



**Session #8: Video Telematics for Improved Safety,
Coaching, and More**

June 24, 2021





Sessions through December 09, 2021



Sessions September 09, 2021 – October 14, 2021

<https://www.sustainablefleetexpo.com/>



Upcoming Sessions

- **July 15, 2021: Fleet Electrification Planning**
- **July 29, 2021: Real World EV Durability, Long Term Maintenance and Operating Cases**
- **August 19, 2021: Telematics and Telematics Provider Selection**
- **August 26, 2021: Green Fleet Award Winners Announcement 2021**





Applications now open. Submission deadline is July 22, 2021.

Information: <https://www.nafa.org/Awards/Awards/Green-Fleet-Awards.aspx>

Application: <https://awards.nafa.org/>



NAFA 2021 INSTITUTE & EXPO

AUG 30-SEPT 1 | PITTSBURGH

Search: NAFA I&E or go to
<https://www.nafainstitute.org/home.aspx>



2021 SFT Webinar Series Sponsors



Format

- Q&A at the end
- Submit questions and comments to “Panelists”
- Scheduled for 2:00p-3:00p
- Handout
- Recording



Video Telematics for Improved Safety, Coaching, and More

June 24, 2021

2:00-2:05 **Rick Sapienza, NCCETC**--Introduction and Welcome

2:05-2:20 **Soumik Ukil, Light Metrics**—Overview, Preparing for World Where Video is the New GPS

2:20-2:30 **Brad Salazar, City & County of Denver CO**—Denver's Telematics and Video Utilization

2:30-2:40 **David Dunn, City of Orlando FL**—Orlando's Use and Expansion of Video

2:40-2:50 **Andrew Rybak, Geotab**—Key Questions to Ask When Choosing a Video Telematics Solution

2:50-3:00 **Q&A**





North Carolina State University
NC Clean Energy Technology Center
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Soumik Ukil
soumik@lightmetrics.co
312-361-3641

- CEO and co-founder of Light Metrics, AI based platform for advanced video telematics
- Deep experience in bringing AI-based solutions to market
- PHD University of Iowa



Video Telematics

Preparing for a world where video is the new GPS

Soumik Ukil
CEO, LightMetrics
06.24.2021



Outline

- Biggest problems fleets face today
- Video Telematics – a critical piece of the puzzle
- What is Video Telematics?
- Where we are headed

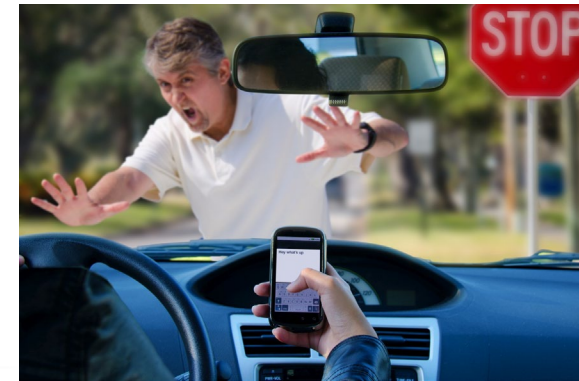
Biggest problems facing fleets today



Rising costs



Hiring and retaining drivers



Coaching drivers

Lawsuits and fraudulent claims



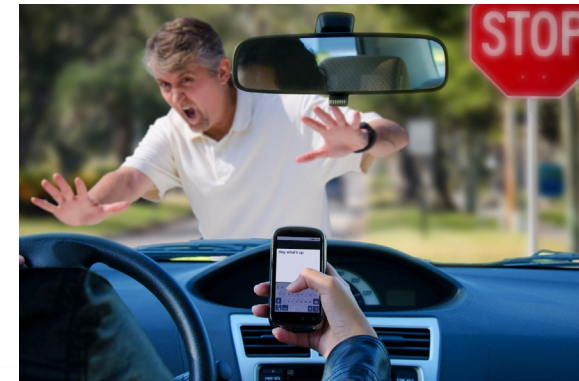
Video Telematics: A critical piece of puzzle



Hiring and retaining drivers



Rising costs

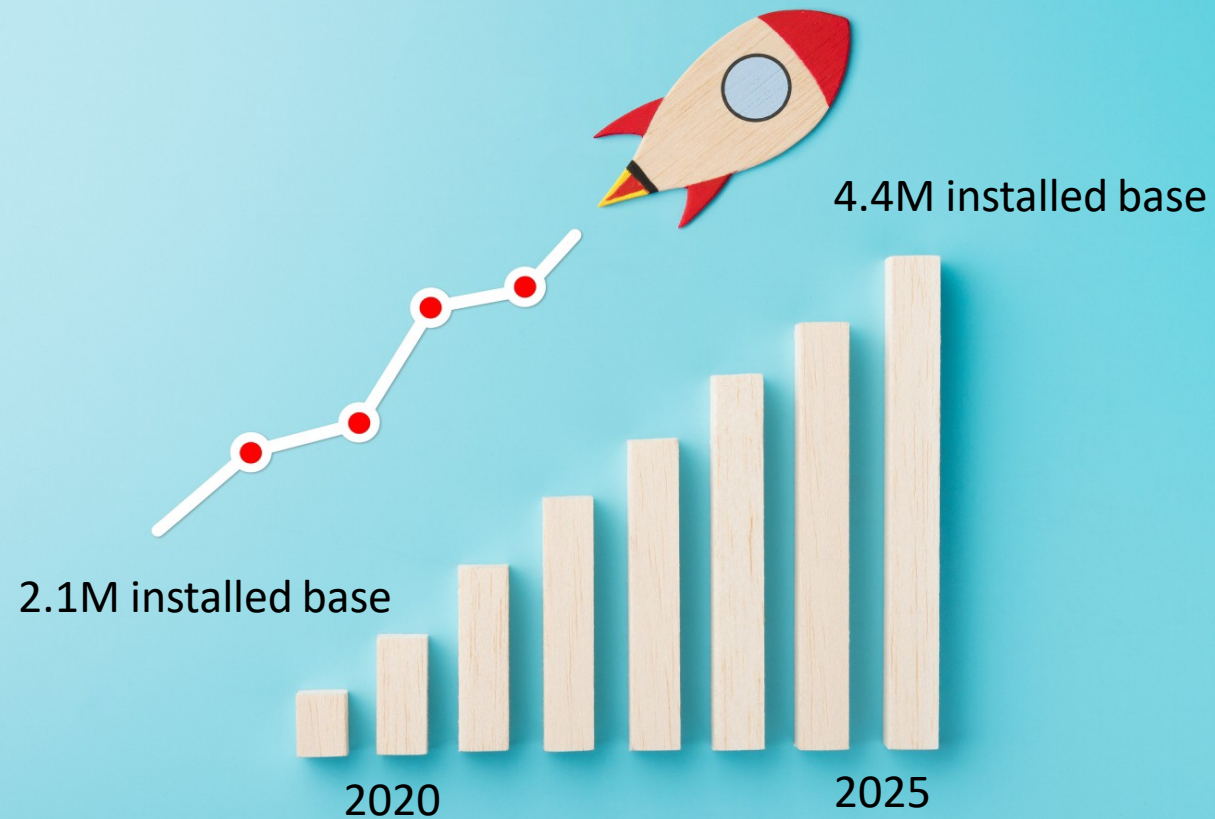


Coaching drivers

Lawsuits and fraudulent claims



Video Telematics – 16.2 % CAGR - NA



Video Telematics – why now?



LightMetrics Confidential



Lower hardware costs



Reduction in the cost of data



From reactive to proactive with AI



Fleets understand benefits better



Key driver of savings and efficiencies

What is Video Telematics?



