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Beyond Engagement: Building Workforce Ready Drone Programs in CTE

Drones as a Crosscutting Career Cluster—Combining Engagement and Workforce Development

1. Executive Summary

Drone technology—more formally Unmanned Aircraft Systems (UAS)—has moved from niche to mainstream across the U.S. economy, touching engineering, construction, public safety, agriculture, media, logistics, skilled trades, and aviation operations (FAA, 2025; GAO, 2021). That breadth is exactly what makes drones a crosscutting career cluster: drones are not "one program," but a platform of tools and workflows that show up inside many careers.

Thesis: In schools, "drone engagement" and "drone workforce development" are different—but complementary. Engagement sparks interest and participation; workforce development builds assessed competence and job readiness. Schools create the most value when they intentionally blend both into a coherent pathway that starts with excitement and ends with employability.

A key workforce signal is already visible in federal career infrastructure: in 2025 the National Center for O*NET Development validated and published drone specific task statements across 55 occupations, adding 53 new drone-related emerging tasks and revising 2 existing tasks to include drone content (Lewis, Gregory, & Morris, 2025). That is evidence that drones are no longer confined to a single job title—they are becoming embedded across job families.

2. The Current Landscape of Drones in Education

How schools are using drones today

Engagement-oriented use (common and valuable):

- Drone racing leagues, STEM clubs, and demonstrations
- Short "flight days," summer camps, maker projects
- Media/marketing projects (video reels, event coverage)
- Competitions that build teamwork and motivation

Emerging workforce-oriented use (growing fast):

- FAA knowledge prep (typically Part 107 baseline)
- Intro mission planning, mapping, inspection scenarios
- Early certifications, safety procedures, operational documentation
- Partnerships for authentic projects (construction, agriculture, public safety)

Why engagement matters—and where it can stall

Engagement programs are often the on ramp: they lower intimidation, increase participation, and help students picture themselves in technical careers. The risk is when programs remain "flight-only" and never translate enthusiasm into **transferable job skills** (compliance, data workflows, governance documentation, safety and risk management, customer requirements, mission outcomes).

Defining the difference (and why both are needed)

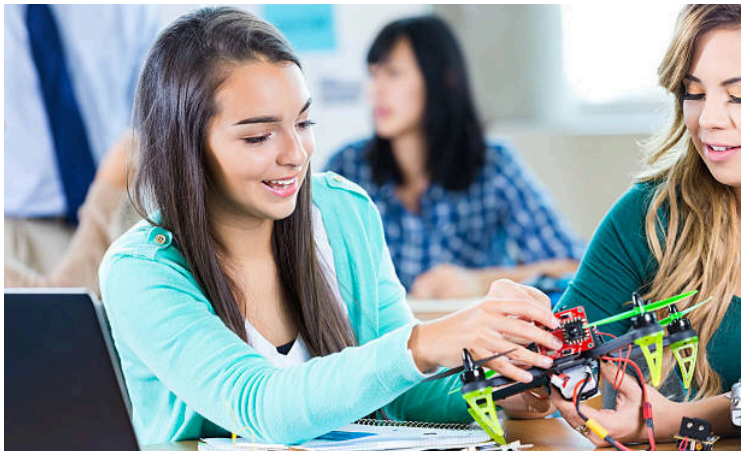
Dimension	Engagement Programs	Workforce Development Programs
Primary purpose	Spark interest & belonging	Build job-ready competence
Typical Outcomes	Participation, curiosity, exposure	3rd party assessed skills, credentials, employability
Instructional Center	Activities & events	Standards-aligned curriculum & evaluation
Proof of learning	"We flew/competed"	"We can plan, execute, document, and deliver results"
Common gap	Not connected to industry deliverables	Can feel rigid without a motivating on ramp

Bottom line: Engagement gets students at the door. **Workforce development gets them hired.**

3. Drones as a Crosscutting Career Cluster

Drones are best understood as a capability stack used across industries:

- Aviation operations (airspace rules, safety, risk management)
- Sensors & data (imagery, photogrammetry, remote sensing, analysis)
- Field operations (inspection, mapping, emergency response)
- Engineering & maintenance (platforms, payloads, troubleshooting)
- Business & compliance (contracts, SOPs, privacy, QA)



