

**DENTONS**



# **The 5 Ws of Commercial Drones** **The Who, What, When, Where and Why**

*A Discussion with the Small UAV Coalition*

**Additional Resources**

October 29, 2021

# Monthly CO<sub>2</sub> Delivery Emissions (metric tons)

Zipline  
Rwanda

vs

Other Delivery  
Methods

All Deliveries

Emergency Deliveries



.73  
.21



Electric Vehicle

11.51  
5.41



Motorcycle

29.15  
13.70



Car

41.75  
19.62



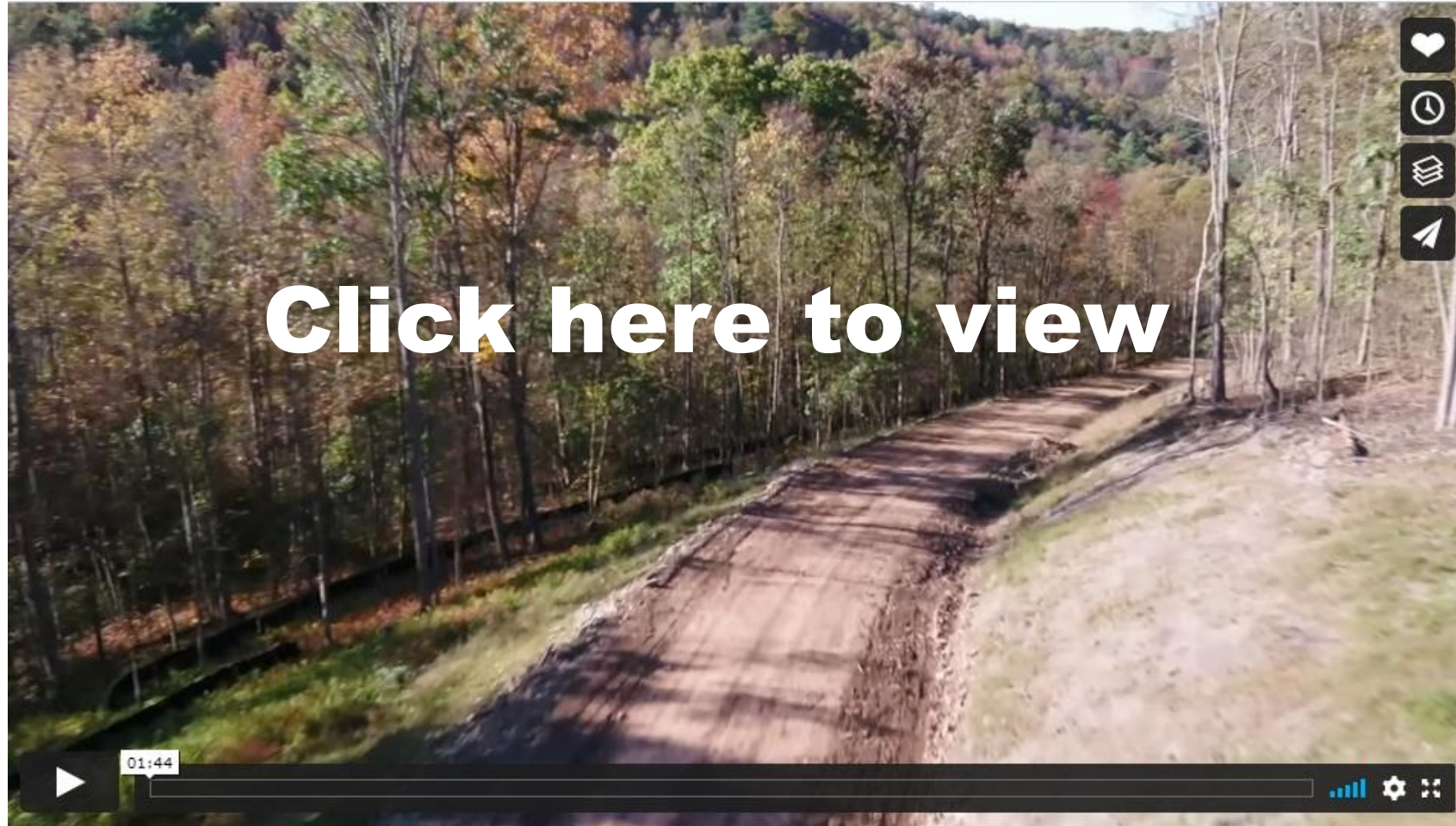
Light Goods Vehicle

61.81  
29.05

zipline

Sep 2021 delivery emissions for Zipline Rwanda (n=10,887) vs tailpipe emissions if delivered by ground transportation.  
Sources: [2020 UK Government Greenhouse Gas Conversion Factors](#); [EV Database](#); [Our World in Data](#).

