Changes to Item 344, “Superpave Mixtures” Summary

Generally – all changes are geared for Quality & Consistency

1. This will be a special specification – not a special provision and is intended to replace Item 344 in the 2014 Standard Specifications.

2. 2.1.1.1. Language addition of “unless otherwise shown on the plans” Pertains to the blending of Class A material and Class B material. Some areas of the state may not allow blending – while others may.

3. 2.1.1.1. Language addition of “unless otherwise shown on the plans” pertains to allowing districts to adjust the weight or volume of Class A material retained on the No. 4 sieve.

4. 2.1.1.2. Division name change to Soils and Aggregates Section of the Materials and Test Division.

5. 2.1.3. Language addition of “unless otherwise shown on the plans, up to 10%” pertains to allowing districts to specify amount of field sand or other uncrushed fine aggregate which may include disallowing the use of field sand or uncrushed fine aggregate. Reduced amount of field sand or other uncrushed fine aggregate allowed from 15% to 10%.

6. Table 1. Sand equivalent test performed on fine aggregates separately vs a combined gradation.

7. Table 1. Allows for increase in Los Angeles abrasion to a maximum of 40% for base mixtures.

8. Table 1. Allows for increase in magnesium sulfate soundness, 5 cycles, to a maximum of 30% for base mixtures.

9. 2.2. Language added mineral fillers must meet the gradation requirements in Table 3, unless otherwise shown on the plans.

10. 2.5. Language added from SP341-001 that is currently approved.

11. 2.5. Language regarding tack sampling is remove and added to 4.7.2.2.

12. 2.6.3. Added definition of compaction aid.

13. 2.7. Language added restricting use of RAS to intermediate or base mixtures unless otherwise shown on the plans.
14. 2.7. Definition of surface mixtures is supplemented by lifts placed directly below mixtures produced in accordance with Items 316, 342, 347, or 348 instead of using the language “or near.”

15. 2.7. Added “Unless otherwise shown on the plans, mixtures used for bond breaker are defined as base mixtures.”

16. 2.7.1. Propose that fractionated RAP be defined as 95.0% passing the 3/8-in. or 1/2-in. sieve prior to burning in the ignition oven, unless otherwise approved. The Engineer may allow the Contractor to use an alternate to the 3/8-in. or 1/2-in. screen to fractionate the RAP.

17. 2.7.1. Language referring to unfractionated RAP is remove suggesting unfractionated RAP will not be allowed in the specification.

18. Table 4. Removal of unfractionated RAP; unfractionated RAP will not be allowed in any mixes.

19. Table 4. Changes the amount of RAP allowed to 30% for intermediate mixes and 35% for base mixes.

20. 2.7.2. Language stating RAS is not permitted in surface mixtures unless otherwise shown on the plans.

21. 2.7.2. Language stating RAS is allowed in intermediate and base mixtures unless otherwise shown on the plans.

22. 2.7.2. Language reducing the amount of RAS allowed from 5% to 3%.

23. 2.8. States for substitute binder to be used, recycled materials must be used.

24. Table 5. Binder substitution – No double grade dump will be allowed – WMA section taken out.

25. Table 5. Binder substitution for surface mixes: Grade dump from 76-22 to a 70-22 surface mix will have a max recycled binder ratio of 15% – Grade dump from 76-28 to 70-28 will have a max recycled binder ratio of 15% – No binder substitution for 70-22, 64-22, 70-28, and 64-28 is allowed for surface mixes and max recycled binder ratio is 15%.

RAS is not permitted in surface mixtures unless otherwise shown on the plans.
26. Table 5. Binder substitution for intermediate mixes: One grade dump is allowed for 76-22, 70-22, 76-28, and 70-28 binders – No binder substitution is allowed for 64-22 and 64-28 binders – all will have a max recycle binder ratio of 25%.

27. Table 5. Binder substitution for base mixes: One grade dump is allowed for 76-22, 70-22, 76-28, and 70-28 binders – No binder substitution is allowed for 64-22 and 64-28 binders – all will have a max recycled binder ratio of 30%.

28. 4.1. Language added referencing the new AGG101 certification.

