



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

July 29, 2019

MEMO TO: Jeff Allen, Michael Alford, Dellon Baker, Victor Barbour, Carl Barclay, Tammy Chastain, Christopher Conerly, Patrick Doran, Shannon Douglas, Bobby Eaves, Randy Garris, Shanese Green, Ron Hancock, Bruce Hazle, Scott Hidden, Brandon Hill, Justin Hill, Ryan Ilg, Wiley Jones, Steve Kite, Ben Lanier, Dan Lieberman, Clark Morrison, Brenda Moore, Mark Nye, Dennis O'Connor, Michael O'Shields, Chris Peoples, John Pilipchuk, Glenn Pratt, Jeff Saunders, Ian Scott, Brian Skeens, Lamar Sylvester, Adam Tipton, Kevin Thomas, Dave Tolley, Brian Webb, Chris Werner

FROM: R.E. Davenport, Jr., PE  
State Contract Officer

SUBJECT: DOT-AGC Roadway Subcommittee Minutes from 6/20/19

The AGC Roadway Subcommittee met at the Riverwood Conference Room in the NCDOT Century Center Building B (1020 Birch Ridge Dr., Raleigh) on June 20<sup>th</sup> at 10:00 a.m.

Old Business

**Use of ABC from Trimmer (AGC)**

Brian Skeens noted that with Michael Alford a test of trimmer use to recycle and place ABC on a project is being scheduled; and once the work is tested, results will be sent to the subcommittee.

**NCDOT Letting Site (NCDOT)**

Patrick Doran introduced the published all-in-one letting advertisement [site](#) which allows the user to pick a favorite letting date or favorite letting offices and will remember your preferences on the device you are on. Because a login is not required, the favorites (stars) are not be remembered across devices. If you use multiple devices (computer, phone), please set up your favorites on each device separately. A green asterisk has been added to denote recently posted lettings. Patrick noted that there are several ideas which could be added in the future if requested and asked for comments through the "[Contact Us](#)" feature at the bottom of the page.

**Guaranteed Boring (NCDOT)**

As a follow up to an earlier question regarding the Department's intent in the bore and jack provisions, it was noted that the intended operation was a guaranteed bore, no change is suggested in the provision.

**Utilities Update (NCDOT)**

The Department met with Duke Energy concerning delays in moving utility conflicts on projects. The Department is making a prioritized list and working to identify changes in projects to remove conflicts. It was mentioned that signal pole masts currently have a 20-24 month lead time for delivery which may be due to a recent supplier buyout.

New Business

**Borrow Pit Locations (AGC)**

Shannon Douglas noted that it was becoming more difficult to identify borrow pit locations and get approval through local planning boards during the project advertisement period. The committee noted that the area east of I-95 (coastal counties) was particularly difficult. Lamar Sylvester offered to communicate with the

Attorney General's Office in order to identify any guidance related local zoning issues. The committee questioned if the letting advertisement could include more research into local zoning or possible borrow sites or consider extending advertising times for borrow pit issues are anticipated.

#### **Pipe Backfill Above Springline (AGC)**

Shannon Douglas noted that there is confusion in the field on how to pay for backfill/hauling on pipe operations. Hauling unsuitable material offsite and replacing with suitable material is more expensive than bedding with approved onsite materials, and the decision for suitability of materials is made during the operation. The concern is that this cost difference creates uncertainty on how to bid pipe items and may drive up costs in bids. There was a suggestion to consider how undercut is paid as a possible way to control risk. Wiley Jones noted that typically materials for backfill are incidental to the cost of the pipe, and there have been no recent specification changes regarding payment for pipe. The differences in Resident Office's approaches will be addressed in pipe training this fall. He noted that if there is suitable material onsite available for use, and the inspector does not allow the use of suitable materials but requires the use of Select Material, then the Department should pay the contract price for Select Material. Otherwise, unsuitable local material removal and suitable material used for backfill is incidental to the pipe placement operation.

#### **Bid Schedules (AGC)**

Shannon Douglas requested that the Department consider levelling the bidding schedule to spread out the large borrow jobs. Ron Davenport requested the committee to review the 36-month let list and contact him with opportunities to better balance the lettings. He mentioned that the current bidding schedule evenly distributes the lettings across the 14 divisions and central lets using the days available in each month.

#### **FHWA 1391 (NCDOT)**

It was noted that Resident Engineers would be contacting contractors on federally assisted contract regarding the FHWA 1391 in June.

<https://www.fhwa.dot.gov/eforms/fhwa1391.xls>

#### **E-Ticketing Options (NCDOT)**

Brian Skeens provided an e-ticketing presentation (attached) and noted that the Department is working on creating a special provision for supplemental agreements to test e-ticketing technology. Contractors interested in participating in pilot projects should contact Brian Skeens at [bskeens@ncdot.gov](mailto:bskeens@ncdot.gov). This technology would provide an improvement in safety and documentation.

#### **Sales and Use Tax (NCDOT)**

Lamar Sylvester shared proposed legislation which would allow the Department to ask for reimbursement on sales and use tax for services provided on projects starting on July 1, 2019. He is monitoring the legislation and working to create a process to allow contractors and subcontractors to report the sales and use taxes associated with Department construction projects. If legislation passes, the Department of Revenue will provide policies and procedures for compliance and reimbursement.

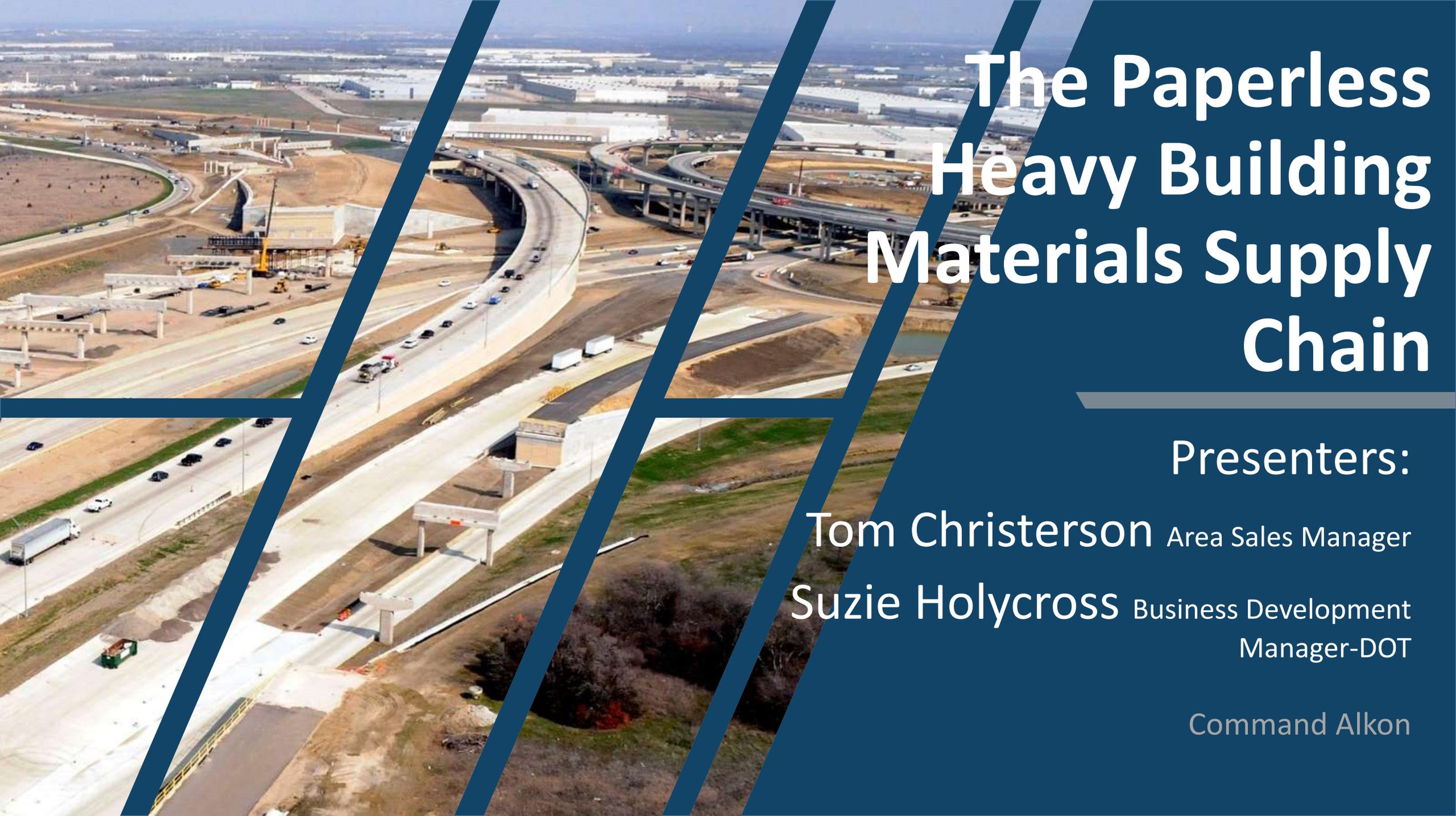
#### **Final Estimates (AGC)**

The committee discussed the timely payment of estimates and how that impacts closing out bonds. Wiley Jones shared that this issue was included in the Resident Engineer's training earlier this year and is interested to learn if the lag time has improved.

#### **Silica Safety (NCDOT)**

Brian Skeens noted that the Department will be training Resident Engineers and Inspectors on staying safe and minimizing silica exposure. The Department will be stopping operations if there is a safety concern or the operations do not comply with OSHA. An example given was if a concrete cutting operation used a hose to wet down the cut, it would be shut down. The acceptable method is running water through the cutting equipment.

The next meeting will be held at the Riverwood Conference Room in the NCDOT Century Center Building B (1020 Birch Ridge Dr., Raleigh) on August 22<sup>nd</sup> at 10:00 a. m. Please enter at door B2.



# The Paperless Heavy Building Materials Supply Chain

Presenters:

**Tom Christerson** Area Sales Manager

**Suzie Holycross** Business Development  
Manager-DOT

Command Alkon

## Does any of this sound familiar?

- Your project supply chain relies on antiquated processes
- HBM Participants receive “un-digitized” data at the jobsite only to “re-digitize”
- Data captured is untimely, inaccurate and incomplete
- Jobsite safety is a major concern!

## Imagine a world where . . .

- You can more easily order, track, trace and reconcile material deliveries to the jobsite
- All players on the heavy jobsite share and exchange real-time and robust transactional data related to material deliveries
- We facilitate quicker audits and easier tracking of material inspections, consistency, location and quality of pours

# “Day in the Life” of a Ticket



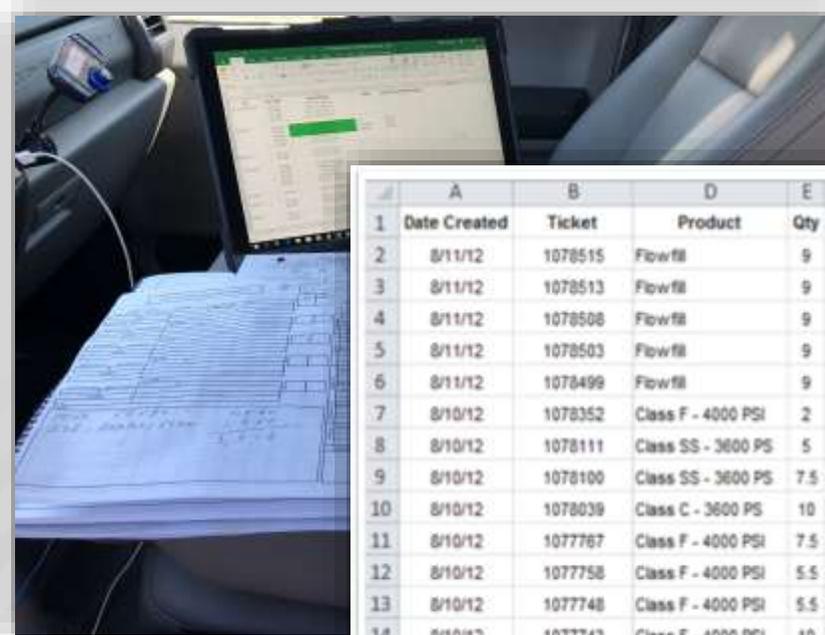
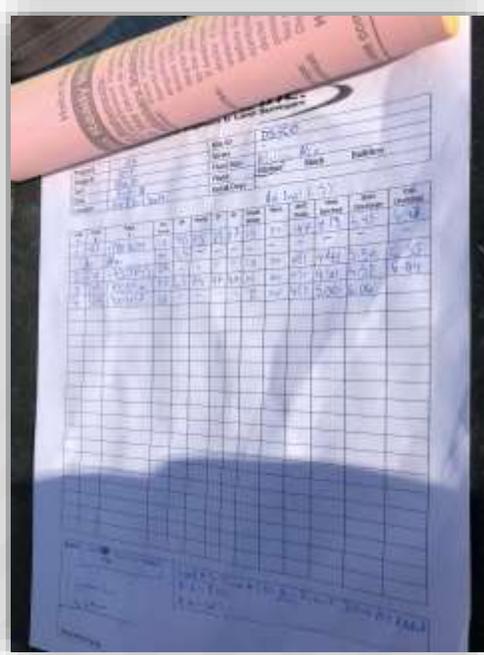
Supplier

Driver /  
Hauler

Contractor

Field Tester /  
Inspector

## “Day in the Life” of a Ticket



	A	B	D	E	F	K	L	M
1	Date Created	Ticket	Product	Qty	UoM	WBS Element	Accepted	Product Invoice
2	8/11/12	1078515	Flowfill	9	CY	4501.94	YES	458795236
3	8/11/12	1078513	Flowfill	9	CY	4501.94	YES	458795236
4	8/11/12	1078508	Flowfill	9	CY		YES	458795236
5	8/11/12	1078503	Flowfill	9	CY		YES	458795236
6	8/11/12	1078499	Flowfill	9	CY	4501.94	YES	458795236
7	8/10/12	1078352	Class F - 4000 PSI	2	CY	4503.82	YES	458795236
8	8/10/12	1078111	Class SS - 3600 PS	5	CY		NO	
9	8/10/12	1078100	Class SS - 3600 PS	7.5	CY	5005.81	YES	458245871
10	8/10/12	1078039	Class C - 3600 PS	10	CY	5005.81	YES	458245871
11	8/10/12	1077767	Class F - 4000 PSI	7.5	CY	5005.81	YES	458245871
12	8/10/12	1077758	Class F - 4000 PSI	5.5	CY	5006.81	YES	458245871
13	8/10/12	1077748	Class F - 4000 PSI	5.5	CY	5006.81	YES	458245871
14	8/10/12	1077743	Class F - 4000 PSI	10	CY	5006.81	YES	
15	8/10/12	1077648	Class F - 4000 PSI	2	CY	4503.82	YES	
16	8/9/12	1077418	Class F - 4000 PSI	2	CY		NO	

