**ASPHALT BINDER AND SURFACE COURSE MIXTURES (Illinois Tollway)**

**Effective: December 13, 2011**

**Revised: February 15, 2018**

**Description.** This work shall consist of constructing either hot-mix asphalt (HMA) or warm mix asphalt (WMA) binder and/or surface course on a prepared base as required by contract design. When WMA pay items are required by design, an HMA mix may be utilized for special or low tonnage applications in lieu of WMA mixtures upon approval by the Engineer at no additional cost to the Illinois Tollway. When HMA pay items are required by design, a WMA mix may be utilized for special or low tonnage application in lieu of HMA mixtures upon approval by the Engineer at no additional cost to the Illinois Tollway. Work shall be according to Sections 406, 407, 1030 and 1032 of the Standard Specifications except as modified herein.

**Materials.** Article 406.02 of the Standard Specifications shall govern the requirements for materials except as modified herein and in the Illinois Tollway’s special provision ASPHALT-TACK COAT.

Revise Article 1030.02(c) of the Standard Specifications to read:

“(c) RAP Material……………… Illinois Tollway special provision for Reclaimed Asphalt Pavement”

Replace Article 1030.02(i) of the Standard Specifications with the following:

“(i)Warm Mix Additives / Processes. When a WMA is specified or permitted, the warm mix technology used shall be a recognized additive / process with successful project(s) constructed nationally or internationally that allow for a reduction in the temperature at which the HMA is produced and placed. Warm mix additives/processes that may be considered for Illinois Tollway approval and Contractor use include the following:

(1) Organic Additives (requiring minor plant modifications)

(2) Chemical Additives (requiring minor plant modifications)

(3) Water Injection Foaming Processes (requiring major plant modifications)

The Illinois Tollway maintains an approved list of warm-mix asphalt technologies or processes.

For Binder or Surface mixtures containing more than 20 percent binder replacement, a chemical additive shall be used as the WMA technology.

The Contractor shall ensure that a Technical Representative from the approved warm mix asphalt additive or process manufacturer is present during the first day of production and placement of HMA produced with warm mix technology.”

Add the following to Article 1030.02 of the Standard Specifications:

“(k) RAS Material……………… Illinois Tollway special provision for Reclaimed Asphalt Shingles”

Revise note 2 or Article 1030.02 of the Standard Specifications to read as follows:

 “Note 2. The Contractor shall use the asphalt binder grade as shown below:

 N50 Binder

|  |  |  |
| --- | --- | --- |
| **Reclaimed Material** | **Binder Replacement %** | **Asphalt Binder Grade** |
| RAS/RAP/FRAP | 0-20 | PG 64-22 |
| Category 1 or 2 FRAP only or with RAS | 21-40 | PG 58-28 |
| Category 1 or 2 FRAP with RAS | 41-60¹ | PG 52-34²,³ |

1/ DCT (ASTM D7313) value as tested both in design and 1st day of production after an approved Test Strip shall meet or exceed 400 J/m² when tested at -12 °C. DCT test to be performed by an AMRL certified Laboratory.

 2/ PG 46-34 shall be considered an equivalent to PG 52-34

3/ Alternate Grades or Modifiers may be considered with approval of the engineer for
mixtures to be used on the shoulder.

 N70 Binder and N90 Binder

|  |  |  |
| --- | --- | --- |
| **Reclaimed Material** | **Binder Replacement %** | **Asphalt Binder Grade** |
| RAS/RAP/FRAP | 0-20 | PG 64-22 |
| RAS by itself or with Category 1 or 2 FRAP | 21-30 | PG 58-22 |
| RAS with Category 1 FRAP | 31-40 | PG 58-28 |

N70 Surface

|  |  |  |
| --- | --- | --- |
| **Reclaimed Material** | **Binder Replacement %** | **Asphalt Binder Grade** |
| RAS/RAP/FRAP | 0-20 | PG 64-22 |
| RAS by itself or with Category 1 or 2 FRAP | 21-40 | PG 58-28 |

