



Drone Implementation and Benefits for Engineering and Construction



**ASCE Winter Meeting
March 1, 2018**

GMC

Overview



- About Me
- Goodwyn, Mills and Cawood
- Drone Regulation
- Drone Operation/Mission
- SenseFly eBee
- Case Study – Lanett Municipal Airport

About Me



Matt Thomason, AICP, CM, PE, ABCDEFG

- ✈ BCE – Auburn University
- ✈ MSc – Cranfield University
- ✈ Airport Planner for GMC
- ✈ FAA licensed drone pilot

Goodwyn, Mills & Cawood



GMC

70 years

400+ Employees

Offices across
Southeast

Airport Planning and Engineering



- ✈ Airfield Pavement
- ✈ Hangars
- ✈ Terminals
- ✈ Navigational Aids
- ✈ Master Planning



Drone Uses



Flying a drone



Hobbyist



sUAS Part 107



FAA SECTION-333 EXEMPTION

OPERATION OF UAS SYSTEMS
FOR MAPPING APPLICATIONS



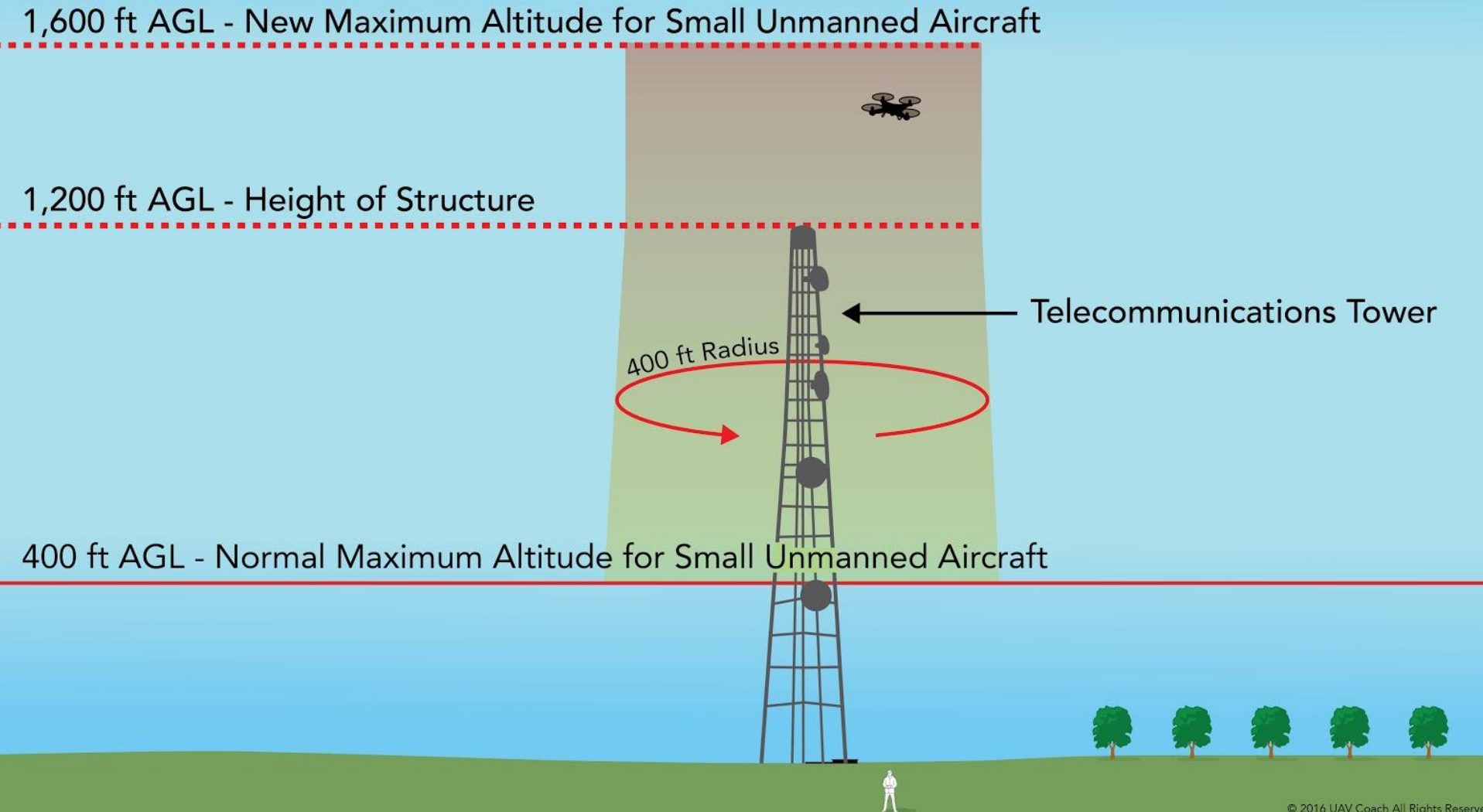
“Part 107”



