Texas A&M Transportation Institute

PROJECT SUMMARY

Texas Department of Transportation

0-6798: Seal Coat Binder Specification

Background

Each year Texas Department of Transportation (TxDOT) districts develop district-wide preventive maintenance contracts to maximize the benefit of the available funding level. In 2012, TxDOT allocated approximately $336.68 million for preventive maintenance work throughout the state. These contracts predominantly utilize seal coats to treat roadways selected by district staff. The roadways selected to receive a seal coat treatment are determined by evaluating the current Pavement Management Information System data along with visual inspections and recommendations of maintenance supervisors and area engineers.

A prioritized list of projects including corresponding project cost estimates is typically developed and compared to the preventive maintenance funding allocated to the district. This research project evaluated the success of this system to date by 1) identifying districts with chip seal projects accomplished under this system; 2) interviewing TxDOT personnel, material suppliers, and contractors with experience under this system; 3) summarizing the experience of the various parties; 4) analyzing the information; and 5) reporting the results.

The contracting method included the development and implementation of the Seal Coat Material Selection Table (Figure 1). The goal associated with the implementation of the table was to reduce construction costs through increased competition and contract flexibility. The Seal Coat Material Selection Table provides a three-tiered approach based on average annual daily traffic for the selection of an asphalt binder to be used for the corresponding projects.

What the Researchers Did

Researchers held district meetings that varied from one to another but generally included district engineers, area engineers, maintenance and operations engineers, designers, materials engineers, construction engineers, planners, seal coat supervisors, and maintenance supervisors. Researchers dispersed questionnaires and conducted interviews.

As information was gathered, the research team compiled the detailed comments and searched for common responses. While there was not a unanimous response among participants to any given issue, the consensus of the responses was synthesized, and the minority responses were noted.

What They Found

The districts interviewed seemed to have very clear ideas about why the table was developed. Most believed that it was intended to increase competition between contractors, while some mentioned lowering costs, increasing contractor flexibility, improving the uniformity of

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contracting practices statewide, and finally matching the binders to the appropriate roadways.

There is not a consensus among districts on whether the tier system is saving the department money. From an administrative point of view, the table appears to have made contract management generally easier.

When asked if binders within a given tier were equivalent, there was not a consensus among the various districts, although most believe that within a given tier there are problems in equating performance among binders.

What This Means

The tier system is working as it was intended for the most part. It has spurred competition among binder suppliers.

There is a general sense of satisfaction with the current tier system although at least one district and one contractor expressed negative opinions about the system. The binder suppliers expressed appreciation of the system so long as it is being used as it was intended.

The tier system is saving money as calculated by TxDOT. Over a 2.5-year period, it is estimated that the system has saved more than $33 million.

There are opportunities for the tier system to be improved.

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Seal Coat Material Selection Table

Instructions to the Contractor:
1) Provide materials according to the alternates selected for the roadway tier designations specified at various roadway locations shown on the plans;
2) Alternately, supply selected binders from a higher tier, but only if the type of material is allowed for the designated tier; payment will only be made for the tier designated for the pavement;
3) Supply the aggregate type, grade and surface aggregate class that is shown to be allowed with the binder used; and
4) Adhere to the application season selected.

There are working days allowed for this project. The latest roadway start work date is .

Tier I: Heavy Use (>5,000 ADT) - Use only the selected materials.

	Asphalt Rubber (A-R)	Asphalt Cement (AC)
Type	☐ A-R Only	☐ AC Only
Asphalt	☐ A-R Ty II ☐ A-R Ty III ☐ SP 300-	☐ AC-20-5TR ☐ AC-20XP ☐ AC-15P ☐ SP 300-
Aggregate Type	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL
Aggregate Grade	☐ 3S ☐ 4S ☐ 3non-lw ☐ 4 ☐ 3 lw ☐ SP 302-	☐ 3S ☐ 4S ☐ 5 ☐ 3non-lw ☐ 4 ☐ 5S ☐ 3 lw ☐ SP 302-
Aggregate SAC	☐ A ☐ B	☐ A ☐ B

Tier II: Moderate Use (500-5,000 ADT) - Use these materials or any selected Tier I material combinations of the allowed types.

	Asphalt Cement (AC)	Asphalt Emulsion
Type	☐ AC Only	☐ Emulsion Only
Asphalt	☐ AC-10-2TR ☐ AC-5 w/2%SBR ☐ AC-20XP ☐ SP 300- ☐ AC-10 w/2%SBR ☐ AC-15P	☐ CHFRS-2P ☐ CRS-2P ☐ HFRS-2P ☐ SP 300-
Aggregate Type	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL ☐ Allow uncoated aggregate	☐ Ty A ☐ Ty B ☐ Ty C ☐ Ty D ☐ Ty E ☐ Ty L
Aggregate Grade	☐ 3S ☐ 4S ☐ 5S ☐ 3non-lw ☐ 4 ☐ 5 ☐ 3 lw ☐ SP 302-	☐ 3S ☐ 4S ☐ 5S ☐ 3non-lw ☐ 4 ☐ 5 ☐ 3 lw ☐ SP 302-
Aggregate SAC	☐ A ☐ B	☐ A ☐ B

Tier III: Light Use (<500 ADT) - Use these materials or any selected Tier I or Tier II material combinations of the allowed types.

	Asphalt Cement (AC)	Asphalt Emulsion
Type	☐ AC Only	☐ Emulsion Only
Asphalt	☐ AC-10 ☐ SP 300- ☐ AC-5	☐ CRS-2 ☐ CRS-2H ☐ HFRS-2 ☐ SP 300-
Aggregate Type	☐ Ty PA ☐ Ty PB ☐ Ty PC ☐ Ty PD ☐ Ty PE ☐ Ty PL ☐ Allow uncoated aggregate	☐ Ty A ☐ Ty B ☐ Ty C ☐ Ty D ☐ Ty E ☐ Ty L
Aggregate Grade	☐ 3S ☐ 4S ☐ 5S ☐ 3non-lw ☐ 4 ☐ 5 ☐ 3 lw ☐ SP 302-	☐ 3S ☐ 4S ☐ 5S ☐ 3non-lw ☐ 4 ☐ 5 ☐ 3 lw ☐ SP 302-
Aggregate SAC	☐ A ☐ B	☐ A ☐ B

Cool Weather Alternates: Use these materials for work in cooler conditions as directed/approved.

☐ CRS-2 ☐ HFRS-2 ☐ CRS-1P ☐ RS-1P ☐ ☐ RC-250 ☐ MC-800 ☐ AC-12-5TR ☐ ☐ SP 300-

Districtwide Seal Coat Project Seasons: Refer to Item 316 for temperature and weather restrictions.

Season 1: AMA, CHS, LBB	May 15 to Aug 31
Season 2: ABL, ATL, BWD, DAL, FTW, LFK, ODA, PAR, SJT, TYL, WAC, WFS	May 1 to Aug 31
Season 3: AUS, BMT, BRY, ELP, HOU, SAT, YKM	May 1 to Sept 15
Season 4: CRP, LRD, PHR	Apr 1 to Sept 30

Note: Seal coats on routine maintenance contracts must be completed by August 31 unless otherwise shown on the plans.

Figure 1. Seal Coat Material Selection Table.

For More Information

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