Video telematics

- The combination of video and conventional telematics
- Traditional telematics -> Where an accident happened
- Video telematics -> What happened, who's at fault
- Video telematics with AI -> prevent accidents

Prevent fraudulent claims and lawsuits



Have evidence on your side

- No more *he said/she said*
- Faster claims processing
- Exonerate drivers and maintain reputation

Retain and engage drivers

Top Drivers

Name	Incidents / 100 miles	Distance (mi)
1148011	0	4,072.47
1148091	0	292.67
3758921	0	4,306.72
TEST	0	2,079.73
3758935	0	4,521.72
Items per page: 5 1 - 5 of 285 < < > >		

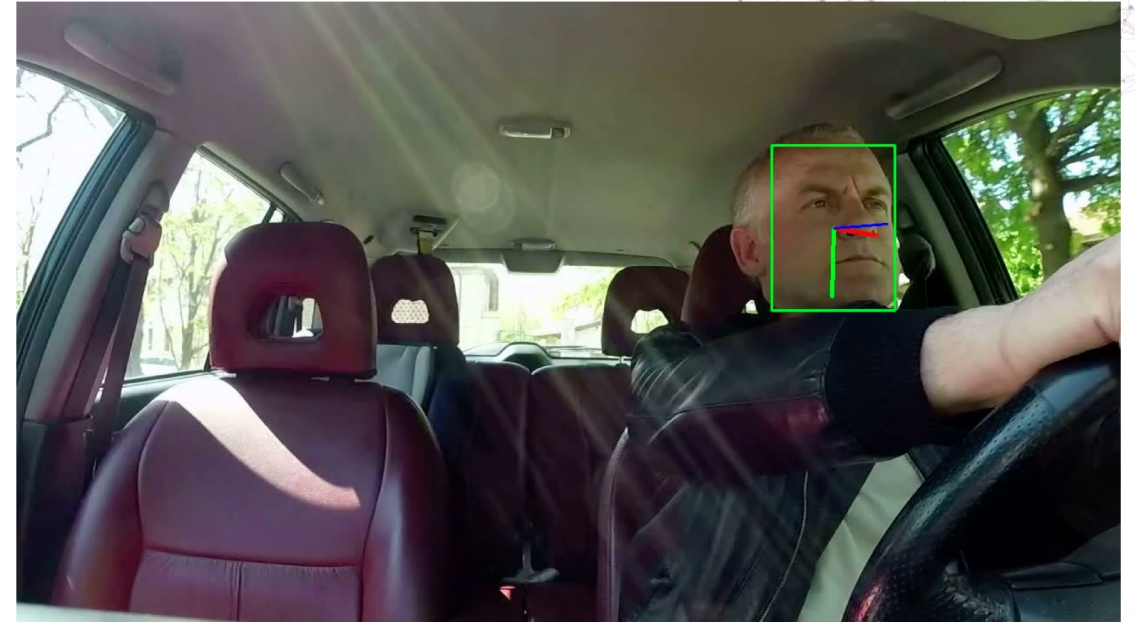
Require Coaching

Name	Incidents / 100 miles	Distance (mi)	Top Incident
10789399	33.35	683.51	Lane Drift
11344987	20.57	461.68	Speed Limit Violation
9374801	18.8	6,152.82	Lane Drift
10965421	18.36	3,022.35	Lane Drift
11268583	17.12	397.06	Speed Limit Violation
Items per page: 5 1 - 5 of 19 < < > >			

Engage and reward drivers with data and analytics

- Accurate scorecards based on AI
- Improve drivers with the help of actionable insights
- Create reward programs that drive engagement

Coach drivers effectively – in real-time



ADAS and DMS act as a virtual coaches in the cabin

- Real-time alerts provide immediate intervention
- Helps actively prevent accidents, not only do post-hoc analysis
- Develop a culture of safety, automatically

Coach drivers effectively – offline

Distracted Driving | 06/15/2021 10:03:00



2021-06-15 10:02:56 lat:12.899978 lon:77.520645 speed:83kmph

0:05 / 0:15

Add Tags and Comment

Tags Comment

Choose upto three tags only:

☒ Cellphone	☐ Collision	☐ Drinking/Eating
☐ No seatbelt	☐ Smoking	☐ Other

Cancel Save

Incident Details



2021-06-09 07:31:38 lat:12.899978 lon:77.568359 speed:2kmph

Distracted Driving HIGH

23/11/2020 13:55 PM

COMMENT

Please follow company policy on cellphone usage.

TAGS

Cellphone

Complete Coaching

Effective coaching that drives real improvements

- Use AI curated events as the focal point of coaching
- Enable the fleet manager to easily shortlist coachable instances
- Help drivers learn and provide feedback on the go

Where we are headed

- Wide-spread deployment across SMB and enterprise fleets
 - De-facto industry norm like **GPS** today
- **360 degree** smart views around the vehicle
 - Blind spot monitoring, backup cameras and more
- Gradual shift towards **direct OEM** installs
 - Vehicles pre-installed with video telematics
 - Deep integration of video with data from the vehicle bus and other sensor
- Insurers jump into the fray with **data-driven** incentives



Thank you!



Brad Salazar | Director of Fleet Management
 Department of Transportation & Infrastructure | City and County of Denver
 p: (720) 865-3905 | cell: (303) 513-6816
Brad.Salazar@denvergov.org

- 2021 #6 Award by 100 Best Fleets/NAFA
- 2020 Flexy Award Winner NAFA
- 2020 Elite Fleet Award Government Fleet GFX
- 2020 #17 Award by 100 Best Fleets/NAFA
- 2019 #1 Government Fleet Award GFX
- 2019 #4 Award by 100 Best Fleets/NAFA
- 2019 #9 Green Fleet by 100 Best Fleets/NAFA



Telematics Presentation

What will we be covering?