This cross-cutting reality is mirrored in ONET's work to modernize task statements. The ONET pilot identified drone-related task needs across many occupations and validated drone-specific tasks for publication (Lewis et al., 2025). Examples of published drone-related tasks include:

- 119021.00 Construction Managers: Direct how drone technology is used for site inspections and progress monitoring... (Lewis et al., 2025, Appendix D)
- 173029.01 Nondestructive Testing Specialists: Operate drones for remote inspection of large or hard-to-reach structures... (Lewis et al., 2025, Appendix D)
- 194012.01 Precision Agriculture Technicians: Operate drone technology to capture aerial imagery and data for crop monitoring and analysis. (Lewis et al., 2025, Appendix D)
- 331021.00 Firstline Supervisors of Firefighting and Prevention Workers: Deploy and monitor drones for aerial surveillance and assessment of fire situations. (Lewis et al., 2025, Appendix D)
- 274021.00 Photographers: Operate drones to capture aerial photographs and videos, following all regulatory guidelines. (Lewis et al., 2025, Appendix D)

Implication for CTE: A "single use" drone unit (e.g., racing only) underserves students. A modern program should evolve into **multi-industry, career relevant pathways** where the drone is a tool students use to produce outcomes that employers recognize.

4. Engagement and Workforce Development: Different Paths, Similar Goals

Engagement programs (purpose: spark interest)

Strong engagement models can include:

- Racing and flight challenges that teach iteration and systems thinking
- Competitions tied to storytelling, entrepreneurship, or marketing
- Campus showcases that build community support and recruitment

Best practice: Make engagement activities explicitly connected to career language:

- "This is what surveying and mapping technicians do with drones" (173031.00)
- "This is how media technical directors coordinate drone filming" (272012.05) (occupations listed in Lewis et al., 2025, Appendix B/D)

Workforce development programs (purpose: job-ready graduates)

Workforce-aligned programs include:

- Standards-aligned instruction and performance rubrics
- 3rd party assessed competencies (proctored examination)
- Real-world operations: preflight planning, safety checks, crew roles, logs, deliverables (flight proficiency + mission outcomes + documentation)
- Industry validation: partners, internships, capstone projects

Key message: Engagement and workforce development both serve students—but at different stages of the journey.

5. The "Best of Both Worlds" Model

Schools win when they build a pathway that keeps the energy of engagement and adds the rigor of workforce preparation.

A simple pathway model

Engage → Explore → Train → Deploy

- Engage: clubs, demos, racing, short projects (recruitment + retention)
- Explore: industry "taster" missions (mapping, inspection, public safety scenarios)
- Train: standards-based curriculum + assessed competencies + credentials
- Deploy: supervised operations, internships, capstones with real deliverables

Turning "fun" into "function"

A race team can become a maintenance and troubleshooting lab. A filming demo can become a client brief + flight plan + compliance checklist + deliverable package. A mapping activity can become a survey workflow aligned to occupations like:

- 171021.00 Cartographers and Photogrammetrists (drone imagery for map creation)
- 171022.01 Geodetic Surveyors (orientation/boundaries using drones and geodetic equipment) (Lewis et al., 2025, Appendix D)

6. Why Part 107 Alone Is Not Enough Anymore

FAA Part 107 knowledge is foundational for small UAS commercial operations, and it remains a valuable baseline credential. But employers increasingly differentiate between someone who can "pass a test" and someone who can run an operation and collect quality data, SAFELY. The goal is to have safe, sustainable, and repeatable operations.

