

# **Aviation, Boots and the Nevada Plan**

## **Changing the Paradigm in Rail Public Safety**



**Presented by  
Rich Gent**

**State Director, Nevada Operation Lifesaver  
Founder, Hot Rail LLC and Rail Aware  
Washoe County Sheriff's Office Volunteer**

O

# This is where we need to be (Suicides)

## 2016

Selections: Railroad - ALL / State - Nevada  
Time Frame - From 2016 To 2018

Month	Fatalities	Injuries
July	1	0
September	1	0
October	1	0
All	3	0

## 2017

Selections: Railroad - ALL / State - Nevada  
Time Frame - From 2016 To 2018

Month	Fatalities	Injuries
July	0	1
All	0	1

## 2018

Selections: Railroad - ALL / State - Nevada  
Time Frame - From 2016 To 2018

Month	Fatalities	Injuries
January	1	0
All	1	0

# This is where we need to be (Suicides)

**2016**

Selections: Railroad - ALL / State - Nevada  
Time Frame - From 2016 To 2018

Month	Fatalities	Injuries
July	1	0
September	1	0
October	1	0
All	3	0

**2017**

Selections: Railroad - ALL / State - Nevada  
Time Frame - From 2016 To 2018

Month	Fatalities	Injuries
July	0	1
All	0	1

**2018**

Selections: Railroad - ALL / State - Nevada  
Time Frame - From 2016 To 2018

Month	Fatalities	Injuries
January	1	0
All	1	0

# This is where we need to be (trespassers)

## **TRESPASSER CASUALTIES (DEATHS AND INJURIES) ( By CALENDAR YEAR (January-December) ) (EXCLUDES HIGHWAY-RAIL INCIDENTS)**

Selections: Railroad - All Railroads  
State - NEVADA County - WASHOE  
All Regions  
All Job Types / All Locations / All Casualties  
CALENDAR YEAR (January-December) 2018

Last Database Reported Month/Year=5/2018

Railroad	Pct of Total	Total CY Counts			Month To Month Counts Jan - Dec		% Change Over Time		
		CY 2015	CY 2016	CY 2017	CY 2017	CY 2018	CY 2015 to CY 2017	CY 2016 to CY 2017	Month To Month % Change CY 2017 to CY 2018
GRAND TOTAL....	100.0	1	3	1	1	1	.	-66.7	.
UP Union Pacific RR Co. [UP]	100.0	1	3	1	1	1	.	-66.7	.



# This is where we need to be (trespassers)

## **TRESPASSER CASUALTIES (DEATHS AND INJURIES) ( By CALENDAR YEAR (January-December) ) (EXCLUDES HIGHWAY-RAIL INCIDENTS)**

Selections: Railroad - All Railroads  
State - NEVADA County - WASHOE  
All Regions  
All Job Types / All Locations / All Casualties  
CALENDAR YEAR (January-December) 2018

Last Database Reported Month/Year=5/2018

Railroad	Pct of Total	Total CY Counts			Month To Month Counts Jan - Dec		% Change Over Time		
		CY 2015	CY 2016	CY 2017	CY 2017	CY 2018	CY 2015 to CY 2017	CY 2016 to CY 2017	Month To Month % Change CY 2017 to CY 2018
GRAND TOTAL....	100.0	1	3	1	1	1	.	-66.7	.
UP Union Pacific RR Co. [UP]	100.0	1	3	1	1	1	.	-66.7	.

# Just the facts

## Operation Lifesaver shares 2017 Rail Safety Week report, announces joint U.S.-Canada effort in 2018

BY OPERATION LIFESAVER 2-08-2018

[SHARE STORY](#) [PRINT STORY](#)

WASHINGTON, DC, February 8, 2018 - **Operation Lifesaver, Inc. (OLI)**, the national, nonprofit rail safety education group, today reported that messages about crossing safety and trespass prevention reached millions of Americans, generating more than 270 million impressions via news media coverage and social media advertising surrounding the first **U.S. Rail Safety Week (RSW)** held September 24-30, 2017.

OLI Interim President **Wende Corcoran** also announced that this year, Rail Safety Week will be observed by Operation Lifesaver programs and partners in the U.S. and Canada from **September 23 to 29**.



October	46	October	50
November	49	November	45
December	48	December	31

Fatalities/injuries

### Education Reach Overview:

In 2015, Operation Lifesaver reached **2.5 million** people directly via **22,000** safety presentations, **402** training sessions and **921** special events conducted by state programs nationwide.

### Education Reach Overview:

In 2016, Operation Lifesaver reached **1.6 million** people directly via **19,552** safety presentations, **324** training sessions and **1,386** special events conducted by state programs nationwide.

