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U.S. Department of Transportation

Federal Motor Carrier Safety Administration

INNOVATIVE TECHNOLOGY DEPLOYMENT

Annual Report 2021

Funding Activities in Fiscal Year 2021 **Program Activities** in Calendar Year 2021

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For more information <u>https://www.fmcsa.dot.gov/itd</u>

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FMCSA's Innovative Technology Deployment (ITD) empowers States to apply cutting-edge technology to the challenge of improving highway safety.

ITD accelerates States' capacity to adopt advanced, effective electronic tools for secure credentialing and for screening of commercial motor carriers, vehicles, and drivers. With ITD funding, expertise, and program support, States can streamline implementation and enforcement while improving data quality.

Together, we reduce CMV crashes, increase safety, and improve efficiency for all.

FUNDING: Fiscal Year 2021 grant awards



PROGRAM: Calendar Year 2021 participation



Funding Fast Facts in Fiscal Year 2021

FAST FACTS



ITD awards by program element



ITD Program Element	Award Total
E-Screening	\$13,501,503
Safety Information Exchange	\$7,124,509
E-Credentials	\$2,820,466
Program Support	\$491,476
Total	\$23,937,954

ITD awards by NOFO priority



FY2021 NOFO Priority	Award Total
Vehicle OOS detection	\$12,617,765
CMV Parking	\$4,317,311
Other ITD Projects	\$3,150,830
Work Zone Notification	\$1,998,498
Data Quality	\$1,203,550
Federal OOS detection	\$600,000
Core Compliance	\$50,000
Total	\$23,937,954



Program Fast Facts in Calendar Year 2021

FAST FACTS

2021 Core Status and Compliance Reviews

6 State Reviews

conducted in 2021 through the ITD Core Compliance Monitoring Program.

42 States in total

have been reviewed or are planned for review by the end of 2022, representing all Core States other than those most recently Core certified.



Additional CY2021 Program Activities

ITD Program Area	Activities			
Data Quality	Enhanced the ITD Data Quality (DQ) Improvement Initiative, raising the bar of DQ measures to maintain progress.			
State Planning Support	Reviewed and approved 18 State ITD Program Plans/Top-Level Designs , which are required to become or remain eligible for ITD deployment grants:			
	AK IL IN KS KY MO			
	NC NM NV OK OR SC			
	SD TN TX VA WA WY			
State Deployment Support	Maintained operational support to meet the needs of States at all phases of ITD deployment.			
Safety Benefits Analysis	Advanced inspection data collection to support ongoing analysis of e-screening safety benefits.			
Grants Management	Conducted the 2021 HP-ITD Notice of Funding Opportunity (NOFO) webinar outlining national priorities and grants management information.			
Outreach & Information Sharing	Continued to facilitate peer-to-peer information sharing and provide program and operations updates to State and industry partners via two monthly meetings and the annual ITD workshop.			

Overview of ITD and its role in increasing safety

ABOUT ITD

The Challenge

Innovative highway technology can improve road safety and enforcement efficiency. Every year, cutting-edge tools increase what's possible.

However, the volume and complexity of available technology can be challenging to assess and integrate with State CMV information systems and networks—and can cost more than State budgets can underwrite.

The Opportunity

The ITD Program provides Federal funding and expertise that brings innovative technology deployment within States' reach.

States identify their own technology priorities and needs; the ITD team of subject matter experts helps States navigate the viable tools and more quickly and seamlessly bring their stakeholders together to implement secure solutions.

