

REGION OF OTTAWA-CARLETON
RÉGION D'OTTAWA-CARLETON

REPORT
RAPPORT

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DATE	07 July 1999
TO/DEST.	Co-ordinator Transportation Committee
FROM/EXP.	Acting Deputy Commissioner Environment and Transportation Department
SUBJECT/OBJET	PAVEMENT MARKING LONGEVITY MOTION TC-3-99

DEPARTMENTAL RECOMMENDATION

That the Transportation Committee receive this report for information.

BACKGROUND

The purpose of this report is to provide information to members of the Transportation Committee on the types and longevity of pavement marking materials as requested at the 21 April Transportation Committee meeting. Pavement markings play a key role in pedestrian and traffic safety. As a general rule, they are taken for granted by the public. However the pavement marking programme is one of our most important traffic safety programmes. The Department spends a great deal of time and effort in ensuring we are getting the most cost-effective products with which to mark our roadways.

For many years the Region of Ottawa-Carleton has applied a solvent-based traffic paint on the roadways of Ottawa-Carleton and the City of Ottawa. This product is considered the best in its class as a standard traffic paint and is the most commonly used paint throughout Canada. Notwithstanding this, it is evident that this product does not wear well in high traffic areas and during the harsh winters experienced in Ottawa-Carleton.

In 1998, the Region of Ottawa-Carleton applied over 3,500,000 metres of centreline and edgeline markings. The Region currently applies centreline markings twice annually in the urban areas of Ottawa-Carleton and once in the rural areas.

The Region of Ottawa-Carleton, in addition to the almost exclusive use of solvent traffic paints has, since 1984, used a variety of “durable” traffic marking materials for specific applications. As an example, when the Slater/Albert bus lanes opened in 1986, a polymer tape was inlaid in conjunction with the paving of these two roadways. This material lasted for five years .

In 1991, 1994 and 1995 significant amounts of cold plastic were applied at a variety of locations identified through the Safety Improvement Programme. Intersection markings, longitudinal markings and arrows were applied as part of this programme. These applications had varying degrees of success lasting between two and four years.

The Region has exclusively used and continues to use polymer tape to define the turning radius at multi-turn locations (commonly referred to as chicken tracks).

DISCUSSION

Several pavement marking products other than traditional traffic paint are available. These include latex (water based) traffic paint and several other products falling under the category of “durable” which includes polymer tapes, thermoplastics, and cold plastic. All of these products can, under the right conditions, provide durability beyond what can be expected of the solvent materials.

Since 1984, the Region has applied thermoplastic, cold plastic and polymer tapes and we continue to use the polymer tapes to define the turning radius at multi-turn locations or to define alignment transitions through intersections. The following provides information as a result of our experiences, as provided by the Ministry of Transportation of Ontario’s testing and from suppliers of these products:

1. Traffic Paint

Solvent based traffic paint is almost exclusively used by the Region of Ottawa-Carleton. This product can be applied commencing in early Spring right into late Fall. Durability is compromised with applications under cold conditions; however paint can be applied in sub-zero conditions and high humidity. In 1998, the Region of Ottawa-Carleton’s cost for applying centreline striping was \$.18 per metre, by far the most inexpensive method of applying centreline striping

2. Polymer Tapes

Polymer tapes are a “durable” product currently used by the Region of Ottawa-Carleton to define turning radius at multi-turn locations. This product can be applied on the surface or inlaid in the asphalt. The inlay application is ideally done in conjunction with an asphaltic overlay where the finish roller is used to roll the tape into the hot asphalt. The material cost for this product alone is approximately \$3.90 per metre. The inlay method has proven to be the most cost-effective “durable” type of installation with markings lasting up to five years.

3. Thermoplastic (Hot Plastic)

a. Overlay Method

Thermoplastics are a “durable” product used by the Region of Ottawa-Carleton at various locations, with some installations going back to 1984. This product is recommended for new asphalt only and only for longitudinal markings (centreline and edgeline) and is generally applied on the asphalt surface. It cannot be applied directly over existing markings. It can be applied early Spring through until late Fall. Durability usually is in the three-year range with some chipping commencing in the first year. Applied costs are in the \$2.50 to \$3.50 per metre range depending on quantities.

b. Inlay Method

This method is recommended for “transverse” markings only (crosswalks, stop bars, arrows). Durability is in the five-year range. Applied costs are in the \$9.00 to \$10.00 per metre range depending on quantities. Asphalt is “routed” and mixture is poured into roadway grooves.

4. Cold Plastic

Cold plastic is a two-part acrylic “durable” product currently and previously used by the Region of Ottawa-Carleton to address safety-related pavement marking issues. For example, “speed humps” markings have been painted using this product. It is recommended for transverse markings only. Cold plastic can be applied in the early Spring through until the late Fall. It cannot be applied directly over existing paint. Durability up to three years can be expected with some chipping commencing the first year. Applied costs can range from \$4.00 to \$5.00 per metre depending on quantities.

5. Waterborne Traffic Paint (Latex)

Latex paint is a water based traffic paint gaining prominence because of the environmentally friendly nature of the product. It has been mandated for exclusive usage in some American States and is being used by the Ministry of Transportation of Ontario in some districts. Because it is water based, the window of opportunity for painting is limited to very dry, moisture-free conditions. The Ministry of Transportation limits its usage to June through September. Their testing has shown that on new asphalt, this product can last up to two years while to be used successfully over our current traffic paint, the existing markings must be at least 50% worn, and under these conditions performs very similar to paint. The cost per litre of this product is in the \$1.80 range (the Region’s cost for traffic paint in 1999 is \$1.70 per litre).

CONCLUSION

Current available funding levels have dictated our current pavement marking practices. Urban areas are painted twice annually and any safety-related marking issues are addressed with the usage of “durable” markings as defined above. The above mix has optimised the usage of resources, and would appear to be a good compromise.

*Approved by
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