National STIC Network Showcase
2023

Category:

Asset Management & Finance

U.S. Department of Transportation
Federal Highway Administration

National STIC Network Showcase

The EDC-7 virtual summit, held in February 2023, included a platform for the State Transportation Innovation Councils (STICs) to showcase homegrown innovations that their members developed and implemented in their state. The purpose of this National STIC Network Showcase was to celebrate and share innovations with a wider audience to expand their potential use and impact. These innovations are saving lives, building sustainable infrastructure, growing an inclusive workforce, saving time, and making our transportation system more efficient. Over 100 innovations were shared by STIC members and are grouped into the following categories.

- Asset Management & Finance
- Maintenance & Emergency Response
- Operations
- Design & Construction
- Technology & Materials
- Planning & Environment
- Safety
- Pavement & Structures
- Civil Rights, Workforce, and Equity

This event also featured short presentations from State and local agencies on some of these homegrown innovations, which are also available on-demand.

Disclaimer

These presentations were created by non-FHWA organizations. The views expressed do not necessarily reflect the official policy of FHWA or the U.S. Department of Transportation (USDOT). The U.S. Government does not endorse products or manufacturers. Trademarks or manufacturers' names appear in this National STIC Network Showcase only because they are considered essential to the objective of the National STIC Network Showcase. They are included for informational purposes only and are not intended to reflect a preference, approval, or endorsement of any one product or entity.

Contents:

eSTORM – an Innovative Emergency Management Device Operational Status Platform

OVERVIEW OF INNOVATION

The eSTORM web- and phone-based application collects, in one place, the necessary field data, device operational status, generator deployment, cabinet flooding, and downed structures events for ITS and traffic signals devices following a hurricane or thunderstorm. The application works offline, collecting information and pictures even if there is no cellular coverage. This data is uploaded automatically once internet service is available. Collected information is displayed in a dashboard for a quick real-time snapshot of the work that is done by the field staff. This allows for resource planning and allocation to expedite the recovery efforts.

The application, built on ArcGIS, was conceptualized in FDOT District 3 during Hurricane Sally in 2020 and converted into a statewide application in the 2021. Recently, the application was used during Hurricane Ian in September 2022.

The application has been pioneered in the State of Florida and has usability across the nation for any emergency management scenarios when the knowledge of device operational status is critical to safe and efficient traffic movement. The application is portable and scalable and can connect with arterial and freeway management software for a direct connection to extract operational status remotely.

BENEFITS

eSTORM allows FDOT to allocate its resources efficiently and expedite recovery efforts to make Florida roadways safe and traversable again.

FIND OUT MORE . . .

Website link:

eSTORM Article:

https://bit.ly/56934FL578

TIM Website:

www.fdot.gov/emergencymanagement

Contact Info:

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Hurricane, estorm, situational awareness, emergency management, GIS, planning, freight/goods movement, technology, asset management, emergency response/relief, operations

Flood Resiliency Analysis Tool

OVERVIEW OF INNOVATION

A methodological framework helps Iowa DOT identify the roads most vulnerable to extreme flood events and prioritize the state's investments.

As severe floods in Iowa become more frequent, catastrophic, and costly, understanding the risks to the state's infrastructure and preparing for changing conditions can make a big difference in how quickly the state recovers from potential disruptions.

In 2021, the Iowa DOT asked its Resiliency Working Group to develop a flood resiliency methodology that could be integrated into the agency's decision-making process and long-range planning activities. The group conducted a review of the state's primary highway system, identifying the corridors at greatest risk of extreme flooding and developing a methodology to objectively determine where mitigation efforts and investments would be most beneficial.

By considering seven weighted factors, Iowa DOT engineers can give each of the state's key highway segments a composite score up to 100. The higher the score, the greater the corridor's resiliency in the event of a 100-year flood.

Source: Iowa DOT

BENEFITS

Understanding the risks to the state's highways can help Iowa DOT plan for and invest in appropriate mitigation measures that minimize transportation-related disruptions in the event of a severe flood.

The metrics and framework used in Iowa's resiliency analysis tool can be easily replicated or adapted by other transportation agencies.

FIND OUT MORE . . .