Current, Next Steps

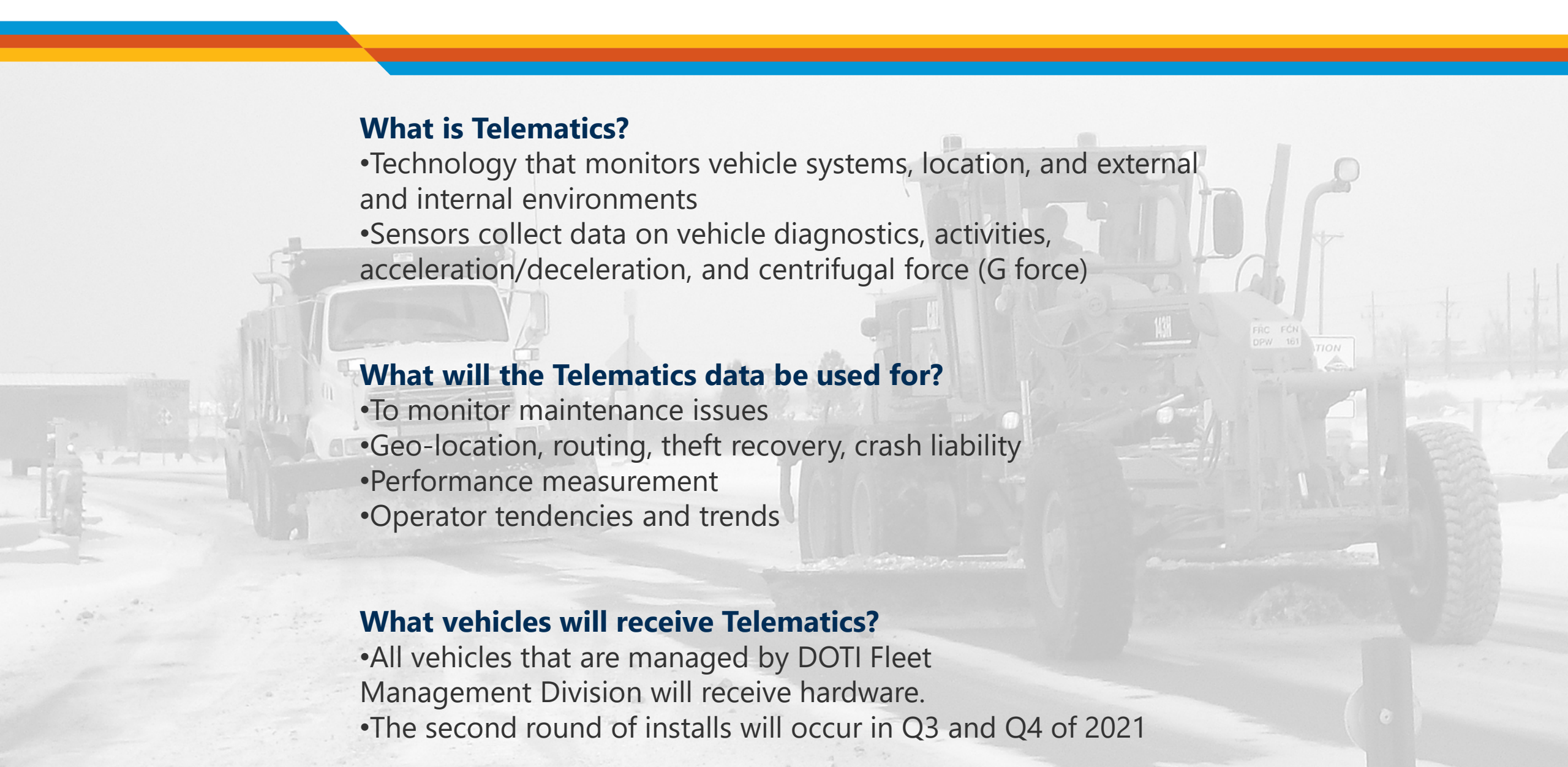
Using Data to drive decisions

Using Data to Deliver results

How this product will Improve the quality of life in Denver:

- Operator Safety
- Maintenance
- Operational Efficiencies
 - Routing
 - Snow Tracker
- Dash boards – EOC
 - Smart City
 - Vision Zero





What is Telematics?

- Technology that monitors vehicle systems, location, and external and internal environments
- Sensors collect data on vehicle diagnostics, activities, acceleration/deceleration, and centrifugal force (G force)

What will the Telematics data be used for?

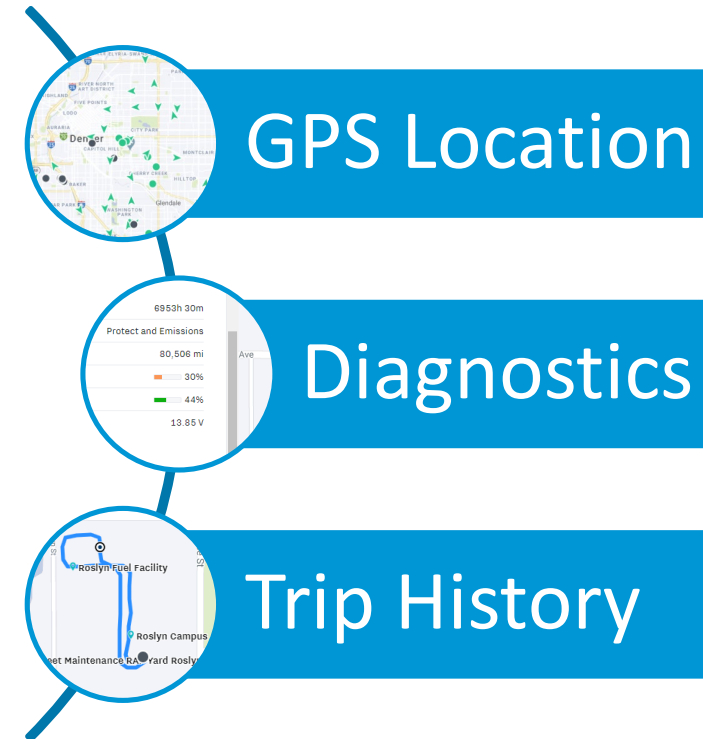
- To monitor maintenance issues
- Geo-location, routing, theft recovery, crash liability
- Performance measurement
- Operator tendencies and trends

What vehicles will receive Telematics?

- All vehicles that are managed by DOTI Fleet Management Division will receive hardware.
- The second round of installs will occur in Q3 and Q4 of 2021

How it works – Vehicle Data

- GPS helps us to maintain operational awareness
- Diagnostic monitoring helps us to maintain our vehicles
- Trip histories can help us understand operational performance (e.g. routing efficiency, snow operations coverage)



How do we use telematics?

- Safety Management System: Driver Behavior Modification Program
 - Identification of Unsafe driving trends for mitigative actions
 - Safe Driver and Team Incentives and Recognition
 - Defined zero exception behaviors, coaching thresholds, corrective actions, and discipline thresholds
- Operational Heads-Up Display
 - Public Snow Plow Tracker
 - Dispatching/Routing
- Operational Analytics
 - Snow Plow Route Completion and Materials Usage/Rates
 - Vehicle utilization and carbon emissions monitoring
 - Unlimited opportunities
- Vehicle Deficiency Reporting
 - DOT Pre-trips/Post-Trips
- Theft Recovery

Strategy and Policy Alignment

- Executive Orders
 - XO3 Motor Vehicle Program: Ch. 6 Vehicle Operations and Safety
 - XO65 Operation Safety & Health: *Safety and Health Management System, Memorandum A*
 - XO123 Citywide Sustainability: Ch. 3 Green Fleet
- FAR Motor Vehicle Safety Standard 65.10: Defensive driving, Vehicle Safety checks
- Vision Zero
- DOTI Strategic Focus Areas
- Cultural Behavior: Accountability and discipline at all levels
- DOTI Goals – Safety and Sustainability

WIIFM – What's in it for me?

- Become a better, more aware driver
- Safety
- Employee access to personal driver score
- Incentives/Recognitions
- Coaching emphasis
- Electronic inspections
 - Collaboration with Fleet Management

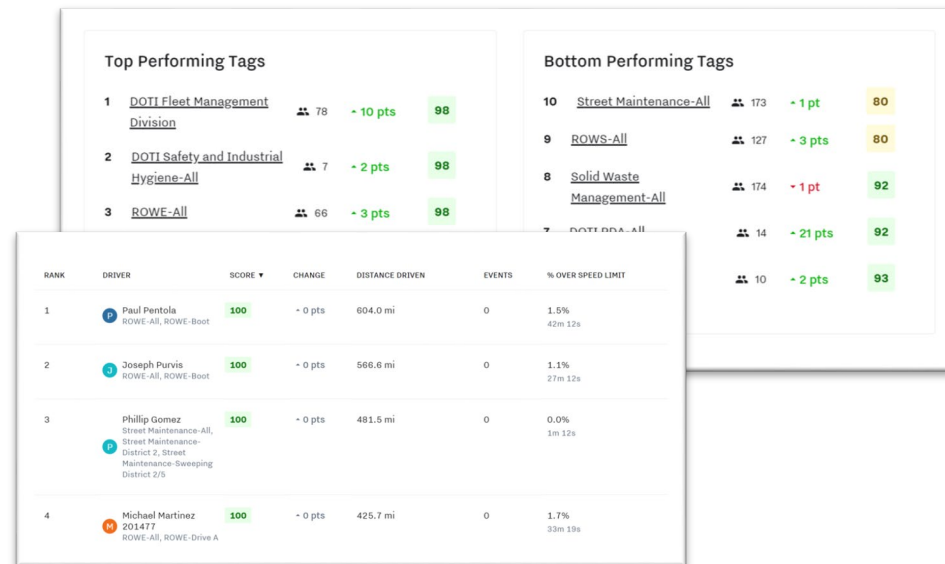
DOTI Safety Management System Driver Behavior Modification Standard

