



*Florida Department of Transportation*

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**MATERIALS BULLETIN NO. 21-07**  
**DCE MEMORANDUM NO. 21-10**  
*(FHWA Approved 07/22/2021)*

**TO: DISTRICT CONSTRUCTION ENGINEERS**  
**DISTRICT MATERIALS AND RESEARCH ENGINEERS**

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**FROM:** Dan Hurtado, P.E., Director, Office of Construction  
Timothy Ruelke, P.E., Director, Office of Materials

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Richard Hewitt, Howie Moseley

**SUBJECT: ASPHALT TICKETING**

After successful implementation of asphalt e-ticketing on multiple construction projects, the Department continues to promote the use of asphalt e-ticketing. This memo addresses the transition of asphalt ticketing on projects governed by DCE Memo 20-14 (prior its rescension), as well as the administration of material ticketing on future projects.

Current projects successfully utilizing one of the “Contactless Ticketing” methods noted in DCE Memo 20-14 (e.g. Direct Electronic Submission, Electronic Image of Paper Documents, Remote Review, and asphalt e-ticketing) may continue using the implemented method so long as that method is performing successfully.

For projects not currently utilizing asphalt e-ticketing, at the contractor’s request, the attached asphalt e-ticketing specification may be incorporated into the project specifications.

**This memorandum serves as blanket approval to process a \$0.00 contract change to incorporate the attached asphalt e-ticketing specification and should be attached to the Work Order or Supplemental Agreement.**

For questions regarding this memo, please contact Rich Hewitt at (386) 943-5305.

DH/TR/RH

## CONTROL OF THE WORK

### HOT MIX ASPHALT – PLANT METHODS AND EQUIPMENT – ELECTRONIC TICKETING.

**SUBARTICLE 320-3.2 is deleted and the following substituted:**

**320-3.2 Electronic Weigh Systems:** Equip the asphalt plant with an electronic weigh system that has an automatic printout, is certified every six months by an approved certified scale technician, and meets monthly comparison checks with certified truck scales as specified in 320-3.2.3. Weigh all plant produced hot mix asphalt on the electronic weigh system, regardless of the method of measurement for payment.

Include, as a minimum, the following information in the electronic delivery ticket:

1. Sequential load number
2. Project's Financial Identification Number (FIN)
3. Date
4. Name and location of plant
5. Mix design number
6. Separate, individual, data entry locations for recording mix temperature by:
  - a. Plant QC
  - b. Plant VT
  - c. Roadway QC
  - d. Roadway VT
7. Truck number
8. Gross, tare, and net tonnage per truck
9. Daily cumulative tonnage of mix for the mix design

**320-3.2.1 Electronic Ticketing (e-Ticketing) System:** Provide an e-Ticketing System (including any necessary software and hardware) capable of monitoring, collecting, storing, and reporting the information required by the Contract for all loads of asphalt mix delivered to the project. After each truck is loaded, electronically record and use a web service to upload the ticket information to the E-ticketing software database. The E-ticketing system shall provide each truck load's ticket information to users of the e-ticketing software.

E-ticketing software must provide the Engineer the ability to access real-time monitoring of asphalt truck load ticket information as described herein.

The e-Ticketing system shall be integrated with the Load Read-Out scale system at the asphalt plant site.

The e-ticketing system shall have offline capabilities to prevent data loss in the event of power loss or loss of connectivity.

**320-3.2.1.1 e-Ticketing System Construction Requirements:** Install and operate equipment in accordance with the manufacturer's specifications.

**320-3.2.1.2 Data Deliverables:** Provide to the Engineer a means of gathering report summaries by way of iOS or Android apps, web pages, or any other method at the disposal of the Engineer. The Engineer may request data at any time during paving operations. In addition to providing reports referenced in this specification, provide monthly reports, as well as, a final, end of project report in the e-ticketing software and in a comma

separated value (.csv) file. Provide all e-ticketing database data required in this Section in the monthly and end of project reports and .csv files.

