of the [OAPC website](#).

The EPG includes sections on sources of and best practices to control and reduce air emissions, waste and water, and documentation to demonstrate that best practices are implemented. The purpose of the information in the guide is to assist asphalt producers by outlining best practices within the industry. Important qualifications include that asphalt plants must be operated in compliance with Environmental Compliance Approvals for Air/Noise and/or Water issued by the Ministry of the Environment, Conservation and Parks (MECP). The guide does not apply to plants operating under the requirements of the MECP Asphalt Mix Industry (Technical) Standard.

Section One introduces the guide and explains the latest revisions. Section Two summarizes environmental regulations governing asphalt plants with respect to air, noise, waste, and water. Section Three describes the primary emissions associated with asphalt plants with respect to air (particulates, combustion gases, organic compounds, odour), noise, waste, and water.

Environmental best practices outlining suggested maintenance and operational procedures to manage plant emissions and releases are covered in Section Four. Topics covered include controlling air emissions, combustion emissions, organic emissions, odour emissions, and noise emissions. Standard practices for water and waste management are also included.

4.1.3.3 HMA MIXING, AND AC STORAGE AND PUMPING TEMPERATURES

- Recommended asphalt cement temperatures for storage, pumping, and HMA mixing are outlined in the following chart. The lower the asphalt cement temperature, the lower the emissions.

HMA Mixing Temp. (°C)		AC Storage and Pumping Temp. (°C)	
Minimum	Maximum	Minimum	Maximum
135	170	130	170

Notes

- Check with asphalt cement supplier for guidance on specific temperature ranges for specific grades of asphalt cement. Unmodified grades such as neat PG 58-28 typically require lower temperatures than modified asphalt cement grades.
- Warm mix may enable reductions in operating temperatures.
- RAP and modified asphalt cement grades may require operation closer to the higher end of the temperature range.
- Windy, cold conditions or high moisture content in aggregates may require higher mixing temperatures.
- For specialty mix check with asphalt cement supplier or mix designer.

Section Four includes updated guidance for asphalt cement (AC) pumping and storage temperatures. AC pumping and storage temperatures have been combined into one category such that the recommended AC storage temperature range is the same as the recommended AC pumping temperature range. Guidance for the recommended HMA mixing temperature range has been added. Temperature ranges, which differed by AC grade in previous versions of the EPG, are now shown as common ranges for all grades. This change was made to reflect that asphalt binders of the same grade may have different properties depending on the agency specifications that they are required to meet and that this may result in different storage, pumping, and mixing

temperatures for binders of the same grade.

Section Five provides instructions on records keeping as well as documenting and responding to complaints. General guidelines for developing a dust management plan and a spills contingency plan are provided in Section Six. A list of information resources is included in Section Seven.

Appendix A shows sample plant flow diagrams. The drum mix plant flow diagrams now label as an Oversize Grate what was previously labelled as a Scalping Screen in earlier versions of the EPG. This change was made to assist plants during the ECA application process because labelling the component as a screen may lead to incorrect emissions modelling.

Appendices B through E include sample checklists for weather records, inspections, and complaint response. The new edition of the guide now provides two versions of a plant-specific checklist to enable users to select the version that best suits their requirements. A new version, sorted by the frequency of inspection, is found in Appendix D. The version found in previous editions, sorted by plant area, is in Appendix C. ■

APPENDIX C

ENVIRONMENTAL BEST PRACTICES – GUIDANCE FOR DEVELOPING PLANT – SPECIFIC CHECKLISTS SORTED BY AREA OF PLANT

The following guidelines include items to consider when developing plant specific checklists. Plant specific checklists should include appropriate record keeping frequencies. This Appendix sorts items by area of the asphalt plant. Best practice record keeping can, and as applicable, should be incorporated into regular maintenance checklists to avoid unnecessary duplication.

ROADS AND WORKING AREAS	YES	NO	N/A	If No, Date Corrected	Type of checklist control	Comments
Daily						
Plant yard paved areas maintained clean and dust free.	☐	☐	☐		VISUAL INSPECT	
Unpaved yard areas treated regularly with water or other environmentally friendly suppressant.	☐	☐	☐		VISUAL INSPECT	
Efficiently designed traffic patterns enforced.	☐	☐	☐		VISUAL INSPECT	
Vehicle speeds in yard enforced to minimize dust generation.	☐	☐	☐		VISUAL INSPECT	

INDUSTRY NEWS



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GOOD ROADS CONFERENCE

At the 2024 Good Roads Conference on April 23, Doubra Ambaiowei, Technical Services Director, moderated a panel discussion comprised of industry and municipal experts who addressed some of the most important things that can be done to ensure that asphalt pavements are built to last by reviewing the [OAPC Top 10 List: Ways to Get More Durable HMA Pavements](#).

Good Roads

L-R: Christopher Traini, Peter Hamstra, Steve Manolis, Christopher Campbell.



2024 OAPC AWARDS

Be a part of the celebration and nominate a deserving candidate. Winners of the awards will be honoured at the 2024 OAPC Fall Asphalt Seminar taking place November 28th, 2024. Nominations are open until September 13th, 2024. Learn more [here](#).

6th ANNUAL ASPHALT TECHNICAL SYMPOSIUM

OAPC's sixth annual Asphalt Technical Symposium held on June 11, 2024, featured conversations on how to achieve a balanced mix design, accurate assessment of technical performance through appropriate testing methods, and facilitating optimal alignment with the design of asphalt pavement structure to achieve durable asphalt pavements. Thank you to everyone who joined us and made it such a valuable and insightful event! Presentations can be found [here](#).