Iowa DOT Resiliency Working Group
https://iowadot.gov/sustainabilityandresiliency/Up-Close-Resiliency-Working-Group#53947672-i-classfa-fa-map-aria-hiddentruei-our-strategies

Iowa DOT Resiliency Working Group

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Samuel Sturtz
515-239-1788, Samuel.Sturtz@iowadot.us

Planning, Structures, Asset Management, Emergency Response, Emergency Relief, Stormwater Management

Tailgate Mounted Spreader Box

OVERVIEW OF INNOVATION

A custom-built chute mounted to the rear of a box spreader makes applying replacement gravel to rutted highway shoulders easier, safer, and more cost-effective.

Replacing aggregates and smoothing highway shoulders is routine work for Iowa's highway maintenance crews. The job has typically required multiple vehicles in tandem: one dedicated to depositing the rock, another close behind to spread and grade the material in place and a third to sweep the pavement. The process can be slow-moving and labor-intensive.

A box spreader modified with a tailgate chute places a consistent quantity of aggregate in a targeted location along a road's shoulder without the need for a separate motor grader and broom. As a result, ruts can be filled in a single pass to save time and money and increase safety for workers and travelers alike.

Each tailgate spreader box costs $310 in materials and can be installed in 30 minutes.

Source: Washington County Secondary Roads Department

BENEFITS

This innovation makes it possible for one person to perform a task that had previously required multiple people and a variety of equipment to accomplish.

The spreaders directly apply a consistent amount of gravel to the shoulder, ensuring ruts can be addressed in a single pass.

Filling ruts quickly saves time and labor costs and improves safety by reducing workers' exposure to traffic.

FIND OUT MORE . . .

Washington County Road Maintenance
https://washingtoncounty.iowa.gov/184/Road-Maintenance

Washington County Secondary Roads Department

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Maintenance, Safety, Asset Management

Federal Grant Notification Newsletter

OVERVIEW OF INNOVATION

Every day, there are hundreds of federal grant opportunities that become available through grants.gov and other websites. It can be difficult and time-consuming for ITD employees to keep track of all the available grant opportunities.

To address this issue, ITD employees created a weekly newsletter that outlines information on currently available federal grant opportunities. For each available grant, the newsletter outlines who is eligible for the grant, the grant's deadline, the grant's amount, and where to find additional information on the grant.

The Federal Grant Notification Newsletter is sent to over 150 employees across ITD on a weekly basis and has helped increase awareness and access to potential funding opportunities from federal grants.

Source: The Idaho Transportation Department

BENEFITS

By compiling all information on Federal Grants into one newsletter, ITD is able to increase awareness and access to potential funding opportunities from federal grants.

FIND OUT MORE . . .

[Grant Newsletter 9.14.22]

[Grant Newsletter 9.21.22]

[Grant Newsletter 9.27.22]

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Grants, Notification, Newsletter, Funding, Information

Development of a Rural Primary Road System (RPRS)

OVERVIEW OF INNOVATION

THE PROBLEM:

The disparity between identified capital improvement needs and available financial resources was and is a significant issue. Transportation infrastructure was stretching a limited budget beyond its capacity to do most things well. Due to changes in the agriculture industry, many of our structures had become obsolete. We needed to document a method to prioritize expenditures.

THE SOLUTION:

"We developed a road system inside the current system called the Rural Primary Road System that identified areas of high traffic and agricultural use to focus available funding. Road upgrades are based primarily on traffic volumes and correlations between maintainability and soil conditions. "

SALINE COUNTY
ESTABLISHED 1860

BENEFITS

The identified Rural Primary Roads will receive higher priority when it comes to investing the County's limited available funds to upgrade road surfaces and drainage structures and repair/rehabilitate/replace facilities and still allow adequate access to property.

FIND OUT MORE . . .

KUTC BABM Winner, YouTube
https://www.youtube.com/watch?v=ObIh8zV9tHk

KUTC 2022 Autumn LTAP Newsletter

https://kutc.ku.edu/sites/kutc/files/documents/2022%20Autumn%20LTAP%20Newsletter.pdf

Saline County Road & Bridge

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Planning, Maintenance, Asset Management, Finance/Funding

Culvert Banding Tool

OVERVIEW OF INNOVATION

This banding tool is designed to join culvert collars when the coupler bolts are too short to reach. This tool saves time over the traditional method of winding nuts on threaded rod to reach the coupler bolts. Multiple tools recommended for easiest banding.

