

# eROUTES

## PAVING PROCESS MONITORING SYSTEM

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### MERGE PAVER & TRUCK LOCATION WITH LOADOUT DATA

Visibility to the Paving Process and Opportunity to Influence it

**TIMING BY TRUCK AND JOB**  
Cycle times  
Waiting times by Job and Truck

**TRUCKING**  
Driver performance

**REPORTS**  
By truck/job/mix

**PRODUCTION (TONNAGE)**  
Loaded  
In-transit  
Paved

**MOBILE ALERTS**  
First load  
Last load  
Running Totals

**ARCHIVED DATA**

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### HOW DOES IT WORK?

MOBILE GEOFENCES

22 meters

400 meters

Plant arrival time  
Load time  
Ticket capture  
Plant depart time

Truck route  
Truck location

Jobsite arrival time  
Dump time  
Jobsite depart time

PLANT GEOFENCE

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### ASPHALT - PLANT, TRUCK AND PAVER

Hardware & Subscriptions

Asset Subscription  
Tremble Machine Hardware  
SM361  
Cellular (Z)

Power-Port/Lighter Port for portability of contact haulers  
Hardwired for company owned trucks

Truck Hardware  
TAG200 (Tremble)  
PL2438 (Call)  
CallAmp (Call)  
TVG (Tremble/FSM)  
Cellular (Z)

Ticket Capture Hardware

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### TICKET CAPTURE

**eRoutes Gateway Solution (EGS)**

Software installed on loadout computer that collects the ticketing information from the loadout system database or directory containing CSV files and transfers the ticket data to the eRoutes server.

The prerequisites software required to install eRoutes Gateway Solution.

- .Net framework 4.7
- Windows 7 SP1 or higher systems
- SQL Server 2012 and above

**Ticket Interface Module (TIM)**

Hardware installed in-line with the loadout system printer that acts as an additional printer. A template is created to format the raw ticket data into an electronic ticket and transfers the ticket data to the eRoutes server.

*No prerequisites required.*

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### CONCRETE - PLANT, TRUCK AND PAVER

Hardware & Subscriptions

Asset Subscription  
Tremble Machine Hardware  
SM361  
Cellular (Z)

Truck Hardware  
TAG200 (Tremble)  
PL2438 (Call)  
CallAmp (Call)  
TVG (Tremble/FSM)  
Cellular (Z)

Ticket Capture Hardware

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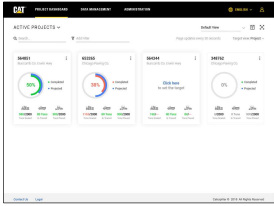
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### EROUTES USER INTERFACES

Web-based user interface primarily for management employees to monitor realtime information as well as post-process jobsite data.



Mobile application primarily for paving foremen and paving crew members giving them the information they need to do their jobs better.



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### EROUTES MOBILE APP

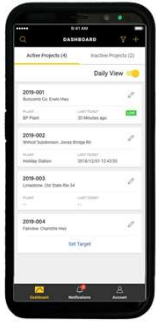
- Jobs

Developed for ....

- Superintendents
- Job Foremen
- Paving Foremen
- Paving Crews

*Real-time information in the hands of those who need it most*  
*Remotely monitor multiple jobs of the day*

- Job numbers auto populate: Simple select job number to set targets
- Any job that is currently printing tickets will be listed as live.



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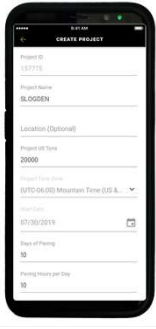
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### EROUTES MOBILE APP

- Jobs - Set Targets

Users enter paving plan on a PROJECT and DAILY basis

- Enables the DAILY/PROJECT View toggle
- Project Plan:** Managers determine if project is on schedule
  - Project tonnage
  - Start date
  - Number of days of paving
  - Hours/day
- Daily Plan:** Workers view progress towards a daily target
  - Target tons today
  - Start time
  - Target hours of paving today
  - Number of trucks
    - Average truck tonnage



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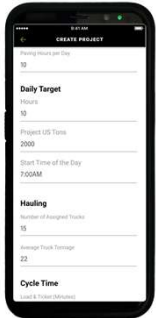
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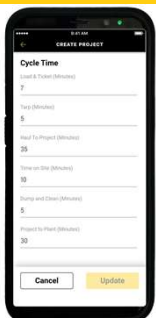
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### EROUTES MOBILE APP

