



E-Ticketing in Illinois: The Journey to Construction Materials Digitization

Purpose of Today's Discussion

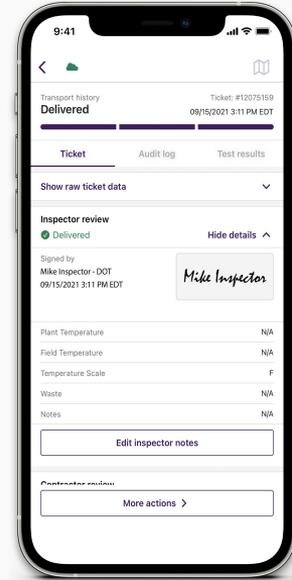
Gathering Construction Industry Influencers and Thought Leaders Together to Review:

- Where we are at with nationwide e-Ticketing
- How e-Ticketing is vital to e-Construction
- The Art of the Possible: What comes next after digitizing all the paper tickets?



What is e-Ticketing? (Still A Reality in Some States)

It's streamlining the way the materials information is delivered to all parties involved in the supply chain.

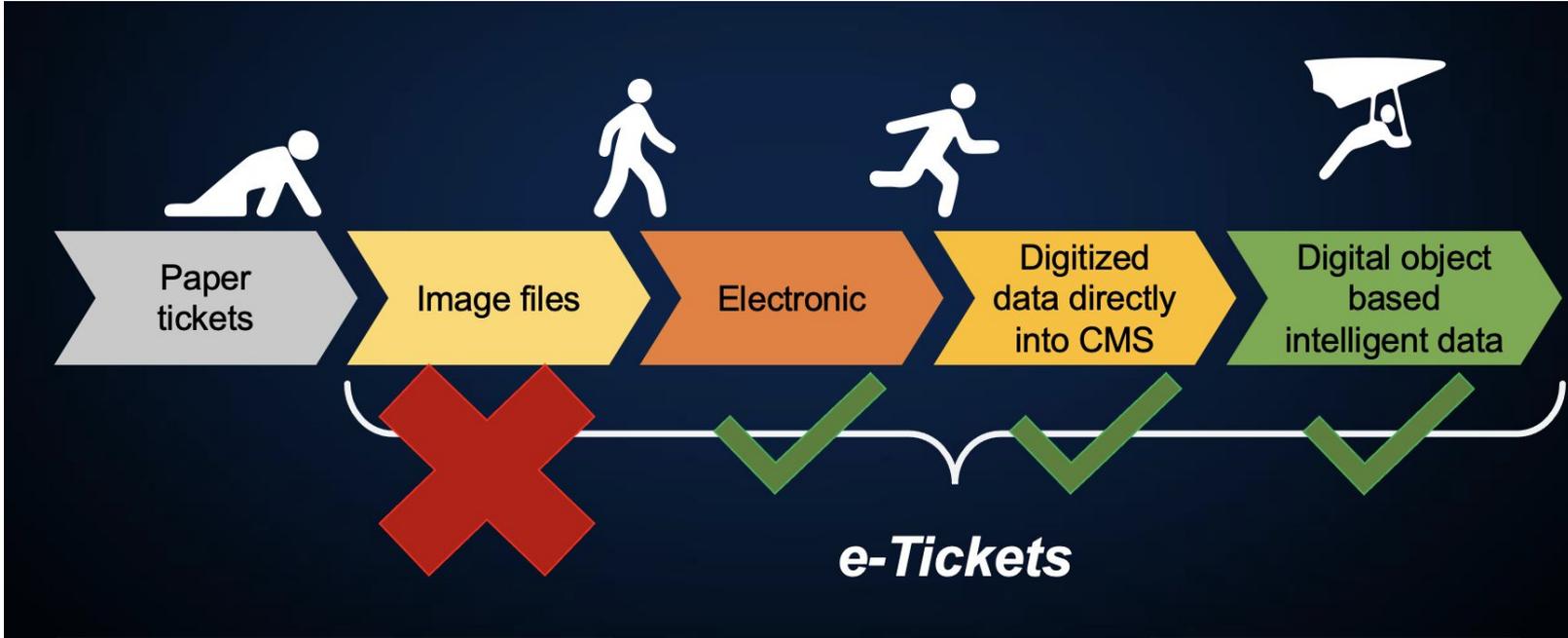


From this



To this

What an e-Ticket Isn't:



Industry Wide Rally to Keep Things Simple: Make e-Ticketing Practical

Top 5 Asphalt Pavement Industry Issues



FEATURED WEBINARS

WEBINAR

Digitizing the Supply Chain: Practical Lessons Learned on e-Ticketing Implementation

MARCH 10, 2022 @ 6:00PM

NSSGA

NATIONAL STONE, SAND
& GRAVEL ASSOCIATION

Announcing the IT Task Group

The Digital Transformation and Process Improvement Task Group (IT Task Group), a newly formed group within the FPI Group dedicated to addressing emerging technology challenges within the industry, will meet for the first time at NRMCA's Annual Convention at 12:30PM on Tuesday, March 15. Keith Onchuck of Ozinga and Luis Angulo of CalPortland will co-chair the Group. To RSVP for the IT Task Group Meeting, click [here](#).



