

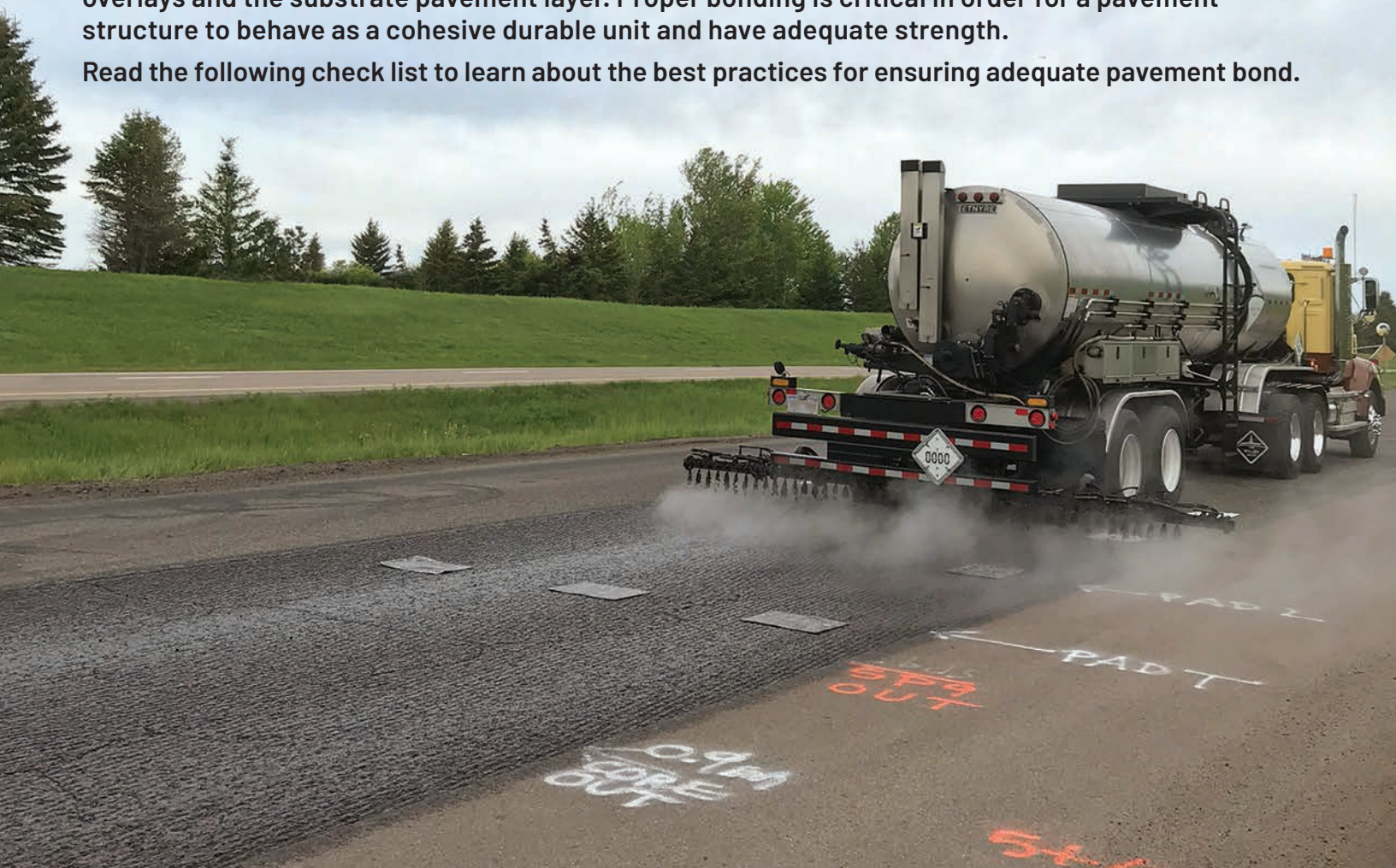
# top 10 list



## WAYS TO GET MORE DURABLE HMA PAVEMENTS #6 ENSURING ADEQUATE PAVEMENT BOND

One of the known causes of premature cracking in asphalt pavement is poor bonding between overlays and the substrate pavement layer. Proper bonding is critical in order for a pavement structure to behave as a cohesive durable unit and have adequate strength.