#### Jobs – Set Targets

Users enter paving plan on a PROJECT and DAILY basis

- Enables the DAILY/PROJECT View toggle

**CYCLE TIMES:**

- Project Plan:** Managers determine expected times for haulers
  - Load and Ticket (minutes)
  - Tarp (minutes)
  - Time on Site (minutes)
  - Dump and Clean (minutes)
- Daily Plan:** Workers view progress towards a daily target
  - Plant-to-Project (minutes)
  - Project-to-Plant (minutes)

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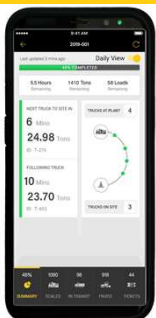
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### EROUTES MOBILE APP

#### Dashboard

Main navigation screen summarizing critical information about the job

Information includes:

- LIVE truck arrival times at paver
- Trucks at plant, paver, and in transit
- Tons paved, loaded, and in transit
- Ticketed loads

Based on user setup

- Tons/day
- Time
- Distance
- Number/Capacity of trucks

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**EROUTES MOBILE APP**  
 ■ DAILY/PROJECT View

Toggles the data from a DAILY view to a PROJECT view

- Default: DAILY View
- Available on all screens

**DAHBOARD**  
 Job progress (global)  
 Realtime production data (global)

**LOADOUT**  
 Loads  
 Average load size  
 Tons/Hr  
 Average plant wait time

**HAULING**  
 Cycle Timer

**TICKETS**  
 Tickets printed

**PAVING**  
 Tons paved  
 Tons remaining  
 Tons/Hr

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**EROUTES MOBILE APP**  
 ■ Loadout

Detailed information of loading process

- Tons scaled
- Tons/Loads remaining versus the target

Other critical information shown .....

- Next truck arrival time to plant
- Average wait time at the plant
- Tons/Hr loaded

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**EROUTES MOBILE APP**  
 ■ Hauling

Detailed information of trucking cycle

- Tons in transit
- Next truck arrival time
- Quick visual of trucking balance
  - Green – Ticketed and in transit
  - Blue – On the jobsite
  - Gray – Returning to plant

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**EROUTES MOBILE APP**


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Selecting a truck indicates Truck ID with the ability to scroll through the trucks

- Map Icon: See location of selected truck
- Ticket Icon: See the ticket of selected truck



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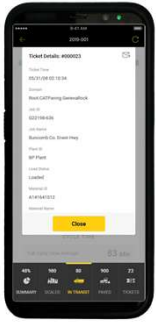
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**EROUTES MOBILE APP**

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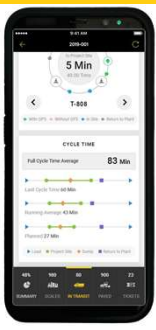
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- Map Icon: See location of selected truck
- Ticket Icon: See the ticket of selected truck