Digital Construction Policy Statement –
May 2021

Digital Construction is defined as commercially proven digital technologies and processes for management of construction and engineering activities, including systems for infrastructure project procurement, planning and coordination, construction, digital as-builts, e-Ticketing, operations and maintenance, modernization and management, asset management systems for machines, site equipment, and personnel.



Task Force Leadership



Janet Treadway
DOT Engagement

Business Administrator, AASHTOWare Project
Ohio DOT



Hon. Gregory G. Nadeau
Task Force Strategic Advisor

Chairman & CEO
Infrastructure Ventures, LLC



Keith Onchuck
Concrete Industry Engagement

CIO
Ozinga Bros., Inc.



Dan Ganoë
Task Force Co-Chair

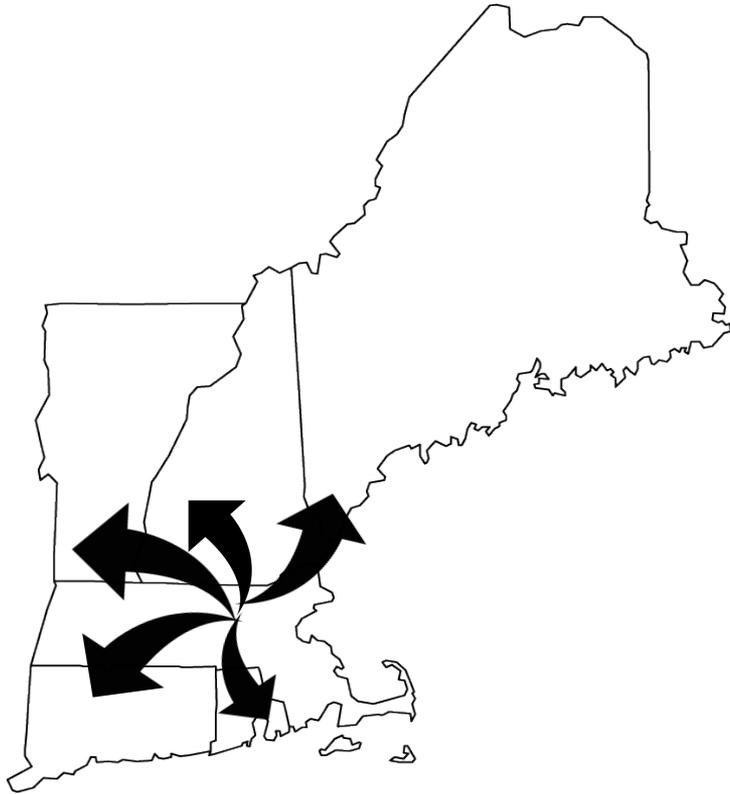
Vice President of Operations
Lindy Paving Inc.



Craig Yeack
Task Force Co-Chair

Co-Founder
BCMI Corporation

Origins of the Task Force



- Key Massachusetts Producers and MassDOT Collaborating to Remove Paper from the Supply Chain
- Aggregates, Ready-Mix and Asphalt from major producers moving from Massachusetts to all New England States
- Needed a Coordinated Effort to Ensure Consistency Across the Region
- Word Spread...

massDOT
Massachusetts Department of Transportation

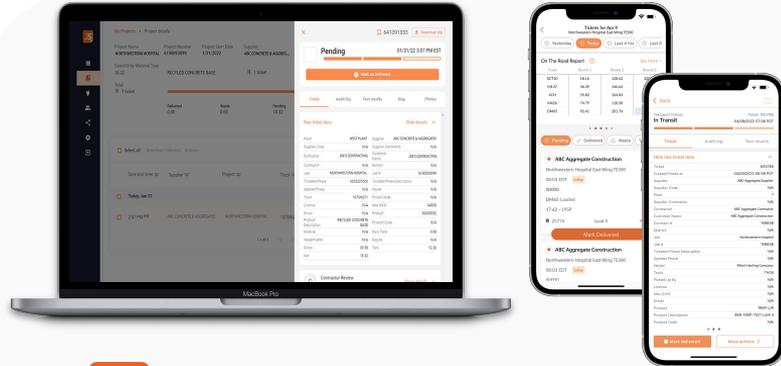


Benevento
COMPANIES

AGGREGATE
INDUSTRIES

What Does e-Ticketing Look Like In Practice?

For the Supplier: What Does e-Ticketing Look Like?



e-Ticketing tool **JOBSlip** simplifies sharing critical construction materials data between project stakeholders. Making you the easiest construction partner to do business with.

