IOWA DOT
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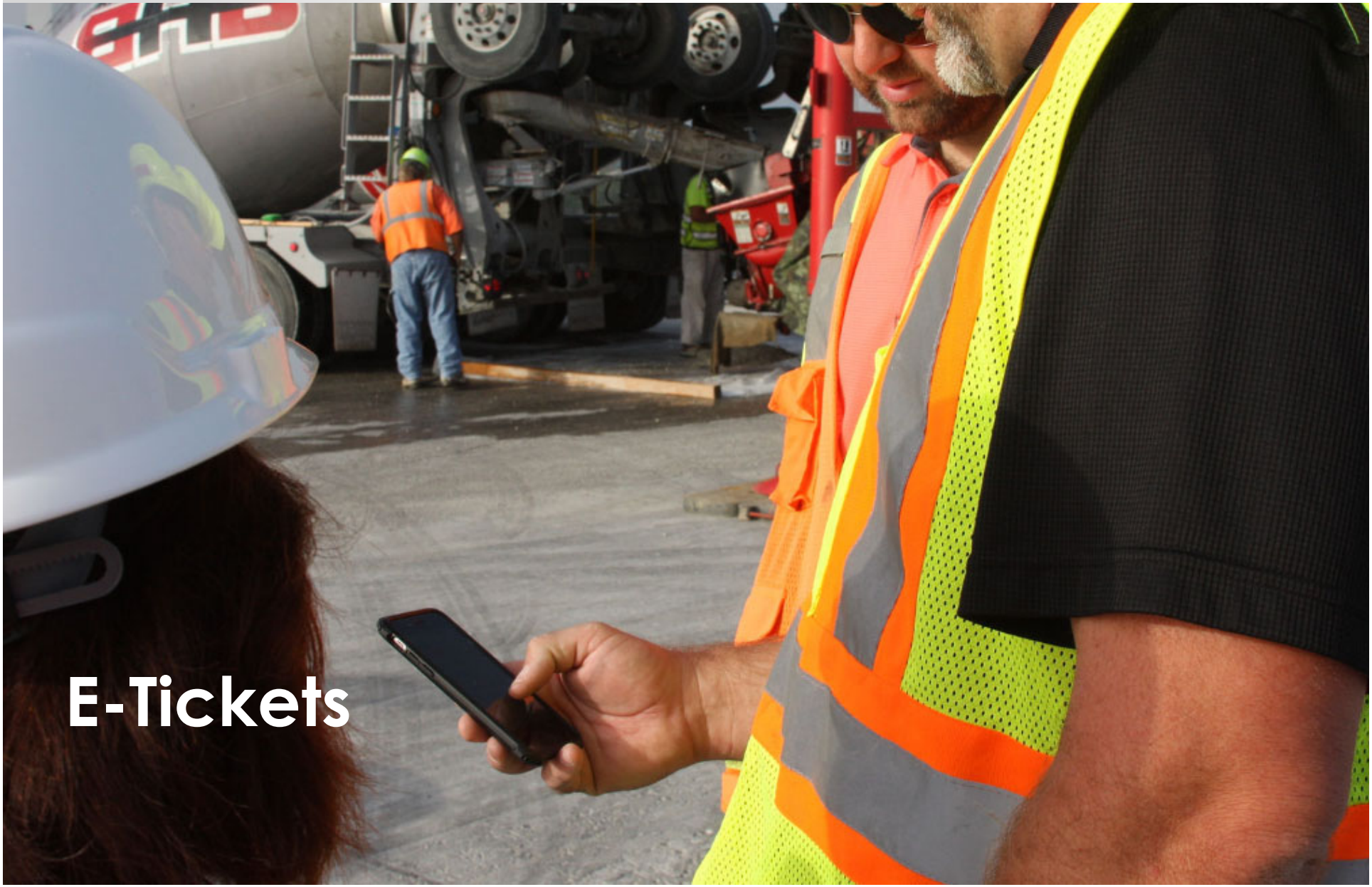
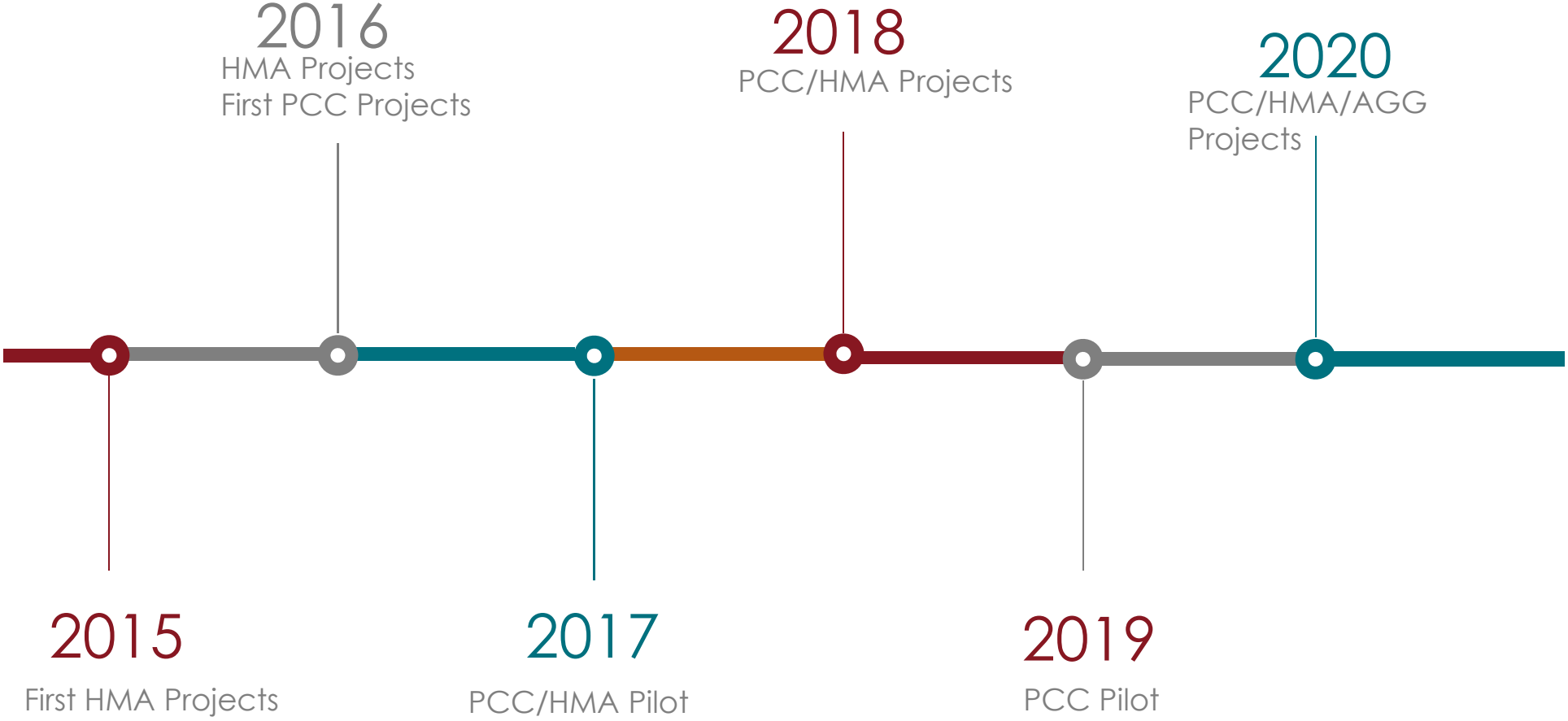


