

# Bureau of Materials and Tests

## Our Mission

ASCE Montgomery Branch Meeting  
02/02/2021

# Administrative/Technical Staff

State Materials & Tests Engineer/Bureau Chief- Scott George, P. E.

Deputy State Materials & Tests Engineer

Kaye Davis, P. E. (Geotechnical, Materials, Pavement Management)

Steven Ingram, P. E. (CAMMS, Forensic Investigations, Testing)

Assistant Bureau Chief

Adam Anderson, P. E. (Environmental Services)

Chance Armstead, P. E. (Testing)

Frank Bell, P. E. (Pavement Management)

Renardo Dorsey, P. E. (Geotechnical)

Shannon Golden, P. E. (Forensic Investigations & Evaluations)

John Jennings, P. E. (Materials)

Drew Waldrop, P. E. (CAMMS/Automation Systems Management)

Office Manager

Kathy Gwin

# CAMMS / Automation Systems Management

Vacant, P. E.

CAMMS/Automation Systems Engineer

# CAMMS/Automation Systems Management

## Functions

- Working with Multiple Bureaus on development of the Departments Construction and Materials Management System including:
  - Merging materials management software into CAMMS
  - Equipment specifications/purchasing
  - Troubleshooting
  - Coordinating development between multiple inter-related ALDOT systems.
- Bureau software management
- Information Technology Support- Computer, Network, Security, Phones, Radios
- Building Security

## Staff

- 1 Transportation Manager ( half time)
- 1 EA I

# Warehouse

- Functions
  - Purchasing of all equipment, supplies and services for Bureau
  - Shipping/Receiving
  - Maintain Property Inventory
  - Bill payments
  - Managing Janitorial Services
- Personnel
  - 1 Equipment Maintenance Manager
  - 1 Property Inventory Officer
  - 1 Stock Clerk I ( Vacant)
  - 1 Stock Clerk II
  - 1 Account Clerk
  - 1 Transportation Worker
  - 1 Transportation Worker Sr.

# Environmental Services Division

Adam Anderson, P. E.

Environmental Services Engineer

# Environmental Services Division

## What We Do:

- The core function of this Division is to maintain a working technical knowledge of various environmental regulations and engineering solutions so that the entire Department can utilize this office as a resource to assist with mitigating issues as they arise in any aspect of Departmental function.
- Act as subject matter experts in the areas of wastewater engineering/compliance, hazardous/non-hazardous materials management/remediation, corrective action project engineering/management, facility compliance, etc.

Examples: Lead Technical for the Coliseum Blvd Plume Project, Technical Advisory Committee for the Capital City Plume, Member of the Alabama Scrap Tire Commission, etc.

# Division Structure

- Professional Civil Engineer II
  - Professional Civil Engineer I
    - Civil Engineer Licensed
    - 2-Civil Engineer Graduates
    - 2-Transportation Technologist, Sr.
    - Transportation Technologist



# Core Division Services

- Hazardous Materials Assessment
- Contamination Assessment
- Contamination Assessment/Corrective Action/Cleanup
- Hazardous and Non-Hazardous Waste Management
- Facility Compliance Support
- Wastewater Lagoon/System Compliance Support
- UST Closure Assessments
- MS4 Support
- Coliseum Boulevard Plume Project Management
- Emergency Response Support



# Forensic Investigations & Evaluations

Shannon Golden, P. E.

Forensic Evaluations & Investigations Engineer

# MISSION

The Forensic Investigations & Evaluations Division provides the following:

- Review, revise and update existing specifications and procedures.
- Develop and write new specifications, procedures and special provisions.
- Provide specialized non-destructive testing support to Regions.
- Assist other Bureau Sections with specialized testing needs.
- Conduct forensic investigations state wide.
- Provide research assistance and oversight.
- Act as a liaison for ALDOT with industry associations.

