Texas Department of Transportation

2024 ITD Annual Report

Information Technology Division

Contents

Message from Chief Information Office, Anh Selissen

TxDOT's Information Technology Division (ITD) takes a proactive and collaborative approach to deliver innovative, reliable, and resilient technologies to our agency and the public to achieve TxDOT's mission – Connecting YOU with Texas. ITD serves more than 13,500 employees across Texas and supports the largest business and traffic network in the country.

ITD's primary mission is to support the mission and operations of TxDOT by:

- Enhancing the existing technology infrastructure.
- Exploring and encouraging the creative and innovative use of technology.
- Delivering services and solutions that provide a quality user experience.
- Improving operational efficiency with technology.
- Providing support to all users of our technology resources.
- Aligning technology resources, including equipment, personnel, and budget, with agency priorities and initiatives.

Over the year, ITD has transformed the way we provide customer service and has continued to show consistent results in our delivery of services for TxDOT and the public. In 2024, we successfully implemented key strategic and innovative initiatives to enhance, modernize, and strengthen our technology portfolio.

About Information Technology Division

The Information Technology Division (ITD) is committed to excellent customer service through greater cooperation and collaboration with TxDOT districts and divisions. ITD is comprised of twelve functional areas, focusing on service delivery and operations, continuous service improvements, and implementation of technology solutions to enable customer success.

Leadership


Liz Saavedra - ITD Business Operations Manager


Steven Pryor - Chief Information Security Officer


Emilie Schulz - Data Privacy Officer


Bart Broz - Section Director, IT Vendor Management & Sourcing


Lisa Petoskey - Section Director, Applications


Nick Mahoney - Section Director, Service Integration & Governance


Daniel Hankins - Section Director, Infrastructure


Jacob Bennefield - Section Director, Network


James Johnson - Section Director, Transportation Programs


Matt Sneed - Section Director, Traffic Technology


Angela Schwausch - Section Director (Interim), Customer Relationship Management

ITD Mission, Vision, Principles

ITD MISSION

Provide excellent customer service through secure, reliable, robust, and innovative technology solutions to enable TxDOT's mission.

ITD VISION

ITD enables TxDOT to effectively use information and technology to deliver mobility, promote economic opportunity, and enhance the quality of life of all Texans.

ITD PRINCIPLES

People First • Secure • Innovative • Effective Communication • Integrity • Results Oriented • Efficient • Collaborative

ITD Goals

Year in Review

Spotlight: Consultant Certification Information System (CCIS)

2024 GovTech Digital Government Summit Winner

Best of Texas Award, Best Application Serving an Agency's Business Need

In partnership with TxDOT's Professional Engineering Procurement Services (PEPS) Division, ITD replaced a 20+ year-old mainframe vendor management system with the Consultant Certification Information System (CCIS). CCIS is cloud-based and utilizes the Salesforce platform, making it easier to expand and respond to vendor firms. The new and improved system includes process automation, such as the entry of the Project Team Composition (PTC) Form, which previously was performed on paper. This automation reduces errors and disqualifications by setting required fields and validating entered data. CCIS also provides a better experience for users with a more intuitive navigation, and sends automated email notifications for annual renewals, certification expirations, and amendments to solicitations. The system combines the precertification process and PTC Form submission, allowing for more efficient customer service. Firms can now register, get approved/pre-certified, and submit documentation through an electronic portal, which has led to a decrease in the number of disqualifications due to consultant errors. The system also allows PEPS to monitor all stages of a solicitation until the contract is awarded. Overall, the new CCIS system has improved efficiency, reduced errors, and provided a better user experience for both internal and external users.

TxDOTCONNECT: DELIVERING TRANSPORTATION PROGRAMS

TxDOTCONNECT Letting Management

TxDOTCONNECT, also known as the Modernize Portfolio and Project Management (MPPM) initiative, is the agency's custom-built system for managing the delivery of transportation programs, projects and right of way. Since its launch in 2019, the system has introduced a modern, user-friendly system that continues to transform business processes, consolidate the functionality of many of TxDOT's legacy systems, provide new functions and reporting capabilities, and improve communication and collaboration among TxDOT teams and external partners.