In addition, **7,053 CDL drivers** and **4,366 school bus drivers** were exposed to Operation Lifesaver's online e-Learning safety programs in 2016.

ABOUT US •

## NEWS&EVENTS

Operation Lifesaver, Inc. concerned by rise in 2017 crossing collisions, trespass incidents

BY OPERATION LIFESAVER 3-15-2018

[SHARE STORY](#) [PRINT STORY](#)

# How's it working

## TRESPASSER FATALITIES

### NOT AT HIGHWAY — RAIL CROSSING

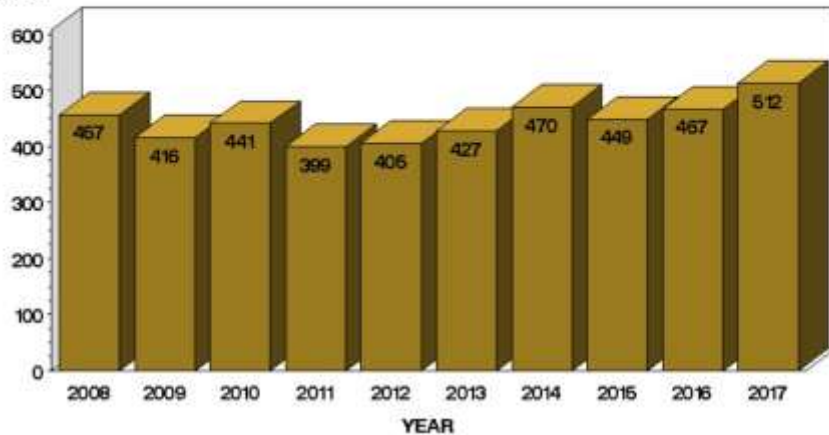
FOR ALL RAILROADS

ALL REGI ALL RAILROADS GROUPS ALL STATES ALL COUNTIES  
CALENDAR YEAR REPORT (January — December)

FOR January — December

Run Date: Tue, Sep 19, 2018

DEATHS



## TRESPASSER INJURIES

### NOT AT HIGHWAY — RAIL CROSSING

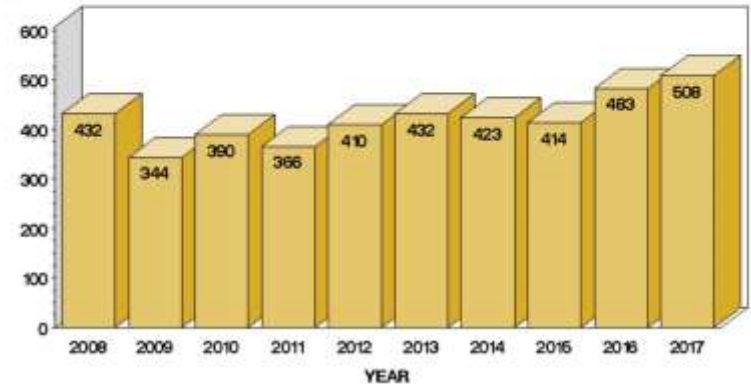
FOR ALL RAILROADS

ALL REGI ALL RAILROADS GROUPS ALL STATES ALL COUNTIES  
CALENDAR YEAR REPORT (January — December)

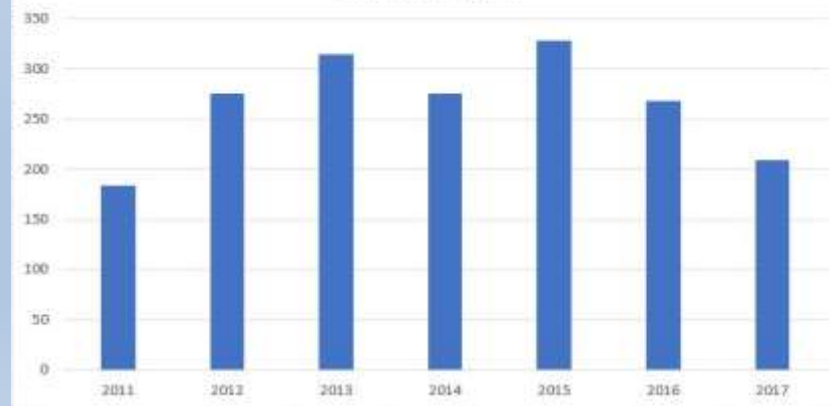
FOR January — December

Run Date: Tue, Sep 19, 2018

INJURIES



## Suicide Fatalities





- **“If you always do what you’ve always done, you always get what you’ve always gotten.”**