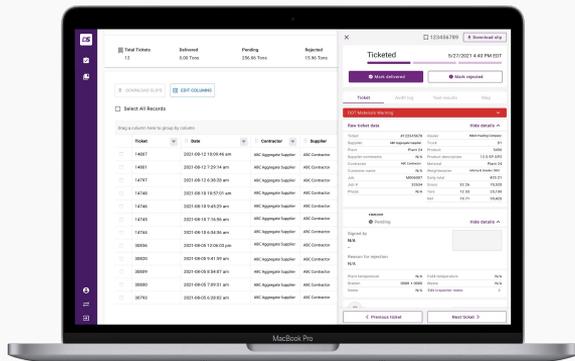
Save countless hours searching for paper tickets on delivered loads. e-Ticketing eases the administrative burden for you and your customer.



Empower your material ticketing data with easy-to-digest visualization tools to quickly analyze business trends, stay in-the-know on top performing customers or plants and intelligently forecast future performance.

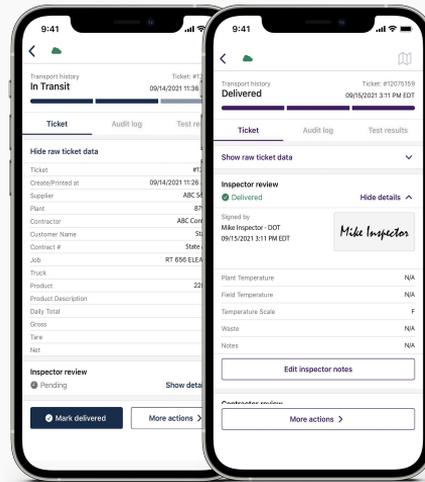
The only data visualization tools that ties in to your point of sale for continuous business intelligence.

For the Agency: What Does e-Ticketing Look Like?

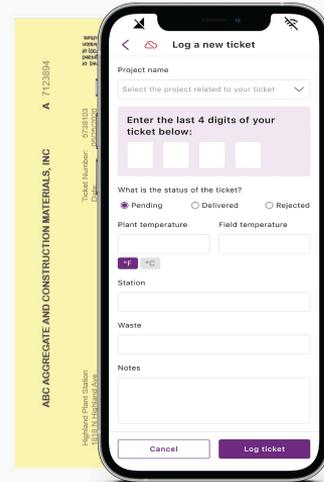


Web Based Agency Portal Access

The Agency Portal™ comes with access to DOTslip for your field inspectors, and JOBslip for your vendors, two simple mobile apps connecting the same data to one point of truth. It's all included as part of The Agency Portal™ experience at no additional cost.



Inspector View on Mobile App

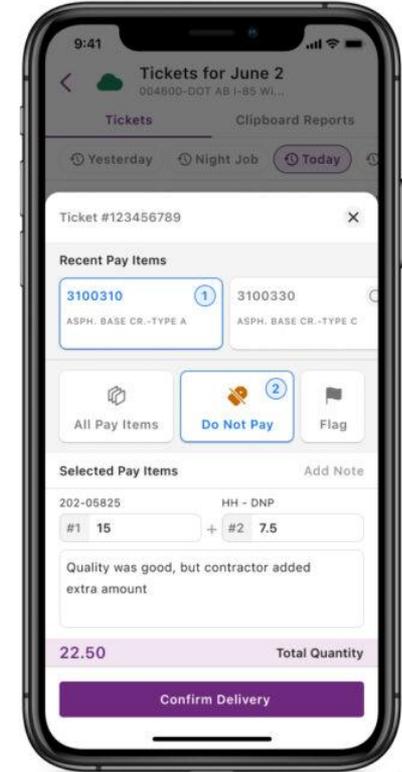
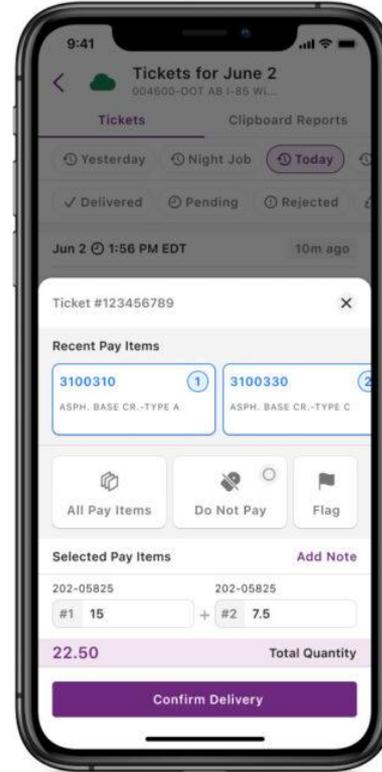


Patented Offline Mode



Certified Pay Quantity - Reconciliation

- Once you have e-Ticketing data you can start building a data req
- The Portal now has quantities so that there is one single source of truth.
- These quantities exists in projects and pay codes
- So we are taking all that data from their information so that when we export the data it is all aligned in a single source truth - with an audit trail.
- Agreeable by all stakeholders without double entry manual efforts



Deployment Of The Agency Portal In Reality:

Option 1

For Producers and Contractors with Internal IT Resources

Ohio/Indiana DOT will provide an API key for you to send ticket data to their respective DOT Portals



Option 2

For Producers and Contractors with existing e-Ticketing Solutions

Nothing changes, and your processes stay the same. The e-Ticketing provider will forward the tickets via API to the state DOT Portal



Option 3

For Producers with Limited to No IT Resources and no e-Ticketing Solution

Provide a simple solution to get your tickets flowing into the portal at no cost to you.