Photo by MaineDOT

BENEFITS

This tool makes fast work of banding two culvert sections together in the field, saving both time and physical muscling of sections to join.

FIND OUT MORE . . .

Measurement drawing and additional photos available to facilitate replication. Contact MaineDOTInnovates@maine.gov.

Robert Wellington

Oakfield Crew Supervisor

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Maintenance, Construction

Harris Inspection Tool (aka HIT Rod)

OVERVIEW OF INNOVATION

MaineDOT Bridge Inspection team leaders and twin brothers Scott and Steve Harris have invented a variation of a selfie stick to enable a phone camera to visually inspect bridge elements that otherwise would require expensive equipment and often traffic control.

The telescoping HIT Rod consists of a 20' telescoping pole with an attached adjustable phone cradle on top. The iPhone's camera is remotely controlled by an Apple watch. MaineDOT Inspection Teams use iPhones and Apple watches, but other phone brands and compatible pairings may work.

The iPhone's camera is activated from the Apple watch via Bluetooth and the preview is actively cloned to the watch display. The iPhone is then moved into position via the HIT rod and the iPhone's picture is snapped remotely from a button on the watch. The Apple watch can also remotely adjust the iPhone Zoom, Flash, Timer, and other functions.

All MaineDOT Team Leaders are issued iPhones by MaineDOT. The additional cost of the HIT Rod for each inspection team is approximately $800 – the cost of the Apple watch, telescoping pole and phone holder.

The HIT Rod is only used in areas where visual inspections are deemed appropriate by MaineDOT. The use of the HIT Rod often identifies areas requiring advanced inspection techniques.

Photo by MaineDOT

BENEFITS

Up to $5000/inspection is saved by using the HIT Rod rather than paying for heavy equipment and/or traffic control. Few innovations have this strong a return on investment.

FIND OUT MORE . . .

Demonstration video is posted on MaineDOT Sharepoint site. Contact MaineDOTInnovates@maine.gov for access credentials to view.

Steve Harris

Bridge Inspection Team Leader

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Maintenance, Technology, Safety, Structures

Contracting Risk Management Best Practices

OVERVIEW OF INNOVATION

Incorporating best practices from transportation agencies across the country, the Michigan Department of Transportation's (MDOT) Innovative Contracting program developed a new set of customized tools, documents and other resources in one user-friendly workbook to help identify, document, and manage risks more effectively.

Thoroughly assessing and managing risk is critical for keeping construction projects on time and within budget.

Risk management (RM) is a project planning and control function that includes proactive efforts to identify, mitigate, and control risk throughout the project delivery process.

MDOT has been successfully applying RM on innovative contracting methods and was looking to formalize and build upon its current guidance.

To make its entire RM process more streamlined and efficient, MDOT sought to evaluate the best practices nationwide and use the information to develop new tools, templates, training documents, and customized guidance.

The insight guided the department during the development of a new and improved set of customized tools, documents and guidance to ensure MDOT's construction projects are on track to save time and money.

BENEFITS

MDOT is better able to identify and manage project risks with a new RM toolbox, consisting of a variety of easy-to-use applications, templates and procedural guidance.

FIND OUT MORE . . .

Research Spotlight Brief:
https://www.Michigan.gov/MDOT/-/Media/Project/Websites/MDOT/Programs/Research-Administration/Research-Spotlights/SPR-1711-Spotlight.pdf

Final Report:
https://www.Michigan.gov/MDOT/-/Media/Project/Websites/MDOT/Programs/Research-Administration/Final-Reports/SPR-1711-Report.pdf

Risk Management Workbook:
https://www.Michigan.gov/mdot/-/media/Project/Websites/MDOT/Business/Contractors/Innovative-Contracting/Risk-Management_Template_MDOT-Risk-Management-Workbook_r1.xlsx