Add the following to Article 1032.05(b) of the Standard Specifications:

“At the contractor’s option, the modified asphalt binder shall be either an SBS/SBR polymerized PG 76-22 binder, or a GTR modified PG 64-22 GTR 12 binder that complies with the requirements defined herein. For any mixture only FRAP / RAP with no RAS, the asphalt binder shall be either an SBS/SBR polymerized PG 70-28 binder or a PG 58-28 GTR 12 binder when the mix design’s binder replacement is between 20 percent and 25 percent. For any mixture containing RAS, the asphalt binder shall be an SBS/SBR polymerized PG 70-22 binder or a GTR modified PG 58-22 GTR 12 binder that complies with requirements defined herein when the mix design’s binder replacement is 20 percent or less; or shall be an SBS/SBR polymerized PG 70-28 binder or a GTR modified PG 58-28 GTR 12 binder that complies with requirements defined herein when the mix design’s binder replacement is greater than 20 percent. This table summarizes these options:

|  |  |  |
| --- | --- | --- |
| **Reclaimed Material** | **Binder Replacement, %** | **Asphalt Binder Options** |
| None | 0 | SBS/SBR PG 76-22PG 64-22 GTR 12 |
| FRAP / RAP only | Less than 20 | SBS/SBR PG 76-22PG 64-22 GTR 12 |
| 20 to 25 | SBS/SBR PG 70-28PG 58-28 GTR 12 |
| RAS By itself, or with Category 1 or 2 FRAP | Less than 20 | SBS/SBR PG 70-22PG 58-22 GTR 12 |
| 20 to 40 | SBS/SBR PG 70-28PG 58-28 GTR 12 |

his table summarizes these options:

(1) SBS/SBR PG 76-22, PG 70-22, or PG 70-28 Binder. The SBS/SBR PG 76-22, PG 70-22, or PG 70-28 binder shall meet the requirements of Article 1032.05(b) of the Standard Specifications. In addition, the elastic recovery of the Asphalt Binder used shall be a minimum of 80.

(2) Ground Tire Rubber (GTR) Binder. The base asphalt cement (AC) that is blended with the Ground Tire Rubber (GTR) shall be a PG 64-22 performance-grade (PG) when used in mix designs with a binder replacement of 20 percent or less, or shall be a PG 58-28 performance-grade (PG) when used in a mix design with a binder replacement greater than 20 percent, meeting the requirements of Article 1032.05 of the Standard Specifications. The GTR shall be produced from processing automobile and/or truck tires by the ambient grinding method. Heavy equipment tires, uncured or de-vulcanized rubber will not be permitted. The GTR shall not exceed 1/16 in. in length and shall contain no free metal particles. Detection of free metal particles shall be determined by thoroughly passing a magnet through a 2 oz. sample. Metal embedded in rubber particles will be permitted.

The GTR shall be stored in a dry location protected from the rain. When the GTR is combined with the asphalt cement, the moisture content of the GTR shall not cause foaming of the blend.

When tested in accordance with ASTM C-136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates, (Illinois-modified AASHTO T-27, Sieve Analysis of Fine and Coarse Aggregates) a 2 oz. sample of the GTR shall conform to the following gradation requirements:

Sieve Size Percent Passing

No. 8 (2.36 mm) 100

No. 16 (1.18 mm) 98 ± 2

No. 30 (600 μm) 95 ± 5

No. 50 (300 μm) 50 ± 10

No. 100 (150 μm) 10 ± 5

No. 200 (75 μm) 2 ± 2

A mineral powder (such as talc) meeting AASHTO M17, Mineral Filler for Bituminous Paving Mixtures, requirements may be added, up to a maximum of 4% by weight of GTR particles, to reduce sticking and caking of the GTR particles.