Established by the FAST Act

The 2015 Fixing America's Surface Transportation Act established the ITD Grant Program and placed it under the Motor Carrier Safety Assistance Program (MCSAP) High Priority (HP) Program, reducing the burden on States that apply for multiple grants annually.¹

What ITD offers states

- Reimbursement grant funding that helps States deploy, operate, and maintain innovative road safety technologies
- Expertise on using electronic roadside screening, data integration, and data sharing to make inspections and enforcement more effective and efficient
- Assessment and guidance on ensuring that State data transfer processes meet the standards of the FMCSA's Safety and Fitness Electronic Records (SAFER) System
- State-specific support and national forums

How States benefit from ITD

- Increased capacity to implement the secure solutions that each State determines would best meet its unique needs
- Access to the latest carrier, vehicle, and driver information from FMCSA's SAFER (Safety and Fitness Electronic Records) System, because real-time data at the roadside enables quick enforcement decisions and improves the efficiency and safety impact of the State CMV inspection process
- Peer-to-peer learning and insight into best practices, enhancing each State's capacity

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¹ Commercial Vehicle Information Systems and Networks (CVISN), the predecessor deployment grant program administered by FMCSA under the authority of 49 U.S.C. § 31106, was repealed by the FAST Act.

How States participate in ITD

ABOUT ITD

Participation is discretionary.



ITD Core Compliance

Pillars of Core Compliance

ITD Core Compliance certification requires States to demonstrate effectiveness in the three areas below.

1 Safety Information Exchange

Safety Information Exchange makes all the other ITD functionalities possible. This backbone improves data collection and sharing of critical information such as inspection data and credentials status across agency and jurisdictional boundaries. Elements include:

- Conducting inspection reporting using FMCSA's Aspen program (or equivalent) by all certified inspectors. Inspection data is sent to SAFER directly or indirectly.
- Connecting to SAFER, enabling exchange of interstate carrier and vehicle safety data among States.
- Implementing a State-specific Commercial Vehicle Information Exchange Window (CVIEW) system (or equivalent) to exchange credential and safety data within the State and with SAFER (to other States).

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2 Credentials Administration

Automation of application, processing, and issuance of motor carrier and vehicle operating credentials and permits can improve the efficiency of motor carriers and State credentialing agencies alike. Elements include:

- Automating the processing of International Registration Plan (IRP) and International Fuel Tax Agreement (IFTA) credentials and conducting at least 10% of transactions electronically.
- Participating in the IRP and IFTA Clearinghouses to share vehicle registration and fuel tax information across jurisdictions and automate funds settlement between jurisdictions.

3 Electronic Screening (E-Screening)

E-screening systems focus enforcement resources on high-risk and non-compliant motor carriers and vehicles. These systems identify CMVs in motion, verifying size, weight, and credentials in conjunction with a carrier's past safety performance—and then communicate safely to drivers, in real time, to either pull in



or bypass the roadside inspection station. Core compliant States must implement e-screening at one or more fixed or mobile inspection sites and be ready to replicate this functionality at other sites.

This e-screening technology is positioned ahead of a weigh/inspection station to notify CMV drivers of their eligibility to bypass the enforcement location.

Expanded ITD

ABOUT ITD

Expanded ITD enhances flexibility and funding

States achieving and maintaining Core Compliance become eligible for **Expanded ITD** funding and activities.

While FMCSA supports specific Expanded ITD capabilities, States may choose the capabilities they want to deploy. This "cafeteria approach" allows States to customize their ITD programs and focus their technology resources on the projects most important to them.



Expanded ITD capabilities may include mobile vans with camera, weight, and sensor technologies deployed to increase the effectiveness of roadside enforcement.