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RS&H Michigan, Inc.
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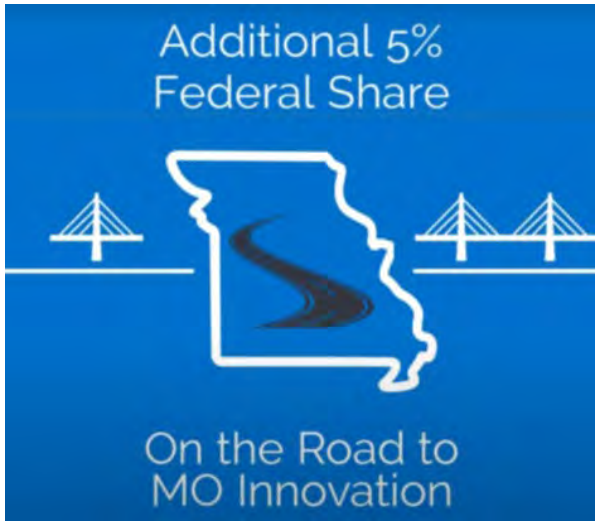
Tools, Best practice, Risk Management

Additional 5% Increased Federal Share

OVERVIEW OF INNOVATION

An increase in Federal Reimbursement of National Highway Performance Program, Surface Transportation Block Grant Program and Unified Planning Work Program PL funded projects from 80% to 85% is an exciting opportunity for MoDOT. This opportunity also allows for MoDOT to incorporate innovative delivery methods, construction materials, and techniques that will not only reduce future maintenance costs, but also delay future replacement frequencies. This innovation utilizes all innovative methods, materials and techniques in order to capture significant financial savings.



Source: Missouri Department of Transportation

BENEFITS

This innovative program directly saved the State of Missouri $16.8M in fiscal year 2021 through the Increased Federal Share on $340M worth of work. Of the $340M worth of projects, this program drove innovative methods that otherwise may not have happened. While this program has directly saved $16.8 million, the amount saved indirectly is immeasurable.

FIND OUT MORE . . .

Missouri Department of Transportation Innovations Showcase

5% Increased Federal Share | Missouri Department of Transportation (modot.org)

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Sustainability, Operations, Planning, Funding/Finance

BridgeWatch: Public Safety Through Real-time Structure Monitoring

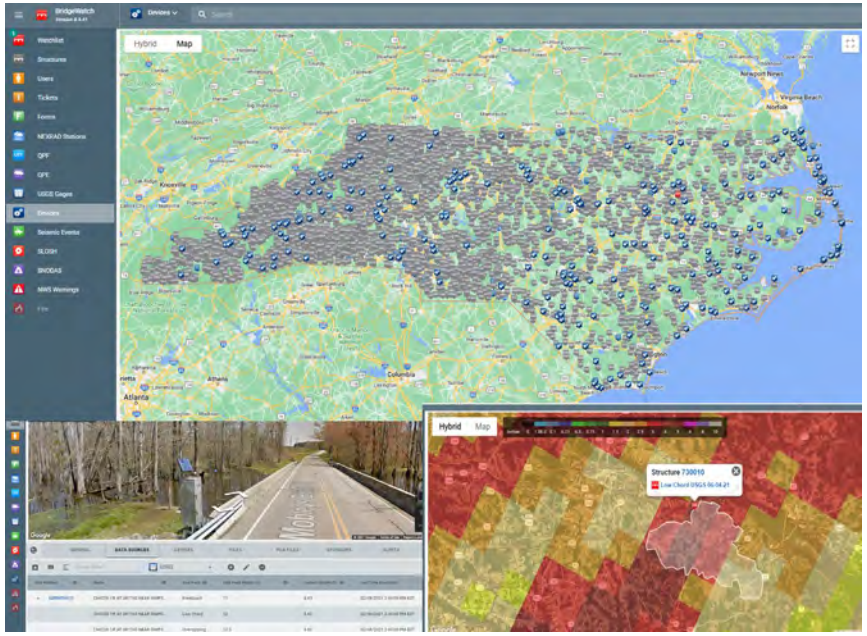
OVERVIEW OF INNOVATION

BridgeWatch empowers bridge management to predict, identify, prepare for, and record potentially destructive environmental events by proactively monitoring, in real-time, bridge infrastructure.