Modern programs should place Part 107 inside a broader readiness framework that includes:

- Operational complexity: night operations, operations over people, waivers, controlled airspace workflows (e.g., LAANC where applicable), and evolving rules (FAA resources; GAO, 2021)
- Beyond Part 107 contexts (other Code of Federal Regulations):
  - Part 91 / public aircraft operations considerations for government/public safety contexts (FAA guidance varies by mission and agency structure)
  - Part 135 relevance as a real-world precedent in drone delivery programs (e.g., air carrier certification pathways used by some operators)
  - BVLOS trajectory (Part 108 Notice of Proposed Rulemaking, Aug 2025): the FAA has been moving BVLOS policy forward through waivers and rulemaking efforts; many workforce roles are trending toward "complex ops" expectations (GAO, 2021; World Economic Forum, 2024)
- Safety management and documentation: SOPs, risk assessment, incident response, maintenance logs
- Data workflows: collection planning, QA/QC, photogrammetry outputs, chain of custody (public safety), reporting
- Security and privacy literacy: data stewardship, ethical use, organizational policies

Career framing: This is the bridge from "low-complexity tasks" to **high-skill, high-wage careers**—not by dismissing Part 107, but by building above it.

7. Designing a High Impact Drone Pathway (CTE)

Core components of a blended program

1. Early-stage engagement (clubs, events, racing, media)
2. Competency framework aligned to industry expectations (flight + safety + data + professionalism)
3. Credentials (Part 107 baseline plus industry certification)
4. Safety practices that look like real operations (briefings, checklists, logs, roles, after-action reviews)
5. Local and Regional Scenarios + partnerships with utilities, construction, agriculture, public safety, ports, and engineering firms
6. Capstones with deliverables (maps, inspection reports, imagery packages, mission documentation)

A sample 4-year scaffold (illustrative)

- Year 1 (Engage): flight fundamentals, club participation, basic maintenance, intro ethics/privacy
- Year 2 (Explore): mission mini-units across industries (construction progress, ag scouting, media capture) mapped to O*NET-relevant roles such as:
  - 119021.00 Construction Managers (site inspections/progress monitoring)
  - 194012.01 Precision Agriculture Technicians (crop imagery/data capture)
  - 274031.00 Camera Operators (aerial footage for productions) (Lewis et al., 2025, Appendix D)
- Year 3 (Train): Part 107 + assessed operating procedures, data QA/QC, documentation, customer requirements
- Year 4 (Deploy): work-based learning, supervised operations, partner-validated capstone, portfolio review

8. The Hobbyist to Professional Journey

Many students arrive with a hobbyist identity: "I like flying." Schools can treat that as an asset—because passion fuels persistence—while also teaching the professional mindset:

- Drones as tools, not toys: professional outcomes, not just airtime
- Professional habits: checklists, logs, briefings, risk mitigation, maintenance discipline
- Mission thinking: define the question first (What decision will this data support?) then select platform, sensor, flight plan, and deliverable
- Responsible use: hazard identification, compliance, privacy, and community trust

This is exactly how cross-cutting careers emerge: the same student who loves flying can discover a fit in surveying, inspection, emergency response support, remote sensing, media production, or engineering—all represented in O*NET's drone-related occupation set (Lewis et al., 2025, Appendix B/D).

9. How USI Helps Schools Combine Both Worlds

In a "best of both worlds" model, schools benefit from a partner that can help them translate enthusiasm into operational readiness.

USI can support schools as a safety- and standards-oriented partner by helping:

- Design pathways that **honor engagement** while embedding workforce rigor
- Establish safety management practices appropriate for student operations
- Build assessed training progressions across job roles **(Engage → Explore → Train → Deploy)**
- Prepare programs for partnerships by aligning learning outcomes to real employer expectations—like the drone-integrated tasks now appearing across O*NET occupations (Lewis et al., 2025)

(Program specifics should be tailored to local constraints, insurance requirements, facilities, district policy, and state CTE requirements.)

10. Recommendations and Next Steps

Practical steps for schools (start now)

