

Memorandum
City of Lawrence
Department of Public Works

TO: David L. Corliss, City Manager
FROM: Shoeb Uddin, City Engineer
CC: Charles Soules, Mark Thiel, David Woosley, Tammy Bennett
Date: April 22, 2010
RE: Budget Request
Pavement Marking Improvement Program

Introduction

Pavement markings play a very important role in the safety of our street system by channelizing and guiding the road users. It is important to maintain the visibility and retro-reflectivity of pavement markings (especially on highly traveled and higher speed arterial streets and intersections) in order to ensure safe and efficient traffic flow.

Over the years, it has been a challenging task to provide adequate maintenance of pavement markings due to budget constraints. The current annual budget for pavement marking maintenance is only \$15,000.00. In order to keep up with the increasing maintenance needs, we need an increase in Pavement Marking Maintenance Budget.

Pavement Marking Need Summary

Traffic Division staff recently conducted a city wide inspection / survey to assess the condition of the pavement markings in the city. The survey / inspection focused on arterial streets including the intersections on arterial streets (see map). In the future, we will make an assessment on the condition of pavement markings on collector streets. In general, pavement markings on local streets are not critical.

There are three suitable methods to install pavement markings on existing asphalt pavement – Paint, Pre-formed Thermo-Plastic and 3M A270. Paint is a cheaper option and will need to be done preferably twice a year (at a minimum once a year). However, it is a preferred solution for pavements scheduled for mill and overlay in the near future. Both Pre-formed thermoplastic and 3M A270 are durable and relatively longer lasting (approximately 3 to 5 years) material and are preferable where the existing asphalt surfacing is in good condition and is not scheduled for surface treatments (e.g. mill and overlay or micro-surfacing) within the life span of these materials. Pre-formed Thermoplastic and 3M A270 are comparable in price.

All three methods / materials mentioned above can be applied on concrete pavement as well. Since concrete does not require frequent surface treatment (similar to mill and overlay of asphalt surfacing), a durable and long lasting option is always preferable for concrete pavements.

Following is a priority list of locations where pavement marking is currently deficient, and are recommended for installation of new pavement markings.

Mainline stripping includes the white skip lane lines and the double yellow and turn-lane stripping. Intersection pavement markings include turn arrows, lane lines, and crosswalks and stop bars.

Priority Ranking	Location Mainline	Pre-formed thermoplastic / 3M A270	Paint (twice a year)	Comment
1	Kentucky, 12 th to 19 th	\$10,000.00	\$2,250.00	
2	Tennessee, 6 th to 10 th	\$7,500.00	\$1,500.00	
3	9 th Street, New Hampshire to Tennessee	\$12,500.00	\$3,000.00	
4	19 th , Iowa to Naismith	\$6,500.00	\$1,500.00	
5	Wakarusa, 6 th to Harvard and 18 th to Clinton Parkway	\$35,000.00	\$8,000.00	
6	Clinton Parkway, Iowa to Crestline and Kasold to Hartford	\$7,500.00	\$1,250.00	
	Mainline Total	\$79,000.00	\$17,500.00	
	Intersections			
1	6 th and Wakarusa	\$15,000.00	\$6,000.00	
2	Wakarusa and Bob Billings	\$9,000.00	\$3,500.00	
3	Clinton Parkway and Wakarusa	\$15,000.00	\$6,000.00	
4	6 th and Kasold	\$15,000.00	\$6,000.00	
5	Kasold and Bob Billings	\$12,500.00	\$5,000.00	
6	Clinton Parkway and Kasold	\$15,000.00	\$6,000.00	
7	19 th and Iowa	\$12,500.00	\$5,000.00	
8	19 th and Naismith	\$6,000.00	\$2,500.00	
9	31 st and Iowa	\$12,500.00	\$5,000.00	
10	6 th and Folks	\$14,000.00	\$5,500.00	
11	6 th and Monterey	\$15,000.00	\$6,000.00	
12	6 th and Iowa	\$5,000.00	\$2,000.00	

	Intersection Total	\$146,500.00	\$58,500.00	

For mainline pavement markings, the cost differential between Paint and Pre-formed thermoplastic / 3M A270 seems inconclusive based on a life-cycle cost analysis. However, due to the higher initial cost associated with the durable options, Paint option seems more feasible for mainlines, at the beginning of a multi-year comprehensive program. Once all pavement markings are restored to an acceptable condition, durable methods / materials can be applied on mainlines if funds are still available.

At intersections, pavement marking installation is labor intensive due to the turning traffic, typically of higher volume. As a result, the price differential (for initial installation) between Paint and Pre-formed thermoplastic / 3M A270 is not as high compared to mainline installation. However, when compared on the basis of life cycle cost, Pre-formed thermoplastic / 3M A270 is certainly more cost effective. Therefore, a durable and long lasting option is always recommended at intersections, unless the intersection is scheduled for surface treatment in the immediate future.

Public Works would request an increase in the 2011 budget for pavement markings. Following are two proposals and the areas that could be re-stripped:

Option 1

Install pavement markings on mainline	\$ 17,500
Install Thermoplastic at 6 th and Wakarusa	\$ 15,000
Install Thermoplastic at Wakarusa and Bob Billings Parkway	\$ 9,000
Install Thermoplastic at Wakarusa and Clinton Parkway	\$ 15,000
	\$ 56,500

Option 2

Install pavement markings on mainline	\$ 17,500
Install Thermoplastic at 6 th and Wakarusa	\$ 15,000
Install Thermoplastic at Wakarusa and Bob Billings Parkway	\$ 9,000
Install Thermoplastic at Wakarusa and Clinton Parkway	\$ 15,000
Install Thermoplastic at 6 th and Kasold	\$ 15,000
Install Thermoplastic at Kasold and Bob Billings Parkway	\$ 12,500
Install Thermoplastic at Clinton Parkway and Kasold	\$ 15,000
	\$ 99,000