

Aggregate – Spring Regional Meeting

March 31, 2020

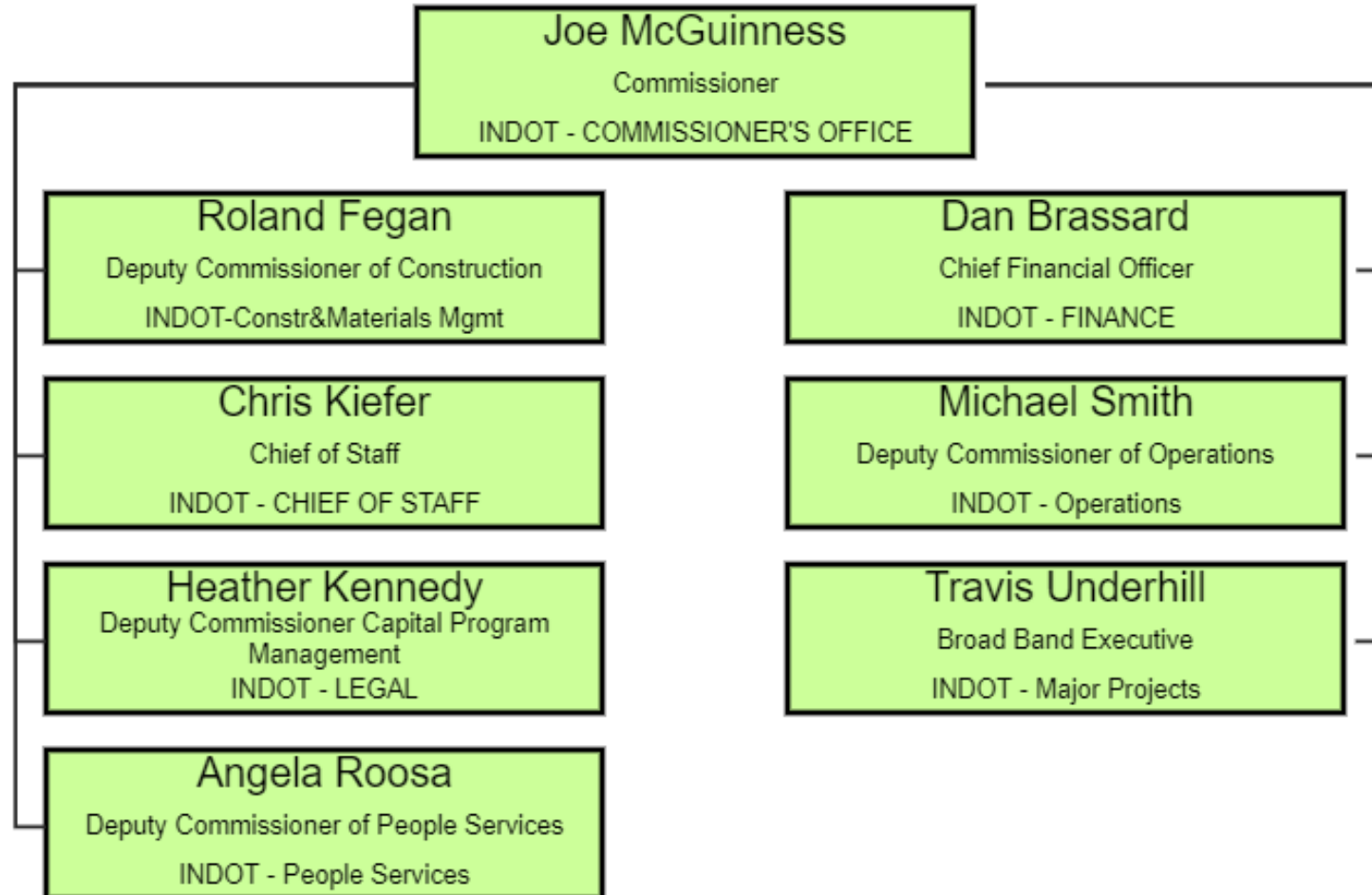
Matt Beeson, PE
Director, Office of Materials Management

