

Suggested Field Considerations

The following field considerations are a guide for the important aspects of planning a thin functional overlay project. Thorough answers to these questions should be determined before, during, and after application. The appropriate staff to do this work will vary by job type and size. Some topics may need attention from several staff members. These are not meant to be a report, but to bring attention to important aspects and components of the project process.

Note that some specifications described in the following content may not be the same as the specifications followed by your agency. Always check with your State agency's standards and specifications when using these guidelines.

Sections

- **Preliminary Responsibilities**
- **Inspection Responsibilities**
- **Equipment Inspection Considerations**
- **Site Considerations**
- **Project Inspection Responsibilities**

Preliminary Responsibilities

Project Review

- Is the project a good candidate for a thin overlay?
- How much rutting is present and what is its depth and extent?
- Have other profile problems been observed?
- What type of cracking exists and how severe is it?
- Is crack sealing needed?
- Is the pavement surface waterproof?
- How much bleeding or flushing exists?

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- Is the pavement raveling or oxidized?
- What is the traffic level?
- Is the base sound and well drained?
- Is a drainage layer required?
- Is pavement strengthening required? If so, use a structural overlay.
- Review the project for bid/plan quantities.

Document Review

- Application specifications and special provisions
- Mix design information
- Traffic control plan (TCP)

Materials Checks

- Has a full mix design been done for the mixture?
- Is the mix produced by an approved source?
- Has the tack coat emulsion been sampled and submitted for testing?
- Do aggregates meet all specifications and come from a source not known to have stripping problems? If so, what anti stripping treatment is to be used?
- Is aggregate clean and free of deleterious materials and graded correctly?
- Is the tack coat emulsion properly prepared (diluted) before use?
- Is the mix checked at the plant for temperature compliance and have samples been taken?

Inspection Responsibilities

Surface Preparation

- Is the surface clean and dry? Has it been swept?
- Have any areas with oily residue been scrubbed from the pavement?
- Have all pavement distresses been repaired?
- Has the existing surface been inspected for drainage problems?
- Have all utilities been raised or masked?

Equipment Inspection Considerations

Broom

- Are bristles the proper length?
- Can the broom be adjusted vertically to avoid excess pressure?

Tack Coater

- Is the machine fully functional?
- Has the machine been calibrated to accurately spray the correct level of tack coat?
- Are all spray tips clean and free of blockages?
- Are nozzles angled correctly (approximately 30°)?
- Is the spray bar at the correct height? Is there a double or triple overlap of the spray fan?

Paving Machine

- Is the machine fully functional?
- Is the paver clean and are the wings operating correctly?
- Are flow gates clear, set at the right height, and functioning properly?
- Are the conveyors functioning?
- Are the augers clean and functioning?
- Is the flow system (manual or automatic) operational?
- Are material levels in the paver auger chamber set correctly?
- Do the screed heaters work?
- Is the screed clean and properly set? Is the angle of attack correct?
- Is the automatic leveling system working and correctly set?
- Is the paver speed correct for the intended thickness and angle of attack?
- Are the screed strike offs clean and providing a uniform mat?
- In continuous jobs, is the pick-up machine working correctly?
- Is a materials transfer device being used? Is it working correctly?
- Are the mixing and heating facilities fully operational?

Rollers

- What types of rollers will be used on the project for break down and finish rolling?
- Are tandem or vibratory rollers fully functional?
- Is the pneumatic roller fully functional and do roller tire pressures comply with the manufacturer's specification?
- Do the roller tire size, rating, and pressures comply with manufacturer's recommendations?
- Are the tire pressures the same on all tires?
- Do all tires have smooth surfaces?

Dump Trucks

- What types of dump trucks are being used?
- Are bottom dump trucks providing a clean and well-shaped windrow?
- Do rear dump trucks have correct hitches for the paver?

Calibration of Equipment

- Are machines calibrated?
- Who carried out the calibration and what documentation has been provided?

Determining Application Rates

- Have agency guidelines and requirements been followed?
- Is rut filling or a leveling course required? If so, have material quantities been calculated or estimated to properly re-profile the roadway?
- Has a full mix design been done?

Site Considerations

Weather Requirements

- Have air and surface temperatures been checked at the coolest location on the project?
- Do air and surface temperatures meet specification requirements?
- Are freezing temperatures expected within 24 hours of the completion of any application runs?

Traffic Control

- Do the signs and devices used match the traffic control plan?
- Do the flaggers hold the traffic for reasonable periods of time?
- Are any unsafe conditions reported to the resident engineer?
- Does the pilot car lead traffic slowly—24 mph or less—over fresh overlays?
- Are signs removed or covered when they no longer apply?

Project Inspection Responsibilities

Tack Coat Application

- What is the emulsion temperature?
- Wind, humidity, and temperature can affect set time and distribution.
- Has the tack coater application spray bar been checked for height and blocked nozzles?
- Has the application rate been checked?
- Has the emulsion been diluted correctly?
- Are the grade and ambient temperatures satisfactory?
- Is the application even and covering the entire pavement?
- Is the emulsion allowed to turn black before paving?
- Is the application in accordance with agency guidelines?
- Do the paver wheels pick up the tack coat during paving?