Swiping up shows CYCLE TIMER

- Last, Average, and Estimated cycle times

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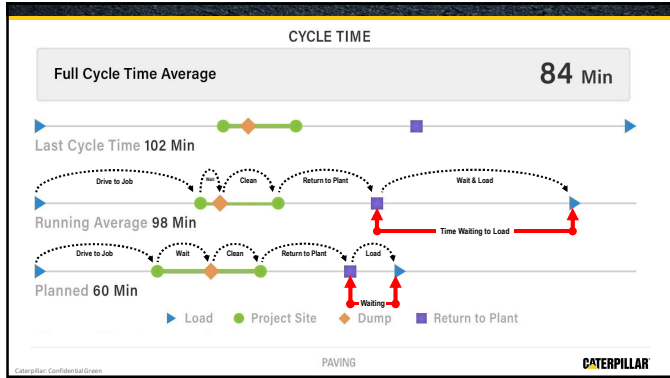
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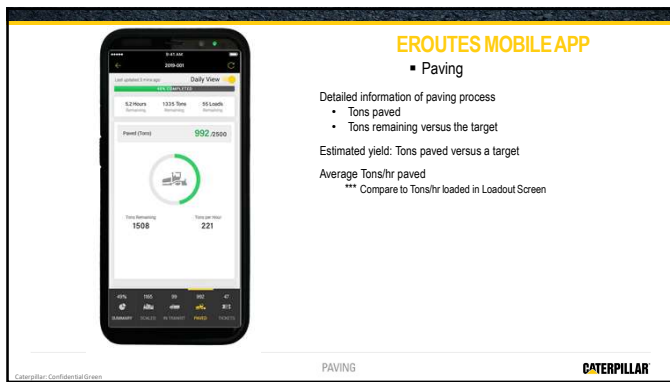
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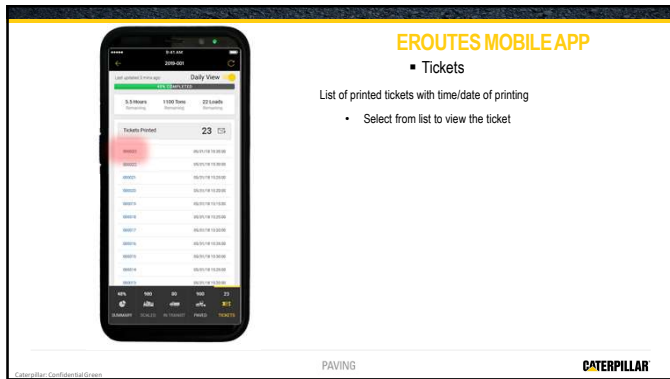
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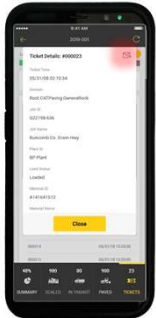
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**EROUTES MOBILE APP**

▪ Tickets

List of printed tickets with time/date of printing

- Select from list to view the ticket



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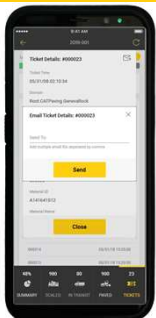
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**EROUTES MOBILE APP**

▪ Tickets

List of printed tickets with time/date of printing

- Select from list to view the ticket
- Export a single ticket
  - Single recipient
  - Multiple recipients



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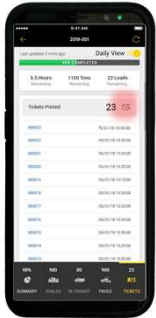
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**EROUTES MOBILE APP**

▪ Tickets

List of printed tickets with time/date of printing

- Select from list to view the ticket



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**ERoutes MOBILE APP**

- Tickets

List of printed tickets with time/date of printing

- Select from list to view the ticket
- Export a ticket list
  - Single recipient
  - Multiple recipients

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**ERoutes PROJECT DASHBOARD**

ACTIVE PROJECTS

Project ID	Location	Progress %	Budget
1001-19	US-95	83%	1022 / 2000
1011-19	Smithville Airport	24%	1875 / 8000
1027-19	State Route 77	42%	4238 / 10000
1030-19	Walt Street	63%	2166 / 3000
1033-19	James Township	43%	216 / 500

1042-19  
1042-19  
Click here to set the target

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**ERoutes PROJECT DASHBOARD**

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1042-19  
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Click here to set the target