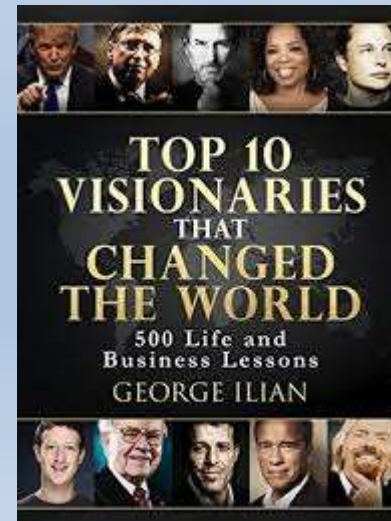
“Jessie Potter seventh annual Woman to Woman conference”

# Change the Paradigm



**If you want to change the  
world, start off by making  
your bed.**

William H. McRaven



# Why do they Trespass

# Why do they Trespass

- Don't know it's a law

# Why do they Trespass

- Don't know it's a law
- Don't think the law makes sense



# Why do they Trespass

- Don't know it's a law
- Don't think the law makes sense
- They think they can get away with it

# Why do they Trespass

- Don't know it's a law
- Don't think the law makes sense
- They think they can get away with it
- Convenience verses pain



# Who's been successful

- Seat belt laws; 25 years of advertising
- Many of the actions which MADD has taken are familiar. These include direct action/support for legislative changes among many other actions.

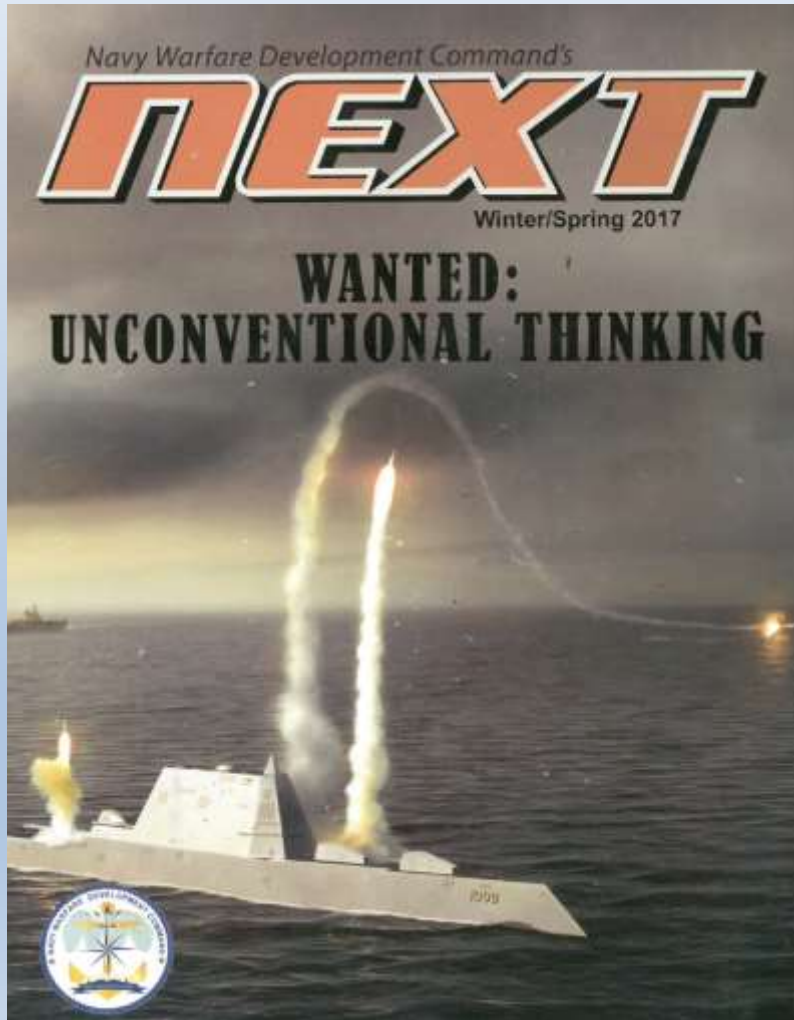
# “Wait a minute, I’m the victim”

Class One Railroad Public Safety Director





# The right way, the wrong way, and the Navy (military) way



“Development of radical ideas requires collaboration among people with diverse perspectives and skills.”