# DIVISION STRATEGY

- The goals of the Forensic Investigations & Evaluations Division are achieved through:
  - Efforts that focus on the safety of the traveling public
  - Timely reviews of specifications and procedures
  - Extensive research of newly developed products and technologies to determine their applicability to transportation infrastructure
  - Expert technical assistance
  - Highly technological equipment and testing methods
  - Timely response to the needs of the Department and Public

# Geotechnical Division

Renardo Dorsey, P.E.

Geotechnical Engineer

# Geotechnical Division Organization

- **Geotechnical Engineer (PCE II)**
  - **(1) ASA II: Payroll and Personnel**
  - **(1) Drilling & Sampling Operations Manager (TM)**
    - (4) Statewide Drill Crews, typically consisting of (4) members.
  - **(1) Assistant Geotechnical Engineer, In-House (PCE I)**
    - (4) CEG, Soils Specialist (1 vacant).
    - (1) Professional Geologist
    - (1) TT, Foundation Technologist, CADD Processing, Equipment Management
    - (1) EA, Engineers Assistant, Data Processing
    - (1) Clerk
  - **(1) Assistant Geotechnical Engineer, Construction & Technical Support (Vacant)**
    - (1) TTSr. Foundation Technologist – PDA Specialist
  - **(1) Assistant Geotechnical Engineer, Consultant Management (Vacant)**
    - (1) Soil Specialists (CEG)
    - (12) Statewide On-call Geotechnical Consultant Firms

# Geotechnical Division Coordination with ALDOT

Geotechnical Division typically receive requests from the following ALDOT entities:

- **Design Bureau.**
- **Bridge Bureau.**
- **Construction Bureau.**
- **Area/Project Construction Engineers Office.**
- **Area Pre-Construction Engineers Office.**
- **Area Materials Engineers Office.**
- **Area Maintenance Engineers Office.**

# Geotechnical Division Support

Statewide support is provided in the areas of design, construction, and maintenance of ALDOT facilities. Support includes:

- **Drilling & Sampling Operations**
- **Structure Foundations Analysis**
- **Soil/Rock Slope Stability Analysis**
- **Earth Retaining Systems Analysis**
- **Ground Improvement Recommendations**
- **Geotechnical Site Instrumentation and Monitoring**
- **Geotechnical Construction & Technical Support**
- **Geotechnical Consultant Management**
- **Other issues:** sinkholes, mine studies, soft soils, retention/detention pond.



# Geotechnical Division - Sections

## **Drilling & Sampling**

Obtain information about subsurface conditions for design use.

## **Geotechnical Design**

Manage the reporting of test results and recommendations for design projects.

## **Engineering Geology**

Use the understating of Alabama's Geology and Hydrology to provide geotechnical engineering recommendations

# Geotechnical Division - Sections

## **Geotechnical Construction & Technical Support**

Provide geotechnical support for construction projects.

## **Geotechnical Consultant Management**

Provide design and construction support when our in-house engineering workload is high or when specialty geotechnical services are needed

# Materials Division

John Jennings, P. E.

Materials Engineer

# Materials Division

The Materials Division is comprised of highly specialized, subject matter experts assigned to technical positions that:

- Determine the most economical selection of materials used in the various layers of the pavement structure in accordance with the latest AASHTO design standards
- Direct and provide oversight for ALDOT's Independent Assurance Sampling and Testing Program on roadway construction projects for compliance with specifications
- Provide certification to the Federal Highway Administration of the materials used on Federal Aid projects via the Summary of Tests (BMT-38)
- Administers ALDOT's NRC Radioactive Materials License for the operation of nuclear testing devices
- Repair, calibrate, and leak test the nuclear testing devices owned by ALDOT

# Materials Division

The Materials Division of the Bureau of Materials & Tests is comprised of three sections:

- **Pavement Design**
  - 2 – PCE I (vacant), 1 – CEG, 1 – RSE, 1 – ASA II
- **Certifications (Independent Assurance / BMT-38)**
  - 1 – PCE I, 2 – TT, Sr.
- **Nuclear Gauge Laboratory**
  - 1 – TM, 1 – TT, 1 – EA I

# Pavement Management Division

Frank Bell, P. E.