- Defines role and responsibilities
- Training Standards
- Defined Key Performance Indicators and analytics
- Gamification, Incentive Program, and Awards
- Coaching/Corrective Actions, Discipline Thresholds

Awards, Performance, Gamification

DOTI Driver Score Goal of 90

- Divisional
- Individual Drivers
- Performance Goals

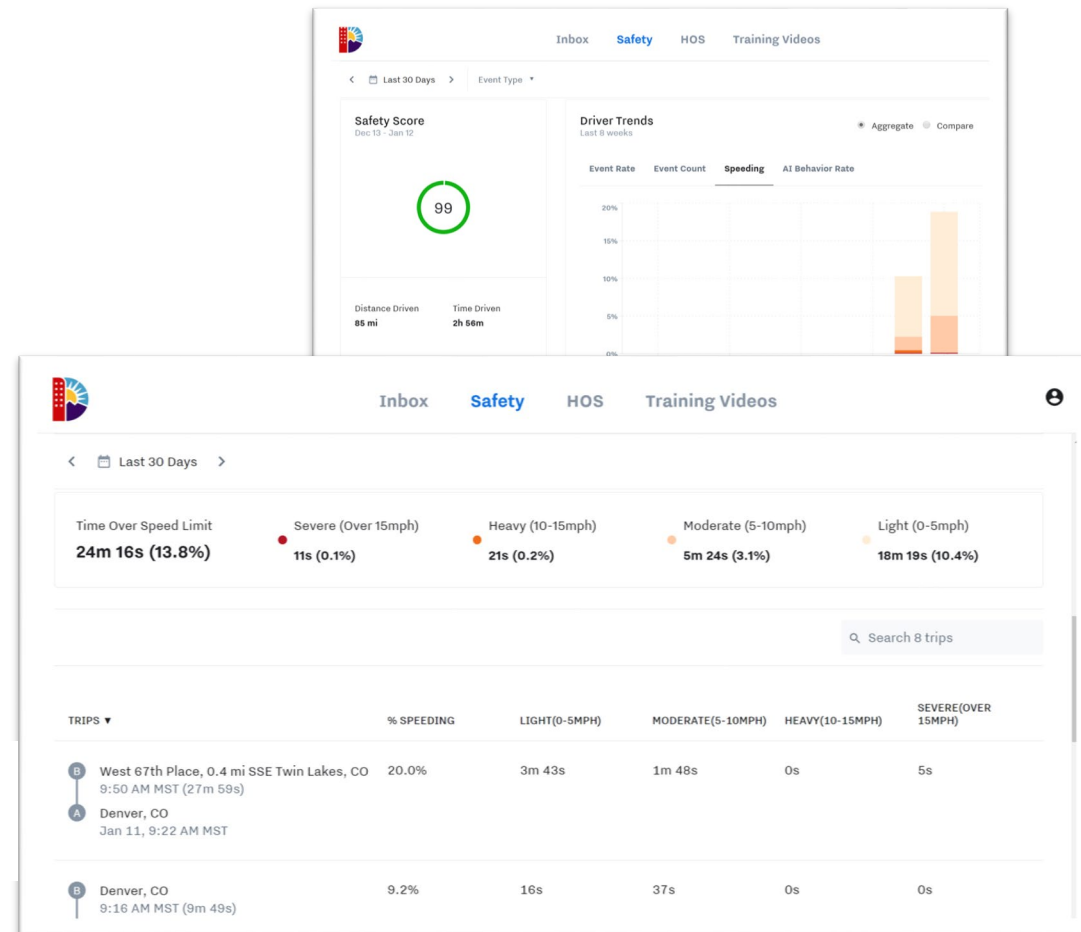


Safety Score Detail

The Safety Score on the Safety Report is calculated using

- Total Events Labels
- camera AI events
- Total Miles Driven
- Total Time-Driven
- Time Over Speed Limit

$$SafetyScore = 100 - \frac{\sum (Weight * Event)}{MilesDriven} * 1000 - \frac{\sum (Weight * SpeedingMs)}{DrivingTimeMs} * 100 - \frac{\sum (Weight * ALEvent)}{HoursDriven}$$



How it works – Safety Scoring (cont.)

Triggered Events generate a Safety Inbox entry for review.

Safety Team members can add incident details by attaching tags to the event.

Defensive Driving justifies the triggered incident. While others may take additional points from the Safety Score (e.g. policy violations indicated by **P**).

Max Score	100
Crash	0
Harsh Driving	-1.2
Distracted Driving	-0.1
Collision Risk	0
Traffic Signs & Signals	0
Speeding	-0.6
Policy Violations	-2.6
Safety Score	95

This is an example of a Safety Score calculation

Driver Risk

- ☐ Distracted
- ☐ Drinking
- ☐ Drowsy
- ☐ Eating **P**
- ☐ Eating/Drinking **P**
- ☐ Late Response
- ☐ Mobile Usage **P**
- ☐ No Mask **P**
- ☐ No Seatbelt **P**
- ☐ Obstructed Camera **P**
- ☐ Smoking **P**

Road Risk

- ☐ Did Not Yield
- ☐ Forward Collision Warning
- ☐ Lane Departure
- ☐ Near Collision
- ☐ Railroad Crossing Violation
- ☐ Ran Red Light
- ☐ Rolling Stop
- ☐ Speeding