INDOT Update

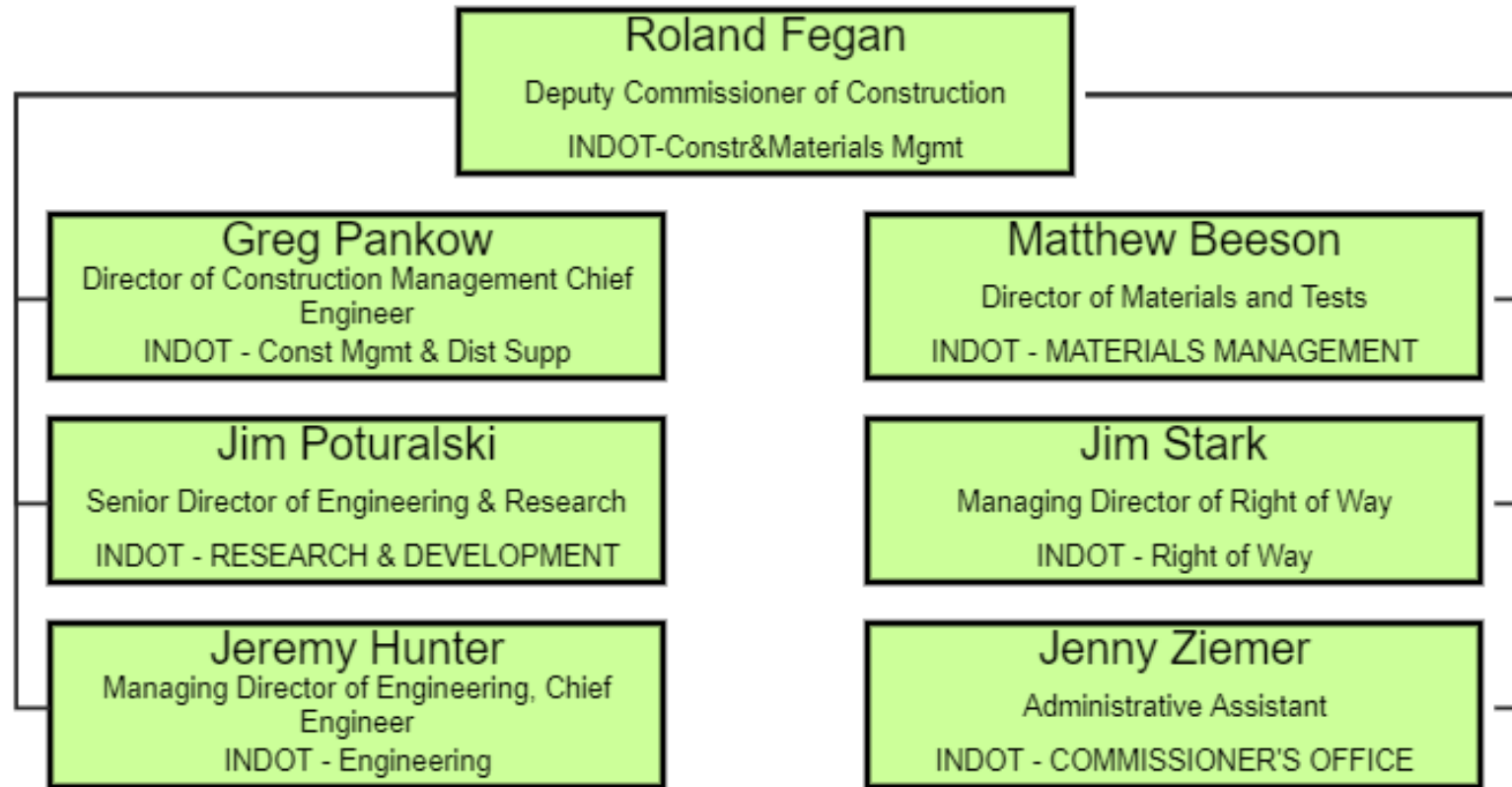
- Organizational Update
- CAPP Update
- Spec Changes
- Test Method Changes
- The Future