# A new approach to rail public safety



**Actual Sighting**



**Proof of Concept**

**Training &  
Development**



# A tool in tool box

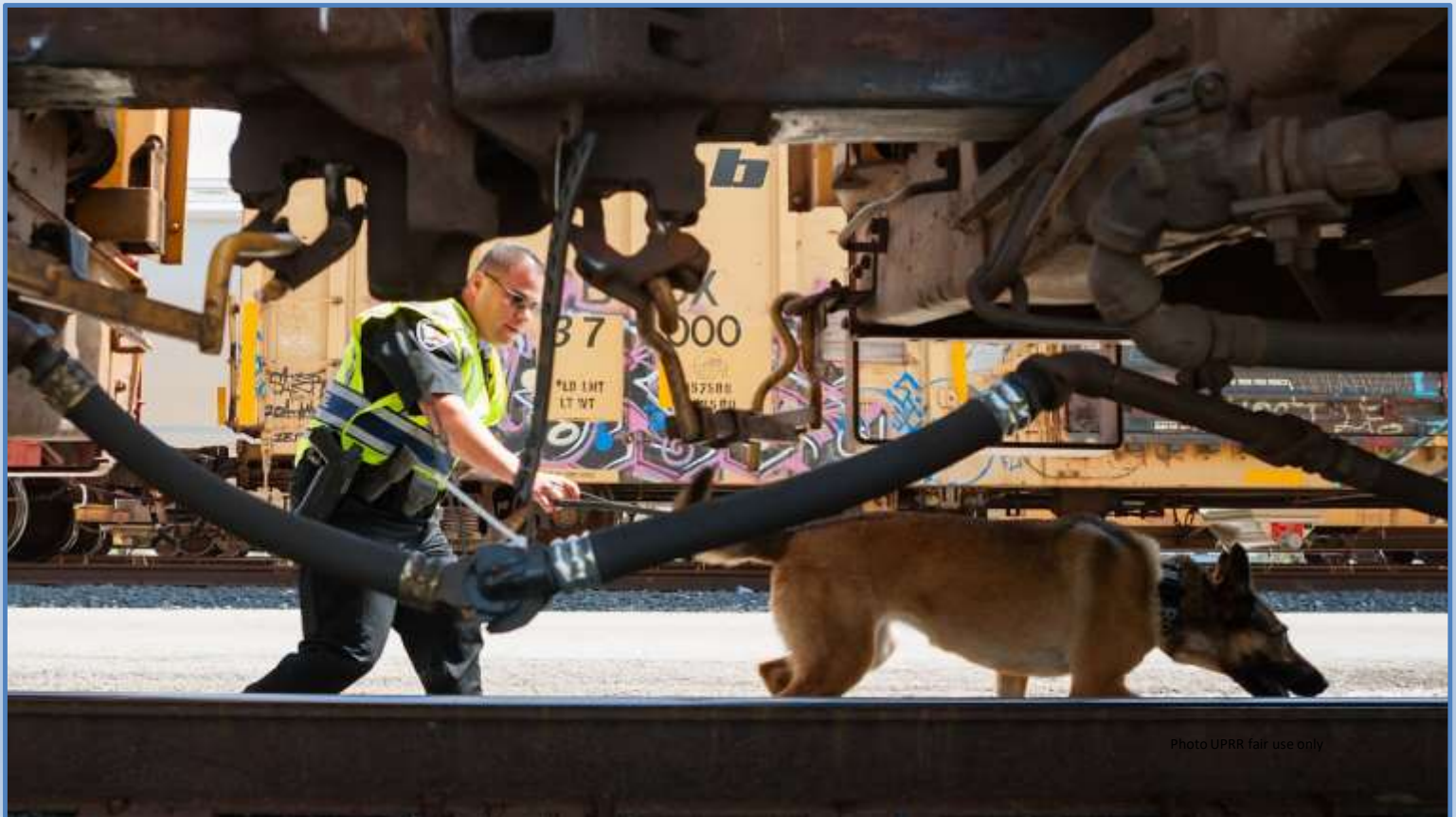


Photo UPRR fair use only



# A tool in tool box



# A tool in tool box





# Drone capabilities used to tailor trespass treatments

- Full-color nose camera
- Variable aperture camera (Like a TV camera)
- Infrared camera for low-light and night viewing
- Synthetic Aperture Radar (SAR) for seeing through low visibility
- Other “scientific sensors”



# Drone capabilities used to tailor trespass treatments

- Full-color nose camera

- **Why: for current geographical, topographical and sociocultural factors**

- Thermal for low-light and night viewing

- Synthetic Aperture Radar (SAR) for seeing through low visibility

- Other “scientific sensors”