29. Table 6. Added AGG101 certification to all aggregate test procedures. Aggregate test procedures covered in Level 2 certification will be removed and covered in AGG101. AGG101 and Level 1A are prerequisites to Level 2. Deleterious and decantation will be covered in AGG101 instead of Level 1A. Hamburg and IDT will be covered under Level 1A instead of Level 2. Tex-236 is divided into two parts, ac and gradation (Level 1A) vs correction factors (Level 2). More specific parts are added to Tex-207 as noted. Methylene blue is covered under AGG101. In place air voids for production certification is only for Level 1A (Tex-207 Parts 1 & VI). Overlay Test and Cantabro test requirements are removed from Table 6. Shear bond test (Tex-249-F) is added. Also propose a new test procedure (Tex-251-F) for trimming roadway cores and coring HMA pavements. Removed VMA (calculation only) since it is a calculation and not a test procedure.

30. Table 7. Updated Table 7 for clarification.

31. 4.4.1. Language removed designing above the reference zone for all mixes.

32. Table 8. Gradation bands – Modified in regards to the #8 sieve for SP-C and SP-D mixes to include gradation limits of 28-37% passing for SP-C mixes and 32-40% passing for SP-D mixes. Update master gradation limits to reflect removing language of allowing designing above the reference zone for all mix types. Removed SP-A mixtures.

Travis Patton has an excel spreadsheet that will optimize mix designs to meet the requirement. The name of the excel document is Tx2MixSolver and you can find it at the following link: https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/forms/materials.html

33. Table 9. Removed SP-A mixtures.

34. Table 10. Dust to asphalt binder ratio modified to 0.6 to 1.4.

35. 4.4.2.1.6. Correction Factor from ignition oven – no more than 12 months old. Tex-236 has been modified to simplify method used for determining correction factors.

36. Table 12. Implement current language from SP344-001.
37. 4.4.2.2.4. Added the language “Provide correction factors that are not more than 12 months old.”

38. 4.5.2. Added language from SP344-001.

39. 4.5.2. Added new table (Table 13) for the maximum production temperature based on high-temperature binder grade

40. 4.7. Language added to ensure longitudinal joint for riding surface lift is not placed in wheel path.

41. Table 14. Min. lift thickness of 2.50 is proposed for SP-B mixes and min. lift thickness of 2.00 is proposed for SP-C mixes (SP-C lift thickness already approved in SP344-001). Untrimmed core height of 1.25” for SP-C mixes is consistent with current Item 344 2014 specification. Deleted SP-A mixes.

42. 4.7.1.1. Added language “place mixtures only when weather conditions and moisture conditions of the roadway surface are suitable as determined by the Engineer.”

43. Table 15A. Change minimum paving temperatures when using the thermal imaging system – not allow paving at 32 degrees, instead minimum is 35F is proposed for subsurface or nighttime paving for PG64; PG70 and PG76 require a chemical WMA additive in the mixture to pave at 35F, otherwise the minimum is 45F. Minimum for surface mixes placed during the day is 40F for PG64; PG70 and PG76 require a chemical WMA additive in the mixture to pave at 40F, otherwise the minimum is 50F. Changed definition from “originally specified binder” to “high temperature binder grade” and added footnote to describe meaning. Also included WMA as a method to reduce paving temperatures.

44. 4.7.1.2. Added language “when using a thermal camera in lieu of the thermal imaging system.”

45. Table 15B. – Added language to footnote pertaining to 10F less if a chemical WMA additive is used in the mix or equipment used that eliminates thermal segregation; however, it will require demonstration to the Engineer that there is less than 10F segregation for each subplot. Changed definition from “originally specified binder” to “high temperature binder grade” and added footnote to describe meaning. Also included WMA as a method to reduce paving temperatures.

46. 4.7.2.1. Tack Coat – Added language “apply the tack coat to all surfaces that will come in contact with the subsequent HMA placement, unless otherwise directed” and “do not dilute emulsified asphalts at the terminal, in the field, or at any other location before
use. Deleted “Use of pneumatic tire rollers are allowed to remove streaks and other irregular patterns.”

47. 4.7.2.2. Added language regarding sampling of tack at least once per project. Added language for emulsions used for tack, the Engineer may sample as frequently as necessary. Added the Engineer will notify the Contractor when the sampling will occur and will witness the collection of the sample from the asphalt distributor immediately before use.

48. 4.7.3. Added new Table 16 to include the minimum mixture placement temperatures; PG 64 is 260F, PG70 is 270F, and PG76 is 280F. Defined high temperature binder grade and clarified placement temperature for both WMA and a chemical WMA additive used as a compaction aid.