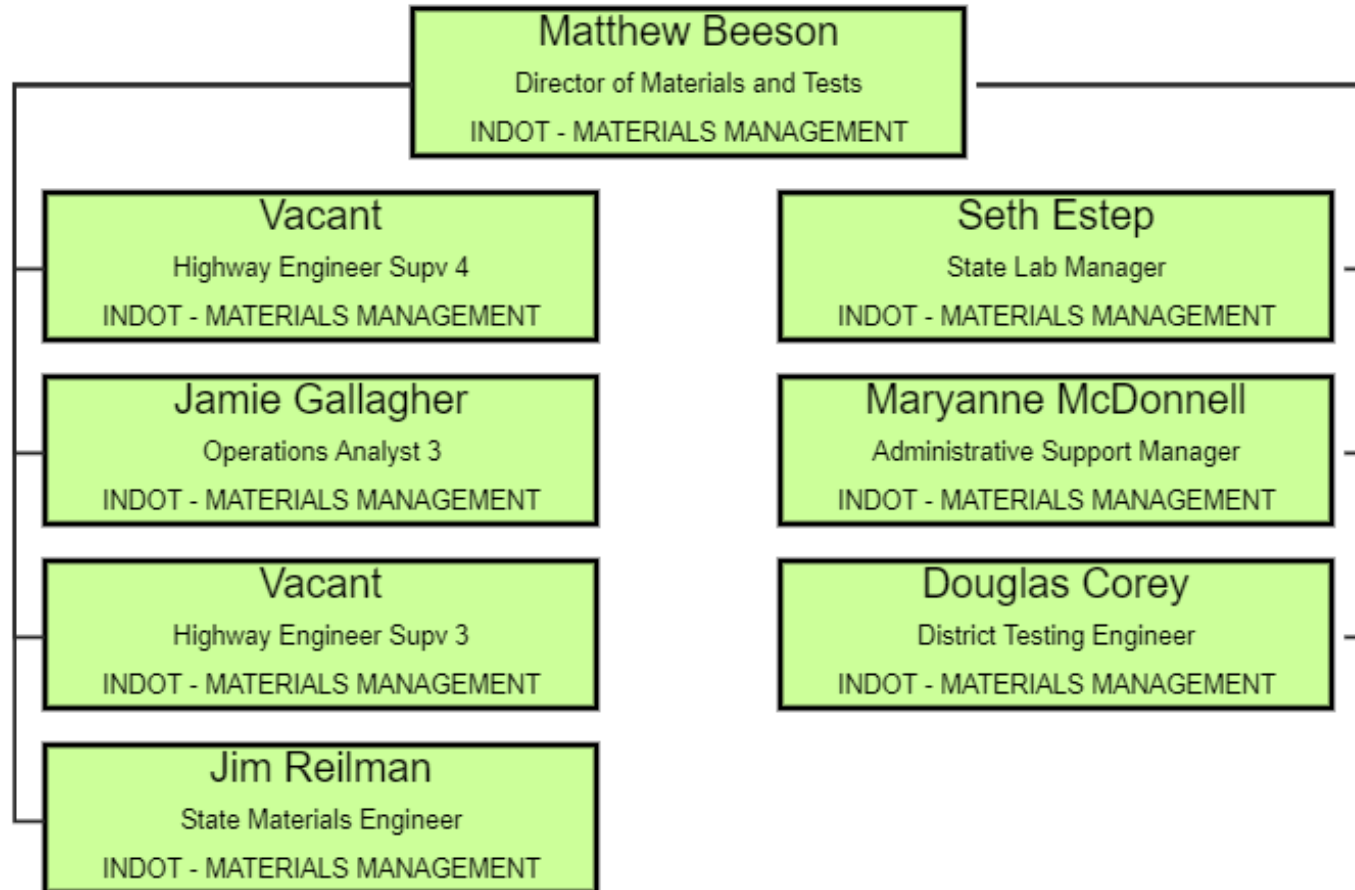
Organizational Update



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Organizational Update



Organizational Update

- Quality Assurance Group
 - Monitor District Independent Assurance functions
 - Suggest improvements, ensure consistency, manage documents
 - Provide training
 - Central point of contact
 - Lab inspections

Failed Materials Committee

- New FMC
- Will meet monthly
- Able to handle “Failed Material,” “Contract Compliance,” and other “We need an official ruling” issues
- Members: Design (Hunter), Materials (Reilman), Construction (Novak), Asset Management (Lowther), Beeson (chair, non-voting), Secretary TBD
- Appeal responses signed by Greg Pankow

CAPP Update

- CAPP School – November 18-22, 2019
- 63 Attendees
 - 3 failed both parts
 - 9 failed one part
 - 7 attempted retake, 3 passed
- Thank you to all who contributed and participated

CAPP Technician Update

- Big change in how CAPP Technicians get recertified

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- 3 years in a row of proficiencies

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- Re-take exam

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CAPP Technician Update

- Big change in how CAPP Technicians get recertified
- ~~3 years in a row of proficiencies~~
- ~~Re take exam~~
- Now what?