Program Areas	Eligible Capabilities	Defined by FMCSA & public / private stakeholders
Driver Information Sharing	Driver information	Use/maintain driver snapshots in all processes that require information about drivers (e.g., enforcement, credentialing, hiring, inspection).
	Access to driver data	Improve enforcement personnel and carriers' access to driver information to target driver safety risks.
Enhanced Safety Information Sharing	Safety data quality	 Establish data quality measures (timeliness, accuracy, and integrity), especially for elements used in safety decisions. Regularly check data used in ITD processes for quality; purge stale data; and correct errors.
	Carrier access to safety data	 Improve carriers' ability to review safety-related data (carrier, vehicle, driver, cargo, crash, citation, inspection, work zone and truck parking) collected by a State or Federal agency in a timely manner. Consider proactively delivering safety data to carriers.
Smart Roadside	Roadside access to data	Integrate and improve access for roadside personnel to data stored in infrastructure systems (e.g., SAFER, Motor Carrier Management Information System (MCMIS), State CVIEW, commercial driver's license (CDL) systems).
	Virtual weigh stations	Expand use and capabilities of virtual/remote enforcement sites to increase enforcement effectiveness.
Expanded E-Credentialing	Access to credential data	Enhance information interfaces and systems to provide more current/accurate credentials data to authorized stakeholders.
	Better e-credentialing	 Reduce complexity and redundancy for users by offering access to multiple credentials from a single source. Expand electronic access to credentials, e.g., add oversize/ overweight (OS/OW) and hazardous materials permitting.

Funding Allocations in Fiscal Year 2021

ITD: 2021

5-Year history of FMCSA's ITD grant funding



FY2021 Federal HP-ITD funded projects

- FMCSA distributed \$23,937,954 in Federal HP-ITD funding to 25 States via 28 grants.
- One State received a planning grant to develop its Program Plan and Top-Level Design (PP/TLD), an
 essential step toward Core certification.
- All other grants supported deployment of Expanded ITD functionality.





Number of grants and percent of funds addressing FY2021 NOFO priorities

State projects that were awarded 2021 HP-ITD funds addressed all five Expanded HP-ITD Program Priorities as outlined in the associated NOFO. As mentioned above, one State received a planning grant to develop its Program Plan for Top-Level Design (PP/TLD), an essential step toward Core certification.

Number of projects	Percent of funds awarded	All FY2021 projects addressed the NOFO Expanded HP-ITD Program Priorities	
1 project	8%	Work zone, congestion, or incident notification projects deploy technologies that will safely notify the driver within the cab of the CMV of an active work zone, traffic congestion, or an incident ahead.	
1 project	3%	Federal OOS orders detection projects deploy e-screening technologies to detect Federal out-of-service (OOS) orders.	
20 projects	53%	Vehicle OOS issues detection projects deploy e-screening technologies to detect CMVs with OOS issues that would directly impact the safety of the motoring public.	
3 projects	18%	CMV parking availability projects safely demonstrate real-time dissemination to a CMV driver of parking space availability by using dynamic message signs, interactive voice recognition, smartphone app, or other proven technology.	
3 projects	5%	Credential data quality projects improve the quality of credentialing data that States upload to SAFER by updating systems and/or replacing outdated technologies.	
17 projects	13%	Other ITD projects address other typical projects outlined in the MCSAP comprehensive policy.	

In 2021, FMCSA awarded \$23,937,954 in grant funding to 28 ITD projects.

Program Activities in Calendar Year 2021

Overall status of Innovative Technology Deployment Program in CY2021

All States and the District of Columbia have deployed at least one element of Core functionality.

- **45 States are ITD Core compliant (+2** since 2020), meeting technical requirements for Safety Information Exchange, Credentialing Administration, and E-Screening.
- 48 States upload credential data to SAFER for exchange with other ITD States.
- **48** States participate in one of the nationwide e-screening enrollment programs: PrePass, Drivewyze, or a State-operated program.
- **46 States deploy automated electronic processing of at least 10% of IRP and IFTA credentials** from the carrier to the State via Web-based or computer-to-computer solutions. *Alaska and Hawaii are exempt from this requirement.*

Several States in the Expanded phase of ITD undertook projects in 2021 to:

- Upgrade their systems (CVIEW, IFTA/IRP electronic credentialing)
- Deploy and/or enhance online OS/OW permit systems
- Deploy tire anomaly detection or infrared inspection technology
- Reinvest in inspection facilities
- Extend e-screening to additional sites
- Deploy or improve CVO Portals that enable online credentialing
- Establish or expand mobile enforcement capability