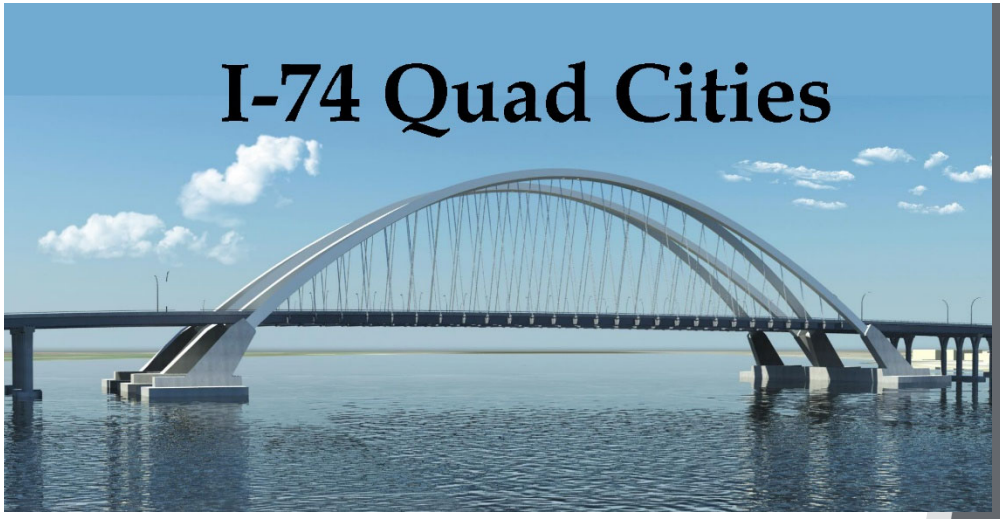
E-Tickets

- What an E-Ticket is (Iowa)
- Process of E-Tickets
- Project Documentation
- Future of E-Tickets

E-Tickets

E-ticket timeline





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I-74 E-Tickets

- Bridge replacement over the Mississippi River
- 322 Million dollar contract
- 101,000 CY of concrete
- A typical county bridge = 400 CY
- A six pier bridge = 2,417 CY
- 4-6 Concrete trucks per barge
- 9,006 Tickets to date

Sun Concrete Pumping
Sun Concrete Pumping

Partners

Iowa DOT

Hahn Ready Mix

Command Alkon

infotech

2020 E-Ticketing (Iowa)

- Iowa DOT due to Covid-19 is working with the following vendors
  - Command Alkon - Connex (Concrete, Asphalt, Aggregate)
  - Sysdyne – iStrada (Concrete)
  - Earthwave – FleetWatcher (Asphalt)
  - BCMI – (Concrete)

2020 E-Ticketing (Iowa)

- 64 Concrete projects
- 12 Asphalt projects
- 4 Aggregate projects

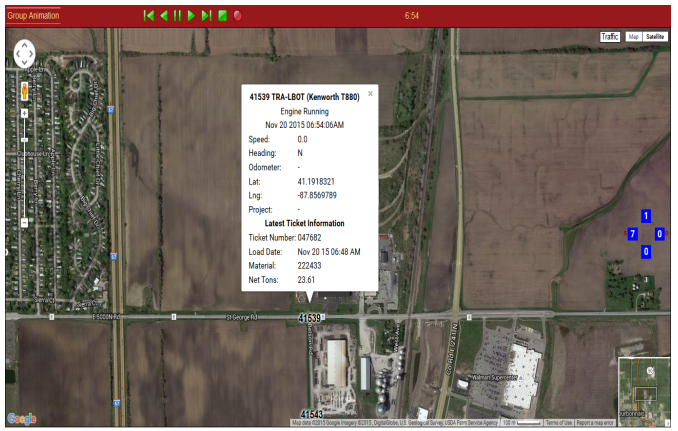
- This includes County and Cities

What is E-Ticketing (Iowa)