CAPP Technician Update

- Big change in how CAPP Technicians get recertified
- Certifications will expire every year
- Ways to recertify:

Attend a Spring Regional Meeting

Or

Watch webinar recording and pass a quiz

Spring Regional Meetings

- Today!
- Next year, we will return to in-person meetings

Information about novel coronavirus (COVID-19)
Get the latest information about coronavirus and the Indiana Department of Health preparations here - coronavirus.in.gov



INDOT strives to develop, inspect and test materials used to construct and maintains highways, thereby ensuring the most efficient and effective products as used on Indiana transportation construction projects.

Testing Memorandums

- [Current Testing Memos](#) ←

Approved Lists



INDIANA DEPARTMENT OF TRANSPORTATION

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

June 12, 2019

TESTING MEMORANDUM 19-02

SUBJECT: Certified Aggregate Producer Program (CAPP) Technician Certification Changes

TO: District Testing Staff
Certified Aggregate Producers

FROM: Matthew P. Beeson, State Materials Engineer *MPB*
Office of Materials Management

We have made revisions to the Certified Aggregate Producer Program Policies and Procedures Programs that will take effect in 2020. The revisions change the procedure for CAPP Technicians to become recertified.

Until now, there have been two options to recertify:

1. Demonstrate proficiencies every year for 3 years
2. Take a recertification exam

However, simply performing the test methods every year through proficiencies or taking the same exam every 3 years does not necessarily ensure that Technicians are keeping up with the latest changes to the program. For that reason, we are changing the recertification requirements.

CAPP Technician Update

- You will still need to do proficiencies!
 - They just won't "tie-in" to CAPP recertification anymore
- Now every 2 years as of 2018
- Technician List now online!

Coronavirus Update

- As of March 31, 2020 at 10:00 am, all INDOT contracts are proceeding as planned
- As with everything in our life, this is subject to change!

Coronavirus Update

- INDOT District Testing and OMM are supporting critical functions only
- Most are working from home
- We are available by phone and email!

- What we ARE doing:
 - Critical trial batches
 - Testing HMA samples

Coronavirus Update

- What we ARE NOT doing:
 - CAPP audits
 - Sampling from CAPP Sources
 - IA Proficiencies
 - Testing of field soils and aggregate samples

Coronavirus Update

- What we ARE NOT doing:
 - CAPP audits
 - Sampling from CAPP Sources
 - IA Proficiencies
 - Testing of field soils and aggregate samples
- Critical samples will be sampled/tested
- Freezers are continuing to run
- Restrictions until May 1 as of now

Coronavirus Update

- Exceptions will be considered!
- We still want to ensure quality materials and Qualified samplers and testers
- Every effort will be made to postpone and defer
- But we will support Suppliers and Contractors! So we still may need to sample and test – case by case basis

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Common Sense!

If it doesn't sound critical, it probably isn't

Spec Changes

- Section 211 - Structure Backfill
- Contracts let after 9/1/2019

SECTION 211, BEGIN LINE 111, DELETE AND INSERT AS FOLLOWS:

(c) Type 3

Structure backfill in accordance with 904.05, except only nominal size aggregates 1 in., 1/2 in., No. 4 or No. 30, and coarse aggregate No. 5, No. 8, No. 9, No. 11, or No. 12 shall be stone. *If ACBF is used, it shall only be used in sizes that meeting the size requirements for coarse aggregate No. 5 or No. 8 may also be used.*

Spec Changes

- Section 732 – MSE Wall Structure Backfill
 - Problems identified by INDOT Wall Committee
- Contracts let after 9/1/2019

the modular block wall, as shown on the plans, shall be coarse aggregate No. 8 crushed stone ~~or ACBF~~ in accordance with 904.03.