BridgeWatch collects and processes real-time data at regular intervals from meteorologic, hydrologic, and oceanographic sources, gauges, and other sensing devices. Data comparisons are then performed with internal NCDOT bridge parameters such as flood impact (floodwaters reaching structure levels) or roadway overtopping. NCDOT officials and Emergency managers can customize alerts, when appropriate, via any electronic medium (cell phones, email, application dashboard, etc.) when bridges are experiencing a dangerous or critical condition.

Officials are notified as sensors in the field detect water levels or high rainfall intensity levels that could indicate that the roadway is overtopped either at the bridge or bridge approaches based on elevation or design data. This valuable information can be used for road closure, emergency response, and post-event inspection prioritization.

In addition, BridgeWatch can also be utilized as a hands-on training and scenario tool for emergency evacuation or security drills with event simulation capabilities.



Source: BridgeWatch

BENEFITS

The benefits of using BridgeWatch include improved monitoring and awareness of structures impacted during major storm events.

In the past 3 years, the North Carolina DOT has piloted BridgeWatch and integrated it into its storm response. Structures management uses BridgeWatch alerted structures to aid in identification of critical structures to inspect post-storm.

FIND OUT MORE . . .

NCDOT BridgeWatch Website (Login Required) BridgeWatch v8.4.41 from USEngineeringSolutions

Hydraulics Storm Tools Website NCDOT - Hydraulics & EM Flood Warning Tools - Home (sharepoint.com)

US Engineering Solutions Website (BridgeWatch) https://usengineeringsolutions.com/bridgewatch/

NCDOT Hydraulics Unit

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Structure Management, Flood Warning, Emergency Response, Situational Awareness, Roadway Flooding, Hydraulics, Operations,

T-SURGE

OVERVIEW OF INNOVATION

Expanding on the FIMAN-T (Flood Inundation Mapping and Alert Network for Transportation) system, T-Surge helps NCDOT identify potentially-impacted roadways and assets during a storm surge event.

Rather than relying on gauge-based data like the rest of the FIMAN-T network, this dashboard uses data from RENCI (Renaissance Computing Institute at The University of North Carolina), which models storm surge for the entire North Carolina coastline based on National Hurricane Center official advisories.

T-Surge automatically downloads maximum water elevation and wave height rasters as soon as they are available. This data runs through a model that maps predicted flood inundation extents and depths, and uses lidar-derived roadway elevations to estimate flooding along roadways. The roadway inundation is then viewable on the interactive dashboard application that allows users to view mapping, filter roads by type and depth of flooding, and view summaries of predicted impacts.

T-Surge provides visualization and metrics for roadway inundation from forecasted hurricane and tropical storm surges. The dashboard application maps predicted flood and roadway impacts for the entire North Carolina coastline. This information allows emergency managers and first responders to reach critical destinations, like hospitals, while avoiding potential roadway flooding.

BENEFITS

- Easily identify areas and roadways forecasted to be impacted by flooding during a storm event
- Provides summary reports and navigable tables for predicted roadway inundation to aid in quick decision-making
- Expands coverage to include all coastal areas

FIND OUT MORE . . .

T-Surge Dashboard (beta version – open to NCDOT staff)

NCDOT Hydraulics Unit

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Emergency Response / Relief, Technology, Roadway Flooding, Inundation Mapping, Hurricane Preparedness

Bridge Upcycling

OVERVIEW OF INNOVATION

“Upcycling is the act of taking something no longer in use and giving it a second life and new function.” - Habitat for Humanity.

The innovative Ohio County Engineer’s Bridge Upcycling program is the state LTAP Center’s top Local Public Agency success story.

The Ohio Department of Transportation partnered with the County Engineers Association of Ohio to upcycle steel beams leftover from bridge projects that were demolished or rehabilitated.