GTR shall have a specific gravity of 1.15 ± 0.05 when tested in accordance with ASTM D-1817, Standard Test Method for Rubber Chemicals-Density.

Extender Oils or Polymeric Additions With approval of the Engineer, compatible extender oils and/or polymers may be added to the GTR or to the asphalt-rubber blend. The additional costs for the extender oils and/or polymer additions shall be borne by the Contractor. The Contractor shall provide material product information along with usage rates for approval.”

**Equipment.** Add the following to the list of specific references of Article 406.03 of the Standard Specifications.

“(j) RAP Processing Equipment Illinois Tollway special provision for Reclaimed Asphalt Pavement

(k) RAS Processing Equipment Illinois Tollway special provision for Reclaimed Asphalt Shingles”

Add the following to Article 406.02 of the Standard Specifications.

“ For the production of WMA binder and surface course mixes, use equipment and WMA technologies capable of producing an asphalt mixture that is workable at the minimum placement and compaction temperature desired, regardless of storage or haul distance considerations.”

Add the following to Article 1030.03 of the Standard Specifications.

“ When a mix is produced using an approved warm mix asphalt technology, the asphalt mixing plant shall be modified as required by the additive or process manufacturer to introduce the technology and produce a WMA mixture meeting the volumetric properties specified herein. Plant modifications may include additional plant instrumentation, the installation of asphalt binder foaming systems and/or WMA additive delivery systems, tuning the plant burner and adjusting the flights in order to operate at lower production temperatures and/or reduced tonnage.

All metering devices will meet the current IDOT requirement for liquid or mineral additives. Document the integration of plant controls and interlocks when using WMA additive metering devices.”

**Mixture Design**. Revise Article 1030.04(a)(1) of the Standard Specifications and the Supplemental Specifications to read:

“ (1) High ESAL Mixtures. The Job Mix Formula (JMF) shall fall within the following limits.

|  |  |  |  |
| --- | --- | --- | --- |
| SieveSize | IL-19.0 mm3/ | IL-12.5 mm | IL-9.5 mm |
| min | max | min | max | min | max |
| 1 in.(25 mm) |  | 100 |  |  |  |  |
| 3/4 in.(19 mm) | 90 | 100 |  | 100 |  |  |
| 1/2 in.(12.5 mm) | 69 | 89 | 90 | 100 |  | 100 |
| 3/8 in.(9.5 mm) |  |  |  | 89 | 90 | 100 |
| #4(4.75 mm) | 45 | 60 | 28 | 65 | 32 | 69 |
| #8(2.36 mm) | 30 | 45 | 28 | 48 | 32 | 52 2/ |
| #16(1.18 mm) | 20 | 35 | 10 | 32 | 10 | 32 |
| #50(300 µm) | 8 | 16 | 4 | 15 | 4 | 15 |
| #100(150 µm) | 6 | 9 | 3 | 10 | 3 | 10 |
| #200(75 µm) | 3 | 6 | 4 | 6 | 4 | 6 |
| Ratio Dust/Asphalt Binder |  | 1.0 |  | 1.0 |  | 1.0 |

1/ Based on percent of total aggregate weight.

2/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with Ndesign = 90.

3/ For mixture IL-19-0 Ndesign = 90, the fine fraction shall consist of at least 67% manufactured sand meeting the FA 20 gradation. The manufactured sand shall be stone sand, slag sand, steel slag sand, or combinations thereof.