It's not

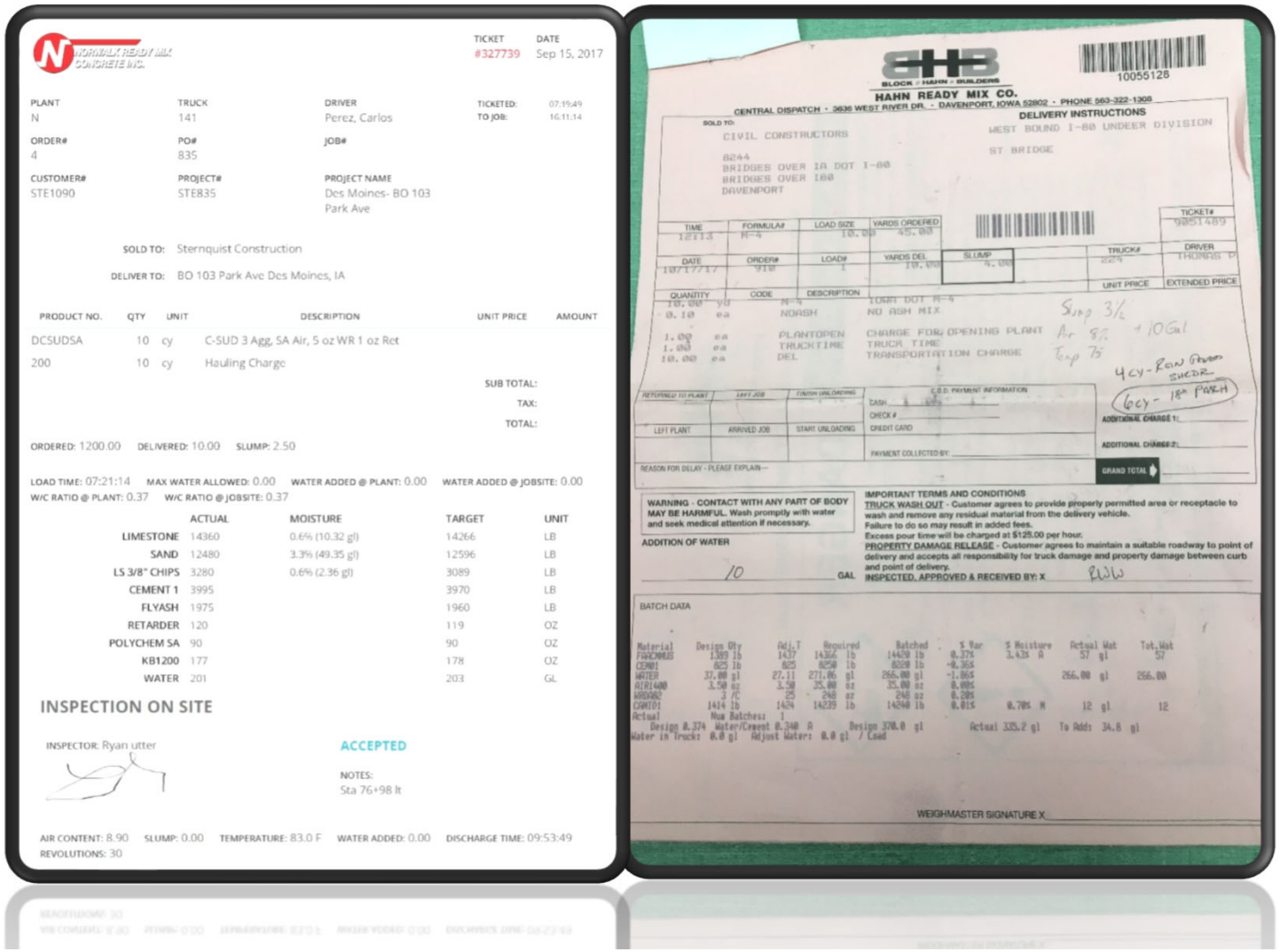
Truck Tracking

Tracking is a benefit but not what makes an e-ticket



E-Tickets

IT'S NOT A PDF TICKET



NORMAN READY MIX CONCRETE INC.

TICKET #327739 DATE Sep 15, 2017

PLANT	TRUCK	DRIVER	TICKETED:	07:19:49
N	141	Perez, Carlos	TO JOB:	16:11:14

ORDER# 4 PO# 835 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
DCSUDSA	10	cy	C-SUD 3 Agg, SA Air, 5 oz WR 1 oz Ret		
200	10	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 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

INSPECTION ON SITE

INSPECTOR: Ryan utter

ACCEPTED

NOTES: Sta 76+98 lt

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

BLOCK · HAHN · BUILDERS

10055128

HAHN READY MIX CO.

CENTRAL DISPATCH · 3636 WEST RIVER DR. · DAVENPORT, IOWA 52802 · PHONE 563-322-1308

SOLD TO: CIVIL CONSTRUCTORS
8244
BRIDGES OVER IA DOT I-80
BRIDGES OVER I80
DAVENPORT

DELIVERY INSTRUCTIONS
WEST BOUND I-80 UNDEER DIVISION ST BRIDGE

TIME	FORMULA#	LOAD SIZE	YARDS ORDERED	TICKET#
12113	M-4	10.00	45.00	9851489

DATE	ORDER#	LOAD#	YARDS DEL	SLUMP	TRUCK#	DRIVER
10/17/17	910	1	10.00	4.00	224	THOMAS P

QUANTITY	CODE	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
10.00 yd	M-4	IOWA DOT M-4		
0.10 ea	NOASH	NO ASH MIX		
1.00 ea	PLANTOPEN	CHARGE FOR OPENING PLANT		
1.00 ea	TRUCKTIME	TRUCK TIME		
10.00 ea	DEL	TRANSPORTATION CHARGE		

Slump 3½ Air 8% + 10Gal Temp 75
4cy - Rain Shedr
6cy - 1st Push

RETURNED TO PLANT	LEFT JOB	FINISH UNLOADING	C.O.D. PAYMENT INFORMATION
			CASH $
			CHECK #
LEFT PLANT	ARRIVED JOB	START UNLOADING	CREDIT CARD
			PAYMENT COLLECTED BY:

REASON FOR DELAY - PLEASE EXPLAIN:

ADDITIONAL CHARGE 1:
ADDITIONAL CHARGE 2:
GRAND TOTAL

WARNING - CONTACT WITH ANY PART OF BODY MAY BE HARMFUL. Wash promptly with water and seek medical attention if necessary.

ADDITION OF WATER 10 GAL

IMPORTANT TERMS AND CONDITIONS
TRUCK WASH OUT - Customer agrees to provide properly permitted area or receptacle to wash and remove any residual material from the delivery vehicle. Failure to do so may result in added fees.
Excess pour time will be charged at $125.00 per hour.
PROPERTY DAMAGE RELEASE - Customer agrees to maintain a suitable roadway to point of delivery and accepts all responsibility for truck damage and property damage between curb and point of delivery.
INSPECTED, APPROVED & RECEIVED BY: X RWW

BATCH DATA

Material	Design Qty	Adj.T	Required	Batched	% Var	% Moisture	Actual Wat	Tot.Wat
FAMCMIX5	1389 lb	1437	14366 lb	14420 lb	0.37%	3.43% A	57 gl	57
CEM01	825 lb	825	8250 lb	8250 lb	-0.36%			
WATER	37.00 gl	27.11	271.06 gl	266.00 gl	-1.86%		266.00 gl	266.00
AIR1400	3.50 oz	3.50	35.00 oz	35.00 oz	0.00%			
WRDA82	3 /C	25	248 oz	246 oz	0.28%			
CHM1D1	1414 lb	1424	14239 lb	14240 lb	0.01%	0.70% M	12 gl	12

Actual Mix Batches: 1
Design 0.374 Water/Cement 0.340 A Design 378.0 gl Actual 335.2 gl To Add: 34.8 gl
Water in Truck: 0.0 gl Adjust Water: 0.0 gl / Load

WEIGHMASTER SIGNATURE X

What it is

- Real Time data of ticket information
- Ability to enter test data
- Keeping the **Data Digital**
- Ability to utilize data to **automate forms**
- **Safe way** to collect tickets