14 CFR Part 107 – Small Unmanned Aerial Systems



“Part 107”



sUAS Remote Pilot



Don't judge too quickly...



Dont Judge.mp4

SenseFly eBee



- ✈ Wingspan - 38 inches
- ✈ Weight – 1.52 lbs
- ✈ Styrofoam/Plastic
- ✈ Flight time – 50 min

SenseFly eBee



SenseFly eBee



Survey



SATELLITE

Delivery time:	Weeks
Typical resolution:	50 cm/pixel



MANNED AIRCRAFT

Delivery time:	Weeks to months
Typical resolution:	10-30 cm/pixel



TERRESTRIAL MEANS

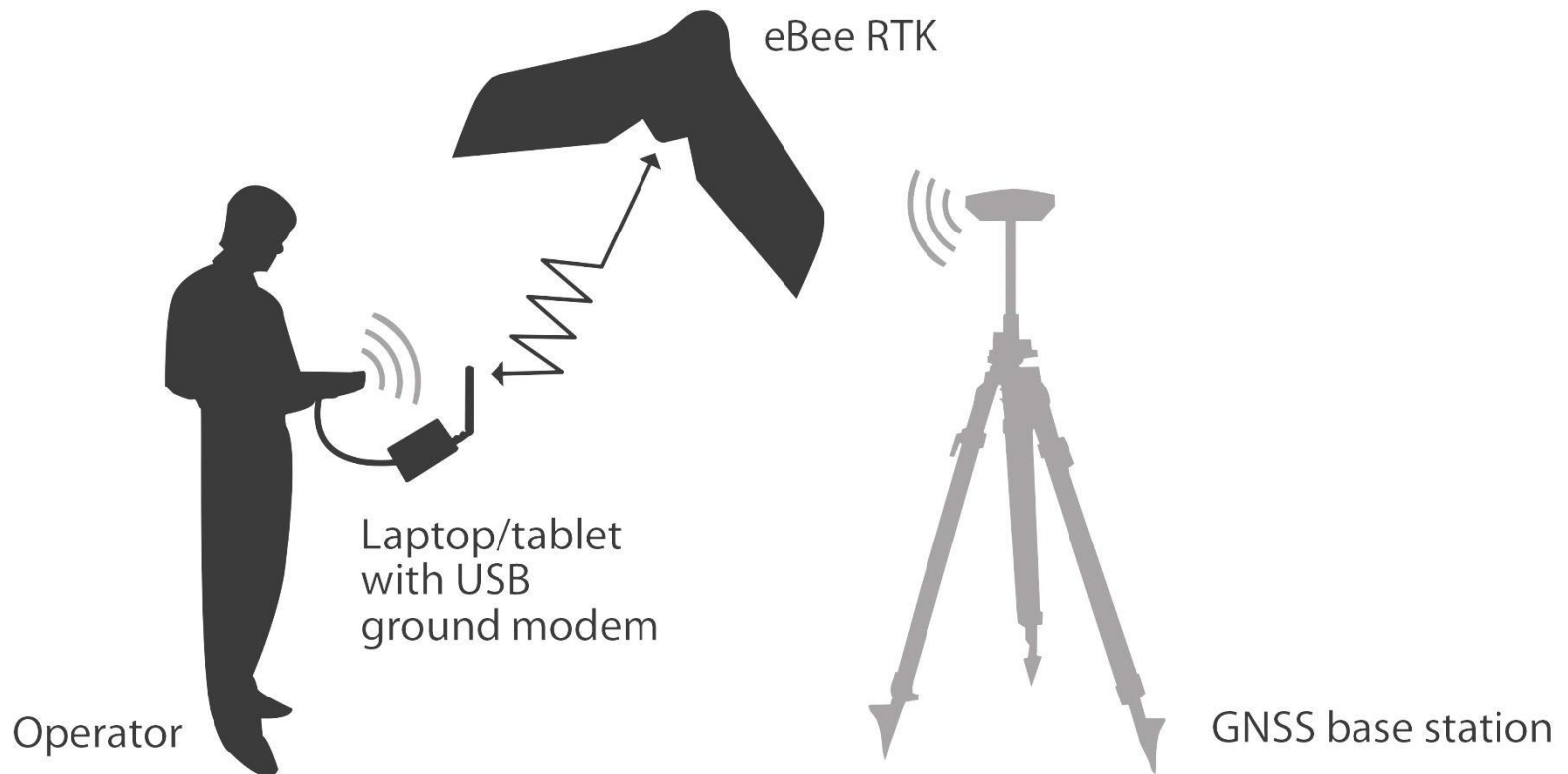
Delivery time:	Depending on qualified worker availability
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Drone Survey

