

# Selecting pavement marking materials: Balancing initial cost and durability

THE LIFESPAN of pavement markings is typically between six months and several years, compared to the typical lifespan of pavements between 10 and 25 years. Because repeated replacement of pavement markings can be costly over time, agencies should consider durability and life-cycle costs when selecting pavement marking materials.

## Pavement marking types

Pavement marking materials can be divided into two common types: nondurable and durable.

**Nondurable** markings include paints. The use of solvent-based (alkyd) paint has been restricted by Environmental Protection Agency regulations. Water-based (latex) paints are generally less expensive than durable markings and are widely used on Iowa roads.

**Durable** markings include epoxy, thermoplastics, poly urea and urethane, and preformed tape. Though these types can be more expensive than paints, they have a longer expected service life.

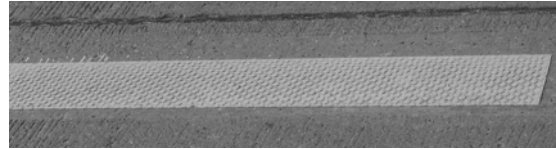
## Comparing materials

Cost, durability, and retroreflectivity are the primary criteria by which to evaluate pavement marking materials. The cost of any given pavement marking material varies by manufacturer and type. The service life of a material can also vary widely depending on pavement surface, traffic volume, weather condition, plowing activity, etc. Some general trends and comments are provided in the table below.

Other considerations when selecting pavement marking types: ease of installation, drying time,



Water-based paint markings (above) are typically replaced every six months to two years.



Tape markings can last up to seven years. These textured tape markings on South Duff Avenue in Ames have performed well through three winters.

and an assessment of how the materials would perform for the given pavement type, road use, and climate.

## For more information

Gary Thomas, former assistant professor of civil engineering at Iowa State University, conducted a thorough synthesis of research regarding durable, cost-effective pavement markings for the Iowa Highway Research Board (TR-454). See his report online, [www.ctre.iastate.edu/reports/pavemark.pdf](http://www.ctre.iastate.edu/reports/pavemark.pdf).

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Marking Type	Average Cost	Expected Service Life	Comments
Water-based paint	\$0.10/ft	0.5–2 years	Limited use in cold weather.
Epoxy	\$0.60/ft	2–5 years	
Poly urea and urethane	\$0.85/ft	2–5 years	Can be placed at temperatures as low as 32°F. This product has only been used in Iowa since 1999, so the upper end on service life is speculative.
Thermoplastics	\$0.90/ft	5–7 years	Not for use on portland cement concrete pavement.
Preformed tape	\$1.00–4.00/ft	2–7 years	Easily removed when desired, such as in construction zones. Can peel, chip, and crack during snow removal and other activities.

## LTAP Advisory Board

The people listed below help guide and direct the policies and activities of Iowa's Local Technical Assistance Program (LTAP). Contact any of the advisory board members to comment, make suggestions, or ask questions about any aspect of LTAP.

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