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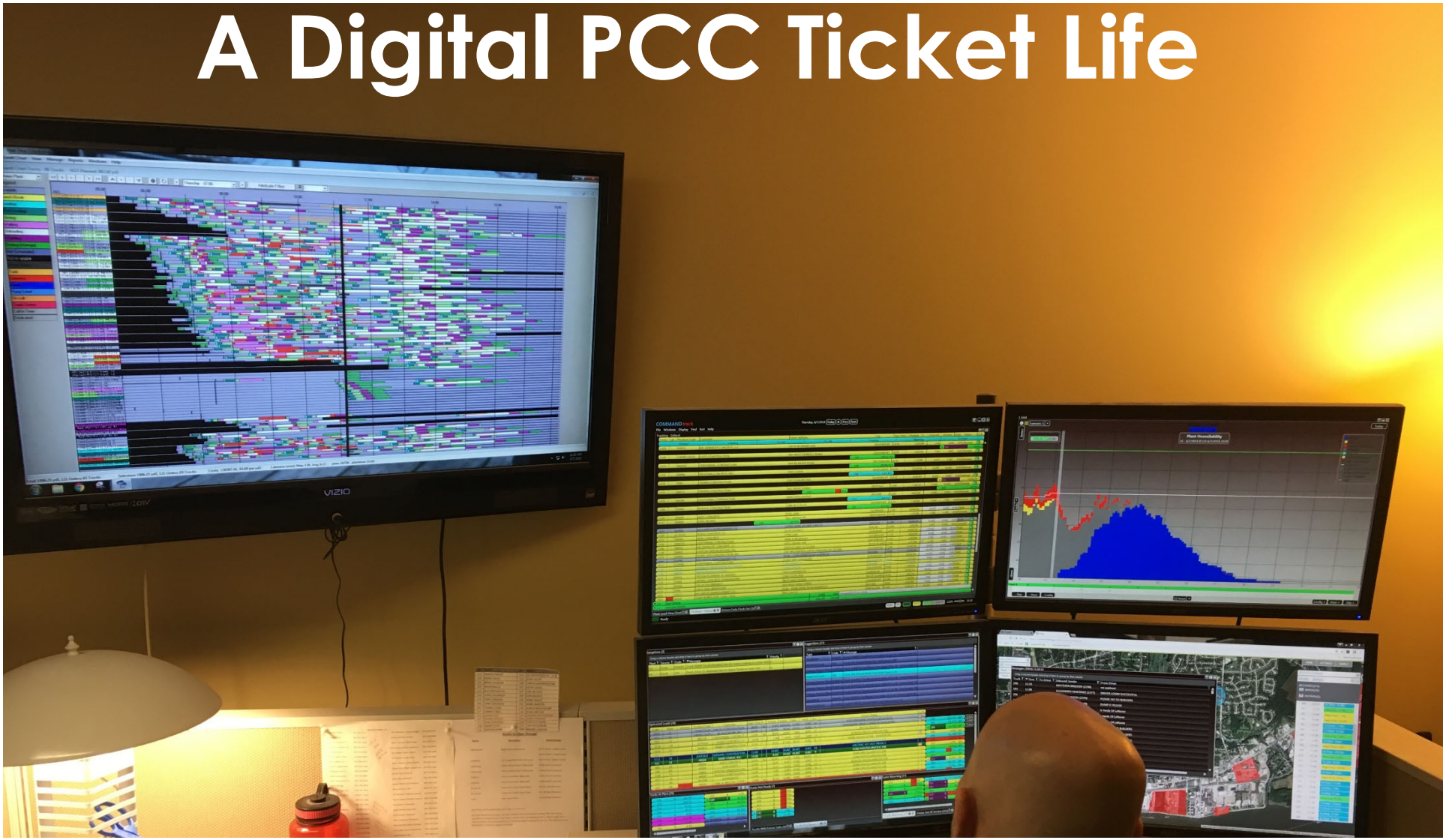
E-Tickets

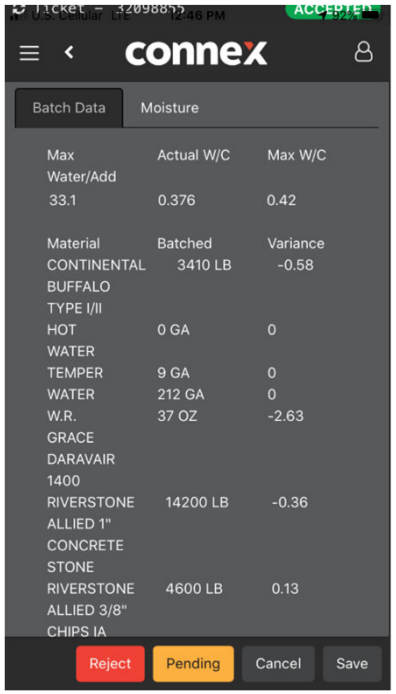
A Digital PCC Ticket Life



E-Tickets

A Digital PCC Ticket Life

- 1. Digital Ticket is created at the plant with all the important batch information for that truck
  - Batch Weights
  - W/C Ratio
  - Project information



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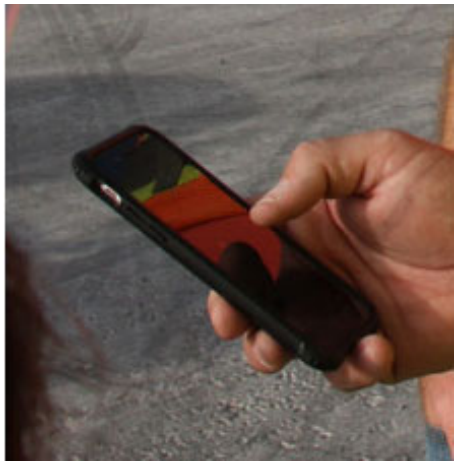
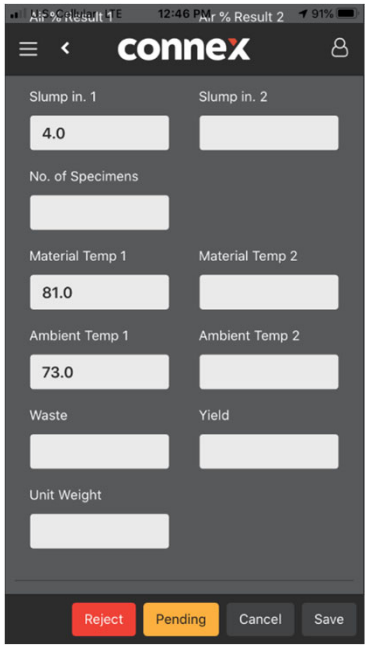
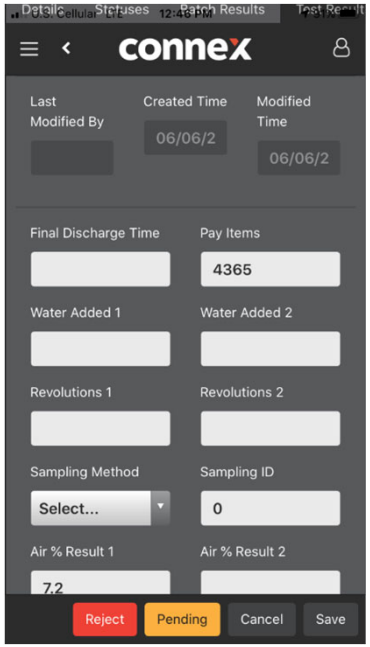
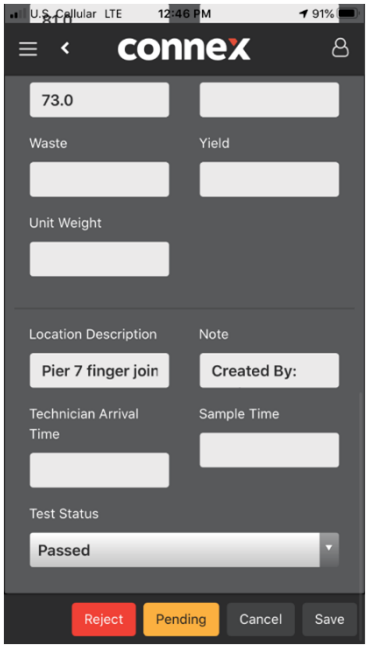
A Digital PCC Ticket Life

- 2. Inspector opens an APP on any mobile device and sees all the ticket information when the ticket is created, even before the truck shows up on-site