**320-3.2.1.3 Real-Time Continuous e-Ticketing Data Items:** Provide the Engineer access to the e-Ticketing system data viewer which displays the following information in real-time with a web-based or App-based system compatible with iOS, Windows, or Android environments:

1. Each Truck:
  - a. Unique Truck ID
  - b. Sequential Truck Load Number
  - c. Mix Design Number
  - d. Net Weight of material being transported (to the nearest 0.01 ton)
  - e. Running Daily Total of Net Weight of material being transported (to the nearest 0.01 ton)
  - f. Project's Financial Identification Number
2. Project Location

**320-3.2.1.4 Daily Summary:** Provide the following summary information to the Engineer electronically within 4 hours of beginning operations on the next working day:

1. List of Individual Loads
  - a. Contractor Name
  - b. Project's Financial Identification Number (FIN)
  - c. Unique Truck ID
  - d. Sequential Load Number
  - e. Net Weight for Payment (nearest 0.01 tons)
  - f. Net Weight of Waste (nearest 0.01 tons)
  - g. Date Paved
  - h. Mix Temperature Measurements (Plant QC, Plant VT, Roadway QC, and Roadway VT)
  - i. Time Loaded at Plant site

**320-3.2.2: Electronic Weigh Systems:** Utilize any one of the following three electronic weigh systems.

**320-3.2.2.1 Electronic Weigh System on the Truck Scales:** Provide an electronic weigh system on all truck scales, which is equipped with an automatic recordation system that is approved by the Engineer. Use scales of the type that directly indicate the total weight of the loaded truck. Use scales meeting the requirements for accuracy, condition, etc., of the Bureau of Weights and Measures of the Florida Department of Agriculture, and re-certify such fact every six months, either by the Bureau of Weights and Measures or by a registered scale technician.

**320-3.2.2.2 Electronic Weigh System on Hoppers Beneath a Surge or Storage Bin:** Provide an electronic weigh system on the hopper (hopper scales or load cells) beneath the surge or storage bin, which is equipped with an automatic recordation system approved by the Engineer.

**320-3.2.3 Monthly Electronic Weigh System Comparison Checks:** Check the accuracy of the electronic weighing system at the commencement of production and thereafter at least every 30 days during production by one of the following two methods and maintain a record of the weights in the Scale Check Worksheet.

**320-3.2.3.1. Electronic Weigh System on Truck Scales:**

1. The Engineer will randomly select a loaded truck of asphalt mix, a loaded aggregate haul truck, or another vehicle type approved by the Engineer and record the truck number and gross weight from the Contractor's delivery ticket.

2. Weigh the selected truck on a certified truck scale, which is not owned by the Contractor and record the gross weight for the comparison check. If another certified truck scale is not available, the Engineer may permit another set of certified truck scales owned by the Contractor to be used. The Engineer may elect to witness the scale check.

3. The gross weight of the loaded truck as shown on the Contractor's delivery ticket will be compared to the gross weight of the loaded truck from the other certified truck scale. The maximum permissible deviation is 8 pounds per ton of load, based on the certified truck scale weight.

4. If the distance from the asphalt plant to the nearest certified truck scale is enough for fuel consumption to affect the accuracy of the comparison checks, a fuel adjustment may be calculated by using the truck odometer readings for the distance measurement, and 6.1 miles per gallon for the fuel consumption rate, and 115 ounces per gallon for fuel weight.

5. During production, when an additional certified truck scale is not available for comparison checks, the Engineer may permit the Contractor to weigh the truck on his certified scales used during production and then weigh it on another certified truck scale, as soon the other scale is available for the comparison checks.