NAR  
WHT  
RATE  
21/117  
1138  
10C

ACFT  
N 51' 30' 9.352"  
W 0' 0' 54.761"  
1,337 HAT

38

N 51' 30' 10.684"  
W 0' 0' 51.522"  
BRG 61  
RNG 5116m  
RNG 2,762 NM  
ELV 6224 F



NAR  
WHT  
RATE  
21/117  
1138  
10C

ACFT  
N 51' 30' 9.352"  
W 0' 0' 54.761"  
1,337 HAT

**Why: to see night time activities  
or hot spots on the ground**

38

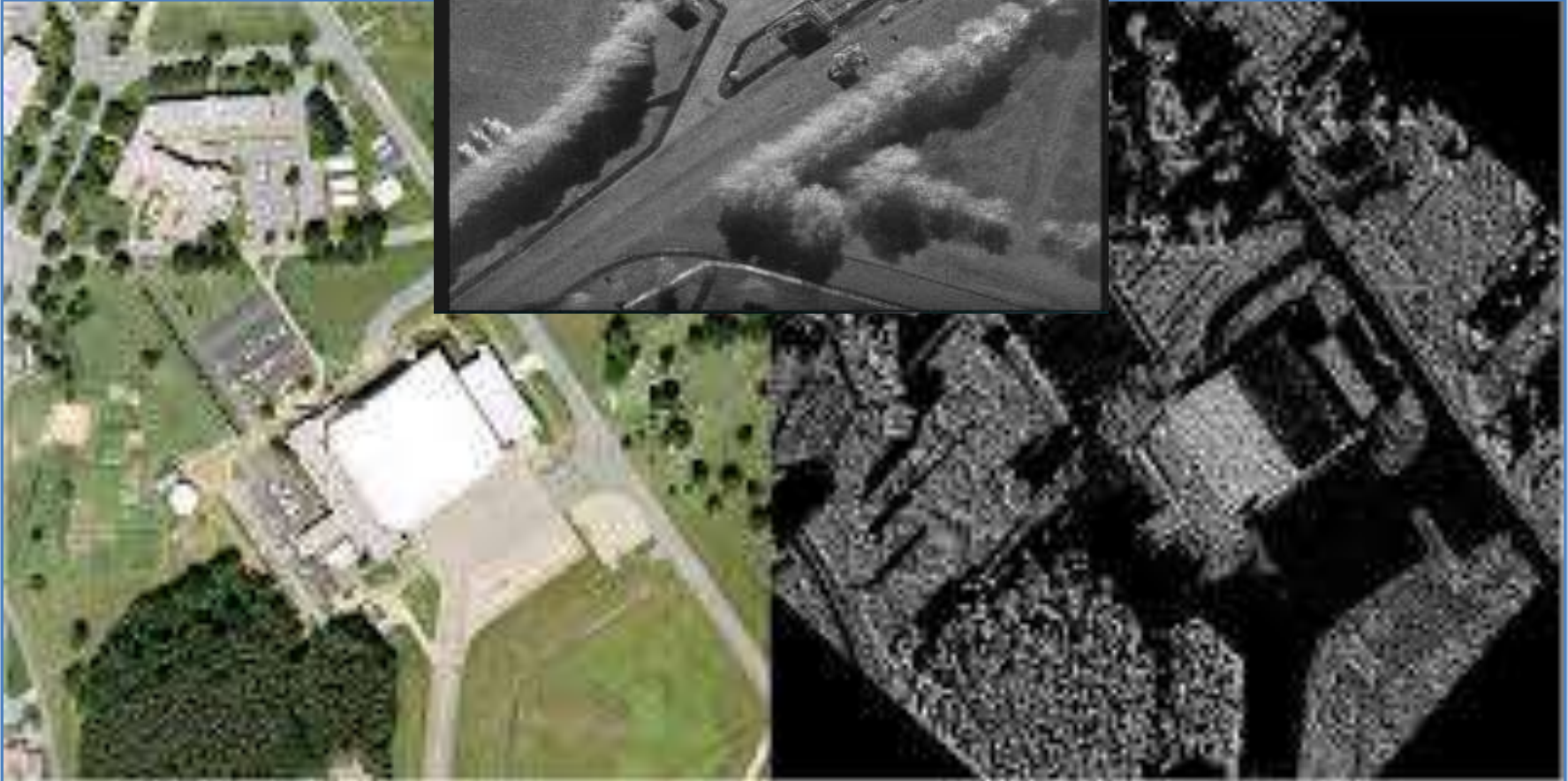
N 51' 30' 10.684"  
W 0' 0' 51.522"  
BRG 61  
RNG 5116m  
RNG 2,762 NM  
ELV 6224 F

# Synthetic Aperture Radar Imagery



Sandia Labs

LEIDOS, Inc





# Synthetic Aperture Radar Imagery



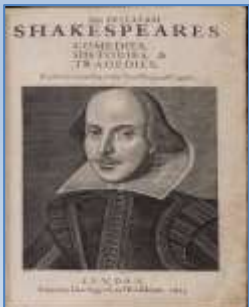
Sandia Labs

LEIDOS, Inc



# Other 50 pound head items

- **Hyper and Multi-spectral**
- **Two Color Multi-view**
- **Coherent Change Detection**
- **Light Detection and Ranging (LIDAR)**
- **Time Lapse Viewing**
- **Full Motion Video (FMV)**



