



Construction & Materials Bureau

The Construction & Materials Bureau consists of:

- Construction Section
- Geotechnical Section
- Materials Section
- e-Construction



Mladen Gagulic, Director of C&M Bureau
Montpelier January 17th , 2019

Construction & Materials Bureau - Overview

Construction Section - Jeremy Reed, PE., Construction Engineer

- **Provide construction oversight** of most capital improvement projects of contractors work
 - 50-80 Contracts per year
 - Oversee different type of contracts such as: DBB, DB, CMGC, ID/IQ, etc.
 - \$180 - \$200 million in Contractors payment
- **Resources** used to perform construction oversight:
 - 70 FT VTrans State employees
 - 5 – 10 Temporary employees
 - 75 – 110 Consultant seasonal (cost about \$13 million annually)

Construction & Materials Bureau - Overview

Construction Section - Jeremy Reed, PE., Construction Engineer

- **Major Projects** under construction
 - North Hero – Grand Isle BHF 028 – 1(26)
 - Project is on schedule to be completed in 2022



Construction & Materials Bureau - Overview

Construction Section - Jeremy Reed, PE., Construction Engineer

- **Major Projects** under construction
 - Middlebury EWP3
 - Project is on schedule



Construction & Materials Bureau - Overview

Materials & Certification Section - Nick Van Den Berg, P.E., Materials Manager

- **To ensure only quality** materials are incorporated into the work.
 - Majority of acceptance testing is performed at our **AASHTO accredited** laboratory in Berlin, VT.
 - Maintain the Agency **Quality Assurance Program (QAP)** in accordance with 23 CFR 637, including the Material Acceptance Program
 - The Independent Assurance Program provides an independent, **unbiased** evaluation of the Material Acceptance Program
 - About **\$50 million** worth of materials are incorporated into VTrans projects annually
 - There are **20 asphalt** plants, **17 concrete** plants and **5 precast** plants approved to supply materials to our projects
 - About **130 pits** are approved to supply unbound materials



Construction & Materials Bureau - Overview

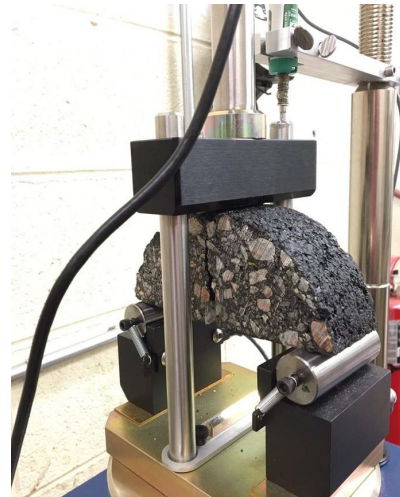
Materials & Certification Section - Nick Van Den Berg, P.E., Materials Manager

- **Resources** used to perform materials testing:
 - 24 Full Time VTrans State employees
 - 8-10 seasonal Temporary employees
 - 14 Consultant seasonal (cost about \$.86 million annually)
 - 4 Consultant Full Time (cost about \$.67 million annually)
- **In 2018** we tested:
 - **313,000** Ton of Hot Mix Asphalt
 - **10,887** Cubic Yards of Cast in place Concrete
 - Used **51,996** Ton of RAP
 - Inspected **629** pieces of pre-cast concrete elements

Construction & Materials Bureau - Overview

Materials & Certification Section – Nick Van Den Berg, P.E., Materials Manager

- We are moving towards performance related specifications
 - Hamburg Wheel Tester – rutting performance of asphalt
 - Semi-Circular Bend Test – cracking resistance of asphalt
 - Super Air Meter – concrete freeze-thaw durability
 - Surface Resistivity Meter – concrete resistance to chloride intrusion



Construction & Materials Bureau - Overview

Geotechnical Section – Callie Ewald, P.E., Geotechnical Manager

- **To provide foundation** recommendations for all highway structures and **rock slope** program management.
 - **Site characterization**, laboratory soil strength testing, shallow and deep foundation design, **slope stability** analysis and design
 - **Our drilling** crew performs subsurface borings, instrumentation installation and monitoring, **emergency responses** to voids/slope instabilities
 - **Bedrock** compressive strength testing and visual inspection
 - Manage **approved aggregate source** program
 - Oversee and manage **two central** and **four regional** soil and aggregate laboratories

Construction & Materials Bureau - Overview

Geotechnical Section – Callie Ewald, P.E., Geotechnical Manager

- **Resources** used :
 - 17 FT VTrans State employees
 - 3 Temporary employees
 - 3 on-call Consultant retainer contracts (cost about \$0.9 million in 2018)
- **In 2018** we completed:
 - 52 geotechnical recommendation reports
 - **21 emergency** responses (11 void/slide & 10 rockfalls)
 - 4,762 ft and 275 ft footage drilled in soil and rock, respectively.
 - 600 soil tests, 985 aggregate tests, & 1,549 salt tests
 - 56 rock slopes inspected

Construction & Materials Bureau - Overview

Geotechnical Section – Callie Ewald, P.E., Geotechnical Manager



Performed subsurface borings and utilized specialty consultant to perform GPR on area of concern on I-89 in Hartford



Small rockfall on I-89 in Waterbury

Construction & Materials Bureau - Overview

e - Construction Section – Molly Perrigo, D.B.I.A., e-Construction Manager

- **Supporting** existing Agency practice, programs, and applications, while continuing to pursue and implement **new technologies** that align with the overall e-Construction effort, foster collaboration and create more **efficient** business process.
 - **Electronically** capturing construction data, **electronic** submission of all construction documentation
 - Increased use of **mobile devices**
 - Increased **automation** of document review & approval
 - Essential use of **electronic signatures** by all parties, **secure** document and workflow management accessible to **all stakeholders on any device**

Construction & Materials Bureau - Overview

e - Construction Section - Molly Perrigo, D.B.I.A., e-Construction Manager

- **Resources used :**
 - 3 FT VTrans State employees
 - 1 Consultant (cost about \$150,000 annually)
- **In 2018 we:**
 - The e-Construction Section **was created** in the summer of 2018
 - Made assessment of the existing tools and resources that are supporting **e-Construction mission**
 - Assessed current business process for areas of **efficiency** with use of **cutting edge technology**
 - Signed contract for **new Construction Management System (CMS)**

Construction & Materials Bureau - Overview

e - Construction Section - Molly Perrigo, DBIA, e-Construction Manager

- **CMS – Anticipated schedule:**
 - **July 2018** – signed contract with ExeVision
 - **May 2019** – Begin Construction & Materials Design work with ExeVision
 - **July 2019** – deploy planned for Estimation and e-Contracting (to include Electronic Bidding)
 - **January 2021** – begin Civil Rights work with ExeVision
 - **February 2021** – deploy Construction & Materials
 - **October 2021** – deploy Civil Rights
 - **October/November 2021** – Final Review, acceptance and closing