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**From:** Brian Malone [/O=CIMA-PLUS/OU=FIRST ADMINISTRATIVE GROUP/CN=RECIPIENTS/CN=BRIAN.MALONE]  
**Sent:** 8/10/2015 8:16:06 AM  
**To:** Brian Applebee [/O=CIMA-PLUS/OU=First Administrative Group/cn=Recipients/cn=brian.applebee]; Giovanni Bottesini [/O=CIMA-PLUS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Giovani Bottesinc47]; Khaled Hawash [/O=CIMA-PLUS/OU=First Administrative Group/cn=Recipients/cn=khaled.hawash]  
**CC:** Pedram Izadpanah (pedram.izadpanah@cima.ca) [pedram.izadpanah@cima.ca]  
**Subject:** FW: Friction numbers on RHVP

For your information. Not for public release.

It does not help very much since it appears that the City abdicates responsibility for assessing friction on the pavement surface to the MTO for some reason. We'll need to decide how to deal with this in the report.

Brian Malone  
CIMA+  
Burlington, Ontario  
Tel: 289-288-0287 x 6802  
Cell: 905-466-0421

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**From:** Moore, Gary [mailto:Gary.Moore@hamilton.ca]  
**Sent:** August-10-15 8:13 AM  
**To:** Brian Malone  
**Subject:** RE: Friction numbers on RHVP

As below

**Gary Moore**  
Director, Engineering Services  
Engineering Services Division  
Public Works Department, City of Hamilton  
T: 905.546.2424 ext. 2382

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**From:** Brian Malone [mailto:Brian.Malone@cima.ca]  
**Sent:** August-07-15 3:26 PM  
**To:** Moore, Gary  
**Subject:** RE: Friction numbers on RHVP

Thanks very much Gary. Don't worry, we will not re-publish this information.

To make sure I'm understanding correctly, this is the data from the MTO testing in 2007, as well as the MTO report on the subject. Am I correct that FN numbers of less than 30 are below a desired level? **Only MTO could tell you that. They keep this info very close to the vest so it can't be used against them in an action or suit. But that seems to be the case.** Figure 1 of the MTO report shows 30 as what appears to be a threshold. I have also read that FN numbers greater 35 (or higher) in a zone that would suggest skid resistance is not an issue on the pavement. Is that correct? **Don't know.**

Do you have a performance specification for the FN value you strive for? **No, it is not a city specification. The SMA traditionally satisfied all the criteria we were looking for ; lower noise profile, high performance pavement in terms of rut resistance and friction ( skid resistance ).**

The 2013 testing values certainly look higher. Are they done using the same methodology and tool as the MTO work, and thus could be directly compared? **The testing was done by MTO both times so I would say they are comparable.**

Regards,

Brian Malone  
CIMA+  
Burlington, Ontario  
Tel: 289-288-0287 x 6802  
Cell: 905-466-0421

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**From:** Moore, Gary [<mailto:Gary.Moore@hamilton.ca>]  
**Sent:** August-07-15 2:58 PM  
**To:** Brian Malone  
**Subject:** FW: Friction numbers on RHVP

Brian  
Here is the Red Hill friction testing summary. Not for republication! thanks

**Gary Moore**  
Director, Engineering Services  
Engineering Services Division  
Public Works Department, City of Hamilton  
T: 905.546.2424 ext. 2382

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**From:** Uzarowski, Ludomir [[mailto:Ludomir\\_Uzarowski@golder.com](mailto:Ludomir_Uzarowski@golder.com)]  
**Sent:** January-24-14 11:45 AM  
**To:** Moore, Gary  
**Cc:** Henderson, Vimy  
**Subject:** Friction numbers on RHVP

Hi Gary,

The surface asphalt on the RHVP is Stone Mastic Asphalt (SMA). Immediately following construction of the RHVP in 2007, the Ontario Ministry of Transportation performed friction testing in both southbound lanes. The following table summarizes the results of this testing. The complete testing results are attached.

Lane	Average Friction Number	Friction Number Range
Southbound Lane 1	33.9	28.1 to 36.5
Southbound Lane 2	33.8	28.4 to 37.4

In 2013, the Friction Numbers were measured on the RHVP in both directions by Tradewind Scientific using a Grip Tester. The average FN numbers were as follows:

SB Right Lane 35  
SB Left Lane 34  
NB Right Lane 36  
NB Left Lane 39

In 2009 the Ontario Ministry of Transportation published a paper at the Canadian Technical Asphalt Association Annual Conference titled "Early Age Low Friction Problem of SMA in Ontario". The paper presented results of SMA that had been placed on Highway 401. The Friction Number results following construction were below anticipated value of 30 and ranged from 24.9 to 28.8. The paper is attached.

Regards,  
Ludomir

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