Harsh Driving

- ☐ Crash
- ☐ Harsh Accel
- ☐ Harsh Brake
- ☐ Harsh Turn

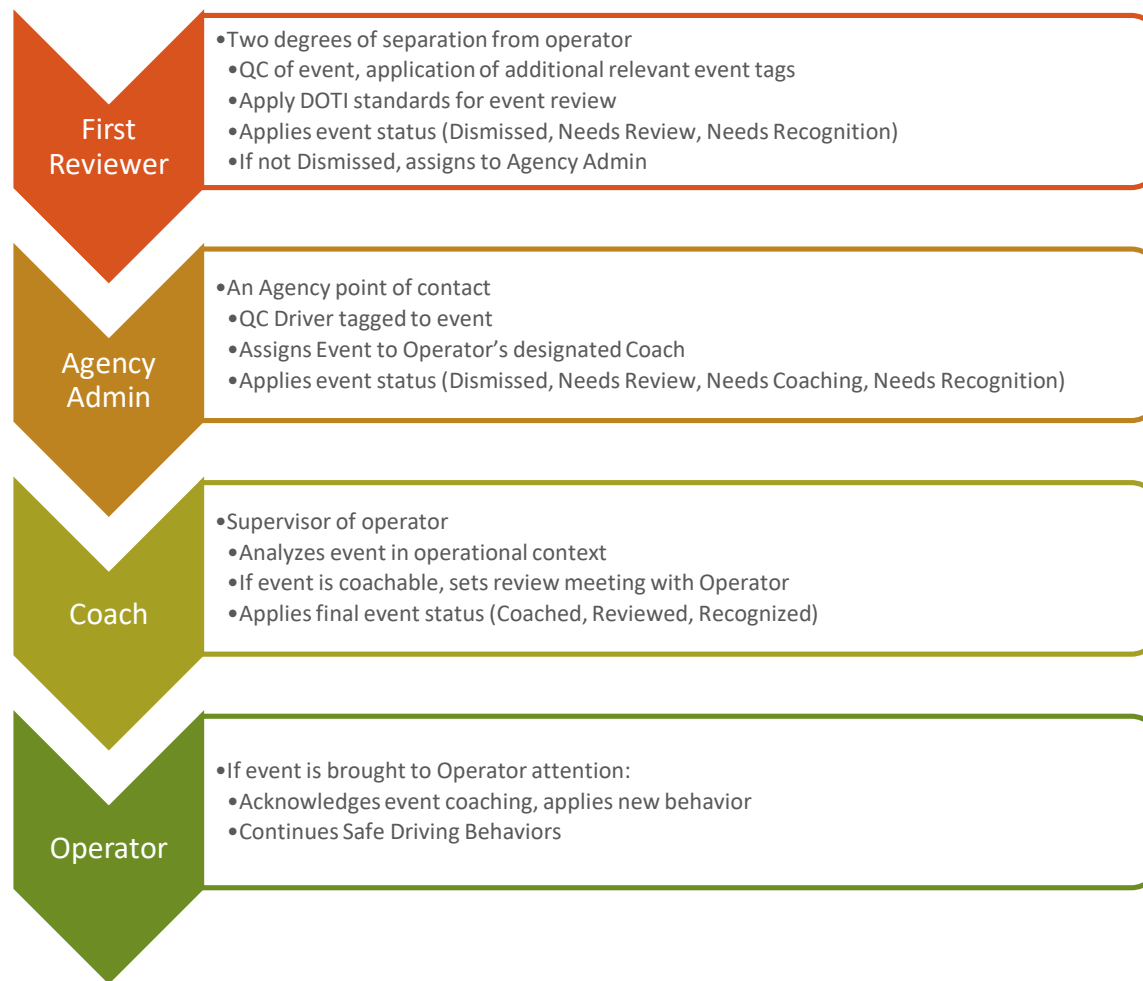
Other

- ☐ Defensive Driving

Following Distance

- ☐ Following Distance
- ☐ Following of 1–2s
- ☐ Following of 3–4s

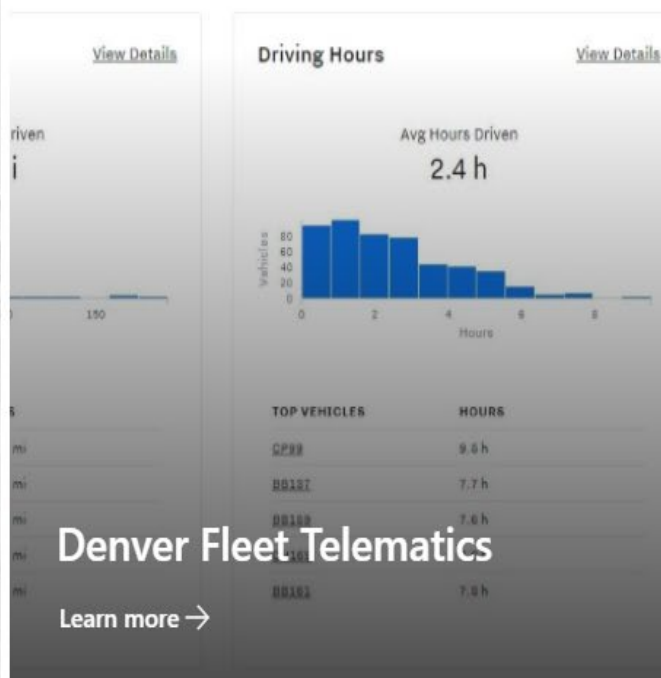
Comprehensive View of Event Review Process





Denver Fleet Management

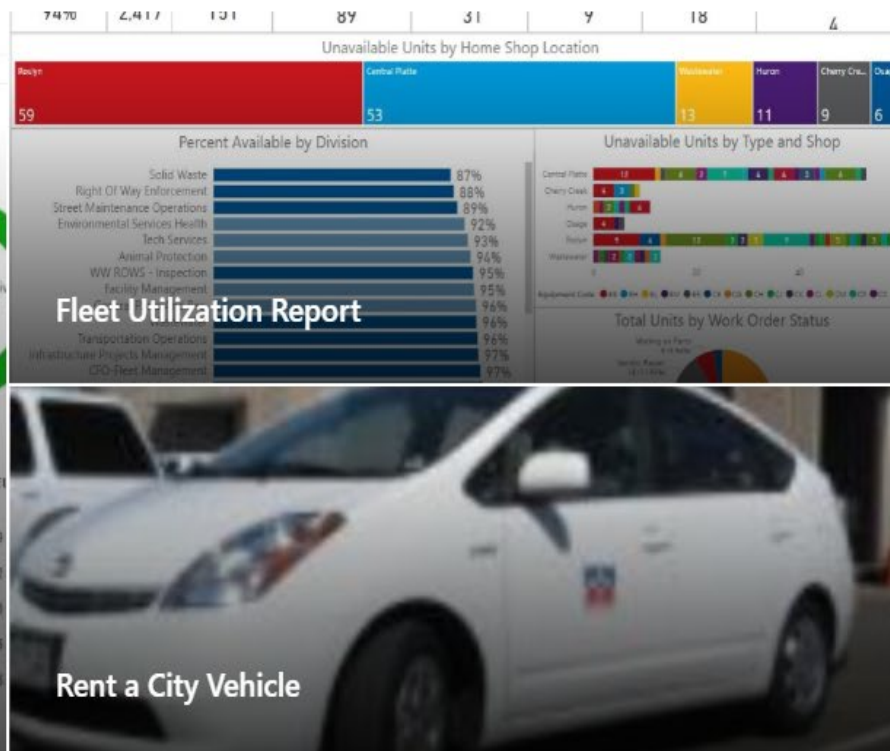
+ New ▾ ⚙ Page details 📊 Analytics



Fuel Usage



TOP FUEL CONSUMERS	FUEL
BH20	57.8
BH01	56.8
BH28	56.8
BB187	53.8
BH25	52.8



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Denver Fleet Management

+ New ▾ Send to ▾ Promote ⚙ Page details 📊 Analytics

This page is dedicated to providing the latest updates and information for the fleet telematics system.

Report an Issue

Use this form to report problems, provide feedback, voice concerns. The Implementation Team will see and address your concerns and respond accordingly.

Report a Telematics Issue

Telematics
Admin/Coaching/
Maintenance Login

**Request Access
or Role Change**

Telematics Driver
Portal

**Take the Driver
Orientation on Workday
Learning**

News

+ Add ▾



Telematics Driver Frequently Asked Questions

Telematics Driver Orientation FAQ Visit Denver Fleet...

In-Cab Driver Coach

Denver Fleet Telematics

Telematics Policy, Standards, Procedure

[See all](#)

+ New ▾

...

