

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

**ADDENDUM NO. 2
for
MAMALAHOA HIGHWAY RESURFACING
MILE POST 9.74 TO MILE POST 12.28
ISLAND OF HAWAII
FEDERAL-AID PROJECT NO. STP-0190(019)**

The following amendments shall be made to the Bid Documents:

A. TABLE OF CONTENTS

1. Replace the Table of Contents dated 3/22/22 with the attached Table of Contents dated r6/1/22. The page numbers for Section 401 was revised from 401-1a – 401-42a to 401-1a – 401-41a.

B. NOTICE TO BIDDERS

1. Replace the Notice to Bidders dated 5/12/2022 with the attached Notice to Bidders dated r6/1/2022. The deadline to submit SBE forms was revised from 2:00 P.M. HST to 4:30 P.M. HST.

C. SPECIAL PROVISIONS

1. Replace Special Provision Section 401 – Hot Mix Asphalt (HMA) Pavement dated 4/14/22 with the attached Special Provision Section 401 – Hot Mix Asphalt (HMA) Pavement dated r6/1/22.

D. PLAN SHEETS

1. The attached Plan Sheet No. ADD. 15S-1 shall be incorporated and made part of the Plans.

The following is provided for information.

E. PRE-BID MEETING MINUTES

1. Pre-bid meeting attendance and minutes are attached for information.

F. ANSWERS TO QUESTIONS FROM PROSPECTIVE BIDDERS

1. Attached are RFIs and responses for your information.

Please acknowledge receipt of this Addendum No. 2 by recording the date of its receipt in the space provided on page P-4 of the Proposal.



JADE T. BUTAY
Director of Transportation

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NOTICE TO BIDDERS
(Chapter 103D, HRS)
Small Business Enterprise

The receiving of SEALED BIDS for MAMALAHOA HIGHWAY RESURFACING, MILE POST 9.74 TO MILE POST 12.28, ISLAND OF HAWAII, FEDERAL-AID PROJECT NO. STP-0190(019), will begin as advertised on Thursday, May 12, 2022, in HiePRO. Bidders are to register and submit bids through HiePRO only. See the following HiePRO link for important information on registering: <https://hiepro.ehawaii.gov/welcome.html>.

Plans, specifications, proposal and contract forms may be obtained from HiePRO.

Deadline to submit bids is Monday, June 14, 2022 at 2:00 P.M., Hawaii Standard Time (HST). Bids received after said due date and time shall not be considered.

The scope of work includes pavement reconstruction, cold planing, and resurfacing along Mamalahoa Highway. The estimated cost of construction is between \$4,000,000 and \$6,000,000.

To be eligible for award, bidders must possess a valid State of Hawaii General Engineering Contractor's "A" license or Specialty Contractor's "C-3" or "C-3a" license prior to the award of contract.

A pre-bid conference is scheduled for Thursday, May 19, 2022, at 10:00 A.M., HST on Microsoft Teams. All prospective bidders or their representatives (employees) are encouraged to attend, but attendance is not mandatory. Due to the impacts of COVID 19, the pre-bid meeting will be conducted virtually. Questions applicable to the Project Specifications should be submitted via HiePRO no later than two days prior to the scheduled date of the pre-bid meeting.

Contact Jennifer Russell, Project Engineer, by phone, at (808) 692-7572 or email at jennifer.t.russell@hawaii.gov to obtain the link for the pre-bid meeting.

ALL requests for information (RFI) shall be received in writing via HlePRO no less than 14 calendar days before bid opening. Questions received after the deadline will not be addressed. Verbal requests for information will not receive a response. Anything said at the conference is for clarification purposes and any changes to the bid documents will be made by addendum and posted in HlePRO.

Any protest of this solicitation shall be submitted in writing to the Director of Transportation, in accordance with §103D-701, HRS and §3-126, HAR.

Campaign contributions by State and County Contractors. Contractors are hereby notified of the applicability of Section 11-355, HRS, which states that campaign contributions are prohibited from specified State or county government contractors during the term of the contract if the contractors are paid with funds appropriated by the legislative body. For more information, contact the Campaign Spending Commission at (808) 586-0285.

The U.S. Department of Transportation Regulation entitled “Nondiscrimination in Federally-Assisted Programs of the U.S. Department of Transportation,” Title 49, Code of Federal Regulations (CFR), Part 21 is applicable to this project. Bidders are hereby notified that the Department of Transportation will affirmatively ensure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the grounds of race, color, national origin or sex (as directed by 23 CFR Part 200).

The Equal Employment Opportunity Regulations of the Secretary of Labor implementing Executive Order 11246, as amended shall be complied with on this project.

The U.S. Department of Transportation Regulations entitled "Participation by Disadvantaged Business Enterprise in Department of Transportation Programs", Title 49, Code of Federal Regulations, Part 26 is applicable to this project. Bidders are hereby notified that the Department of Transportation will strictly enforce full compliance with all of the requirements of the Small Business Enterprise (SBE) program with respect to this project.

Bidders are directed to read and be familiar with the Small Business Enterprise (SBE) Requirements, which establishes the program requirements pursuant to Title 49 Code of Federal Regulations Part 26 and, particularly, the requirements of certification, method of award, and evidence of good faith. All Bidders must e-mail the Engineer at emma.g.kawamoto@hawaii.gov, the Small Business Enterprise (SBE) Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction, Small Business Enterprise (SBE) Confirmation and Commitment Agreement – Trucking Company and Small Business Enterprise (SBE) Confirmation and Commitment Agreement –Subcontractor, Manufacturer, or Supplier by Monday, June 20, 2022, at 4:30 P.M HST. Failure to provide these documents shall be cause for bid/proposal rejection.

Driving While Impaired (DWI) Education. HDOT encourages all organizations contracted with the DOT to have an employee education program preventing DWI. DWI is defined as operating a motor vehicle while impaired by alcohol

or other legal or illegal substances. HDOT promotes this type of program to accomplish our mission to provide a safe environment for motorists, bicyclists and pedestrians utilizing our State highways, and expects its contractors to do so as well.

For additional information, contact Jennifer Russell, Project Manager, by phone at (808) 692-7572, by fax at (808) 692-7570 or email at jennifer.t.russell@hawaii.gov.

The State reserves the right to reject any or all proposals and to waive any defects in said proposals for the best interest of the public.



JADE T. BUTAY
Director of Transportation

Amend **Section 401 – HOT MIX ASPHALT (HMA) PAVEMENT** to be read as follows:

“SECTION 401 – HOT MIX ASPHALT (HMA) PAVEMENT

Make the following amendments to said Sections:

401.01 Description. This section describes furnishing and placing dense graded HMA pavement (herein referred to as HMA) on a prepared surface.

401.02 Materials.

Asphalt Cement (PG 64-16) 702.01(A)

Use for non-surface mixes, unless otherwise specified in the project documents.

Asphalt Cement (PG 64E-22) 702.01(B)

Use for all surface mixes, except for on Lanai and Molokai, and unless otherwise specified in the project documents. Polymer modified asphalt (PMA) pavement refers to asphalt mix using PG 64E-22, unless otherwise indicated.

Emulsified Asphalt 702.04

Warm Mix Asphalt Additive 702.06

Aggregate for Hot Mix Asphalt Pavement 703.09

Filler 703.15

Hydrated Lime or a liquid anti-strip approved by the engineer 712.03

(A) General. HMA pavement shall be plant mixed and shall include mixture of aggregate and asphalt binder and may include reclaimed asphalt pavement (RAP) or filler, or both.

The manufacture of HMA may include warm mix asphalt (WMA) processes in accordance with these specifications. WMA processes include combinations of organic additives, chemical additives, and foaming.

HMA pavement shall include surface course and may include one or more binder courses, depending on HMA pavement thickness indicated in the contract documents.

RAP is defined as removed or reprocessed pavement materials containing asphalt and aggregates. Process RAP by crushing until 100

percent of RAP passes 3/4-inch sieve. Size, grade uniformly, and combine materials such that blend of RAP and aggregate material conforms to grading requirements of Subsection 703.09 - Aggregate for Hot Mix Asphalt Pavement.

In surface and binder courses, aggregate for HMA may include RAP quantities up to 20 percent of total mix weight.

Quantity of filler material to correct deficiencies in aggregate gradation passing the No. 200 sieve shall not exceed 3 percent by weight of fine aggregates.

(B) Job-Mix Formula and Tests. Design job-mix formula in accordance with procedures contained in current edition of Asphalt Institute's *Mix Design Methods for Asphalt Concrete and Other Hot Mix Types*, Manual Series No. 2 (MS-2) for either Marshall Method or Hveem Method of Mix Design.

Limit compacted lift thickness and asphalt content of job-mix formula as specified in Table 401.02-1 - Limits of Compacted Lift Thickness and Asphalt Content.

TABLE 401.02-1 - LIMITS OF COMPACTED LIFT THICKNESS AND ASPHALT CONTENT				
MIX NO.	II	III	IV	V
Minimum to Maximum Compacted Thickness for Individual Lifts (Inches)	2-1/4 to 3	2 to 3	1-1/2 to 3	1-1/4 to 3
Asphalt Content Limits (Percent of Total Weight of Mix)	3.8 to 6.1	4.3 to 6.1	4.3 to 6.5	4.8 to 7.0

Asphalt content limits for porous aggregate may be exceeded only if it is requested ahead of placement and is reviewed then accepted in writing by the Engineer.

Meet job-mix formula design criteria specified in Table 401.02-2 - Job-Mix Formula Design Criteria.

TABLE 401.02-2 - JOB-MIX FORMULA DESIGN CRITERIA	
Hveem Method Mix Criteria (AASHTO T 246 and AASHTO T 247)	
Stability, minimum	37
Air Voids (percent) ¹	3 - 5
Marshall Method Mix Criteria (AASHTO T 245)	
Compaction (number of blows each end of specimen)	75
Stability, minimum (pounds)	1,800
Flow (x 0.01 inch)	8 - 16
Air Voids (percent) ¹	3 - 5
Notes: 1. Air Voids: AASHTO T 166 or AASHTO T 275; AASHTO T 209, AASHTO T 269.	

Minimum percent voids in mineral aggregates (VMA) of job-mix formula shall be as specified in Table 401.02-3 - Minimum Percent Voids in Mineral Aggregates (VMA).

