



## Work Zone Safety – Intrusion Mitigation

*Lee Cole VP EHS  
CRH Americas Materials  
Lee.Cole@na.crh.com*

*Curt Davison  
Director of AWARE  
(407) 353-1140  
cbdavison@oldcastlematerials.com*





# Americas Materials

Locations 1,500+

Employees 28,000+

## Headquarters:

### Oldcastle Materials, Inc.

900 Ashwood Parkway

Suite 700

Atlanta, GA 30338

Phone: (770) 522-5600

## FACILITY

- Aggregates (605)
- Asphalt (441)
- ▲ Ready Mix (351)
- ★ Aggregate Terminals (56)
- ★ Liquid Asphalt Terminals (10)
- ◆ Cement (20)

## DIVISION

- West
- Central
- North
- South
- Canada

## Product Position

Asphalt No. 1

RMC No. 1 - 2

Aggregates No. 2

AWAIRE



CRH

# Americas Materials



How you know Us.....



What's the risk?



What's the risk?





You can control  
this risk !

How?

AWAIRE

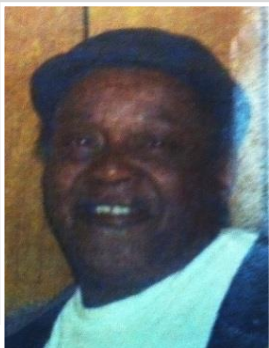


# The Journey begins.....

## The **STATS**:

- According to the National Highway Traffic Safety Administration (NHTSA), 80% of accidents and 60% of highway deaths are the result of distracted drivers.
- Vehicle Intrusions are the leading cause of worker fatalities with the road construction industry.
- These are the primary reasons for our journey.

**Frank**



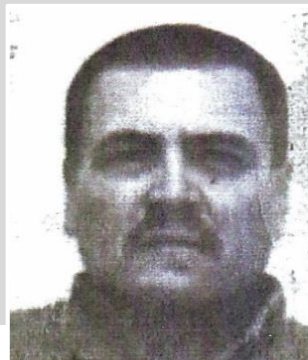
**Bubba**



**Marshall**



**Ronaldo**



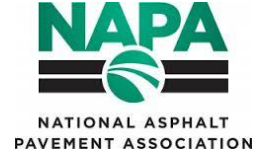
**Chet**



**AWARE**



# Mitigating the Risk



## ⚡ National Efforts

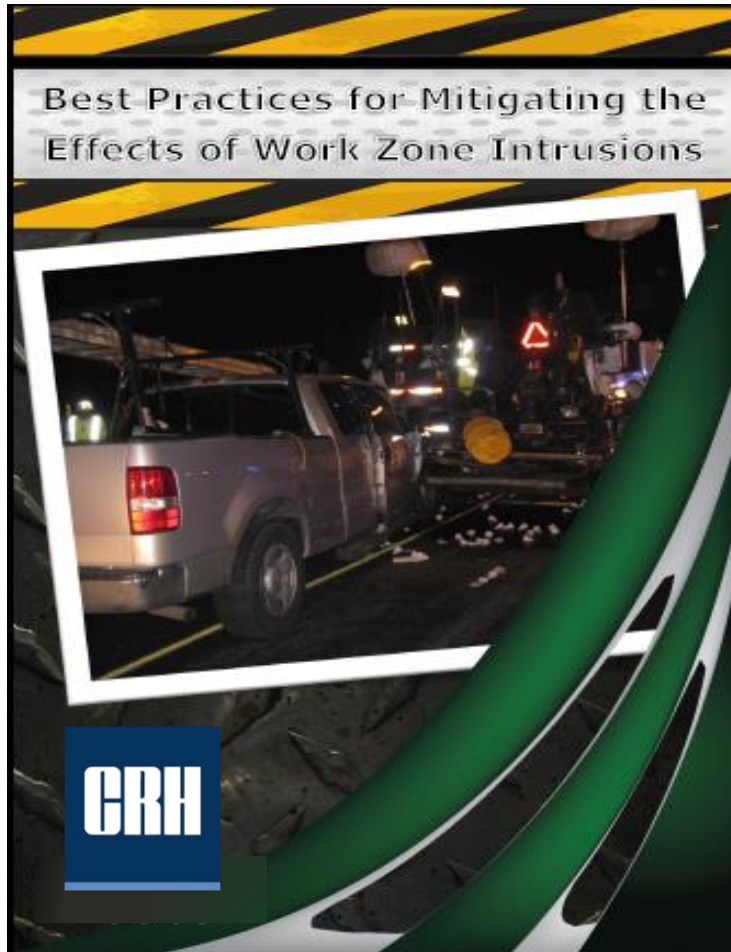
- ⚡ Legislation
- ⚡ Public Education
- ⚡ Trade Associations