≡ All Documents ▾



	Name ▾	Modifi
	1 Policy	April 30
	2 Standards	April 30
	3 Procedure	April 30
	4 Guidance	April 30

Telematics Implementation Milestones

[See all](#)

+ Add event



AUDIO & VIDEO TELEMATICS INSTALLED

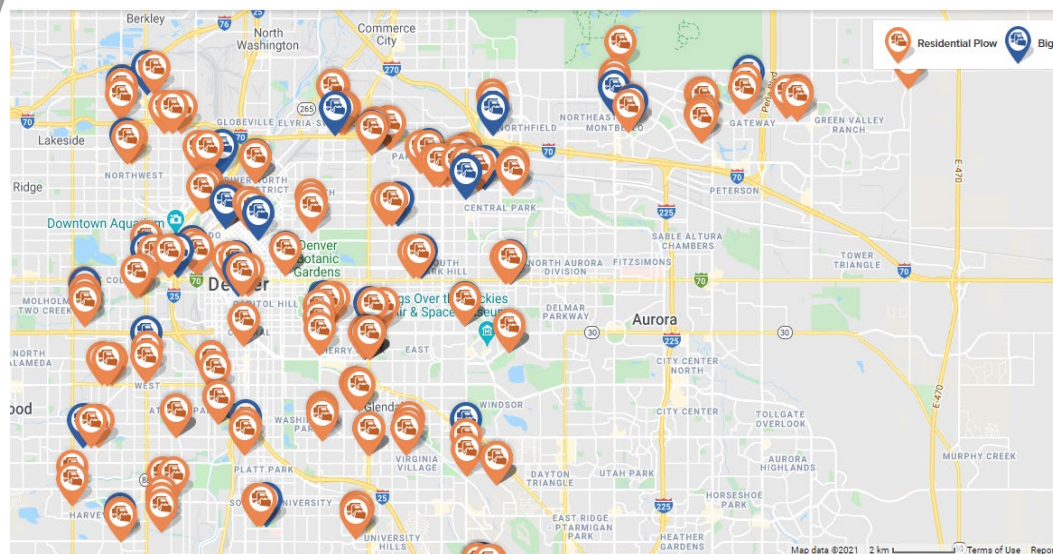
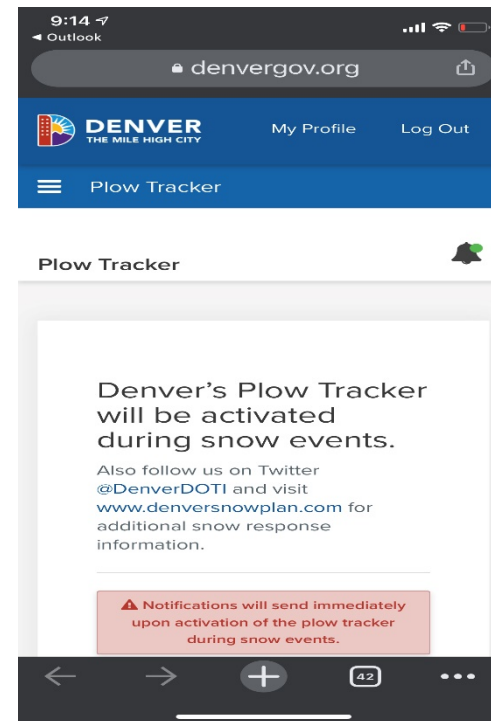
Your activity in this vehicle is being recorded.



It is against City policy to tamper with, alter, obstruct, or damage safety equipment. Any attempt to disrupt the system will be subject to discipline.

EO3, EO65a, Fleet Telematic Policy

Plow Tracker





YTD Idle Fuel Costs

YTD Coachable Behaviors/Trends

- Following Distance
- Distracted Driving
- Cell/Handheld Device
- Failed/Rolling Stops

EVIR Completions

Next Steps



- Use of Maintenance Report
- Complete 100% of the Fleet
- Integration to FMIS
- EV vehicle suggestions
- Continued Data Analytics





David Dunn

david.dunn@cityoforlando.net

- Division Manager, Fleet & Facilities Management Division
- City of Orlando since 2006
- 23 years prior experience in the aerospace industry with NASA/Space Shuttle Program
- Leader in technology deployment in fleet and operations, helping Green Works goals
- Participation in several professional association, numerous professional certifications and industry recognition awards
- US Navy Veteran
- Pastor & Advocate for those diagnosed with mental illness



City of Orlando

Video Telematics/ADAS for Improved Safety, Coaching and More

City of Orlando

I want to let you know of exciting changes within our Fleet/Facilities Division.



David L. Dunn, CFM
Facilities Division Manager



Jonathan D. Ford, MPA, CAFM
Fleet Division Manager

Jonathan Ford, Fleet Manager, to serve as the new Fleet Management Division Manager, effective June 13, 2021

1010 S. Westmoreland Drive
Orlando, Florida 32805
jonathan.ford@orlando.gov
david.dunn@orlando.gov

City of Orlando

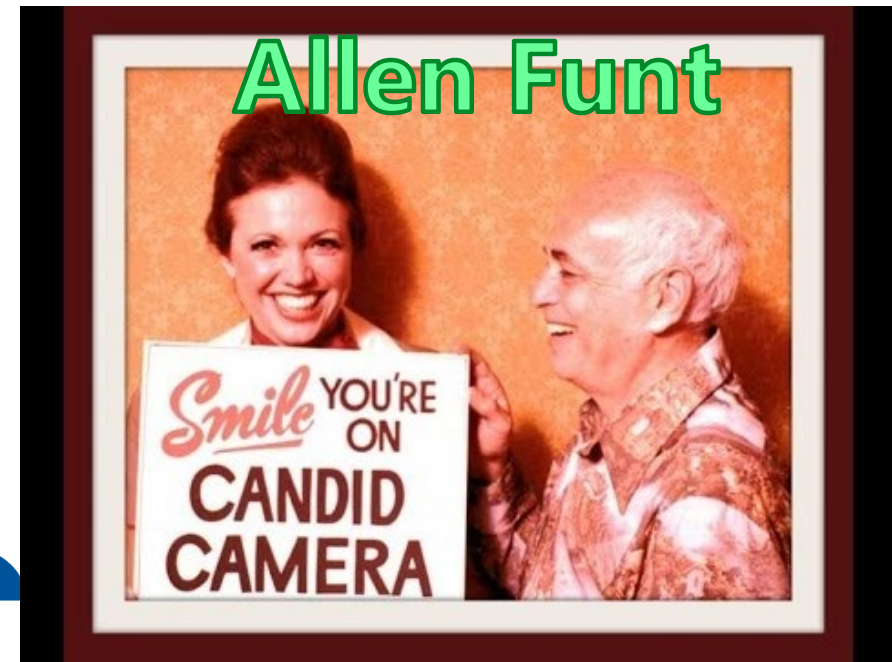
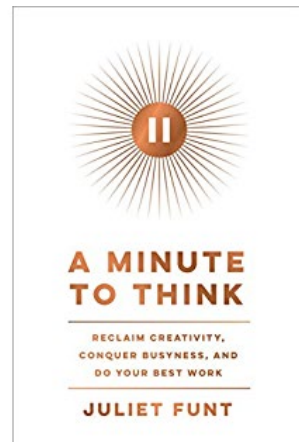


For almost 10 years the Fleet and Facilities division has been combined with both operations reporting to me.

This is our current focus!

- Dash Cameras/GPS Tracking
- Tire Management sensing system
- Others.....

<https://www.julietfunt.com/>



Cameras (Two types in use)

Why did we decide to install in vehicle cameras?

Solid Waste Truck rollover story.....

Why did we start with one and are now changing?

Risk Mgmt found, funded and decided to apply to the 1st one SW & Facilities.

(I was told Facilities is volunteering to be guinea pigs in the process too.)

Pros & Cons will be addressed on (Slide 4 & 5)

Pilot > Deploy > Monitor > Measure

The Pilot resulted in great success and lead to standardization.

Why did we try a different system?

Needed a system compatible with 4G/5G networks.

What is our future planning?