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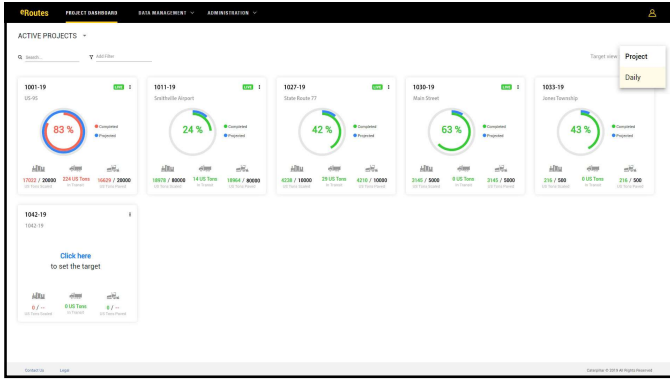
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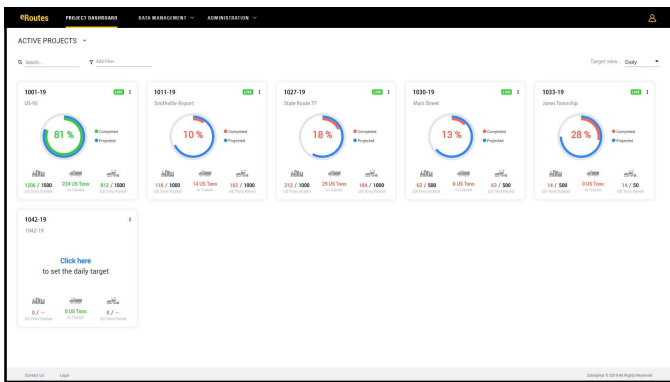
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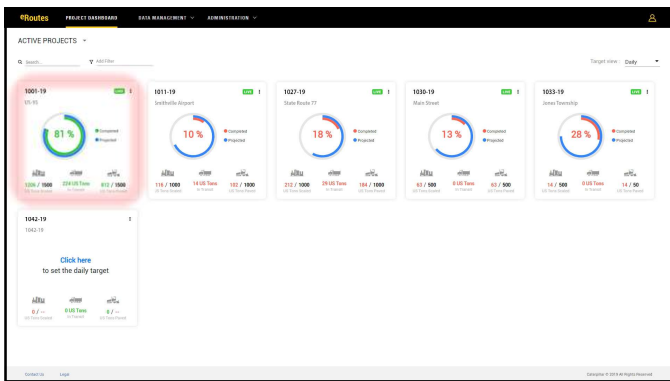
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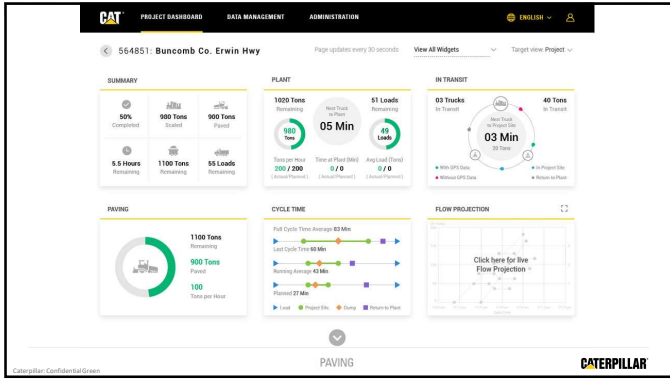
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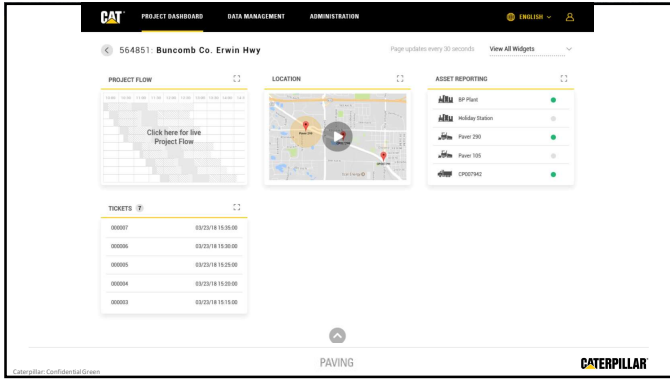
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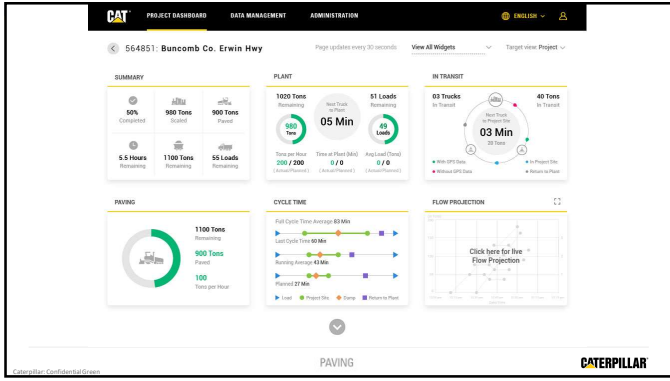
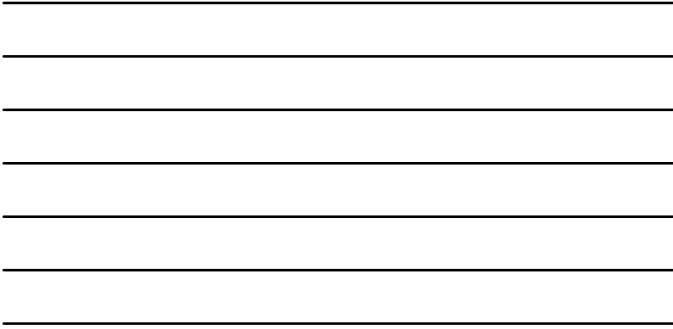
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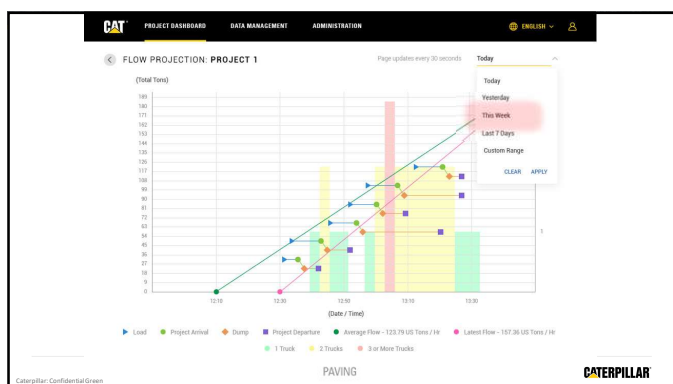