## ⚡ Local Efforts

- ⚡ Training
- ⚡ Innovation
- ⚡ State associations and DOT's
- ⚡ **Compliance (only?)**
- ⚡ **Best Practices**







# Beyond Compliance

- ⚠ Management – Traffic Control Supervisors, Local Management Engagement, DOT Partnering
- ⚠ Risk Assessment – Job site/equipment evaluation, Pre-shift/Pre-task crew meetings
- ⚠ Safe Work Practices –Personal positioning, equipment staging
- ⚠ Personal Protective Equipment (PPE)- Hard hat, High-vis apparel, Illumination
- ⚠ Equipment for Intrusion Prevention – attenuators, work zone lighting
- ⚠ Maintenance of Traffic -Manual on Uniform Temporary Traffic Control (MUTCD), Internal Traffic Control Plan
- ⚠ Beyond Compliance – temporary rumble strips, law enforcement, safety signage

# Something was missing –

## we were still losing family members

We found out that “***Best Practices***” were not enough. we had to think outside the box.....

Frank



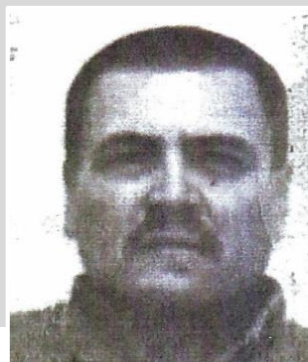
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**AWARE**



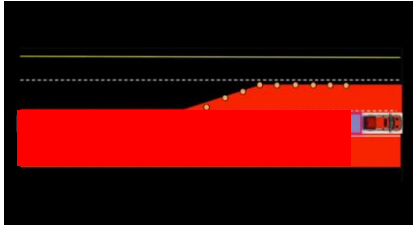
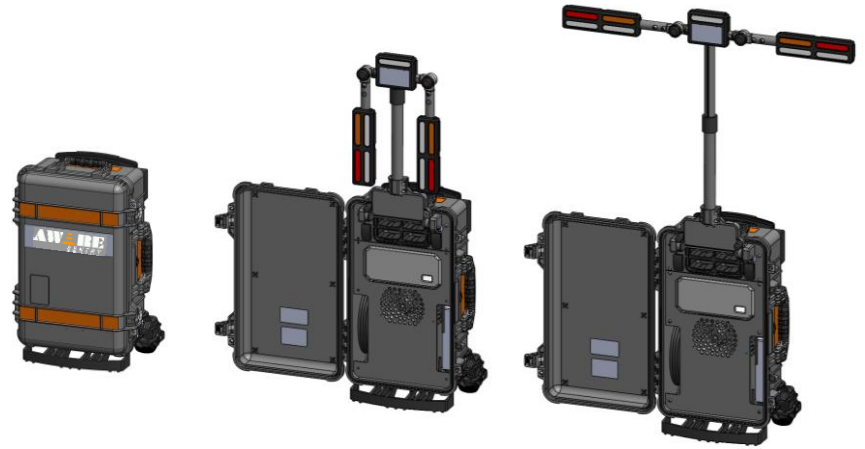