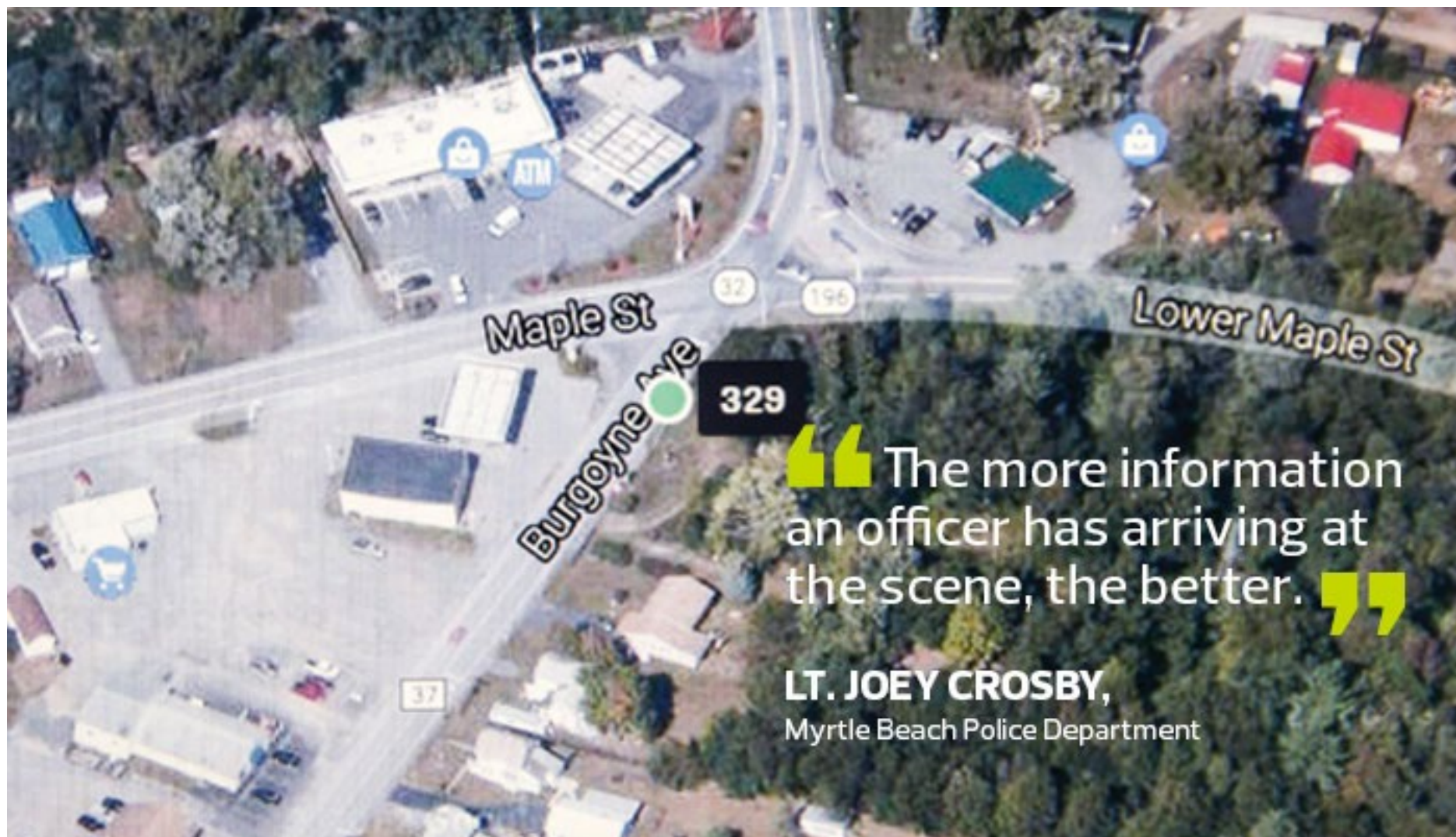
Expanding system to entire Fleet (to include non-powered equipment)



PROS

- **Bridged systems into one platform vs multiple platforms (previously had 3 proprietary systems)**
- **Instant video retrieval vs 24-72 hour wait period**
- **Helicopter viewing capabilities (used for projected emergency response times) See next slide**
- **More user control over alerts and other system adjustments**





“ The more information
an officer has arriving at
the scene, the better. ”

LT. JOEY CROSBY,
Myrtle Beach Police Department

911 can watch real time advising caller
and responder of updated information.

CONS

- **Existing platforms running simultaneously**
- **Extended rollout period (to avoid gap in services)**
- **Large quantities of unusable hardware (outdated cameras)**

What to do
with the stuff?



In work...





LESSONS LEARNED

• Robust reporting

DASH CAM BENEFITS

- Reduce accidents, speeding, and distracted driving
- Save money on insurance and accident-related costs
- Exonerate not-at-fault drivers from blame
- Enhance coaching with video-based review & in-cab alerts
- Incentivize good driving behavior
- Simplify administrative work
- Expedite claim payouts



Tire Management

(Call Jonathan if interested)

- In the Spring of 2020, the City of Orlando moved forward with deploying a smart tire sensing technology on 71 Solid waste trucks
- First 60 days of deployment:
Tire outfitted with the tech:
of low pressure alerts: 771
- Last 60 Days:
Tire outfitted with tech:
of low pressure alerts: 336



PROS

- Flat tires with critically low air pressure are proactively identified/corrected saving a significant amount of money, resources, & alleviating tire related road calls
- Smart tire system can help fleets extend the life of their tires and casings by up to 30%.
- Platform offers real-time alerts



CONS

- Excessive man-power needed to maintain system/controls
- Lack of available product due to COVID restraints
- False critically low tire pressure alerts (periodically)





LESSONS LEARNED

- Outsourcing is a feasible option: The number of unplanned tire repairs during PMs are being minimized because tires are being proactively repaired by the supporting vendor ultimately giving technicians more time to focus on other critical components/repairs.





Questions
about today's
presentation?
And,

**WHO ARE YOU
GOING TO CALL?**

Jonathan D. Ford, MPA, CAFM David L. Dunn, CFM

*1010 S. Westmoreland Drive
Orlando, Florida 32805*

*jonathan.ford@orlando.gov
david.dunn@orlando.gov*





Andrew Rybak

andrzejrybak@geotab.com

(416) 999-3095

- Business Development Manager GEOTAB
- Proven track record with several organizations in technical and IT strategic sales and marketing



Key Questions to Ask When Choosing a Video Telematics Solution

Andrew Rybak - Marketplace BDM, Video & Safety

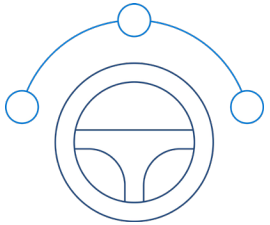
GEOTAB: #1 commercial telematics vendor worldwide (ABI Res

- Engineering company building analytics, telematics & IoT solutions
- Started in North America in 2000, Geotab now has largest penetration in fortune 500 c
- Data collected from Vehicle like no other
- Security | Reliability | Scalability
- Big Data for commercial benchmarking
- Open Platform – Customer data can be integrated and used in any other platform
- Geotab Marketplace

Video Telematics Marketplace Partners



Question 1: WHY?

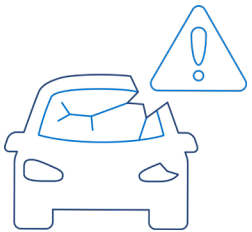


Driver Risk Management

Monitoring, training, coaching, scoring, correction
→ Make better drivers, have fewer crashes.

Benefit

Lower accident rate reduces # of claims, damage and downtime.