In 2024, the TxDOTCONNECT team released Letting Management, a revolutionary new IT solution that transforms how TxDOT business operates. TxDOTCONNECT Letting Management streamlines critical business processes, delivering dramatic improvements in efficiency. A few notable features include:

- Streamlining vendor authorization for proposal requests through automation
- Sequencing projects in advance, several weeks prior to Letting
- Generating contract documents instantly with a one-click process

TxDOT continues to achieve significant technology transformation with regular releases of new TxDOTCONNECT functionality and enhancements, which demonstrate the department’s commitment to technology transformation. Our vision is to provide a user-friendly solution, support current transportation program management processes, and be the source of information for transportation projects

TRAFFIC TECHNOLOGY: OPTIMIZING INNOVATION & SAFETY

Statewide Video Sharing System

The TxDOT Statewide Video Sharing System (STVS) allows for real-time traffic video streaming and sharing across multiple entities. It has proven to be highly useful during major weather events and other emergency situations. The system also allows TxDOT's 25 districts to access cameras across district lines to monitor traffic and coordinate responses to roadway incidents in real time. Prior to the implementation of the STVS project, districts and EOC's were only able to access snapshots from traffic cameras which had limited information on traffic speeds and weather intensity. With the implementation of this project users can access live video streams from over 3,300 traffic cameras across TxDOT's 25 districts allowing them to respond to rapidly changing situations. The STVS platform has over 1600 internal and external users that view between 40,000 to 50,000 video streams every month. In the event of any natural disaster, roadway incident, or large-scale events that pose traffic issues, users can access cameras from around the state to monitor the affected areas.

AASHTOWare Safety

In 2024, TxDOT's Traffic Safety Division and ITD implemented AASHTOWare Safety to improve TxDOT's crash analysis process. More than 3 million crash records over a 10-year timeframe have been integrated into an online software that is easily accessed by users both internal to TxDOT and across partner government agencies. The software does not limit data query sizes, greatly advances the available filtering options, and drastically increases processing speed, all in an easy-to-use graphical interface that maps out crash data overlaid onto TxDOT roadway and asset data. The software has dedicated built-in modules that allow users to perform crash analysis from start to finish on either roadway segments or intersections. Along with housing the data and crash analysis system, users can save studies and share them to be worked on by multiple users, export data to work in external systems, and produce reports, charts, and maps that are finished products ready for a public audience. Users can also perform a wide range of analysis, including predictive crash analysis and remediation analysis, while prioritizing cost allocation for each safety treatment. Implementing AASHTOWare Safety has quickly and drastically improved the ability TxDOT and Texans to better understand crashes and implement solutions that are directly responsible for life-saving roadway improvements.

Artificial Intelligence Incident Detection System

The Austin District (AUS) and ITD partnered together to procure and deploy an Artificial Intelligence system to improve TxDOT's awareness for traffic incidents in the Austin area. The system has reduced the time for TxDOT to receive notifications about crashes, stalled vehicles, and debris on the road while also expanding the coverage area for incident notification. It works by ingesting multiple real-time data streams and then identifies locations that likely have a roadway incident. This system allows operators in the Traffic Management Center to monitor more information than ever before, so incidents can be prevented or cleared away faster. Performance of the AI detection system continues to be monitored and improved and will be used to develop further AI technology in additional Districts.

CONNECTING TEXANS DIGTALLY: STATEWIDE BROADBAND

TxDOT Broadband Program

Jointly sponsored by the Right of Way (ROW) and Information Technology Divisions, and in collaboration with public and private partners, the TxDOT Broadband Program is advancing broadband infrastructure across Texas to help bridge the digital divide through four core strategies:

- **Provide Access to ROW** - Right of way shall be open via utility permit to allow access for broadband providers, and to ensure no single company has preferred access.
- **Maximize Resource Sharing -** "Dig Once" by installing conduit duct banks during compatible highway construction projects and expand capacity by permitting or leasing conduit and fiber.
- **Assist Statewide Broadband Initiatives -** Support the state's effort to expand broadband infrastructure to bridge the digital divide across Texas.
- **Foster TxDOT Broadband Capacity -** Facilitate the growth of TxDOT broadband infrastructure to promote agency initiatives for workforce connectivity and intelligent transportation systems.