Example API: tickets.transportation.idot.gov/userkey

Getting the Word Out: Connecting Everyone

It's never been easier to get involved

E-TICKETING HAS ARRIVED IN ILLINOIS

The Illinois Tollway is moving towards digital ticketing with the goal of connecting all asphalt producers to the Illinois Tollway e-Ticketing portal by the end of 2022.

[SIGN ME UP!](#)

[Whats included? | How Does It Work?](#)





To Recap: Why e-Ticketing? Why Now?

- Reliability: Digital vs Paper
 - Eliminates lost tickets and paper storage
 - Readily available data (current and future)
- Quality:
 - Real time materials and quantity verification
- Efficiency:
 - Fewer inspectors needed
 - Expedites contractor pay
 - Advanced review of delivery tickets
- Safety:
 - Reduces project staff around delivery trucks
 - Removes the need to take ticket from driver
- Timing:
 - National Movement
 - Broad support from across the industry to make this a reality

The 'Keep It Simple' Approach is Validated (August 2022) University Texas at Arlington

E-Ticketing in Highway Construction: Reasons for Delayed Implementation

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ABSTRACT:

The evolution of technology and the use of mobile devices for performing daily operations has benefitted the construction industry. E-Ticketing can automate most administrative processes in highway construction, provide valuable insights into daily operations, and increase inspector safety. Many state departments of transportation (DOTs) have conducted pilot testing of the technology and have opted not to install or acquire it for a variety of reasons, and a few have discontinued their pilot studies. Thus, the objective of this study is to identify and pinpoint the misconceptions surrounding the utilization and implementation of e-Ticketing and to explore ways to make it attractive to more users. To achieve this, an extensive literature review was conducted of studies that investigated the implementation of technology. Then, semi-structured interviews were held with 13 individuals who are employed in the highway construction industry. Inductive thematic analysis of the interview transcripts revealed two primary causes for the delays in implementing the technology: (1) a misunderstanding resulting from the partial implementation of the platform during Covid-19, and (2) a high initial investment cost for state DOTs because of overlapping fleet management functionalities. This research will help DOT decision-makers and engineers in re-define the functionalities of the e-Ticketing platform, adopt regulations and standards, minimize project costs, provide initial funding, performing pilot testing, and enhance inspector safety.

INTRODUCTION

E-construction is defined by the Federal Highway Administration as "The creation, review, approval, distribution, and storage of highway construction documents in a paperless environment" (FHWA 2021). E-construction is comprised of a vast array of technology and techniques designed to enhance productivity and safety by reducing the need to handle and manage paper paperwork. Each year, state DOTs collect, distribute, store, and archive thousands of paper tickets issued for the delivery of asphalt and concrete, an obsolete practice that exposes construction inspectors to

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"A comprehensive literature review and stakeholder survey were conducted and revealed that all 20 DOTs reported workforce shortages.

A comparison was made between the required number of inspectors prior to and after the implementation of e-Ticketing, and it was found that projects requiring multiple inspectors could reduce their workforce by 25% by implementing e-Ticketing. The findings of this research will enable state DOTs to reduce the number of inspectors on-site, thereby circumventing the shortage of workers."



e-Ticketing Lays The Foundation for e-Construction.

What's Next: Where Does The Industry Go From Here



Federal Support for Digital Delivery

- Infrastructure Investment and Jobs Act (IIJA) - H.R. 3684

- Section 5113:

11 “(5) ACCELERATED IMPLEMENTATION AND DE-
12 PLOYMENT OF ADVANCED DIGITAL CONSTRUCTION
13 MANAGEMENT SYSTEMS.—

14 “(A) IN GENERAL.—The Secretary shall
15 establish and implement a program under the
16 technology and innovation deployment program
17 established under paragraph (1) to promote,
18 implement, deploy, demonstrate, showcase, sup-
19 port, and document the application of advanced
20 digital construction management systems, prac-
21 tices, performance, and benefits.