Tickets  
Collected

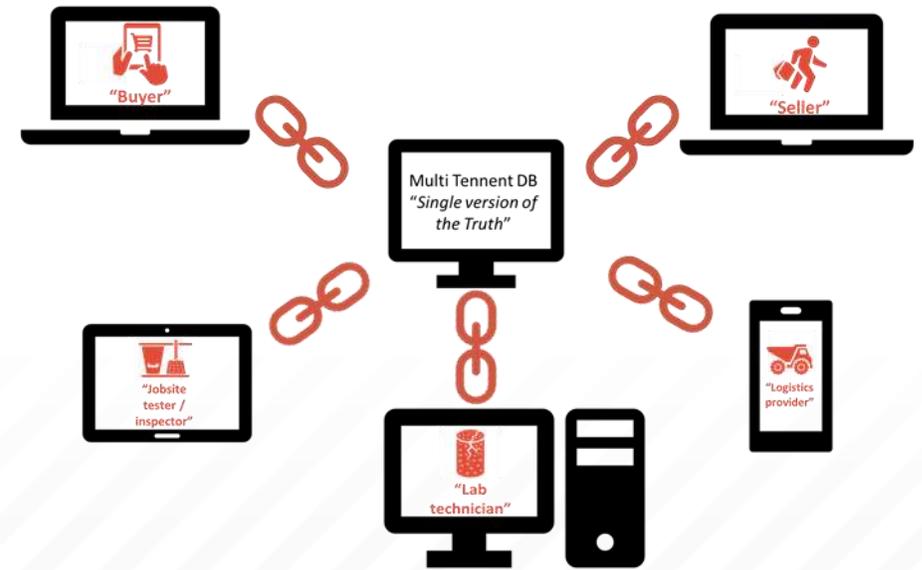
Data  
Captured

Data  
Re-Keyed

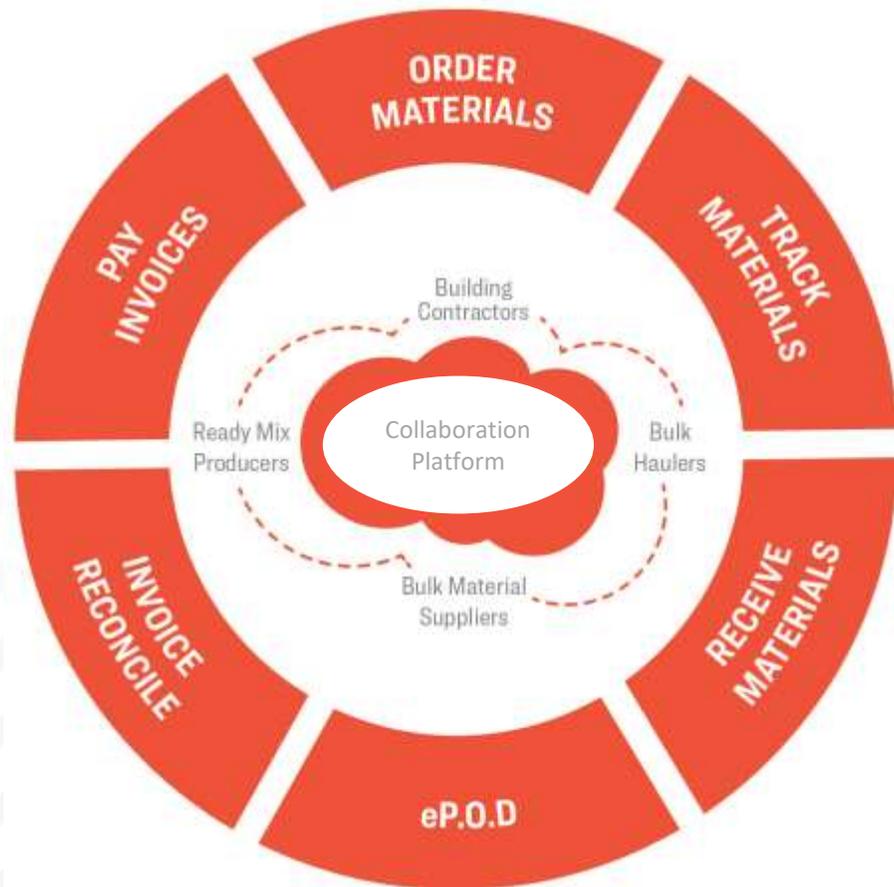
Tickets  
Reconciled

## The Vision

Fully digitized collaborative work flow around ticket data, where data can be shared and appended to by each participant in the HBM supply chain



## The Vision



Online COLLABORATION Platform  
to connect the HBM Supply Chain

SHARE Data between  
Suppliers | Haulers | Contractors | DOTs

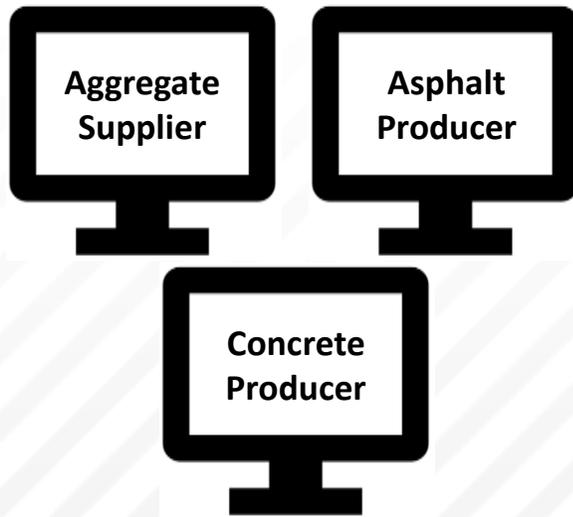
DATA includes  
Orders | Tickets | POD | Invoice Recon

# THE PAPERLESS HEAVY BUILDING MATERIALS SUPPLY CHAIN

## How It Works

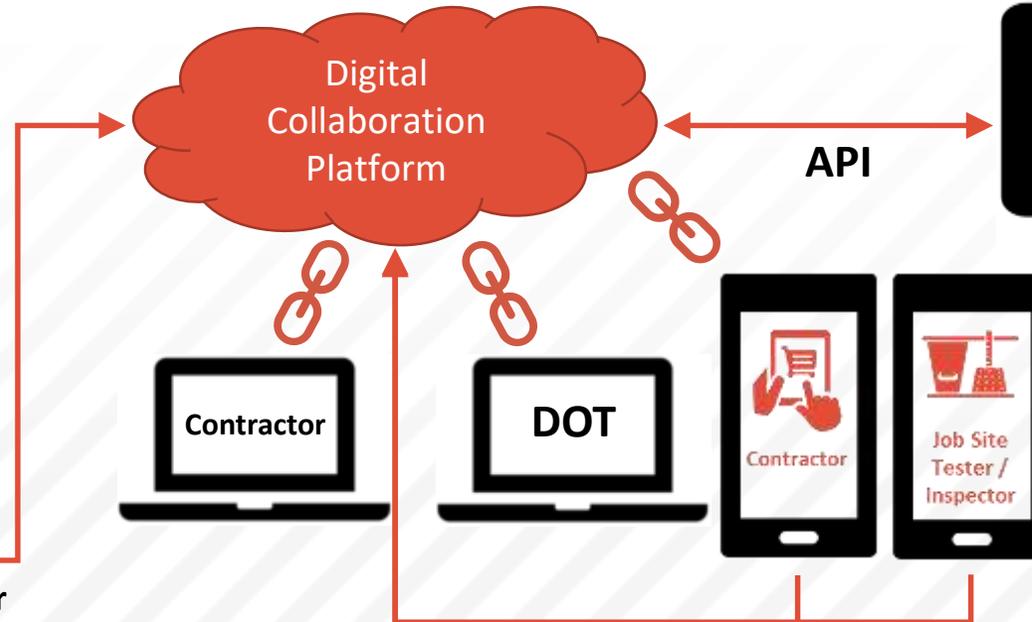


### Supplier Ticketing Systems

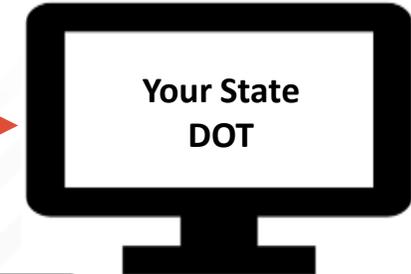


Ticket Integration Adapter

### HBM B2B Platform

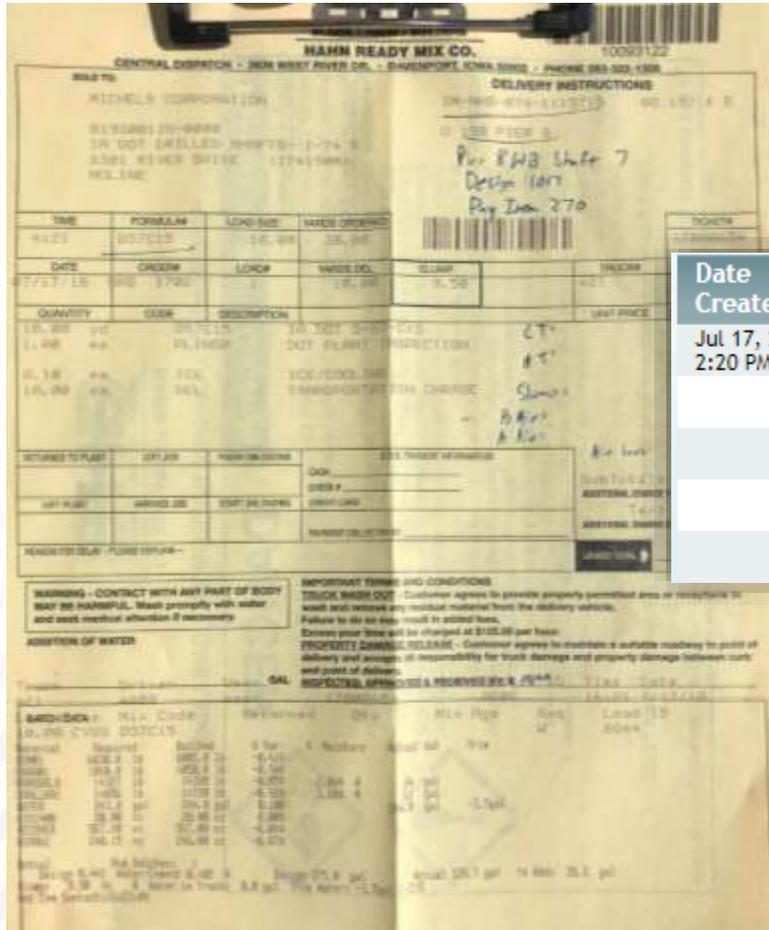


### State DOT Software

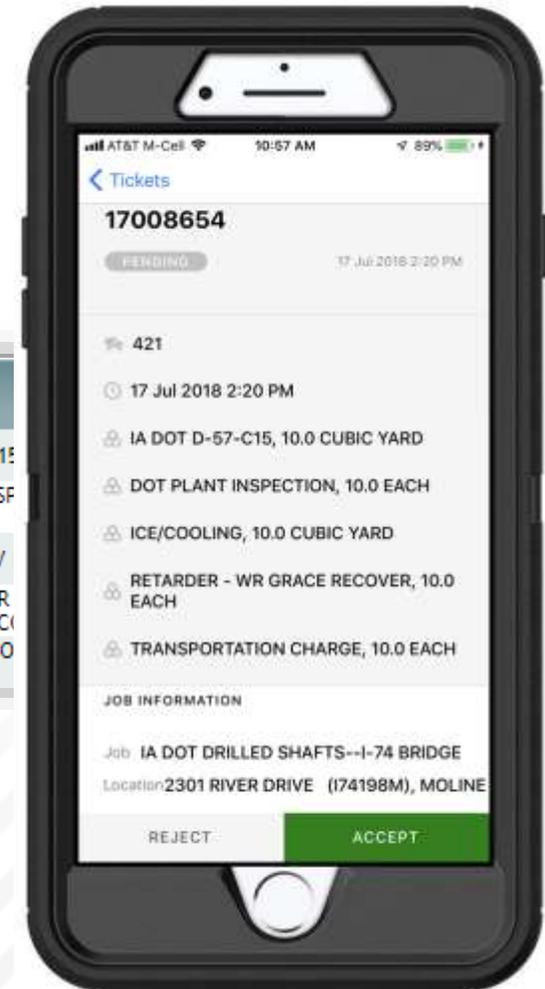


API

## Digital Ticket Integration



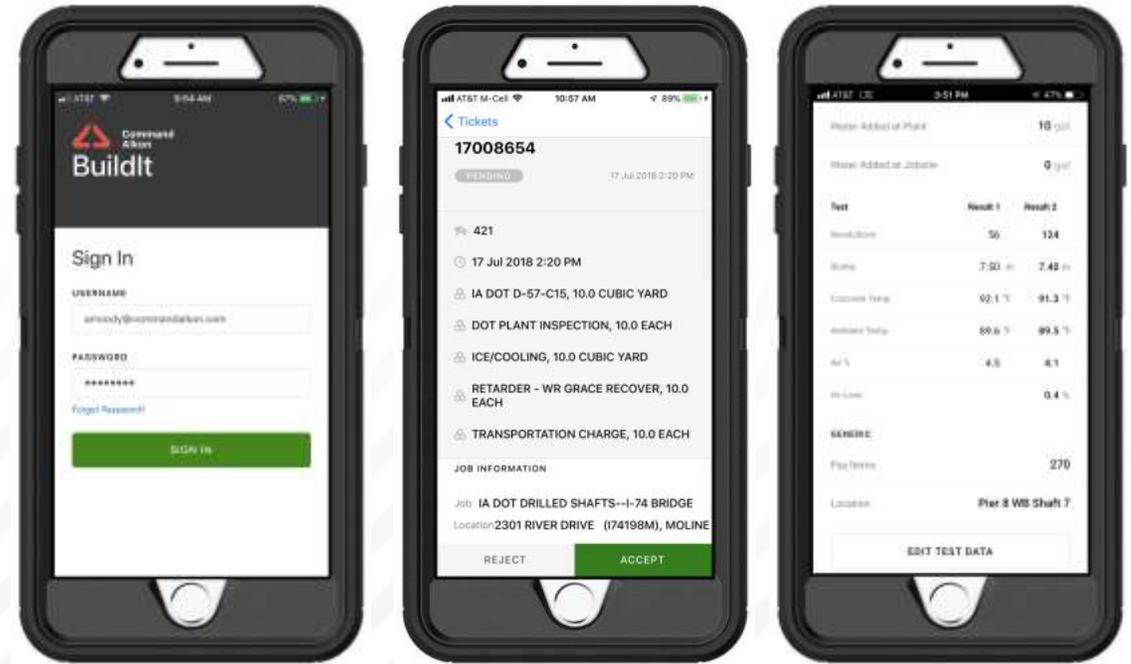
Date Created	Ticket	Vehicle	Contractor	Supplier	Job	Product
Jul 17, 2018 2:20 PM	17008654	421	MICHELS CORPORATION	Hahn Ready Mix	IA DOT DRILLED SHAFTS--I-74 BRIDGE / 000013	IA DOT D-57-C15 DOT PLANT INSP PLINSP ICE/COOLING / RETARDER - WR RECOVER / REC TRANSPORTATIO DEL



## Mobile Apps

Focus on Jobsite Mobility & Collaboration

- EPOD (Electronic Proof of Delivery)
  - View Tickets
  - Material / Ticket Acceptance
  - Capture GPS Location
- Field Testing / Inspection
  - Capture Test Results
  - Inspection Acceptance
  - Append to Ticket Data



# Supply Chain Impacts

## SUPPLIER

- Improved Communication
- Less Time
- Better Customer Experience
- Get Paid Faster!

## DOT / CONTRACTOR

- Less Effort & Time
- Accurate Data
- Improved Visibility
- Ensure Safety!