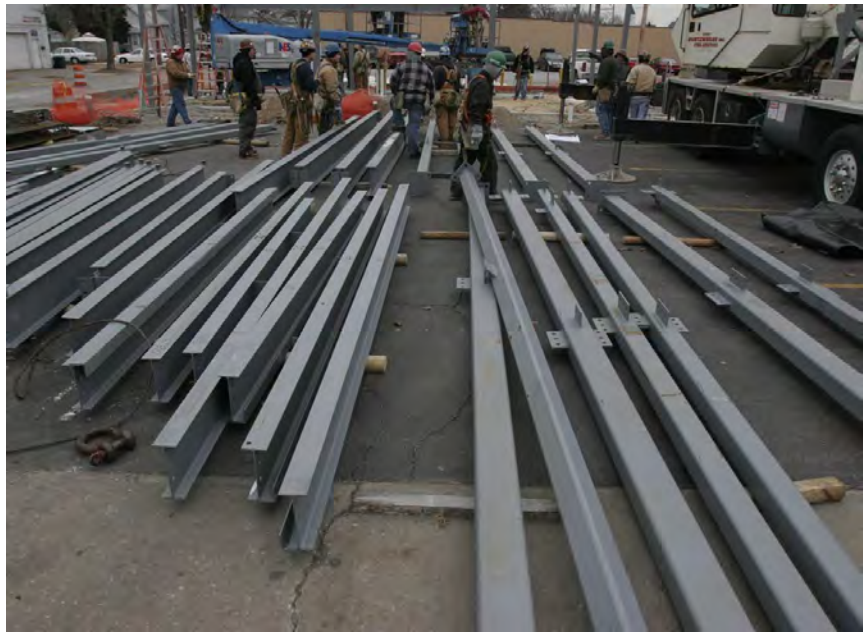
Reusing this existing product helps stretch financial resources and reduces potentially unsafe bridge rating conditions.

Two Ohio counties, Defiance and Muskingum, have successfully used upcycled steel beams on several projects.

"It's a benefit to our county, a benefit to our community, and we're not scrapping valuable products," said Muskingum County Engineer Mark Eicher.

Defiance County Engineer Warren Schlatter praised the program's cost savings benefits and is confident that the bridge is just as safe and just as strong as if they had used new steel.

"So, in the end the capacity of the bridge is not of concern. These are rock solid bridges," he said.



Upcycled bridge beams ready for a local construction project. - The Toledo Blade newspaper

BENEFITS

Upcycling reuses steel bridge beams that previously had been discarded.

Saves costs by reducing the need to fabricate new material.

Enables additional bridge reconstruction and enhances motorist safety.

FIND OUT MORE . . .

https://youtu.be/r5AyX5uDH8U

Muskingum County Engineer

Mark Eicher
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Sustainability, Planning, Structures, Construction, Materials, Asset Management

Drone Bridge Inspection

OVERVIEW OF INNOVATION

The Ohio Department of Transportation's (ODOT) expansion of Unmanned Aircraft System (UAS) bridge inspections allowed the department to reduce costs and time associated with essential structure examinations.

ODOT used State Transportation Innovative Council (STIC) funding to purchase equipment and software for new and existing pilots.

A total of eight Skydio 2 UAS and one Skydio X2E were purchased using STIC and ODOT funding. Initially UAS's were mainly used as a supplement for snooper truck inspections. However, the department is moving toward drone use for other services as well.

This migration to using UAS for bridge inspection has significant cost savings. A UAS inspection can be carried out by one or two bridge specialists, without any need for traffic management personnel or equipment. The use of drones for bridge inspections has saved the department over $1.6 million.

The use of a drone to conduct bridge inspections eliminates the need for lane closures that can cause traffic delays and safety hazards that existed previously with snooper or bucket truck use.

Expanded drone bridge inspections were particularly beneficial during the height of COVID-19 because a minimal number of inspectors could complete this important task while social distancing.

Drone Bridge Inspection of the Jeremiah Morrow Bridge, Warren County, Ohio - Ohio Department of Transportation

BENEFITS

UAS inspection requires fewer people, less time, and reduces costs as compared to using a snooper truck.

Less travel disruption to motorists.

Improved safety conditions.

FIND OUT MORE . . .

DriveOhio | Ohio.gov

About UAS | Ohio Unmanned Aircraft Systems Center

ODOT Office of Unmanned Aircraft Systems

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Safety, Operations, Structures, Technology, Asset Management

PMIS and its benefits for e-construction

OVERVIEW OF INNOVATION

The Project Management Information System (PMIS) is a comprehensive solution to streamline the full project life cycle management including Planning, Design, Environmental, Land Acquisition, Bids, Construction and Closing with the objective to expedite the project delivery, improve accountability, security and audit capability and being the single source of truth for all projects.