# State Laws

(all over the place)

- FL/ID/IL/LA/NC/OR/TN/TX/WI Variety: from LE use to fishing
- ID/NC/TX/WI: “No” surveillance
- OR/TN: UAV trespass
- FEDS: FAA beyond our scope (NTIA) and coming soon: FTC
- Senate Bill SB 1272 (Feinstein D-CA) and 2 others
  - Drone Federalism Act of 2017
- Law Enforcement use: Public safety -v- evidence
- FAA Reauthorization Bill (FBI to track and down drones)

# State Laws

(all over the place)

- FL/ID/IL/LA/NC/OR/TN/TX/WI Variety: from LE use to fishing
- ID/NC/TX/WI: “No” surveillance
- OR/TN: UAV trespass
- FEDS: FAA beyond our scope (NTIA) and coming soon: FTC
- Senate Bill SB 1272 (Feinstein D-CA) and 2 others
  - Drone Federalism Act of 2017
- Law Enforcement use: Public safety -v- evidence
- FAA Reauthorization Bill (FBI to track and down drones)

# So.. What could go wrong??

**RailwayAge**



News Freight - Intermodal Passenger - Mechanical - M/W C&S Management Safety PTC

Monday, October 12, 2016

## **“New Drone Company” UAS team up to bring drones to the rail industry**

Written by Carolina Worrell, Managing Editor

The Digital Indago™ LE VTOL easily fits into a trunk and deploys in minutes to provide an aerial perspective of confined, crowded, or otherwise inaccessible areas. A key instrument for assessing volatile or potentially dangerous situations, enhancing responder safety, the Indago LE drone, which, can fly for up to 50 minutes and up to 500 feet high, is also ideal for scouting missions to capture imagery and developing training models, Volant UAS says.

# So.. What could go wrong??

RailwayAge



News Freight Intermodal Passenger Mechanical M/W C&S Management Safety PTC

Monday, October 05, 2015

## “New Drone Company” UAS team up to bring drones to the rail industry

Written by Carolina Worrell, Managing Editor

The Digital Indago™ LE VTOL easily fits into a trunk and deploys in minutes to provide an aerial perspective of confined, crowded, or otherwise inaccessible areas. A key instrument for assessing volatile or potentially dangerous situations, enhancing responder safety, the Indago LE drone, which, can fly for up to 50 minutes and up to 500 feet high, is also ideal for scouting missions to capture imagery and developing training models, Volant UAS says.

TECH DRONE

## Drone startup issued biggest fine ever for flying without permission

by Jonathan Vanian @JonathanVanian OCTOBER 6, 2015, 4:01 PM EDT

The FAA said on Tuesday that it's fining drone startup SkyPan International \$1.9 million for allegedly conducting 65 drone flights without the required authorization. It makes for the largest civil penalty ever by the FAA on a drone company, the administration said.



# So.. What could go wrong?

RailwayAge



News Freight Intermodal Passenger Mechanical M/W C&S Management Safety PTC

Monday, October 12, 2016

## “New Drone Company” UAS team up to bring drones to the rail industry

Written by Carolina Worrell, Managing Editor

The Digital Indago™ LE VTOL easily fits in confined, crowded, or otherwise in dangerous situations, enhance up to 500 feet high, is a Volant UAS says.

to provide an aerial perspective of or assessing volatile or potentially drone, which, can fly for up to 50 minutes and capture imagery and developing training models,

TECH DRONE

## Drone startup : fine mission ever for fly

by Jonathan Vanian @Jr

The FAA said on Tuesday that it's fining drone startup SkyPan International \$1.9 million for allegedly conducting 65 drone flights without the required authorization. It makes for the largest civil penalty ever by the FAA on a drone company, the administration said.

Watch a Rogue Drone Crash Into the Crowd at an MLB Game



# Fallon PD demos drones in rail trespass

[Fallon PD demos drones in rail trespass](#)

# Fallon PD demos drones in rail trespass

[Fallon PD demos drones in rail trespass](#)

# Near-Persistent Law Enforcement



 **Cole Miller**  
@ColeKOIN

Along Pacific Way in Kelso, this @UnionPacific train is stopped after police say a person was hit and killed on the tracks. No trespassing signs posted nearby, neighbors say they see people crossing daily #KOIN6News

4:43 PM - Sep 3, 2018

Rolling graffiti galleries frustrate rail companies, police



Tim Hynds, Sioux City Journal

• Local Law Enforcement is truly the key.