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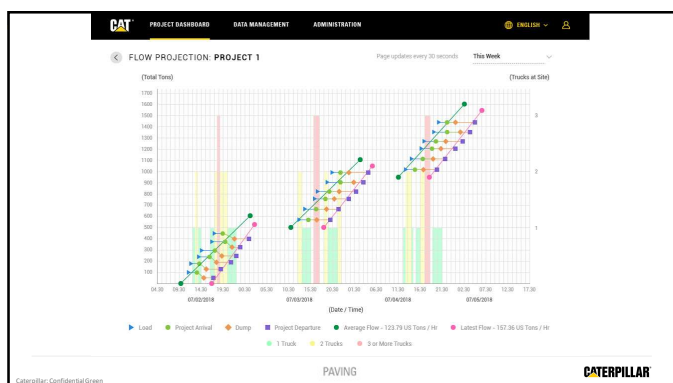
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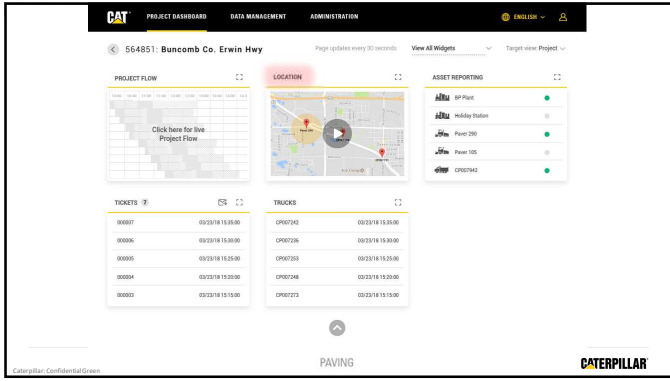
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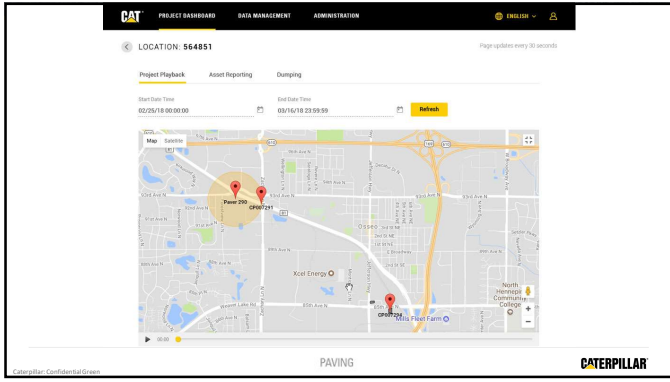
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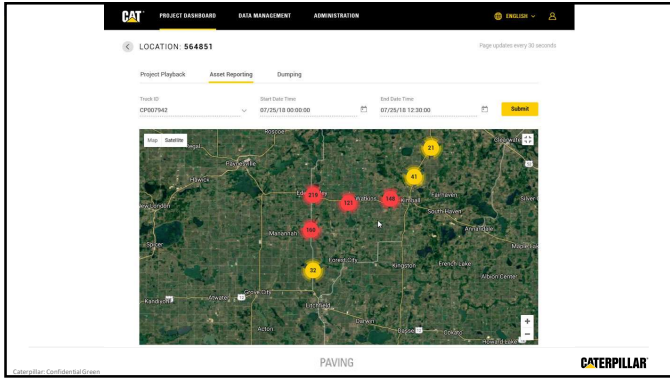
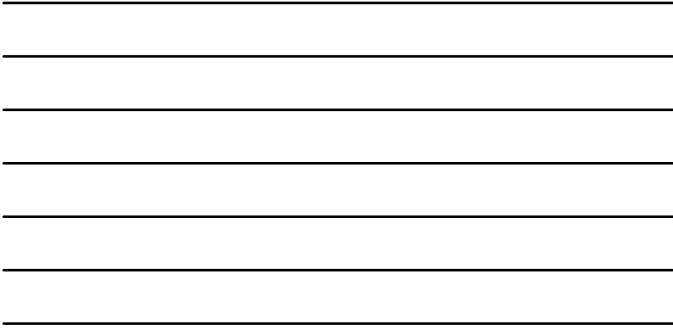
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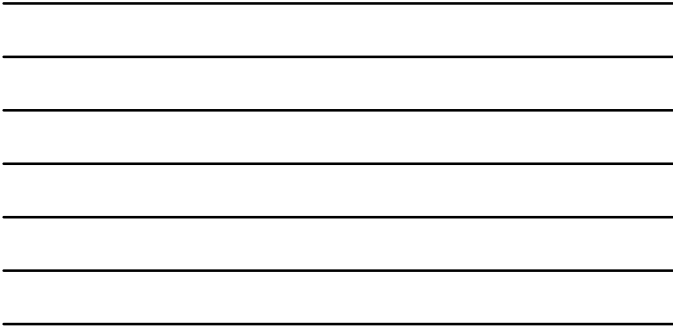
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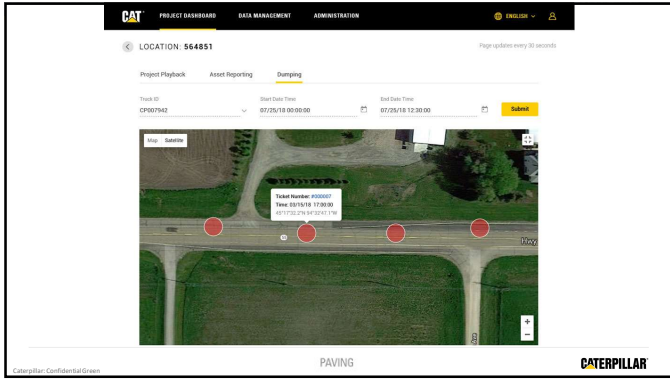