A Digital PCC Ticket Life

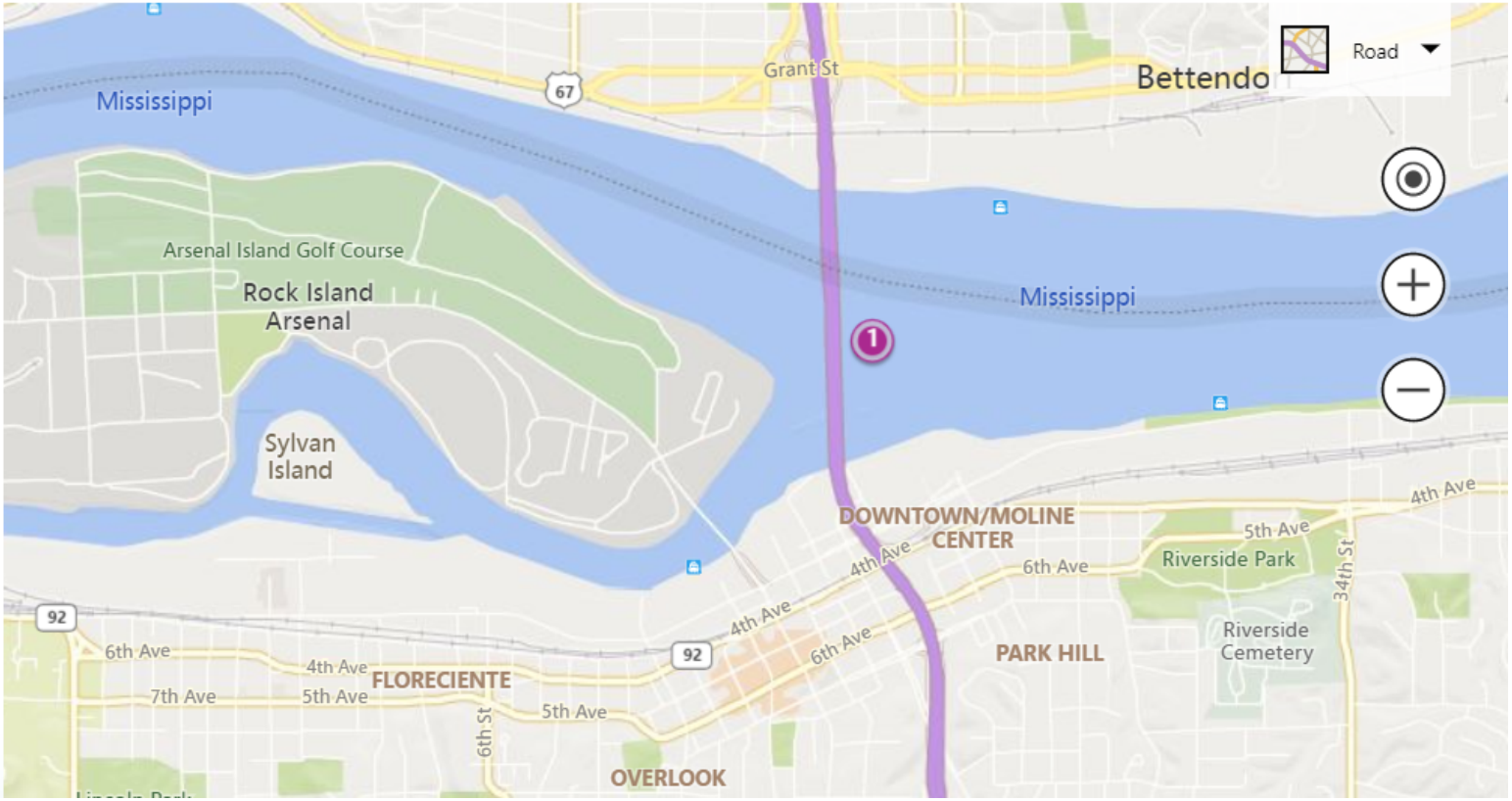
- 3. Inspector takes all the necessary tests and adds the test data to the ticket on the mobile device
- 4. Inspector accepts the ticket

A Digital PCC Ticket Life

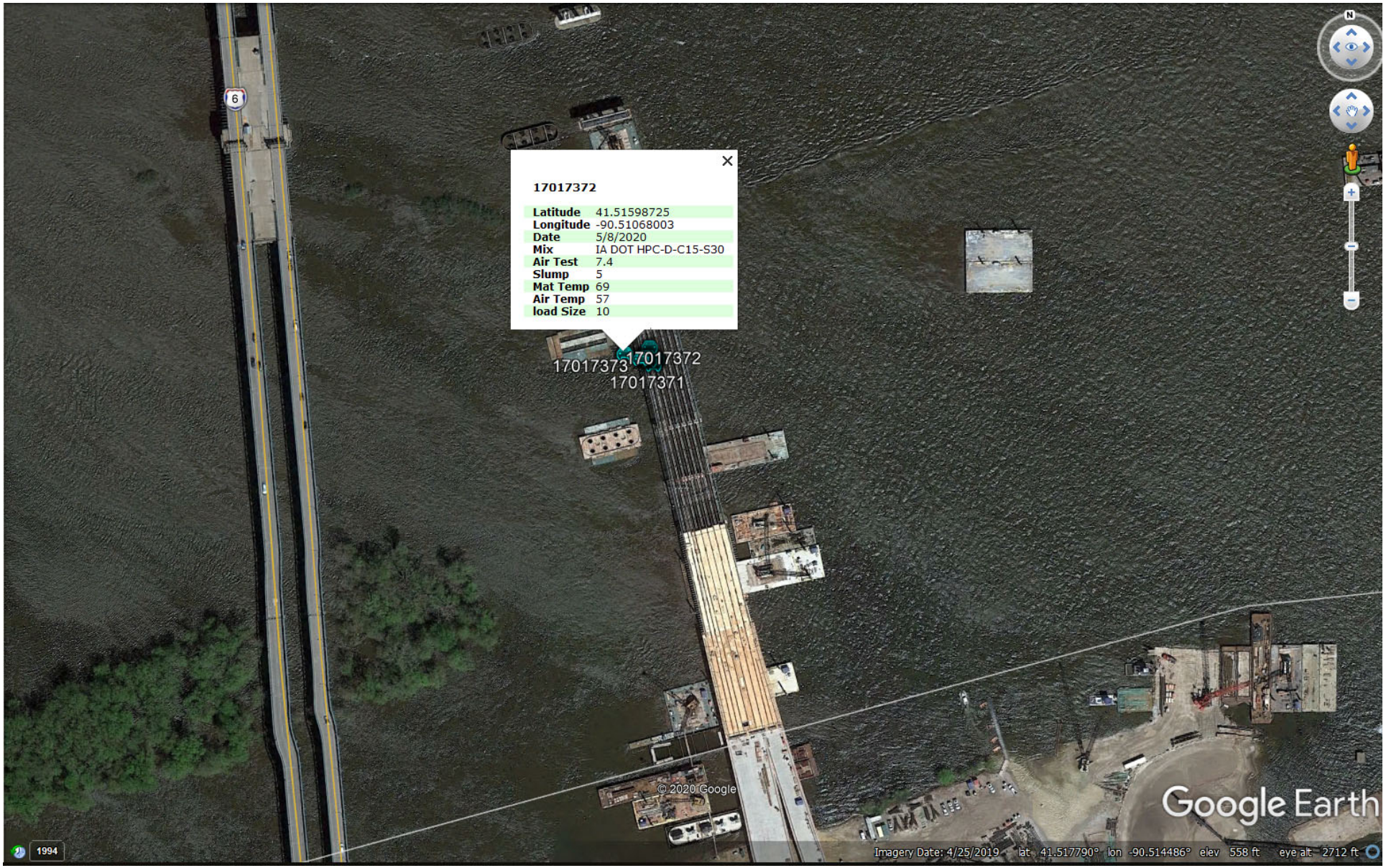
5. Inspector downloads the daily or project ticket information
6. All the Air and Slumps are tailed automatically and can be sorted by Mix, date, etc.

