

2015 - Payment Methods for Production Paving

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Please give your agency name.	Please give your contact information.	What unit of measure do you use to pay for production concrete paving?	How do you verify the proper weight, area, volume, and/or thickness for payment?	What unit of measure do you use to pay for production HMA paving?	How do you verify the proper weight, area, volume, and/or thickness for payment?	Have you encountered any problems/concerns with the measures or methods of payment you are using?	Do you have any comments or additional information?
Alabama	Jeff Benefield 334-242-6213 benefieldj@dot.state.al.us	Per square yard	The Contractor is required to probe the pavement at regular intervals to check thickness. We verify using the magnetic imaging technology (MIT) Scan T2. If these measurements vary by more than 0.10", coring of the pavement is required.	Per ton	Placement rate is specified in lbs/SY. We check the actual rate every 5,000 SY to insure that the specified rate is being met within the allowable tolerances.	We use very little concrete pavement, so there's not a lot of experience to draw on. Regarding asphalt pavements, our specs allow a pay deduction if the contractor exceeds the placement tolerances (see specifications). Based on a recent in-state survey, we have found that our contractors are doing a very good job at staying within the placement tolerances and thereby avoiding any pay deductions.	Our current specifications governing concrete and asphalt pavements are available.
Connecticut DOT	Lewis Cannon 860-594-2680 lewis.cannon@ct.gov	We do not do concrete paving, we are strictly a Bit. State	Not applicable	Ton	We pay by the actual delivery tickets, as long as the tonnage falls within allowable tolerances per area paved.	Our age old problem has been how to average the thickness of multiple courses in determining tolerances.	Our typical factor is tons/SY/inch of thickness in determining the average thickness and subsequent payments.
District DOT	Ali Shakeri 202-671-4612 ali.shakeri@dc.gov	Square Yard	Field measurement of area, and thickness for payment.	Tons	Field measurement of area, and thickness for payment	No	All quantities are reconciled daily
Delaware DOT	Chris Costello 302-326-4401 chris.costello@state.de.us	Square Yard	We cut cores. If the pavement is thinner than the plan depth, there are payment reductions and thresholds requiring removal and replacement.	Tons	Inspectors perform yield checks.	We have occasional disputes over pavement thicknesses, and we've had problems with weight tickets being inaccurate or incorrect.	Paying by ton is difficult when working with contractors that are hard to trust, but the suppliers demand that we conduct business that way.
Florida	Rich Hewitt 386-943-5305 richard.hewitt@dot.state.fl.us	Square Yard	A) We verify proper thickness by cutting cores after grinding (we grind all of our concrete pavements). B) Pay is adjusted by following formula. When determining the average thickness, the maximum individual core thickness used is limited to "x" over the specified thickness. That way a contractor can't go super thick in an area to offset other thin areas. C) Adjustment (SY) = (actual core thickness - specified thickness) / specified thickness * Project SY. Maximum total over thickness paid for on a project is "x" above the specified thickness. D) You can access our Specifications at the link in column 6 and go to Section 350-17 for the language on thickness and payment.	Ton, except that asphalt base is paid by the square yard. Since asphalt base is usually a base option (and other options are earthwork that are paid in square yards), asphalt base is paid in square yards.	