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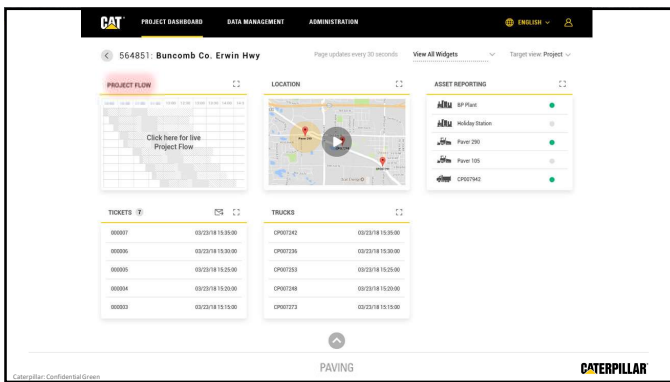


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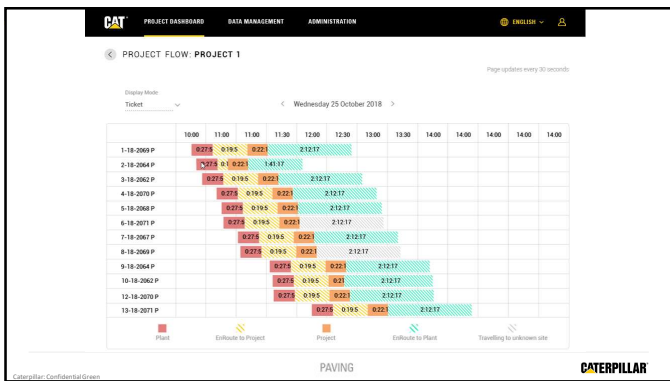




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**TICKETS** Page updates every 30 seconds Default View