In addition to the periodic checks as specified above, check the scales at any time the accuracy of the scales becomes questionable. When such inaccuracy does not appear to be sufficient to seriously affect the weighing operations, the Engineer will allow a period of two calendar days for the Contractor to conduct the required scale check. However, in the event the indicated inaccuracy is sufficient to seriously affect the mixture, the Engineer may require immediate shut-down until the accuracy of the scales has been checked and necessary corrections have been made. Include the cost of all scale checks in the bid price for asphalt concrete, at no additional cost to the Department.

**320-3.2.3.2. Electronic Weigh System on Hoppers Beneath a Surge or Storage Bin:**

1. The Engineer will randomly select a loaded truck of asphalt mix and record the truck number, and the net weight of the asphalt mix from the Contractor's delivery ticket.

2. Weigh the selected truck on a certified truck scale, which is not owned by the Contractor and record the gross weight for the comparison check. If another certified truck scale is not available, the Engineer may permit another set of certified truck scales owned by the Contractor to be used. The Engineer may elect to witness the scale check.

3. Deliver the asphalt mix to the project, then weigh the selected empty truck on the same certified truck scales. Record the tare weight of the truck.

4. Compare the net weight of the asphalt mix from the delivery ticket to the calculated net weight of the asphalt mix as determined by the certified truck scale weights. The maximum permissible deviation is 8 pounds per ton of load, based on the certified truck scale weight.

5. Use the fuel adjustment as specified in 320-3.2.3.1(4), when the distance from the asphalt plant to the nearest certified truck scale is enough for fuel consumption to affect the accuracy of the comparison checks.

6. During production, when an additional certified truck scale is not available for comparison checks, the Engineer may permit the Contractor to load a truck with aggregate from the pugmill, surge or storage bin, and follow the above procedures to conduct the comparison checks as soon as certified truck scale is available.

If the check shows a greater difference than the tolerance specified above, then recheck on a second set of certified scales. If the check and recheck indicate that the printed weight is out of tolerance, have a certified scale technician check the electronic weigh system and certify the accuracy of the printer. While the system is out of tolerance and before its adjustment, the Engineer may allow the Contractor to continue production only if provisions are made to use a set of certified truck scales to determine the truck weights.

## CONTROL OF THE WORK

### HOT MIX ASPHALT - GENERAL CONSTRUCTION REQUIREMENTS

#### **SUBARTICLE 330-2.1 is deleted and the following substituted:**

**330-2.1 Minimum QC Requirements:** Perform as a minimum, the following activities necessary to maintain process control and meet Specification requirements:

1. **Pavement Density:** Monitor the pavement temperature with an infrared temperature device so compaction is completed before the surface temperature of the pavement drops to the extent that effective compaction may not be achieved or the rollers begin to damage the pavement. Monitor the roadway density with either 6 inch diameter roadway cores, a nuclear density gauge, or other density measuring device, at a minimum frequency of once per 1,500 feet of pavement.

2. **Mix Temperature:** Determine the mix temperature at the roadway for the first five loads and one out of every five loads thereafter.

3. **Mix Spread Rate:** Monitor the mix spread rate at the beginning of each day's production, and as needed to control the operations, at a minimum of once per 200 tons placed. When determining the spread rate, use, at a minimum, an average of five truckloads of mix.

4. **Pavement Texture:** Monitor the pavement texture to minimize pavement segregation. Use density gauges, infrared temperature measurement devices, or roadway cores at the beginning of each day's production, and as necessary, both at truck exchanges and during normal paving operations.

5. **Reporting:** Ensure the accuracy of the QC Roadway Reports on the Department's approved form to reflect the actual surface area of the finished work and be in compliance with the requirements of the Contract Documents.

6. **Electronic Ticketing (E-Ticketing):** Provide a tablet computer on site with the Paving Operation capable of running the E-Ticketing software outlined in Section 320. Use the E-ticketing software to obtain truck ticket information and record mix temperatures. Use the E-ticketing data for entry into the Asphalt Roadway – Daily Report of Quality Control.

## CONTROL OF THE WORK