Backfill material used in the modular block wall volume shall be structure backfill, type 3, in accordance with 211. Where ground reinforcement is required, nominal size aggregate No. 30 shall not be used. The size of the structure backfill selected for use in the reinforced area of the modular block volume shall remain the same for that wall's volume. If ~~ACBF or~~ coarse aggregate No. 8 ~~are~~ used, and soil, B borrow, structural backfill, or coarse aggregate No. 53 are to be placed above the ~~ACBF or~~ coarse aggregate No. 8, a single layer of geotextile shall be placed on top of the ~~ACBF or~~ coarse aggregate No. 8 in accordance with 616.11. ~~A type C certification in accordance with 916 for the geotextile materials shall be furnished to the Engineer prior to use.~~

Spec Changes

- Section 203.24 – LWD Compaction
- RSP 203-R-685
- Contracts let after 9/1/2019

SECTION 203, BEGIN LINE 1058, DELETE AND INSERT AS FOLLOWS:

The compaction of chemically modified soils and coarse aggregates will be determined by LWD testing in accordance with ITM 508. The moisture content will be determined in accordance with AASHTO T 255 or ITM 506. The compaction procedures shall be in accordance with 203.23, 215, 301, 302, and 303. ~~Compaction of aggregate shall not occur if the moisture content of the aggregate is greater than 6.0%.~~

Spec Changes

- Section 904.03 – Friction Aggregate clarification
- RSP 904-M-052
- Contracts let after 3/1/2020

SECTION 904, BEGIN LINE 254, INSERT AS FOLLOWS:

- c. ESAL Category 4 and type D surface mixtures. High friction aggregates including ACBF slag, SF slag, sandstone or aggregates in accordance with ITM 221 shall be used *and at a minimum shall comprise 50% by volume of the coarse aggregate.*

Crushed dolomite and polish resistant aggregates may be used up to a maximum 50% by volume of the coarse aggregate material retained on the No. 4 (4.75 mm) sieve when blended with a high friction aggregate.

Crushed stone and gravel may be used up to a maximum 20% by volume of the coarse aggregate material retained on the No. 4 (4.75 mm) sieve when blended with a high friction aggregate.

ITM Changes

- ITM 212 – Blast Furnace Slag Leachate Determination
 - Numerous Changes

8.0 SAMPLING.

8.1 Sampling of aggregates shall be **from a small pile** in accordance with ITM 207, **Section 5.1. Samples shall not be obtained from the surface of the stockpile.**

ITM Changes

- ITM 212 – Blast Furnace Slag Leachate Determination

- 9.4 Observe the **clarity and** color of the water.
- 9.5 Calibrate a pH meter in accordance with the manufacturer's instructions and ASTM E 70, and then determine the pH of the water sample to the nearest 0.1 pH unit.
- 9.6 If the water is **not clear and colorless**, or the pH is not within 6.0 to 10.5, the material is not acceptable and the test is completed. Upon the completion of the color observation and pH measurement, the 100 mL water sample is discarded.
- 9.7 If the water is **clear and colorless** and the pH is within 6.0 to 10.5, then allow the sample to soak for another **fourteen** days. The bucket shall be covered with the lid and steps 9.2 to 9.6 repeated after three days, seven days, **and fifteen days** from the initial soaking.

ITM Changes

- ITM 212 – Blast Furnace Slag Leachate Determination

10.0 ACCEPTANCE CRITERIA.

- 10.1** If after one day, three days, seven days, or fifteen days of soaking, the water is not clear, the material will not be acceptable for use.
- 10.2** If after one day, three days, seven days, or fifteen days of soaking, the pH is not within 6.0 to 10.5, the material will not be acceptable for use.
- 10.3** If after fifteen days of soaking, the water is clear and the pH is within 6.0 to 10.5, the material will be acceptable for use.

ITM Changes

- ITM 902 – Verifying Sieves

Revised 2/26/2020

**INDIANA DEPARTMENT OF TRANSPORTATION
OFFICE OF MATERIALS MANAGEMENT**

**VERIFYING SIEVES
ITM No. 902-20**

1.0 SCOPE

- 1.1** This test method covers the procedure for verifying the physical condition of laboratory testing sieves ranging in size from 4 in. to No. 200.
- 1.2** Two procedures are included in this test method: verifying with calipers and verifying with a go-no go gauge. The Department will use the verifying with calipers method. Industry may utilize the procedure with a go-no go gauge upon approval of the Department.
- 1.3** This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and to determining the applicability of regulatory limitations prior to use.

