

Missouri Department of Transportation
Patrick K. McKenna, Director

1.888.ASK MODOT (275.6636)

December 22, 2015

The following informational meeting has been scheduled for a project to be let in the February 19, 2016 bid opening:

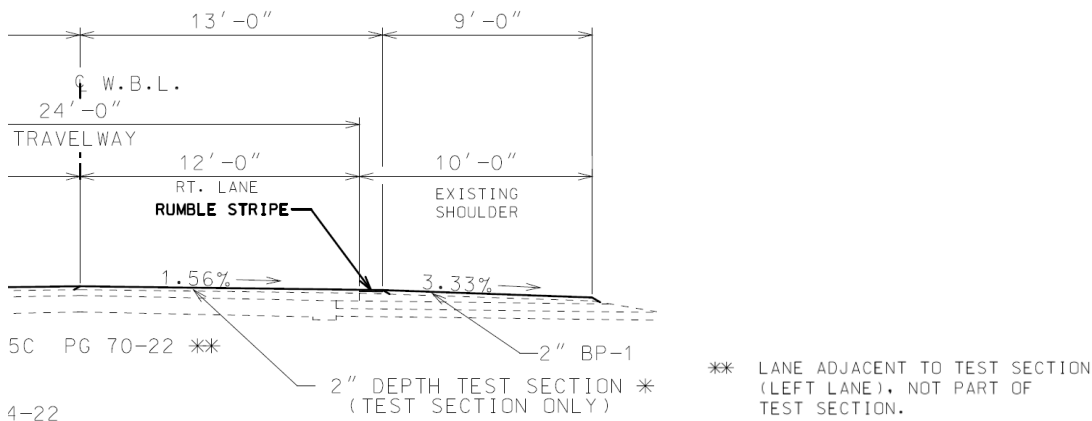
<u>Call</u>	<u>County</u>	<u>Route</u>	<u>Job No.</u>	<u>Date & Time</u>	<u>Location</u>
D02	Miller	54	J5P3131	Jan 6, 2015 1:00 p.m.	MoDOT Central Office Construction & Materials Lab Conference Room 201 E. & W. 1617 Missouri Blvd. Jefferson City, MO 65109

Project contact: Bruce Green (573-751-7688) or Sarah Kleinschmit (573-751-2926)

This meeting is to advise of and discuss the requirements of the Experimental Test Sections for Strategic Highway Research Program (SHRP) Long Term Pavement Preservation (LTPP) that will be placed as a portion of the resurfacing project.

Please review the attached job special provision and come prepared to comment. Attendance is not required but strongly recommended.

SHRP - LTPP 2" TEST SECTION										
FROM LOG MILE	TO LOG MILE	LOCATION	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	(SY)	QUANTITY (TONS)	TACK (GAL)		
135.921	138.429	RTE. 54 W.B.L.	13242	13.1667	2.00	20142.4	2113.77	1611	RT. LANE	
FOR INFORMATIONAL PURPOSES ONLY								2113.8	1611	



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EXPERIMENTAL TEST SECTIONS FOR STRATEGIC HIGHWAY RESEARCH PROGRAM
(SHRP) LONG TERM PAVEMENT PERSERVATION (LTPP)

1.0 Description. This special provision includes the description of work to be performed on 11 test sections located on Route 54 in Miller County, on project J5P3131. The purpose of SHRP test sections is to study asphalt mix performance with different percentages of effective virgin binder replacement from recycled asphalt pavement (RAP) and shingles (RAS), varied asphalt binder grades, varied mix design parameters, and different warm mix technologies. Areas not described in the following Job Special Provision are to be constructed in accordance with the plans and specifications as described in the contract documents.

2.0 General. Sampling and testing in accordance with Sec 403 of the Standard Specifications will govern the contractor's operations and the acceptance of the completed work. Due to the research nature of this project, other extensive testing of materials and procedures may be required; however, the additional testing by the department or other research entities for research purposes will not be used for contract compliance.

2.1.1 When conducting work in the test section areas specified in Section 3.0, the contractor shall submit a schedule of work at least seven days prior to work beginning within a test area. Any changes to the schedule, except weather related events, shall be provided to the engineer in writing at least three days prior to the change in work schedule occurring.