Laydown of Dense Graded Mix

- Has a test strip been successfully laid and compacted?
- Are the ambient and grade temperatures correct?
- Is the mix temperature correct?
- Is the paver going at a uniform speed?
- Is continuous application used with windrowing? Is the mixture the correct temperature?
- If back dump trucks are used, are changeovers smooth causing no bumping of the paver?
- Are the hopper, augers, and screed operating correctly?

Laydown of Gap Graded Mix

- Has a test strip been successfully laid and compacted?
- Are the ambient and grade temperatures correct?
- Is there evidence of significant drain down of the mix?
- Is the mix temperature correct?
- Is the paver going at a uniform speed?
- Are the paver wings kept open to avoid segregated mix being laid?
- If back dump trucks are used, are changeovers smooth causing no bumping of the paver?
- Are the hopper, augers, and screed operating correctly?
- Is the screed set at the correct height?
- Is the mat being tamped uniformly and is the mat a uniform thickness?
- Are height adjustments minimal?
- Are height adjustments allowed time to be effective?
- Does the mat look uniform?
- Are edge lines and joint overlaps neat and straight?
- Is the job stopped if problems persist?
- Does the material have a dull or shiny look?

☐ Laydown of Open Graded Mix

- Has a test strip been successfully laid and compacted?
- Are the ambient and grade temperatures correct?
- Is the mix temperature correct?
- Is there evidence of drain down?
- Is the paver going at a uniform speed?
- If continuous application is used with windrowing, is the mixture at the correct temperature?
- If back dump trucks are used, are changeovers smooth causing no bumping of the paver?
- Are the hopper, augers, and screed operating correctly?
- Is the screed set at the correct height?
- Is the mat being tamped uniformly and is the mat a uniform thickness?
- Are height adjustments minimal?
- Are adjustments allowed time to be effective?
- Does the mat look uniform?
- Are edge lines and joint overlaps neat and straight?
- Is the job stopped if problems persist?

☐ Rolling Dense Graded Mix

- Has a roller pattern been established?
- Have the numbers of passes required for break-down rolling been established?
- Is the surface temperature of the mat correct at the beginning of rolling?
- Is the roller being operated at the correct speed? Does the mat crack? Did you check under the roller?
- Is aggregate crushing being avoided under breakdown rolling?
- Is water being used to cool the mat?
- Is finish rolling required?
- How many passes are being used?
- Does the mat look uniform?
- Does the mat meet density requirements?

- Are edge lines and joint overlaps neat and straight?
- Is the job stopped if problems persist?

Rolling Gap Graded Mix

- Has a roller pattern been established?
- Have the numbers of passes required for break-down rolling been established?
- Is the surface temperature of the mat correct at the beginning of rolling?
- Is the roller being operated at the correct speed?
- Does the mat crack? Did you check under the roller? If so, wait a little longer for cooling.
- Is water being used to cool the mat?
- How many passes are being used?
- Does the mat look uniform?
- Has the required density been achieved?
- Is mix pick up being avoided?
- Are edge lines and joint overlaps neat and straight?
- Is the job stopped if problems persist?

Rolling Open Graded Mix

- Has a roller pattern been established?
- Have the numbers of passes required for breakdown rolling been established?
- Is the surface temperature of the mat correct at the beginning of rolling?
- Is the roller being operated at the correct speed?
- Does the mat crack? Did you check under the roller? If so, wait a little longer for cooling.
- Does the mat look uniform?
- Has the required density been achieved?
- Is mix pick up being avoided?
- Are edge lines and joint overlaps neat and straight?
- Is the job stopped if problems persist?

Truck Operation

- Are trucks staggered across the fresh tack coat to avoid driving over the same area?
- Do trucks travel slowly on the fresh mix?
- Are stops and turns made gradually?
- Do truck operators avoid driving over the mat?
- Do trucks stagger their wheel paths when backing over a previous pass?

Longitudinal Joints

- Is echelon paving used?
- Are joints overlapped or cut back?
- Has a notch device been used?
- Is compaction at joints satisfactory?
- If left open to traffic, are edges of runs feathered to prevent fall off of traffic?
- Are joints flat and smooth?
- How far does the end gate of the paver overlap the previous lane?
- Is raking of the longitudinal joint minimized?
- Is compaction done from the hot side of the joint?
- Are the joints straight and compact?
- Are gaps avoided?

Transverse Joints

- Are transverse joints minimized and only used at the end of paving or when problems occur in laying?
- Do hand-constructed butt joints have vertical faces?
- Are joints constructed quickly to avoid mix cooling?
- When compaction is done upstream of the joint, are runoff boards provided for the roller?
- Are tapered joints used if traffic is to be carried over a transverse joint?
- Is the mat uniform up to the joint?

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- Is treated paper or sand used on the edge for a temporary joint to form a ramp?
- Is a ramp constructed solely with mix?
- When paving is recommenced, is the ramp or taper removed cleanly?
- Is raking minimized when forming a joint?
- Are joints compacted transversely?
- If there are restrictions, is the joint compacted longitudinally?
- Is the joint tight, well compacted, and close to being indiscernible?
- Brooming (if required)**
 - Does brooming begin after the mixture is available for traffic?
 - Is follow-up brooming done if raveling or traffic is high?
- Opening the Mix to Traffic**
 - Does traffic travel slowly—24 mph or less—over the fresh mat?
 - Are all construction-related signs removed when opening to normal traffic?
- Clean Up**
 - Is all loose aggregate removed from the traveled way?
 - Are spills removed from all areas including curbs, sidewalks, and radius applications?