TABLE 401.02-3 - MINIMUM PERCENT VOIDS IN MINERAL AGGREGATES (VMA)					
Nominal Maximum Particle Size, (Inches)	1-1/2	1	3/4	1/2	3/8
VMA, (percent) ¹	11.0	12.0	13.0	14.0	15.0
Notes: 1. VMA: See Asphalt Institute Manual MS-2					

(C) Submittals. Establish and submit job-mix formula for each type of HMA pavement mix indicated in the contract documents a minimum of 30 days before paving production. Job mix shall include the following applicable information:

- (1) Design percent of aggregate passing each required sieve size.
- (2) Design percent of asphalt binder material (type determined by type of mix) added to the aggregate (expressed as % by weight of total mix),
- (3) Design proportion of processed RAP.
- (4) Design temperature of mixture at point of discharge at paver.

- (5) Source of aggregate.
- (6) Grade of asphalt binder.
- (7) Test data used to develop job-mix formula.

Except for item (4) in this subsection, if design requirements are modified after the Engineer accepts job-mix formula, submit new job-mix formula before using HMA produced from modified mix design. Submit any changes to the design temperature of mixture at point of discharge for acceptance by the Engineer.

Submit a certificate of compliance for the asphalt binder, accompanied by substantiating test data from a certified testing laboratory.

(D) Range of Tolerances for HMA. Provide HMA within allowable tolerances of accepted job-mix formula as specified in Table 401.02-4 - Range of Tolerances HMA. These tolerances are not to be used for the design of the job mix, they are solely to be used during the testing of the production field sample of the HMA mix.

TABLE 401.02-4 - RANGE OF TOLERANCES HMA	
Passing No. 4 and larger sieves (percent)	± 7.0
Passing No. 8 to No. 100 sieves (inclusive) (percent)	± 4.0
Passing No. 200 sieve (percent)	± 3.0
Asphalt Content (percent)	± 0.4
Mixture Temperature (degrees F)	± 20

The tolerances shown are the allowable variance between the physical characteristics of laboratory job mix submitted mix design and the production or operational mix, i.e., field samples.

401.03 Construction.

(A) Weather Limitations. Placement of HMA shall not be allowed under the following conditions:

- (1) On wet surfaces, e.g., surface with ponding or running water, surface that has aggregate or surface that appears beyond surface saturated dry, as determined by the Engineer.

(2) When air temperature is below 50 degrees F and falling. HMA may be applied when air temperature is above 40 degrees F and rising. Air temperature will be measured in shade and away from artificial heat.

(3) When weather conditions prevent proper method of construction.

(B) Equipment.

(1) **Mixing Plant.** Use mixing plants that conform to AASHTO M 156, supplemented as follows:

(a) All Plants.

1. **Automated Controls.** Control proportioning, mixing, and mix discharging automatically. When RAP is incorporated into mixture, provide positive controls for proportioning processed RAP.

2. **Dust Collector.** AASHTO M 156, Requirements for All Plants, Emission Controls is amended as follows:

Equip plant with dust collector. Dispose of collected material. In the case of baghouse dust collectors, dispose of collected material or return collected material uniformly.

3. **Modifications for Processing RAP.** When RAP is incorporated into mixture, modify mixing plant in accordance with plant manufacturer's recommendations to process RAP.

(b) Drum Dryer-Mixer Plants.

1. **Bins.** Provide separate bin in cold aggregate feeder for each individual aggregate stockpile in mix. Use bins of sufficient size to keep plant in continuous operation and of proper design to prevent overflow of material from one bin to another.

175 **2. Stockpiling Procedures.** Separate aggregate
176 for Mix II, Mix III and Mix IV into at least three stockpiles
177 with different gradations as follows: coarse,
178 intermediate, and fine. Separate aggregates for Mix V
179 into at least two stockpiles. Stockpile RAP separately
180 from virgin aggregates.

181
182 **3. Checking Aggregate Stockpile.** Check
183 condition of the aggregate stockpile often enough to
184 ensure that the aggregate is in optimal condition.

185
186 **(c) Batch and Continuous Mix Plants.**

187
188 **1. Hot Aggregate Bin.** Provide bin with three or
189 more separate compartments for storage of screened
190 aggregate fractions to be combined for mix. Make
191 partitions between compartments tight and of sufficient
192 height to prevent spillage of aggregate from one
193 compartment into another.

194
195 **2. Load Cells.** Calibrated load cells may be used in
196 batch plants instead of scales.

197
198 **(2) Hauling Equipment.** Use trucks that have tight, clean, smooth
199 metal beds for hauling HMA.

200
201 Thinly coat truck beds with a minimum quantity of non-stripping
202 release agent to prevent mixture from adhering to beds. Diesel or
203 petroleum-based liquid release agents, except for paraffin oil, shall not
204 be used. Drain excess release agent from truck bed before loading
205 with HMA.

206
207 Provide a designated clean up area for the haul trucks.

208
209 Equip each truck with a tarpaulin conforming to the following:

210
211 **(a)** In good condition, without tears and holes.

212
213 **(b)** Large enough to be stretched tightly over truck bed,
214 completely covering mix. The tarpaulin shall be secured in such
215 a manner that it remains stretched tightly over truck bed and
216 HMA mix until the bed is about to be raised up in preparation
217 for discharge.

218
219 **(3) Asphalt Pavers.** Use asphalt pavers that are:
220

- (a) Self-contained, power-propelled units.
- (b) Equipped with activated screed or strike-off assembly, heated if necessary.
- (c) Capable of spreading and finishing courses of HMA mixtures in lane widths applicable to typical section and thicknesses indicated in the contract documents.
- (d) Equipped with receiving hopper having sufficient capacity for uniform spreading operation.
- (e) Equipped with automatic feed controls to maintain uniform depth of material ahead of screed.
- (f) Equipped with automatic screed controls with sensors capable of sensing grade from outside reference line, sensing transverse slope of screed, and providing automatic signals to control screed grade and transverse slope.
- (g) Capable of operating at constant forward speeds consistent with satisfactory laying of mixture.
- (h) Equipped with a means of preventing the segregation of the coarse aggregate particles from the remainder of the bituminous plant mix when that mix is carried from the paver hopper back to the paver augers. The means and methods used shall be approved by the paver manufacturer and may consist of chain curtains, deflector plates, or other such devices and any combination of these.

The following specific requirements shall apply to the identified bituminous pavers:

1. **Blaw-Knox Bituminous Pavers.** Blaw-Knox bituminous pavers shall be equipped with the Blaw-Knox Materials Management Kit (MMK).
2. **Cedarapids Bituminous Pavers.** Cedarapids bituminous pavers shall be those that were manufactured in 1989 or later.

263 **3. Barber-Green/Caterpillar Bituminous Pavers.**

264 Barber-Green/Caterpillar bituminous pavers
265 shall be equipped with deflector plates as
266 identified in the December 2000 Service
267 Magazine entitled "New Asphalt Deflector Kit
268 {6630, 6631, 6640}".

269
270 Bituminous pavers not listed above shall have similar
271 attachments or designs that shall make them equivalent to the
272 bituminous pavers listed above. The Engineer will solely
273 decide if it is equal to or better than the setups described for the
274 equipment listed above.

275
276 Submit for review and acceptance, prior to the start of
277 using the paver for the placing of plant mix, a full description in
278 writing of the means and methods that will be used to prevent
279 the bituminous paver from having both aggregate and
280 temperature segregation. Use of any paver that has not been
281 accepted is prohibited until acceptance of the paver is received
282 from the Engineer. Any pavement placed with an unaccepted
283 paver will be regarded as not compliant work and may not be
284 paid for and may require removal.

285
286 Supply a Certificate of Compliance that verifies that the
287 manufacturer's approved means and methods used to prevent
288 bituminous paver from having both aggregate and temperature
289 segregation have been implemented on all pavers used on the
290 project and are working in accordance with the manufacturer's
291 requirements and Contract Documents.

292
293 **(4) Rollers.** Rollers shall be self-propelled, steel-tired tandem,
294 pneumatic-tired, or vibratory-type rollers capable of reversing without
295 shoving or tearing the just placed HMA mixture. Provide sufficient
296 number, sequencing, type, and rollers of sufficient weight to compact
297 the mixture to required density while mixture is still in workable
298 condition unless otherwise indicated. Equipment shall not excessively
299 crush aggregate. Operate rollers in accordance with manufacturer's
300 recommendations and Contract Documents. The use of intelligent
301 compaction is encouraged and may be required elsewhere in the
302 Contract Documents.

303
304 **(a) Steel-Tired Tandem Rollers.** Steel-tired tandem rollers
305 used for initial breakdown or intermediate roller passes shall
306 have minimum gross weight of 12 tons and shall provide
307 minimum 250-pound weight per linear inch of width on drive
308 wheel.

Steel-tired tandem rollers used for finish roller passes shall have minimum total gross weight of 3 tons.

Do not use roller with grooved or pitted rolling drum or worn scrapers or wetting pads. Replace excessively worn scrapers and wetting pads before use.

(b) Pneumatic-Tired Rollers. Pneumatic-tired rollers shall be oscillating-type, equipped with smooth-tread pneumatic tires of equal size and diameter. Maintain tire pressure within 5 pounds per square inch of designated operational pressure when hot. Space tires so that gaps between adjacent tires are covered by following set of tires.

Pneumatic-tired rollers used for breakdown or intermediate roller passes shall have a ballast capable of establishing an operating weight per tire of not less than 3,000 pounds. Equip rollers with tires having minimum 20-inch wheel diameter with tires inflated to 70 to 75 pounds per square inch pressure when cold and 90 pounds per square inch when hot. Equip rollers with skirt-type devices to maintain temperature of tires during rolling operations.

Pneumatic-tired rollers used for kneading finished asphalt surfaces shall have a ballast capable of establishing an operating weight per tire of not less than 1,500 pounds. Equip rollers with tires having minimum 15-inch wheel diameter with tires inflated to 50 to 60 pounds per square inch pressure. If required, equip rollers with skirt-type devices to maintain temperature of tires during rolling operations.

(c) Vibratory Rollers. Vibratory rollers shall be steel-tired tandem rollers having minimum total weight of 3 tons. Equip vibratory rollers with amplitude and frequency controls and speedometer. Operate vibratory roller in accordance with manufacturer's recommendations. For very thin lifts, 1 inch or less in thickness, vibratory rollers shall not be used in the vibratory mode. Instead, operate the unit in the static mode.

(5) Hand Tools. Keep hand tools used in production, hauling, and placement of HMA clean and free of contaminants. Diesel or mineral spirits or other cleaning material that is potentially deleterious to HMA may be used to clean hand tools providing:

(a) It does not contaminate HMA with cleaning material.