Key 2024 Accomplishments

- Creation of a broadband notification system as required by the Federal Highway Administration.
- Creation of a fiber construction project reporting dashboard. For the first time, TxDOT has a statewide view into fiber and conduit being constructed within roadway projects.

Development of a statewide TxDOT fiber map was initiated in 2024 and will continue into 2025. The fiber map will complement existing agency platforms and initiatives such as the Right of Way Utility and Leasing Information System (RULIS) and Design Division's Digital Delivery Program.

Full analysis of work completed can be viewed in the Broadband Program 2024 Annual Report.

Spotlight Broadband Project

$6 million in American Rescue Plan Act Capital Project Funds (CPF) were awarded to the El Paso (ELP) District to provide public Wi-Fi access to six safety rest areas along Interstate 10 near the following towns: Van Horn, Fabens, and Fort Hancock. The project kicked off in 2024 and is targeted for completion the end of Q4 2026.

EMBRACING INNOVATION: ARTIFICIAL INTELLIGENCE & AUTOMATION

AI Program

TxDOT established an Artificial Intelligence (AI) Program, implementing a robust governance structure to ensure that any AI initiatives and technologies at TxDOT comply with relevant agency, state, and federal policies. This governance framework included:

- Developing, publishing, and promoting TXDOT's Acceptable Use of Artificial Intelligence Policy.
- Developing process documentation for identifying, reviewing, and tracking new technology requests with an AI component.
- Establishing an AI Risk Work Group, a cross-divisional, collaborative working group to evaluate risks associated with the implementation of AI at TxDOT.

Invoice Automation and Robotics

ITD implemented Robotics Process Automation to automate the attestation step in Invoice Processing for the division. The automation streamlines the invoice attestation process by using optical character recognition to capture key data, validating data against purchase orders and contracts, use of an approval workflow to capture approvals, and posting validated invoices to the accounting system. In the future payments may be automated. Invoice automation has reduced time and effort for manual data entry, minimized errors in inaccurate invoice approvals, and improved efficiency for the teams involved in the workflow. Using this same model, ITD has started working with other business areas throughout TxDOT to automate their invoice attestation.

Microsoft 365 Copilot

TxDOT conducted a 300-person, agency-wide, pilot of Microsoft 365 Copilot, an AI-powered productivity tool, providing an opportunity for employees to evaluate and explore the tool safely in our environment while getting an understanding of the value the tool can bring. By the end of the pilot, more than half of our pilot group reported that they had integrated Copilot into their day-to-day work, and we had identified over 20 use cases where Copilot could help streamline processes and improve productivity.

Overall, the pilot was a resounding success; most users reported that Copilot was beneficial and provided value to improving and optimizing their business processes and day-to-day work. As a result, ITD is exploring expanding Copilot to more employees at TxDOT and looks forward to discovering further opportunities for AI to support TxDOT's mission.

ENTERPRISE DATA MANAGEMENT: SHARING INFORMATION TO DRIVE INNOVATION & SUCCESS

Enterprise Data Platform

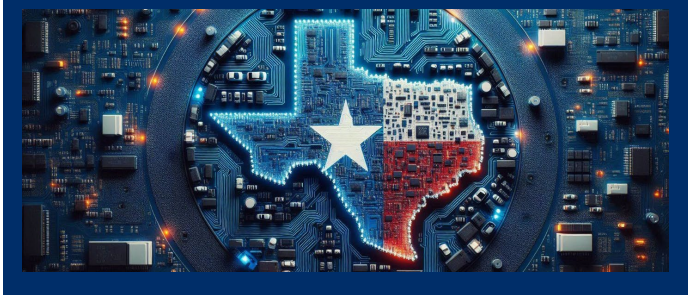
The Enterprise Data Platform (EDP) at TxDOT is a next-generation, cloud-based data platform designed to provide an agency-wide, centralized data marketplace. Its primary goal is to improve data sharing and reduce barriers associated with data silos, translation, and usability.