Revise the table in Article 1030.04(b)(1) of the Standard Specifications to read:

|  |
| --- |
| “VOLUMETRIC REQUIREMENTSHigh ESAL |
|  | Design Air Voids Target % | Voids in the Mineral Aggregate(VMA),% minimum | Voids Filled with Asphalt Binder (VFA),% |
| Ndesign | IL-19.0 | IL-12.5 | IL-9.5 |
| 50 | 3.0 | 13.5 | 14.0 | 15.0 | 65 – 80 |
| 70 | 4.0 | 65 - 75 |
| 90 | 4.0 |

Revise the first and second paragraphs of Article 1030.04(c) of the Standard Specifications to read:

“(c) Determination of Need for Anti-Stripping Additive. The mix designer shall determine if an additive is needed in the mix to prevent stripping. The determination will be made on the basis of moisture sensitivity testing (IL Modified AASHTO T 283) on production ingredient materials sampled at the HMA plant. The results will inform the contractor of the need for an anti-strip additive in the mix based on the following minimums:

1) for polymer modified asphalt mix have a conditioned tensile strength of 115 psi or better with no TSR requirements, for non-modified asphalt mix have a conditioned tensile strength of 100 psi or better for 6 in. specimens;

2) for polymer modified asphalt mix have a conditioned tensile strength of 100 psi or better with a TSR of 0.85 or better for 6 in. specimens, for non-modified asphalt mix have a conditioned tensile strength of 80 psi or better with a TSR of 0.85 or better for 6 in. specimens;

3) any asphalt mix with anti-strip (liquid or lime) conditioned tensile strength may not be lower than the original mix conditioned tensile strength without anti-strip and no visual stripping of the coarse or fine aggregate in the broken faces shall be observed.

If it is determined that an additive is required, the additive may be hydrated lime, slaked quicklime, or a liquid additive, at the Contractor’s option.”

Add the following to Article 1030.04 of the Standard Specifications:

“(e) Warm Mix Technology. A Warm Mix Technology shall be used with an approved HMA mix design.

The mixture design for any WMA binder or surface course shall be developed based on a lab produced HMA mix design modified as a WMA mix design through trial batch production of the WMA mixture and test strip placements. The original HMA mix design to be modified shall be designed and submitted to the Engineer without including the WMA additive or technology. When a WMA surface or binder course mix using an additive is to be used, document the additive used and recommend the dosage rate on a resubmittal of the original HMA mix design that is to be modified as a WMA mix design. The Illinois Tollway Material Engineer and Contractor will verify the original HMA mix design with any WMA technology based on plant produced samples taken from the WMA test strip. Any needed mix design adjustments will apply to the development of the WMA binder course or surface course mix design.

In addition to the HMA mix design, for WMA mix designs proposed using organic or chemical additives, Hamburg Wheel testing according to Illinois Modified AASHTO T324 shall be conducted on a laboratory mixed sample at the recommended dosage rate. The Hamburg Wheel testing requirements from this sample are:

|  |  |  |
| --- | --- | --- |
| Asphalt Binder Grade | # Wheel Passes | Maximum Rut Depth, in. |
| PG 76-XX | 20,000 | ½ inch |
| PG 70-XX | 15,000 | ½ inch |
| PG 64-XX | 10,000 | ½ inch |
| PG 58-XX | 10,000 | ½ inch |
| PG 52-XX | 10,000 | ½ inch |
| PG 46-XX | 10,000 | ½ inch |

The final adjusted design for the WMA mix design shall be submitted for acceptance with the following information included:

1. All information required for Superpave HMA.
2. WMA technology and/or WMA additives information.
3. WMA technology manufacturer’s established recommendations for usage.
4. WMA technology manufacturer’s established target rate for water and additives, the acceptable variation for production, and documentation showing the impact of excessive production variation.
5. WMA technology material safety data sheets (MSDS).
6. Documentation of at least 3 past WMA technology field applications including project type, project owner, tonnage, location, mix design, mixture volumetrics, field density, and performance.
7. Temperature range for mixing.
8. Temperature range for compacting.
9. Asphalt binder performance grade test data over the range of WMA additive percentages proposed for use.
10. WMA mixture QC/QA test results measured from the test strip samples specific to the Contractor’s proposed WMA technology.
11. Laboratory test data, samples and sources of all mixture components, and asphalt binder viscosity-temperature relationships.
12. Mix production Hamburg test results from WMA test strip.