(b) Clean hand tools over catch pan with capacity to hold all the cleaning material.

(c) Remove all diesel or mineral spirits or other cleaning material that is potentially deleterious to HMA from hand tools before using with HMA.

(d) Hand tools used shall be in a condition such that it meets the requirements that it was manufactured for, e.g., a straightedge shall meet the straightness requirement of the manufacturer.

(6) Material Transfer Vehicle (MTV).

(a) Usage. MTV usage applies to surface courses of paving projects on all Islands except Lanai, unless otherwise indicated. When placing HMA surface course use MTV to independently deliver mixtures from hauling equipment to paving equipment. MTV usage will not be required for the following:

1. Projects with less than 1,000 tons of HMA.
2. Temporary pavements.
3. Bridge deck approaches.
4. Shoulders.
5. Tapers.
6. Turning lanes.
7. Driveways.
8. Areas with low overhead clearances.

(b) Equipment. When using MTV, install minimum 10-ton-capacity hopper insert in conventional paver hopper. Provide the following equipment:

1. High-capacity truck unloading system in MTV capable of receiving HMA from hauling equipment.
2. MTV storage bin with minimum 15-ton capacity.
3. An auger mixing system in one of the following:

the MTV storage bin, or paver hopper insert, or paver hopper to continuously mix HMA prior to discharging to the paver's conveyor system.

Avoid stop-and-go operations by coordinating plant production rate, number of haul units, and MTV and paver speeds to provide a continuous, uniform, segregation-free material flow and smooth HMA pavement. Maintain uniform paver speed to produce smooth pavements.

(c) Performance Evaluation. Evaluate the performance of MTV and mixing equipment by measuring mat temperature profile immediately behind paver screed on first day of paving and when it feels the need to do so due to perceived changes in performance or as directed by the Engineer.

Use a hand-held temperature device that has been calibrated within the past 12 months. It shall be an infrared temperature gun is capable of measuring in one degree or finer increments between the temperatures of 80 degrees to 400 degrees F with a laser to indicate where the temperature reading is being taken. Six temperature profile measurements shall be taken of mat surface using infrared temperature gun at 50-foot intervals behind paver. Each temperature profile shall consist of three surface temperature measurements taken transversely across the mat in approximately a straight line from screed while paver is operating. For each profile, temperatures shall be measured approximately 1 foot from each edge and in middle of mat. The difference between maximum and minimum temperature measurements for each temperature profile shall not exceed 10 degrees F. If any two or more temperature profiles exceeds the allowable 10-degree F temperature differential, halt paving operation and adjust MTV or mixing equipment to ensure that material placed by paver meets specified temperature requirements. Redo the measuring of mat temperature profile until adjustment of the MTV or mixing equipment is adequate. Submit all temperature profiles to the Engineer by next business day. Information on the report shall show location and temperature readings and time test was performed. Enough information shall be given, so the Engineer will be able to easily locate the test site of the individual measurement.

When requested temperature profile measurements shall be done in the presence of the Engineer.

Once adjustments are made, repeat measurement procedure for the next two placements to verify that material placed by paver meets specified temperature requirements. Terminate paving if temperature profile requirements are not met during repeated measurement procedure. If equipment fails to meet requirements after measurement procedure is repeated once, replace equipment before conducting any further temperature profile measurements

The Engineer may perform surface temperature profile measurements at any time during project. The Engineer may in lieu of a hand-held infrared temperature device use an infrared camera or device that is capable of measuring temperatures to locate cold spots. If such cold spots exist, the Engineer may require adjustments to the MTV.

If bleeding or fat spots occur in the pavement adjust means and methods to eliminate such pavement defects and perform remedial repair to pavement acceptable to the Engineer. Bleeding is defined as excess binder occurring on the surface of the pavement. It may create a shiny, glass-like, reflective appearance and may be tacky to the touch. Fat spots are localized bleeding.

(d) Transport.

1. Trailered MTV. Transport MTV by means of truck-tractor/trailer combination in accordance with Chapter 104 of Title 19, Department of Transportation, entitled "The Movement by Permit of Oversize and Overweight Vehicles on State Highways".

2. Crossing Bridges for Self-Powered MTV. When self-powered MTV exceeds legal axle or total weight limits for vehicles under the HRS, Chapter 291, conform to the following when crossing bridges within project limits unless otherwise indicated:

- a. Completely remove mix from MTV.
- b. Move MTV at relatively constant speed not exceeding 5 miles per hour. MTV will not be allowed to stop on bridge.

c. No other vehicle or equipment will be allowed on bridge.

d. The MTV shall not attempt to cross a bridge where the posted load limit is less than or equal to the weight of the MTV empty. Permission to cross the bridge shall be obtained from the Engineer and HWY-DB in writing.

(C) Preparation of Surface. Clean existing pavement in accordance with Section 310 - Brooming Off. Apply tack coat in accordance with Section 407 - Tack Coat. Tack coat shall not be applied to surfaces to receive an application of joint adhesive.

Where indicated, bring irregular surfaces to uniform grade and cross section by furnishing and placing one or more leveling courses of HMA Mix V. Spread leveling course in variable thicknesses to eliminate irregularities in existing surface. Place leveling course such that maximum depth of each course, when thoroughly compacted, does not exceed 3 inches.

In multiple-lift leveling course construction, spread subsequent lifts beyond edges of previously spread lifts in accordance with procedures contained in current edition of the Asphalt Institute's *Construction of Hot Mix Asphalt Pavements*, Manual Series No. 22 (MS-22) for leveling wedges.

Notify the Engineer of existing surfaces that may not be in a condition that will have enough strength to be a good bonding surface or foundation and should be removed or have remedial repairs done before new pavement placement.

(D) Plant Operation.

(1) Preparation of Asphalt Binder. Uniformly heat asphalt binder and provide continuous supply of heated asphalt cement from storage to mixer. Do not heat asphalt binder above the recommendation of the supplier for modified binders or above 350 degrees F for neat binders.

(2) Preparation of Aggregate. Dry and heat aggregate material at temperature sufficient to produce design temperature of job-mix formula. Do not exceed 350 degrees F. Adjust heat source used for drying and heating to avoid damage to and contamination of aggregate. When dry, aggregate shall not contain more than 1 percent moisture by weight.

For batch plants, screen aggregates immediately after heating and drying into three or more fractions. Convey aggregates into

536 separate compartments ready for batching and mixing with asphalt
537 binder.

538
539 **(3) Mixing.** Measure aggregate and asphalt; or aggregate, RAP,
540 and asphalt into mixer in accordance with an accepted job-mix
541 formula. Mix until components are completely mixed and adequately
542 coated with asphalt binder in accordance with AASHTO M 156.
543 Percent of coated particles shall be 95 percent when tested in
544 accordance with AASHTO T 195.

545
546 **(4) Plant Inspection.** For control and acceptance testing during
547 periods of production, provide a testing laboratory that meets the
548 requirements of AASHTO M 156. Provide space, utilities, and
549 equipment required for performing specified tests.

550
551 **(E) Spreading and Finishing.** Prior to each day's paving operation,
552 check screed or strike-off assembly surface with straight edge to ensure
553 straight alignment and there is no damage or wear to the machine that will
554 affect performance. Provide screed or strike-off assembly that produces
555 finished surface without tearing, shoving, and gouging HMA. Discontinue
556 using spreading equipment that leaves ridges, indentations, or other marks,
557 or combination thereof in surface that cannot be eliminated by rolling or
558 affects the final smoothness of the pavement or be prevented by adjustment
559 in operation.

560
561 Maintain HMA at minimum 250 degrees F temperature at discharge to
562 paver. The Engineer shall observe the contractor measuring the temperature
563 of mix in hauling vehicle just before depositing into spreader or paver or MTV.

564
565 Deposit HMA in a manner that minimizes segregation. Raise truck
566 beds with tailgates closed before discharging HMA.

567
568 Lay, spread, and strike off HMA upon prepared surface. Where
569 practical, use asphalt pavers to distribute mixture.

570
571 Where practical, control horizontal alignment using automatic grade
572 and slope controls from reference line, slope control device. Existing
573 pavements or features shall not be used for grade control alone.

574
575 Obtain sensor grade reference, horizontal alignment by using
576 established grade and slope controls. For subsequent passes, substitution
577 of one ski with joint-matching shoe riding on finished adjacent pavement is
578 acceptable. Use of a comparable non-contact mobile reference system and
579 joint matching shoe is acceptable.

580 Avoid stop-and-go operation. Maintain a constant forward speed of
581 paver during paving operation and minimize other methods that impact

smoothness.

Offset longitudinal joint in successive lifts by approximately 6 inches. Incorporate into paving method an overlap of material of 1-inch +/- 0.5 inches at the longitudinal joint. The HMA overlap material shall be left alone when initially placed and shall not be bumped back or pushed back with a lute or any other hand-held device. If the overlap exceeds the maximum amount, remove the excess with a flat shovel, allowing recommended amount of overlap HMA material to remain in place to be compacted. Do not throw the removed excess HMA material on to the paving mat. The longitudinal joint in a surface course when total roadway width is comprised of two lanes shall be near the centerline of pavement or near lane lines when roadway is more than two lanes in width. The longitudinal joint shall not be constructed in the wheel path or under the longitudinal lane lines. Make a paving plan drawing showing how the longitudinal joint will not be located in these areas.

Control the horizontal alignment of the longitudinal edge of the HMA mat being installed so that the edge is parallel to the centerline or has a uniform alignment, e.g., the edge of the mat is straight line or uniform curve, no wavy edge, etc. to have a consistent amount of HMA material at the joint.

Check the compaction of the longitudinal joint during paving often enough to ensure that it will meet the compaction requirements.

If nuclear gauges and ground penetrating radar are used as the contractor's quality control method, they shall be properly calibrated and periodically checked by comparison to cores taken from the pavement. The use of sand as an aid in properly seating the gauge may also be considered for improving the accuracy of the gauge.

In areas where irregularities or unavoidable obstacles make use of mechanical spreading and finishing equipment impracticable, spread, rake, and lute mixture by hand tools. For such areas, deposit, spread evenly, and screed mixture to required compacted thickness.