49. 4.7.3.1.2. Language requiring electronic files for the thermal imaging system be given to the Engineer daily upon request.

50. 4.7.3.1.3. Added language “when using a thermal camera in lieu of the thermal imaging system” and included language from SP344-001.

51. 4.8. Removed language “Use a pneumatic tire roller to seal the surface unless excessive pickup of fines occurs.”

52. 4.9.1. Language added referring to Materials and Tests Division.

53. 4.9.2.2.2. Remove language regarding informational overlay and cantabro testing and replaced with informational shear bond strength testing to require a set of core from each project to build historic database regarding the shear bond test. Samples are no longer required for informational overlay and cantabro testing.

54. 4.9.2.2.3. Verbiage added to in regards to asphalt sampling including witnessing by the Engineer, adding additional information for labeling the sample, and stating the Engineer will retain these samples for one year. Added verbiage at least once per project, the Engineer will collect split samples of each binder grade and source used. The Engineer will submit one split sample to MTD to verify compliance with Item 300, “Asphalts, Oils, and Emulsions” and will retain the other split sample for one year.

55. Table 17. Removed Overlay test and Cantabro test and added shear test – shear test will be informational only. Added Footnote 4 which states “Obtain samples witnessed by the Engineer. The Engineer will retain these samples for one year.”

56. 4.9.2.4.1. Reference Table 12.

57. 4.9.2.4.4. Reference Materials and Tests Division.
58. 4.9.3.2 Placement Sampling – revise wording “the Engineer will witness the trimming of the cores” for clarification. Referenced Tes-251-F instead of Tex-207-F.

59. 4.9.3.3.1. Language referencing CoreDry instead of CoreLok.

60. 4.9.3.3.2. Added language “when using a thermal camera in lieu of the thermal imaging system.”

61. 4.9.3.3.2. Perform density profile every time the paver stops due to lack of material being delivered to the paving operations and the temperature of the uncompacted mat before the initial break down rolling is less than the temperatures shown in Table 18. A temperature will now be the requirement for performing a segregation profile as opposed to a time (60 sec.). Temperatures include 250F for PG64, 260F for PG70, and 270F for PG76. This only pertains to using the thermal cameras.

62. Table 18. Defined high temperature binder grade, clarified profiles are required in areas with moderate and severe thermal segregation, and clarified mat temperature requiring a segregation profile for both WMA and a chemical WMA additive used as a compaction aid.

63. Table 19. Deleted SP-A mixtures.

64. 4.9.3.4. Reference Materials and Tests Division.

65. 4.9.3.5. Clarification that mixture that does not bond may be removed and replaced.

66. 4.9.4. Clarification regarding exempt production. Exempt production anticipated daily production is proposed to be reduced to 500 tons.

67. 5.2. Includes language referencing measurement for tack coat. Tack will be paid as a separate bid item instead of subsidiary to the HMA bid item.

68. 6. References bid code item for payment of tack separately from HMA and added language “and all testing requirements are met.”

69. 6.1. Added verbiage for clarification “The bulk specific gravities of the samples from each sublot will be divided by the Engineer’s maximum theoretical specific gravity for the sublot. The individual sample densities for the sublot will be averaged to determine the production payment adjustment factor in accordance with Table 20 for each sublot, using the deviation from the target laboratory-molded density defined in Table 10.”

70. 6.1.1. Added verbiage “within the first sublot” for clarification.
71. 6.2. Added verbiage for clarification “The bulk specific gravities of the cores from each sublot will be divided by the Engineer’s average maximum theoretical specific gravity for the lot. The individual core densities for the sublot will be averaged to determine the placement payment adjustment factor in accordance with Table 21 for each sublot that requires in-place air void measurement.”

72. A) – 6.2.1. Added verbiage for clarification “If the random sampling plan results in production samples, but not in placement samples, the random core location and placement adjustment factor for the sublot will be determined by applying the placement random number to the length of the sublot placed.”

(B) – 6.2.1. Added verbiage for clarification “If the random sampling plan results in placement samples, but not in production samples, no placement adjustment factor will apply for that sublot placed.”

(C) – 6.2.1. Added “production” for clarification.

73. 6.2.2. Added verbiage for clarification “The bulk specific gravity of the cores from each sublot will be divided by the Engineer’s average maximum theoretical specific gravity for the lot. The individual core densities for the sublot will be averaged to determine the new payment adjustment factor of the sublot in question.” Referenced Materials and Tests Division.