2.1.2 The contractor shall allow the department and other research entities access to all operations for data collection. Types of data collection during production include, but are not limited to the following:

- Sampling of asphalt mixtures and components of mixtures
- Verifying additive rates at the plant

Types of data collection before and after production include, but are not limited to the following:

- Distress surveys prior to overlay
- Sampling of subgrade, base, or other components of underlying layers
- Five point cross sectioning of the existing pavement prior to overlay
- Falling Weight Deflectometer (FWD) testing before and after overlay
- Pavement coring before and after overlay

2.1.3 At least 30 days prior to placing any mixture on the project, the contractor shall submit a minimum of 11 different mix designs for approval to Construction and Materials. The contractor shall consider the switching of materials, different mix designs, and construction methods from the 11 different test sections as part of their bid proposal.

2.2 Performance-Graded Asphalt Binder. The asphalt binder shall be in accordance with AASHTO M 332 Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test, including Appendix X1.

2.3 Aggregate Source. The mix design for all test sections shall use the same aggregate sources.

3.0 Test Section Locations and General Descriptions. There are 11 test sections to be constructed in this project as listed below. Each test section shall be constructed in the westbound driving lane only.

SHRP ID*	TENTATIVE LOG MILE LIMITS	GENERAL DESCRIPTION**
291001	135.921 to 136.149	Control Section 2" SP125C w/ PG 64-22H 35 % RAP; 0 % RAS
291002	136.149 to 136.377	Chemical Warm Mix Section 2" SP125C w/ PG 64-22H 35 % RAP; 0 % RAS Evotherm® Chemical Additive
291003	136.377 to 136.605	Foamed Asphalt Warm Mix Section 2" SP125C w/ PG 64-22H 35 % RAP; 0 % RAS Astec® Mixing Unit
291004	136.605 to 136.833	Virgin Mix Section 2" SP125C w/ PG 64-22H 0 % RAP; 0 % RAS
291005	136.833 to 137.061	2" SP125C w/ PG 58-28S 0 % RAP; 20 % RAS
291006	137.061 to 137.289	2" SP125C w/ PG 58-28S 0 % RAP; 35 % RAS Minimum 15.0% VMA
291007	137.289 to 137.517	2" SP125C w/ Contractor Designed Grade 0 % RAP, 35 % RAS Final Extracted Binder Grade Goal = PG 64-22H
291008	137.517 to 137.745	2" SP125C w/ PG 58-28S 20 % RAP & 15 % RAS
291009	137.745 to 137.973	2" SP125C w/ Contractor Designed Grade 35 % RAP, 0 % RAS Final Extracted Binder Grade Goal = PG 64-22H
291010	137.973 to 138.201	2" SP125C w/ PG 58-28S 35 % RAP, 0 % RAS Minimum 15.0 % VMA
291011	138.201 to 138.429	2" SP125C w/ Contractor Designed Grade 20 % RAP, 15% RAS Final Extracted Binder Grade Goal = PG 64-22H

* The SHRP LTTP test sections may be renumbered or reordered during pre-construction or during production by FHWA or their representative.

**Percent RAP and percent RAS refers to effective virgin binder replacement.

3.1 Test Section 291001 - Control Test Section. Test Section 291001 is considered the control section; where the asphalt mixture is an approved 403 asphalt mixture containing 35% effective virgin binder replacement from RAP material. A MSCR PG 64-22H binder is required.

3.2 Warm Mix Asphalt Sections. Test Sections 291002 and 291003 are considered test sections that use two different warm mix technologies. The bituminous asphalt mixtures used in the two warm mix test sections shall require different mix designs to ensure compliance with Section 403 specifications. A MSCR PG 64-22H shall be used for Test Sections 291002 and 291003. Both test sections shall have 25% effective virgin binder replacement from RAP. The two warm mix technologies are detailed as follows.

3.2.1 Test Section 291002 - Chemical Warm Mix Asphalt Section. Test Section 291002 shall be constructed using Evotherm® warm mix technology in the asphalt mixture that meets the requirements of Section 403 of the Standard Specifications. The warm mix asphalt produced shall have a target temperature discharge range of 215°F to 285°F. Any questions regarding the Evotherm® chemical admixture shall be directed to Invia Pavement Technologies at the following contact:

Victoria Woods; General Manager
victoria.woods@mwv.com
573-619-2903

3.2.2 Test Section 291003 - Foamed Warm Mix Asphalt Section. Test Section 291003 shall be constructed using a foamed asphalt warm mix technology in the asphalt mixture that meets the requirements of Section 403 of the Standard Specifications. An Astec® mixing system shall be used to produce the foamed warm mix bituminous mixture and the warm mix asphalt produced shall have a target discharge range of 215°F to 285°F. The Commission will furnish the Astec® mixing system. Any questions regarding obtaining, installing, and/or operating the Astec® mixing unit shall be directed to Astec Inc. at the following contacts:

Mike James, Regional Sales Manager
Email: mjames@astecinc.com
Phone: (423) 240-0409

Mike Varner, Chief Engineer
Email: mvarner@astecinc.com
Phone: (423) 827-1252

3.3 Test Section 291004 - Virgin Test Section. Test Section 291004 uses 0% binder replacement from recycled materials and uses a MSCR PG 64-22H asphalt binder. The bituminous mixture used in this test section shall require a separate mix design and be in compliance with Sec 403.

3.4 Test Section 291005. Test Section 291005 requires 20% RAS as the effective virgin binder replacement. A MSCR PG 58-28S asphalt binder is required with this mixture. This test section shall require its own separate mix design and be in compliance with Sec 403.

3.5 Test Section 291006. Test Section 291006 requires 35% RAS as the effective virgin binder replacement. A MSCR PG 58-28S asphalt binder is required with this mixture and the minimum VMA percentage shall be 15.0%. This test section shall require its own separate mix design and be in compliance with Sec 403.

3.6 Test Section 291007. Test Section 291007 requires 35% RAS as the effective virgin binder replacement. The contractor shall design this mixture with the intent to achieve a final extracted MSCR binder grade of PG 64-22H. The contractor shall provide the final extraction and grading of the designed test mix in accordance with either AASHTO T 319, or AASHTO T 164 and R 59 along with grading in accordance with AASTHO M 332. The contractor shall document the virgin binder grade used, rejuvenating admixtures, and/or other additives needed to achieve the final binder grade, through the mix design approval process. This mix design shall be in compliance with Sec 403.

3.7 Test Section 291008. Test Section 291008 requires 20% RAP and 15% RAS as the effective virgin binder replacement. A MSCR PG 58-28S asphalt binder grade is required with this mixture. This test section shall require its own separate mix design and be in compliance with Sec 403.

3.8 Test Section 291009. Test Section 291009 requires 35% RAP as the effective virgin binder replacement. The contractor shall design this mixture with the intent to achieve a final extracted MSCR binder grade of PG 64-22H. The contractor shall provide the final extraction and grading of the designed test mix in accordance with either AASHTO T 319, or AASHTO T 164 and R 59 along with the grading in accordance with AASTHO M 332. The contractor shall document the virgin binder grade used, rejuvenating admixtures, and/or other additives needed to achieve the final binder grade, through the mix design approval process. This mix design shall be in compliance with Sec 403.

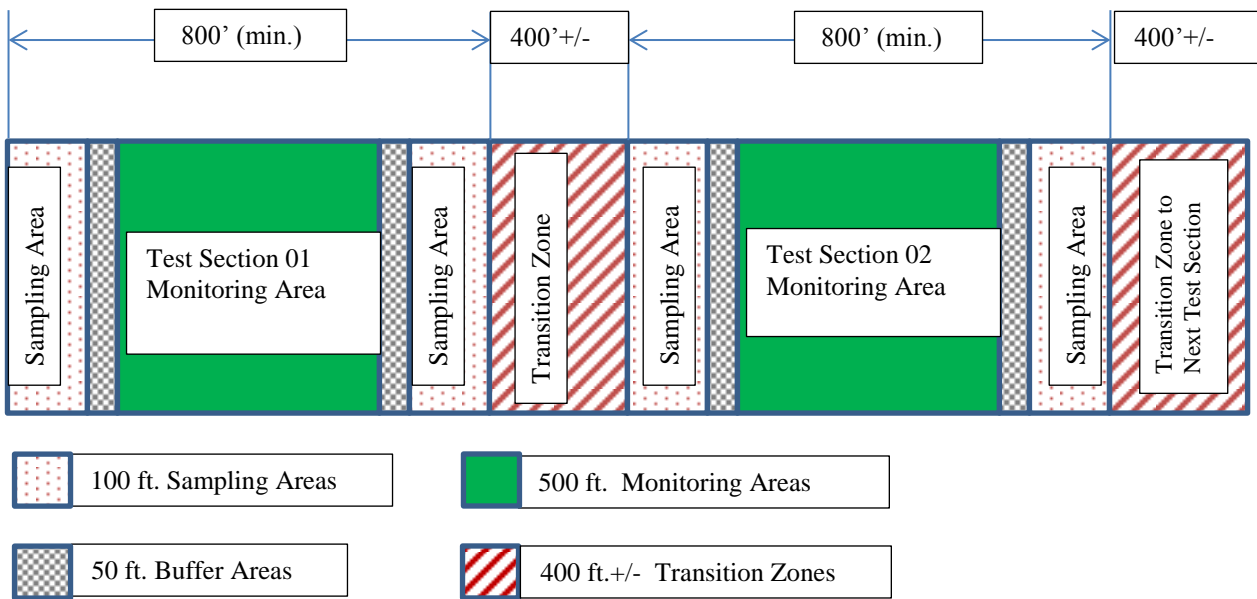
3.9 Test Section 291010. Test Section 291010 requires 35% RAP as the effective virgin binder replacement. A standard PG 58-28S MSCR graded asphalt binder shall be required for this mixture. The minimum VMA requirement shall be 15.0%. This test section shall require its own separate mix design and be in compliance with Sec 403.