Geolocation of Accepted Ticket

Test Data Location



Geolocated Material



Project Documentation

- Replace old existing Forms?
  - E-114 (Beam Breaks)
  - E-115 (Air and Slump)
  - E-145 (Structure page)
  - Update plant report
  - Aggregate Summaries

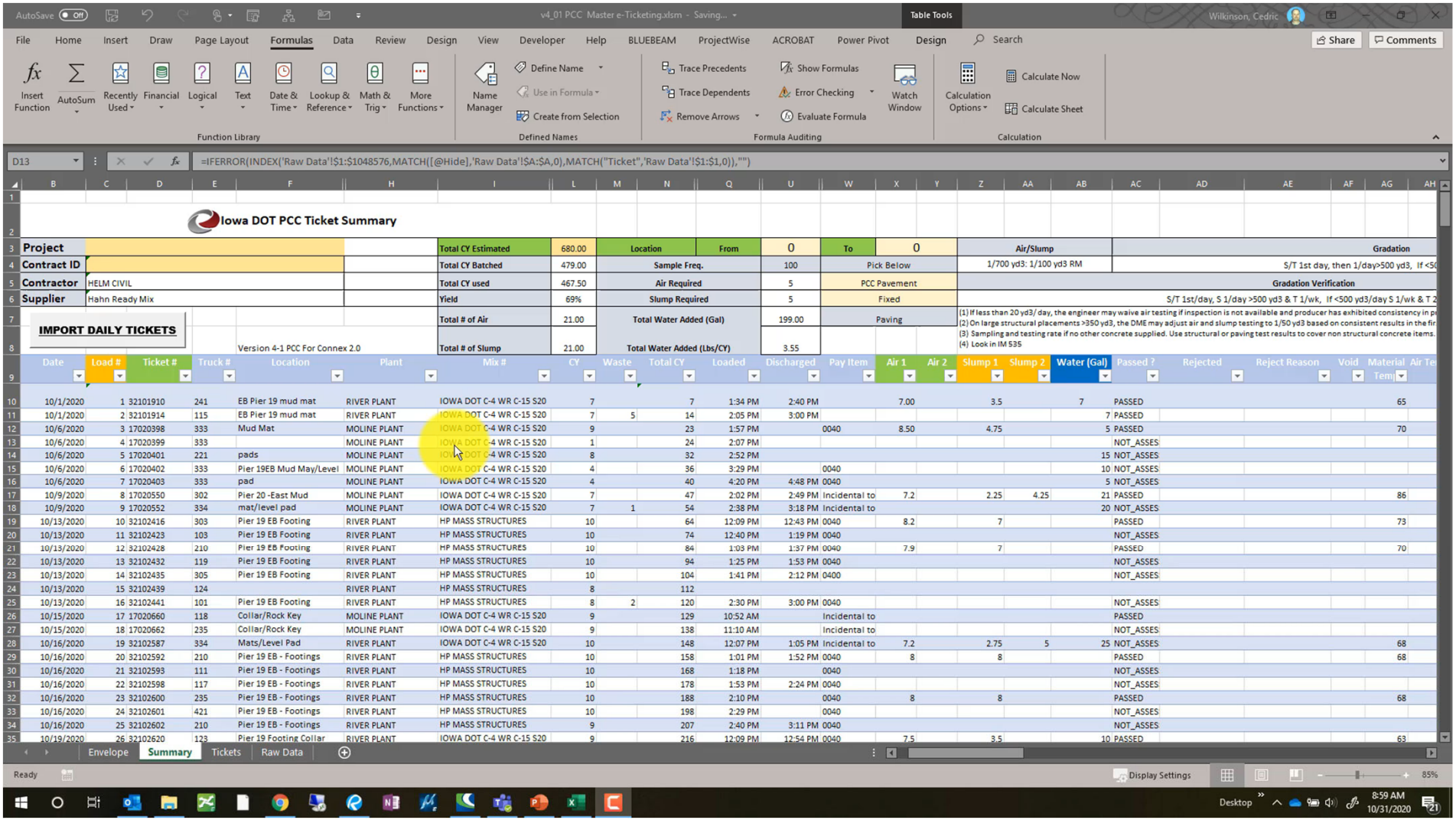
Project Documentation

– Data exported and Auto Populated

- Water Added
- Sample Frequency
- # of test's required
- # of test's taken
- Yield
- Station location
- Evaporation Rate

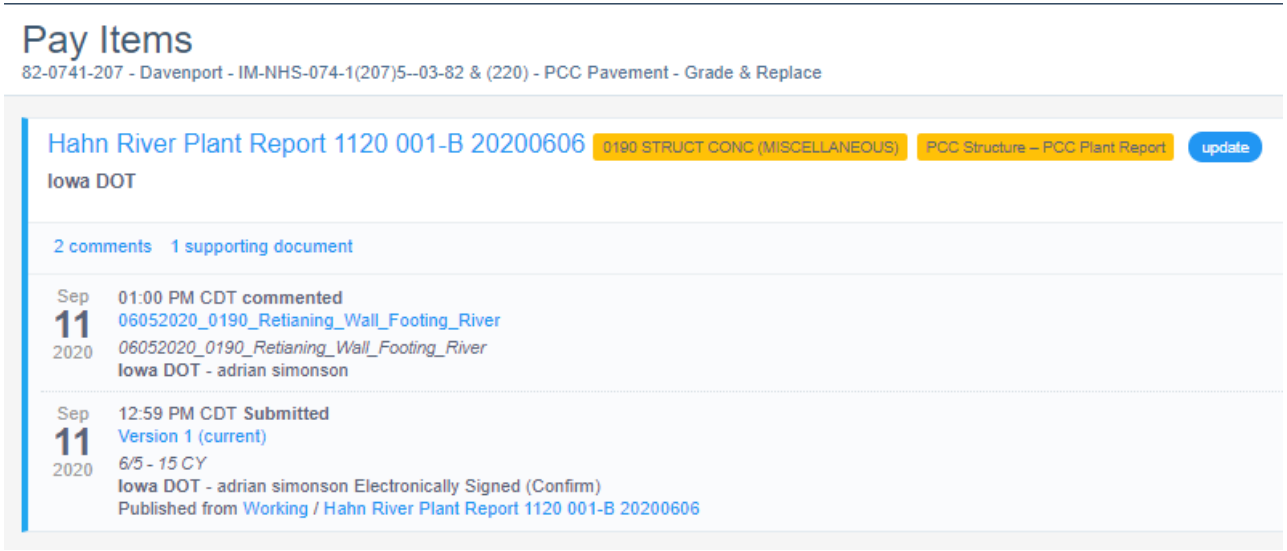
E-Tickets

Project Documentation



What to do with the Data?