ITD Program Priority	Activity	# of States	States participating in CY2021 Self-reported by States
Deploy e-screening technology	Deployed or planning new equipment and e-screening technology at weight stations or in mobile enforcement trailers	26	AK, AL, AZ, CA, CO, CT, DE, FL, IA, ID, KY, LA, MD, ME, MO, MT, NE, NC, OK, SC, SD, TX, UT, VA, WA, WV
Detect OOS vehicles	Added or adding tire anomaly detection, tire pressure detection, or infrared inspection technology to existing sites	22	AL, AZ, CA, CO, DE, GA, IA, KY, ME, MI, MO, MT, NC, NE, OK, SC, SD, TN, UT, VA, WA, WY
Detect OOS carriers	Made or making system and technology changes to improve detection	15	AK, AL, AR, AZ, CT, LA, MT, NC, NY, OR, TN, TX, UT, WA, WY
Share CMV parking availability	Deployed or researching CMV parking notification systems	3	DE, IN, MA
Reduce work-zone crashes	Built or building work zone information systems and methods	2	AL, DE

ITD Core Compliance Monitoring Program (CCMP)

In FY2021, ITD conducted Core Compliance Reviews (CCRs) in six States: AL, FL, GA, NE, NJ, and VA.

The ITD Core Compliance Monitoring Program is intended to ensure that States maintain their Core ITDrelated functionality as certified by FMCSA. The CCRs formally assess and provide feedback to each State on:

- 1. The State's data quality
- 2. Compliance of the State's system operations with technical requirements
- 3. The State's compliance with programmatic requirements, including grant management



ITD Data Quality Improvement Initiative

Data is the foundation of the ITD Program. The ITD Data Quality Improvement Initiative is designed to improve the quality of IRP and IFTA credential data shared among ITD States. **In 2021, measures for IFTA data were modified to "raise the bar" of the data timeliness, completeness, validity, and overall ratings.**

State enforcement programs depend on accurate, complete, timely data to make informed decisions at roadside that target potentially high-risk carriers. The ITD program developed and maintains data quality standards, monitors each State's data quality, and provides technical oversight and assistance to help States improve. Monthly performance measures evolve in response to needs of the ITD Program and community.

In 2021, while most States regularly achieved Good Overall ratings for IFTA data quality, there was room for improvement. As expected, some States' ratings declined when the modified measures were implemented. The ITD Data Quality Team worked with those States to identify and address causes, and over several months many States improved their overall ratings. Additional modifications are planned for 2022.





E-screening effectiveness: a new approach in CY2021

To better understand the role that e-screening technology plays in flagging vehicles for roadside inspections, the ITD Program Office is working with FMCSA IT to capture relevant data in the FMCSA digital inspection platform which is slated to deploy in 2022.

Knowing the effectiveness of e-screening will help FMCSA and States analyze impact and evaluate ROI (Return on Investment) from e-screening tools. Roadside enforcement personnel have had access since 2016 to an "e-screening checkbox" in Aspen and third-party inspection tools for marking inspections conducted because of e-screening. The ITD Program encourages and supports routine checkbox use by providing States with management tools such as training materials and regular reports of use by State, month, and inspector.

ITD analysis indicates the potential value of this data—and clear underuse of the e-screening checkbox. Integrating mandatory collection of this key information into the FMCSA digital inspection platform will provide more robust data for assessing e-screening's effectiveness.







ITD Operational support

In CY2021, the ITD Program certified or recertified six States.

ITD provides operational support to States at all phases of deployment, including those working toward Core functionality. Support this year included:

- Certification of IRP, IFTA, and/or CVIEW systems for Core status: NV, VT
- Recertification of system upgrades or vendor changes: MN
- Certification for use of ITD web services: CT, IN, KY

Outreach and peer-to-peer information sharing

The ITD Program provides regular venues for communicating program and operations updates where stakeholders discuss and share concerns, topics of interest, and best practices/lessons learned.