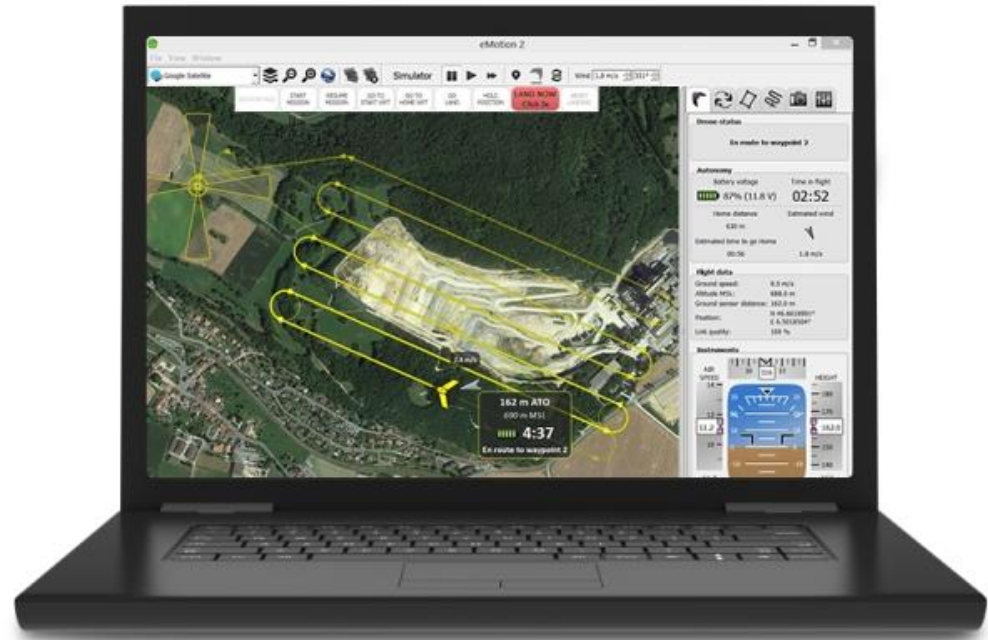
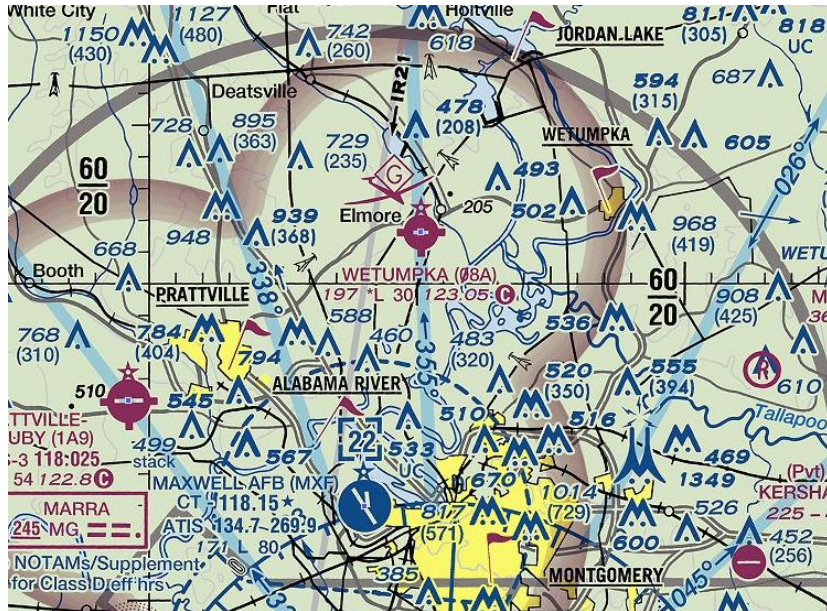