**Improved Collaboration for All  
HBM Participants**



## Real Results! TX DOT Project



**\$1+ Billion** Design & Build project, **8.4-mile**.



**National Award-Winning** Project



Processed **250,000** Material Tickets and **46,000** Trucking Timecards



**\$3 Million** in Savings and finished **1 year early**



## The Challenge ...

**“Where did all the rock go?”**

**“Trucking costs are out of control!”**

## Solutions Offered

Permanent Material:

- Online Orders
- Electronic Tickets
- Kiosk at Scale
- Web Database
- Invoice Reconciliation

Hourly Trucking:

- Online Orders
- Electronic Timecards
- GPS Tracking
- Automated Cycle Time Reports

## Benefits

### Improved Visibility

- Orders – Better Tracking and Communication with Suppliers / Haulers
- Daily, Real-Time Data - Tickets / Quantities / Costs
- Month End Reporting / Timely & Accurate Accruals
- Dispatch & Track Trucking, Equipment & Inspectors

### Less Effort

- Automatically Collect and Enter Tickets
- Automatically Track Load Counts and Cycle Times

### Less Time

- Entering and Tracking Down Tickets
- Building Reports and Spreadsheets

### Accurate Data

- Electronic Feed from Supplier's Ticketing Systems
- Eliminate Rounding on Timecards
- No more Spreadsheets
- No Lost Tickets

## Results

Permanent Materials		Hourly Trucking & Services	
No Scale Clerk	\$ 167,000	No Rounding	\$ 138,000
No Data Entry (\$3/ticket)	\$ 612,000	No Data Entry (\$3/ticket)	\$ 230,000
Daily Yield (Loss) Tracking (1%)	\$ 1,250,000	Method Analysis (1%)	\$ 226,000
Early Payment Incentive	\$ 500,000		
<b>TOTAL</b>	<b>\$ 2,529,000</b>	<b>TOTAL</b>	<b>\$ 594,000</b>

**\$ 3,123,000 Savings**

## E-Ticketing Recap

- Digital collaboration made easy
  - e-Ticketing solution for suppliers and contractors – easy to connect and share ticket data
  - Ability to scale for all projects and all bulk materials – concrete, asphalt & aggregates
- Ensure safety at the jobsite!
- Eliminate need to collect and manually key punch tickets
- Integration with DOT systems
  - Reduce administrative costs and ensure accuracy
  - No duplicate entries and lost tickets

# Questions?

Tom Christerson Area Sales Manager  
tchristerson@commandalkon.com

Suzie Holycross Business Development  
Manager-DOT  
sholycross@commandalkon.com

# Use of e-Ticketing and other e-Construction Technologies for Mutual Contractor & DOT Benefit

**Roy Sturgill** Ph.D., P.E.

**Gabe Dadi** Ph.D., P.E.



Kentucky Transportation Center

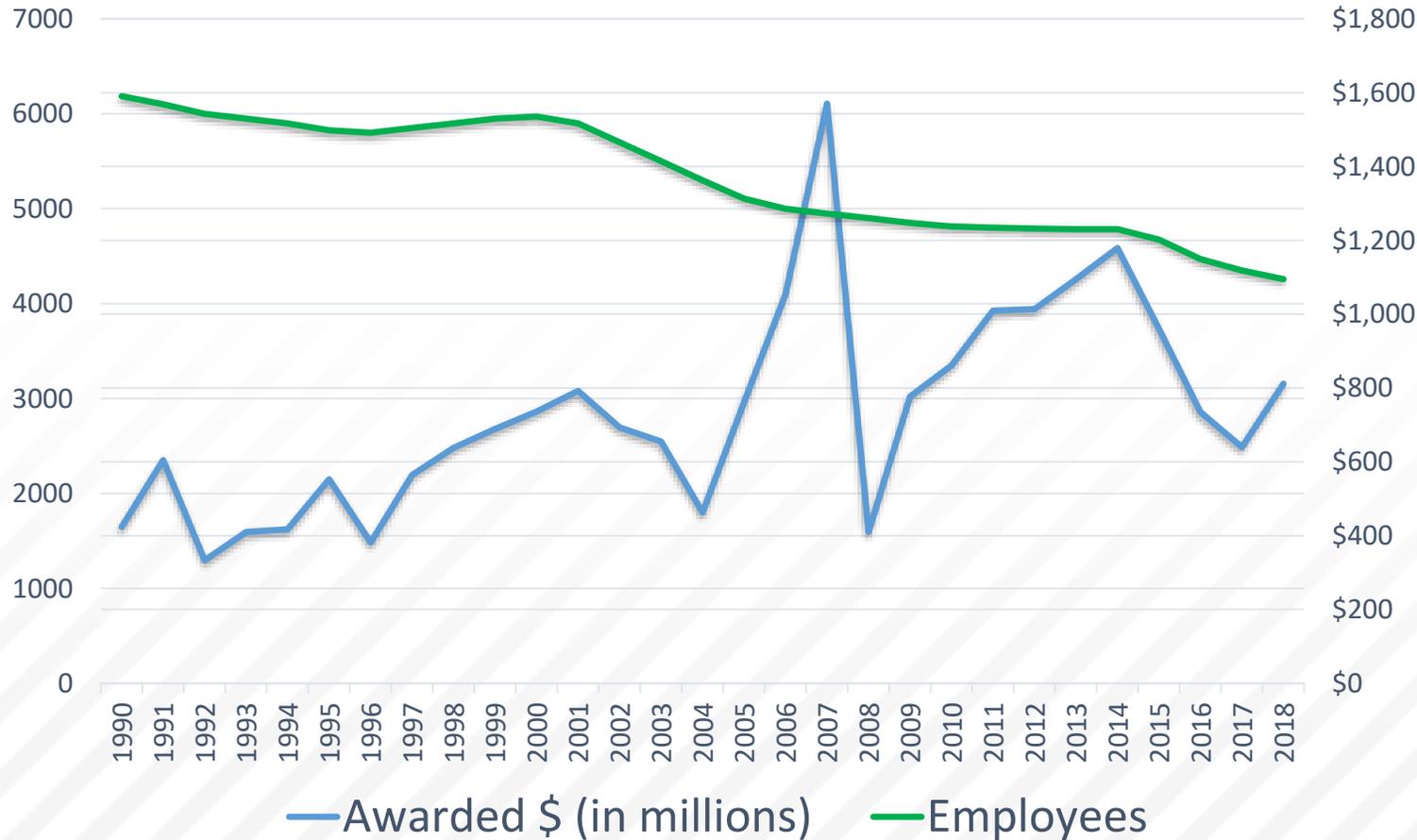


University of Kentucky

# E-TICKETING/E- CONSTRUCTION MOTIVATION

# E-TICKETING AT KYTC

## KYTC Awarded Construction \$ vs Staffing 1990 to 2018

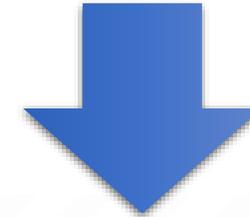


## Other Staffing Issues

- Low unemployment
- Good economy
- Trailing salaries
- Lacking benefits package

## Asphalt Inspection Inefficiencies

- Inspectors must cover multiple projects
- Little experience and training
- Poor morale and desire to inspect paving operations



**Scale Tickets**

Project# Search Project Name

Ticket#: 240901  
Date/Time: Dec 01 2017 01:29 PM  
Asset Name: S04049  
Scale Asset Name: S04049  
FW Known: Yes  
Source: Cosensact Plant  
Weightmaster: ---  
Project Name: Vera Apartments  
Phase Code: ---  
Material Name: SP 9.5 C  
Void: 0  
Net Tons: 21.66  
Gross Tons: 34.51  
Free Form T: ---  
Temperature: ---  
Waste Tons: 0.0  
Project Number: Vera  
Cumulative Tons: 169.9

Kyrc Department of Transportation  
Highway Division - Office of Construction and Materials  
Daily HMA Summary Report

Report Prepared By: Lee Shepard  
Project Name: S04049 S04049-01-01-01  
Start Date and Time: 2016-06-16 08:00:00  
End Date and Time: 2016-06-16 23:00:00  
Ticket: 169999  
Ticket: 169999  
Time: 06:34:16  
Time: 12:16:16

Material Name	Total Tons Batched	Total Tons Voided	Total Tons Wasted	Total Tons for Pay
42014-40100	575.34	0	0.0	575.34
42014-4004	157.10	16.9	6.8	516.20
42014-4005	16.47	16.47	0.0	0.00
None	0.0	0	0.0	0.0

Notes for Tickets: 169999

Start: 0 | End: Project | 2016-06-16 01:00:00  
Waste to surface patch (See #166)

Start: 0 | End: Report | 2016-06-16 12:16:16  
Checked out: Yes

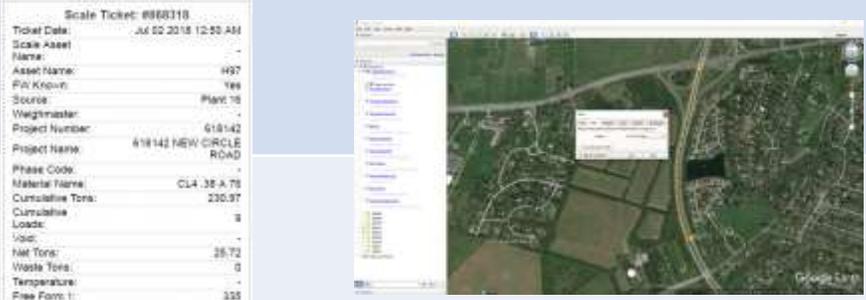
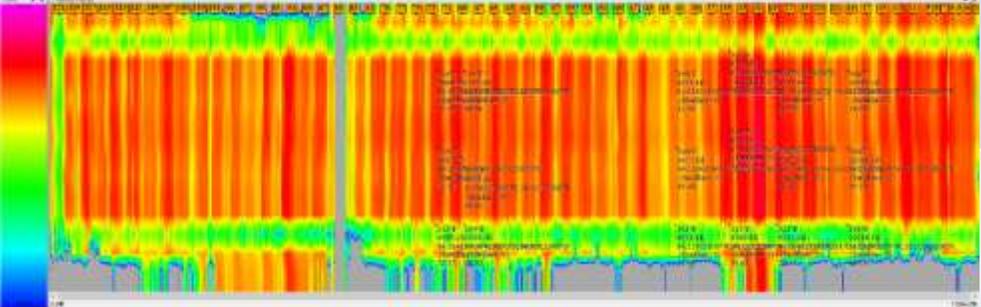
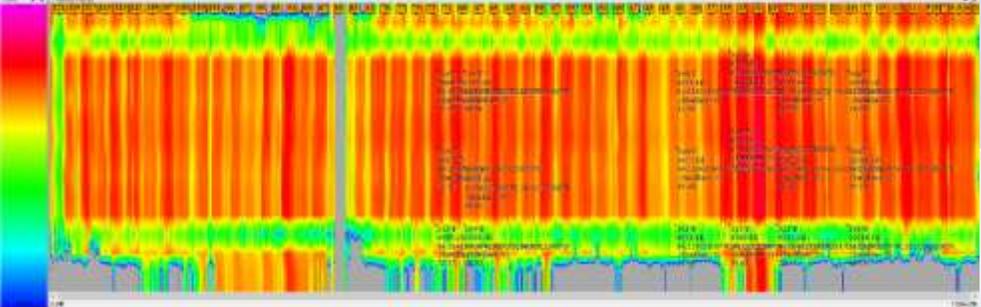
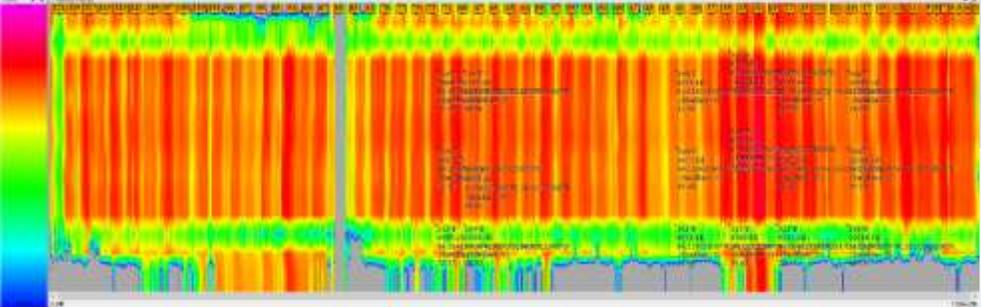
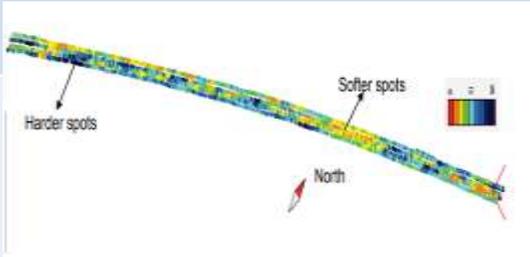
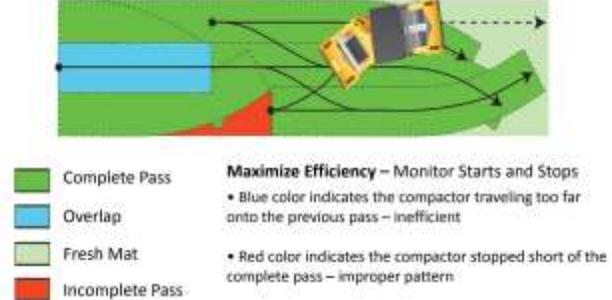
## E-Ticketing Goals

Improve Safety and Efficiency  
through Technology

- Reduce inspector workload
- Improve data collection and data recording
- Allow inspectors to focus on most demanding tasks



# E-TICKETING AT KYTC

Inspection Operation	Inspector Responsibility	Assistive Technology
Ticket Receipt and Acceptance	Collect Tickets	 <p>The image shows a 'Scale Ticket: 898318' form with fields for Ticket Date (Jul 02 2018 12:55 AM), Scale Asset Name, Asset Name (497), P/U Kevin (169), Source (Plant 18), Weighmaster, Project Number (618142), Project Name (618142 NEW CIRCLE ROAD), Phase Code, Material Name (CL4 38 A 75), Cumulative Tons (220.97), Loads (3), Void, Net Tons (25.72), Waste Tons (0), Temperature, and Free Form (1: 335). To the right is a map interface showing a location on a road.</p>
Tracking Theoretical Tonnage (Yield)	Determine Theoretical Tonnage by Station	 <p>The image shows a software interface with a color-coded heatmap representing tonnage tracking across multiple lanes and stations.</p>
Temperature Monitoring in the Truck Bed and Paver Hopper	Take Temperature Readings as Normal	 <p>The image shows a software interface with a color-coded heatmap representing temperature monitoring across multiple lanes and stations.</p>
Temperature Monitoring Behind the Paver and Screed	Take Temperature Readings as Normal	 <p>The image shows a software interface with a color-coded heatmap representing temperature monitoring across multiple lanes and stations.</p>
Monitoring Roller Operation	Check as Normal	 <p>The image shows a software interface with a color-coded heatmap representing roller operation monitoring across multiple lanes and stations. Labels include 'Harder spots', 'Softer spots', and 'North'.</p>
Communicating with Contractor QC for Nuclear Density Measurements	Check as Normal	 <p>The image shows a diagram of a compactor pass pattern with a legend. The legend includes: Complete Pass (green), Overlap (blue), Fresh Mat (light green), and Incomplete Pass (red). Text on the right says: 'Maximize Efficiency - Monitor Starts and Stops' and lists: 'Blue color indicates the compactor traveling too far onto the previous pass - inefficient' and 'Red color indicates the compactor stopped short of the complete pass - improper pattern'.</p>

# E-TICKETING THE TECHNOLOGY

## Win-Win

### DOT

- Web-based exchange of material information

Scale Ticket Summary



Ticket Number	Ticket Date	Asset Name	File Name	Status	Assignment	Project Name	Project Code	Material Name	Unit	Qty	Unit Price	Material Code	Unit Price
020211	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0001	LLP541	1.00	1.00	1.00	0001	1.00
020212	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0002	LLP541	1.00	1.00	1.00	0002	1.00
020213	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0003	LLP541	1.00	1.00	1.00	0003	1.00
020214	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0004	LLP541	1.00	1.00	1.00	0004	1.00
020215	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0005	LLP541	1.00	1.00	1.00	0005	1.00
020216	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0006	LLP541	1.00	1.00	1.00	0006	1.00
020217	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0007	LLP541	1.00	1.00	1.00	0007	1.00
020218	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0008	LLP541	1.00	1.00	1.00	0008	1.00
020219	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0009	LLP541	1.00	1.00	1.00	0009	1.00
020220	Jan 14 2014 09:14	LLP541		Yes	From 077	LLP541	0010	LLP541	1.00	1.00	1.00	0010	1.00