3.10 Test Section 291011. Test Section 291011 requires 20% RAP and 15% RAS as the effective virgin binder replacement. The contractor shall design this mixture with the intent to achieve a final extracted MSCR binder grade of PG 64-22H. The contractor shall provide the final extraction and grading of the designed test mix in accordance with either AASHTO T 319, or AASHTO T 164 and R 59 along with the grading in accordance with AASHTO M 332. The contractor shall document the virgin binder grade used, rejuvenating admixtures, and/or other additives needed to achieve the final binder grade, through the mix design approval process. This mix design shall be in compliance with Sec 403.

4.0 Construction and Material Requirements. All test sections shall be constructed in accordance with Sec 403 except for the material requirements as stated in the test section layout and as described herein.

4.1. Test Section Construction. The contractor may utilize the shoulders to place each test mixture designed until the experimental mixes meet the requirements and is approved by

Construction and Materials. Drainage measures may be required if a rain event occurs prior to mainline paving. Once mixtures are approved, the contractor shall place the approved mix for the test section. If shoulders are not utilized for calibrating the test mixtures, shoulders shall be paved as per plan sheets. A 400-foot (+/-) designated transition zone will be provided to switch mix types between test sections. Each test section constructed shall consist of a 500-foot monitoring area, surrounded by a pair of 50-foot buffer areas and a pair of 100-foot sampling areas for a total length of 800 feet (minimum). The designated 400-foot transition zone is set-up for the contractor to finish out any leftover quantities from the previous test section and/or to adjust the mixtures for the next test section. The graphic below illustrates the length requirements of the test sections constructed in the LTPP SPS-10 experiment. The contractor is responsible for identifying the beginning and ending of each transition zone, by placing a survey lath or other marker approved by the engineer.



4.2. Quality Control. Quality control (QC) testing for density is required for the test sections and shall meet the minimum requirements as specified in Sec 403. All other asphalt mix material requirements shall be met, as specified in Sec 403 or as specified in this JSP, and will be performed by quality assurance (QA) forces. QC field sampling will not be required for the test sections. When field test results do not comply with required specifications, the mainline mix shall be removed and replaced with an acceptable mix meeting the required specifications. The cost to remove and replace the unacceptable mix will be shared evenly between the Commission and the contractor once for each test section. The cost for this one-time removal and replacement will be based on the contract unit price per ton as specified in section 4.5 of this JSP. No pay factors shall apply to the test sections.

4.3 Surface Smoothness. The finished asphalt surface for the test sections shall comply with Sec 403.20. Price adjustments in Section 403.23.4 will not apply to the test sections.

4.4 Method of Measurement. The weight of the mixture will be determined from the batch weights if a batch-type plant is used. If other types of plants are used, the weight of the

mixture will be determined by weighing each truck load on scales in accordance with Sec 310. Measurements will be made to the nearest 0.1 ton for the total tonnage of material accepted.

4.5 Basis of Payment. The final accepted quantity for the asphalt material used in test sections 291001 through 291011 will be paid for at the contract unit price per ton for Item Number 403-99.10, "Misc. Asphaltic Concrete Mixture for Test Sections (SP125C PG70-22 Mix)." The contract unit price per ton shall include full compensation for all labor, materials, tools, equipment, and incidental items necessary to complete the described work.