ITM Changes

- ITM 902 – Verifying Sieves

6.2 Sieves #4 and Coarser With Go-No Go Gauge.

6.2.1 Specific procedures for checking sieves with a go-no go gauge shall be developed by the Industry end user and included as a part of their Quality Control Plan, subject to approval by the Department.

- Develop your own method, we will review and approve

OMM Freezers

- New freezers installed Summer 2019



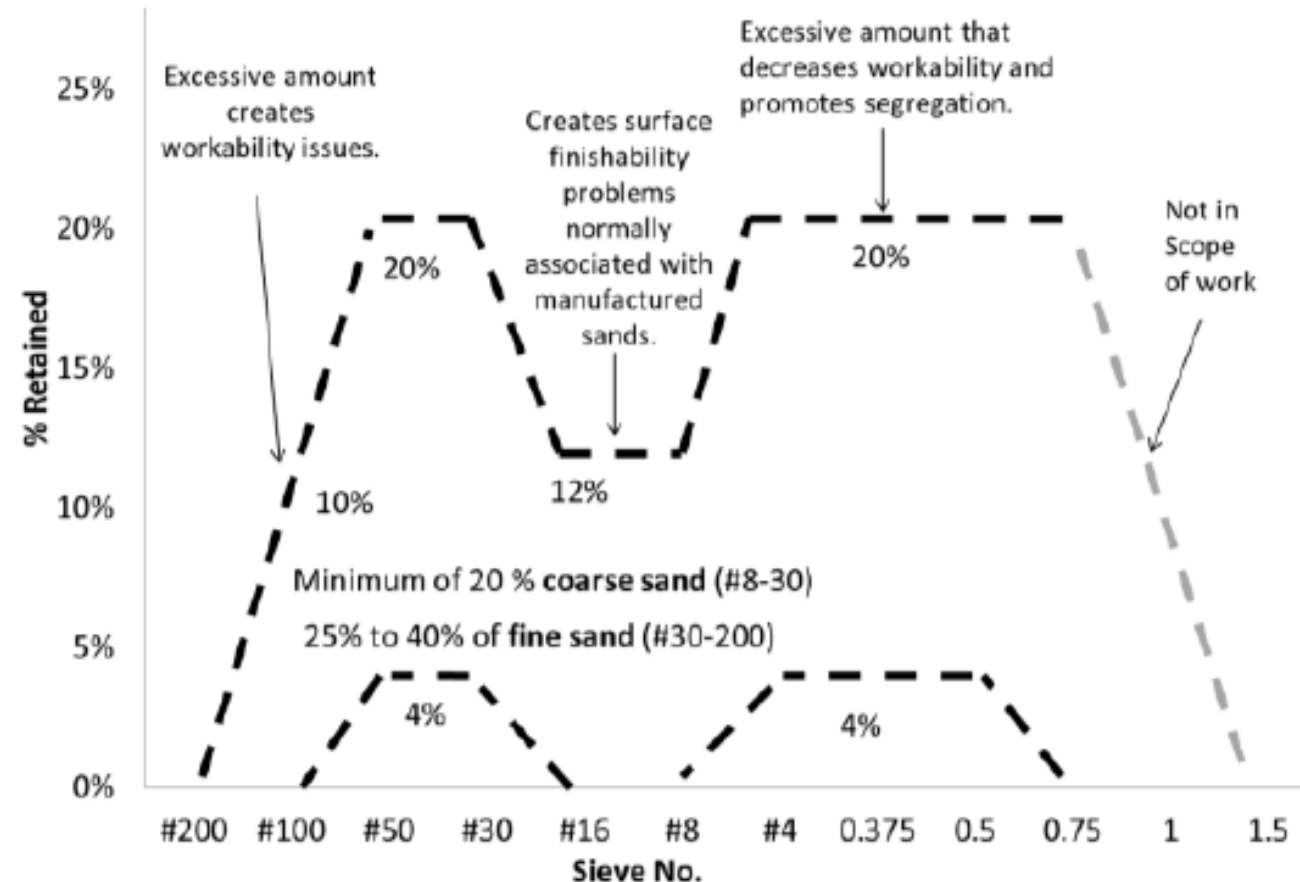
The Future

- Friction Aggregate Acceptance Improvements
 - Currently PRA (ITM 214) and High-Friction aggregate (ITM 221) still requires a test strip
 - Fairly confident that we can move to using ITM 221 polishing procedure only
 - Final round of research to validate correlation of earliest test sections