THANK YOU TO OUR 2024 SPONSORS



CONGRATULATIONS TO THE 2023 ROADS SCHOLARSHIP RECIPIENTS!

The Roads Scholarship Program partners with local colleges in Ontario to increase awareness of the benefits of joining the industry and promote training opportunities. Students from each college are selected based on their academic achievement and exceptional leadership and technical skills. Special consideration is given to students who express a keen interest in the road building and asphalt industry.

Since 2013, OAPC has invested \$90,000 in scholarship awards to the six participating colleges – Algonquin, Canadore, Centennial, Conestoga, Georgian and Fleming Colleges – with an additional \$5,000 allotted specifically for Women-in-Trades-and-Technology.

The 2023 Roads Scholars recognized at the Spring Operations Seminar are:

- Canadore College
BRIAN DOYON
- Conestoga College
JAYSON LUSHMAN
- Georgian College
MATT EDWARD and WILL WATTS
- Centennial College
CHASE DUKE
- Fleming College
ROB CANNING and CHAD HASTINGS



"I would like to thank you for providing the OAPC Roads Scholarship Award which was awarded to me this year. I chose this program to try to get ahead of the competition for construction operators. My favourite experience from Conestoga is having the chance to try out multiple machines especially the bulldozer which we had the luxury of trying a brand-new Doosan Dozer never seen before in construction. Once again, I would like to thank you greatly for making this award available each year for Conestoga College – it really helps a lot for people like me who are just starting out in life. Thank you!" Jayson Lushman, Conestoga College

NAPA WINS \$10 MILLION GRANT FROM EPA

The National Asphalt Pavement Association (NAPA) has received a \$10 million grant from the US Environmental Protection Agency (EPA) as part of an effort to advance clean construction materials. NAPA's focus will be on expanding Environmental Product Declarations (EPDs) for asphalt materials, evaluating the full life cycle of asphalt pavements, and work force education/training for EPDs. You can read more [here](#).

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NOVEMBER 28



THE FINAL WORD

Murray Ritchie

Engaging our future workers with the “why” of our industry

I’m not sure exactly how long I have been involved in the hot mix industry, so I won’t venture a guess. I started in the summer of 1973 checking grade on a new by-pass in Woodstock, Ontario. After a few more summers, I chose to stay on full time with a hot mix crew based out of Guelph and for the next 17 years learned what hot mix paving was all about from some interesting characters. It was at the end of those 17 years that I moved from the field to the office and haven’t looked back, retiring on April 27, 2024.

Starting in the early 90s, I had the opportunity to be a part of what was then the Ontario Hot Mix Producers Association (OHMPA now OAPC) as a member of multiple committees and subsequently as a board member and then president in 2006 and 2012. I was blessed to have met and worked with many of the most dedicated professionals our industry had to offer over the next 20 years as part of the association.

When recently asked to provide my “last words” (sounds very ominous) for *ASPHALT*Topics, I had to dig deep to remember if I had ever, in my tenure with OHMPA, provided a comment. I discovered I had during my second term as president and the following is an excerpt from a 2012 issue of *ASPHALT*Topics:

When I joined The Murray Group as an estimator, we were fortunate to have a young enthusiastic paving crew that was willing to put in the long hours needed in a tough demanding job to get the hard work done. Twenty years later, I am somewhat older and wiser. So too is our paving crew – almost all of whom are still with the company. And that raises a concern. I have a pretty good idea where I will be in 10 years time; hopefully enjoying a well deserved retirement. I would hazard a guess that our paving crew and many of our other skilled workers won’t be far behind.

I can report now some 12 years after this was written that four or five of the early 90s crew are still working today in key crew positions. I recall someone saying to me once, “Don’t be afraid to show someone else how to do your job.” This couldn’t be more important today.

The definition of a mentor is “an experienced and trusted adviser.” I was blessed to have had many mentors in my 50 year career, each of who provided me with some insight, some direction, or just a kind word of support. For the most part my training over the years was on the job. I believe now as I did in 2012 that this type of training is not enough to fill the gap between baby boomers leaving the industry and young people entering.

To quote my 2012 comment, “We need a more structured approach to training. We need training programs that meet the industry standard and establish qualifications. Providing structured, well-defined on-the-job training, related classroom instruction, and the prospects of a rewarding career will not only attract and retain more highly qualified employees but also improve quality, safety and productivity.” I am convinced that if we as an industry engage the young men and women in understanding the “why” of what we do, the quality of our work can only improve.

In my 50 years in the hot mix industry, I have seen plenty of change – Marshal mix designs to Superpave; 85/100 and 150/200 to PG AC grades; shovels to skid steers; barely compacting to smart compacting; pencil and paper to powerful software. Of all these changes over the years, the single greatest change, in my opinion, was the implementation of a ride specification by the Ministry of Transportation of Ontario and the subsequent use of the shuttle buggy. This specification and the piece of equipment to enable the industry to meet this specification forms part of the “why” that our field staff need to understand. Why should we have to provide a good riding surface? Why should we eliminate segregation? Why should we need proper drainage?

I am confident that there are many mentors remaining who will take the time to provide a young person with the answer to the question “Why are we doing it this way?” and, by doing so, will have inspired someone to stick with it well into the future as I did. ■

Murray Ritchie recently retired from The Murray Group Limited.



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