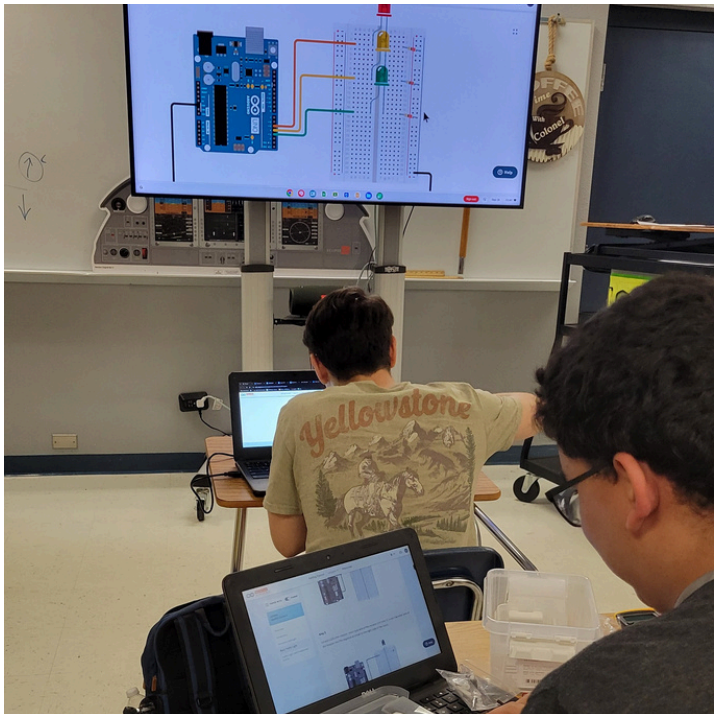
1. Audit current activities
   - Where are we strong in engagement (clubs, events, recruitment)?
   - Where are we strong in workforce (assessments, documentation, industry projects)?
2. Choose 3–5 target industries based on local demand (construction, ag, public safety, utilities, media)
3. Map learning outcomes to recognized occupations
   - Use O*NET drone-related occupations and tasks as a credibility backbone (Lewis et al., 2025, Appendix D)
4. Build a competency rubric
   - Flight proficiency plus safety, planning, documentation, and deliverables
5. Create one partner-validated capstone
   - A deliverable that looks like work (inspection summary, orthomosaic/map, incident support plan, media package)