Weight - Contractor uses certified scales and net weights of asphalt are printed on truck tickets. Thickness - We determine target spread rate based on the mix design's Gmm for the mix used in a LOT. (For FCS, the Gb is used.) Payment - We are changing our policy for projects let July 2015 and after. The new system is much simpler, so I'll try to explain that. On a project-wide basis, we will pay the tonnage placed (tonnage on asphalt producers truck tickets), up to 105% of the "adjusted" plan quantity. First let me explain the plan quantity, then how we adjust it. The plan quantity is determined by the designer based on an assumed Gmm of 2.540. So to adjust it for the mixes actually used on the project, for a given pay item we divide the plan quantity by the 2.540 used as the Gmm when determining design quantity, then multiply that by the tonnage-weighted Gmm for the mixes actually used on the project for that pay item. Then as stated, we pay what was placed up to 105% of that adjusted plan quantity. If I've lost you, feel free to call me. You can access our Specifications at the link in column 6 and go to Section 334 for our asphalt pavement Specs. There are other Sections of the Spec that deal with asphalt, however 334-7 deals with the payment language.	Asphalt-We measure spread rate over a 5 truck pull so you could potentially have thickness fluctuations within that, but we've had good performance out of most of our pavements so I don't believe this method has significant issues. Concrete- I believe coring is an acceptable method, however on 3 developmental spec projects we are researching a method of probing freshly placed (uncured) concrete. This holds the hope of eliminating or at least reducing coring for thickness.	We primarily have asphalt pavement on our state roads (about 97% asphalt, and 3% concrete). Also, have been piloting a smoothness incentive/disincentive IR spec for past couple years with very good results. http://www.dot.state.fl.us/programmanagement/implemented/Specbooks/july2015/Files/715eBook_RevISED.pdf
Georgia DOT	Marc Mastronardi 404-631-1970 mmastronardi@dot.ga.gov	Square Yard	GDOT approved mix designs address the mix, field inspection of forms/equipment but verification of placement depth is measured by wet probe with tolerances for pay factors of too thin.	Primarily Tons, but have used SY and LS as well.	GDOT approved mix designs, field measurements, core extractions	We often hear about yield concerns on SY pay items. We direct the conversation back to the specifications and let the prime and subs dispute who impacted the yield, i.e., asphalt interlayer being paved too thick resulting in thin pcc pavement and stay out of the fray.	"tons" are ticketed items bearing a certified public weigher seal. The scales are certified and regulated by our Dept. of Agriculture.
Indiana DOT	Greg Pankow 317-232-5502 gpankow@indot.in.gov	INDOT pays for QC/QA concrete paving by the square yard.	Proper weight and volume are checked by trial batch demonstrations prior and by yield testing during pours. The pavement thickness is reviewed based on coring the pavement after the placement is in place. The area for payment is measured by the square yard of the thickness specified. The area of QC/QA-PCCP is the planned width of the pavement multiplied by the length of the pavement. The length of the pavement is measured parallel to the surface of the pavement along the centerline of the roadway or ramp, excluding paving exceptions as shown on the plans.	INDOT pays for QC/QA HMA by the ton. The measured quantity is divided by a material adjustment factor, MAF, to determine the pay quantity. The MAF equals the Gmm from the mixture design divided by the following: 2.465 for 0.5 mm mixtures and 2.500 for 12.5 mm, 19.0 mm, and 25.0 mm mixtures. If the MAF calculation results in a value where 0.980 ≤ MAF ≤ 1.020, then the MAF shall be considered to be 1.000. If the MAF is greater than 1.020, the calculated 110 MAF value shall have 0.020 subtracted from the value. If the MAF is less than 0.980, the calculated MAF value shall have 0.020 added to the value. The MAF does not apply to OG mixtures. Adjustments are made to the contract payment with respect to mixture, density and smoothness for mixture produced are included in a quality	The Contractor supplies a Design Mix Formula from a Volumetric Mix Design for INDOT review and approval. INDOT field inspection performs random check on paving widths during placement and also performs checks on lay rates (yield) during paving. INDOT requires weigh tickets for all truckloads weighed on approved scales which are tested and sealed by the Indiana State Board of Health.	We do not have any issues until we get into the bonuses for HMA vs. PCCP.	