Demonstrate competence of personnel operating grade and crown control device before placing surface courses. If automatic control system becomes inoperative during the day's work, the Engineer will permit the Contractor to finish day's work using manual controls. The Engineer may also allow additional HMA to be ordered and placed using manual controls if it will provide a safer work site for the public to travel through. Do not resume work until automatic control system is made operative. The Engineer may waive requirement for electronic screed control device when paving gores, shoulders, transitions, and miscellaneous reconstruction areas where the use of the devices is not practical.

When production of HMA can be maintained and when practicable, use pavers in echelon shall be used to place surface course in adjacent lanes.

At the end of each workday, HMA pavement that is open to traffic shall not extend beyond the panel of the adjacent new lane pavement by more than the distance normally placed in one workday. At end of each day's production, construct tapered transitions along all longitudinal and transverse pavement drop-offs; this shall apply to areas where existing pavement is to meet newly placed pavement. Use slopes of 6:1 for longitudinal taper transitions and 48:1 for transverse tapered transitions. Maximum drop-off height along the joints shall be 3 inches. Also, using a 48:1 slope provides a taper around any protruding object, e.g., manholes, drain boxes, survey monuments, inlets, etc., that may be above pavement surface when opened to the public. If the object is below the surface of the pavement then fill the depression until it is level with the surrounding pavement or raise depressed objects to the finish grade of the placed pavement. Remove and dispose of all transition tapers before placing adjoining panel or next layer of HMA. Notify traveling public of pavement drop-offs or raised objects with signs placed in every direction of traffic that may use and encounter pavement drop-offs or protruding objects or holes.

Use the same taper rates for areas where there is a difference in elevation due to construction work.

At end of each workweek, complete full width of the roadway's pavement, including shoulders, to same elevation with no drop-offs.

(F) Compaction. Immediately after spreading and striking off HMA and adjusting surface irregularities, uniformly compact mixture by rolling.

Initiate compaction at highest mix temperature allowing compaction without excessive horizontal movement. Temperature shall not be less than 220 degrees F.

Finish rolling using tandem roller while HMA temperature is at or above 175 degrees F.

On superelevated curves, begin rolling at lower edge and progress to higher edge by overlapping of longitudinal trips parallel to centerline.

If necessary, repair damage immediately using rakes and fresh mix. Do not displace line and grade of HMA edges during rolling.

Keep roller wheels properly moistened with water or water mixed with small quantities of detergent. Use of excess liquid, diesel, and petroleum-

based liquids will not be allowed on rollers.

Along forms, curbs, headers, walls and other places not accessible to rollers, compact mixture with hot hand tampers, smoothing irons, or mechanical tampers. On depressed areas, trench roller or cleated compression strips under roller may be used to transmit compression.

Before the start of compaction or during compaction or both remove pavement that is loose, broken, or contaminated, or combination thereof; pavement that shows an excess or deficiency in asphalt binder content; and pavement that is defective in any way. Replace with fresh HMA pavement of same type, and compact. Remove and replace defective pavement and compact at no increase in contract price or contract time.

Operate rollers at slow and uniform speed with no sudden stops. The drive wheels shall be nearest to the paver. Continue rolling to attain specified density and until roller marks are eliminated.

Rollers shall not be parked on the pavement placed that day or shift.

(1) HMA Pavement Courses One and a Half Inches Thick or Greater. Where HMA pavement compacted thickness indicated in the Contract Documents is 1-1/2 inches or greater, compact to not less than 93.0 percent nor greater than 97.0 percent of the maximum specific gravity determined in accordance with AASHTO T 209, modified by deletion of Supplemental Procedure for Mixtures Containing Porous Aggregate.

Place HMA pavement in individual lifts that are within minimum and maximum allowable compacted thickness for various types of mixture as specified in Table 401.02-1 - Limits of Compacted Lift Thickness and Asphalt Content.

(2) HMA Pavement Courses Less Than One and a Half Inches Thick. Where HMA pavement compacted thickness indicated in the contract documents is less than 1-1/2 inches, compaction to a specified density will not be required.

Use only non-vibratory, steel-tired, tandem roller. Roll entire surface with minimum of two roller passes. A roller pass is defined as one trip of the roller in one direction over any one spot.

For intermediate rolling, roll entire surface with minimum of four passes of roller.

Finish rolling using steel-tired, tandem roller. Continue rolling

until entire surface has been compacted with minimum of three passes of roller, and roller marks have been eliminated.

Do not use rollers that will excessively crush aggregate.

(3) HMA Pavement Courses One and a Half Inches Thick or Greater In Special Areas Not Designated For Vehicular Traffic.

For areas such as bikeways that are not part of roadway and other areas not subjected to vehicular traffic, compact to not less than 90.0 percent of maximum specific gravity determined in accordance with AASHTO T 209, modified by deletion of Supplemental Procedure for Mixtures Containing Porous Aggregate. Increase asphalt content by at least 0.5 percent above that used for HMA pavements designed for vehicular traffic. Paved shoulders shall be compacted in the same manner as pavements designed for vehicular traffic.

(G) Joints, Trimming Edges and Utility Marking. At HMA pavement connections to existing pavements, make joints vertical to depth of new pavement. Saw cut existing pavement and cold plane in accordance with Section 415 - Cold Planing of Existing Pavement to depth equal to thickness of surface course or as indicated in the Contract Documents.

At HMA connections to previously placed lifts, form transverse joints by cutting back on previous run to expose full depth of course. Dispose of material trimmed from edges. Protect end of freshly laid mixture from rollers.

Before and after paving, identify and mark location of existing utility manholes, valves, and handholes on finished surface. Adjust existing frames and covers and valve boxes to final pavement finish grade in accordance with Section 604 - Manholes, Inlets and Catch Basins and Section 626 - Manholes and Valve Boxes for Water and Sewer Systems.

(1) Longitudinal joints. Submit for review the means and methods that will be used to install longitudinal joints at the required compaction and density. Compact longitudinal joints to be not less than 91.0 percent of the maximum specific gravity determined in accordance with AASHTO T 209, modified by deletion of Supplemental Procedure for Mixtures Containing Porous Aggregate. Verify the compaction of the longitudinal joints meets requirements by using non-destructive testing methods during paving and submit the results on the daily quality control test reports.

Test for compaction and density regardless of layer thickness. Compaction and density of the longitudinal joint shall be determined by using six-inch diameter cores. For longitudinal joints made using butt joints cores shall be taken over the joint with half of the core being on each side of the

joint. For longitudinal joints using butt wedge joints, center core over the center of the wedge so that 50 percent of the material is from the most recently paved material and the remaining 50 percent of the core is from the material used to pave the previous layer. One core shall be taken at a maximum of every 250 tons of longitudinal joint and any fraction of that length for each day of paving with a minimum of one core taken for each longitudinal joint per day. Cores taken for the testing of the longitudinal joint may be used to determine pavement thickness.

When the longitudinal joints are found to have less than 91.0 percent of the maximum specific gravity, overband all longitudinal joints within the entire lot represented by the non-compliant core, PG binder seal coat, or other type of joint enrichment accepted by the Engineer. The overband shall not decrease the skid resistance of the pavement under any ambient weather condition. Submit overband material's catalog cuts, test results and application procedure for review and acceptance by the Engineer before use. Center the overband over the longitudinal joint. The overband shall be placed in a uniform width and horizontal alignment. The overband shall have no holidays or streaking in its placement. The width of the overband shall be based on how the longitudinal joint was constructed or as directed by the Engineer. If a butt joint is used, the overband width shall be a minimum of 12-inches. For butt wedge or wedge joints the overband width shall be the width of the wedge plus an additional six-inches minimum. Replace any pavement markings damaged or soiled by the overband remedial repair process.

For longitudinal joints that have a compaction of less than 89 percent of the maximum specific gravity; removal may be required by the Engineer instead of overbanding the non-compliant joint.

Persistent low compaction results may be cause to suspend work and remove non-conforming work. During the suspension of paving, revise means and methods used in constructing longitudinal joints and submit to the Engineer for review and acceptance. Suspension may occur when:

- (1) Two or more longitudinal joints tests fail to meet the minimum compaction
- (2) One sample reveals that the joint compaction is 89 percent or less.

Compaction results for longitudinal joints until January 1, 2023 will not be included in any Sliding Scale Pay Factor for Compaction payment calculation. After, January 1, 2023 it will be included.

(H) HMA Pavement Samples. Obtain test samples from compacted HMA pavement within 72 hours of lay down. Provide minimum 4-inch

diameter cores consisting of undisturbed, full-depth portion of compacted mixture taken at locations designated by the Engineer in accordance with the "Sampling and Testing Guide for Acceptance and Verification" in Hawaii DOT Highways Division, *Quality Assurance Manual for Materials*, Appendix 3. Cores shall be taken in the presence of the Engineer. Turn cores over to Engineer immediately after cores have been taken.

For pavement samples for longitudinal joints provide 6-inch diameter cores minimum. For pavement samples for other than longitudinal joints 4-inch diameter cores minimum shall be taken. All cores shall consist of undisturbed, full-depth of the lift of the compacted mixture taken at locations designated by the Engineer in accordance with the "Sampling and Testing Guide for Acceptance and Verification" in Hawaii DOT Highways Division, *Quality Assurance Manual for Materials*, appendix 3. Coring of longitudinal joints shall use a modified HDOT Sampling and Testing Guide as required by the Contract Documents.

Cores that separate shall indicate to the Engineer that there is insufficient bonding of layers. Modify the previously used paving means and methods to prevent future debonding of layers. Debonding of a core sample after adjustment of the Contractor's methods will be an indication of continued non-conforming work and the Engineer may direct removal of the layer at no additional cost or contract time.

Restore HMA pavement immediately after obtaining samples. Clean core hole and walls of all deleterious material that will prevent the complete filling of the core hole and the bonding of the new HMA to the existing. Apply tack coat to vertical faces of sample holes. Fill sampled area with new HMA pavement of same type as that removed. If hand compaction is used; fill in layers not exceeding the minimum thickness stated in Table 401.02-1 - Limits of Compacted Lift Thickness And Asphalt Content. Compact each layer to compaction requirements. If Mechanical Compaction methods are used, then layers may be the maximum layer thickness stated in Table 401.02-1 - Limits of Compacted Lift Thickness And Asphalt Content. Using tires or hand tamping to compact the HMA material to restore the pavement shall not be considered as mechanical compaction.

Only sample and test leveling course if 1-1/2 inches or greater. No compaction requirements for less than 1-1/2 inches.

(I) HMA Pavement Thickness Tolerances.