### Contractor

- GPS/GIS system for fleet management/tracking



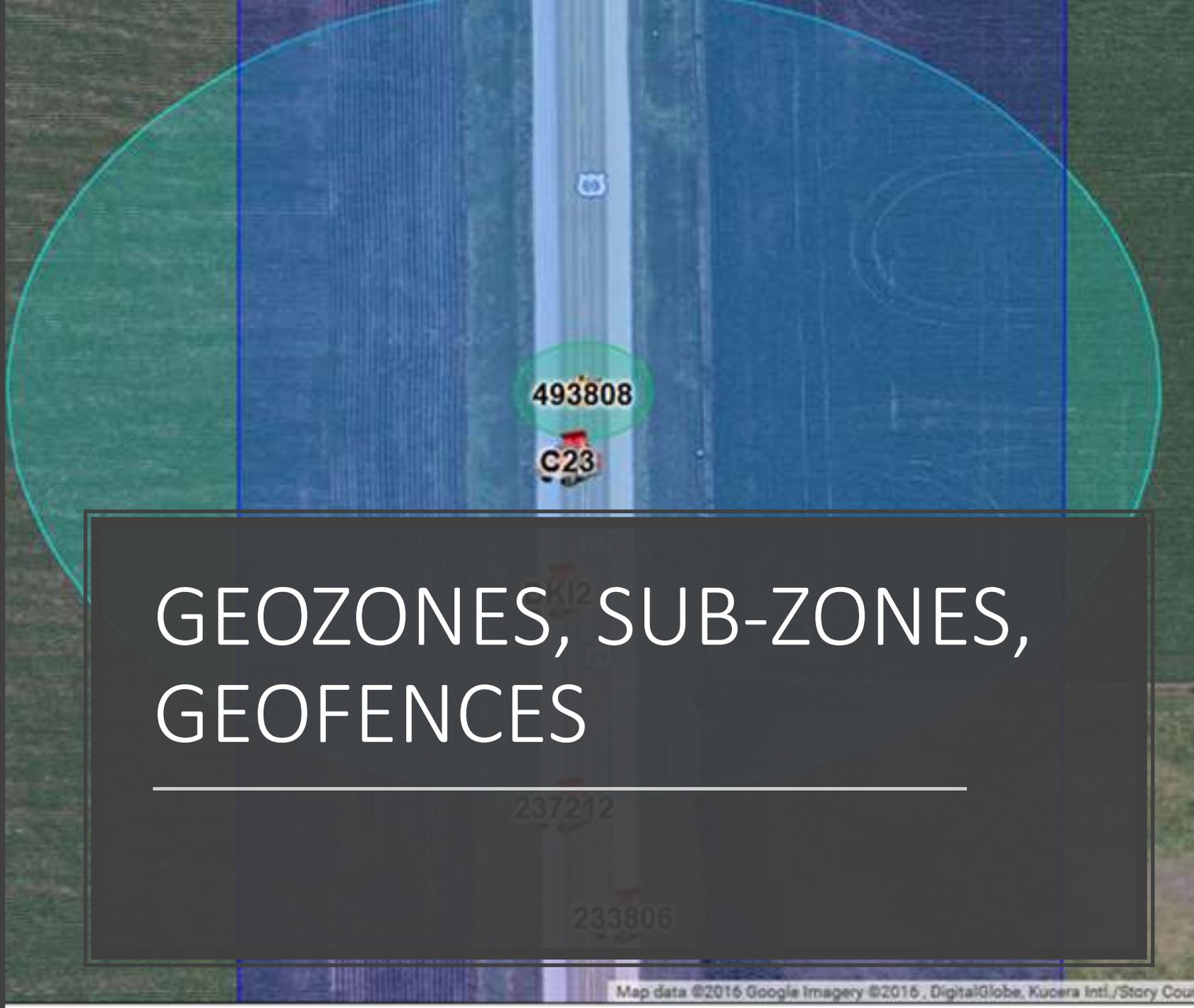
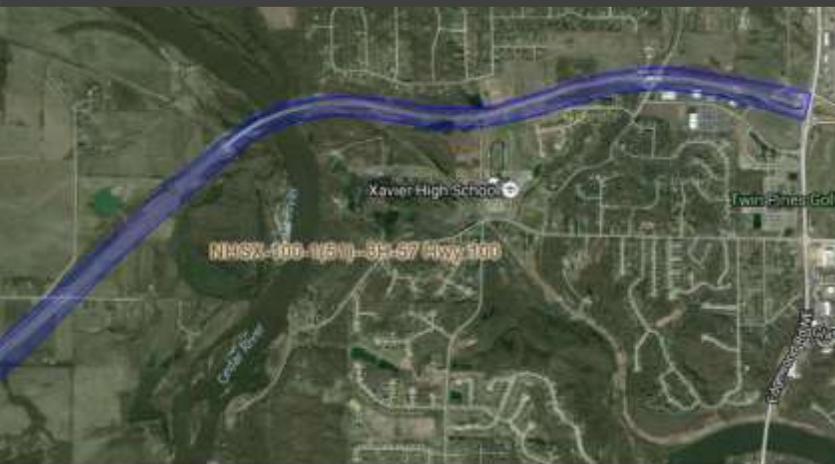
# E-TICKETING EXPERIENCE



# THE GPS UNITS

- Cigarette lighter adapter
  - Internal battery backup
- Mobile app on smartphones
- Ping every minute on haulers
- Ping every 30 seconds on pavers/mills
- Fee is per truck, no user fees or special software required





# GEOZONES, SUB-ZONES, GEOFENCES

# CYCLE TIME CAPABILITY

Load-Out Time

Tonnage

Total Cycle Time

Load Cycle Analysis [Export to PDF](#)

**Grand Totals** This report expects the column LoadTime in the data, but it was not present

41539

Cycle Start Time	Load Time	Tons	Source Geo-zone	Dest Geo-zone	Time in Source	Time to Dest	Time in Dest	Time to Next Source	Total Time
2015-11-20 06:01:06	2015-11-20 06:48:17	23.61	Bourbonnais Plant	BASF Kankakee	52	25	40	29	146
2015-11-20 08:28:05	2015-11-20 08:31:41	23.62	Bourbonnais Plant	BASF Kankakee	15	23	44	-	82
-	-	-	-	BASF Kankakee	-	-	51	25	76
2015-11-20 11:09:07	2015-11-20 11:11:15	23.74	Bourbonnais Plant	BASF Kankakee	6	23	52	25	106
2015-11-20 12:55:07	2015-11-20 12:58:08	23.56	Bourbonnais Plant	BASF Kankakee	10	28	52	31	121
2015-11-20 14:56:07	2015-11-20 14:59:18	23.87	Bourbonnais Plant	BASF Kankakee	9	22	20	32	83
2015-11-20 16:19:07	2015-11-20 16:22:01	23.8	Bourbonnais Plant	BASF Kankakee	8	23	4	-	35
-	-	-	-	BASF Kankakee	-	-	17	37	54
2015-11-20 17:50:07	-	-	Bourbonnais Plant	-	8	-	-	-	8
<b>Totals</b>	-	<b>142.2</b>	-	-	<b>108</b>	<b>144</b>	<b>280</b>	<b>179</b>	<b>711</b>
<b>Averages</b>	-	<b>23.7</b>	-	-	<b>15</b>	<b>24</b>	<b>35</b>	<b>29</b>	<b>79</b>

41533

Cycle Start Time	Load Time	Tons	Source Geo-zone	Dest Geo-zone	Time in Source	Time to Dest	Time in Dest	Time to Next Source	Total Time
2015-11-20 06:06:02	2015-11-20 06:52:02	23.67	Bourbonnais Plant	BASF Kankakee	49	25	73	22	169
2015-11-20 08:55:02	2015-11-20 08:58:30	23.61	Bourbonnais Plant	BASF Kankakee	7	20	28	-	55
-	-	-	-	BASF Kankakee	-	-	54	22	76
2015-11-20 11:10:02	2015-11-20 11:14:36	23.55	Bourbonnais Plant	BASF Kankakee	8	21	79	24	132
2015-11-20 13:22:02	2015-11-20 13:25:11	23.69	Bourbonnais Plant	BASF Kankakee	5	22	39	30	96
2015-11-20 14:58:02	2015-11-20 15:02:22	23.65	Bourbonnais Plant	BASF Kankakee	8	23	3	-	34
-	-	-	-	BASF Kankakee	-	-	15	31	46
2015-11-20 16:22:02	2015-11-20 16:26:25	23.88	Bourbonnais Plant	BASF Kankakee	7	23	2	-	32

# SETTING UP SHIFTS

Today's Shifts

Scheduled Shifts

Completed Shifts

All Trucks

Tue May 29 2018 15:56:58 GMT-0400 (Eastern Daylight Time)

Total Active Trucks: 46

[View in Dashboard](#)

2018 Marion Streets HMA

May 29 6:00 AM - 4:59 PM

Project: 2018 Marion Streets HMA [\(edit\)](#)  
 Project Number: 53127  
 Source: Plant #14  
 Destination: 20-46-11  
 Load Count: Unavailable  
 Total Tons: Unavailable  
 Material Type: Asphalt  
 Phase Code: -  
 Shift Note: [Add](#)

↻ 4 ↻  
 S: 1 7 D: 1  
 ↻ 1 ↻

[LCA Graph](#)

[Map View](#)

[Scale Tickets](#)

Shift is 81% complete 5.95 out of 10.98 hours

Total Tons Unavailable. Estimated Tons: 1000

48-1511-035 Hwy 151- Iowa Co

May 29 6:00 AM - 7:59 PM

Project: 48-1511-035 Hwy 151- Iowa Co [\(edit\)](#)  
 Project Number: 53130  
 Source: Plant # 17  
 Destination: 48-1511-035 Hwy 151- Iowa Co  
 Load Count: 62  
 Total Tons: 959.65  
 Material Type: Asphalt  
 Phase Code: -  
 Shift Note: [Add](#)

↻ 6 ↻  
 S: 0 13 D: 4  
 ↻ 3 ↻

[LCA Graph](#)

[Map View](#)

[Scale Tickets](#)

Shift is 64% complete 8.95 out of 13.98 hours

Actual Tons: 96% of Estimated 1000

First Ticket: Truck # LLP503 at 7:27 with 15.57 tons of 1/2 HT INTERMEDIATE . First At Destination: 8:28.

KPI	Shift Ave	Last Hour	Target	Shift %	Hour %
TpH: Crew	89.73	140.52	Set 'TpH: Crew' Target		
TpH: Truck	105.00	140.52	Set 'TpH: Truck' Target		

[https://newlogin.fleetwatcher.com/material\\_delivery/scheduled\\_shifts#today/jobs](https://newlogin.fleetwatcher.com/material_delivery/scheduled_shifts#today/jobs)

# ANALYZING PAST SHIFTS

Today's Shifts

Scheduled Shifts

Completed Shifts

From 5/24/2018

To 5/28/2018

Search

Shift Name	Shift Date	Shift Start	Shift End	Project Name	Source	Destination	Load Count	Net Tons	LCA	KPIs	Note
All				All	All	All					
Wendling 4 County Quarry to #14 (more info)	05/25/2018	06:00	16:59	Plant #14	Wendling 4 County Quarry	Plant #14	N/A	N/A	LCA	KPIs	Add
Martin Marietta Sand to #17 (more info)	05/25/2018	06:00	18:59	Plant # 17	Martin Marietta Sand	Plant # 17	N/A	N/A	LCA	KPIs	Add
Wendling Bowser to #14 (more info)	05/25/2018	06:00	19:59	Plant #14	Wendling Bowser	Plant #14	N/A	N/A	LCA	KPIs	Add
East Marion Sand to #14 (more info)	05/25/2018	06:00	19:59	Plant #14	Wendling East Marion	Plant #14	N/A	N/A	LCA	KPIs	Add
Martin Marietta Rock to #17 (more info)	05/25/2018	06:00	19:59	Plant # 17	Martin Marietta Rock	Plant # 17	N/A	N/A	LCA	KPIs	Add
Martin Marietta Rock to #14 (more info)	05/25/2018	06:00	19:59	Plant #14	Martin Marietta Rock	Plant #14	N/A	N/A	LCA	KPIs	Add

https://newlogin.fleetwatcher.com/material\_delivery/ Skype for Business Completed Jobs

# LOAD CYCLE ANALYSIS

48-1511-035 Hwy 151- Iowa Co May 29 6:00 AM - 7:59 PM

Project: 48-1511-035 Hwy 151- Iowa Co (edit) ↻ 4 ↻  
 Project Number: 53130 S: 3 13 D: 3  
 Source: Plant # 17 ↻ 3 ↻

Destination: 48-1511-035 Hwy 151- Iowa Co  
 Load Count: 62  
 Total Tons: 959.65  
 Material Type: Asphalt  
 Phase Code: -  
 Shift Note:

Shift is 64% complete (8.91 out of 13.98 hours)

Actual Tons: 96% of Estimated 1000

First Ticket: Truck # LLP503 at 7:27 with 15.57 tons of 1/2 HT INTERMEDIATE . First At Destination: 8:28.

KPI	Shift Ave	Last Hour	Target	Shift %	Hour %
TpH: Crew	90.07	140.52	Set 'TpH: Crew' Target		
TpH: Truck	105.46	140.52	Set 'TpH: Truck' Target		
Cycle	81.42	81.43	Set 'Cycle' Target		
TCpT	5 7.72	5 6.96	8	96.5 %	87 %

Material	Loads	Tons
■ 1/2 HT INTER...	52	801.12

Tons per Hour



**LLP527 Dump Truck(Freightliner FLD120SD)** ×  
Scale Asset Name: -  
Engine Running  
May 29 2018 03:18:21PM  
Speed/Heading: 45.2 MPH SW  
Quadrant: Transit to Destination  
Driver: Scott Ohel  
Mobile Phone:  
**Cumulative Loads**  
Cumulative Tons: 976.60  
Cumulative Loads: 63  
**Last Load**  
Ticket Date: May 29 18 03:02 PM  
Ticket Number: 125422  
Phase Code: 320.1450  
Material Name: 1/2 HT INTERMEDIATE  
Net UST: 16.95  
Source Plant: Plant # 17

**LLP528 Dump Truck(Freightliner FLD120SD)**  
Scale Asset Name: -  
Engine Running  
May 29 2018 03:19:15PM  
Speed/Heading: 55.4 MPH W  
Quadrant: Transit to Destination  
Driver: Bill Boyd  
Mobile Phone:  
**Cumulative Loads**  
Cumulative Tons: 867.23  
Cumulative Loads: 56  
**Last Load**  
Ticket Date: May 29 18 02:51 PM  
Ticket Number: 125420  
Phase Code: 320.1450  
Material Name: 1/2 HT INTERMEDIATE  
Net UST: 17.06  
Source Plant: Plant # 17  
Follow on Map | Info Window | Center

**LLP516 Mini Flow(Kenworth T800)**  
Scale Asset Name: -  
Engine Running  
May 29 2018 03:19:06PM  
Speed/Heading: 56.3 MPH SW  
Quadrant: Transit to Destination  
Driver: Rick Starr  
Mobile Phone:  
**Cumulative Loads**  
Cumulative Tons: 909.65  
Cumulative Loads: 62  
**Last Load**  
Ticket Date: May 29 18 02:53 PM  
Ticket Number: 125421  
Phase Code: 320.1450  
Material Name: 1/2 HT INTERMEDIATE  
Net UST: 14.96  
Source Plant: Plant # 17  
Follow on Map | Info Window | Center

**LLP512 Dump Truck(Freightliner FLD120SD)**  
Scale Asset Name: -  
Engine Running  
May 29 2018 03:18:36PM  
Speed/Heading: 62.8 MPH W  
Quadrant: Transit to Destination  
Driver: Erica Slough  
Mobile Phone:  
**Cumulative Loads**  
Cumulative Tons: 944.69  
Cumulative Loads: 61  
**Last Load**



SHIFT  
ANIMATIONS

# ADD WASTE AND COMMENTS

## Material Summary Report with Waste and Comments

FleetWATCHER Home Projects Equipment Reports Material Delivery E-Logs My Company Help Logout 4:54:39 PM

Scale Ticket Summary

Custom Date Range: Ticket Start Date: 05/29/2016 02:00 Ticket End Date: 06/29/2016 23:59

Format Options

Generate Report

Print Table

**Edit Ticket Info**

Ticket Number: 120355

Net UST: 15.57

Waste Tons: 0

Material Temperature:

Dump Location:

No notes for this ticket yet.