Optimized Concrete Aggregate

- What are we trying to do?
 - Improve concrete performance

- “Tarantula Curve”



Optimized Concrete Aggregate

- What are we trying to do?
 - Improve concrete performance
- What problems can be solved by optimization?
 - Issues prior to set
 - Issues soon after placement/long term

Optimized Concrete Aggregate

- Issues prior to set
- Poor Workability
 - Difficult to Place and Finish

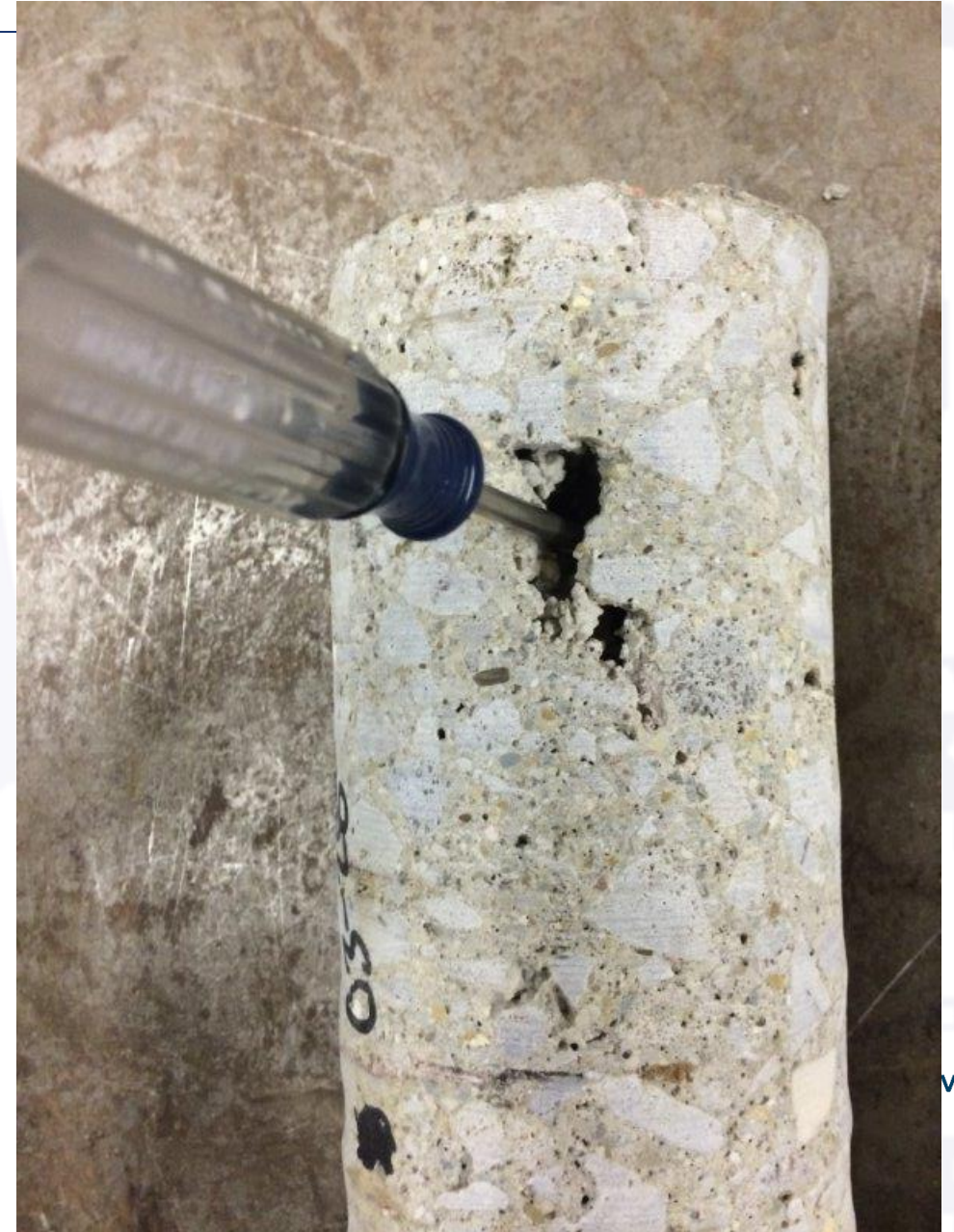
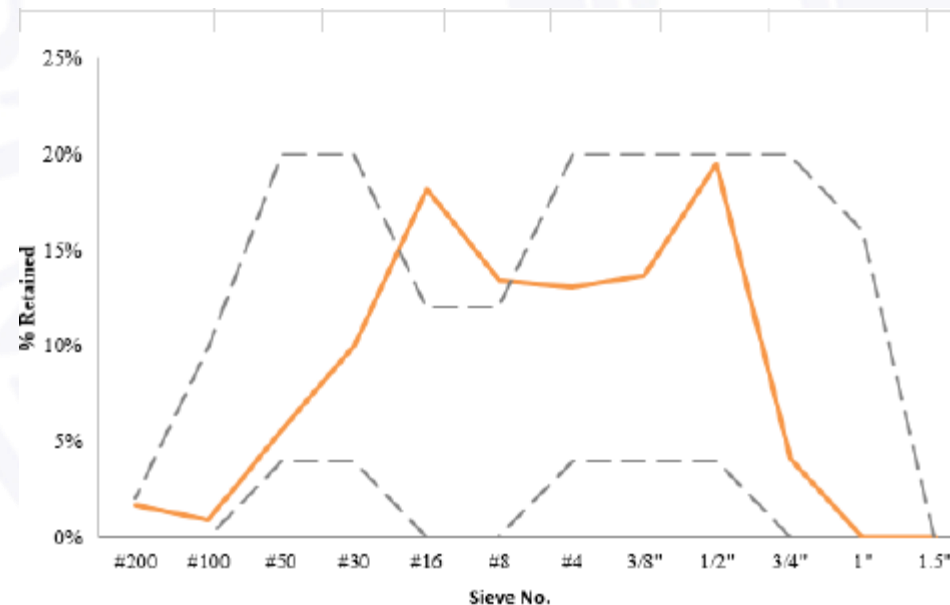