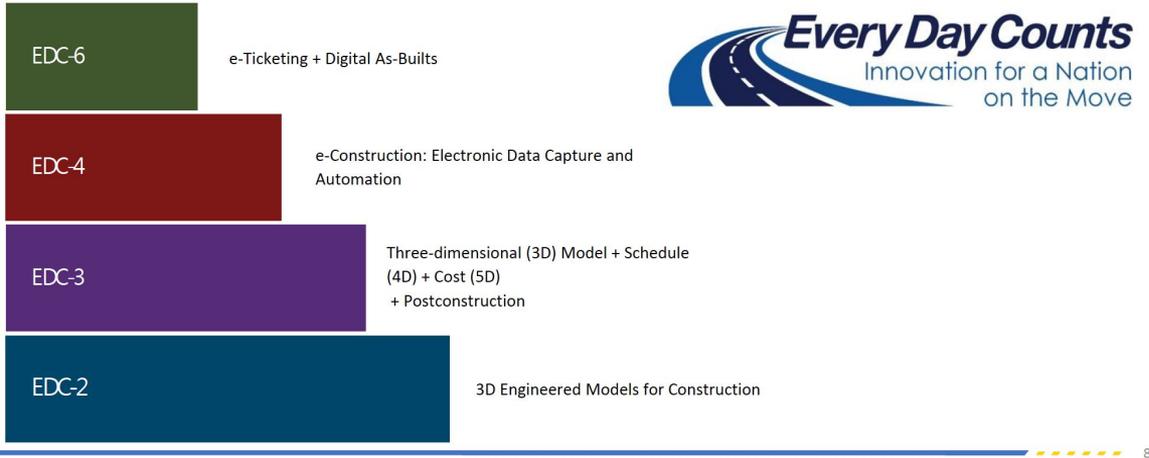
- H.R.5376 - Inflation Reduction Act of 2022

- Funding for EPDs, Low Carbon Materials:

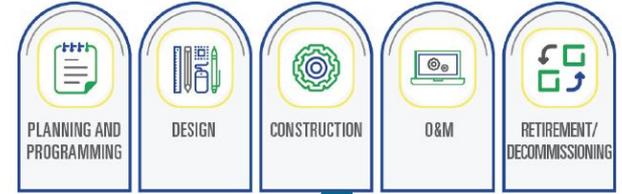
- Environmental Product Declaration Assistance: **\$250M in EPA grants for a program focused on construction materials.** Funds can be used for grants to businesses to develop and verify EPDs, providing technical assistance, and support activities that measure, report, and reduce embodied carbon in construction materials.
- Low-Embodied Carbon Labeling for Construction Materials: **\$100M in EPA grants, in consultation with the Federal Highway Administration, to identify and label low-embodied construction materials based on EPD’s.** EPA identifies construction materials that have substantially lower levels of embodied carbon.
- Use of Low Carbon Materials: **\$2.15B in General Service Administration (GSA) grants to install low-embodied carbon materials and products in GSA projects.**
- General Services Administration Emerging Technologies: **\$975M in GSA grants for projects that use emerging and sustainable technologies.**
- Low-Carbon Transportation Materials Grants: **\$2B in FHWA grants to reimburse or provide incentives for use of low-embodied carbon construction materials.** The reimbursement amount is equal to the incrementally higher costs of using such materials relative to the cost of using traditional materials. The incentive amount is limited to 2% of the cost of using low-embodied construction materials. Eligible recipients are states and local governments.
- Greenhouse Gas Corporate Reporting: **\$5M in EPA grants to standardize corporate climate action commitments and plans to reduce greenhouse gas and enhancing transparency in showing progress in meeting such commitments.**
- FEMA Building Materials Program: Allows the Federal Emergency Management Agency (FEMA) to use their financial assistance programs to pay for the costs of using low-carbon materials or fund incentives that encourage their use.

Building Information Modeling (BIM) for Infrastructure

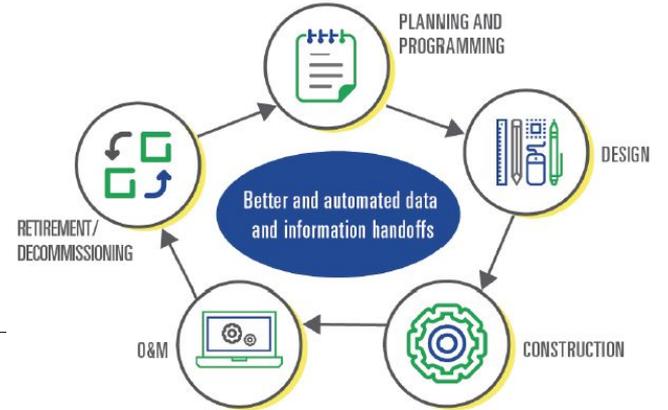
Stepping-Stones: Preexisting BIM Activities



Before BIM Siloed Data and Information Management



After BIM



O&M: Operations and Maintenance, which includes Asset Management

Continued Technology Advancement Is Vital

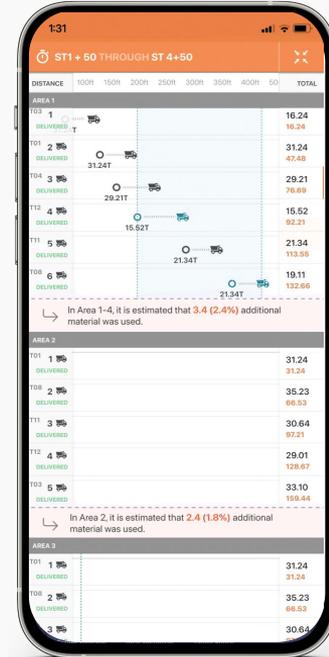
- Data on the job site is abundant
- The bigger picture: it needs to be stitched together.
 - Streamlines data collection
 - Better project management
 - More efficient asset management
- e-Ticketing Carved the Path:
 - Use the same formula - Keep it simple