Ticket Number	Ticket Date	Scale Asset Name	FW Known	Source	Weighmaster	Project Number	Project Name	Void	Waste Tons	Free Form	Material Temperature	Material Temp Time	DumpGPSLat	DumpGPSLong
120355	May 29 2016 07:27 AM	LLP501	Yes	Plant # 17	BILL KWAPP	53130	45-1511-235 Hwy 151-Iowa Co		0.0	None			41.7612071	-91.900695
120355	May 29 2016 07:30 AM	LLP506	Yes	Plant # 17	BILL KWAPP	53130	45-1511-235 Hwy 151-Iowa Co		0.0	None			41.7604443	-91.9007304
120327	May 29 2016 07:31 AM	LLP510	Yes	Plant # 17	BILL KWAPP	53130	45-1511-235 Hwy 151-Iowa Co		0.0	None			41.7602945	-91.9105774
120355	May 29 2016 07:32 AM	LLP505	Yes	Plant # 17	BILL KWAPP	53130	45-1511-235 Hwy 151-Iowa Co		0.0	None			41.7605085	-91.9007105
120355	May 29 2016 07:33 AM	LLP504	Yes	Plant # 17	BILL KWAPP	53130	45-1511-235 Hwy 151-Iowa Co	Apr 15 11:05 AM	0.0	None			41.7617013	-91.9006902
120350	May 29 2016 07:34 AM	LLP534	Yes	Plant # 17	BILL KWAPP	53130	45-1511-235 Hwy 151-Iowa Co	Jul 14 10:12 AM	0.0	None			41.7617078	-91.9007312

FleetWATCHER Home Projects Equipment Reports Material Delivery E-Logs My Company Help Logout 4:54:40 PM

Scale Ticket Summary

From 06/14/2016 To 06/14/2016 Search

Download as CSV

Ticket Number	Ticket Date	Asset Name	FW Known	Source	Weighmaster	Project Name	Phase Code	Material Name	Void	Net Tons	Waste Tons	Notes Count
105611	Jun 14 2016 03:14 PM	LLP549	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		7.28	0.0	0
105610	Jun 14 2016 03:08 PM	LLP549	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		10.83	0.0	2
105609	Jun 14 2016 03:03 PM	LLP541	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		23.09	0.0	0
105608	Jun 14 2016 03:04 PM	LLP515	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		18.33	0.0	0
105607	Jun 14 2016 03:01 PM	LLP540	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		19.51	0.0	0
105606	Jun 14 2016 03:00 PM	LLP531	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		18.54	0.0	0
105605	Jun 14 2016 02:59 PM	LLP547	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		18.3	0.0	0
105604	Jun 14 2016 02:57 PM	LLP501	Yes	Plant #17	BILL	NH5X-100-1(S1)-3H-57 Hwy 100	328-180	ABD16-6D15R1		18.41	0.0	0

# TICKETING, REPORTING, AND PRINTING

## Scale Ticket Detail

Custom Date Range

Ticket start date\*

Ticket end date\*

Format Options

Output format\*

Generate Report

Print Window: All Scale Tickets

Print Window: Shown Scale Tickets

#36319

Print table

Scale Ticket ID	Ticket Number	Ticket Date	Source	PlantID	Project Name	Job ID	Job Name	DOTJobNumber	FW Known	TruckID	LicensePlate	Free Form 1	Free Form 2	Phase Code	Customer ID
27494	36319	Dec 20 2018 12:00 AM	PLANT 14			618000.1	NHPP IM 0752(95)		No	MBT12					27623
27495	3632	Dec 20 2018 12:00 AM				618000.1	NHPP IM 0752(95)		No	TK1					27623
27496	3632					618000.1	NHPP IM 0752(95)		No	MB45					27623
27497	3632					618000.1	NHPP IM 0752(95)		No	52032					27623
27498	3632					618000.1	NHPP IM 0752(95)		No	MBT15					27623

**Scale Ticket: #36319** X

Ticket Date: Dec 20 2018 12:00 AM

Scale Asset Name: -

Asset Name: MBT12

FW Known: No

Source: PLANT 14

Weighmaster: -

Project Number: 618000.1

Project Name: null

Phase Code: -

Material Name: CL41076-22

Cumulative Tons: 2484.41

Cumulative Loads: 98

Void: -

Net Tons: 25.92

Waste Tons: 0 [Edit Waste Tons](#)

Temperature: - [Edit Material Temp](#)

Free Form 1: -

No Notes [New Note](#)

# GENERAL BENEFITS



Real-time Electronic  
Information

Easily sorted and  
analyzed



Potential to automate processes (shifts, payment,  
estimates, etc.)



Quick and easy set-up



Web-based



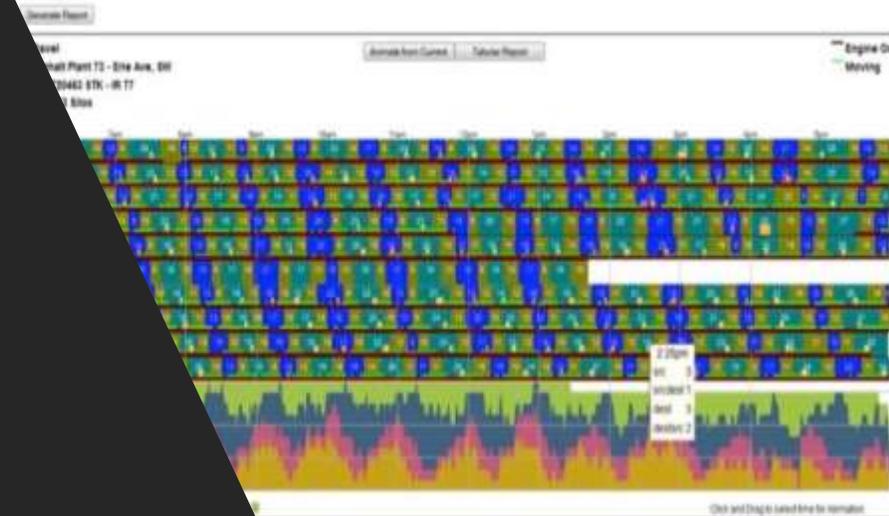
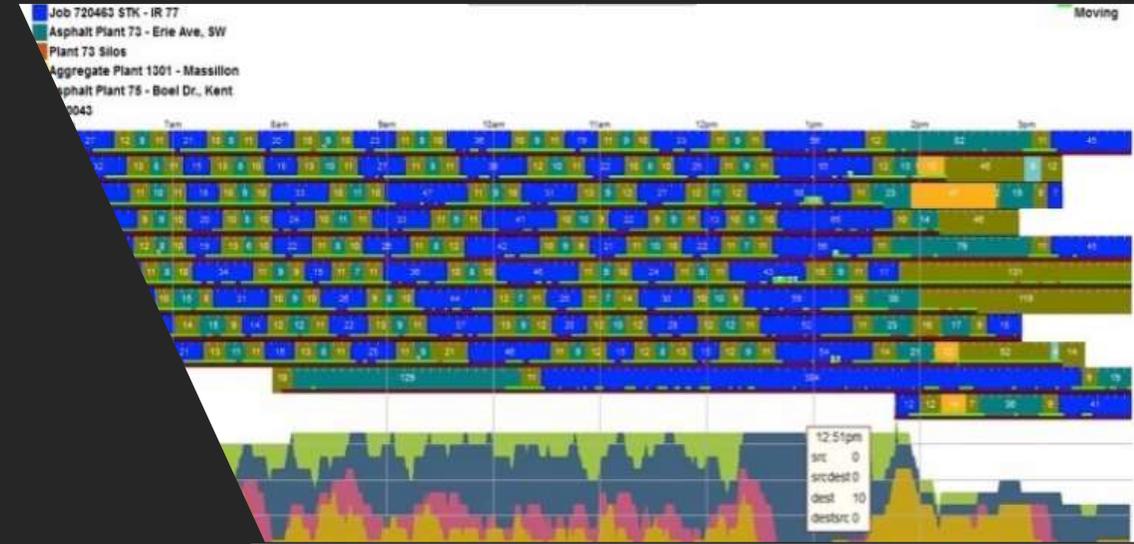
Mobile apps



Works with company or brokered trucks

# CONTRACTOR BENEFITS

- Data for trucking payroll
- Real-time fleet management
- Eliminate bottlenecks at plant and/or paver
- Fleet optimization



# KYTC BENEFITS

- Safety
- Electronic quantity tracking
- Eliminates lost tickets
- Storage of tickets
- Advanced review of delivery
- Readily available data
- Real-time materials and quantity verification
- Expedites pay



# Iowa Experience Electronic Tickets

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Presenter:

Greg Mulder, PE

Sysdyne

Executive Director

Iowa Ready Mixed Concrete Association

# CONCRETE E-TICKETING IN IOWA

- Why e-Tickets
- How they work
- Summarize the why



NATIONAL CONCRETE ASSOCIATION				TICKET #	DATE
PLANT	TRUCK	DRIVER	DOCKET	070200	
02	87	LATO, STEVE	10200	110000	
ORDER	PO#	JOB#			
4	235				
CUSTOMER	PROJECT	PROJECT NAME			
STENO	STEAS	DeJ MASON, BO (0)			
		Post Ave			
<p>SOLD TO: Steegold Construction            DELIVER TO: 81 133 Park Ave Des Moines, IA</p>					
PROJECT NO.	QTY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT
OCCLDGA	10	cy	0.500 1 Agg, 54 Air, 5 to 20 1 net/ft		
200	10	cy	Holding Charge		
				SUB TOTAL:	
				TWO	
				TOTAL:	
ORDERED 7200.00	DELIVERED 21.00	SLAMP 2.50			
<p>LOAD TIME: 07:00:00 MAX WATER ALLOWED: 0.00 WATER ADDED @ PLANT: 0.00 WATER ADDED @ JOBSITE: 0.00            WATER RATIO @ PLANT: 0.27 W/C RATIO @ JOBSITE: 0.37</p>					
	ACTUAL	MOISTURE	TARGET	UNIT	
EMERSTONE	14200	0.0% (10.25 g)	14200	LB	
SAND	12000	0.0% (0.00 g)	12000	LB	
CEMENT CHIPS	3000	0.0% (2.02 g)	3000	LB	
CEMENT	3000		3070	LB	
FLASH	1000		1000	LB	
RETARDER	100		100	OC	
GLYCOL M SA	00		00	OC	
KR100	100		100	OC	
WATER	201		201	GL	

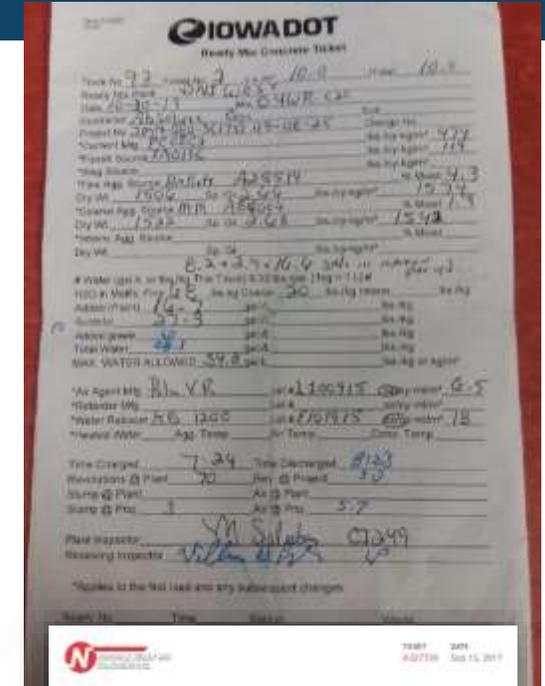
# WHY - SOLVING PROBLEMS FOR DOT'S

- Eliminate Paper Tickets
- No More Lost Tickets
- Provide Materials and Tonnage Verification
- Record Test Results
- Quickly Summarize Tickets for Contractor Pay
- Help with Diminishing Workforce Issue
- Reduce Worksite Hazards for Inspectors  
Frequently Dodging Trucks – **SAFETY!!!**



# WHY - SOLVING PROBLEMS FOR PRODUCERS

- Optimizes Fleet Deliveries and Tracking
  - Producer and contractors operate more efficiently
  - Reduce non-productive calls tracking down lost paper tickets
  - Lifetime storage and easy retrieval of eTicket
  - Scales Integration Helps Job Costing / Future Bidding
  - Hold Drivers Accountable For Performance and Production
- Directly Pulls Information from Batch Software – Eliminates “Fat Fingering”
- Automate Payroll Processes – Track Time Off
- Sharing delivery information builds customer loyalty
  - GPS Navigation (PCC Only)
  - Alerts/Realtime Notifications
  - Onsite Billing Capabilities (PCC Only)
  - Shorten the billing and payment cycles



# HOW - IOWA'S EXPERIENCE

## 2015

- Manatts – 60,000 tons, 4 mixes, 20+ trucks

## 2016

- L.L. Pelling – 120,000 tons, 7 mixes, 30+ trucks
- Concrete Supply – 2,500 CY, 4 mixes, 10 trucks

## 2017

- Norris Asphalt – 2 Projects, 80,000 tons, 3 mixes, 20+ trucks
- Norwalk Ready Mix – 2,500 CY, 4 mixes, 20 trucks

## 2018

- Manatts – 2 Projects, 2,000 CY, 2 mixes, 20 trucks

## 2019

- Hahn Ready Mix (and others TBD) – Multiple Projects, \$400 Million in total Contracts, 50,000+ CY



# HOW E-TICKETS WORK

- Geozones – Plant Site, Job Site, Washout Site, Discharge Locations
- Scale Integration Pulls Data Directly from Batch Software (No Tampering)
- Timestamps – Ticketed, Left Plant, On Site, Pouring, Washing, Leaving Site
- Test Results – Realtime Communication to Producer
- Calculations – Automatically Calculates w/c Ratio Based on Water Additions
- Dashboard – Project Monitoring from Any Location
- Signatures Required for Acceptance
- Downloadable .pdf's of Tickets or Summaries for Document Management
- Other File Formats - .csv, etc. for Asset Management

# HOW E-TICKETS WORK

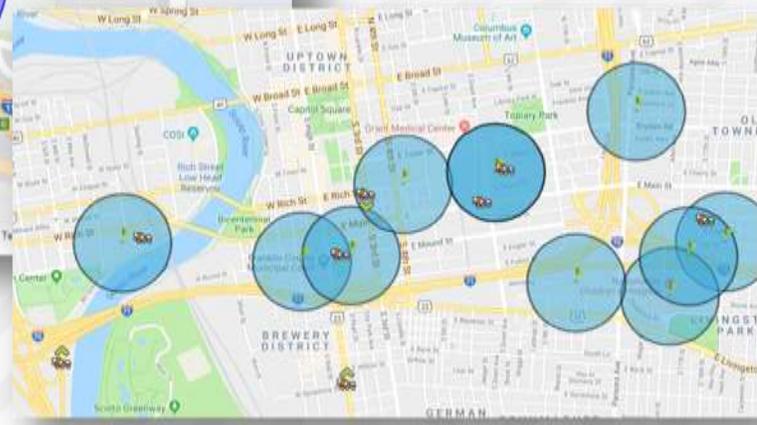
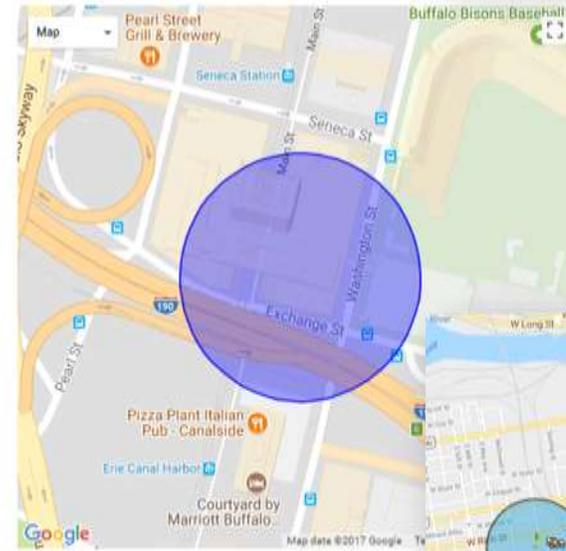
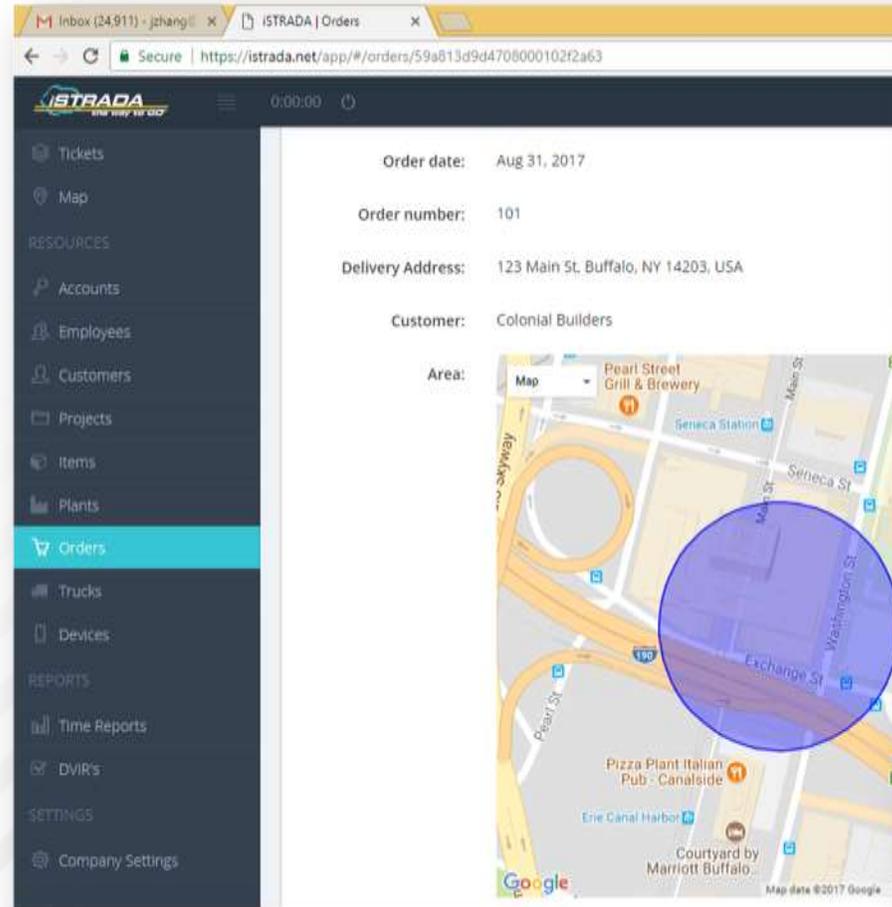
**Cloud Based System**

# HOW E-TICKETS WORK

## Track Material

### Geo Zones

- Plant Site
- Job Site
- Other Places?
- Wash Out Locations?