The Engineer will measure thickness of pavement by cores obtained by the Contractor in accordance with HDOT TM 09-19 Field Sampling Bituminous Material after Compaction (Obtaining Cores). The Engineer will measure cores in accordance with HDOT TM 09-19, except that

measurement will be taken to nearest one thousandth of an inch; and average of such measurements will be taken to nearest one hundredth of an inch.

Thickness of finished HMA pavement shall be within 0.25 inch of thickness indicated in the Contract Documents. Pavement not meeting the thickness requirements of the Contract Documents may be required by the Engineer to be removed and replaced.

Corrective methods taken on pavement exceeding specified tolerances, e.g., insufficient thickness by methods accepted by the Engineer, including removal and replacement, shall be at no increase in contract price or contract time.

The checking of pavement thickness shall be done after all remedial repairs, e.g., smoothness compliance repairs, compaction, have been completed, reviewed, and accepted by the Engineer.

(J) Quality Control Using New Technology. The Engineer and MTRB reserves the right to utilize new technology and methods to improve the detection of noncompliant work on the project. The technology or method may be used to locate defects in the work, e.g., ground penetrating radar to locate delaminations, moisture damage, thin sections, voids, non-compliant compaction, other non-destructive testing to locate flaws. The defect will be verified by the methods stated in the Contract Documents or by other established conventional means. If the technology or method has already been accepted elsewhere or has standardized testing procedures the results may be judged acceptable by the Engineer and no further testing will be required. These new technologies and methods may be used for the selection of sampling locations.

(K) Protection of HMA Pavement. Except for construction equipment directly connected with paving operations, keep traffic off HMA pavement.

Protect HMA pavement from damage until it has cooled and set.

Do not refuel equipment or clean equipment or hand tools over paved surfaces unless catch pan or device that will contain spilled fuel and other products is provided. After completion of refueling or cleaning, remove catch pan or device without spilling any of the collected content.

Do not park roller or other paving equipment on HMA pavement paved within 24 hours of laydown.

(L) Pavement Joint Adhesive

904 **(1) Pavement Joint Adhesive on Joints.** Use on all asphalt
905 pavement construction where joints are formed at such
906 locations but not limited to the following:

907
908 **(a)** Adjacent asphalt pavements, e.g., trafficked lanes,
909 shoulders, etc.

910
911 **(b)** Asphalt pavement and adjacent concrete pavement or
912 curb and gutter or any other surface where the bonding of the
913 asphalt pavement and concrete surface is desired,

914
915 **(c)** Transverse joints between asphalt pavements not
916 placed at the same time or if the pavement's temperature on
917 one side of the joint is below the minimum temperature the mix
918 can be at, during asphalt pavement compaction or installation.

919
920 **(d)** Cut face of an existing pavement where it will have new
921 HMA pavement placed against it, e.g., utility trenches, partial or
922 full depth repairs, etc.

923
924 Pavement joint adhesive is not required on a longitudinal
925 construction joint between adjacent hot mix asphalt pavements
926 formed by echelon paving. Echelon paving is defined as paving
927 multiple lanes side-by-side with adjacent pavers slightly offset at the
928 same time.

929
930 A longitudinal construction joint between one shift's work and
931 another shall have pavement joint adhesive applied at the joint. Any
932 longitudinal construction joint formed, with the temperature on one
933 side of the joint that is below the minimum temperature the mix can be
934 when compacted to contract requirements during asphalt pavement
935 installation, shall have pavement joint adhesive applied at the joint.

936
937 **(2) Material requirements.** Asphalt joint adhesive shall meet
938 requirements as specified in Table 401.03-1 - Asphalt Joint Adhesive
939 Specifications.

TABLE 401.03-1 – ASPHALT JOINT ADHESIVE SPECIFICATIONS		
TEST		SPECIFICATION
Brookfield Viscosity, 204 °C [400 °F]	ASTM D 3236	4,000-10,000 cp
Cone Penetration, 25 °C [77 °F]	ASTM D 5329	60-100 dmm
Resilience, 25 °C [77 °F]	ASTM D 5329	30% minimum
Ductility, 25 °C [77 °F]	ASTM D 113	30 cm minimum
Ductility, 4 °C [39.2 °F]	ASTM D 113	30 cm minimum
Tensile Adhesion, 25 °C [77 °F]	ASTM D 5329	500% minimum
Softening Point	ASTM D 36	77 °C [170 °F] min.
Asphalt Compatibility	ASTM D 5329	Pass

(3) Construction Requirements for Asphalt Joint Adhesive

(a) **Equipment Requirements.** Use a jacketed double boiler type melting unit, with both agitation and recirculation systems. Provide a pressure feed wand application system.

(b) **Material Handling.** Submit a copy of the manufacturer's recommendations for heating, re-heating, and applying the joint adhesive material. Follow manufacturer's recommendations. Do not remove the joint adhesive from the package until immediately before it is placed in the melter. Joint adhesive boxes must be clearly marked with the name of the manufacturer, the trade name of the adhesive, the manufacturer's batch and lot number, the application/pour temperature, and the safe heating temperature. Feed additional material into the melter at a rate equal to the rate of material used.

Verify the pouring temperature of the joint adhesive at least once per hour at the point of discharge. Stop production if the adhesive falls below the recommended application/pour temperature. When the temperature of the adhesive exceeds the maximum safe heating temperature, stop production, empty the melter, and dispose of that adhesive in an environmentally safe method. No payment will be made for this material or its disposal.

Do not blend or mix different manufacturer's brands or different types of adhesives.

(c) **Joint Adhesive Application:** The face of the joint that
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the new asphalt pavement will bind to shall be clean and dry before the joint adhesive is applied. Apply the pavement joint adhesive material to the entire face of the surface where HMA pavement shall be installed. The thickness of the asphalt adhesive application shall be approximately 1/8 inch. Use an application shoe attached to the end of application wand. Do not overlap the joint by greater than 1/2-inch at the top of the joint or two-inches at the bottom of the joint. Apply the joint adhesive immediately in front of the paving operation. If the adhesive is tracked by construction vehicles, repair the damaged area, and restrict traffic from driving on the adhesive.

(d) Field Sampling. Take a sample from the application wand during the first 20 minutes of placing sealant. One sample should be taken per manufacturer's batch or minimum of every 6 months on the Project in the presence of the Engineer.

Each sample shall consist of one quart in an aluminum or steel sample container. The sampling container shall be labeled with Contractor's name; project name and number; date and time sample taken; location of where material was used at, e.g., from where to where it was used at in stations; manufacturer and lot number of the sealant. Turn over samples to Engineer without Engineer losing sight of the sample. The Engineer reserves the right to conduct supplementary sampling and testing of the sealant material.

(M) Pavement Smoothness Rideability Test. Perform surface profile tests frequently to ensure that the means and methods being used produces pavement that is compliant with the surface profile smoothness requirement. Test the pavement surface for smoothness with High-Speed Inertial Profiler to determine the International Roughness Index (IRI) of the pavement. For the locations determined by the Engineer, a 10-foot straightedge shall be used to measure smoothness.

All smoothness testing must be performed with the presence of the Engineer. The High-Speed Inertial Profiler operator shall be a certified operator by MTRB or the manufacturer.

The High-Speed Inertial Profiler operator's certification shall be no older than five years old at the date of the Notice to Proceed and at the day of the pavement profile measurement.

The finished pavement shall comply to all the following requirements:

(a) Smoothness Test using 10-Foot Straightedge (Manual or rolling) The 10-foot straightedge is used to Identify the locations that vary more than 3/16 inch from the lower edge when the 10-foot straightedge is laid on finished pavement on the direction parallel with the centerline or perpendicular to centerline. Remove the high points that cause the surface to exceed that 3/16 inch tolerance by grinding.

The Contractor shall use a 10-foot straightedge for the following locations:

1. Longitudinal profiling parallel to centerline, when within 15 feet of a bridge approach or existing pavement which is being joined.
2. Transverse profiling of cross slopes, approaches, and as otherwise directed with respect to the requirements below:
 - a) Lay the straightedge in a direction perpendicular to the centerline.
3. When pavement abuts bridge approaches or pavement not under this Contract, ensure that the longitudinal slope deviations of the finished pavement comply with Contract Document's requirements.
4. Short pavement sections up to 600 feet long, including both mainline and non-mainline sections on tangent sections and on horizontal curves with a centerline radius of curve less than 1,000 feet.
5. Within a superelevation transition on horizontal curves having centerline curve radius less than 1,000 feet, e.g., curves, turn lanes, ramps, tapers, and other non-mainline pavements.
6. Within 15 feet of transverse joint that separates pavement from existing pavement not constructed under the contract, or from bridge deck or approach slab for longitudinal profiling.
7. At miscellaneous areas of improvement where width is less than 11 feet, such as medians, gore areas, and shoulders.
8. As otherwise directed by the Engineer. The Engineer may confine the checking of through traffic lanes with the

straightedge to joints and obvious irregularities or choose to use it at locations not specifically stated in this Section.

(b) High-Speed Inertial Profiler

There shall be a minimum 3 profile runs per lane, for each wheel path (left and right) which is approximately three feet from edge lane line. The segment length shall be 0.1 mi. The final segments in a lane that are less than 0.1 mi shall be evaluated as an independent segment and pay adjustments will be prorated for length. The profiles shall be taken in the direction of traffic only.

The latest version of FHWA ProVAL software shall be used to conduct profile analysis to determine IRI and areas of localized roughness. The IRI values shall be reported in units of in/mi.

Areas of localized roughness will be identified by using ProVAL's "Smoothness Assurance" analysis, calculating IRI with a continuous short interval of 25 feet and the 250-mm filter applied.

Additional runs may be required by the Engineer if the data indicate a lack of repeatability of results. A 92% agreement is required for repeatability and IRI values shall have at minimum a 95% confidence level.

(N) Required Pavement Smoothness

The IRI for the left and right wheel paths in an individual lane will be computed and then averaged to determine the Mean Roughness Index (MRI) values. The MRI will be used to determine acceptance and pay adjustment. Each lane shall be tested and evaluated separately.

There are three (3) categories of target MRI values:

TABLE 401.03-2 – PAVEMENT SMOOTHNESS CATEGORIES		
Category	Description	MRI
Type A	Three or more opportunities for improving ride	Shall not exceed 60 in/mi
Type B	Two opportunities for improving ride	Shall not exceed 70 in/mi
Type C	One opportunities for improving ride	Shall not exceed 75 in/mi

An opportunity for improving ride is considered as one (1) lift of asphalt pavement, including but not limited to HMAB, HMA, PMA, and SMA

For the location where a 10-foot manual straightedge is required, the surface shall not vary more than 3/16 inch from the lower edge of a straightedge.