# AWARE



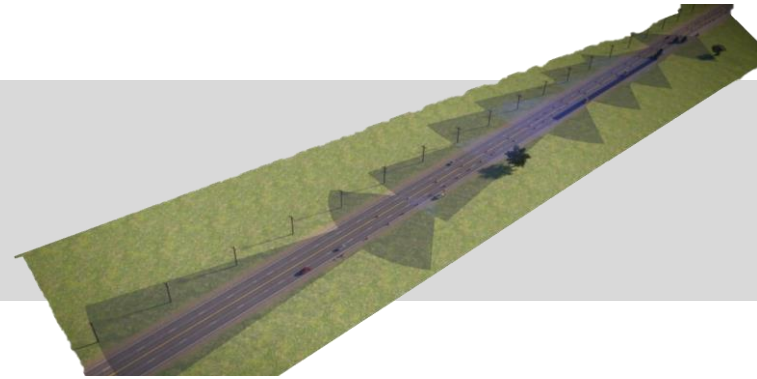
# 3 Basic Applications

🚧 **Stationary Situation** – Flagging Station, Maintenance Crews, Lone Worker



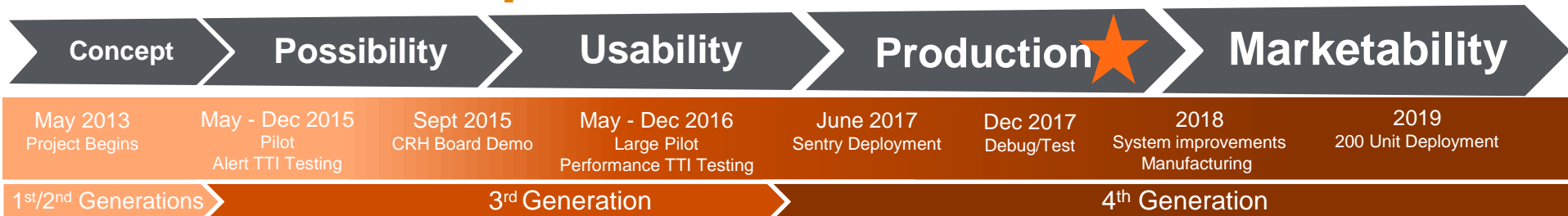
🚧 **Merge** – MOT (cone) Trucks, Striping Operations, Sweeping Operations, Road Rangers, School Buses

🚧 **Active Work Zones** – Paving, Milling, or Construction Operations within (non-protected) lane closure





# AWARE Road Map



## Tested in 14 States / 40 Crews

- ⚠ System Works
- ⚠ Lessons Learned
- ⚠ Needs to be easy to use/install
- ⚠ Needs to provide feedback



The AWARE logo, with the word "AWARE" in white capital letters. The letter "A" is stylized with a yellow and orange traffic cone shape integrated into its structure.



# Lane Intrusion Detection

*NY Thruway*



2016-07-16 07:27:38  
1468654058.886191



# AWARE SENTRY (Flagger Cart)

## Muscle Shoals, Alabama



Alert

Total
2

Total Lights or Siren

2
---

Radar

Oncoming Track Count

776
-----

Footpedal

Is Pressed?

True
------

Settings

Heading: 152.0

Map

402.22 mph  
6583.11 ft

273.22 mph  
431.00 ft

Video

# AWARE SENTRY

- ⚡ Lighten the Weight (>50lbs)
- ⚡ Increase light height and visibility
- ⚡ Smaller more portable case
- ⚡ Quick easy Set Up
- ⚡ 15 Hours Battery Life