# HOW E-TICKETS WORK

Batch | Job | Mix | Material | Utility | Charge | Customer | Project | Ticket | Report | Chart | Quote | Config

00:02:41 STATUS JOB: 1 CUSTOMER: DAVES CONCRETE X: 779 UNIT: YD SIZE: 40.00 BAL: 0.000000  
TICKET: 3112 TRUCK: 106 MID: Y: 276 DROP SIZE: 10.00 DROP: 1 OF: 4 Z: 35 SCALE: 50.0%

RETARDER IDLE AE200 IDLE GLENIUM 7620 IDLE NCACCEL IDLE  
WATER 1 HOLD HOLD WATER 2 HOLD HOLD  
WATER TANK DISCH  
3/4 AGG IDLE 3/8 AGG IDLE SAND FINISH  
AGG Disc 275 /s AGG VIB  
CEM AER 1 CEM AER 2 CEM AER 3  
LAFARGE I/II FINISH NEWCEM IDLE LAFARGE SF IDLE  
CEM Disc 99 /s  
CEM VIB BLOWER HORN  
BELT 00:00:39

The interface displays a top navigation bar with menu items: Batch, Job, Mix, Material, Utility, Charge, Customer, Project, Ticket, Report, Chart, Quote, Config. Below this is a status bar showing a timer at 00:02:41 and various job parameters including Job: 1, Customer: DAVES CONCRETE, Ticket: 3112, Truck: 106, and material coordinates (X: 779, Y: 276, Z: 35). A central control area features several material flow stations: Retarder, AE200, Glenium 7620, and NCACCEL (all idle); Water 1 and Water 2 (both on hold); Water Tank Discharge; 3/4 AGG, 3/8 AGG, and Sand Finish (all idle); and a main AGG (Aggregate) station with a flow rate of 275 LB/s and a disc speed of 275/s. To the right, three CEM AER (Cement Air) stations (1, 2, 3) are shown with their respective flow rates and weights. Below these are LAFARGE I/II FINISH, NEWCEM, and LAFARGE SF stations. A CEM (Cement) station is also visible with a flow rate of 99 LB/s and a disc speed of 99/s. At the bottom, there are controls for CEM VIB, BLOWER, HORN, and a BELT system with a timer at 00:00:39. On the far right, a vertical column of function buttons includes: (ESC) ABORT, (F7) BATCH, DEMO, WASH, (F2) OVERRIDE, (F5) LAST DROP, and (F10) DISCHARGE.

# HOW E-TICKETS WORK

## GPS Enabled Devices



# HOW E-TICKETS WORK

## Truck Load Times

rate of 1 1/2% per month on all past due accounts.

PLANT 32	TICKET NO. 3244414	TRUCK 743	DRIVER CAMPOS, JORGE	ORDER 175	USE -	DATE 2/17/17	
SOLD TO: DEMAC CONCRETE CONTRACTORS INC		CUSTOMER NO. 6211335	TIME DUE 4:04 AM	LOAD TIME 3:37 AM	AIR -	CC -	SLUMP REQUESTED 5
DELIVERY ADDRESS: 18140 Kickapoo Rd			PROJECT NO. 1600971	PD NO. GALLOPING	ZONE -		

DELIVERY / DRIVER INSTRUCTIONS:  
FROM 32/ HWY 290 (L) TO KIKAPOO RD (L) TO JOB \*\*\*POURING PIERS\*\*\*



3244414

LOAD QTY.	CUM. QTY.	ORDERED QTY	PRODUCT CODE	PRODUCT DESCRIPTION	UNIT PRICE	AMOUNT
10	150	350	2151590	4000,1CS,4,2	cy	-
1	-	-	ENV.FEE	ENVIRONMENTAL FEE SURCHARGE	ea	-
1	-	-	FUEL.SUR	FUEL SURCHARGE	ea	-

Truck	Driver	User	Dispatch Ticket Num	Mix Code	Time	Date
743	9007241	-	3244414	2151590	3:37 AM	2/17/17

# HOW E-TICKETS WORK

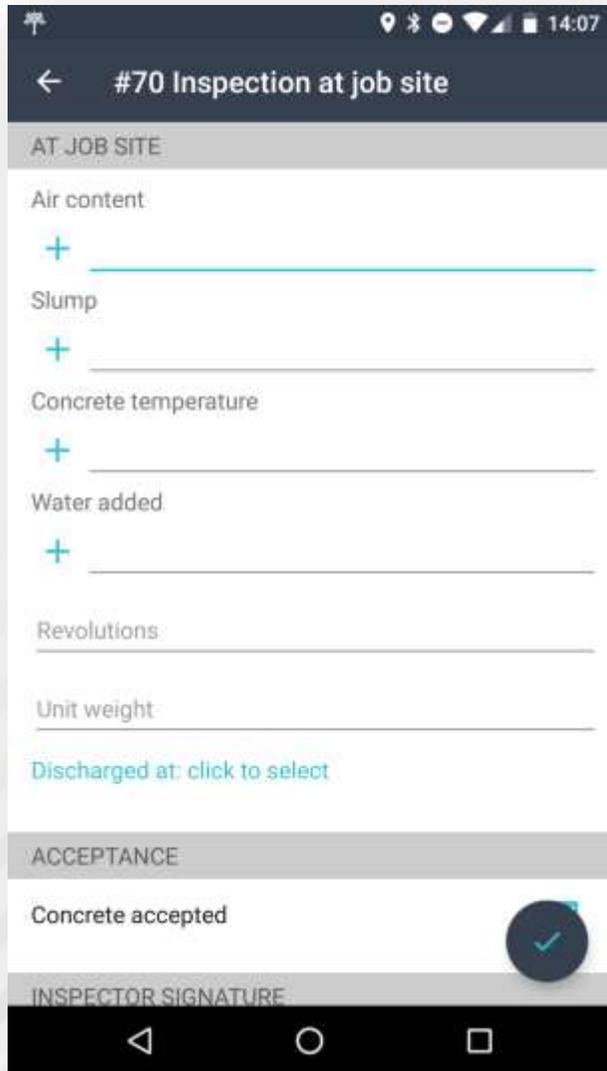
## Batch Weights

LOAD TIME: 07:21:14    MAX WATER ALLOWED: 0.00    WATER ADDED @ PLANT: 0.00    WATER ADDED @ JOBSITE: 0.00  
W/C RATIO @ PLANT: 0.37    W/C RATIO @ JOBSITE: 0.37

	ACTUAL	MOISTURE	TARGET	UNIT
LIMESTONE	14360	0.6% (10.32 gl)	14266	LB
SAND	12480	3.3% (49.35 gl)	12596	LB
LS 3/8" CHIPS	3280	0.6% (2.36 gl)	3089	LB
CEMENT 1	3995		3970	LB
FLYASH	1975		1960	LB
RETARDER	120		119	OZ
POLYCHEM SA	90		90	OZ
KB1200	177		178	OZ
WATER	201		203	GL

# HOW E-TICKETS WORK

- Add Inspection Details



A mobile application interface for recording inspection details. The screen is titled "#70 Inspection at job site" and is divided into two main sections: "AT JOB SITE" and "ACCEPTANCE".

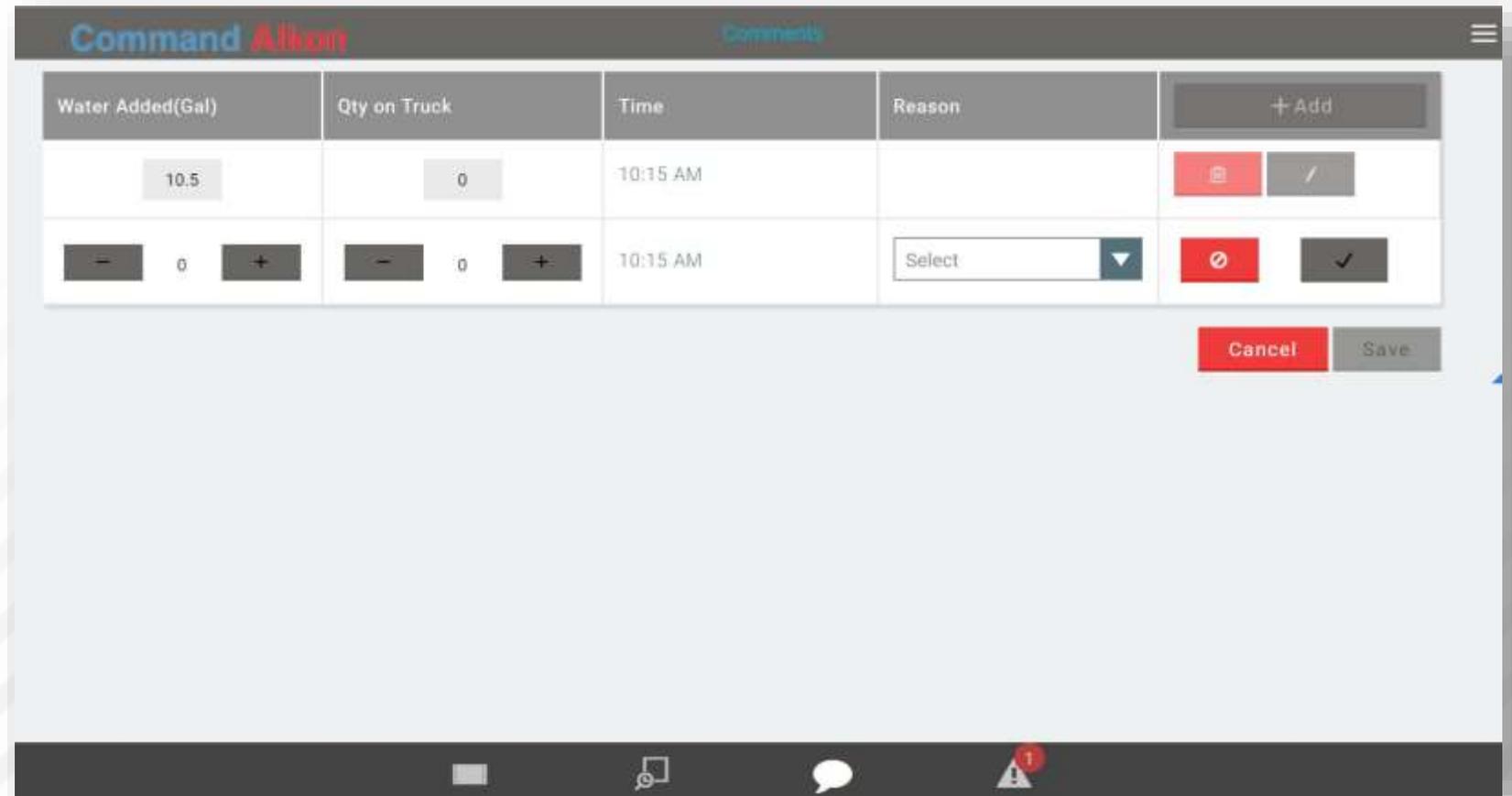
**AT JOB SITE**

- Air content:** A text input field with a blue "+" icon on the left.
- Slump:** A text input field with a blue "+" icon on the left.
- Concrete temperature:** A text input field with a blue "+" icon on the left.
- Water added:** A text input field with a blue "+" icon on the left.
- Revolutions:** A text input field.
- Unit weight:** A text input field.
- Discharged at:** A text input field with the placeholder "click to select".

**ACCEPTANCE**

- Concrete accepted:** A text input field with a blue checkmark icon on the right.

The bottom of the screen shows the Android navigation bar.



A desktop application interface for "Command Allion" showing a table for adding inspection details. The table has columns for "Water Added(Gal)", "Qty on Truck", "Time", "Reason", and an action column. The action column contains a "+ Add" button, a red "X" button, and a grey checkmark button.

Water Added(Gal)	Qty on Truck	Time	Reason	+ Add
10.5	0	10:15 AM		 
 0 	 0 	10:15 AM	Select 	 

At the bottom right, there are "Cancel" and "Save" buttons.

# HOW E-TICKETS WORK

## Make Comments

Water Added:

Unit Weight:

Accepted

Signed By:\*

Notes:

Cancel

✓ Save

Command

Air too high  
Late arriving to site  
Slump too high

Ticket Ad

### Comments List

- Air Too High
- Late Arriving To Site
- Returned Pallets Damaged:
- Returned Pallets Good:
- Slump Too High
- Truck Broke Down

Cancel Add

## INSPECTOR'S SIGNATURE



# HOW E-TICKETS WORK

## TICKETS - EMAILED OR PDF DOWNLOADABLE

**N** NORWALK READY MIX CONCRETE CO.

TICKET: 4327738    DATE: Sep 15, 2017

PLANT: N	TRUCK: 141	DRIVER: Perez, Carlos	TICKET#:	07114
ORDER#: 4	PO#: 035	JOB#:		
CUSTOMER#: STE1090	PROJECT#: STE835	PROJECT NAME: Des Moines- BO 103 Park Ave		

SOLD TO: Sternquist Construction  
DELIVER TO: BO 103 Park Ave Des Moines, IA

PRODUCT NO.	QTY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT
0CS005A	10	cy	C-5UD 3 Agg, 5A Ar, 5 oz WR 1 oz Ret		
200	50	cy	Hauling Charge		

SUB TOTAL:	
TAX:	
TOTAL:	

ORDERED: 1200.00    DELIVERED: 10.00    SLUMP: 2.50

LOAD TIME: 07:21:14    MAX WATER ALLOWED: 0.00    WATER ADDED @ PLANT: 0.00    WATER ADDED @ JOBSITE: 0.00  
W/C RATIO @ PLANT: 0.37    W/C RATIO @ JOBSITE: 0.37

	ACTUAL	MOISTURE	TARGET	UNIT
LIMESTONE	14360	0.6% (10.32 g)	14266	LB
SAND	12480	3.3% (41.25 g)	12506	LB
LS 3/8" CHIPS	3200	0.0% (0.00 g)	3000	LB
CEMENT 1	3995		3970	LB
FLYASH	1975		1960	LB
RETARDER	120		110	CC
POLYCHEM SA	80		80	CC
RUB1200	177		170	CC
WATER	201		200	GL

**INSPECTION ON SITE**

INSPECTOR: Ryan Utter

**ACCEPTED**

NOTES:  
Sta 76+98 ft

AIR CONTENT: 8.90    SLUMP: 0.00    TEMPERATURE: 83.0 F    WATER ADDED: 0.00    DISCHARGE TIME: 09:53:49  
REVOLUTIONS: 30