Iowa	Greg Mulder greg.mulder@dot.iowa.gov	Square Yard	Iowa uses standard coring and also some NDT MIT thickness gauges for thickness determinations. The coring requirements for thickness do not apply to detour pavements, paved drives, and temporary pavements. The thickness of pavement constructed will be determined from core depths as follows: a) The division of sections, lots, and core locations will be according to Materials I.M. 346. b) At locations determined by the Engineer, cut samples from the pavement, as directed above, by drilling with a core drill that will provide samples with a 4 inch (101.6 mm) outside diameter. Restore the surface by tamping low-slump concrete into the hole, finishing, and texturing. The Engineer will witness the core drilling, and identify and measure the cores immediately. The Engineer will measure the cores and determine the thickness index according to Materials I.M. 346. After measurement on the grade, deliver the cores to the Engineer's office or field laboratory. When cores are not measured on the grade, the Engineer will take immediate possession of the cores. c) Coring of pavement and other work for thickness determination may be waived by mutual agreement for sections of the same design thickness less than 5,000 square yards (4200 m ²). d) Only sections which are cored will be included in the thickness index determination. Areas not cored will be paid for at the contract unit price. HMA - Our specifications are located here: http://www.iowadot.gov/erl/current/GS/content/2303.htm	Weight (tons) Iowa pays for the binder separately by weight also.	Approved mix designs and cores.	No	I'd also add that we pay for PCC overlays by the square yard for placement and cubic yard for furnishing the mix. Thickness of PCC overlays is verified by plastic depth checks only. No coring. When we profile mill an existing HMA surface prior to a PCC overlay, we require the contractor to provide an estimated cubic yardage of concrete for the overlay. This provides an additional method of monitoring grade yield.
Kansas DOT	Susan Eisman 785-296-7138 eseman@ksdot.org	Square Yard	We core payments after they have been ground for smoothness.	Reconstruction or new pavements by SQYD. Overlays by Tons	We core payments after they have been ground for smoothness. We also look at lift thickness, since our mixes change due to depth location, there are deducts for too thin thickness to stop contractors from placing cheaper mixes	Some time on the HMA thickness when checking mix types.	The SQYD pavements bid items are - HMA Pavement (R)(#) and HMA Pavement (R)(shoulder). Here is the link: http://www.ksdot.org/Assets/www.ksdotorg/bureaus/bur.ConsMain/spec/prov/2015/602.pdf
Kentucky	Ryan Griffith 502-564-4780 ryan.griffith@ky.gov	Square Yard	Field measurement of area, and thickness for payment. KYTC approves mix designs for concrete.	Tons	Material must be weighed by approved scales that are inspected every 3 months. Job Mix Formula (JMF) must be approved by the Engineer. Field measurement of thickness during laying of material. Cores taken at randomly selected sites to check thickness and density.	No	
Maine DOT	Scott Bickford 207-215-3857 scott.bickford@maine.gov	Maine doesn't do any concrete paving.	N/A	Ton (includes everything – production, laydown, liquid and QC testing)	Field verified depth – certified weigh slips for tonnage.	No	
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Massachusetts DOT	Michael McGrath 857-368-9540 michael.a.mcgrath@state.ma.us	Square Yard	Field verification by measurement of area and thickness for payment purposes. MassDOT approves mix design.	Tons	Weight tickets are provided on site prior to placement. Filed staff verifies by yield calculation based on measurements taken during placement. MassDOT approves all HMA mix designs.	No	
Michigan DOT	Michael Eacker 517-322-3474 eackerm@Michigan.gov	Square Yard	Area is paid for in one of two ways: field measurements of the area as placed, or a combination of field measurements and plan quantities. The plan thickness is verified through cores taken from random locations.	Tons	Volume is paid for based on weight tickets received from each truck. Thickness is verified through random yield checks.	One paving industry claims that the unequal pay basis between the two pavement types creates an increased amount of risk on their contractors compared with the other industry. For alternate pavement bidding projects, the Department has decided to pay for both pavement types by the square yard which has caused the need for additional special provisions and changes in our inspection/verification methods from those traditionally used for HMA.	
Nebraska DOR	Claude Oie 402-479-4535 claude.oie@nebraska.gov	Square Yard	Core for thickness and strength with associated deductions.	Tons	Probe during production to maintain proper thickness. Core for thickness.	Occasionally the Concrete Industry makes noise about not getting paid for extra thickness. We tell them NO.	
