



ENERGY-SECTOR BRIEF

Maintenance Division, Roadway Asset Management

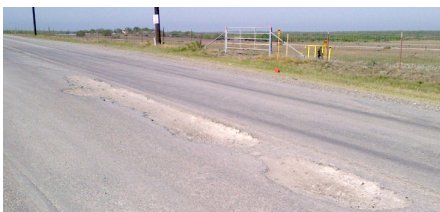


15-02 SHALLOW PATCHING

A variety of roadway maintenance repair techniques and materials are used by TxDOT Districts to extend pavement life. This brief documents techniques and materials most used by districts in South and West Texas for “Shallow Patching” of pavements damaged by traffic generated by the development of the energy sector of the Texas economy. Other Energy Sector Briefs available include the following:

- 14-03 Shoulder/Edge Repair Techniques
- 15-01 Maintenance Repair Techniques
- 15-03 Deep Patching
- 15-04 Level-Up Patching
- 15-05 Surface Treatment/ Seal Coat/Chip Seal
- 15-06 Pavement Strengthening

The maintenance methods summarized in these briefs represent current practices of the districts in these two regions of the state. As materials and equipment change, these methods will be altered. Feedback on performance of various maintenance treatments used in the energy sector will also result in change to these methods, materials and techniques. Report 409186-01 “Current TxDOT Practices for Repair of Road Damage Associated with Energy Development and Production” provides additional details for these routine maintenance operations. This report and related documents are available on the TxDOT Maintenance Division (MNT) SharePoint site at <https://txdot.sharepoint.com/sites/division-mnt/SitePages/Home.aspx>.



DESCRIPTION

- Removal of a localized area of the failed pavement to a minimum depth of 2 to 3 inches and replacement with an asphalt bound material

CONDITIONS FAVORING USE

- Use to repair localized pavement distress including potholes and small severely distressed areas
- Repairs are usually temporary in nature and more extensive maintenance will be needed at a later date
- Placement is often required in marginal weather conditions for emergency type repairs

MATERIALS

South Texas

Materials	Comments
HM-CL	<ul style="list-style-type: none"> • Potential for poor performance in cold weather • Potential for poor performance in the hot summer months • Some districts report use of 2% Portland cement with patching material to provide improved cold and hot weather performance
LRA	<ul style="list-style-type: none"> • Used by several districts near source in Uvalde
Commercial cold patch material	<ul style="list-style-type: none"> • Several proprietary materials are available and produced by several materials suppliers
HMA	<ul style="list-style-type: none"> • Typically these materials are not available • Improved performance with hot mixed-hot laid materials • BB is sometimes used for deeper patches

West Texas

Materials	Comments
HM-CL	<ul style="list-style-type: none"> • Little success with HM-CL
LRA	<ul style="list-style-type: none"> • Marginal success reported in one district • Used by all districts
Commercial cold patch material	<ul style="list-style-type: none"> • Improved success reported in one district • Used by all districts
HMA	<ul style="list-style-type: none"> • RAP mixed in hot plant • Improved performance with HMA • Not available in many locations
RAP plus diesel	<ul style="list-style-type: none"> • Used by one district

BB-Black Base (hot mixed-hot laid)-Item 292

HMA-Hot Mix Asphalt-Item 340, 341

HM-CL-Hot Mix-Cold Laid-Item 334

LRA-Limestone Rock Asphalt-Item 330

RAP-Reclaimed Asphalt Pavement



PERFORMANCE

- The life of a shallow patch depends on the general condition of the pavement, quality of workmanship associated with preparing the area to be patched, the quality of underlying materials, the patching material, the care associated with placement and compaction of the material, the thickness of the patch, the general weather conditions and the volume of traffic.
- Shallow, localized patches may need additional maintenance.
- The use of hot mix asphalt typically extends the life of the patch. Hot mix-cold laid and LRA mixtures may shove or rut in warmer weather.

PROCEDURE

- Remove materials from area to be repaired to a minimum depth of 2 to 3 inches or to a depth of “sound” material
- As time permits square repair area
- Tack bottom and sides of repair area
- Place asphalt bound patching material
- Compact asphalt bound patching material with suitable equipment unless at edge or other areas where rollers cannot process

EQUIPMENT

- 6 to 10 cubic yard end dump truck
- Hand tools
- Hand wand/sprayer for emulsion tack coat distribution
- Compactor

CREW SIZE

- Typically 2 to 4 maintenance workers

SCHEDULING

- Best to schedule in warm, dry weather
- Patching in cold and wet weather is discouraged but necessary in some instances. Raveling and potholes can form in a short time.

COMMENTS

- Follow department and district guidance regarding traffic control plan

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