# HOW E-TICKETS WORK

## Multiple Ways to View/Enter Data

**Status**

Truck <

Ticket <

**Date range**

Today

This Week

Custom

From 2017-09-27

To 2017-09-27

Show date range

**Tickets** Search Export

#328251 | Order: 92 Truck: 135 | Morton, Orville  
Sternquist Construction | Des Moines- BO 103 Park Ave  
BO 103 Park Ave Des Moines, IA  
Sep 27, 2017 TO JOB INSPECTED

#328249 | Order: 92 Truck: 121 | Adamovicz, Richard  
Sternquist Construction | Des Moines- BO 103 Park Ave  
BO 103 Park Ave Des Moines, IA  
Sep 27, 2017 TO JOB INSPECTED

#328238 | Order: 86 Truck: 125 | Bentley, Dennis  
Sternquist Construction | Des Moines- BO 103 Park Ave  
BO 103 Park Ave Des Moines, IA  
Sep 27, 2017 TO JOB INSPECTED

#328248 | Order: 92 Truck: 98 | Flores, Cesar  
Sternquist Construction | Des Moines- BO 103 Park Ave  
BO 103 Park Ave Des Moines, IA  
Sep 27, 2017 TO JOB INSPECTED

#328246 | Order: 86 Truck: 107 | Ramirez, Salvador  
Sternquist Construction | Des Moines- BO 103 Park Ave  
BO 103 Park Ave Des Moines, IA  
Sep 27, 2017 TO JOB INSPECTED

**ORDER DETAILS**

CROWN VOLVO DEALERSHIP  
1806 MONTGOMERY HWY S

Map Satellite Hoover

Status:  
Product Type:  
Description:  
Quantity:

SCHEDULED ( 7 TRUCKS, 46.00 CY)

Plant	Quantity	Travel
1	7.00	20 M
1	4.00	20 M

IN TRANSIT (2 TRUCKS, 14.00 CY)

Ticket	Plant	Quantity
14763	1	7.00
14765	1	7.00

PRINTED (1 TRUCKS, 3.00 CY)

Ticket	Plant	Quantity	Status
15010	1	3.00	Printed

NOTIFICATIONS DISABLED

Status:  
Product Type:  
Description:  
Quantity:  
CY Per Hour:

**ORDER REQUEST REVIEW**

Project - Crown Volvo Dealership

Product - 1 1/2" Stone

Delivery - 6/16/16 2:00 PM

Truck :

Quantity : 20 tn

Load Size : 10 tn

Spacing : 15 Minutes

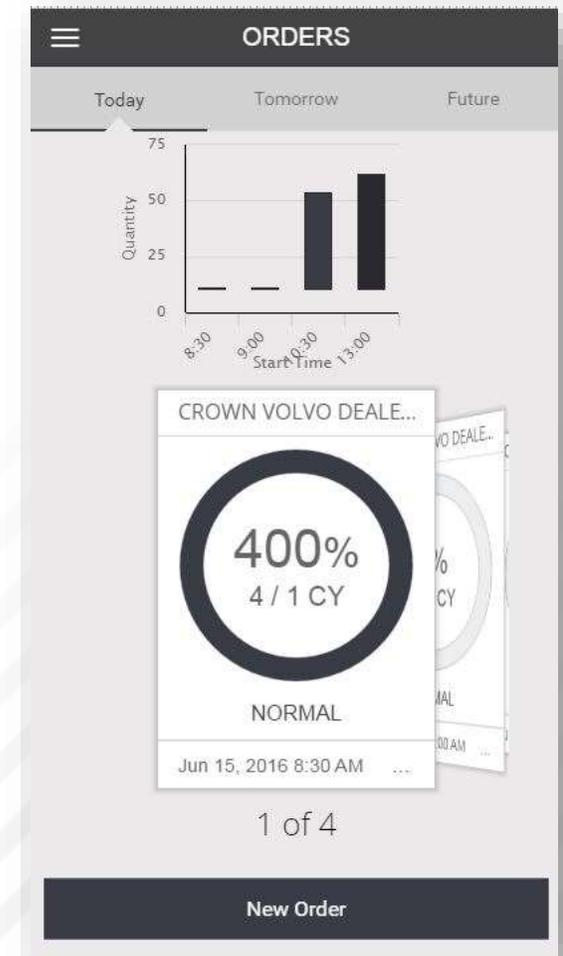
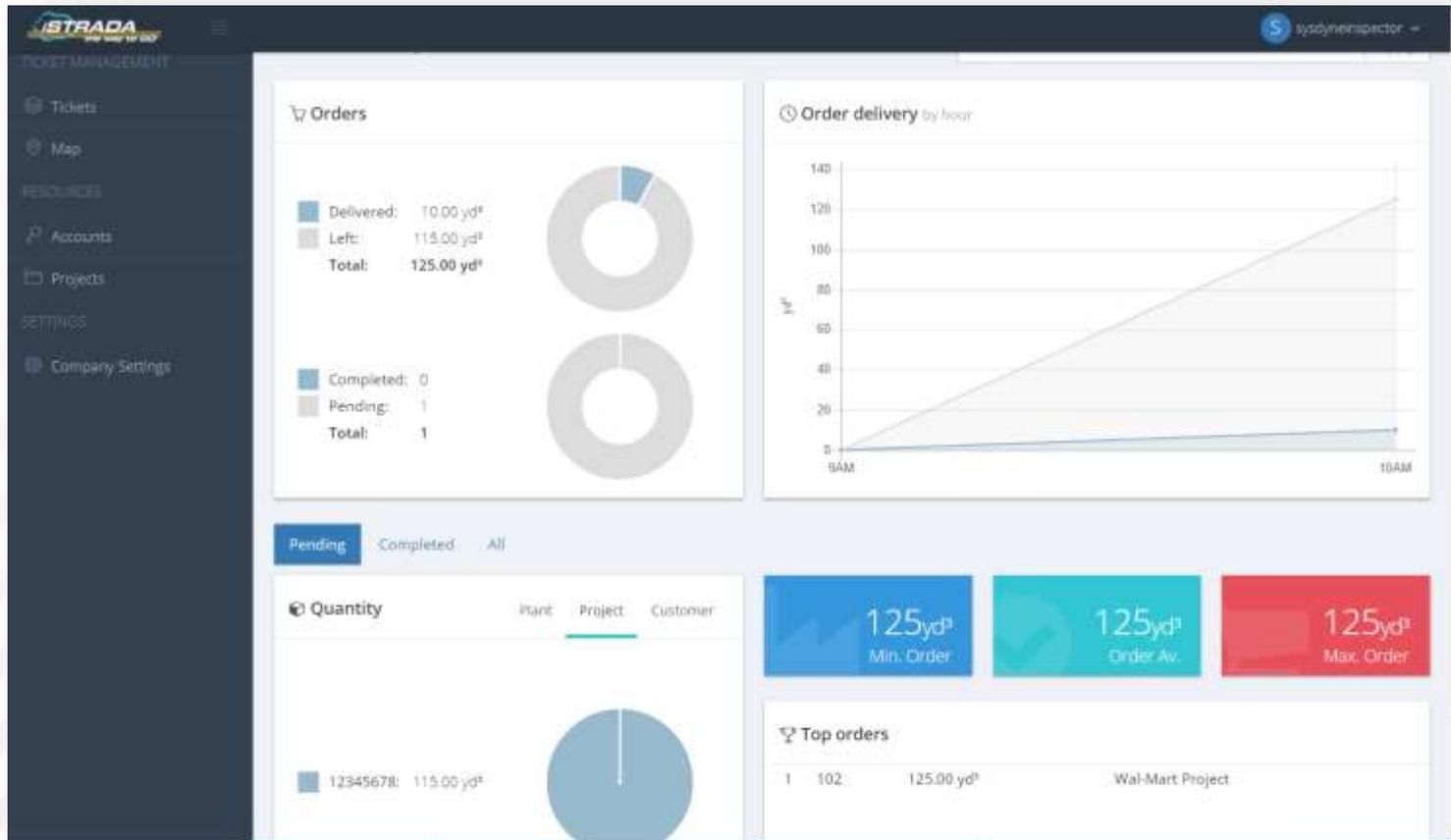
Pour Type :

Click Here to add comments

Submit

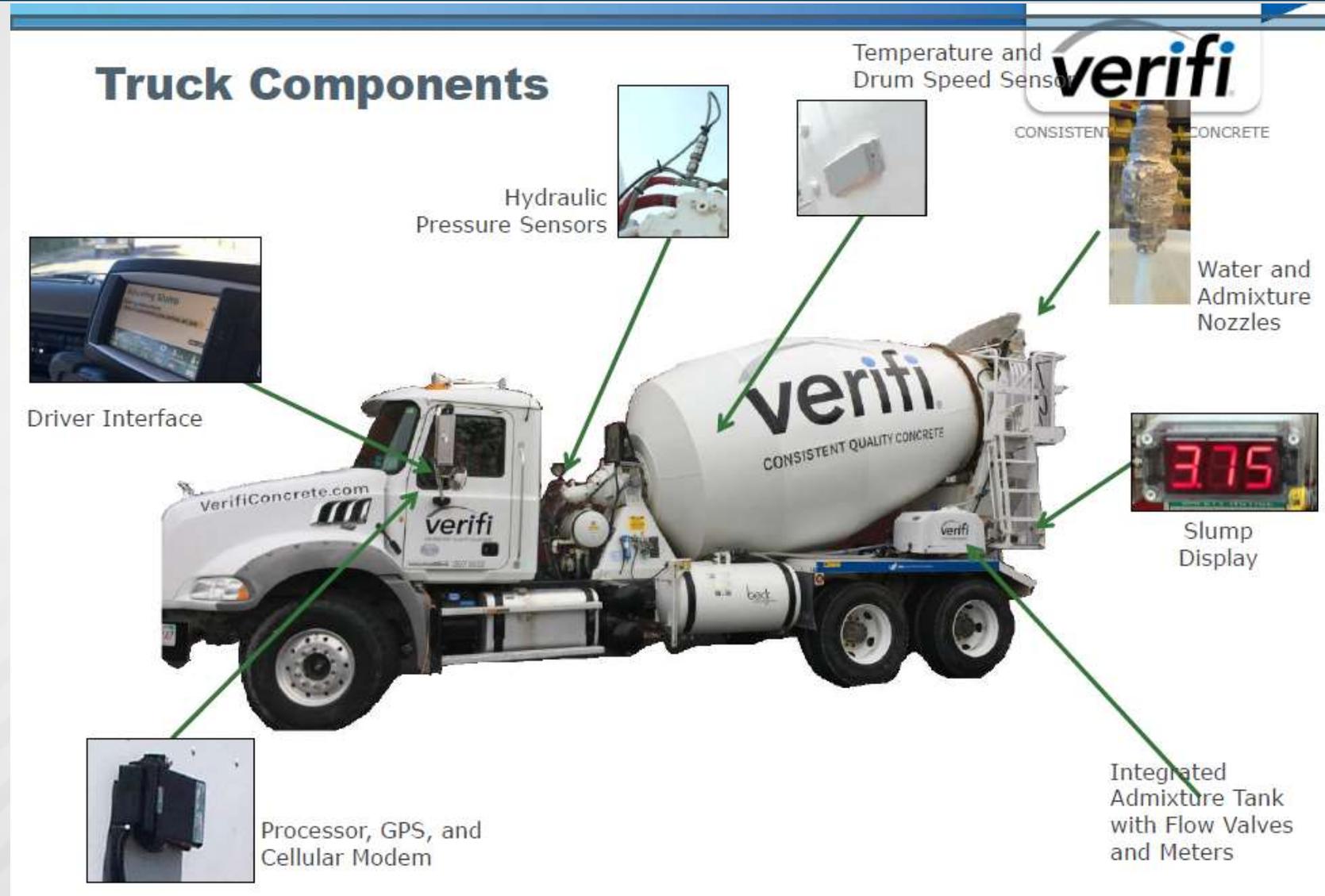
# HOW E-TICKETS WORK

## Project/Pour Metrics

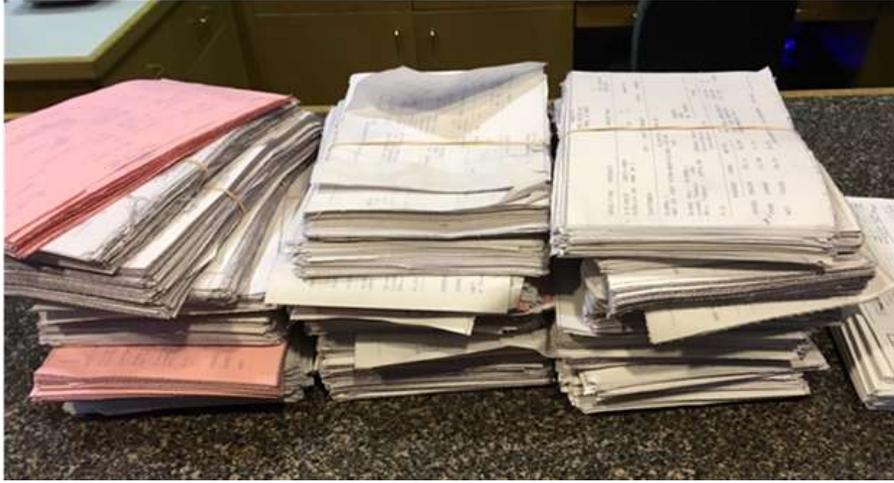


# HOW E-TICKETS WORK

## NEXT GENERATION OF TRUCKS (E-TICKETS)



# THE WHY



- Technology exists today
- More robust and secure than paper
- Provides more data than is kept today
- More opportunities to communicate and document the materials
- Help for a Diminishing Workforce
- Most importantly! Reduce Worksite Hazards For Inspectors Frequently Dodging Trucks



**SAFETY!!!**





THE HANDOFF!

## Employee killed on I-235 project

The sudden and tragic death of **Gary Crabtree**, construction technician from the Des Moines construction office, has touched all who knew him.



Police say Crabtree was killed on the I-235 project Thursday, Dec. 14, when he was struck by a cement truck.

Sean Passick, construction technician in Des Moines construction worked with Crabtree both in that office and Ames prior to 2002.

"Most everyone in our office is very close. Some of us came

up from Ames when that construction office closed in 2002. Gary was a big kid at heart. He could always make you smile or laugh. He was also one of the most safety conscious and thorough guys we have."

A 16-year veteran of the department, Crabtree, 62, lived in Madrid with his wife, Robin. Crabtree is survived by one daughter, Justine and her husband, Tim Larsen of Treynor, Iowa; five grandchildren, Alexander, Caleb, Braden, Jamison, and Olivia; one brother, Marvin (Judy) Crabtree of Perry; three sisters, June (Ray) Eppert of Luther, Correne (Dean) Barrett of Madrid, and Arlene Battani of Story City; his father-in-law and mother-in-law, John and Erna Ugolini of Madrid; one brother-in-law, Ron (Jennifer) Ugolini of Madrid; and many nieces and nephews. Crabtree was preceded in death by his parents and one infant son.

Crabtree was an army veteran, serving during the Vietnam War from 1966 until he was honorably discharged in 1968. He joined the DOT in April 1990 as temporary summer help and was hired as a permanent employee later that summer.

# QUESTIONS?



# E-TICKETING PROVIDERS





APRIL 17-18  
**2019**

**e-CONSTRUCTION &  
PARTNERING**  
REGIONAL WORKSHOP

INNOVATION • TECHNOLOGY • COLLABORATION



# PennDOT Implementation of e-Ticketing



Brian Myler, P.E.

District Materials Engineer

Construction Division

PennDOT District 11

## Agenda:

- Why electronic tickets?
- Why GPS Tracking?
- Specification Overview
- E-Ticketing Pilots
- Pilot Projects Feedback/Lessons Learned
- Where are we Going?



