



INNOVATION AND TECHNOLOGY TRANSPORTATION FUND – FY23 UPDATE

Presentation to the Commonwealth Transportation Board

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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 \$34.5 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)
 - Cost: \$500,000
- **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
 - Cost: \$1 M
- **Cooperative Freeway Management**
 - Connected/Automated vehicle approach to speed harmonization
 - Partnership with VTTI and auto manufacturer
 - Cost: \$3M

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
 - Cost: \$3.4 M
- **Real-Time Information Dissemination for CMVs**
 - Communicate real-time information about work zones, weather, geometry, etc.
 - Messaging tailored specifically to commercial vehicles (heavy trucks)
 - Cost: \$2.5 M
- **Dynamic Lane Use/Hard Shoulder Running**
 - Add capacity when needed without major infrastructure expansion
 - Dynamic capability provides more responsiveness to changing conditions
 - Cost: \$12 M

System Enhancements

- **Advanced Road Weather Information System**
 - Evaluate data needs and appropriate technology for road weather information
 - Consideration of both data collection and analysis capabilities
 - Cost: \$500,000
- **Traffic Operations Support Center**
 - Integrate Network Operations Center (NOC), Security Operations Center (SOC), and Emergency Operations Center (EOC)
 - Establish link with 5 regional TOCs
 - Cost: \$1 M

System Enhancements

- **AI-Based Integrated Security Threat Prediction**
 - Predictive capability to protect OT environment
 - Ingest threat profiles from both internal and external data and service vendors
 - Cost: \$1 M
- **Data Exchange Platform – Evaluation Phase Extension**
 - 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
 - Cost: \$5 M

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
 - Cost: \$1.9 M
- **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
 - Cost: \$200,000

Congestion Management and Safety Improvement

- **ATSPM with Advanced Detection**
 - Deployment of ATSPM at other locations has shown a positive ROI
 - Evaluate new detection enabling additional performance metrics
 - Cost: \$1.2 M
- **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
 - Cost: \$275,000