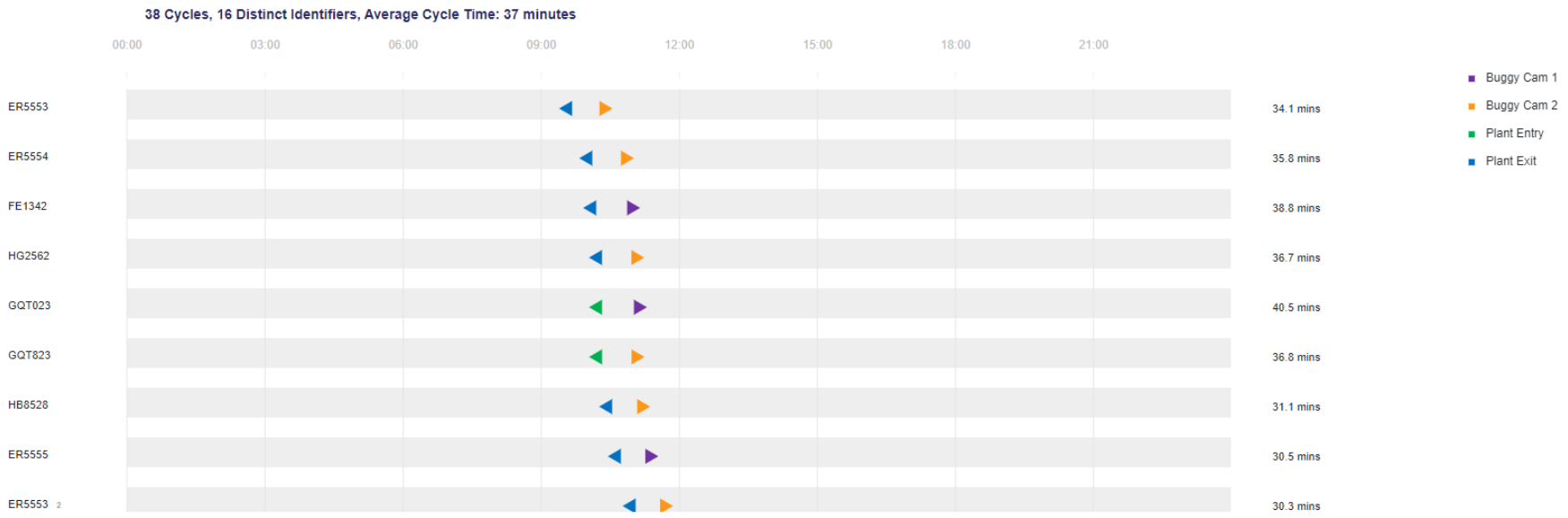
- Doc Express
  - Tickets are supporting documentation to the plant report



E-Ticket P.O.D. for HMA

- Alternative to GPS Tracking
- Camera at the plant and at job site
- Captures License plate and other unique characteristics of a truck
- New Pilot project at end of 2020
- Doing more Pilot projects in 2021

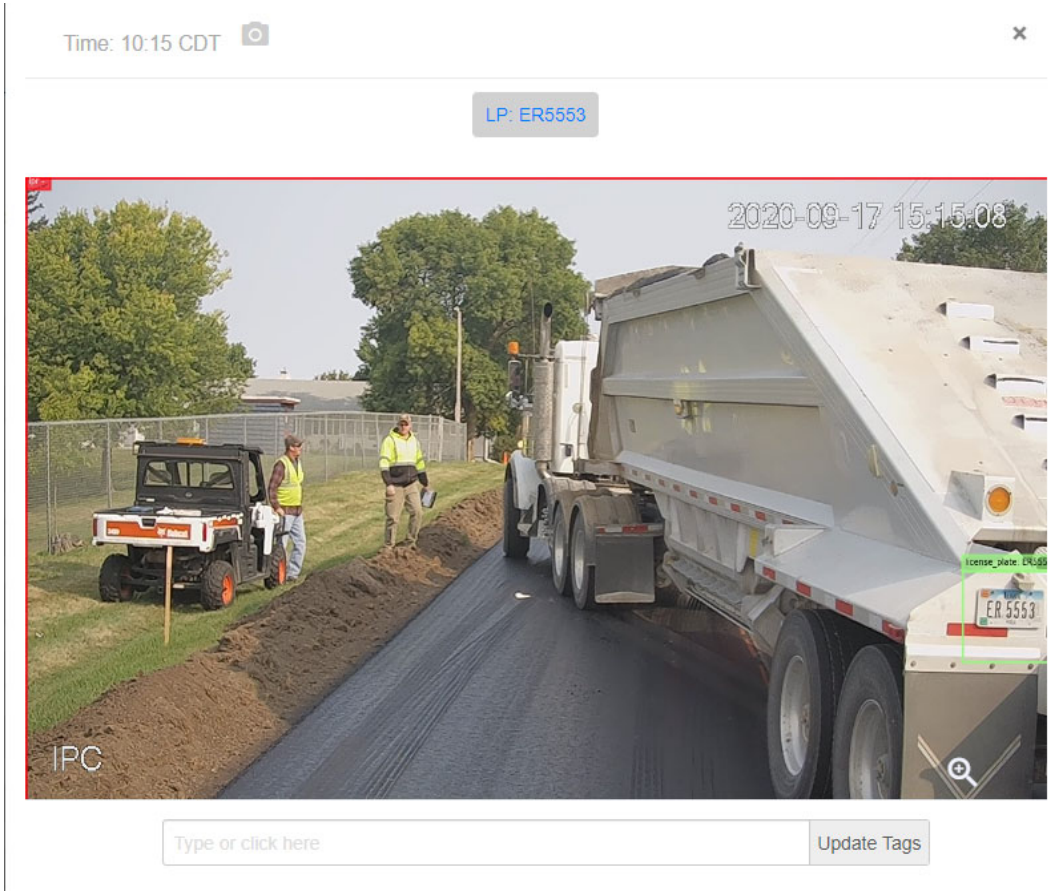
E-Ticket P.O.D. for HMA



At the Plant

Time: 09:41 CDT
LP: ER5553
license_plate: ER5553
IOWA
ER 5553
Type or click here
Update Tags

At the Job Site



E-Ticket P.O.D. for HMA

- Advantage to Agency
  - Automatically accept tickets
  - Don't need ticket taker
  - Safety
  - Have proof of delivery from plant to job
  - Also captures videos so the actual dump can be witnessed