# WHY ELECTRONIC TICKETS?

- Reduce worksite hazards for Inspectors frequently dodging trucks
- Eliminate paper tickets
- No more lost tickets
- Provide materials and tonnage verification
- No time-consuming ticket sorting
- Quickly summarize tickets for contractor payments
- Ticket information is now “Data” for potential future use and analysis



# WHY GPS TRACKING?

- Tracking of Delivered Materials
- Track Paver Speed for Production
- Eliminate Bottle-necks at Paver and/or Plant
- Hold Drivers Accountable For Performance and Production
- Optimize Cycle Times – Move More Tonnage
- Virtual Shift Tickets to Automate Payroll Processes
- Scales Integration to Help with Job Costing/ Future Bidding
- Alerts/Notifications to Management When Benchmarks Fall Outside of Norm



# SPECIFICATION OVERVIEW

- GPS tracking of all equipment associated with paving and milling operations
- Full GPS integration with plant scale system
- Ability to measure and track material from plant to final placement destination
- Provide the data real-time with a web-based system compatible with iOS and windows environments
- Provide a daily summary report

Ticket Number	Ticket Date	Scale Plant Name	PAV System	Source	Registration	Project Number	Project Name	Job Name	Phase Code	Material Name	Load ID	On-Digged Tons	Net Tons	Vol	Water Tons	Fine Pass %	Material Temperature	Material Temp Time	Dump (P) Lat	Dump (P) Long
12222	May 28 2018 07:27 AM	LLP002	Yes	Plant # 17	BILLABAPP	03100	48-0711-022 May 15-17:00:00	48-0711-022 02-HWY 75+0200A CO	0221400	12-HT INTERMEDIATE	1	18.07	18.07	--	0.0	None	✓	None	41.7812271	-87.808880
12223	May 28 2018 07:30 AM	LLP002	Yes	Plant # 17	BILLABAPP	03100	48-0711-022 May 15-17:00:00	48-0711-022 02-HWY 75+0200A CO	0221400	12-HT INTERMEDIATE	2	18.20	18.40	--	0.0	None	✓	None	41.7804440	-87.8087309
12227	May 28 2018 07:31 AM	LLP016	Yes	Plant # 17	BILLABAPP	03100	48-0711-022 May 15-17:00:00	48-0711-022 02-HWY 75+0200A CO	0221400	12-HT INTERMEDIATE	3	18.21	18.38	--	0.0	None	✓	None	41.7828848	-87.8102774
12230	May 28 2018 07:32 AM	LLP002	Yes	Plant # 17	BILLABAPP	03100	48-0711-022 May 15-17:00:00	48-0711-022 02-HWY 75+0200A CO	0221400	12-HT INTERMEDIATE	4	18.23	18.27	--	0.0	None	✓	None	41.7800208	-87.8082730
12232	May 28 2018 07:33 AM	LLP016	Yes	Plant # 17	BILLABAPP	03100	48-0711-022 May 15-17:00:00	48-0711-022 02-HWY 75+0200A CO	0221400	12-HT INTERMEDIATE	5	18.10	14.91	--	0.0	None	✓	None	41.7812310	-87.8089002
12233	May 28 2018 07:34 AM	LLP016	Yes	Plant # 17	BILLABAPP	03100	48-0711-022 May 15-17:00:00	48-0711-022 02-HWY 75+0200A CO	0221400	12-HT INTERMEDIATE	6	18.15	14.88	--	0.0	None	✓	None	41.7807370	-87.8087312

# 2017 DISTRICT 11 PILOT PROJECTS

<b>Project</b>	<b>Contractor</b>	<b>Plant</b>	<b>eTicket Management System</b>
<b>Allegheny Group 1</b>	<b>A. Folino Construction Inc.</b>	<b>Lindy Paving Inc.</b>	<b>Earthwave Technologies: Fleet Watcher</b>
<b>Allegheny Group 2</b>	<b>A. Liberoni, Inc</b>	<b>Lane Construction Corp.</b>	<b>Zonar GPS System / Libra Systems e-Ticketing</b>
<b>Allegheny Group 3</b>	<b>A. Folino Construction Inc.</b>	<b>Lindy Paving Inc.</b>	<b>Earthwave Technologies: Fleet Watcher</b>
<b>Allegheny Group 4</b>	<b>Tresco Paving Corp.</b>	<b>Tresco Asphalt Supply Co.</b>	<b>Earthwave Technologies: Fleet Watcher*</b>

\* Manual e-Ticketing for an offline plant

# FLEETWATCHER

- One system – GPS and e-Ticketing
- System is fully integrated with the asphalt plant
- Ticket data available in a CSV file format
- IOS Mobile app or web based



# FLEETWATCHER REAL-TIME MAPPING

FleetWATCHER Home Reports Material Delivery E-Logs My Company Help Logout 11:12:31 AM

Welcome Michael Grace from A. Folino Construction, Inc. Control Panel Saved View Equipment Save Current View

Map Satellite Traffic

71069 - Group 3 (ECMS# 105229, 111-17-

Map data ©2017 Google 1 km Terms of Use Report a map error

125%

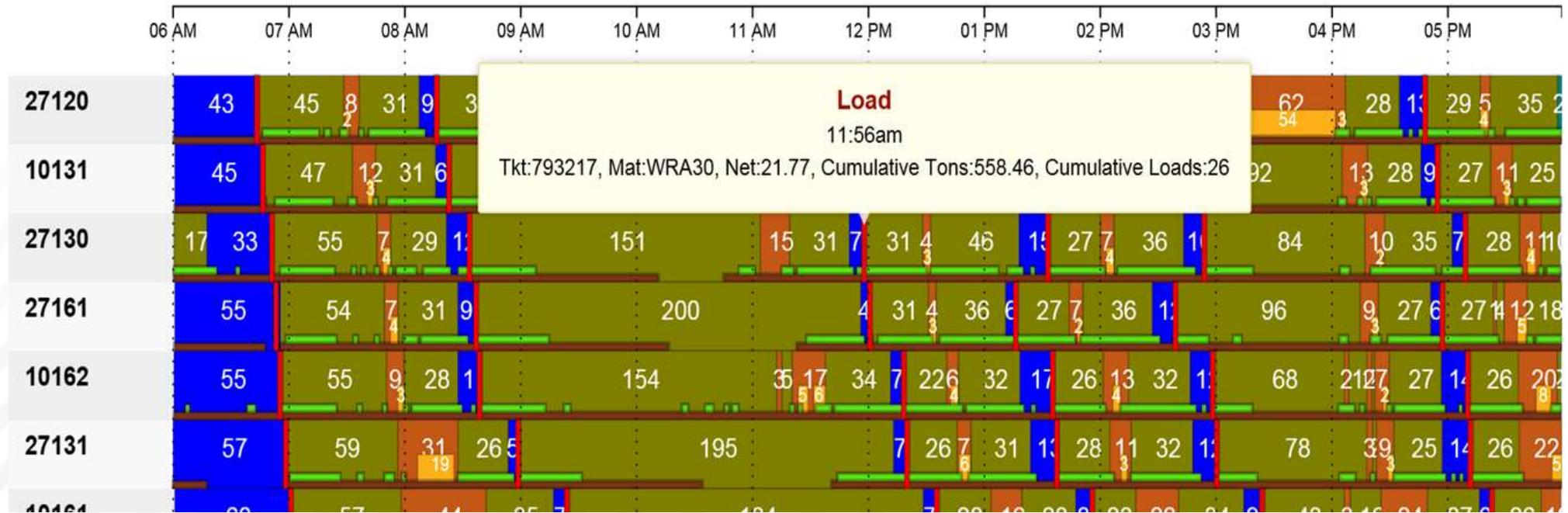
# FLEETWATCHER LOAD CYCLE ANALYSIS

## Default Legend

- Travel
- Engine On
- Moving
- Transport

## Geozone Legend

- Travel
- Engine On
- Moving
- Transport
- Lindy - 2nd Ave
- A. Folino Shop
- (( 71069 - Group 3 (ECMS# 105229, 111-17-7135-3) PAVING ))
- ( 53101 )
- Load



# FLEETWATCHER MOBILE APP

Verizon LTE 1:38 PM 63%

## Scale Tickets

Project# Search Project Name

Ticket#:	240601
Date/Time:	Dec 01 2017 01:29 PM
Asset Name:	504049
Scale Asset Name:	504049
FW Known:	Yes
Source:	Cosmonaut Plant
Weighmaster:	--
Project Name:	Vera Apartments
Phase Code:	--
Material Name:	SP 9.5 C
Void:	0
Net Tons:	21.66
Gross Tons:	34.51
Free Form 1:	--
Temperature:	--
Waste Tons:	0.0
Project Number:	Vera
Cumulative Tons:	169.9

Verizon LTE 2:00 PM 60%

Done

## 240604

TICKET INFO

Date/Time:	Dec 01 2017 01:53 PM
Scale Asset Name:	--
Asset Name:	--
FW Known:	No
Source:	Cosmonaut Plant
Weighmaster:	--
Project Number:	St.Cloud
Project Name:	--
Phase Code:	--
Material Name:	SP 9.5 C

Verizon LTE 2:01 PM 60%

240604 Done

Cumulative Tons:	2.75
Void:	0
Net Tons:	2.75
Waste Tons:	0.0
Free Form 1:	--
Temperature:	--

WASTE INFO

Update Waste: 0.0

TEMPERATURE INFO

Add Temperature

NOTES

# FLEETWATCHER FEEDBACK

- Benefits
  - Easy to set up
  - Data can be used as trucking payroll
  - Real time fleet monitoring/driver behavior
  - Fleet Optimization Potential
  - Milling operations much safer
- Issues
  - Erroneous truck readings
  - Difficult to identify material sample locations
  - Asset numbers difficult to locate on trucks
  - Constant coordination with GPS units and broker trucks
  - Scale integration not possible for offline plants

# ZONAR GPS AND LIBRA E-TICKET FEATURES

- Two systems – GPS and e-Ticketing
- Ticket data available in a CSV file format
- Web-based system



# ZONAR GPS SYSTEM

The screenshot displays the Zonar GPS System web application. The browser address bar shows the URL: [https://groundtrafficcontrol.zonarsystems.net/legacy?url=%2Fgtc%2Freport.php%3Freport\\_name%3Dcurrent%26action%3Dpositionlocation%26operation%3Dcurrent%26form](https://groundtrafficcontrol.zonarsystems.net/legacy?url=%2Fgtc%2Freport.php%3Freport_name%3Dcurrent%26action%3Dpositionlocation%26operation%3Dcurrent%26form). The page title is "GROUND TRAFFIC CONTROL". The navigation menu includes "Reports", "Drivers", "Assets", and "Manage". The user is logged in as "Tom Ulery ALI5727".

The main content area features a map of Central Lawrenceville, Ohio, with several road segments highlighted in different colors. The highlighted segments are labeled with asset numbers and names: "SR2082 Hulton Rd", "SR2080 Hunter Rd", "SR0130", and "SR0400 Bennett". A blue car icon is positioned on the SR0400 Bennett segment. The map also shows various townships and streets, including Harmar Township, Shaler Township, Fox Chapel, Verona, Blawnox, Penn Hills, and Churchill. The map mode is set to "Short".

On the right side of the map, there is a sidebar with the following controls:

- Asset No: (select up to 5)
  - Blue circle: -- all assets --
  - Red circle: -- all assets --
  - Green circle: -- all assets --
  - Orange circle: -- all assets --
  - Purple circle: -- all assets --
- Zone Filter: - Bennett St -
- Options: Select Options
- Generate Report button



# LIBRA E-TICKETING SYSTEM

Office 365 Don Lassiter

Sum = 22,792.2

Transaction Date : 2017.11.30 (1)

Transaction Date : 2017.11.21 (26)

Transaction Date : 2017.11.15 (2)

Transaction Date : 2017.11.09 (61)

Transaction Date : 2017.11.08 (47)

Sum = 1,030.77

LIB46	93078	11/8/2017 10:11 AM	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.01	22.01	539956	22111	ECMS#105228 SR.0400	W95122H29
LIB68	93079	11/8/2017 10:12 AM	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.8	43.81	539956	22111	ECMS#105228 SR.0400	W95122H29
LIB62	93080	11/8/2017 10:18 AM	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.1	65.91	539956	22111	ECMS#105228 SR.0400	W95122H29
97	93081	11/8/2017 10:19 AM	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.84	87.75	539956	22111	ECMS#105228 SR.0400	W95122H29
LIB48	93083	11/8/2017 10:22 AM	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.95	109.7	539956	22111	ECMS#105228 SR.0400	W95122H29

12:24 PM 12/5/2017

# LIBRA E-TICKETING SYSTEM

E-tick 11-08-2017 - Excel

Don Lassiter

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Truck ID	Ticket Num	Date & Time	Description	Mix Design	Net Weig	Daily Total	Scale Location	Project Location	JMF Number			
2	LIB46	93078	11/8/2017 10:11	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.01	22.01	22111	ECMS#105228 SR.0400	W95122H29			
3	LIB68	93079	11/8/2017 10:12	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.8	43.81	22111	ECMS#105228 SR.0400	W95122H29			
4	LIB62	93080	11/8/2017 10:18	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.1	65.91	22111	ECMS#105228 SR.0400	W95122H29			
5	97	93081	11/8/2017 10:19	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.84	87.75	22111	ECMS#105228 SR.0400	W95122H29			
6	LIB48	93083	11/8/2017 10:22	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.95	109.7	22111	ECMS#105228 SR.0400	W95122H29			
7	LIB50	93085	11/8/2017 10:25	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.45	132.15	22111	ECMS#105228 SR.0400	W95122H29			
8	LIB63	93087	11/8/2017 10:28	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.36	154.51	22111	ECMS#105228 SR.0400	W95122H29			
9	055	93088	11/8/2017 10:30	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	20.59	175.1	22111	ECMS#105228 SR.0400	W95122H29			
10	046	93089	11/8/2017 10:32	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.99	197.09	22111	ECMS#105228 SR.0400	W95122H29			
11	LIB54	93090	11/8/2017 10:34	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.07	219.16	22111	ECMS#105228 SR.0400	W95122H29			
12	LIB69	93091	11/8/2017 10:35	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22	241.16	22111	ECMS#105228 SR.0400	W95122H29			
13	052	93093	11/8/2017 10:39	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.13	263.29	22111	ECMS#105228 SR.0400	W95122H29			
14	042	93107	11/8/2017 11:25	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.05	285.34	22111	ECMS#105228 SR.0400	W95122H29			
15	LIB46	93120	11/8/2017 12:13	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.86	307.2	22111	ECMS#105228 SR.0400	W95122H29			
16	LIB68	93121	11/8/2017 12:16	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.94	329.14	22111	ECMS#105228 SR.0400	W95122H29			
17	LIB62	93122	11/8/2017 12:18	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.85	350.99	22111	ECMS#105228 SR.0400	W95122H29			
18	97	93123	11/8/2017 12:20	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.24	373.23	22111	ECMS#105228 SR.0400	W95122H29			
19	LIB50	93128	11/8/2017 12:45	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.01	395.24	22111	ECMS#105228 SR.0400	W95122H29			
20	LIB48	93129	11/8/2017 12:48	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	21.84	417.08	22111	ECMS#105228 SR.0400	W95122H29			
21	002	93134	11/8/2017 13:07	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22	439.08	22111	ECMS#105228 SR.0400	W95122H29			
22	LIB63	93135	11/8/2017 13:10	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	22.03	461.11	22111	ECMS#105228 SR.0400	W95122H29			
23	055	93137	11/8/2017 13:12	9.5mm Warm 64-22 0-.3(S)	WA303S 77019	20.57	481.68	22111	ECMS#105228 SR.0400	W95122H29			

query

READY

Libra Ticket Data ... Quickbase Load F... E-tick 11-08-2017 ... W P Chrome Inbox - dlassiter@... Presentation1 - M... 12:19 PM 12/5/2017

- Benefits
  - Web-based access to both systems
  - Tickets are never lost
  - Much safer during paving and milling operations
  - Ability to know trucks' current location and time loaded
- Issues
  - Difficulty switching between GPS and ticketing system
  - Constant coordination with GPS units and broker trucks

# 2018/2019 PILOT PROJECTS

- Special Provision Modifications:
  - Better Vehicle Identification
  - Dual milling or paving operations require separate “Geo Zones”
  - Delivery tickets must allow an available space for inspectors to add information such as material waste, temperature, stations, yield results, and other comments
  - At completion of the project, provide all ticket information in an acceptable electronic data file to the Department
- Planned usage:
  - 2018 – 3 pilot projects
  - 2019 – 4 pilot projects

# QUESTIONS?



**pennsylvania**  
DEPARTMENT OF TRANSPORTATION