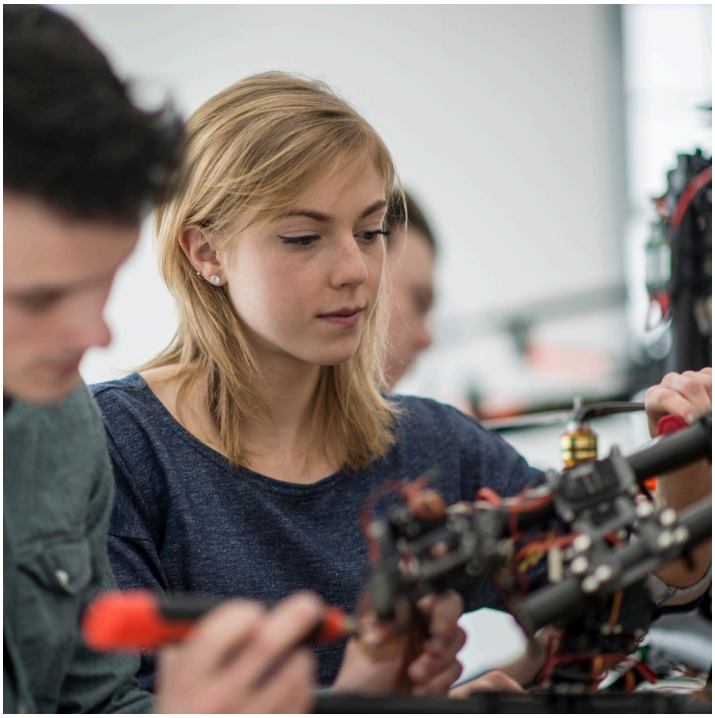
Questions to ask vendors/providers

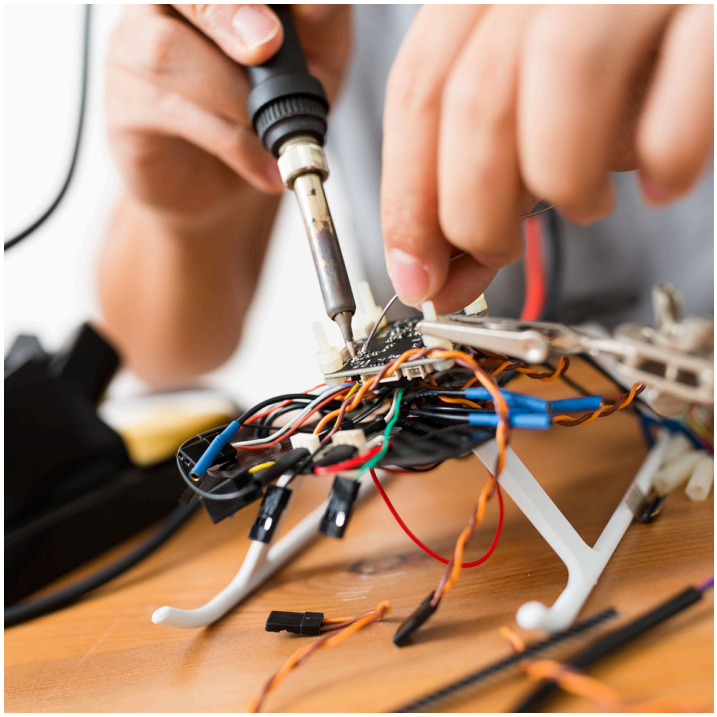
- What standards and assessments are used beyond “time flying”?
- How do students demonstrate competence (checklists, logs, mission documentation, deliverables)?
- How are instructions kept aligned with evolving FAA requirements and industry practices?
- What pathways exist beyond Part 107 into complex operations readiness?
- How does the program connect to recognized occupations (e.g., those with published drone tasks in O*NET)?

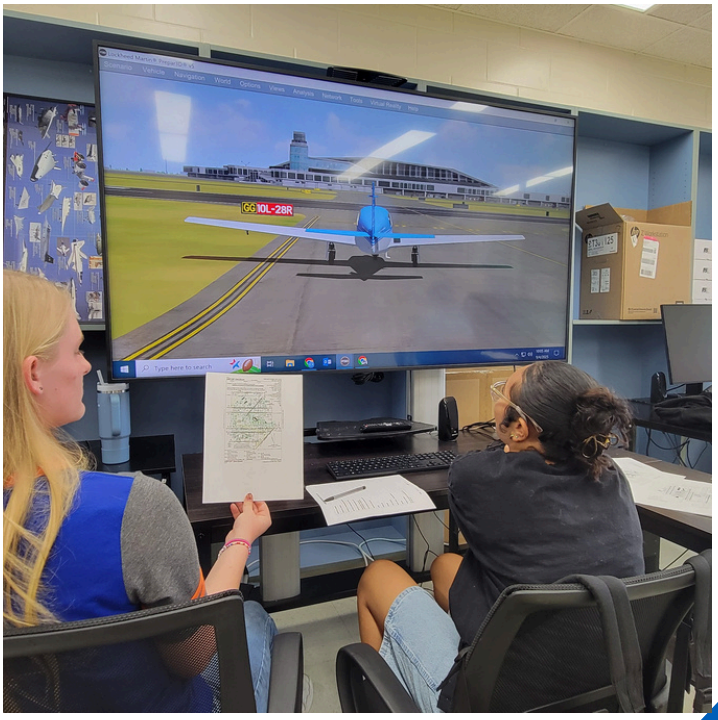
Call to action

If your program already has energy, you’re halfway there. The next step is to convert that energy into a **credible workforce pathway**—one that is exciting for students and legible to employers. Partner with USI to design or upgrade a drone program that delivers the **best of both worlds.**









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1. Dierdorff, E. C., & Norton, J. J. (2011). Summary of procedures for ONET task updating and new task generation.* National Center for O*NET Development. https://www.onetcenter.org/reports/TaskUpdating.html

2. Federal Aviation Administration (FAA). (2025). What is an Unmanned Aircraft System (UAS)? https://www.faa.gov/faq/what-unmanned-aircraft-system-uas

3. U.S. Government Accountability Office (GAO). (2021). Unmanned Aircraft Systems. https://www.gao.gov/assets/gao-21-165.pdf

4. Lewis, P., Gregory, C., & Morris, J. (2025). Adding Drone-Specific Tasks to the ONET Database: Initial Identification of Emerging Tasks using ChatGPT.* National Center for O*NET Development. (Includes occupation list in Appendix B and published drone-specific task statements in Appendix D.)