Pavement Management Engineer

# Falling-Weight Deflectometer

- Collects data on pavement structural capacity for resurfacing projects
- Special testing as requested



# Pavement Parameters

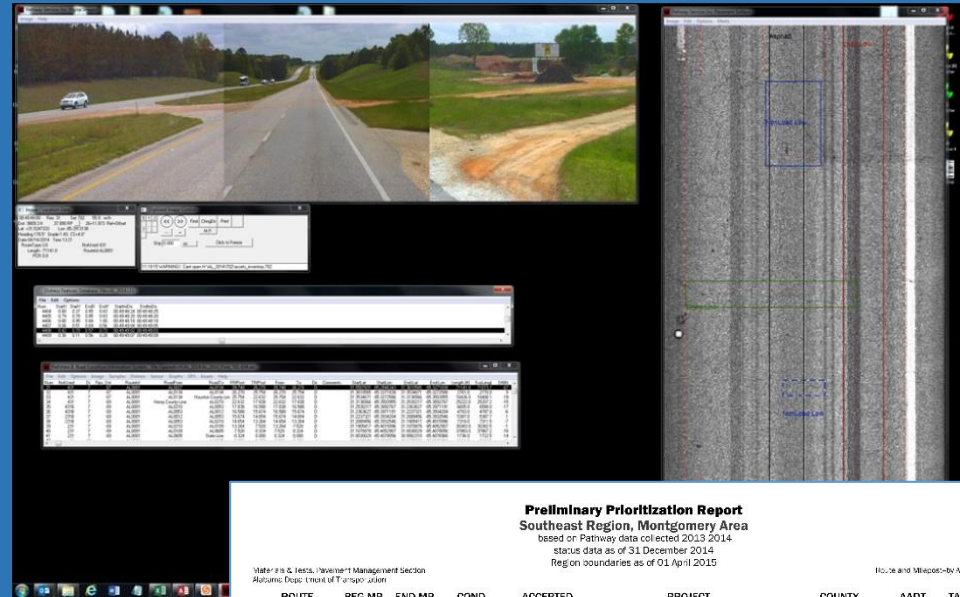
- Collects friction data statewide biennially, NHS annually
- Collects profiler data (smoothness and rutting) on special projects
- Support smoothness-based project acceptance testing





# Data Quality

- Manages consultant contract for statewide data collection—all routes biennially, NHS annually
- Reviews in house and vendor-collected data
- Issues Preliminary Prioritization Report for District Administrators and ALDOT Maintenance Engineers



**Preliminary Prioritization Report**  
**Southeast Region, Montgomery Area**  
based on Pathway data collected 2013-2014  
 status data as of 31 December 2014  
 Region boundaries as of 01 April 2015

Montgomery Area District Management Section  
 Automatic Report of Tables: 01/01/15 Report generated by: MMS and District  
 2/1/2015