- ✈ Delivery time: Days
- ✈ Resolution: down to 1.5 cm/pixel (0.6 inch)

Drone Operation



Drone Mission

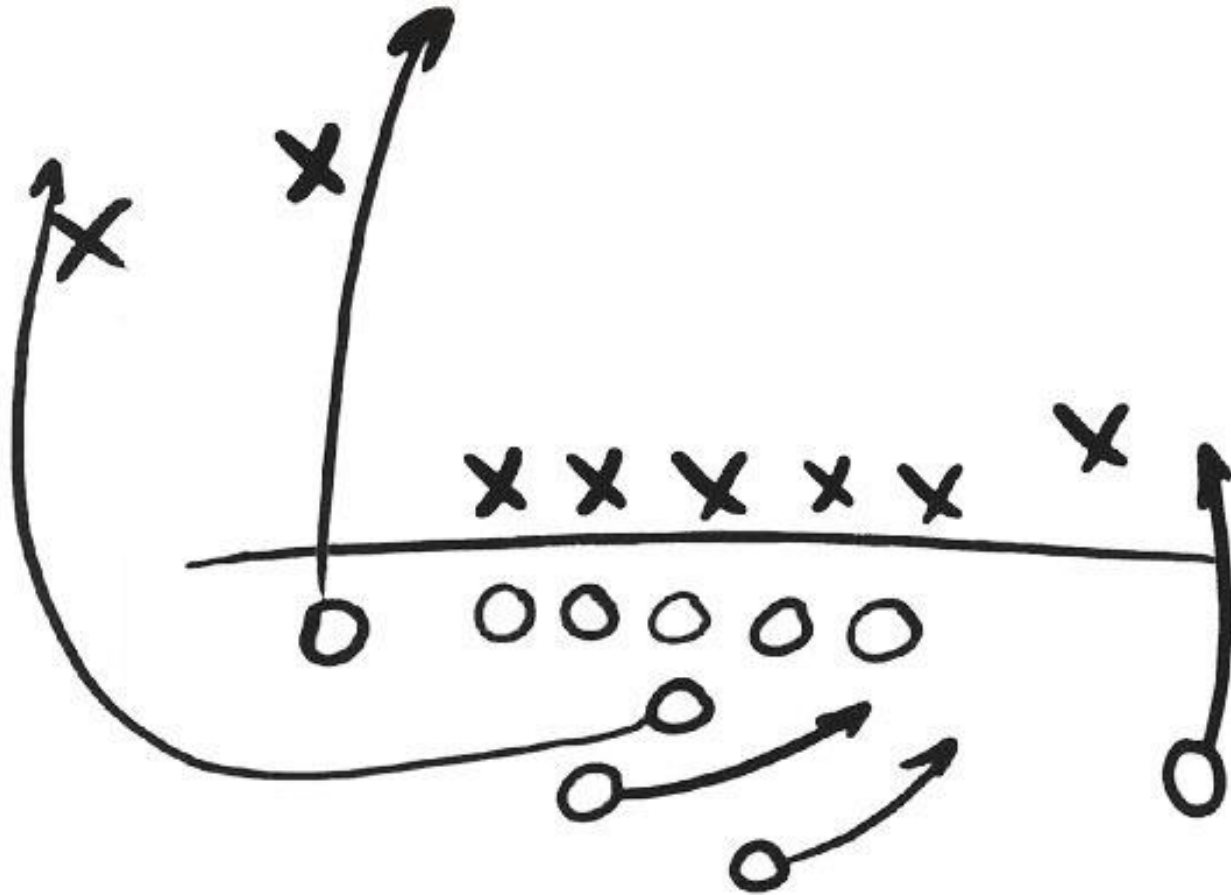


Drone Mission



Drone Launch.mp4

Drone Mission



Drone Mission



touchdown.mp4

Case Study – Lanett Municipal Airport Runway Re-orientation



Case Study – Lanett Municipal Airport Runway Re-orientation



Case Study – Lanett Municipal Airport Runway Re-orientation