The Illinois Tollway may accept an existing WMA mixture design with a WMA additive / process previously used on a Illinois Tollway project and may waive the test strip trial batch required to verify the WMA mix design.”

**Quality Control / Quality Assurance.** Article 1030.05 of the Standard Specifications shall govern the requirements for Quality Control / Quality Assurance (QC/QA) of HMA and WMA mixtures, with this revision: the correlation coefficient ("r" value) for correlating

nuclear gauge densities with core densities shall be greater than 0.85.

**WMA Production.** WMA shall be produced at a temperature range recommended by the additive / process manufacturer and verified through a QC/QA mixture test strip. It may be necessary to initially produce HMA mixes at conventional HMA temperatures immediately before WMA production at lower temperatures in order to prime the plant for proper operating temperatures.

A QC/QA mixture test strip will be required for all WMA mixes. The test strip shall be constructed at a location approved by the Engineer to determine the mix properties, density, and laydown characteristics, and as needed to finalize any proposed mix design. These test results and visual inspections on the mixture shall be used to make corrective adjustments if necessary. For all mixtures produced with a WMA technology, the QC/QA WMA mixture test strip shall be constructed at an approved off-site location to determine the mix properties, density, production temperature target, compaction procedure, and laydown characteristics. A field TSR test of the mix produced for any WMA test strip will be required.

Prior to the start of mix production and placement, The Illinois Tollway Materials Engineer will review and approve all test strip results, WMA mix designs, and rolling pattern.

The test strips will be performed as follows:

(a) Team Members. The start-up team, if required, shall consist of the following:

(1) Resident Engineer

(2) Illinois Tollway Project Manager, or representative

(3) Illinois Tollway Materials Engineer, or representative

(4) Engineer’s Nuclear Density Gauge Specialist

(5) Contractor's QC Manager

(6) Engineer’s QA representative

(7) Contractor’s QC technician

(8) AC Supplier representative (Required for GTR, optional for other AC types)

(9) Illinois Tollway Independent Assurance Engineer

(b) Communication. The Contractor shall advise the team members of the anticipated start time of production for the test strip. The QC Manager shall direct the activities of the test strip team. An Illinois Tollway-appointed representative from the start-up team will act as spokesperson for the Illinois Tollway.

(c) The Test Strip(s) for HMA mixtures shall be in accordance with Article 406.06 of the Standard Specifications. The Test Strip(s) for WMA mixtures shall consist of approximately 300 tons. It shall contain two growth curves which shall be compacted by a static steel-wheeled roller and tested as outlined herein.

(1) Mix Information. On the day of construction of the Test Strip, the Contractor shall provide the start-up team documentation of test data showing the combined hot-bin or the combined aggregate belt sample and mineral filler at a drier-drum plant.

(2) Mix and Gradation Test Strip Samples. The first and second sets of mixture and gradation samples shall be taken by the Contractor at such times as to represent the mixture between the two growth curves and the rolling pattern area, respectively. All test strip samples shall be processed by the Contractor for determination of mix composition and Superpave properties including air voids. This shall include washed gradation tests. This information shall then be compared to the JMF and required design criteria. Prepare and test any WMA test strip mixtures, including Superpave gyratory compacted specimens for QC/QA using the same test methods, procedures and frequencies as specified for HMA, except that the WMA mixture shall be aged at the production temperature for a period of 2 hours before gyratory or performance based test specimens are compacted.

