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Temporary All-Weather Pavement Markings for Work Zones

Project Team 3M and TTI

Award $499,277

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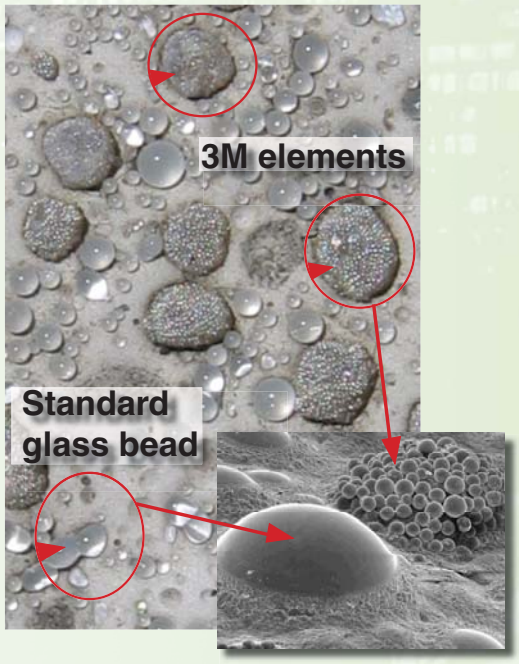
Need

- Retroreflectivity of conventional pavement markings diminishes signifigantly under wet weather conditions at night, which severely reduces their visibility
- Reduced pavement marking guidance can compromise motorist safety, especially in work zones, where unusual traffic patterns are common
- There is a growing need for pavement markings that sustain visibility under all weather conditions, customized for work zone applications and requirements

Proposed Solution



- Unique optical elements made of a ceramic core surrounded by very high-refractive index beads that provide retroreflectivity under wet conditions, both during and after rain events
- These optical elements are applied together with typical glass beads onto paint using conventional application methods
- Resulting optical system offers a promising and economic solution to improve wet-weather visibility of pavement markings in work zones

Night-Wet Conditions

Conventional Pavement Markings

All-Weather Pavement Markings

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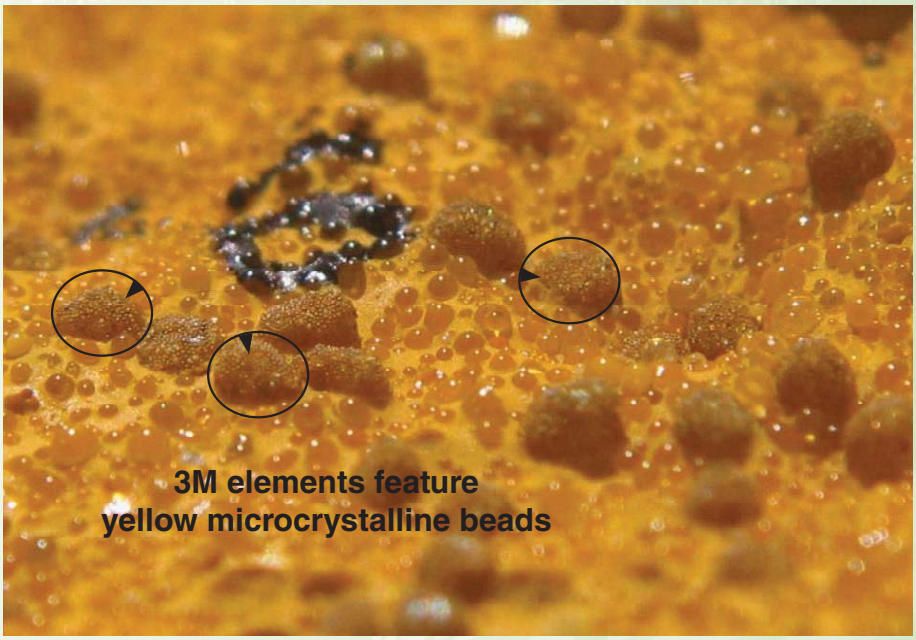
3M elements help yellow pavement markings reflect their color at night.



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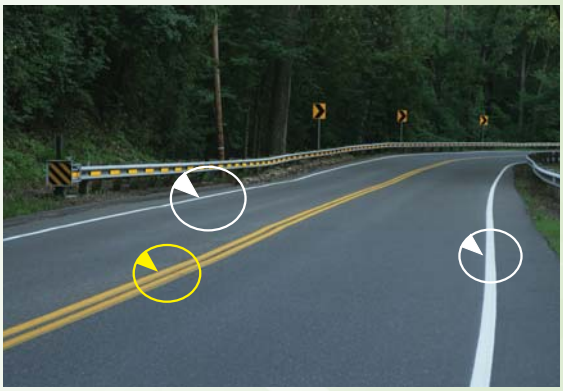
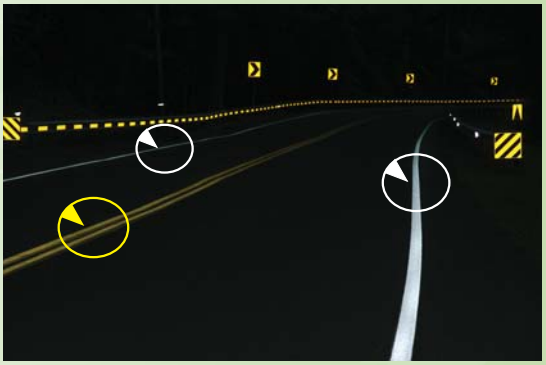
Conventional and All-Weather Markings Under Different Conditions



Day-Dry

Night-Dry



All-weather paint pavement markings

Conventional pavement markings

Night-Wet Conditions