PMIS is a cloud web-based solution and includes a mobile app for allowing the access to the system form anywhere including field activities. This PMIS has been designed with more than 100 business processes that allow compliance with the procedures and requirements of Puerto Rico Highways and Transportation Authority (PRHTA) and FHWA for the management of construction projects and professional services associated with the different phases of the project.

All business processes defined in PMIS are supported by the centralized document repository that facilitates agency-level collaboration, thus keeping all project information in one place. PMIS workflows allows the user to approve and electronically sign off.

PMIS is integrated with the PRHTA's financial systems (Oracle EBS) to streamline the finance process. PMIS will carry out the allocation of funds and budget for a project, and the creation and approval of contracts, change orders and payment certifications for each project. PMIS is a Web Based solution and includes a mobile app for allowing the access to the system form anywhere including field activities.

PMIS has an electronic bidding module that includes a Web Portal for bids activities, from publication to award, which is supported by business processes designed for the creation of estimates and specifications packages, approvals, questions and answers and for the automatic generation of the resulting contracts.

PMIS is a solution built on the Oracle Primavera Unifier solution, which has extensive integration capabilities with other systems like Laboratory Material Testing System, FMIS, e-ticketing, among others. In addition, it has the ability to generate reports, supported by Oracle BI Publisher.

BENEFITS

- Standardize processes through all organization and eliminate silos
- Streamline the project delivery processes by electronics signoff and approvals; and provides the contract documents in a paperless environment.
- Single source of truth for all projects
- Better projects funds visibility and tracking
- Integration between accounting, project controls and more
- Better security, audit, and backup

FIND OUT MORE . . .

End-user e-Learning site:

https://pmis-elearning.info/

Oracle Unifier, PMIS platform:

https://www.oracle.com/industries/construction-engineering/primavera-unifier-project-controls-facilities-asset-management/project-controls-datasheet/

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FHWA
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PMIS, Single Source, Project Development, Business Processes, Technology

Develop a DOT Specific UAS Simulator and Flight Proficiency Exam

South Carolina Department of Transportation

OVERVIEW OF INNOVATION

Most state DOT Unmanned Aircraft Systems (UAS) commercial operations are governed by CFR 14 Part 107. This regulation requires pilots pass a knowledge test but does not require a demonstration of minimum flight proficiency to operate in the national airspace. This project addresses this limitation by developing a computer-based flight proficiency simulator based on the National Institute of Standards and Technology (NIST) Basic Maneuvering Test (BMT). The simulator realistically recreates environmental conditions, UAS physics, stick control and field conditions of the BMT. A "drone rodeo" was hosted to evaluate if the simulator BMT performance data is simulator to traditional in-person methods. Twenty-four Part 107 pilots completed the BMT in-person and with the simulator. At 95% confidences, the pilots scores ad times were statistically the same. The significant percentage of the SCDOT pilots completed the BMT under proctored conditions. Based on their performance and similar nationally recognized organization's certifications, the research team recommends that the SCDOT require a minimum score of 80% on the BMT with a maximum duration of 5 minutes per maneuver before flight privileges are granted. In addition to the NIST scenarios develop, a bridge inspection scenario was developed to support this common use for UAS.

Source: Clemson University

BENEFITS

Drone flight proficiency is a skill that requires continual practice. The simulator developed in this project provides a convenient way to practice, teach and assess UAS flight skills. This software is available at no cost to all state DOTs.

To date, 24 state DOTs have requested licenses and made this simulator an important part of their drone program.

FIND OUT MORE . . .

Little Arm Studio:
https://www.zephyr-sim.com/

Clemson University – Department of Construction, Development, and Planning:
http://www.clemson.edu/degrees/construction-science-and-management

Eric Stuckey (SCDOT)

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Joe Burgett (Clemson University)

864-722-2026 jmburg@clemson.edu

UAS, UAV, Drone, Simulator

Strategic Deployment of Drone Technology and Software to Support SCDOT Operations

