

Winter Tenting of Road Surfaces

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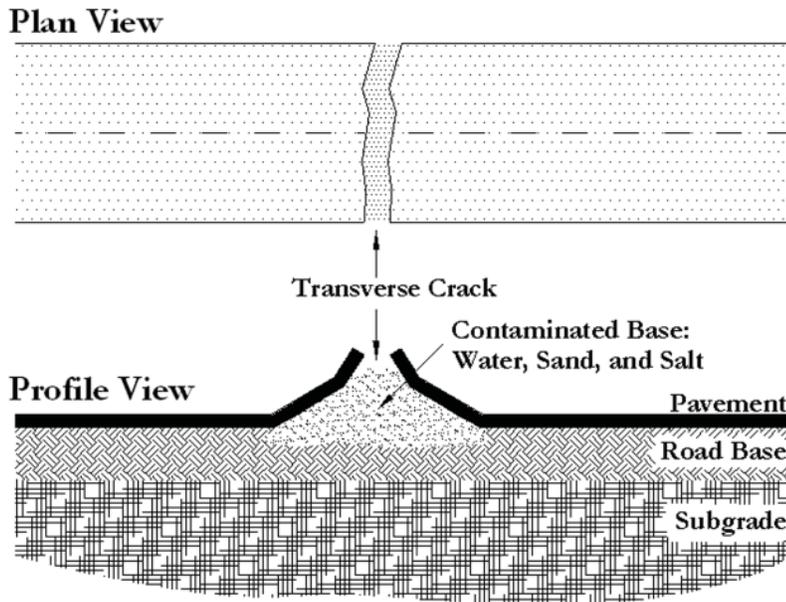


Figure 1: Tent Crack

In New Hampshire, cold temperatures play an active role in pavement deterioration. The freeze/thaw cycle may decrease the maintenance-free life of a road up to 50%. Frost heaving and decreased pavement strength cause deteriorations such as rutting and surface cracking. Tenting is a pavement deterioration which may significantly reduce the lifespan of a road.

Tenting – What is it?

Tenting is localized frost heaving within a transverse pavement crack (see figure 1). Research shows that tenting produces an upward lift in the pavement as high as four inches over a 10 foot horizontal distance. This distress produces a highly uneven riding surface and greatly accelerates pavement deterioration. All roads are prone to tenting, including roads designed for high traffic loads and the frost/thaw cycle.

What Causes It?

During the freeze/thaw cycle, frost migrates into unstable subgrade material resulting in pavement deterioration. A frost susceptible subgrade may heave creating the visible road distress-

es. Tenting can occur in pavements even those specifically designed to resist tenting.

Road sand/salt mix infiltrates the road base through a surface crack. As the ground thaws, water carries salt into crack and saturates the base. The freezing-point of salt-saturated material around the crack is lower than the surrounding base material. The difference in freezing temperatures produce uneven freezing. The thawed areas around the crack will continue to saturate while the surrounding base materials freeze. Ice lenses form beneath the crack and heave the pavement creating a tented appearance.

Frost susceptible fines enter during the next thaw cycle and prevent the crack from returning to normal. This exaggerates the tenting during the next freeze cycle. The fine sand deposits are illustrated in the picture on page three, where the pavement surface was removed to expose the road base.

Conclusion

Crackseal pavements before the problem occurs. Cracksealing will prevent further intrusion of water and sand/salt mix. If infiltration has already occurred, the problem is within the road base.

An overlay prevents additional intrusion but reflection cracking will occur and allow additional salt water intrusion. The more successful, yet more expensive, option is to remove the salt contaminated base material and resurface.

The best advice is to do preventative maintenance treatment (surface treatments) to stop a problem before it starts. ❖

Source:
Winter Tenting of Highway Pavements, NHDOT Research Record, FHWA-NH-RD-12323C, 2000



Accumulated Crack Material

Handling Incoming Communication

Good workplace habits come from working smart. Manage incoming information with the fewest possible moves: e-mail, voice mail, phone calls, and regular mail. It doesn't take long for incoming communication to demand constant attention and rob precious time.

People who receive new e-mails and voice mails all day, should schedule time to check them. (E.G., first thing in the morning and right after lunch.) Read or listen to messages to determine their priority; particularly with regard to current schedules. If necessary or appropriate, send off a prompt answer (promising follow-up, when required).

E-mail

- Use the two-minute rule. When it takes less than two minutes to answer a message, do it then file or delete the message.
- Use folders to organize messages.
- Immediate delete any unneeded messages.
- Use follow-up flags or dated calendar alarms to bring forward e-mail when it needs attention.

Voice Mail

- Review voice mail, take notes and delete them.
- Respond to those that fit the two-minute rule.
- Schedule the others for follow-up, as appropriate.

Postal mail

- Open mail once a day.
- Toss the junk or the unneeded paper.
- Use the two-minute rule.
- File informational mail. Delegate whenever possible. Place the rest in a follow-up system and respond to in a timely manner.

Finally, don't get into the habit of reading every e-mail, when it arrives, or even answering the phone every time it rings. Answer returned calls. Otherwise, use voice mail. Have systems in place to ensure to manage incoming communication within a schedule, rather than letting it manage or even overwhelm schedules. ❖

Source
McKenzie, Ian http://www.ismckenzie.com/archives/cat_organization.html February 14, 2006