| ROUTE                    | BEG MP | END MP | COND              | ACCEPTED | PROJECT               | COUNTY         | AADT  | TADT | NHS |
|--------------------------|--------|--------|-------------------|----------|-----------------------|----------------|-------|------|-----|
| <b>Speigner District</b> |        |        |                   |          |                       |                |       |      |     |
| AL0003                   | 196.30 | 196.93 | 79                | 2011     | NH-HSIP-0003(S43)     | Elmore         | 20900 | 1670 | Yes |
| AL0003                   | 186.93 | 192.56 | Awarded 05/09/14  | 2011     | NH-HSIP-0003(S53)     | Autauga        | 13770 | 930  | Yes |
| AL0003                   | 192.56 | 196.30 | 75                | 2005     | 99-306-001-003-S01    | Autauga        | 4080  | 850  | Yes |
| AL0003                   | 196.58 | 208.20 | 73                | 2009     | STPAA-HSIP-0003(G41)  | Autauga        | 4540  | 340  | No  |
| AL0006                   | 115.66 | 125.83 | 70                | 2008     | EBF-STPSAF-0006(S19)  | Autauga        | 2890  | 730  | Yes |
| AL0006                   | 125.83 | 137.76 | 77                | 2010     | STMAA-0006(S38)       | Autauga        | 4690  | 770  | Yes |
| AL0006                   | 137.76 | 140.22 | 65                | 1999     | 99-306-011-006-901    | Autauga        | 7610  | 1230 | Yes |
| AL0006                   | 140.22 | 142.85 | 64                | 2008     | NH-0006(S27)          | Autauga        | 12420 | 1490 | Yes |
| AL0006                   | 142.85 | 144.92 | 79                | 2012     | NH-0006(S43)          | Autauga/Elmore | 10800 | 660  | Yes |
| AL0006                   | 144.92 | 145.93 | 95                | 1998     | STPAA-MAAA-7805(002)  | Elmore         | 28980 | 1430 | Yes |
| AL0009                   | 114.96 | 115.47 | 76                | 2014     | NHT DRF 0009(S32)     | Elmore         | 32130 | 1290 | Yes |
| AL0009                   | 115.47 | 120.03 | 74                | 2011     | NH-HSIP-0009(S27)     | Elmore         | 28800 | 1550 | Yes |
| AL0009                   | 120.03 | 120.91 | 82                | 2011     | STPDFAF 0009(S04)     | Elmore         | 31180 | 1640 | Yes |
| AL0009                   | 120.91 | 123.48 | 74                | 2011     | NH-HSIP-0009(S27)     | Elmore         | 24460 | 1380 | Yes |
| AL0009                   | 123.48 | 131.32 | Acceptec 09/29/14 | 2011     | STPAA-HSIP-0009(S48)  | Elmore         | 5770  | 470  | No  |
| AL0009                   | 131.32 | 139.67 | 81                | 2008     | SI PAA-HSIP-0009(S20) | Elmore         | 3700  | 450  | No  |
| AL0014                   | 126.88 | 142.06 | 80                | 2006     | 99-306-015-014-601    | Autauga        | 3330  | 410  | No  |
| AL0014                   | 142.06 | 143.95 | 57                | 2004     | 99-306-011-014-301    | Autauga        | 4860  | 530  | No  |
| AL0014                   | 143.95 | 144.99 | 73                | 2008     | EB-HSIP-0014(S14)     | Autauga        | 5360  | 960  | No  |
| AL0014                   | 144.99 | 151.04 | 57                | 2004     | 99-306-014-014-301    | Autauga        | 6240  | 960  | No  |
| AL0014                   | 154.28 | 155.87 | 84                | 2012     | NH-HSIP-0014(S19)     | Autauga        | 15410 | 410  | No  |
| AL0014                   | 156.87 | 160.81 | 82                | 1998     | 99-305-535-014-701    | Autauga/Elmore | 26070 | 1450 | No  |
| AL0014                   | 160.81 | 163.79 | 79                | 2012     | STPAA-HSIP-0014(S76)  | Elmore         | 16740 | 1200 | No  |
| AL0014                   | 163.79 | 187.37 | 68                | 2012     | STPAA-HSIP-0014(S24)  | Elmore         | 11630 | 780  | No  |
| AL0014                   | 167.37 | 169.03 | 78                | 2013     | FB-0014-S031          | Elmore         | 11820 | 970  | No  |
| AL0014                   | 169.03 | 169.95 | 68                | 2000     | STPAA MG-0281(010)    | Elmore         | 11470 | 920  | No  |
| AL0014                   | 169.95 | 172.87 | 89                | 2010     | SI MA-0009(S08)       | Elmore         | 11580 | 1140 | No  |
| AL0014                   | 172.87 | 180.53 | 68                | 2005     | 99-306-261-014-401    | Elmore         | 6670  | 460  | No  |

GOOD COND > 70  
 FAIR 35 < COND < 70  
 MARGINAL COND < 35 page 1 of 11

# Testing Division

Chance Armstead, P. E.