No pre-final inspection, final inspection, and substantial completion granted will be made until the pavement meets smoothness requirement and all required profile reports are submitted to the Engineer and MTRB and are accepted.

(O) Request for Profile Testing by the Department.

For Type C, prior to pavement activities, the Engineer will measure the smoothness of the existing pavement.

The Contractor shall submit a written request to the Engineer to perform all required profile tests.

The request shall be made at least 30 days before desired testing date and shall include an approximate acceptance profile testing date, a plan view drawing of the area to be tested with the limits of the test area highlighted.

The Contractor shall reimburse HDOT for any incurred cost related to any Contractor-caused cancellation or a deduction to the monthly payment will be made.

(P) Department Requirements for Profile Testing. When a request for testing is made, the requested area to be tested shall be 100% of the total area indicated to be paved in the Contract Documents unless the requirement is waived by the Engineer and MTRB.

Department acceptance surface tests will not be performed earlier than 14 days after HMA placement.

Clean debris and clear obstructions from area to be tested, as well as a minimum of 100 feet before and beyond the area to be tested before testing starts for use as staging areas. Provide traffic control for all profile testing.

The Engineer or MTRB or both may cancel the profile testing if the test area is not sufficiently clean, traffic control is unsatisfactory, or the area is not a safe work environment or test area does not meet Contract Document requirements. This canceled profile test will count as one profile test.

(Q) Cost of Acceptance Profile Testing by The Department. The Engineer, MTRB, or State's Third-Party Consultant will perform one initial profile test, at no cost to the Contractor for each area to be tested.

The Department's High-Speed Inertial Profiler pavement profile will be used to determine if the pavement's profile, i.e., smoothness is acceptable.

If the profile of the pavement does not meet the requirements of the Contract Documents, the Contractor shall perform remedial work, i.e. corrective work then retest the area to ensure that the area has the required MRI, i.e., smoothness, before requesting another profile test by the Engineer.

(1) Additional testing. Additional testing, by the Department beyond the initial test will be performed at cost to the Contractor as follows:

(a) \$2,500 per test will be required when Department personnel or State's Third-Party Consultant is used.

(R) Remedial Work for Pavements.

(1) Corrective work shall be required for any 25 ft interval with a localized roughness in excess of 160 in/ mi. The Engineer may waive localized roughness requirements for deficiencies resulting from manholes or other similar appurtenances. Adjust manholes or other similar appurtenances so that using a 10-ft. straightedge the area around that manhole or other similar appurtenance shall not have more than 3/16-in. variation between any 2 contacts on the straightedge.

i. If corrective action is not successful, the Engineer may require continued corrective action, or apply a payment adjustment of \$250 per occurrence.

(2) Corrective work shall also be required for any 0.1 mile interval with an average MRI above 95.0 in/mi for Types A and B. For Type A, correct the deficient section to an MRI of 60 in/mi or less. For Type B, correct the deficient section to an MRI of 70 in/mi or less. For Type C, corrective work may be required by the Engineer for 0.1 mile intervals that have an average MRI above the threshold shown in Tables 401.03-4 and 5 as applicable.

i. If corrective action does not produce the required improvement, the Engineer may require continued corrective action, or apply payment adjustment per Section 401.03S.

(3) The Contractor shall notify the Engineer at least 24 hours prior to commencement of the corrective work. The Contractor shall not commence corrective work until the methods and procedure have been approved in writing by the Engineer.

1195
1196 (4) All smoothness corrective work for areas of localized
1197 roughness shall be for the entire lane width. Pavement cross slope
1198 shall be maintained through corrective areas.
1199

1200 (5) The remedial repair areas shall be neat, rectangular areas
1201 having a uniform surface appearance.
1202

1203 (6) If grinding is used on HMA pavement, the surface shall have
1204 nearly invisible grinding marks to passing motorist.
1205

1206 (7) Other methods may include milling and overlaying HMA
1207 pavement. The length, depth of the milling and the replacement
1208 material will be solely decided by the Engineer.
1209

1210 (8) The finished repaired pavement surface shall leave no ridges
1211 or valleys or fins of pavement other than those allowed below.
1212

1213 (9) Remedial repairs shall not leave any drainage structures' inlets
1214 higher than the surrounding pavement or alter the Contract
1215 Document's drainage pattern.
1216

1217 (10) For items in the pavement other than drainage structures, e.g.,
1218 manhole frame and covers, survey monuments, expansion joints etc.,
1219 the finish pavement, ground or not, shall not be more than 1/4 inch in
1220 elevation difference. Submit to the Engineer remedial repair method
1221 to correct these conditions for acceptance.
1222

1223 (11) Pick up immediately grinding operation residue by using a
1224 vacuum attached to grinding machine or other method acceptable to
1225 the Engineer.
1226

1227 (a) Any remaining residue shall be picked up before the end
1228 of shift or before the area is open to traffic, whichever is earlier.
1229

1230 (b) Prevent residue from flowing across pavement or from
1231 being left on pavement surface or both.
1232

1233 (c) Residue shall not be allowed to enter the drainage
1234 system.
1235

1236 (d) The residue shall not be allowed to dry or remain on the
1237 pavement.
1238

(e) Dispose of all material that is the result of the remedial repair operation, e.g., HMA residue, wastewater, and dust at a legal facility.

(12) Complete corrective work before determining pavement thickness for HMA pavements in accordance with Subsection 401.03(I) – HMA Pavement Thickness Tolerances.

(13) All HMA wearing surface areas that have been ground shall receive a coating, e.g., a coating material that will restore any lost impermeability of the HMA due to the grinding of the surface. The coating used shall not be picked up or tracked by passing vehicles or be degraded after a short period of time has passed, i.e., it shall have a service life equal to or greater than the HMA pavement. The coating shall not decrease the pavement's friction value. The coating's limits shall be the full width of the lane regardless how small. If the remedial repair area extends into the next lane, then the repair area will be full lane width also. Extend the length of coating areas in order for the coating area to look like the rest of the road and does not have patches on it, i.e., make the road look uniform in color. The coating shall be of a color that matches the surrounding pavement. The areas receiving the coating shall not be open to traffic until it has cured enough so that it cannot be picked up or tracked by passing vehicles or degrade. Submit means and methods of the coating and type of coating to the Engineer or MTRB for review and acceptance. Do not proceed with the coating without acceptance from the Engineer.

(14) Recompact cold HMA, i.e., HMA that has reached ambient temperature is not an acceptable remedial repair method.

(15) Replace all pavement markings damaged or discolored by remedial repairs.

(16) Reprofile the corrected area and provide the Engineer the results that show the corrective action, i.e., remedial repairs were successful.

(S) Pavement Smoothness and Acceptance.

(1) Price and payment in various paving sections, e.g., 401 (Hot Mix Asphalt Pavement), shall be full compensation for all work and materials specified in the various paving sections and this section, including but not limited to furnishing all labor, materials, tools, equipment, testing, incidentals and for doing all work involved in micro milling, milling,(cold planing), grinding existing or new pavement, removing residue, cleaning the pavement, necessary disposal of

1285 residue, furnishing of any water or air used in cleaning the pavement
1286 and any other related ancillary work or material or services. Also, it
1287 includes any remedial work, e.g., re-paving, surface grinding,
1288 application of a coating, curing compound, and replacement of
1289 damaged pavement markings.
1290

1291 **(2)** The contract price in those sections may be adjusted for
1292 pavement smoothness by the Engineer. The pavement smoothness
1293 contract unit price adjustments and work acceptance will be made in
1294 accordance with the following schedules.
1295

TABLE 401.03-3 –SMOOTHNESS PAY INCENTIVES		
Category	MRI (in/mi)	Pay Adjustment \$ per 0.1 mi
Type A	<30.0	\$580
	30.0- less than 35.0	\$480
	35.0- less than 40.0	\$380
	40.0- less than 45.0	\$280
	45.0- less than 50.0	\$180
	50.0- less than 55.0	\$80
	55.0- less than 60.0	\$0
Type B	<35.0	\$420
	35.0- less than 40.0	\$360
	40.0- less than 45.0	\$300
	45.0- less than 50.0	\$240
	50.0- less than 55.0	\$180
	55.0- less than 60.0	\$120
	60.0- less than 65.0	\$60
	65.0- less than 70.0	\$0
Type C	<40.0	\$280
	40.0- less than 45.0	\$240
	45.0- less than 50.0	\$200
	50.0- less than 55.0	\$160
	55.0- less than 60.0	\$120
	60.0- less than 65.0	\$80
	65.0- less than 70.0	\$40
	70.0- less than 75.0	\$0

(3) Pay Pavement Smoothness Adjustment will be based on the initial measured MRI for both left and right wheel path, prior to any corrective work for the 0.10-mile section, except for sections that the Contractor has chosen to remove and replace. For sections that are replaced, assessments will be based on the MRI determined after replacement.

(a) The Pavement Smoothness Adjustment will be computed using the plan surface area of pavement shown in the Contract Documents. This Pavement Smoothness Adjustment will apply to the total area of the 0.10-mile section for the lane width represented by MRI for the same lane. It does not include any other price adjustments specified in the Contract Documents. Those price adjustments will be, for each adjustment, calculated separately using the original contract price to determine the amount of adjustment to be made to the contract price. Sections shorter than 0.1 mile and longer than 50 feet shall be prorated.

(b) For 0.1 mile intervals with an average MRI above the threshold shown in Table 401.03-3, the Engineer shall apply a disincentive payment adjustment up to the limit shown.