Nevada	Sharon Feerschler 775-888-7228 sfeerschler@dot.state.nv.us	Square Yard	Field measurement, lab testing and coring	Tons	Field measurement, lab testing and coring	Yes, at times, the contractor will place additional depth due to payment by tons	
New Hampshire DOT	Theodore Kitis 603-271-2571 tkitis@dot.state.nh.us	NH does not do any concrete paving.		We pay for HMA paving by the Ton	We obtain truck slips for each HMA delivery to compute daily tonnage of asphalt. We verify thickness with cores.		After the wearing course is placed we take 6" dia. cores of the entire HMA thickness. This core is used for QC/QA pay factor calculations (voids, thickness). The core locations are determined by random locations in each sub-lot. Thickness is measured with a scale for each core. You can clearly see each HMA lift on the extracted core. Then a thickness pay factor is calculated taking the standard deviation for all cores into account.
New Jersey DOT	Al Balluch al.balluch@dot.nj.gov	Square Yard	We measure and calculate the area and volume. The theoretical volume is compared to the delivery tickets.	Ton	We measure then calculate the area and tonnage. The theoretical tonnage is compared to the delivery tickets.	We are investigating the Contractors providing a thicker HMA pavement than designed. We are looking to establish a deduction in payment for overly thick HMA pavements beyond a tolerance.	
North Carolina DOT	Ronald Hancock 919-707-2401 rhancock@ncdot.gov	Square Yard	Cores to verify final thickness.	Tons	Calculation of paving rates using tons placed and area covered.	Our concrete paving association has also indicated similar concerns and has requested to be paid by the cubic yard.	
North Dakota DOT	Cal Gendreau 701-328-2563 cgendrea@nd.gov	Square Yard	NDDOT approved mix designs for mix, field inspection, cores of hardened concrete for pavement depths.	Tons	NDDOT approved mix designs, field measurements, pavement cores	No	
Ohio DOT	Robert Jessberger 614-752-6696 robert.jessberger@dot.state.oh.us	Square Yard	Field verification of Plan measurements, cores.	Usually Cubic Yard (CY)	Field verification of Plan measurements for new pavement / cores. Also accept weight tickets (converted to CY) for resurfacing and most variable thickness items	Not really, Ohio DOT has been doing it this way for many years.	Field core collection is being more closely monitored.
Oregon DOT	Joe Squire joe.squire@odot.state.or.us	Square Yard	Old style: Confidence points and depth measurement in fresh concrete. New style: Rover W/DTM and initial cores.	Tons	Scale check weights and the Material Delivery and Yield Check Worksheet	Some PM offices have a difficult time obtaining Scale Check weights from the Contractor.	
Pennsylvania DOT	Joseph Robinson 717-787-4794 jrobinso@pa.gov	We pay per square yard of paving. (Section 506 – Reinforced or Plain Cement Concrete Pavements, RPS.)	Inspection staff verifies quantities in the field based on actual area paved and thickness.	It depends on the project. Where a uniform mat is being placed, we pay based on square yards at a given mat thickness. Where the existing conditions are more variable, or for "scratch" or leveling courses, we pay by the ton. A third variation is that on some surface improvement contracts, we specify a given tonnage per square yard. (Section 409 – Superpave Mixture Design, Standard and RPS Construction of Plant-Mixed HMA Courses.)	Again, inspection staff verifies the area and thickness. In the third scenario in #3, obviously a verification of tonnage to square yards placed is required and performed.	Not in our normal projects. The third scenario for HMA sometimes gives us issues with less experienced field staff. A contractor may ask at what thickness to place the material. If the field staff give direction, they risk changing the contract requirements unless they are very accurate in calculating the appropriate thickness. We discourage inspection staff from answering the Contractor and tell the Contractor to calculate the thickness for himself to ensure contract compliance.	For reference, our Pub. 408 Construction Specifications can be found at: http://www.dot.state.pa.us/Internet/Bureaus/odDesign/nd/Constructio/05pec408an0720en08m
South Dakota DOT	Jason Humphrey 605-773-4391 jason.humphrey@state.sd.us	Square Yard	Depth checks during paving and random coring after paving.	Per Ton	Depth checks during paving. We also measure thickness of asphalt mat by cores taken for density test, but it is only for information.	No	We tried a project using a smoothness spec and a thickness spec on AC surfacing a few years ago. Our adjustments to control thickness negatively affected ride. We decided that smoothness was more important than minor thickness deviations since most of our strength comes from our base, not the AC mat thickness.