Hamburg Wheel testing according to Illinois Modified AASHTO T324 shall be conducted from the test strip production mixture. The Hamburg Wheel testing requirements from this sample are:

|  |  |  |
| --- | --- | --- |
| Asphalt Binder Grade | # Wheel Passes | Maximum Rut Depth, in. |
| PG 76-XX | 20,000 | ½ inch |
| PG 70-XX | 15,000 | ½ inch |
| PG 64-XX | 10,000 | ½ inch |
| PG 58-XX | 10,000 | ½ inch |
| PG 52-XX | 10,000 | ½ inch |
| PG 46-XX | 10,000 | ½ inch |

(3) Construction of the Test Strip. After the Contractor has produced the mix, transported the mix, and placed approximately 100 to 150 tons of mix, placement of the mix shall stop, and a growth curve shall be constructed. After completion of the first growth curve, paving shall resume for 50 to 100 tons of mix, placement shall stop, and the second growth curve shall be constructed within this area. Additional growth curves may be required if an adjustment/plant change is made during the test strip. The Contractor shall use the specified rolling procedures for all portions of the test strip except for the growth curve areas which shall be compacted as directed by the Engineer.

(4) Location of Test Strip. The test strip shall be located on a pavement type similar to the contract pavement and acceptable to the Engineer. It shall be on a relatively flat portion of the roadway. Descending/Ascending grades or ramps shall be avoided.

(5) Compaction Temperature. For WMA mixtures, the temperature of the mix at the beginning of the growth curve shall be within the additive / process manufacturer’s recommended temperature range for compaction.

(6) Compaction and Testing. The QC Manager will specify the roller(s) speed and number of passes required to obtain a completed growth curve. The nuclear gauge shall be placed near the center of the hot mat and the position marked for future reference. With the bottom of the nuclear gauge and the source rod clean, a 15 seconds nuclear reading (without mineral filler) shall be taken after each pass of the roller. Rolling shall continue until the maximum density is achieved and three consecutive passes show no appreciable increase in density or no evidence of destruction of the mat. The growth curve shall be plotted.

(7) Evaluation of Growth Curves. Mixtures which exhibit density potential less than 94 percent or greater than 97 percent of the maximum theoretical density (D) shall be considered as sufficient cause for mix adjustment. If a mix adjustment is made, an additional test strip may be constructed. The Illinois Tollway will pay half the cost of the contract unit price for a test strip if additional one is required. The information shall then be compared to the AJMF and required design criteria.

 If the nuclear density potential of the mixture does not exceed 91 percent, the operation will cease until all test data is analyzed or a new mix design is produced.

 In addition, other aspects of the mixture, such as appearance, segregation, texture, or other evidence of mix problems, should be noted and corrective action taken at this time.

(d) Documentation. The WMA test strip and rolling pattern information (including growth curves) will be tabulated by the contractor with copies provided to each team member, and the original submitted to the Engineer. Any change to the rolling pattern shall be approved by the Engineer.

**CONSTRUCTION REQUIREMENTS**

**Placing.** Article 406.06 of the Standard Specifications shall govern the requirements of HMA and WMA placement except as modified herein:

Revise the first and second paragraphs of Article 406.06(b) of the Standard Specifications to read:

“General. HMA and WMA shall be placed on a clean, dry base and when weather conditions are suitable. The HMA leveling binder and HMA binder courses shall be placed only when the temperature in the shade is at least 40°F and the forecast is for rising temperatures. The HMA surface course shall be placed only when the air temperature in the shade is at least 45°F and the forecast is for rising temperatures. The WMA leveling binder and WMA binder courses shall be placed only when the temperature in the shade is at least 32°F and the forecast is for rising temperatures. The WMA surface course shall be placed only when the air temperature in the shade is at least 35°F and the forecast is for rising temperatures.

The HMA shall be delivered at a temperature of 250 to 350°F. The WMA shall be delivered on dates when the ambient air temperatures during placement will be at least 50° F and rising within a temperature range as established by the WMA additive / process manufacturer and reported by the Contractor to the Engineer with the WMA mix design submittal. The temperature of WMA shall not exceed the manufacturer’s recommended maximum placement temperature when measured immediately behind the paver when the air temperature is 50°F and rising. The WMA shall be delivered at a temperature of 250 to 350°F on dates when the ambient air temperatures during placement will be between the WMA specified minimum temperature and 50°F.”