In 2024, we focused on:

- **Data Management Framework**: Streamlined access and quality control, reducing errors, improving reliability, and enhancing data-driven decision-making across TxDOT.
- **Visibility**: Increased the platform's visibility and opportunities through engagement in internal and external forums.
- **Collaboration**: Aligned data management strategies with support architecture for projects via cross-functional efforts.
- **Artificial Intelligence / Machine Learning (AI/ML) Training**: Engaged in training to support TxDOT's AI Strategy from a data management perspective.

Bridge Management Application

PROJECT DELIVERY: DELIVERING CUSTOMER-FOCUSED SOLUTIONS



ITD worked with Bridge Division to upgrade and improve the Bridge Management Application (BrM) application to meet the latest federal requirements for managing transportation assets. Before the upgrade, Bridge Division relied on spreadsheets and manual calculations with improved functionality and optimizations, key tasks and calculations can now be completed much faster. BrM allows staff to calculate predictions on how TxDOT bridges will deteriorate over time and consider the cost and benefits of various actions (including doing nothing) to ensure TxDOT bridges remain safe and good condition. BrM also allows Bridge Division staff to plan programs and schedules for bridge maintenance, in accordance with policy and budgetary considerations.

Modernized TRACK Case Management

The TRACK system is TxDOT's official compliant system for external complaints (citizens, businesses, other government agencies including those forwarded from the Office of the Governor, elected officials, members of the media, etc.). The system is used to administer the process of tracking and responding to complaints, including routing complaints to appropriate districts or divisions for response. In 2024, ITD transitioned the existing TRACK case management system from SharePoint to a new Salesforce platform, which has improved the agency's ability to track legislative-mandated complaints.

Regional District Centers Shopping Cart

The Regional District Centers (RDC) Shopping Cart is a new online shopping system designed for TxDOT warehouse locations that store and manage items such as herbicides, personal protective equipment (PPE), lab supplies, and traffic control devices used by TXDOT personnel. The RDC Shopping Cart replaces the previous static website and offers a modern online shopping experience with images, available quantities, costs, and detailed descriptions for each product. The new system includes dynamic features such as a searchable catalog, image management, and backorder management. It also offers personalized features such as highlighting frequently ordered items, order history, and email notifications. Items can be added to a shopping cart, and orders can be directly integrated with the PeopleSoft Inventory system.

Multi-Factor Authentication

In 2024, TxDOT continued to ensure the security of TxDOT and its business applications by expanding multi-factor authentication (MFA) to over 50 applications and services.

The MFA program was initiated by the Texas Transportation Commission and TxDOT Information Security to strengthen security, reduce the risk of unauthorized access, and ensure regulatory compliance.

CYBERSECURITY: KEEPING TXDOT SAFE

The MFA program is a key component of ITD's efforts to enhance TxDOT's cybersecurity posture and ensure that its systems, network, and partners are prepared to weather current and emerging cybersecurity risks that threaten TxDOT's mission of connecting people with Texas.

Information Security

Information and cyber security are top priorities for TxDOT and ITD when new systems or capabilities are introduced or upgraded. Information Security is integrated into ITD processes from project development to system implementation and the disposition of information and technologies. Before any third-party business partner can work with TxDOT, our Information Security Office vets their security capabilities.

Information Security ensures:

- Solutions have sufficient security for the data they handle.
- Equipment is cataloged, tracked, patched, updated, and replaced.
- Risks are continuously evaluated and addressed.
- Compliance with local, state, and federal laws and industry regulations.
- Employees, contractors, and vendors are trained to recognize security issues and protect private information.

Information Security is a cornerstone of both ITD and TxDOT's missions, ensuring the safety and integrity of TxDOT systems and data. This unwavering commitment safeguards our operations and supports our goal of connecting people with Texas

Hardware Refresh Project

In 2024, ITD begin an agency-wide hardware refresh effort to replace approximately over 2,000 end-of-life laptop and desktop devices, prioritizing the oldest devices first, and ultimately replacing approximately 1,322 devices. The refresh program placed new emphasis and rigor around asset management, ensuring that replaced devices were returned, and improved how files and applications are transferred between devices, saving time for employees and ITD staff. Replacing end-of-life devices offers several benefits, including improved performance and reliability, enhanced security, compatibility with new software, and reduced maintenance costs. This effort will continue into 2025 and future years, as it has been operationalized into ITD's ongoing hardware lifecycle management program.