Tennessee	Jason Blankenship 615-741-7076 jason.blankenship@tn.gov	Square Yard	Area is determined by field measurement, and cores are taken to verify required thickness.	Tons	Field Personnel perform spread rate calculations and check mat thickness during paving operation. When cores are taken for density checks, pavement thickness is checked.	No	
Texas	John Obr john.obr@tsdot.gov	Square Yard	Direct measurement in the field.	Ton	Cores and yield.	Not aware of any.	Ride is an issue we deal with.
Vermont DOT	David Hoyme david.hoyme@state.vt.us	We don't do any concrete paving.	N/A	Tons	Trucks are measured at the plant on certified scales. Track yield throughout the laydown process and spot check thickness of the loose mat and from cores taken after.	Occasionally there are discrepancies in specific gravity of some materials or a broken scale at the plant but in general we feel the weight measurement to be accurate and reliable.	
Washington	Craig McDaniel 360-705-7823 mcdanic@wsdot.wa.gov	Cubic Yard	For weight - The average density of the cores shall be at least 97 percent of the approved mix design density or the actual concrete density when determined by the Contractor using AASHTO T 121 with no cores having a density of less than 96 percent. For area, volume, thickness - 1) The width measurement will be the width of the pavement shown on the typical cross section in the plans, additional widening where called for, or as otherwise specified in writing by the Engineer. 2) The length will be measured along the center of each Roadway or ramp. 3) The depth will be determined from the reference cores. The depth utilized to calculate the volume shall not exceed the Plan depth plus 0.04 feet. The volume of the pavement section represented by the reference core shall equal the measured length x width x reference core depth.	Ton	Each truck to be weighed.	Truck tickets can be labor intensive for the contractor and the contracting agency both for the writing and collection of the tickets and for the verification of the accuracy of the weighing equipment. Collection of the tickets may also create a safety concern if the tickets are collected at the point of delivery. Alternative methods for verification of the quantity placed and for the method of payment are being considered.	For HMA the standard for density is a nuclear gauge although cores are allowed; we are considering using cores exclusively for density and with cores you could measure the thickness of the new HMA and for some work revise the acceptance to area or volume and not need to weigh the HMA. This would be most applicable when we remove old asphalt to a specified depth and repave (grind and inlay). Link to WSDOT Standard Specifications: http://www.wsdot.wa.gov/Publications/Manuals/M41-10.htm
West Virginia	Jason Boyd 304-558-9548 jason.m.boyd@wv.gov	Square Yard	Area = Width of Typical x Length along centerline. Verified by field measurement. Core samples are taken to measure thickness.	Tonnage on most projects. However, for Percent Within Limit (PWL) projects we pay by Square Yard.	Weight slips from certified scale for tonnage projects. Area = Width of Typical x Length along centerline for PWL projects. Verified by field measurement. Cores samples are taken to measure thickness.	N/A	Occasionally, on new construction projects, we include an alternate that allows contractor to use either Concrete or HMA on the project. With this alternate, both Concrete & HMA items are paid for by square yard.
Wyoming DOT	Andy Long andy.long@wyo.gov	Square Yard	Thickness measurements are determined by cores. Area by field measurement.	By the ton. Binder is paid by the ton also.	Certified scales.	No problems.	