Read the following check list to learn about the best practices for ensuring adequate pavement bond.



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## TACK COATS

- Tack coats are liquid emulsions sprayed over the surface of an existing pavement prior to an overlay. They are also used where the Hot Mix Asphalt (HMA) comes in contact with the vertical face of curbs, gutters, cold pavement joints and other roadway structures.



## EMULSIFIED ASPHALTS

- Emulsified asphalts (slow set, medium set, rapid set, quick set, high float, and polymer modified asphalt emulsions) are primarily used in tack coat applications. Commonly used slow set type emulsions in Ontario include SS-1, SS-1h, CSS-1, and CSS-1h. Outside the province, paving-grade asphalt cements and cutbacks are also used as tack coat materials to a lesser degree, with cutbacks significantly declining due to environmental concerns related to the volatile components.



## GOOD SPECIFICATION & INSPECTION

- Properly applied tack coat ensures pavements perform as designed and is an important component in addressing the issue of asphalt pavement durability. Ensuring and enforcing good specification and inspection practices will greatly enhance this objective.



## APPLY IT RIGHT

- The essential properties of a tack coat include very thin applications, and uniform coverage over the entire surface of the area to be resurfaced. To accomplish these requirements and for the distributor to uniformly apply light quantities, the tack asphalt is usually diluted 50:50 with water, and the rate should be adjusted for an undiluted application rate. The upper limit of the application range is recommended for old oxidized, cracked, potholed, or milled asphalt pavements and concrete pavement surfaces.



## APPLICATION RATE

- Additional factors to achieving the required uniformity across the pavement include speed of distribution vehicle, pump flow rate, spray height and width, and nozzle type. These elements working together will achieve the proper application rate.



## JUST THE RIGHT AMOUNT

- Too little tack coat will not provide adequate bond; the result is slippage cracks. Too much could cause bleeding into the overlay mix compromising mixture stability. Consultation with the project engineer is critical for determining optimum application rates.



## KEEP IT CLEAN

- The roadway surface should be dry and free from debris/foreign materials. It is recommended to sweep surfaces with a power broom prior to tack application.



## TIMING

- Tack coats are applied just prior to placement of the HMA. If the tack coat is applied too early prior to asphalt placement, it could lose its tacky characteristic and the surface would require additional tack. The element of time for this to occur is a function of the temperature, wind, surface condition and traffic. If an area is tacked and placement of HMA is not done the same day, the surface should be re-tacked lightly at the beginning of the next paving day. This may not be the case with trackless tack coats; good practice guidance from the project engineer is advised with use of trackless and traditional tack coats. The type of tack coat used can be adjusted to speed up the break under different weather conditions; i.e. using RS versus SS when weather is cooler will reduce wait time for the tack to break.



## TRAFFIC CONTROL

- Traffic should be kept off the tack coat until no hazardous condition exists. The probability of the emulsion spattering when traffic is permitted should also be considered. The overlay should not be placed until the tack coat has cured to the point where it is tacky to the touch.



## LOCAL CONDITIONS & COMMUNICATION

- To promote long-term pavement performance and best practices, owners and agencies are encouraged to write tack coat specifications in consistent, clear and explicit language, taking into account local conditions that will be encountered during construction.



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The OAPC's Top 10 List was developed from results of the Quality of Asphalt Review, which commenced in September 2018. The Quality of Asphalt Review was commissioned in the fall of 2017 and was managed by KPMG and consisted of analysis conducted by Texas A&M Transportation Institute (TTI).

Contractors are encouraged to reference various National Asphalt Pavement Association (NAPA) and National Cooperative Highway Research Program (NCHRP) resources - particularly NAPA's Quality Improvement Series (QIP) 128 "Best Practices for Emulsion Tack Coats" which details guidance and suggestions for selecting tack coat emulsions, selecting and maintaining associated equipment, and applying tack coats.