In 2021, the ITD Program Office continued to facilitate two monthly meetings for the ITD community:

- ITD Program Managers: meetings cover program issues and State-specific ITD deployment projects
- ITD Architecture Change Control Board (ACCB): meetings cover operational and technical issues

The 2021 ITD-PRISM Workshop took place in conjunction with the annual MCSAP conference, on a virtual platform which enabled members of the ITD community to participate and share information, best practices, and lessons learned. ITD-specific sessions reflected the Program's determination to focus enforcement on high-risk operators and drivers. In addition to updates from the ITD Program team:

- State partners shared insights from piloting or using innovative technologies:
 - Arizona Department of Transportation presented its Work Zone Notification System Pilot, a demonstration project for learning about using a warning and alert system and connected vehicle systems to improve safety and traffic flows in freeway and freight corridor work zones.
 - Nebraska State Patrol Carrier Enforcement Division presented its experience with using e-screening enhancement technologies including tire anomaly detection and license plate recognition (LPR) systems, among others.
 - Utah Department of Transportation presented an introduction to working with the PrePass Safety Alliance and its two types of preclearance technology: RFID (Radio Frequency Identification) and CMRS (Commercial Mobile Radio Services).
- FMCSA updated the ITD community on FMCSA IT Modernization planning.
- Industry partners provided insight into IRP Clearinghouse Modernization work.

Additional 2021 accomplishments

- Online Quarterly Report capacity: Development and rollout of this online form facilitates data collection and analysis—and streamlines reporting for States because it replaces the need to complete and email reports as documents.
- Upgrades to the ITD website, including additional data queries and information on each State's technology deployment.



25 States received **28** grants totaling nearly **\$24** million.

State	Core Grant	Expanded Grant	Functional Area	Funded Projects/Activities
Alaska		\$493,462	E-Screening	The State of Alaska, DOT&PF, MSCVC received funding for the Tok Virtual Weigh-in-Motion Upgrade and Sterling Virtual Weigh-in-Motion Illumination Upgrade.
Arizona		\$415,000	E-Screening and Safety Information Exchange	The Arizona Department of Transportation received funding for two projects: Replace LPR and USDOT Reader Cameras at Nogales POE and Operations and Maintenance for CVIEW projects.
Connecticut		\$1,717,459	E-Credentialing and Truck Parking	The Connecticut Department of Motor Vehicles received funding for two projects: Development of a Truck Parking Information Management System for Real-time Dissemination of Commercial Vehicle Parking Information and Motor Carrier Portal Development Integration Consultant (CVO Portal Enhancements).
Delaware		\$1,023,060	E-Screening	The Delaware Department of Transportation received funding for the VWS – Development of New sites project.
lowa		\$283,738	E-Screening	The Iowa Department of Transportation received funding for two projects: Smartview360 Trailers – Operations and Maintenance and Tire Anomaly and Classification System – Operations and Maintenance.
Illinois		\$467,500	E-Screening	The Illinois Department of Transportation received fund for the Deploy LPR/USDOT-R Vehicle Dimensioning scan, Sorting Software and TACS @ O'Fallon site - Including 1 year of O&M project.
Indiana		\$1,209,584	E-Screening and Safety Information Exchange	The Indiana Department of Transportation received funding for the 360SmartView Expansion project.
		\$850,000	Truck Parking	The Indiana Department of Transportation received funding for the Truck Parking Information Management System (TPIMS) project.

