

MEETING AGENDA: CTB Innovation Subcommittee

DATE: Tuesday, April 19, 2022

TIME: 11:00 a.m.

LOCATION: Virginia Department of Transportation
Central Office Old Highway Building Computer Lab,
1221 East Broad Street
Richmond, Virginia 23219

MEETING LEADER: Cathy McGhee, email: cathy.mcghee@vdot.virginia.gov, phone: 804-916-9508

AGENDA:

- Welcome
Cathy McGhee, Director of Transportation Research and Innovation
- Approval of March 2022 minutes
Cathy McGhee, Director of Transportation Research and Innovation
- Update to Proposed FY23 ITTF Program
Cathy McGhee, Director of Transportation Research and Innovation
- Innovations in VDOT
Hari Sripathi, Director, Office of Strategic Innovation
- Topics for future discussion
Committee members
- Public Comments

MEETING NOTES: CTB Innovation Subcommittee

DATE: Tuesday, March 15, 2022

TIME: 11:00 a.m.

The meeting of the Commonwealth Transportation Board (CTB) Innovation Subcommittee was held at the Virginia Department of Transportation Central Office Old Highway Building Computer Lab, 1221 East Broad Street, Richmond, VA 23219. Director of Transportation Research and Innovation Cathy McGhee called the meeting to order at 11:10 a.m.

Present: Mr. Rucker, Mr. Yates, Ms. DeTuncq, Mr. Stant, Mr. Kasproicz, Mr. Johnsen, Ms. Hynes, Mr. Merrill, Mr. Fowlkes, and Ms. McGhee.

Approval of February 2022 minutes – *The minutes from the February meeting were approved without comment.*

Review of Proposed FY23 ITTF Program – Cathy McGhee, Director of Research and Innovation presented the projects proposed for inclusion in the FY23 ITTF program. The slide deck is attached. Several questions and comments were raised by the committee including:

- With respect to electrification of heavy vehicles (I-81 Automated/Electric Vehicle Test Bed), should we also include consideration of hydrogen-fueled vehicles?
- As we leverage technology to improve operations and continue to evolve our traffic operations centers, how can we ensure that local systems are integrated and advancing as well?
- Is there a need for an evaluation of our workforce and how effectively they are leveraging technology?
- Potential projects to add:
 - Virtual Public Involvement – One of the “positives” to come out of the pandemic was the increased participation in public meetings that came with the forced transition to online meeting platforms. As we begin to resume more “normal” practices, how can we use technology to continue to encourage participation through virtual channels even as meetings return to in-person formats?
 - Facilitating Changes in Travel Patterns through Partnerships with Large Employers – Is there survey data that can be (or has been) collected from major employers that would reliably indicate their plans for the future with respect to employees in-office vs. remote work strategies. Are there ways that the state could influence those plans to reduce peak period travel demand?

Open Discussion/Topics for Future Meetings – A number of topics for presentations at future meetings were discussed including:

- Cyber security/cyber readiness/continuity of operations planning – this presentation is planned for our April meeting
- VDOT of Tomorrow update – this presentation will be scheduled in the coming months

There were no public comments.

ADJOURNMENT: The meeting adjourned at 12:05 p.m. on March 15, 2022.



INNOVATION AND TECHNOLOGY TRANSPORTATION FUND – FY23 UPDATE

Catherine C. McGhee, PE
Director of Research and Innovation

March 15, 2022

Innovation and Technology Transportation Fund

The ITTF provides funding specifically for the purposes of funding pilot programs and fully developed initiatives pertaining to high-tech infrastructure improvements with a focus on:

- Reducing congestion
- Improving mobility
- Improving safety
- Providing up-to-date travel data
- Improving emergency response

Proposed Projects

- **Proposed projects for inclusion in FY23 SYIP were developed in consultation with VTRC, DRPT, the Operations Technology Leadership Team, VDOT Districts, and Traffic Engineering and Operations Divisions**
- **Total value of proposed projects is \$34.3 million**
- **Proposed projects include focus on:**
 - **Advanced Technology/Strategy Deployment**
 - **System Enhancements**
 - **Congestion Management/Safety Improvement**

Advanced Technology/Strategy Deployment

- **Leveraging Connected Car Data to Improve Safety Analytics**
 - 3rd party vehicle trajectory data providing second-by-second paths and exception data (hard braking, wiper activation, ABS activation)
 - Enables proactive safety analytics (identify hotspots prior to crashes)
- **Smart Intersection Deployment to Support Vulnerable Road Users**
 - Machine vision/video analytics to enable detection of bikes/peds
 - Evaluate crossing behaviors and conflicts to inform safety improvement decisions
- **Cooperative Freeway Management**
 - Connected/Automated vehicle approach to speed harmonization
 - Partnership with VTTI and auto manufacturer

Advanced Technology/Strategy Deployment

- **Virginia Automated/Electric Heavy Vehicle Testbed**
 - Virginia Tech partnership shortlisted on EDA BBB grant opportunity
 - Evaluate through pilot deployment the benefits of heavy vehicle automation/electricification
- **Real-Time Information Dissemination for CMVs**
 - Communicate real-time information about work zones, weather, geometry, etc.
 - Messaging tailored specifically to commercial vehicles (heavy trucks)
- **Dynamic Lane Use/Hard Shoulder Running**
 - Add capacity when needed without major infrastructure expansion
 - Dynamic capability provides more responsiveness to changing conditions

System Enhancements

- **ATMS Data and Outreach Initiative**
 - Incorporate VATraffic and LCAMS into ATMS
 - Develop additional information dissemination methods and channels
- **Advanced Road Weather Information System**
 - Replace existing RWIS with newer, more capable systems
 - Improved real-time management and off-line planning for resilience
- **Traffic Operations Support Center**
 - Integrate Network Operations Center (NOC), Security Operations Center (SOC), and Emergency Operations Center (EOC)
 - Establish link with 5 regional TOCs

System Enhancements

- **Traffic Operations Workforce Development**
 - Develop guidelines and training for in-house, front line, first response technicians for the OT environment
 - Develop coaching, mentoring and training for staff to utilize of deployed cyber security tools
- **AI-Based Integrated Security Threat Prediction**
 - Predictive capability to protect OT environment
 - Ingest threat profiles from both internal and external data and service vendors
- **Data Exchange Platform – Evaluation Phase O&M**
 - DEP is the backbone of RM3P and the first program element that will be operational
 - Support operations and add new data sources throughout evaluation period

Congestion Management and Safety Improvement

- **Ramp Metering – I-95, I-66, and I-395**
 - Upgrade existing meters to adaptive control
 - Install new (adaptive) meters on I-95
- **Animal Detection Warning System – Corridor Q Feasibility**
 - Bristol District has one of the largest populations of elk in the southern US
 - Evaluate potential effectiveness of a detection system
- **ATSPM with Advanced Detection**
 - Deployment of ATSPM at other locations has shown a positive ROI
 - Evaluate new detection enabling additional performance metrics
- **Multi-Jurisdictional Device Control for Improved Operations**
 - Concept of operations, planning and design for integration of devices in Rt. 17 corridor (I-664 to JRB)
 - Enable cooperative operational strategies between VDOT and the City of Suffolk

