Locations 1,500+
Employees 28,000+

<table>
<thead>
<tr>
<th>Product</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>No. 1</td>
</tr>
<tr>
<td>RMC</td>
<td>No. 1</td>
</tr>
<tr>
<td>Aggregates</td>
<td>No. 1</td>
</tr>
</tbody>
</table>
National Efforts
- Legislation
- Public Education
- Trade Associations

Local Efforts
- Compliance
- Training
- Innovation
- State associations and DOT’s
- Best Practices
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-visibility 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

http://www.workzonesafety.org/data-resources/wz-intrusion-prevention/
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. In 2013, there were 67,523 crashes in work zones. In 2014, there were 669 fatalities from crashes in work zones.
4!Cbt jd!Bqqjdbujpot

- **Tubypobsz!Tju$bypof** - Flagging Station, Maintenance Crews, Lone Worker

- **Nfshf!** - MOT (cone) Trucks, Striping Operations, Sweeping Operations, Road Rangers, School Buses

- **Bdjw!X psl ![ poft !** - Paving, Milling, or Construction Operations within (non-protected) lane closure
**Tested in 14 States / 40 Crews**

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

<table>
<thead>
<tr>
<th>Concept</th>
<th>Possibility</th>
<th>Usability</th>
<th>Production</th>
<th>Marketability</th>
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</thead>
<tbody>
<tr>
<td>May 2013</td>
<td>May - Dec 2015</td>
<td>Sept 2015</td>
<td>May - Dec 2016</td>
<td>June 2017</td>
</tr>
<tr>
<td>Project Begins</td>
<td>Pilot</td>
<td>CRH Board Demo</td>
<td>Large Pilot</td>
<td>Sentry Deployment</td>
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<tr>
<td></td>
<td>Alert TTI Testing</td>
<td></td>
<td>Performance</td>
<td></td>
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<td></td>
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<td>TTI Testing</td>
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<tr>
<td>1st/2nd Generations</td>
<td>3rd Generation</td>
<td></td>
<td></td>
<td>4th Generation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2018 System improvements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Manufacturing</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>2019 200 Unit Deployment</td>
</tr>
</tbody>
</table>

**1st/2nd Generations**
- May - Dec 2015
- Pilot Alert TTI Testing

**3rd Generation**
- May - Dec 2016
- Large Pilot Performance TTI Testing

**4th Generation**
- June 2017
- Sentry Deployment
- Dec 2017
- Debug/Test

**2018**
- System improvements Manufacturing

**2019**
- 200 Unit Deployment

**2018**
- System improvements Manufacturing

**2019**
- 200 Unit Deployment

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**Texas A&M Transportation Institute**

**Aware**

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**CRH**
NY Thruway Lane
Introduction
Detection

Mbif!
Jnuvt jpo!
Ef uf dyjpo

OZ!Ui svx bz!!

2016-07-16 07:27:38
1468654058.886191
**Proof of Concept**

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

**Prototype**

**New SENTRY**
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
Thank you!

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cbdavison@crh.na.com