# Local Law Enforcement Issues

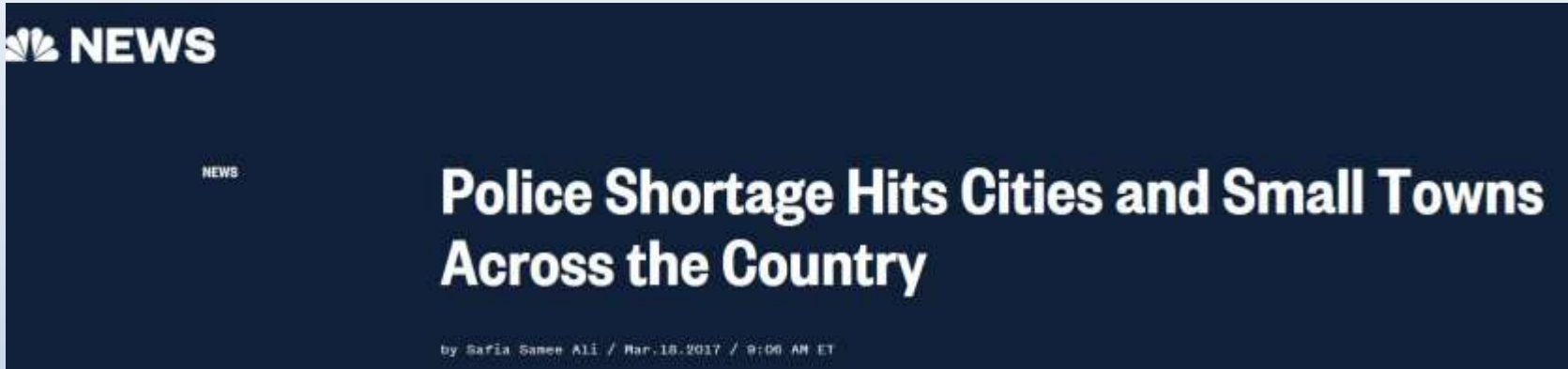
 **NEWS**

NEWS

## **Police Shortage Hits Cities and Small Towns Across the Country**

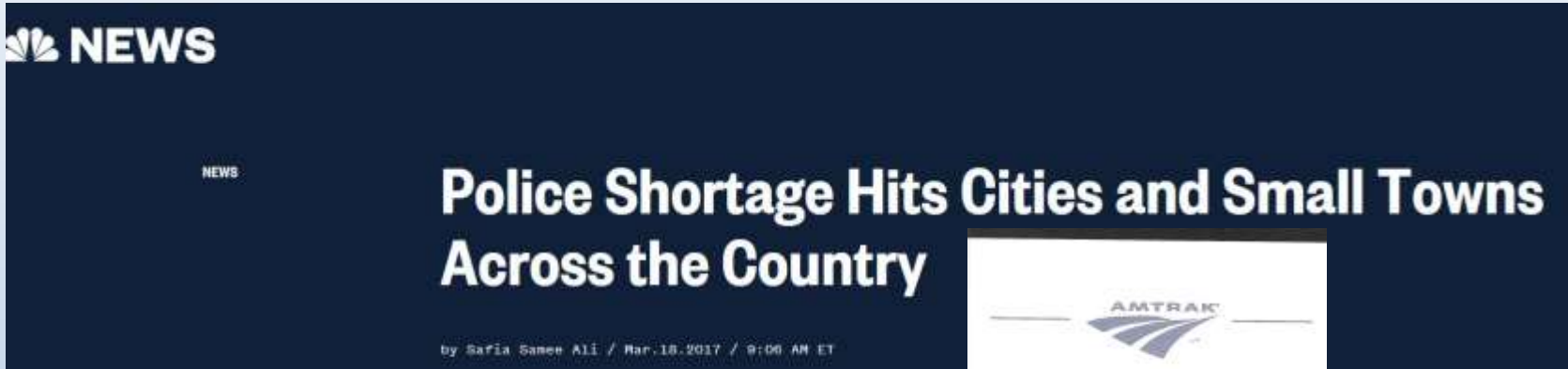
by Safia Samee Ali / Mar. 18, 2017 / 9:00 AM ET