Automated Roadway Reporting:



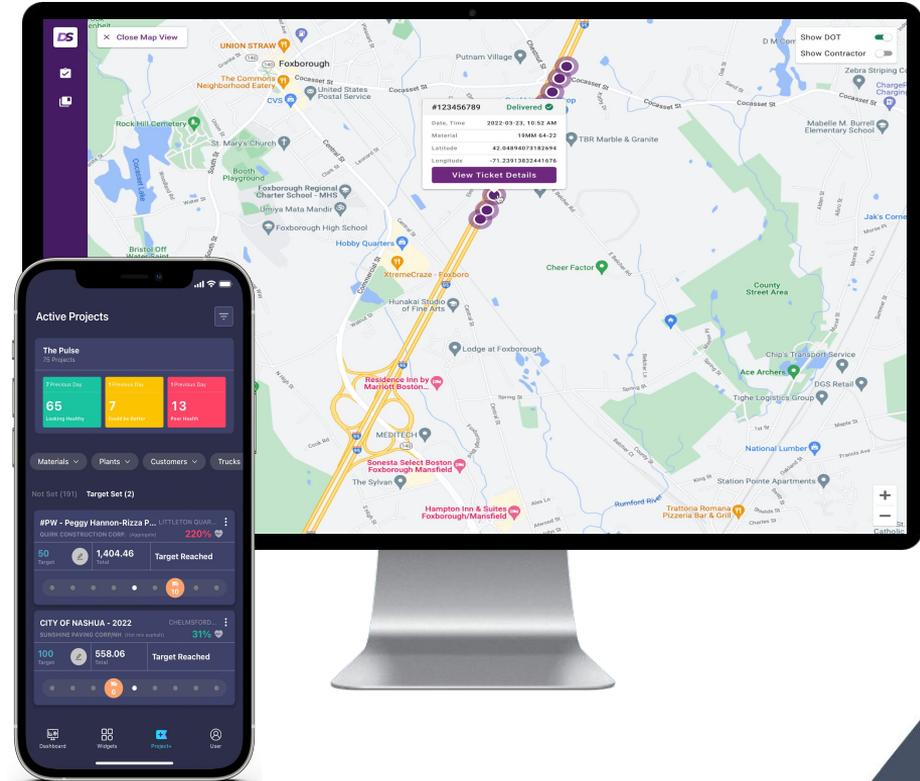
Field OEM Data



Instant Insights

Continuous Intelligence

- Clear understanding of project performance
- Across all assets, across the entire state
- Can understand in real time what is going on.
 - Not waiting for that information to come in months or weeks later.
- Inspectors have the intelligence of real time project success
- Project future performance



QUESTIONS?