Search: Add Filter 03/09/18 - 03/15/18 Create Report

Plant ID	Truck ID	Ticket Number	Ticket Date/Time	Net Weight (LST)	Project ID	Material ID	Customer ID	Action
BP Plant	CP007291	000007	03/15/18 17:00:00	18.55	G14520-350	8765432	ABC123	Void
BP Plant	CP007292	000006	03/15/18 17:00:00	19.4	G14520-350	8765432	ABC123	Voided
BP Plant	CP007293	000005	03/15/18 17:00:00	18.5	G14520-350	8765432	ABC123	Void
BP Plant	CP007294	000004	03/15/18 17:00:00	18.2	G14520-350	8765432	ABC123	Voided
BP Plant	CP007295	000003	03/15/18 17:00:00	18.95	G14520-350	8765432	ABC123	Void
BP Plant	CP007296	000002	03/15/18 17:00:00	19.55	G14520-350	8765432	ABC123	Void
BP Plant	CP007297	000001	03/15/18 17:00:00	19.2	G14520-350	8765432	ABC123	--

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**CREATE REPORT**

Report Name: Acme Asphalt - EPC

**Schedule**

Start Date/Time: 06/15/2017 8:00 AM Frequency: Monthly Repeat Every (Months): 3

Months: All Months End Date/Time: 03/15/2018 8:00 AM

**Advanced Settings**

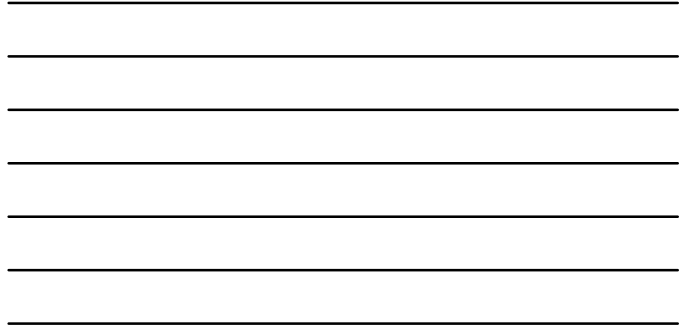
Report every (Hours): 2 For a duration of (Hours): 5

Subscribed Emails: john.doe@gmail.com, jane.doe@gmail.com

Cancel Save

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**TICKETS** Page updates every 30 seconds Default View

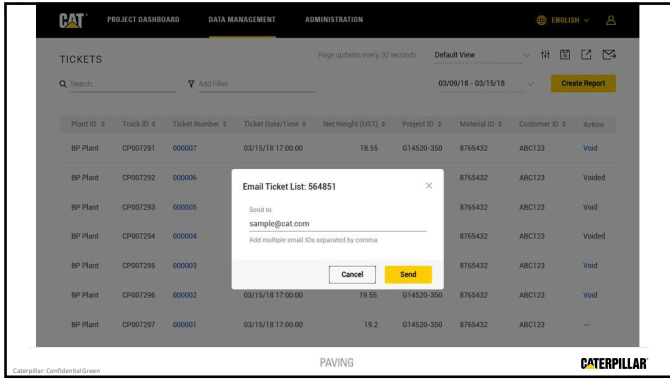
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BP Plant	CP007294	000004	03/15/18 17:00:00	18.2	G14520-350	8765432	ABC123	Voided
BP Plant	CP007295	000003	03/15/18 17:00:00	18.95	G14520-350	8765432	ABC123	Void
BP Plant	CP007296	000002	03/15/18 17:00:00	19.55	G14520-350	8765432	ABC123	Void
BP Plant	CP007297	000001	03/15/18 17:00:00	19.2	G14520-350	8765432	ABC123	--