5. National Center for ONET Development. (2025). ONET Database. https://www.onetcenter.org/database.html

6. World Economic Forum. (2024). Fourth Industrial Revolution: airspace management and societal benefits of drone technology. https://www.weforum.org/stories/2024/05/this-pioneering-airspace-management-system-can-unleash-the-societal-benefits-of-drone-tech/

APPENDIX A

1) One Page Executive Handout (CTE Directors, Superintendents, Principals)
Drones Are Now a Crosscutting Career Cluster—Not a Single Elective

Drone technology (UAS) is rapidly becoming "how work gets done" across industries. The National Center for O*NET Development validated and published drone-specific task statements across 55 occupations—including construction, surveying, agriculture, media, public safety, skilled trades, and aviation—adding 53 new tasks and revising 2 existing tasks to include drone content (Lewis, Gregory, & Morris, 2025, pp. 10, 25–29).

The Core Idea: Engagement and Workforce Readiness Are Different (and Both Matter)

- Engagement programs (clubs, racing, demos) are powerful entry points that build identity and recruitment.
- Workforce development programs turn that interest into assessed competence: mission planning, safety practices, documentation, data deliverables, and industry-aligned performance.

The "Best of Both Worlds" Pathway (simple and scalable)

Engage → Explore → Train → Deploy

- Engage: high-energy activities that attract students
- Explore: short "industry mission" projects (mapping, inspection, emergency support, media)
- Train: standards-based instruction + assessed competencies + credentials (Part 107 as baseline)
- Deploy: supervised operations + partner-validated capstone + portfolio

Why Part 107 Alone Is Not Enough

Part 107 is a foundation, not the finish line. Employers increasingly expect operational readiness: safety management, SOPs, logs, crew roles, data quality, and readiness for complex operations (FAA, 2025; GAO, 2021).

What a High Impact Drone Pathway Produces

Graduates who can:

- Plan and brief a mission, operate safely, and document outcomes
- Deliver real artifacts: maps/orthos, inspection imagery, incident documentation, media packages
- Speak career language tied to real occupations where drones are now explicitly part of work (Lewis et al., 2025, Appendix D)

Quick Start (60–90 days)

1. Inventory what you already do (clubs, events, STEM units, pathways).
2. Pick 3 local industries (e.g., construction + agriculture + public safety).
3. Add one "mission deliverable" to an existing engagement activity.
4. Build a simple rubric: safety + planning + execution + deliverable + professionalism.
5. Secure one partner to validate the capstone deliverable format.

Board Friendly Metrics

- Enrollment and retention (Engagement)
- Credential attainment + performance assessments (Readiness)
- Capstone completions with external review (Workforce validation)
- Work-based learning placements and industry sponsorships (Sustainability)

APPENDIX B

2) Appendix (Industry → O*NET Codes → Published Drone Task Statements)

All task statements below are the published drone-specific tasks from ONET work as documented in Appendix D of Lewis, Gregory, & Morris (2025, pp. 25–29).*

A. Built Environment, Surveying, Infrastructure

INDUSTRY USE CASE	O*NETSOC	OCCUPATION	PUBLISHED DRONE TASK STATEMENT (VERBATIM)
CONSTRUCTION PROGRESS & QA	119021.00	Construction Managers	"Direct how drone technology is used for site inspections and progress monitoring, ensuring accurate and timely project completion."
TOPOGRAPHIC DATA FOR DESIGN	171012.00	Landscape Architects	"Use drone technology to survey large areas and gather accurate topographical data."
MAPPING & PHOTOGRAMMETRY	171021.00	Cartographers and Photogrammetrists	"Use drone technology to capture high-resolution images and data for map creation and updating."
PRECISION BOUNDARY/ORIENTATION WORK	171022.01	Geodetic Surveyors	"Determine orientation of tracts of land, including position, boundaries, size, and shape, using... satellite-based positioning equipment, drones... or other geodetic survey equipment."