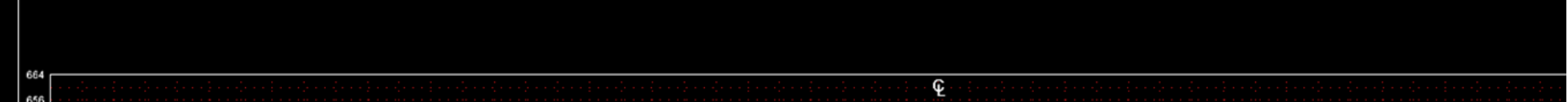
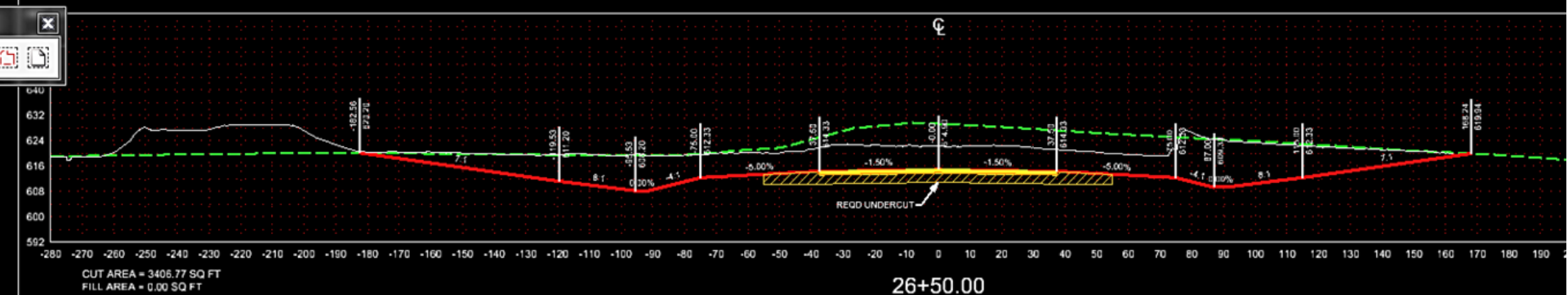
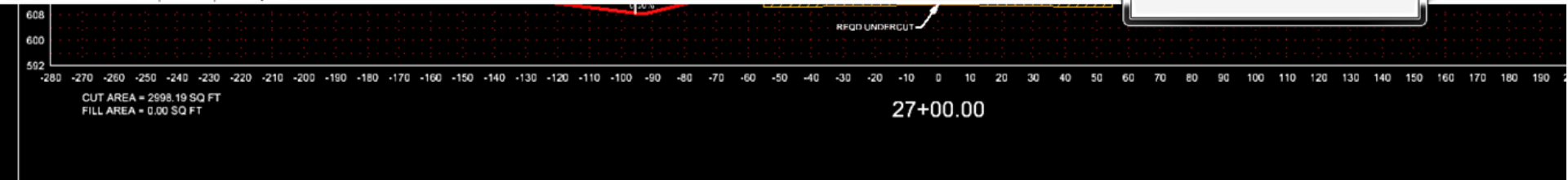
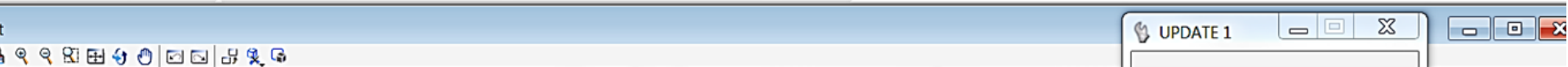


Lanett1080p.mp4

Case Study – Lanett Municipal Airport Runway Re-orientation



Applications Window Help



Another tool in the toolbox



- ✈ Saves time
- ✈ Saves money
- ✈ Increases safety
- ✈ High quality data



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Thank You