Other Projects Completed in 2024

In 2024, ITD's Project Management Office (PMO) worked with more than 30 Divisions and Districts across TxDOT to successfully complete several key projects. Among the many featured above, additional noteworthy projects completed included:

- Bus and Facility Tracking System: Replacement of a legacy system with new capital asset tracking and forecasting.
- TADS Replacement: Replacement of the Texas Airport Data System (TADS) application with a new system that consolidates project management, documentation storage, and team collaboration.
- Enterprise Resource Planning (ERP) Upgrade: Required to remain in alignment with the Comptroller of Public Account's Centralized Accounting and Payroll/Personnel System (CAPPS) version.
- N-1 Server Optimization: Upgraded 454 servers to N-1 to reduce the technical debt (including vulnerabilities) associated with end of life / legacy servers.

Overall, the Project Management Office executed the completion of 49 projects, 37 of which were business-facing.

Operational Activities

ITD doesn't just work on projects - a lot of work goes on to keep the lights on at TxDOT. Some of this work is behind the scenes and some directly impacts end users. Below are just a few examples of these efforts.

Customer Service Metrics

- The IT Help Desk answered over 28,000 calls from TxDOT users.
- The tech lounge staff at TxDOT's Stassney and Greer Headquarters assisted over 4,300 walk-up customers.
- Field Services staff completed over 11,100 customer requests and provided technical support and assistance to TxDOT employees in District, Area, and Maintenance Offices throughout the state.
- User Access Management staff processed over 48,000 requests to onboard, offboard, and manage access permissions for TxDOT staff and consultants.
- Demand Management team processed 600+ customer requests for new projects, products, services, and system enhancements.

Application Development & Maintenance Metrics

- 1,786 improvements / enhancements were made to existing technology systems.
- 5,664 application incidents were resolved.

Patching Metrics

- Installed over 300,000 Windows and Microsoft patches; monthly patching of 13,000 devices.
- Patched and deployed various Bentley applications to over 4,500 machines statewide.

What to Expect in 2025

Looking ahead to 2025, ITD aims to build on our 2024 achievements by continuing to deliver technology solutions that meet business needs and align strategically with TxDOT and ITD's goals.

ITD will be investing further in automation, artificial intelligence, and data analytics to enhance decision-making and operational efficiency, and ensure AI technology investments are strategically aligned to deliver measurable outcomes while also addressing evolving business needs. To that end, the AI program, in collaboration with ITD and business stakeholders, will be focused on:

- exploring the expansion of AI Incident Detection technology to additional TxDOT Districts;
- developing an AI-powered chatbot to handle common inquiries from TxDOT employees;
- automating invoice processing for multiple business areas throughout TxDOT;
- identifying additional opportunities to leverage the Microsoft Copilot suite (Copilot Studio, M365 Copilot, and Copilot Chat) for business productivity; and,
- testing GitHub Copilot to improve application development for multiple areas within ITD.

The TxDOT Broadband program will be piloting StarLink satellite internet for connecting construction sites, emergency operation centers, and remote offices where fiber connectivity is unavailable. The program will also focus on engaging vendor partners to pursue emerging initiatives such as satellite-to-SIM technology.

Also in 2025, ITD will begin implementing an SD-WAN solution, which will provide a more cost-effective approach to high-speed networking. This solution will allow TxDOT to utilize faster and less expensive connectivity options from multiple service providers. By incorporating various connectivity options in the design, we can offer a more resilient user experience by using multiple vendors to provide connectivity services.

This initiative will significantly transform TxDOT's networking capabilities. The SD-WAN initiative employs a template model for all configurations, expediting deployment and minimizing configuration errors. Furthermore, SD-WAN will enhances our network security posture by enabling secure tunneling of traffic regardless of the connection method back to TxDOT.

These are just a few of our focus areas for 2025. Along with these initiatives, ITD remains dedicated to providing exceptional customer service, maintaining and optimizing technology services, and ensuring the safety and security of TxDOT's information systems and data, and is committed to leveraging technology to drive innovation, improve service delivery, and provide exceptional value to the people of Texas.