State	Core Grant	Expanded Grant	Functional Area	Funded Projects/Activities
Kansas		\$448,913	E-Screening and Program Support	The Kansas Highway Patrol received funding for two projects: Kansas Weigh Station Technology Enhancement – Phase 1 and Kansas ITD Program Management Support.
Kentucky		\$1,110,000	E-Screening, Safety Information Exchange, and E-Credentialing	The Executive Office of the Commonwealth of Kentucky received funding for the KATS Expansion and Enhancements, Cloud Observation System, and Enhancements to the Overweight and Over-Dimensional System projects.
Louisiana		\$552,500	E-Screening, Safety Information Exchange, E-Credentialing, and Program Support	The Louisiana Department of Transportation and Development received funding for the Contract Projects Management/System Architect Assistance, Operations and Maintenance of Louisiana CVIEW projects, are IRP System Operations and Maintenance projects.
Maine		\$470,000	E-Screening	The Maine Department of Public Safety, Maine State Police received funding for the Upgrade in Leading-Edge Screening Technologies at Old Weigh Station project.
Michigan		\$140,896	Program Support	The Michigan State Police received funding for the Program Administration and Technical Assistance project.
		\$1,998,498	Work Zone	The Michigan Department of Transportation received funding for the Michigan DOT CMV and Work Zone Safety project.
North Dakota	\$50,000		Core Planning	The North Dakota Highway Patrol received funding to update their ITD PP/TLD.
Nebraska		\$731,850	E-Screening	The Nebraska State Patrol received funding for the Pre-clearance Upgrades at Waverly and North Platte project.
New Mexico		\$230,256	E-Screening	The New Mexico Department of Public Safety – NM State Police received funding for the Automated Thermal Inspection System.
Nevada		\$1,523,750	E-Screening	The Nevada Department of Public Safety, Highway Patrol Division received funding for the Nevada Mobile E-Screening project.
Oklahoma		\$1,700,000	E-Screening, Safety Information Exchange, and E-Credentialing	The Oklahoma Department of Transportation received funding for the OCR-Based E- Screening, OS/OW Permitting System Enhancement/Replacement, OS/OW System Operations and Maintenance, and CVIEW Operations and Maintenance projects.

State	Core Grant	Expanded Grant	Functional Area	Funded Projects/Activities
South Carolina		\$850,000	E-Credentialing	The South Carolina Department of Motor Vehicles received funding for the CMCS-CVIEW Modernization Solution project.
South Dakota		\$2,000,000	E-Screening	The South Dakota Department of Transportation received funding for the I-90 Tilford Port of Entry E-Screening System project.
Texas		\$701,250	E-Screening	The Texas Department of Public Safety received funding for the Queen City Inspection US-59 Facility – Installation of Tire Anomaly Detection Technology, Weigh-in-Motion Scale (WIM) and Over-height Detection Technology; New Waverly IH-45 Inspection Facility – Installation of Tire Anomaly Detection Technology and Thermal Imaging System; Seguin IH-10 Inspection Facility – Installation of Tire Anomaly Detection Technology; and Devine IH-35 Northbound and Southbound Inspection Facilities – Installation of Tire Anomaly Detection Technology projects.
Utah		\$288,158	Safety Information Exchange, E-Credentialing, and Program Support	The Utah Department of Transportation Motor Carrier Division received funding for the Utah ITD Program Support and OS/OW Routing Base Map & Bridges Update projects.
Virginia		\$477,428	E-Screening	The Commonwealth of Virginia, Department of Motor Vehicles received funding for the WIM Replacement project.
Washington		\$1,999,752	Truck Parking	The Washington State Department of Transportation received funding for the Improve Truck Parking Technology at Existing Weigh Stations and Rest Areas project.
West Virginia		\$275,400	E-Credentialing	The West Virginia Division of Motor Vehicles received funding for IRP System Maintenance projects.
		\$446,250	E-Credentialing and Safety Information Exchange	The West Virginia Division of Motor Vehicles received funding for the Virtual Roadside Inspection Station, System Modernization – Data Cleansing, and Maintenance of Effort for CVIEW projects.
Wyoming		\$1,483,250	E-Screening	The Wyoming Department of Transportation – Highway Patrol received funding for the Enhance the Technological Safety Capability at High Traffic Port Locations project.
25 States	\$23,	937,954		28 projects