Testing Engineer

# Aggregate/Soils Lab

- Responsible for aggregate source approvals and annual re-evaluations of products using the following:
  - Gradation
  - Unit Weight
  - Decantation
  - LA Abrasion
  - British Polishing Testing,
  - Sodium Sulfate Soundness
  - Sand Equivalent
  - Coarse and Fine Aggregate Angularity
  - Flat and Elongated Pieces
  - Specific Gravity and Absorption
- Responsible for managing the certified Precast Products Program.
- Monitors and administers the Aggregate Technician and Precast Products Technician Certifications & qualifying Area Aggregate Labs.



# Aggregate/Soils Lab

- Soils testing
  - Atterberg Limits
  - Proctor Density
  - CBR/MR
  - Soil Mechanics
- Geotextile testing
- Responsible for the Soils QC/QA Program. This includes monitoring and enforcing the Earthwork Technician Testing and Certification program.
- Responsible for qualifying ALDOT's Area Soils Labs.

# Chemical Lab

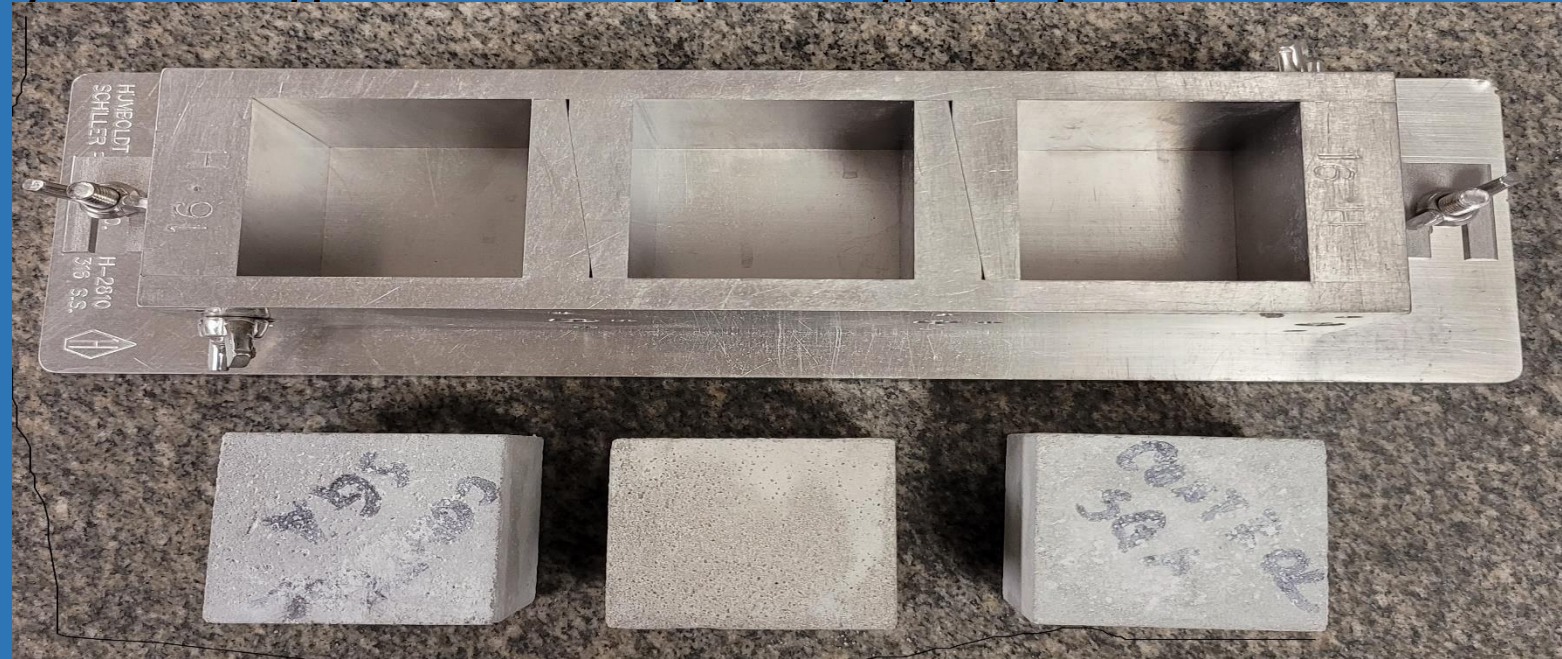
- The Chemical Lab consists of three Sections: Paint & Plastics, Chemical, Environmental
- The Paint & Plastics Section is responsible for analysis on the following products:
  - Traffic & Bridge Paint
  - Pavement Markers
  - Thermoplastic
    - Glass Beads
  - Reflective Sheeting
  - Elastomeric Bearing pads
  - Plastic Pipe
- The Chemical Section is responsible for analysis on the following products:
  - Cement
  - Fly Ash
  - Epoxy
  - Fencing Materials
  - Anchor Bolts
  - High-Strength Bolts
  - Aluminum Signs
- The Environmental Section is responsible for analysis on the following:
  - Storm Water
  - Concrete Admixtures