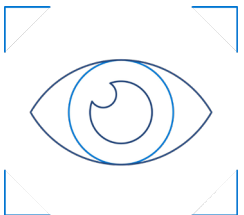


First Notice of Loss

Crash notif, evidence, claims processing, exoneration
→ When crashes happen, manage promptly.

Benefit

Fast, accurate info processing
reduces average payout per claim.



Security Recording

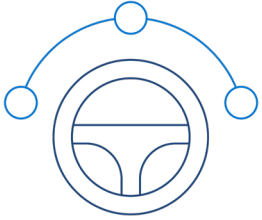
Deterrent, investigation, follow-up, liability exposure
→ Augment security, discourage bad behaviour

Benefit

Recorded evidence is best defense
against fraudulent claims.



Defining Characteristics



Driver Risk Management

Camera Configuration:

- Forward & Driver Facing

Back End System:

- Driver Risk Analytics Reporting

Typical Options:

- ADAS/DMS-based Audible Alerts and Coaching
- Full-time recording (1 or 2 days coverage)



First Notice of Loss

Camera Configuration:

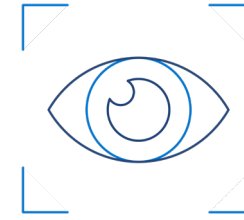
- Forward Facing

Back End System:

- Automatic notification routing, video storage, review, annotation and workflow tools

Typical Options:

- ADAS/DMS-based Audible Alerts and Coaching
- Full-time recording (1 or 2 days coverage)



Security Recording

Camera Configuration:

- Multiple views, some external
- Large recording capacity (hard disk)

Back End System:

- Management of lengthy video recordings

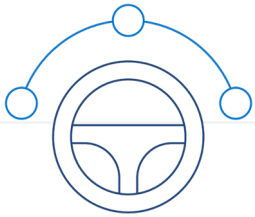
Typical Options:

- Live viewing
- Two-way audio



Question 2: Who needs access to the video data?

Who sees the data? What is their job? Will this increase or decrease their current workload? How? Will it require a new hire? Will they require training?



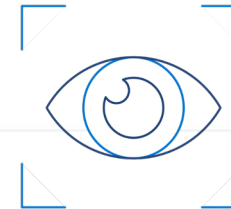
Driver Risk Management

- EH & S
- Risk Manager
- Operations
- Fleet Manager
- Human Resources
- Insurance



First Notice of Loss

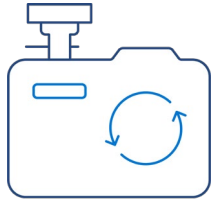
- Risk Manager
- Legal
- Insurance
- Finance



Security Recording

- Fleet Manager
- Operations
- Human Resources
- Insurance
- Finance

Typical Tasks



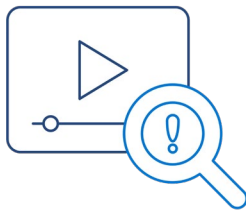
Review Incident Notifications

Text alerts vs. frequent checks via remote portal access. 24/7 vs. next day response



Investigate & Coach

Communicate with drivers, investigate incidents, set monthly goals



Analyze & Annotate

Classify driving incidents, severity, errors



Review Metrics

Weekly or monthly summaries, scoring trend analysis, reporting

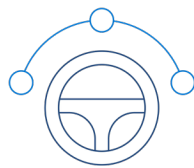
Question 3: What processes will integrate with video

How will video help your business to do a better job? Are systems currently in place? Is digital integration possible or will info manually pass between systems?



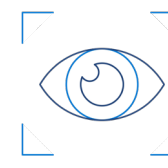
First Notice of Loss

- Accident reconstruction
- Claims Process
- Risk Assessment
- Share data with insurance company



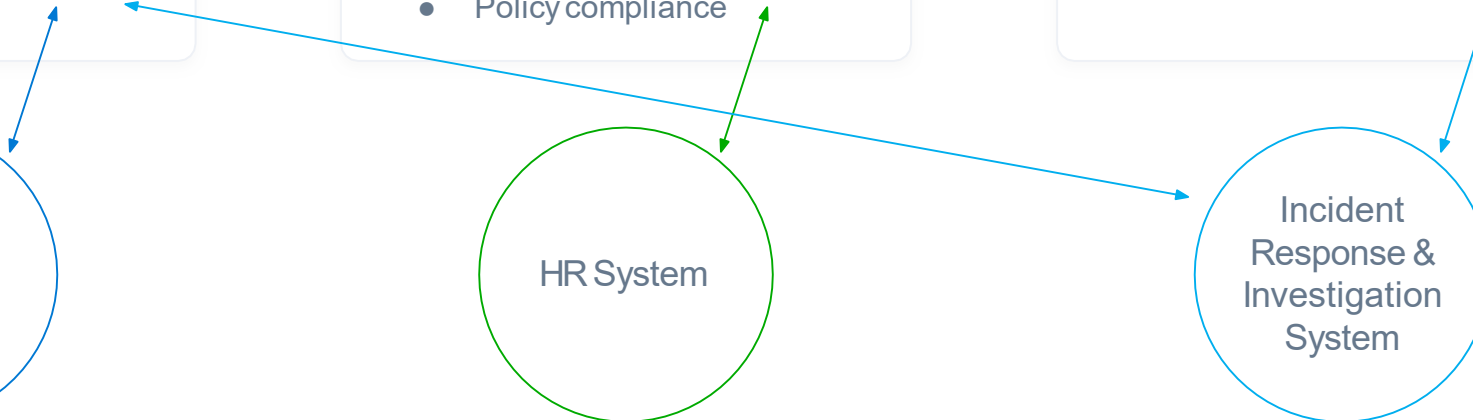
Driver Risk Management

- Driver Training/Coaching
- Performance Reviews
- Risk assessment
- Safety scorecards
- Policy compliance

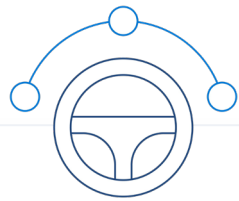


Security Recording

- Loss Reporting
- Complaints Handling
- Incident Response Team



Question 4: Measuring ROI



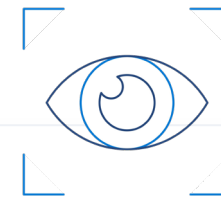
Driver Risk Management

- Collisions per MillionMiles
- Risk Rating
- Time Lost Due to Injury
- Vehicle downtime
- Driver Safety Scorecard
- Operational KPIs
- Fuel Usage
- 3rd party claimspaid
- # of at fault accidents
- \$\$ / claim
- 'Life altering events'
- CSA scores



First Notice of Loss

- Claims processing time
- 3rd party claimspaid
- At fault claims
- Cost per claim
- # of claims disputed divided by the timespent in court
- Arbitration time



Security Recording

- Repair costs
- Theft or vandalism claims
- Complaints (driver, public, etc)
- 3rd party claimspaid
- At fault claims
- Cost per claim
- # of claims disputed divided by the time spent in court



Complete Cost of Video Telematics

Other

- Human review
- Integration to other systems
- Additional storage / better SD cards
- Complementary hw and services
- Camera inspection & maintenance

Administrative

- Review video
- Analyze & annotate
- Coach drivers / train coaches
- Review metrics
- HR cost

Monthly

- Access to portal
- Data plan
- On demand / live view
- HW (if OPEX model)

Installation

- Outsourced Installation services
- Technician time
- Vehicle down time
- Time to install / coordination
- de-installation

Hardware

- Cost of camera
- # of cameras / DVR





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Sessions through December 09, 2021



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