Revise the first paragraph of Article 406.06(d) of the Standard Specifications to read:

(d) Lift Thickness. The minimum compacted lift thickness for constructing HMA binder and surface courses shall be as follows, unless otherwise noted on the plans.

**Compaction.** Article 406.07 of the Standard Specifications shall govern the requirements of HMA and WMA compaction except as modified herein:

Add the following paragraph to Article 406.07 of the Standard Specifications:

“Compact WMA immediately after spreading and before the WMA mixture temperature falls below the minimum job mix compaction temperature as recommended by the manufacturer of the WMA technology used. Discontinue paving if the Contractor is unable to achieve the specified density before the mixture cools below the minimum recommended WMA job mix design compaction temperature.”

**Method of Measurement.** This work will be measured in accordance with Article 406.13 of the Standard Specifications.

**Basis of Payment.** This work will be paid for in accordance with Article 406.14 of the Standard Specifications except as modified herein:

Add the following to the second paragraph of Article 406.14 of the Standard Specifications:

“The WMA surfacing will be paid for at the contract unit price per ton for WARM MIX ASPHALT BINDER COURSE, of the mixture composition and Ndesign specified; and WARM MIX ASPHALT SURFACE COURSE, of the friction aggregate mixture and Ndesign specified.”

Replace the third paragraph of Article 406.14 of the Standard Specifications with the following:

“The HMA surfacing in which polymer or GTR modified asphalt binders are required, will be paid for at the contract unit price per ton for MODIFIED HOT-MIX ASPHALT BINDER COURSE, of the mixture composition and Ndesign specified; and MODIFIED HOT-MIX ASPHALT SURFACE COURSE, of the friction aggregate mixture and Ndesign specified.

The WMA surfacing in which polymer or GTR modified asphalt binders are required, will be paid for at the contract unit price per ton for MODIFIED WARM-MIX ASPHALT BINDER COURSE, of the mixture composition and Ndesign specified; and MODIFIED WARM-MIX ASPHALT SURFACE COURSE, of the friction aggregate mixture and Ndesign specified.”

Add the following to Article 406.14 of the Standard Specifications:

“WMA test strips will be evaluated for payment at the contract unit price each for CONSTRUCTING WARM MIX ASPHALT TEST STRIP, according to the following:

(a) If the WMA placed during the initial test strip is determined to be acceptable, the mixture and test strip will be paid at the contract unit prices.

(b) If the WMA placed during the initial test strip (1) is determined to be unacceptable to remain in place by the Engineer, and (2) was not produced within the tolerances of the JMF, the initial mixture and test strip will not be paid for and shall be removed at no additional cost to the Illinois Tollway. An additional test strip will be paid for in full, if produced within the JMF tolerances.

(c) If the WMA placed during the initial test strip (1) is determined to be unacceptable to remain in place by the Engineer, and (2) was produced within the tolerances fo the JMF, the mixture shall be removed. Removal will be paid for according to Article 109.04 of the Tollway Supplemental Specifications. This initial mixture and test strip will be paid for at the contract unit price, and any additional test strips will be paid for at one half the unit price of each test strip.

(d) If the WMA placed during a test strip is determined to be acceptable to remain in place by the Engineer and the Engineer deems a new start-up is required for any reason, the initial mixture and test strip will be paid for at the contract unit prices. The additional mixture will be paid for at the contract unit price and any additional test strips will be paid for at one-half the unit price for each test strip.

(e) If the Contractor requests and is granted approval for a mix design other than the initial approved WMA mix design, he/she shall construct a test strip for the new mix design at no additional cost to the Illinois Tollway.

Add the following to Article 406.14 of the Standard Specifications:

“HMA and WMA mixtures will be paid for under its respective item. If permissive use of an HMA mixture in place of a specified WMA mixture is granted by the Engineer, a new pay item will be established for the HMA with the same unit price. If permissive use of a WMA mixture in place of a specified HMA mixture is granted by the Engineer, a new pay item will be established for the WMA with the same unit price.”