E-Ticket P.O.D. for HMA

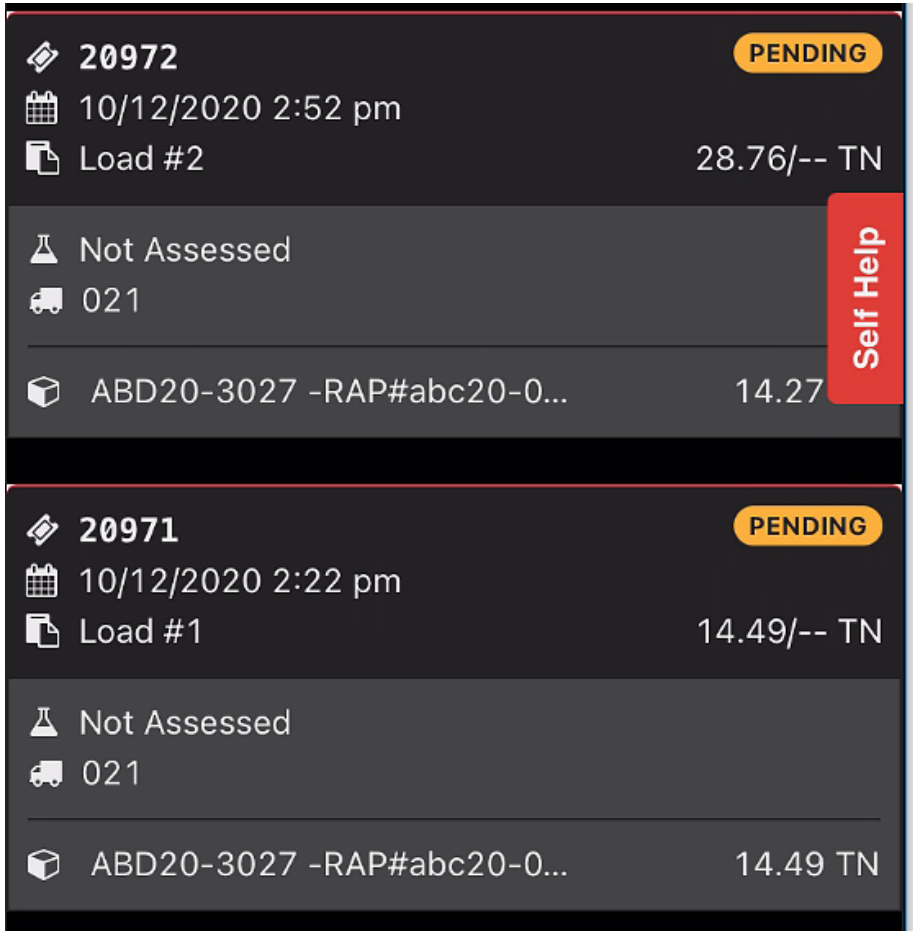
- Advantage to Contractor/Supplier
  - Cycle Times
  - Delivery tracking.
  - End-to-end cycles tracking (between raw-materials yards to mobile plants to the job sites)
  - Safety monitoring.
- Live alerts for cycles duration and critical safety violations

E-Ticket P.O.D.

- Other Materials
  - Aggregate
  - PCC
  - What is coming into the plant?
    - Asphalt
    - Rock
    - Sand
    - Cement
    - Fly Ash
    - Etc.

E-Ticket HMA

- New for 2021
  - Running Total
  - Load Number
- All on the mobile app or website

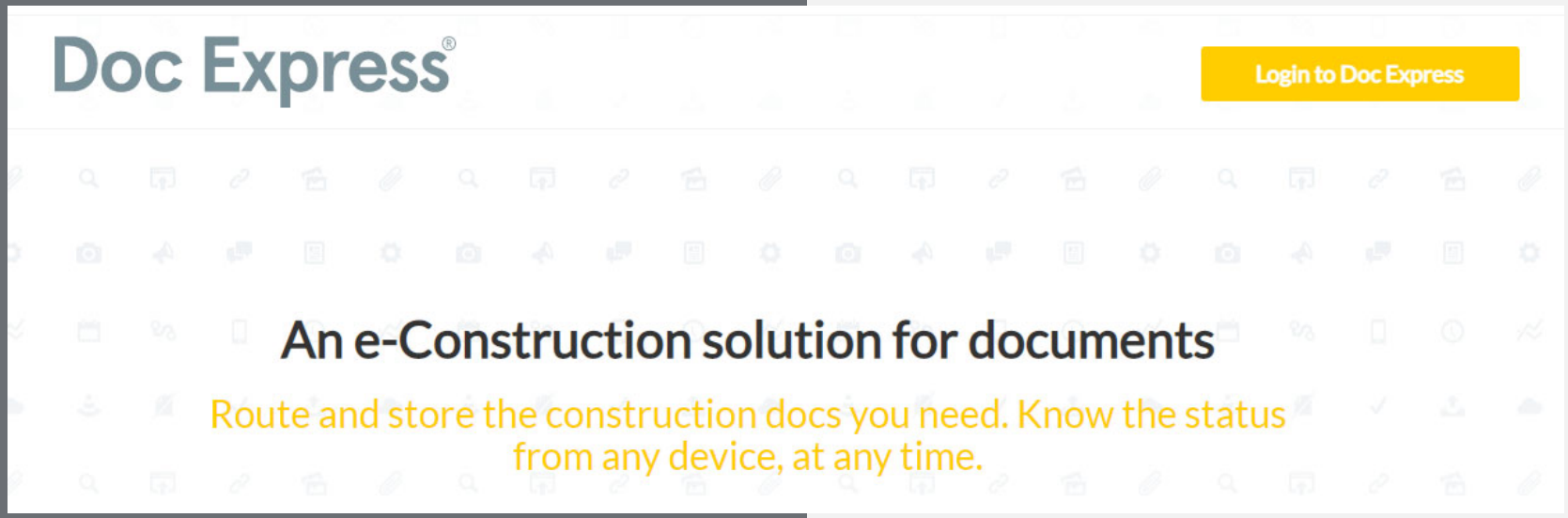


Iowa DOT Vision

Integration into AASTOWare Project

Iowa DOT Vision

Integration into Doc Express



e-ticketing Hurdles

- Management of e-ticketing vendors
  - Inspectors using different software and workflow
- Standardizing data needed and exported
- Internet Connection
- Mobile Device Battery life

E-Ticket Future

- PCC
- HMA
- Aggregate
- Pilot Projects 2020 (Volunteers)
- DS – 2021-2022
- SS 2023, 2024
- Working on getting implemented with AASHTOWare Construction & Materials

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Conclusion

- Ticket starts out with intelligent data
- Printed Ticket = Usability of data is lost
- PDF Ticket = Electronic
- E-ticket = Digital Data

THANK YOU FOR YOUR TIME AND ATTENTION
Questions?

Cedric Wilkinson
Eng. Tech Senior
Davenport RCE Office

Troy Schroeder
Const. Tech Senior
Davenport RCE Office