# Local Law Enforcement Issues

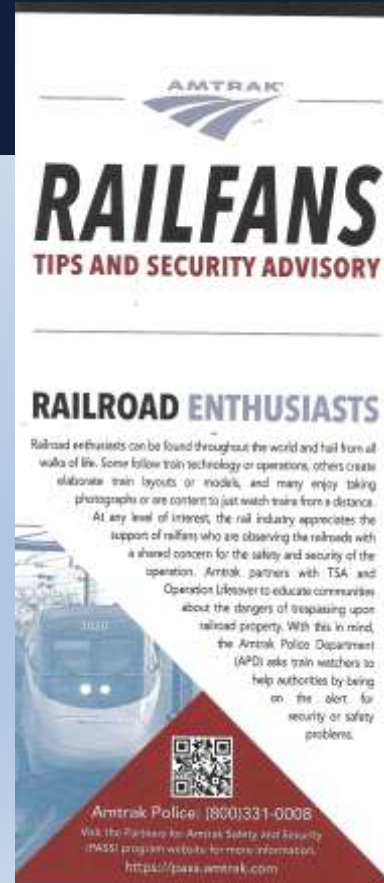


- Reduced Cops
- Reduced Funding
- Railroad, really?
- S4 campaigns

# Local Law Enforcement Issues



- Reduced Cops
- Reduced Funding
- Railroad, really?
- S4 campaigns



# An Enhanced Solution

- **Solution** (Rail Auxiliary Teams)  
VIPs/CERT/Neighborhood Watch
  - Background checked
  - Under LE Chain/Policies
- 8 hour course of rail specific training
  - Both ground and air specific
    - On-line training
    - Monthly Class and Field training
    - Practical Exercises

## RAIL AWARENESS PATROL TECHNIQUES and REPORTING (RAPTR)

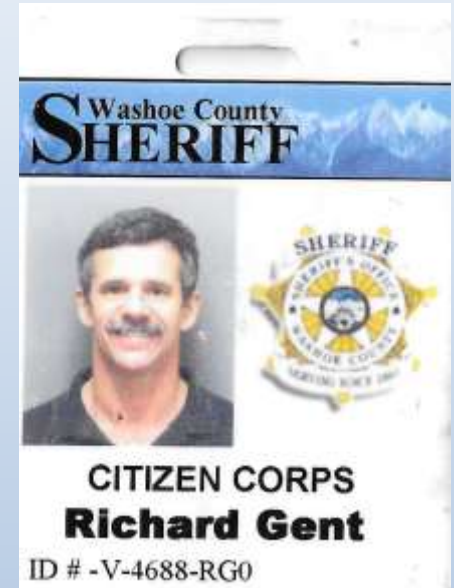


TRAINING HANDOUT FOR NOTES



# A Trained Force Multiplier

- Ground and Air
- Liaison with all State Entities
  - County Sheriff's
  - State Suicide Prevention Office
  - Sheriff's Raven Helicopter
  - Other State and private aviation units
  - State Fusion Centers
- What about the railroad?



- IPOE
- Trespass
  - Urban/Rural
- Suicide
- Criminal
  - (scrappers/taggers)
  - Terrorism
  - BOLO
- Equipment
- Environmental



# Use of Rail Auxiliary Teams and Aviation in Rail Safety and Security

**Ground Teams**



**Actual Sighting**



**Mission Planning**



**Train Crew Notified**





# Use of Rail Auxiliary Teams and Aviation in Rail Safety and Security

**Ground Teams**



**Actual Sighting**



**Mission Planning**



**Train Crew Notified**



O



Solve these problems

# Solve these problems

- Don't know it's a law

# Solve these problems

- Don't know it's a law
  - 1 educational voice

# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense



# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice

# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice
  - LE outreach/contact

# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice
  - LE outreach/contact
- Convenience verses pain

# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice
  - LE outreach/contact
- Convenience verses pain
  - Environmental obstacles

# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice
  - LE outreach/contact
- Convenience verses pain
  - Environmental obstacles
  - Near persistent law enforcement



# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice
  - LE outreach/contact
- Convenience verses pain
  - Environmental obstacles
  - Near persistent law enforcement
- They think they can get away with it

# Solve these problems

- Don't know it's a law
  - 1 educational voice
- Don't think the law makes sense
  - 1 educational voice
  - LE outreach/contact
- Convenience verses pain
  - Environmental obstacles
  - Near persistent law enforcement
- They think they can get away with it
  - Near persistent law enforcement

# The Future



# The Future

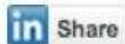


# The Future

## Farnborough 2018: PHASA 35 Solar Electric High Altitude Long Endurance HALE UAV

Patrick Allen, Jane's Correspondent

31 July 2018



Farnborough 2018: PHASA 35 Solar Electric High Altitude Long Endurance HALE...





# The Future

## Farnborough 2018: PHASA 35 Solar Electric High Alt

Patric

31 July

f Sh

Farn



# The Future

Earnborough 2018: PHASA 35 Solar Electric High





# QUESTIONS

[rich@hotrailgroup.com](mailto:rich@hotrailgroup.com)

775-867-3803