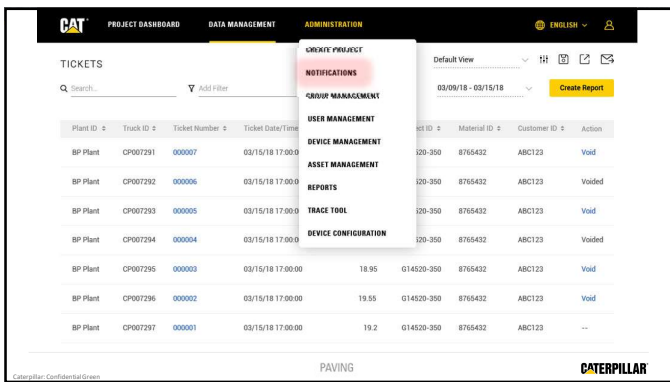
CATERPILLAR

51

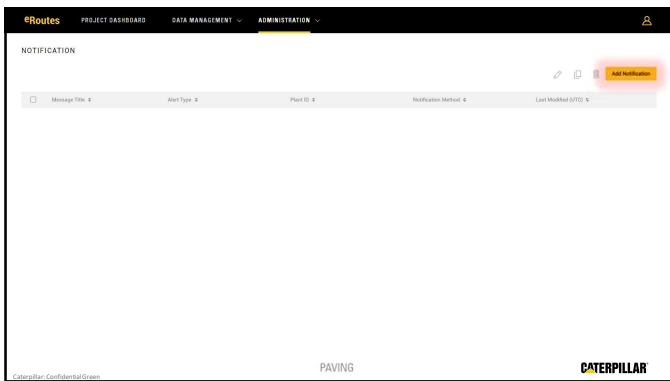
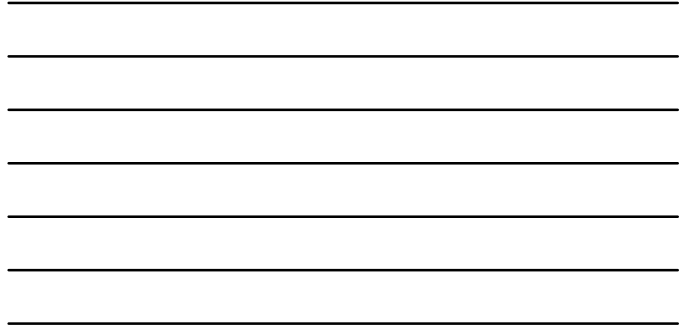




52

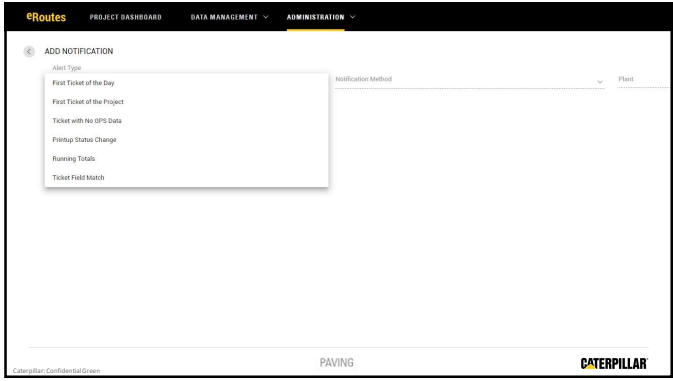


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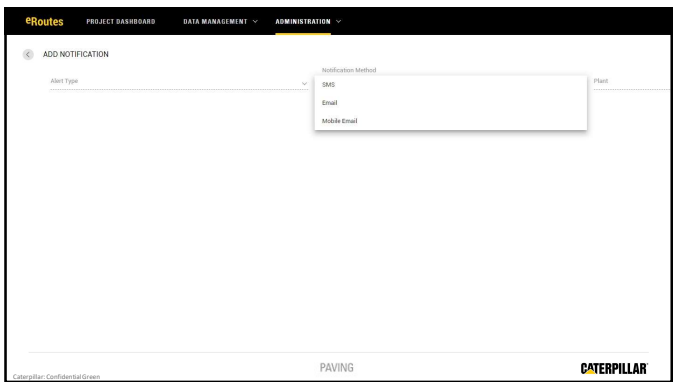
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**WHY eROUTES**

<p><b>QUICKLY SEE THE WHOLE PROCESS</b></p> <ul style="list-style-type: none"> <li>Merge paver/truck/ticket data into realtime information             <ul style="list-style-type: none"> <li>Cycle times/waiting times per job/truck/plant</li> <li>Tons loaded, in-transit, and paved</li> </ul> </li> </ul>	<p><b>HELP ELIMINATE PAVER STOPS</b></p> <ul style="list-style-type: none"> <li>Your bonus depends on it!</li> <li>Balance laydown and delivery</li> </ul>
<p><b>DRIVER PERFORMANCE COMPARISON</b></p> <ul style="list-style-type: none"> <li>Hire trucks/Company trucks? (Performance you expect?)</li> <li>"Where are my trucks!" (mystery solved!!)</li> </ul>	<p><b>BALANCE PLANT PRODUCTION FOR MULTIPLE CREWS</b></p> <ul style="list-style-type: none"> <li>The right mix produced at the right time</li> <li>Reduce plant wait times</li> </ul>

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