

Temporary All-Weather Pavement Markings for Work Zones

→ **Project Team** 3M and TTI

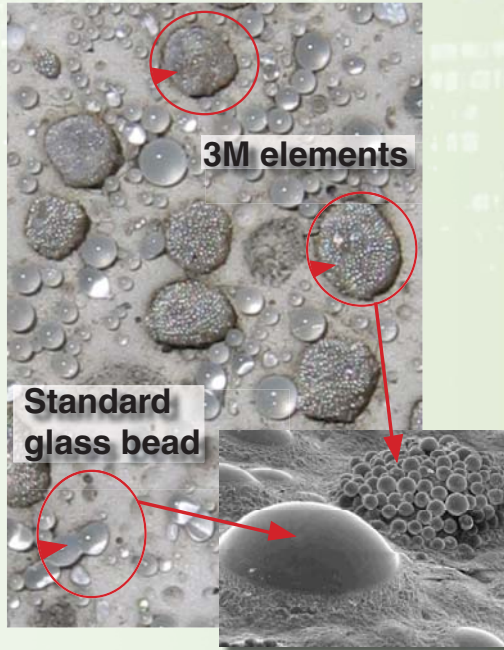
→ **Award** \$499,277



Need

- **Retroreflectivity of conventional pavement markings diminishes significantly 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

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Night-Wet Conditions



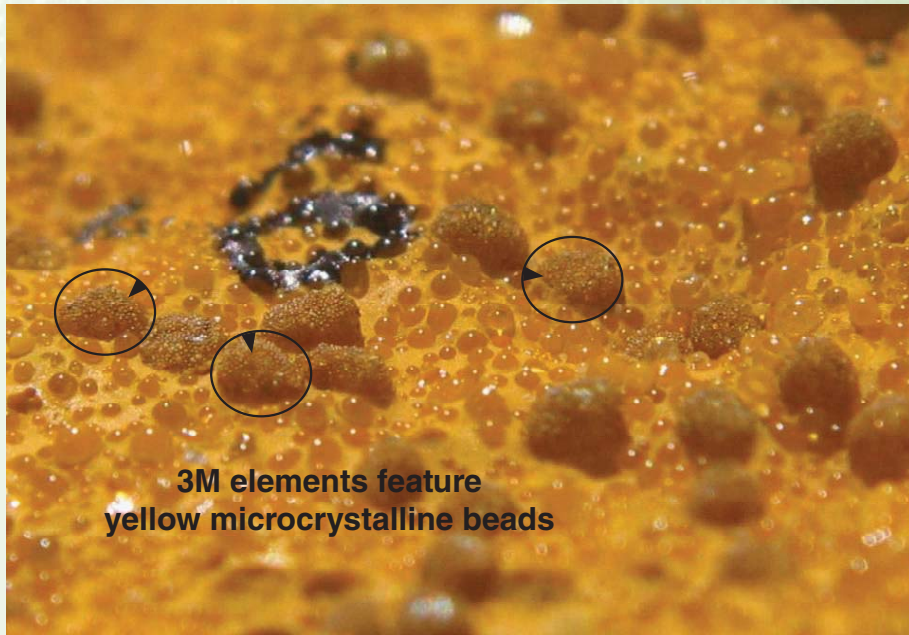
Conventional Pavement Markings



All-Weather Pavement Markings

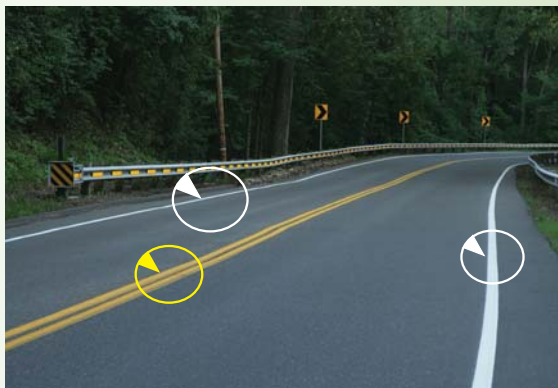
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3M elements help yellow pavement markings reflect their color at night.



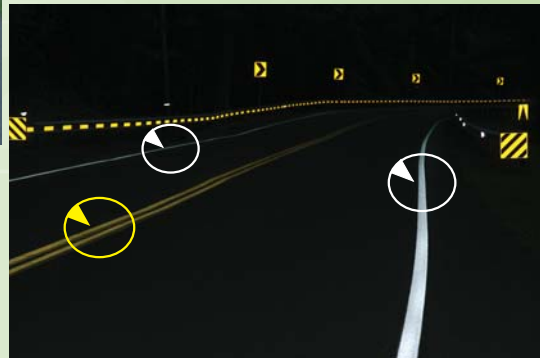
3M elements feature yellow microcrystalline beads

Conventional and All-Weather Markings Under Different Conditions



Day-Dry

- All-weather paint pavement markings
- Conventional pavement markings



Night-Dry

Night-Wet Conditions