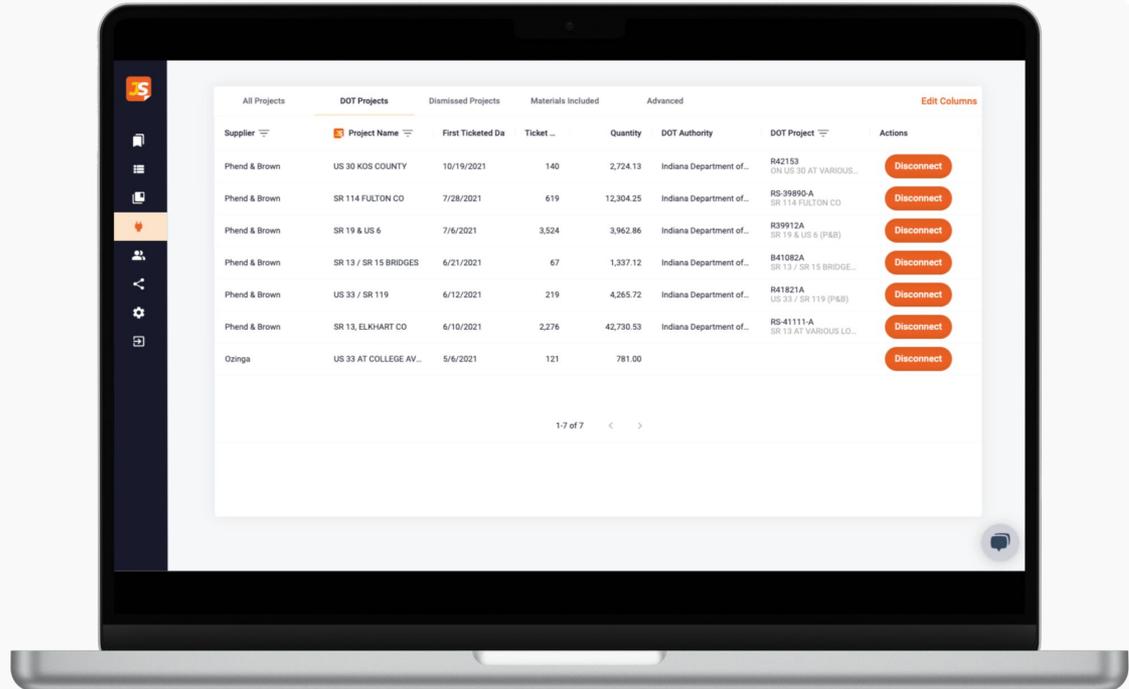
August 4, 2022



Contractor Access

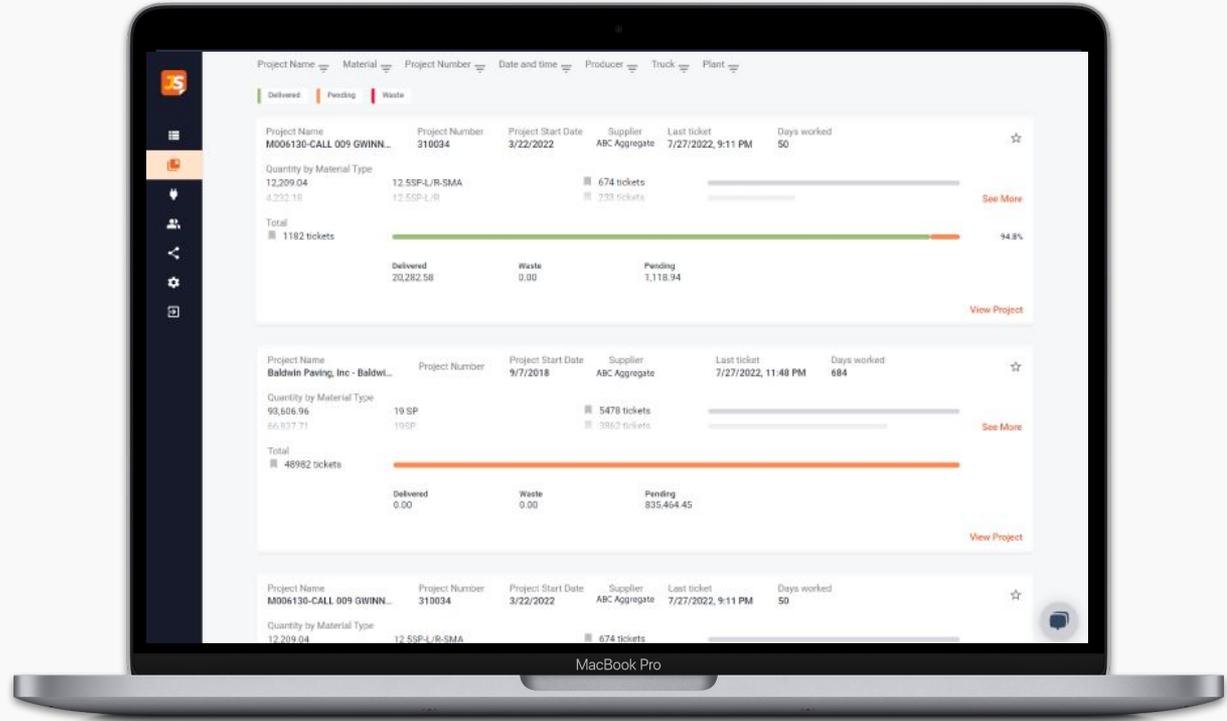
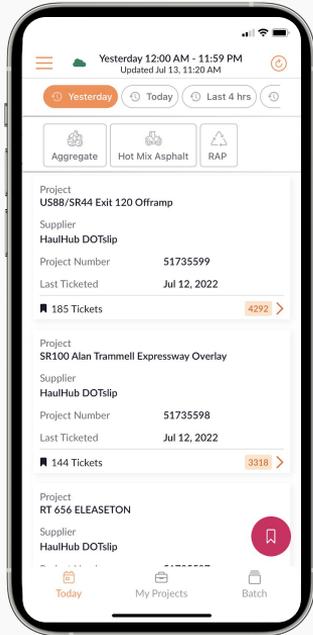
GC Project Calibration

- Link producers on project to DOT Portal
- See all project materials in one view



All Projects	DOT Projects	Dismissed Projects	Materials Included	Advanced	Edit Columns		
Supplier	Project Name	First Ticketed Da	Ticket ...	Quantity	DOT Authority	DOT Project	Actions
Phend & Brown	US 30 KOS COUNTY	10/19/2021	140	2,724.13	Indiana Department of...	R42153 ON US 30 AT VARIOUS...	Disconnect
Phend & Brown	SR 114 FULTON CO	7/28/2021	619	12,304.25	Indiana Department of...	RS-39890-A SR 114 FULTON CO	Disconnect
Phend & Brown	SR 19 & US 6	7/6/2021	3,524	3,962.86	Indiana Department of...	R39912A SR 19 & US 6 (P&B)	Disconnect
Phend & Brown	SR 13 / SR 15 BRIDGES	6/21/2021	67	1,337.12	Indiana Department of...	B41082A SR 13 / SR 15 BRIDGE...	Disconnect
Phend & Brown	US 33 / SR 119	6/12/2021	219	4,265.72	Indiana Department of...	R41821A US 33 / SR 119 (P&B)	Disconnect
Phend & Brown	SR 13, ELKHART CO	6/10/2021	2,276	42,730.53	Indiana Department of...	RS-41111-A SR 13 AT VARIOUS LO...	Disconnect
Ozinga	US 33 AT COLLEGE AV...	5/6/2021	121	781.00			Disconnect

