Research Project Statement

Fiscal Year: 2005
Project Statement Date: January 22, 2004

Project Number: 0-5089
Title: Raised Pavement Marker Improvements

RMC Number: 4
Developed By: TAP

<table>
<thead>
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Duration (# of years): ________

Total Budget: $________

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<tr>
<th>First Year</th>
<th>Second Year</th>
<th>Additional FYs</th>
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<tr>
<td>FY</td>
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Objective: The objective is to provide TxDOT with the information needed to specify, test and apply a durable raised pavement marker (RPM). The target is a five-year RPM with a failure rate over the five years of less than 10%. The project should provide improved marker design criteria for the material specification, relevant test procedures to be used for prequalification and routine acceptance of the RPMs and application recommendations, particularly for Grade 3 and Grade 4 surface treatments.

Description: The use of RPMs to supplement highway pavement markings has proven to be a very effective traffic control measure. The RPMs enhance lane delineation at night providing a greater level of security, safety and comfort for the motorists. They are particularly effective in providing wet-night retroreflectivity when the other markings are less effective.

In recent years, it appears that the service life for RPMs has been reduced. Some reasons for this may be the increased level of competition and reduction in RPM prices, the increase in general and truck traffic, and the increase in the use of surface treatments with larger aggregate; i.e., Type 3). One RPM model was recently removed from the TxDOT pre-qualified list because it consistently demonstrated the same premature failure on multiple jobs. There have also been some cases of premature failure on several specific jobs for some of the other RPM models. Some reasons for these premature failures appear to be problems during production for specific batches which were identified by the manufacturer and corrected. The RPM manufacturers express concerns about investing in a more expensive and durable RPM without the assurance that TxDOT will specify and pay for it.

The need for a more durable RPM is also increasing due to the increase in application costs. This includes direct costs such as traffic control, equipment, labor and materials. It also includes indirect costs such as the impact on traffic, particularly in urban areas, as well as development, execution and oversight of the replacement and installation contracts.

Progress on this project will be presented for review and concurrence on a quarterly basis.
**Deliverable Products And Reports:**

- **P1** Recommended design criteria needed to insure a five year durable marker. It should be in a form which can easily be incorporated into the TxDOT Departmental Material Specification for RPMs.
- **P2** Test procedures which can be used for pre-qualification and routine testing of the RPMs and which will insure the quality needed.
- **P3** Recommended application procedures to be used on rigid and flexible pavements, and particularly ones to be used on surface treatments to insure acceptable RPM retention and performance.
- **R1** Research Report
- **PSR** Project Summary Report

**Implementation:**

- Design criteria added to the Departmental Material Specification to improve the RPM designs.
- Test procedures to be used for pre-qualification and routine acceptance.
- Improved application methods and materials to be added to the standard specifications and to be used by TxDOT when applying the RPMs with TxDOT forces.

**Pre-proposal Meeting:**

- Yes  □ No  February 25, 2004, 9:00am, at Riverside Annex, Bldg 118

**Sole Source Justification, if applicable:**

**Additional Information:**

**Proposal Submission:**

- Proposals are required to be submitted in both hard copy (4 copies) and PDF format (1 PDF file per proposal). Both formats are used within TxDOT for evaluating the proposals and must contain identical information.
- The “Background and Significance” portion of the proposal should be limited to 10 pages.
- All proposals from researchers should be sent directly to your university’s Research Liaison for submission to RTI. The Research Liaison is TxDOT’s official contact with the university.

1. All individuals interested in proposing are encouraged to contact the PC or PD by February 12, 2004.

**Deadlines (for RTI use only):**

2. Proposals are due to RTI by 4:00 p.m. CST on March 24, 2004.