- i. For Types A and B, payment adjustments shall be applied up to an MRI of 95.0 per Table 401.03-4.
- ii. For Type C, the payment adjustment shall be dependent on the average MRI of the pavement prior to paving activities
 1. If the MRI of the pavement prior to paving activities is 125.0 in/mi or less, the payment adjustment shall be per Table 401.03-4.
 2. If the MRI of the pavement prior to paving activities is more than 125.0 in/mi, the disincentive payment adjustment shall be per Table 401.03-5, and based on the percent improvement using the following formula:

% Improvement = (Initial segment MRI – Final segment MRI) x 100 / (Initial Segment MRI)

1341

TABLE 401.03-4 –SMOOTHNESS PAY DISINCENTIVES WITH MRI		
Category	MRI (in/mi)	Pay Adjustment \$ per 0.1 mi
Type A	60.0- less than 65.0	-\$100
	65.0- less than 70.0	-\$250
	75.0- less than 80.0	-\$350
	80.0- less than 85.0	-\$450
	85.0- less than 95.0	-\$550
	> 95.0	Corrective Work
Type B	70.0- less than 75.0	-\$100
	75.0- less than 80.0	-\$200
	80.0- less than 85.0	-\$300
	85.0- less than 95.0	-\$400
	> 95.0	Corrective Work
Type C (pre-paving MRI < 125)	75.0- less than 80.0	-\$50
	80.0- less than 85.0	-\$100
	85.0- less than 90.0	-\$150
	90.0- less than 100.0	-\$200
	>100.0	-\$250

1342

TABLE 401.03-5 –SMOOTHNESS PAY DISINCENTIVES FOR PERCENT IMPROVEMENT		
Category	Percent Improvement %	Pay Adjustment \$ per 0.1 mi
Type C	≥ 40	\$0
(pre-paving MRI > 125)	20.0- less than 40.0	-\$100
	< 20	-\$200

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(c) Incentives will not apply to areas where payment deductions or remedial repairs has been made for non-compliant work, e.g., low compaction, thin pavement, thermal segregation, low compressive or flexural strength, non-compliant alignment. Incentives will also not apply to areas where corrective work was required to meet contract

smoothness requirements, unless the pavement section was replaced.–All areas where corrective work was performed shall be tested again to ensure the smoothness requirements are met.

(d) There will be no incentive price adjustments to the contract prices regardless of the pavement meeting the Contract Documents' requirements for incentive contract price adjustment, when 25% of the total area paved of that particular type of pavement on the project has failed to meet any of the Contract document requirements, e.g., smoothness, thickness, unit weight, asphalt content, pavement defects, compaction, flexural or compressive strength. Areas exempt from the smoothness requirements may not be included in the total area calculation unless it is non-compliant.

(e) For contracts using lump sum the method described in Subsection 104.06 Methods of Price Adjustment paragraph (3), will be used to calculated proportionate unit price, i.e., the Engineer's calculated theoretical unit price. This calculated proportionate unit price will be used to calculate the unit price adjustment.

(T) Third-party Profile Testing.

(1) The Engineer may choose to have a third-party testing entity do the pavement profile and to process the data into a recommendation for acceptance or rejection of the pavement's smoothness.

(2) The third-party testing entity will be chosen by agreement and acceptance by the HDOT's Highway Materials Testing Research Branch (MTRB), and the Engineer. If no agreement can be reached the MTRB will choose the third-party testing entity as its sole recognizance.

(3) The third-party testing entity will be paid by the Department by deducting the Allowance amount from the Contractor's payment.

(a) The Allowance amount will cover the third-party testing entity's cost to do the project's pavement profile, e.g., fees, transportation, lodging, additional equipment, training and supplies, plus a 10-percent processing fee for the Department. This includes all the initial acceptance profile testing. All surplus material will be turned over to the MTRB at the end of the pavement profile testing including all data and reports

generated by the third-party testing entity or items requested by the MTRB. Surplus material, data, reports, etc. will be in the sole custody of the Department for its use and reference.

(b) If retesting of the pavement profile is done by the third-party testing entity it will be paid based on the submitted invoices and receipts plus a 10-percent processing fee for HDOT. This testing is retesting required due to the Contractor's failure to meet the Contract Document's requirements and not the profile testing done for the dispute resolution process.

(U) Dispute Resolution Procedures.

(1) If the Contractor has determined that its pavement profile has met the Contract Document requirements, but the Engineer's pavement profile has found the pavement profile does not meet the Contract Documents requirements it may dispute the Engineer's findings if it is so inclined. It shall follow the Pavement Smoothness Dispute Resolution Procedure.

(2) The Pavement Smoothness Dispute Resolution Procedure is as follows:

(a) Submit with the resubmittal of the pavement profile and data of the disputed area, a notice informing the Engineer that the results of the Engineer's pavement profile are being disputed and request a copy of the Engineer's pavement profile and data.

(b) If after receiving the Engineer's pavement profile and data and doing a detail analysis of the documents, the Contractor still feels that the Engineer's pavement profile is in error submit a document notifying the Engineer of that fact along with the detailed analysis of the Engineer's pavement profile and data showing where the errors were made and if corrected the pavement profile would meet the Contract Document requirements.

(c) The Engineer upon receiving the Contractor's pavement profile documents will do a detailed analysis of the document to find any errors that may have caused the Contractor to believe the pavement profile was acceptable.

(d) If either party discovers their position was in error notify the other party of the change in position and take appropriate action.

1442
1443 (e) If both parties maintain that their positions are correct,
1444 then both parties shall meet to discuss and present their
1445 positions. If the Department used a third-party testing entity it
1446 shall also attend. Both the Department and the Contractor shall
1447 and will bring a copy of their submittal to the meeting. Parties
1448 involved shall be allowed to inspect the other party's
1449 documents to verify that it had been presented to them before.
1450 Before the meeting starting, the submittals are to be placed in
1451 a box and sealed and given to a Materials Testing Research
1452 Branch (MTRB) personnel. The MTRB is an HDOT entity,
1453 however in this instance it shall be regarded as a neutral party.
1454 It is mandatory that during the meeting all parties are to be
1455 transparent and have an open discussion with the goal being
1456 reaching an agreement. If after the following has occurred:

1457
1458 (f) If after meeting or after having several meetings with all
1459 parties and having performed their due diligence in meeting the
1460 above meeting's requirements the Department and the
1461 Contractor agree that they have come to an impasse in
1462 discussions i.e., further discussions would be futile.

1463
1464 (3) An impasse will be declared, and no further meeting shall be
1465 suspended. If an impasse cannot be agreed to then one more meeting
1466 shall be held with both parties attending giving their due diligence in
1467 the goal of coming to an agreement. Within 48 hours after the last
1468 meeting a third-party pavement profile testing entity will be chosen to
1469 evaluate the Department's and Contractor's submittals or run a new
1470 smoothness profile or both.

1471
1472 (4) The third-party pavement profile testing entity shall evaluate the
1473 documents being held in the sealed box by the MTRB.

1474
1475 (5) No additional documents shall be added by the Contractor or
1476 the Department unless it was presented during the meetings. If
1477 additional documents were used during the meetings the following
1478 shall be done.

1479
1480 (a) Both HDOT and the Contractor will meet to put the
1481 documents presented during the meetings into a box, then seal
1482 it and turn it over to MTRB.

1483
1484 (b) Parties involved shall be allowed to inspect the other
1485 party's documents to verify that it had been presented during
1486 the meetings.

(c) If it should feel that this is new material the document can be marked as such. The document then will be put into the box and sealed.

(d) The party that feels it discovered a new document is required to submit a document listing the document it feels was previously not presented and any additional information related to it. It shall not be used to submit additional information or arguments not previously discussed. This submittal shall be submitted to the other party and the third-party pavement profile testing entity through the MTRB.

(7) The third-party pavement profile testing entity after analyzing all the data it gathered and was given shall make a report and provide a recommendation. It shall meet with all parties at one time, discuss the recommendations and show where the errors occurred causing the erroneous position.

(8) The Department or the Contractor may reject the third-party pavement profile testing entity's recommendation. Notification of the rejection shall be within three working days after the meeting. The Contractor shall perform any additional work required if the recommendation is not favorable to it. The Contractor shall pay the third-party pavement profile testing entity invoice for its work done regardless of recommendation. The Contractor may file a claim if it still feels it is correct. The Contractor shall comply with the requirements in Subsection 107.16 Disputes and Claims. The Contractor's claim shall be regarded as a new claim and the Engineer will regard it as such. Since all documents have been evaluated the Engineer will expedite the claim process after it initial claim requirements are met to Subsection 107.16(G) Appeal of the Engineer's Decision to obtain the Director's decision.

(9) Payment for the total cost of the third-party pavement profile testing entity's dispute resolution work is the responsibility of the party that its recommendation found was in error. If the recommendation finds the Department the erroneous party the Department will reimburse the Contractor in the amount of the third-party pavement profile testing entity's invoice with no additional overhead or profit added. If portions of the profile testing were correct in some areas and erroneous in others the cost of the third-party pavement profile testing entity's dispute resolution work shall be split in proportion to the erroneous area verses the total area reviewed.

401.04 Measurement.

(A) The Engineer will measure PMA pavement overlay per ton in accordance with the Contract Documents.

(B) Engineer will measure additional State pavement profiling work when applicable on a cost-plus basis as specified in this section and as ordered by Engineer. The Engineer will issue a billing for the pavement profile work done for the time period with the invoices and receipts that the billing was based on attached to the Contractor for each contract item. The Contractor's pavement profile work required in this section will not be measured and will be considered incidental to the various paving items unless stated otherwise.

401.05 Payment. The Engineer will pay for the accepted HMA pavement at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and the contract documents.

(A) Price and payment in Section 401 – HMA Pavement will be full compensation for all work and materials specified in this Section including furnishing all labor, materials, tools, equipment, testing, pavement profiles, cold planing, and incidentals and for doing all work involved in grinding existing or new pavement, removing residue, and cleaning the pavement, including necessary disposal of residue and furnishing any water or air used in cleaning the pavement and remedial work needed to conform to the requirements of the Contract Documents.

(B) No payment for the Contractor's pavement profile work required in this section will be made. The Contractor's pavement profile work shall be considered incidental to the various paving items unless stated otherwise.

(C) Engineer will deduct from the Contractor's monthly estimate the amount necessary to pay for the services of a third-party pavement profile testing entity plus the additions specified in the Contract documents. Payment will be full compensation for work prescribed in this section, required by the Engineer and Contract Documents. No payment for the Contractor's pavement profile work required in this section will be made. It will be considered incidental to the various paving items unless stated otherwise.

