

# UAS Use in Paving Applications

General Capabilities and Offerings



Triangle UAS LLC

*Specialized.*

*Customized.*

*Effective.*



# Introductions

## Taylor Kerby



- Background in engineering, public safety, aviation, and construction management.
- Graduated from NC State University with a B.S. in Civil and Construction Engineering Management (CEM)- with a Mechanical Concentration
- Qualified to provide advanced training towards licensure and FAA pilot certificates.

## Hunt Bowers



- Graduated with B.S. in Aerospace Engineering from NC State University with a minor in Computer Science
- Part 107 licensed commercial drone operator and a longtime drone hobbyist.
- Current expertise include VTOL fixed-wing aircraft, precision agriculture and drone automation
- Responsible for the company Safety Management System (SMS)



# Company Profile

Triangle UAS provides unmanned aircraft system (UAS) solutions to satisfy virtually any requirement.

- FAA certificated
- North Carolina DOT certified
- Extensive insurance coverages
- Ability to operate with FAA waivers
- Partners and clients:
  - NCSU: NextGen Air Transportation (NGAT), Crop & Soil Sciences Department
  - City of Wilson: Fire Department, Police Department, GIS department, Greenlight Community Broadband
  - Falcon 6 Security, Primal Space Systems, and more.

## Industries served:

- Agriculture
- Engineering
- Real Estate
- GIS
- Public Safety
- Aerial Photography
- Training
- And more....





# Topics

- Use cases
  - Estimation/Preconstruction
  - Damage Assessment
  - Liability management
  - Progress tracking
  - Stockpile analysis
  - Marketing
- What it takes to get up and running
- Flight Demo
- Q&A