South Carolina Department of Transportation

OVERVIEW OF INNOVATION

A recent FHWA publication found that all 50 state DOT's are using Unmanned Aircraft Systems (UAS), commonly referred to as "drones," in some capacity. As the cost of UAS equipment can be relatively low, the greatest challenge limiting the benefit that this technology can provide is the lack of education and training. By partnering with Clemson University, this project aggressively addressed this challenge and made meaningful drone deployment a viable option for employees across the SCDOT. The project leveraged Clemson University's nationally recognized School of Construction Management to develop a drone training program tailored to the SCDOT's needs. The course was structured so Clemson students and SCDOT employees could work shoulder-to-shoulder as they learned leading edge drone workflows. The program participants came from a wide range of SCDOT offices including (among others) Construction, Communications, IT Services, Preconstruction Engineering, Planning, Traffic Engineering, Survey and Maintenance. Through its professional studies program, Clemson University has made this course available fully online to any state DOT.

Source: Clemson University

BENEFITS

This project created an in-person and online drone course for SCDOT employees. During the class, students earn their FAA Part 107 drone license, flight skills (in-person and with a simulator), and how to create 3D maps/models with drone data. It is an excellent way for employees to gain the skills and knowledge to operate a UAS to benefit their department.

The course is available online for all state DOT employees.

FIND OUT MORE . . .

Overview video of the course: https://www.youtube.com/watch?v=YIkoQl64D3w

Clemson University – Department of Construction, Development, and Planning: http://www.clemson.edu/degrees/construction-science-and-management

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UAS, UAV, Drone, Class, Course, Professional Development

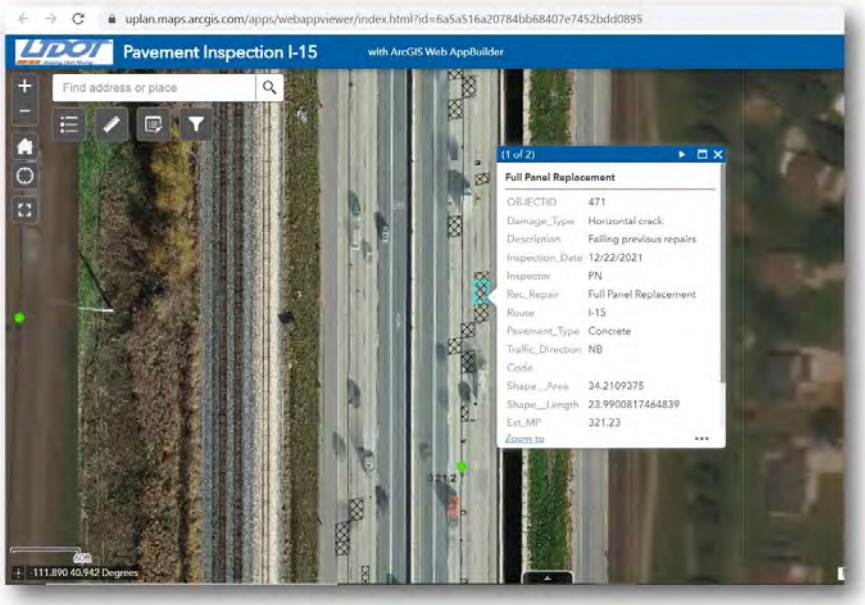
Aerial Images Used to Conduct Pavement Inspections

OVERVIEW OF INNOVATION

The aerial images are used to create a dynamic GIS map with embedded feature layers to mark the necessary repairs.

This new method of conducting pavement inspections results in improved efficiency, safety, and accuracy of inspections. The UAS pilot can collect images of the area in need of repair from a safe distance, and the inspection completed on a computer in the office. The location of the repairs and damage area measurements are marked with greater accuracy, leading to better project cost estimates. This in turn decreases the number of change orders made during construction.

The Central Design and GIS teams are taking the next steps to improve this new process by developing a machine learning program that will analyze photos taken by a UAS and automatically identify cracks and potholes to create a database for further processing.



Source: UDOT UPLAN

BENEFITS

Using aerial imagery is helping crews conduct inspections that are done more efficiently and with greater accuracy and safety.

FIND OUT MORE . . .

Technical summary document

Information from 2023 Innovation and Efficiency Report

Aerial Images Used for Pavement Inspections

For more information:

Utah Department of Transportation

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Safety, Maintenance, Pavement, Asset Management