Optimized Concrete Aggregate

- Issues prior to set
- Poor Workability
 - Surface won't close behind paver
 - Poor consolidation
 - Segregation
 - Mix is “sticky” or harsh and/or stiff

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Optimized Concrete Aggregate

- Issues prior to set
- Poor Workability
 - Surface won't close behind paver
 - **Poor consolidation**
 - Segregation
 - **Mix is "sticky" or harsh and/or stiff**



Optimized Concrete Aggregate

- Poor Workability
 - Shrinkage Cracking



Optimized Concrete Aggregate

- Issues soon after placement/long term
- Low Strength
- Drying shrinkage cracking
- Scaling

Optimized Concrete Aggregate

- Is the concrete we're getting "bad?"
 - No, but we could be better!
 - Pavement *and* Structural
- So how do we get there?
 - That's been the hard part

Optimized Concrete Aggregate

- About 3 years ago, INDOT proposed requiring tarantula gradation for all concrete pavement
- This kicked off much “discussion”
 - How will Industry deliver this?
- Not as easy as it sounds
- How does INDOT validate the correct gradation was provided?

Optimized Concrete Aggregate

- Mid-2019
- Indiana 8s gradation
 - Doesn't typically meet tarantula gradation when blended with average 23 sand
 - So why do we actually want 8s?
 - What do I mean?
 - Aggregate suppliers – Make 8s = great!
 - Concrete producers – Don't use 8s! Those mixes aren't optimized!
- What gradation can we move to?

Optimized Concrete Aggregate

- New Concrete Coarse Aggregate gradation
- I asked Concrete Industry to propose a new gradation
 - So all concrete produced in Indiana would be optimized
- Proposed new gradation was submitted to INDOT and IMAA in October
- Numerous meetings and discussions ensued

Optimized Concrete Aggregate

- “Alternate” option
- Instead of one standardized gradation,
- Each source submits “QA” gradation for approval
- Similar to ITM 225 for drainage layers
- More information will be coming soon!

We're all in this together

- Stay safe
- Stay home when you're not working
- I look forward to seeing you all again soon!



Thank you!

Questions?

Matt Beeson, P.E.

Director, Office of Materials Management

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