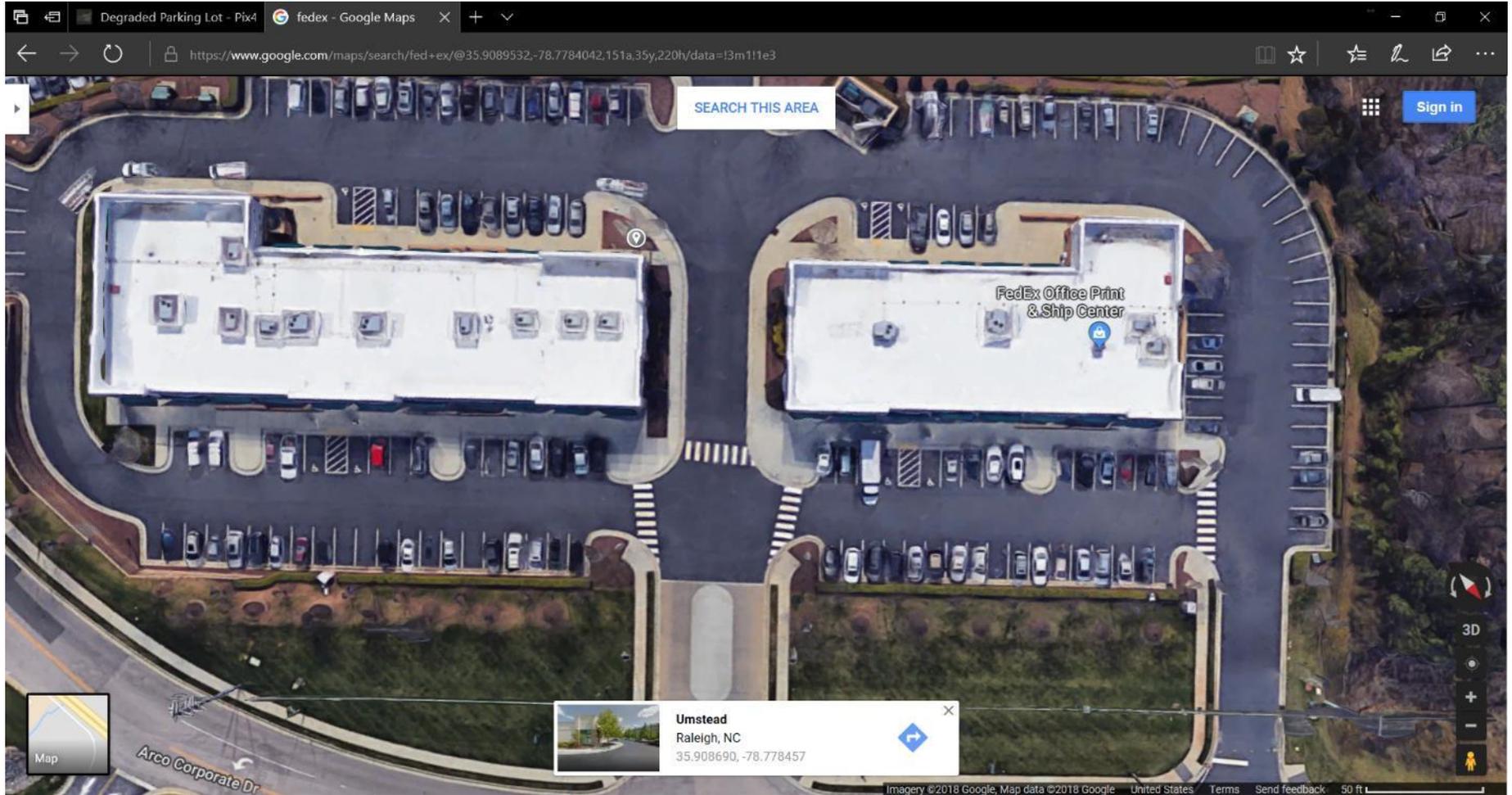


# Use Cases

- Estimation
  - Length take offs
  - Area take offs
  - Volume take offs
  - Damage Assessments
  - Diagnose problems
  - Generate client friendly maps to show proposed work and back up recommendations



# Use Cases





# Use Cases





# Use Cases





# Use Cases

[https://1drv.ms/v/s!Apl9hC0lcd3GtMkn6eWNMCyNzJ\\_1Ag](https://1drv.ms/v/s!Apl9hC0lcd3GtMkn6eWNMCyNzJ_1Ag)



# Use Cases

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<https://cloud.pix4d.com/pro/project/249988/map?shareToken=94490cd0fa7d4499a5a1d9e2ffa04162>



# Use Cases

- Damage Assessment
  - Provides high resolution maps that are current
  - Measurable
  - Quick
  - Show client damage found



# Use Cases

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<https://cloud.pix4d.com/pro/project/230340/map?shareToken=a6370d390eeb4a8181318290cd6c8552>



# Use Cases

- Liability Management
  - Provides high resolution documentation
  - Current up to the minute
  - Georeferenced
  - Time referenced
  - Easy to use and understand



# Use Cases

- Progress tracking
  - Provide internal documentation
  - Provide external documentation when needed
  - Manage delays and liability
  - Help manage schedule
  - Get a summary of work done without a lot of site visits
  - Easily communicate visually to the field (imagine trying to describe a point of interest over the phone)



# Use Cases

<https://cloud.pix4d.com/pro/project/143458/map?shareToken=1cf0b3bd7c8a45b88e3b41fec04b1476>



# Use Cases

- Stockpile analysis
  - Volumetric analysis
  - Quick, easy, and accurate (2cm lengths when used with RTK or known GCPs)

Volume 1	
Terrain 3D Area:	5109.76 ft <sup>2</sup>
Cut Volume:	15574.91 674.79 ft <sup>3</sup>
Fill Volume:	-167.04 127.08 ft <sup>3</sup>
Total Volume:	15407.86 801.87 ft <sup>3</sup>



Layers

- Densified Point Cloud
- > Display Properties



# Use Cases

- Marketing
  - Aerial Photos
  - Aerial Videos
  - Before/After examples
  - Clients may be excited about you using drones





# What Does it Take?



Public Sector

Part 107

Certificate of Authorization (COA)

Private Sector

Part 107



State Permit



# What Does it Take?

## FAA Part 107

- Training
- Pass standardized exam (\$150)
- Register UAS
- Apply for waivers as needed



## NC DOT

- Pass an online exam
- Instant certification





# What Does it Take?

## Training Recommendations:

- 1-2 days of “ground school” to pass FAA Part 107 exam
- 2-3 days of “flight school” to become competent with actual operation
- Advanced training in software, mission planning, and advanced operations as needed



# What Does it Take?

We are also happy to provide turn key UAS services

- Advanced projects
- Experienced staff
- Cost effective
- No headache with training and developing solutions

A possible implementation plan is to provide turn key services and transition you to self perform after technology is validated with your firm and it makes sense for initial capitalization.



# What Does it Take?

## Pricing

Item	Price	Notes
Equipment	\$600-20,000	A Phantom 4 Pro will work for most jobs and is \$1,500. Thermal and RTK are expensive.
Software	\$350/month or \$8700 perpetual (Pix4D) \$300/month (Drone Deploy Business)	
Training	\$150 FAA Exam	Depends on class size and needs.
Insurance	\$6,000/year	Includes drone damage and \$1M liability
Turn Key Service	\$250-\$500 per hour	Depends on deliverables



# Surprise Drawing

## Win this mini drone!





# Flight Demo

Let's go fly!



# Questions



Contact us anytime!

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