Fleetwatcher: E-Ticketing

Agenda

• Earthwave Overview
• E-Ticketing – What is it
  – Building Blocks
  – Experience in E-Ticketing
• Fleetwatcher Paving Management
• Eticketing for the Contractor
• Eticketing for the DOT/Inspector
• Q&A
Who is Earthwave?

- 2000 – Founded in Cincinnati, Ohio
- 2000-2007 – Exclusive focus on “Yellow Iron”
- 2010 – Selected as Viewpoint Telematics Partner
- 2010 – Selected Preferred Vendor by OMG
- 2012 – Began development of Materials Tracking
- 2014 – Selected by B2W as Integration Partner
- Q1 2014 – Delivered Materials Tracking Solution
- 2015 – E-Ticketing Proof of Concept
- 2015-17 Focus on Integrations
- 2018-19 Delivered Paving Management Solution

E-Ticketing Bid Spec

1. A wireless fleet management or GPS device that is capable of tracking all delivery trucks (both company-owned and third-party) must be installed on all trucks and equipment (dump trucks, belly dumps, side-load dumps, transfer vehicles, pavers, or any other trucks/vehicles) used to transfer and incorporate HMA into the project. KYTC personnel shall have the ability to access Real Time monitoring through the use of a mobile device such as an iPad, smartphone, etc.

2. The fleet management system shall be fully integrated with the Contractor’s Load Read-Out scale system at the HMA plant site.

3. The fleet management system shall have the ability to measure and track vehicles and their contents (weights and material types) continuously from the plant site to the project site. The system shall have internal battery backup capabilities due to loss of power, and have the ability to store data if GPS connectivity is lost and transmit that same data when unit re-establishes connectivity. To be considered continuous, no two data points shall be more than 60 seconds apart unless the vehicle is stopped. Duration of stop time for any reason shall be recorded. The fleet management system shall have the ability to track the engagement of the truck PTO to indicate the dump the material.
Look Familiar?

Fleetwatcher Hardware

- CLA for 3rd Party Trucks
- Hardwire for company owned assets
- 1 minute updates for trucks
- 30 second updates for Pavers/Mills
- Internal Antenna
- Internal back-up battery
- Waterproof
Load Cycle Basics

FleetWatcher Load Cycle Analysis - Materials Delivery
Data Collection Points Diagram

Source

Time at Plant
Plant Geozone

Silo

Destination

Time at Jobsite
Jobsite Geozone

Paver/Mill Geozone

Time between Plant/jobsite and jobsite/Plant

Data points collected and durations calculated

1 Arrival at Plant Geozone
2 Arrival at Silo
3 Exit of Silo
4 Exit of Plant Geozone
Duration in Plant Geozone [1-4]
Duration in Silo Geozone [2-3]
Duration and location in Plant Geozone outside of Silo
Cycle Duration
Plant [1] to Plant [1]

5 Arrival at Jobsite Geozone
6 Arrival at Paver Geozone
7 Departure of Paver Geozone
8 Departure of Jobsite Geozone
9 Duration between Leaving Plant [4] and arriving at Jobsite [5]

Designated Load Count

Duration in Paver Geozone [5-7]
Duration/location of stop in Jobsite Geozone outside Paver Geozones
Duration in Jobsite Geozone 5-8
Duration between leaving Jobsite [8] and arriving at Plant [1]

Plant Geozones
MDS Tabular Report “Before”

Load Cycle Analysis

<table>
<thead>
<tr>
<th>Cycle Start Time</th>
<th>Source Geo zone</th>
<th>Dest Geo zone</th>
<th>Time in Source</th>
<th>Time to Dest</th>
<th>Time to Load</th>
<th>Time to Need Source</th>
<th>Total Time</th>
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MDS Graphical Dashboard “Before”

MDS Graphical Dashboard “Before”

FleetWATCHER

[Graphical Dashboard Image]

MDS Tabular Report “Before”

[Table Image]
E-Ticketing Solves Big Problems For DOT’s

**Problems**
- Paper Tickets
- Lost Tickets
- Ticket Verification
- Ticket Sorting
- Summing the tickets for Contractor Pay
- Safety for field personal on the jobsite

**Solutions**
- Eliminates Paper Tickets
- No More Lost Tickets
- Real time Material and Tonnage Verification
- Quickly Summarize Tickets for Contractor Pay
- Reduce Worksite Hazards For Inspectors Frequently Dodging Trucks

E-Ticketing Benefits For Paving Contractors

- Safety – field personnel & drivers risk
- Scales Integration to Help with Job Costing / Future Bidding
- Transparency for quicker pay
- Collaboration – EDC4
- Optimize Cycle Times – Move More Tonnage
- Eliminate Bottle-necks at Paver and/or Plant
- Hold Drivers Accountable For Performance and Production
- Automate Payroll Processes
- Alerts / Notifications to Management When Benchmarks Fall Outside of Norm
### MDS Tabular Report

#### Grand Totals:

<table>
<thead>
<tr>
<th>Row</th>
<th>Cycle Start</th>
<th>Load Time</th>
<th>Tons</th>
<th>Source Geo-zone</th>
<th>Dest Geo-zone</th>
<th>Time in Source</th>
<th>Time to Dest</th>
<th>Time in Dest</th>
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#### LLP903:

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#### Totals:

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<tr>
<th>Tons</th>
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#### Averages:

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<th>Time to Next Source</th>
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</table>

### MDS Graphical Dashboard

Red lines indicate precise time that trucks were loaded at the plant with ticket number, mix type, tonnage, cumulative loads, etc.
**Mobile App Functionality**

**Real Time Data**
## Temperature, Waste, & Notes

### Delivered Loads – by the hour

<table>
<thead>
<tr>
<th>Scale Tickets</th>
<th>Today’s Shifts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3 Shifts</strong></td>
<td><strong>Today’s Shifts</strong></td>
</tr>
<tr>
<td>1. <a href="#">Scale Ticket Details</a></td>
<td>1. <a href="#">Today’s Shift Details</a></td>
</tr>
</tbody>
</table>

---

### Scale Ticket Details

- **Scales:** [Details]
- **Waste:** [Details]
- **Temperature:** [Details]

### Today’s Shift Details

- **Scales:** [Details]
- **Waste:** [Details]
- **Temperature:** [Details]
Temperature, Waste, & Notes

Material Summary Report

Report Prepared by: Mike Schulz

<table>
<thead>
<tr>
<th>Material Name</th>
<th>Total Tons Batched</th>
<th>Total Tons Used</th>
<th>Total Tons Wasted</th>
<th>Total Tons for Pay</th>
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<td>Millings with Oil</td>
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<td>0.0</td>
<td>105.53</td>
</tr>
</tbody>
</table>

I certify the Daily Haul Summary is true, accurate, and complete,

Subcontractor/Supplier Signature: ___________________________ Date: __________

I certify the Daily Haul Summary has been reviewed, corrected as necessary, and approved,

Engineer’s Signature: ___________________________ Date: __________
Questions