Proof of Concept



Prototype

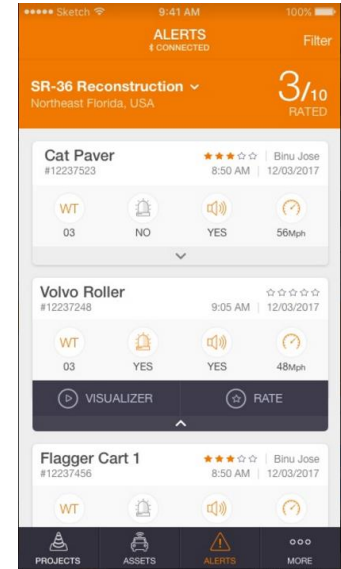
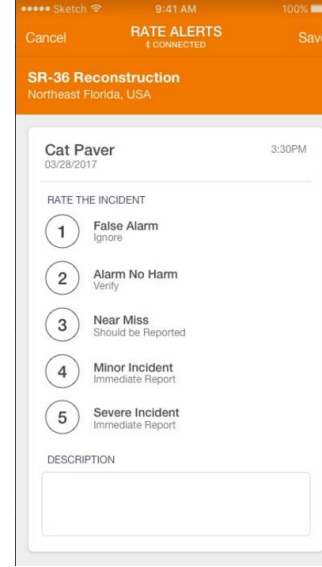
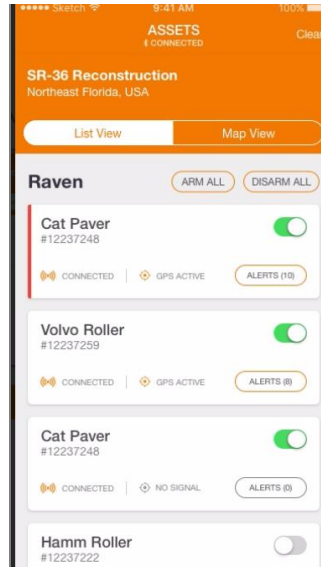
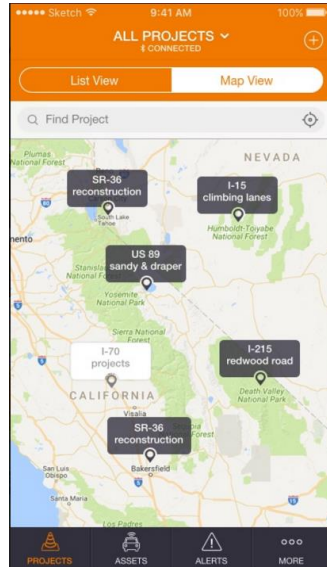
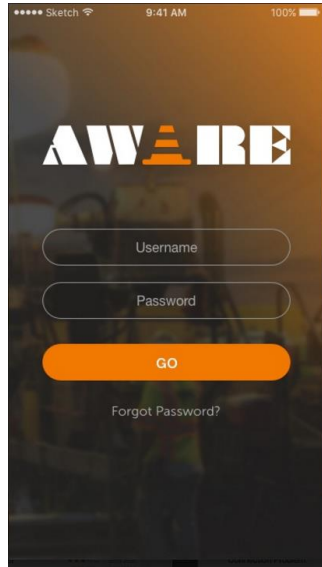
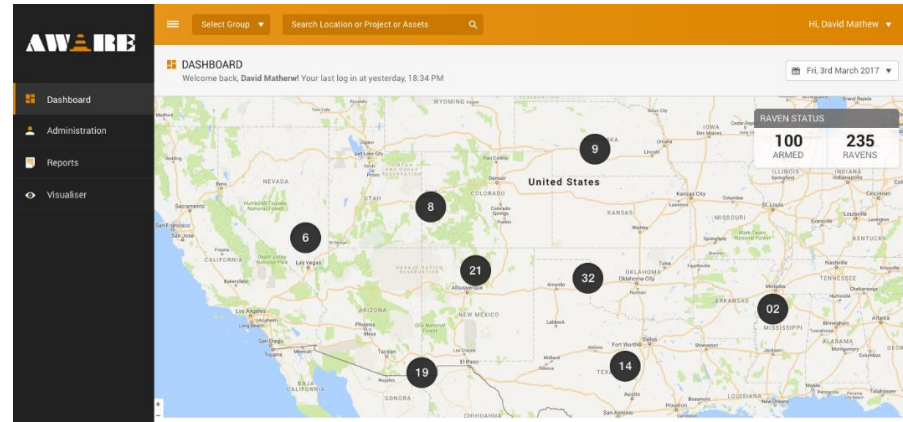


New SENTRY

# AWARE BASE STATION

## Mobile, Web App & Database

- Easy log in and UI on iOS or Android phone or tablet
- Real Time Event Data and Alerts
- Easy event rating
- Near time visualizations tools
- Performance Metrics and Protected Zone Overview
- Mapping with Status and location updates





# Next Steps

- Final Testing
- Broader Oldcastle Deployment
- Sentry Unit Crash Testing
- MnDOT Lane Intrusion Pilot
- Colorado DOT Specifications
- 2020 Product Launch



*Brigham City, UT I-15*

**For more information:  
Curtis Davison  
Director of AWARE  
(407)353-1140  
cbdavison@crh.na.com**

**Thank you!**

**AWARE**