# Concrete/Cement Lab

- The Concrete/Cement Lab is responsible to assure the quality of cement and associated products by the using the following testing equipment:

- Blaine Air Permeability Tester
- Vicat Tester
- Motorized Flow Table
- Ro-Tap Sieve Shaker
- 5 quart mixer
- Autoclave
- Roller-meter
- Air Meters
- Gillmore Needles
- Atmospheric Cabinets
- Compressive testing machine



- The Concrete/Cement lab is responsible for the Concrete QC/QA Program. This includes monitoring and enforcing the ACI Level 1 and ALDOT Concrete Technician Testing and Certifications.
- The Concrete/Cement Lab reviews and approves PCC mix designs.

# Hot Mix Asphalt Lab

- The Hot Mix Asphalt (HMA) lab is responsible for reviewing and approving asphalt mixes.
- The HMA lab uses the following equipment to ensure the quality HMA products:

- Marshall Hammers
- Aging Ovens
- Gyratory Compactors
- Ignition furnaces
- Marshall Stability and Flow apparatus
- Rutting Machine



- The HMA lab is responsible for the HMA QC/QA Program. This includes monitoring and enforcing the HMA Technician Certification Program, contractor design laboratory inspections, and oversight of contractor HMA plant inspections.
- The HMA lab is responsible for testing and approving for use in Alabama asphalt related products such as:
  - Biodegradable Asphalt Solvents
  - Truck bed asphalt release agents

# Bituminous Lab

- The Bituminous lab is responsible to assure the quality of liquid asphalt products by the following testing:
  - Bending Beam Rheometer
  - Rolling Thin Film Oven
  - Pressure Aging Vessel
  - Viscosity baths
  - Ductility
  - Penetrometer testing
  - Dynamic Shear Rheometer
- The Bituminous lab is responsible for the liquid asphalt product QC/QA program. This includes technician testing and certifications, laboratory inspections, and petroleum refinery inspections.





# Physical Lab

- The Physical Lab works in conjunction with the other labs in the destructive testing of products.
- The Physical Lab is responsible for testing:
  - Concrete Cylinders
  - Rebar
  - Strand Cables
  - High Strength Bolts
  - High Strength Washers
  - High Strength Nuts
  - Sign Materials
- The Physical Lab is responsible for:
  - mixing concrete mix designs from materials supplied by contractors.
  - qualifying ALDOT's Area Labs for concrete cylinder testing & Ready Mix Producer Labs to perform PCC mix design.
  - certifying producers providing pre-stress and precast construction materials to ALDOT projects.
  - certifying welders for ALDOT construction projects.

