

RESEARCH PROBLEM STATEMENT

DATE: 09/03/2019	PROJECT AREA: Maintenance
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TITLE: Raised Pavement Marker Installation

PROBLEM STATEMENT:

Raised pavement markers (RPMs) are used to define boundaries for traffic lanes. RPMs typically include a plastic lens that reflects vehicle lights epoxied to the pavement surface. The raised marker causes better light reflectivity and additionally causes a vehicle to vibrate if the vehicle wanders. The RPM is installed manually using a two-step process by a worker positioned precariously close to the pavement surface on the side of an applicator vehicle. During the installation process, the applicator vehicle stops at a marker point, the worker applies epoxy to the roadway surface with a nozzle attached to a hose, and then positions the RPM on the epoxy. This installation procedure is conducted by a worker on the side of an applicator vehicle in one traffic lane while traffic continues in parallel lanes. Consequently, the process is dangerous since the worker is involved with spraying a hot epoxy while trying to avoid adjacent moving traffic. In addition to the safety issues related to the initial RPM installation, epoxy strength is time dependent. Therefore, an alternative RPM installation approach needs to be developed that promotes installation safety and durability.

OBJECTIVES:

Investigate alternative raised marker approaches and retro-reflective lane markings, to develop a road surface marking approach for ARDOT usage. A proposed system is included in Slide 3 using an RPM. The slide shows a raised pavement marker using a clear epoxy inundated with colored reflective sphere particles. The epoxy is sprayed on the pavement as a dollop in disk form. The procedure enables the application to be done using temporary equipment mounted to a pickup truck. Consequently, the procedure safely installs raised pavement markers and negates the need for a worker to manually affix a reflective marker. A major objective will be to propose to ARDOT a lane marking system that is durable and cost effective.

FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:

Develop the equipment and installation / replacement procedure for raised pavement markers. Cost savings will come from reduced material and machinery expenses.

Estimated Project Duration: 24 Months

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REVIEWER:

Standing Subcommittee
Ranking

Advisory Council
Ranking

Statement Combined with
Statement Number(s)

Current RAISED REFLECTIVE MARKER (RPM)

1 or 2 reflective faces held in place in an acrylic plastic shell



PRICE
\$4 / MARKER + INSTALLATION

PROBLEM:
Installation Safety &
Bonding between RPM
and Roadway



Current Roadway Marker Placement Process (ref: FHWA: Highways For Life)

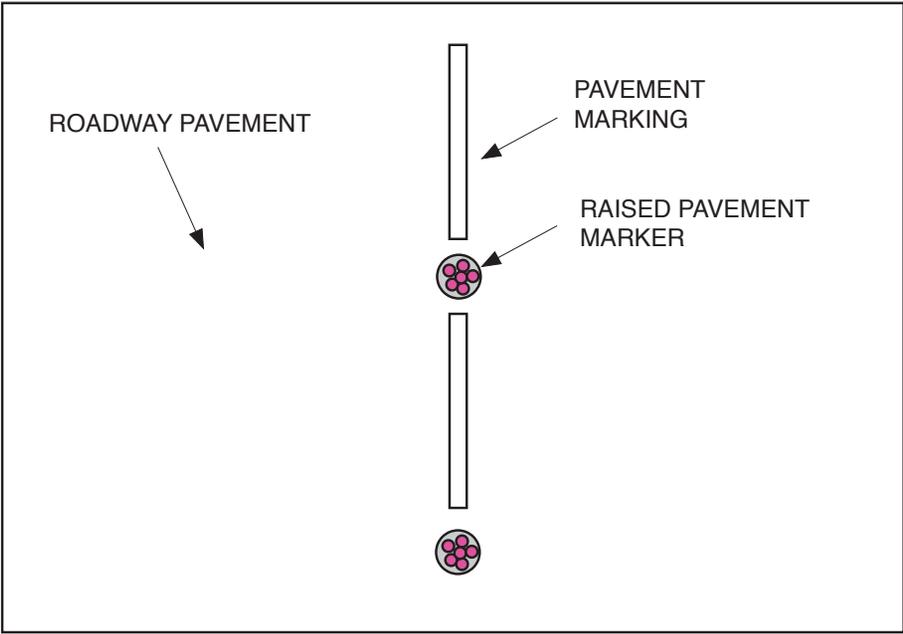
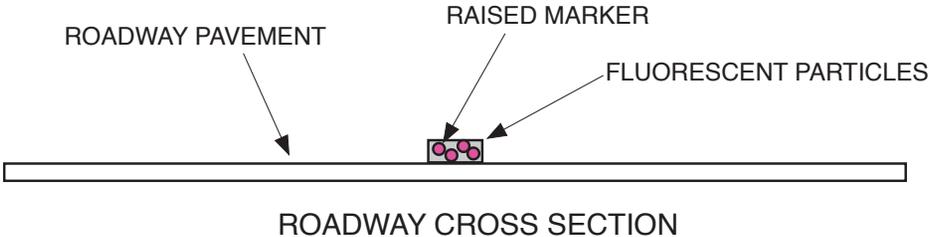
APPLICATOR TRUCK

- Step 1: APPLY BITUMEN
- Step 2: PLACE RPM

High Temperature bitumen



ALTERNATIVE RAISED ROADWAY MARKER



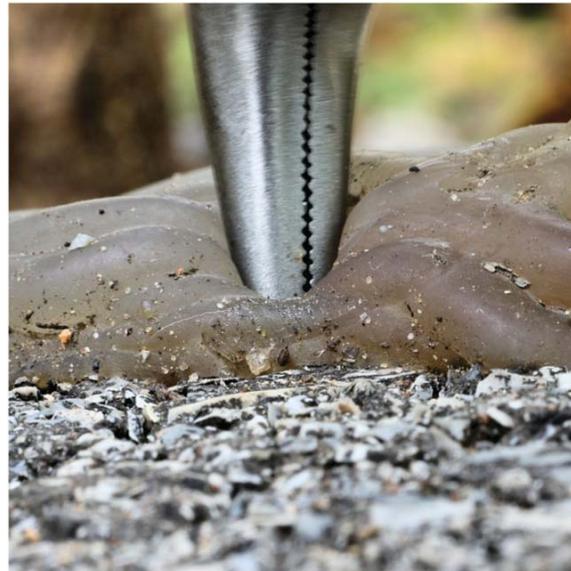
RPM Epoxy Material (Lexal Sealant)



Plan View



Elevation View



Elastic Behavior