Project Visibility on Desktop and Mobile



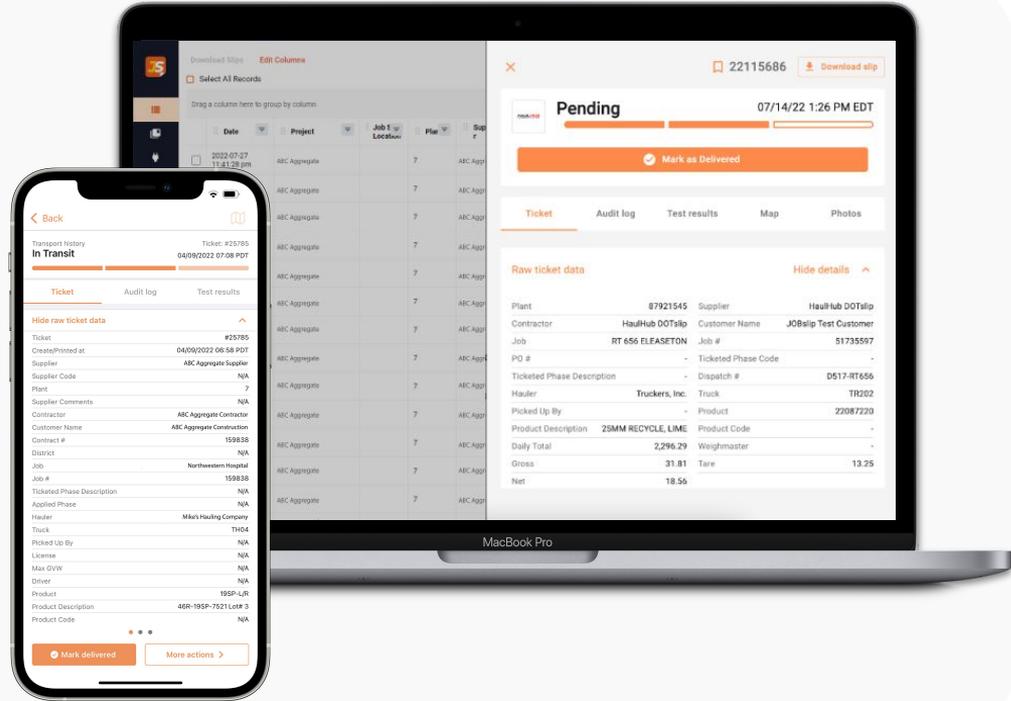
Ticket Level Data

Web:

- Download
- PDF
- Auto Reporting

Mobile

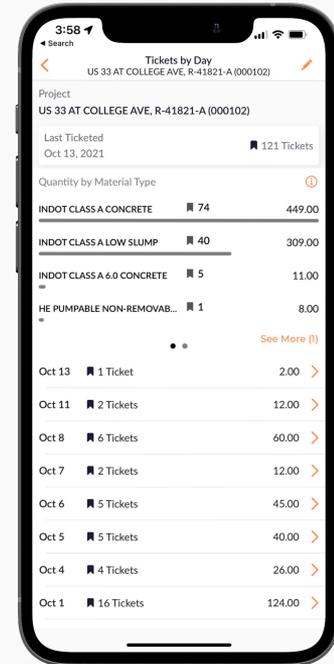
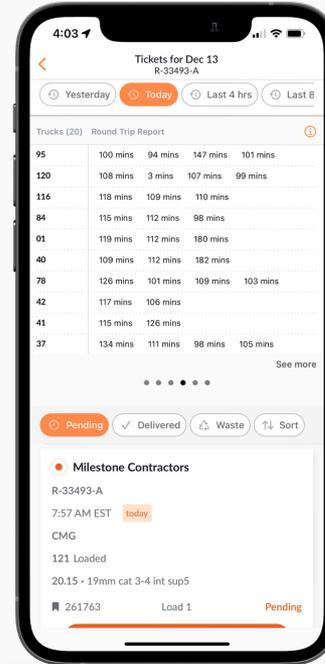
- View DOT Acceptance
- See ticket details



Performance and Material Tracking

Real Time Reporting using only ticket data (no GPS)

- On the Road
- Round Trip
- Out of Order
- Material Volumes by Type



What is FDOT doing?

- Increase participation in eTicketing 2023
- Automated Inspection Reports
 - QC Roadway Report (QCRR)
 - Straightedge Form
 - Cross Slope Form
- In order to make this successful, a single FDOT e-Ticketing Portal is imminent.
- Contractors and Suppliers will continue using their current systems. Those systems will need to push ticket data to the FDOT portal. FDOT inspectors will be provided with a mobile app that works for all projects, with no effect on the GC or Supplier.