# Drones at Dominion Energy



<https://vimeo.com/371420887>



# TRANSMISSION TOWER INSPECTION

- **Offset Risk** -
  - **Worker fatality:** ~40 fatalities/year (Bureau of Labor Statistics - BLS)
  - **Helicopter risk:** Cause of 10% of workplace fatalities to line installers (BLS)
- **Air /ground risk** - limited in close proximity flights inside or outside the tower

# SKYDIO: IMPROVING WORKER SAFETY - Transmission Tower Inspection



Capable of flying inside GPS-denied areas, Skydio drones allow telecom inspectors to effortlessly fly inside transmission towers without crashing



# BRIDGE INSPECTION

- **Offset Risk** -
  - Worker injury: drones decrease hazard exposure by 50% and work zone injury by 15% (Purdue, 2020)
  - Worker fatality: Falls are leading cause of worker death (Purdue, 2020)
- **Air / ground risk** - limited below bridges

# SKYDIO: IMPROVING WORKER SAFETY - Bridge Inspection



*“Drones are a fantastic new tool for our Bridge Inspection Units. Safety is our top priority at NCDOT, and this new system helps improve the safety of not only our bridges and other infrastructure, but of our inspectors as well.”*

**Eric Boyette**

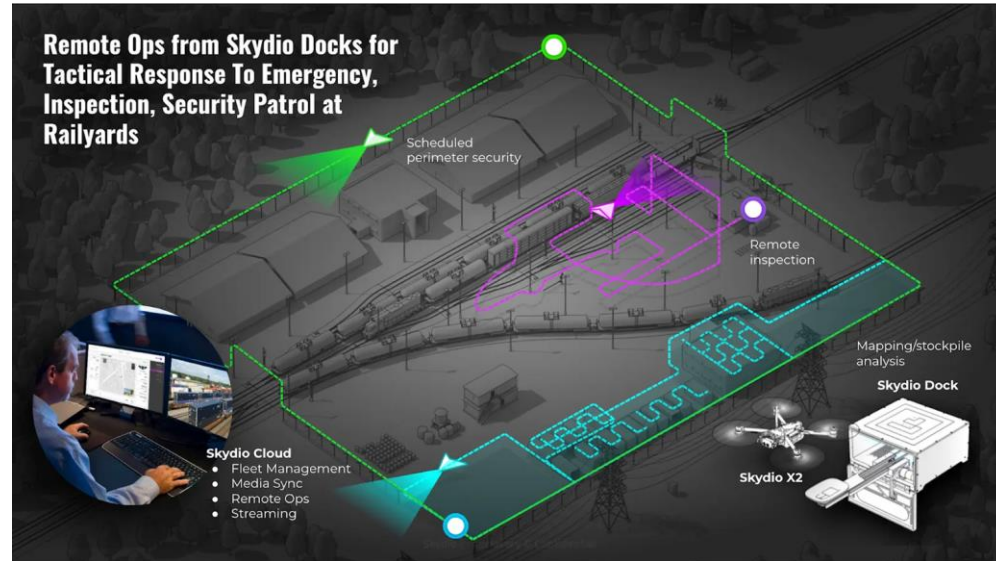
*North Carolina Secretary of Transportation*

**Marc Basnight Bridge:** In Feb 2021, NC DOT used a Skydio 2 to inspect a long bridge during high winds, saving inspectors from hanging in the bucket of a snooper truck and **shaving 6 hours off the inspection time.**

# SKYDIO SECURED THE FIRST, NATIONAL WAIVER FOR REMOTE OPERATIONS WITH BNSF RAILWAY

*BNSF may remotely operate Skydio drones in docks beyond visual line of sight above rural portions of its network for purposes of infrastructure inspection, patrol, and training.*

- Operations will take place below 100 feet of the ground or obstacles, minimizing the risk of crewed aircraft encounters.
- The waiver is not geographically limited:
  - it applies to areas above BNSF's private property located more than 3 nautical miles from airports.





# SKYDIO 3D SCAN: MAKING DIGITAL TWINS EFFORTLESS

*This digital twin of a dam was created autonomously using Skydio 3D Scan*



CASE STUDY:  
BRIDGE INSPECTION

# ENVIRONMENTAL BENEFITS OF DRONES

SNOOPER TRUCKS  
**4.75 MPG**



**~13,000 TONNES**

Annual CO<sub>2</sub> Emissions

DRONES  
**Electric**



**~1,200 TONNES**

Annual CO<sub>2</sub> Emissions  
(cars to drive drones to sites)

- **1 car off** the road **for every 5 bridges** inspected with drones
- Inspecting **America's 614,000** bridges by drone offsets **44,000 cars**

**DOD APPROVED**

# SKYDIO SELECTED AS DIU BLUE sUAS VENDOR

**Designated as a trusted drone provider to the  
Department of Defense based on:**

- Elevated Supply Chain Security
- High-performance flight systems
- Ability to provide and support product at scale

**Available for purchase**



AUTONOMY PORTFOLIO

## Blue sUAS

Providing secure, trusted, small unmanned aerial systems capability to the U.S. government.





## Promoting Safety - Search and Rescue

“After the woman was located, the sUAS and ground teams were recognized by First Air Force's AFRCC for their contributions in saving her.”



Civil Air Patrol

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It's a first! [Civil Air Patrol](#)'s small Unmanned Aerial Systems program ([#suas](#)) has recorded its first life saved, thanks to a successful North Carolina Wing search Aug. 17 for an elderly dementia patient. [#searchandrescue](#) [#CivilAirPatrol](#)



Civil Air Patrol N.C. sUAS Team Credited with Helping Save Missing Woman

cap.news • 1 min read