(D) Engineer will pay or deduct for the following pay items when included in proposal schedule:

1576	Pay Item	Pay Unit
1577		
1578	Pavement Smoothness Incentive	Allowance
1579		
1580	Third-Party Profile Testing and Equipment	Allowance
1581		
1582	Third-Party Dispute Resolution Profile Testing	Allowance
1583		
1584	2 Inch PMA Pavement Overlay, Mix No. IV	Ton
1585		
1586	(1) 70% of the contract unit price or the theoretical calculated unit	
1587	price upon completion of submitting a job-mix formula acceptable to	
1588	the Engineer; preparing the surface, spreading, and finishing the	
1589	mixture; and compacting the mixture.	
1590		
1591	(2) 20% of the contract unit price or the theoretical calculated unit	
1592	price upon completion of cutting samples from the compacted	
1593	pavement for testing; placing and compacting the sampled area with	
1594	new material conforming to the surrounding area; protecting the	
1595	pavement; and compaction acceptance. Maintain temporary	
1596	pavement markings and other temporary work zone items, maintain a	
1597	clean work site.	
1598		
1599	(3) 10% of the contract unit price or calculate the unit price when	
1600	the final configuration of the pavement markings is in place.	
1601		
1602	The Engineer may, at its sole discretion, in lieu of requiring removal and	
1603	replacement, use the sliding scale factor to accept HMA pavements compacted	
1604	below 93.0 percent and above 97.0 percent. The Engineer will make payment for	
1605	the material in that production day, if the Engineer decides to use a sliding scale	
1606	factor, at a reduced price arrived at by multiplying the contract unit price by the pay	
1607	factor. The Engineer is not obligated to allow non-compliant work to remain in place	
1608	and may at any time chose not to use a sliding scale factor method of payment and	
1609	instead require removal of the noncompliant pavement that is greater than 97.0 or	
1610	less than 93.0.	
1611		
1612	In compliance with Subsection 105.12 Removal of Non-Conforming and	
1613	Unauthorized Work remove and replace HMA compacted below 90.0 percent.	
1614		
1615	The Engineer will solely decide if the noncompliant work would be acceptable	
1616	if a reduced payment for the noncompliant work is made. The Engineer is not	
1617	obligated to allow noncompliant work to remain in place and may at any time choose	
1618	not to use a sliding scale factor method of payment as a method of resolution.	
1619	Instead, utilize the remedy allowed in Subsection 105.12 Removal of Non-	
1620	Conforming and Unauthorized Work, requiring removal of the noncompliant	
1621	pavement, shall be used.	

Such a reduced payment, if made and accepted by the Contractor, shall be a mutually agreeable resolution to the noncompliant work being addressed. If it is not mutually acceptable, the noncompliant work shall be removed. If the reduced payment is acceptable; the Engineer will make the reduced payments for the noncompliant work in accordance with Table 401.05-2 - Sliding Scale Pay Factor for Compaction. The amount of tonnage to be reduced will be determined by the Engineer by using the initial cores taken on the mat. No additional cores shall be taken to determine the limits of the non-compliant area unless requested by the Engineer.

The Engineer, for determining the reduced tonnage for noncompliant work, will assume the level of compaction is linear and will proportion the compaction level from the last core that indicated an acceptable compaction level to the nearest core indicating a noncompliant compaction level to determine the calculated limit of acceptable compaction. The length will be the linear distance between the cores measured along the baseline. If there is no core that was taken for the shift's or day's work that were compliant then the limit will be the end or start of the day's or shift's work. The width will be the nominal paving width. Use the day's specific gravity of the mix to determine tonnage. The thickness will be the nominal paving thickness.

The total reduced noncompliant tonnage to be paid will be determined by multiplying the applicable percent of reduction by the computed tonnage of the noncompliant work. Percent of Quantity Paid shall be the percentage shown in Table 401.05-2 - Sliding Scale Pay Factor for Compaction. The reduced tonnage shall be used as the payment quantity for the noncompliant work. The reduced quantity paid that is used for the monthly payment will be arrived at by multiplying the contract unit price by the reduced tonnage.

Table 401.05-2 – Sliding Scale Pay Factor for Compaction	
Percent Compaction	Percent of Quantity Paid
> 98.0	Removal
>97.0 - 98.0	95
93.0- 97.0	100
90.0 - <93.0	80
<90.0	Removal

END OF SECTION 401

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

PRE-BID MEETING ATTENDANCE AND MINUTES FOR

Project Title: Mamalahoa Highway Resurfacing
Mile Post 9.74 to Mile Post 12.28

Project No.: STP-0190(019)

Date, Time & Place: Thursday, May 19, 2022, 10:00 a.m. Hawaii Standard Time (HST).
Pre-bid meeting was held virtually on Microsoft Teams.

Attendees:

Name	Organization/Company	Contact Information
Sam Peng Ho	Jas. W. Glover, Ltd.	samh@gloverltd.com (808) 591-8977
Jason Ames	Grace Pacific	james@gracepacific.com
Cole Millare	Grace Pacific	cmillare@gracepacific.com
Clifford Corpuz	HDOT, HWY-H	clifford.a.corpuz@hawaii.gov
Emma Kawamoto	HDOT, HWY-DD	emma.g.kawamoto@hawaii.gov
Jennifer Russell	HDOT, HWY-DD	jennifer.t.russell@hawaii.gov
Daniel Williams	HDOT, OCR-D	daniel.k.williams@hawaii.gov

Items of Discussion:

- A. Emma Kawamoto (HDOT HWY-DD) called the meeting to order at 10:00 a.m. and noted the following:
1. Anything said at the meeting was for clarification only. The bid documents shall govern over anything said in the meeting and discrepancies shall be clarified by addendum.
 2. Summarized the scope of work as described in the Notice to Bidders.
 3. Read questions #1 through 8 that were submitted in HlePRO prior to the pre-bid meeting.
- B. Daniel Williams (HDOT OCR-D) discussed the following Small Business Enterprise (SBE) requirements.
1. The SBE goal for this project is none specified. Use of SBE(s) is voluntary.
 2. Bidders were advised to document any discussions, phone calls, faxes or memos relating to their efforts in their communications with any SBEs they plan to voluntarily utilize for this project.

3. Any SBE(s) utilized for this project must be certified by the bid opening date. Bidders are advised to verify that SBE(s) are certified by checking the DBE directory at <https://hdot.dbesystem.com/>.
4. Bidders who plan to voluntarily use SBE(s) for this project must submit the SBE Confirmation and Commitment Agreement Form within 5 days after bid opening by 4:30 p.m.
5. Bidders who plan to voluntarily use SBE(s) for this project shall adhere to the SBE requirements.
6. Since this is a federally-funded project, HDOT will be monitoring prompt payment to SBE and non-SBE contractors through the Certification and Contract Compliance Management System.
7. Bidders who are considering bidding on this project or other HDOT projects were instructed to complete a bidder registration. If bidders have already completed one for another HDOT project, they do not need to complete a new form. The following link to the form was provided: <https://hidot.hawaii.gov/administration/files/2019/03/Bidder-Registration-Fillable-Form.pdf>.

C. Bidders were invited to ask questions.

1. If we send out a subcontractor request for this project and the low bidder is a qualified small business, are we required to submit the SBE forms? Do we need to submit the Goal Verification and Good Faith Efforts form?

Response: The SBE Confirmation and Commitment Agreement form must be submitted. The Goal Verification and Good Faith Efforts form does not need to be submitted.

2. Based on the description for pavement markings on this project, can you clarify that we are installing temporary markings and are not required to install permanent markings?

Response: Yes, this project involves installing only temporary markings.

3. How long are we going to be responsible for replacing or maintaining the temporary markings?

Response: Time frame would be around 6 months.

D. The following reminders were given:

1. All requests for information (RFIs) must be submitted in writing through HlePRO no less than 14 calendar days before bid opening. Bid opening is currently scheduled for Tuesday, June 14, 2022, at 2:00 p.m., so questions are due by Tuesday, May 31, 2022, at 2:00 p.m. Any questions received after the deadline will not be addressed and verbal RFIs will not receive a response.
2. Bidders who plan to voluntarily utilize SBE(s) for this project shall email all of the required SBE documents to emma.g.kawamoto@hawaii.gov by Monday, June 20, 2022.

E. The meeting concluded at 10:10 a.m.

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

Project Title: MAMALAHOA HIGHWAY RESURFACING
MILE POST 9.74 TO MILE POST 12.28
ISLAND OF HAWAII

Project No.: FEDERAL AID PROJECT NO. STP-0190(019)

Prospective bidders had submitted RFIs in HlePRO. Questions and responses are as follows:

1. Can used signs, posts and hardware be used for Advisory and Construction Work Zone Signs if they are required for the project?

Response: No, per Section 645.03 (B), the signs shall be new.

2. This project has a "none specified" SBE Project Goal. Is the SBE contract goal percentage (filled out by the contractor on P-4) a factor in determining selection of contractor for project award?

Response: The SBE contract goal percentage (filled out by contractor on P-4) is not a factor in determining the selection of a contractor for project award.

3. Please confirm that the "SBE Contract Goal Verification and GFE Documentation for Construction," "SBE Confirmation and Commitment Agreement - Trucking Company" and "SBE Confirmation and Commitment Agreement - Subcontractor, Manufacturer, or Supplier" forms are not required to be submitted if the bidder does not have committed SBE at the time of the bid.

Response: The "SBE Contract Goal Verification and GFE Documentation for Construction", "SBE Confirmation and Commitment Agreement – Trucking Company" and "SBE Confirmation and Commitment Agreement – Subcontractor, Manufacturer, or Supplier" forms are not required to be submitted if the bidder elects not to utilize SBE(s) for this project.

4. Are Post mounted Advisory Boards (Notice to Motorist) Required Per Spec 645.03(G) Advisory Signs. Submit advisory sign shop drawings. Construct, install, maintain, and remove two advisory signs as ordered by the Engineer. Place signs at locations designated by the Engineer. Provide signs, minimum 8 feet wide by 4 feet high, with black letters on orange background, and with three 4,00 pounds/foot flanged channel posts for each sign? If so, can you please provide the locations?

Response: Yes. Exact location will be determined by the Engineer in the field but it's typically located 1,000 feet away from the first post mounted construction sign. See addendum for the plans of the construction work zone signs.

5. Can you please provide a detail plan sheet for the Construction Work Zone signs in the special provisions sheet 645-2a section 645.03(B) line 78?

Response: See addendum for the plans of the construction work zone signs.

6. On sheet plan sheet 10 there are Type III Object Markers (Bridge Markers) - can you please clarify the pay item?

Response: Object markers will not be replaced under this project.

7. On plan sheets 10 - 15 there are RM-3s, can you please provide clarification if these are on steel or flexible posts, can you also clarify the pay item?

Response: R-3's will not be replaced under this project.

8. On plan sheets 10 - 15 there are Regulatory, warning and route marker signs, can you also clarify the pay item?

Response: These signs will not be replaced under this project.