CIVIL INFRASTRUCTURE MONITORING	172051.00	Civil Engineers	"Use drone technology for site surveying, inspection, and monitoring of infrastructure projects."
DRAFTING FROM AERIAL/TOPO DATA	173011.00	Architectural and Civil Drafters	"Use drone technology to capture aerial views and topographical data for civil engineering projects."
FIELD SURVEYING/INSPECTION SUPPORT	173022.00	Civil Engineering Technologists and Technicians	"Operate drones for site surveying and inspection, providing detailed aerial views of project sites."
MAP CREATION SUPPORT	173031.00	Surveying and Mapping Technicians	"Use drone technology to capture aerial images or videos for creating detailed and accurate maps."
BRIDGE/TURBINE/TALL STRUCTURE INSPECTION	173029.01	Nondestructive Testing Specialists	"Operate drones for remote inspection of large or hard-to-reach structures, such as wind turbines, bridges, or tall buildings."
ROOFING/BUILDING HARD TO REACH INSPECTION	499071.00	Maintenance and Repair Workers, General	"Use drones for inspecting roofs, gutters, and other hard-to-reach areas of buildings."
MASONRY/TALL STRUCTURE CONDITION CHECKS	472021.00	Brick masons and Block masons	"Use drone technology to inspect and assess the condition of tall structures."
JOBSITE ACCESS/STRUCTURE INSPECTION	472031.00	Carpenters	"Use drones for site surveying and to inspect hard-to-reach areas of a structure."

INDUSTRY USE CASE	O*NETSOC	OCCUPATION	PUBLISHED DRONE TASK STATEMENT (VERBATIM)
CROP MONITORING & TARGETED MANAGEMENT	172021.00	Agricultural Engineers	"Use agricultural drones for crop monitoring, irrigation management, and pest control."
CROP IMAGERY & DATA CAPTURE	194012.01	Precision Agriculture Technicians	"Operate drone technology to capture aerial imagery and data for crop monitoring and analysis."
AERIAL SURVEYS, WILDLIFE/FOREST HEALTH	194071.00	Forest and Conservation Technicians	"Operate and manage drone technology for aerial surveys and mapping, wildlife monitoring, and forest health assessments."
WILDLIFE/HABITAT/POPULATION STUDIES	191023.00	Zoologists and Wildlife Biologists	"Use advanced technologies, such as GIS, remote sensing, and drone technology, for wildlife tracking, habitat mapping, and population studies."
REMOTE SENSING ON DRONES	194099.03	Remote Sensing Technicians	"Operate remote sensing equipment on drones to collect data in areas that are difficult to access or require high-resolution imagery."

MISSION PROTOCOLS/STANDARDS COMPLIANCE	192099.01	Remote Sensing Scientists and Technologists	"Develop protocols and procedures for planning and executing drone-based remote sensing missions to ensure they comply with standards and requirements."
FARM OPERATIONS: TREAT/MONITOR	452091.00	Agricultural Equipment Operators	"Operate drones to monitor crop health, growth and pest infestations, and apply targeted treatments."
PESTICIDE APPLICATION PRECISION	373012.00	Pesticide Handlers, Sprayers, and Applicators, Vegetation	"Use new technology and equipment, such as drones or GPS systems, to apply pesticides more accurately and efficiently."
RESOURCE SURVEILLANCE	333031.00	Fish and Game Wardens	"Operate drones for surveillance of large areas and tracking of wildlife."
LOGGING: DANGEROUS/HARD-TO-REACH TASKS	454022.00	Logging Equipment Operators	"Operate remote-controlled logging machines and drones for dangerous or hard-to-reach tasks."
HUNTING/FISHING AREA SURVEILLANCE	453031.00	Fishing and Hunting Workers	"Operate and maintain drone technology for aerial surveillance of hunting and fishing areas."

C. Public Safety, Security, and Investigation

INDUSTRY USE CASE	O*NETSOC	OCCUPATION	PUBLISHED DRONE TASK STATEMENT (VERBATIM)
FIREGROUND SITUATIONAL AWARENESS	331021.00	Firstline Supervisors of Firefighting and Prevention Workers	"Deploy and monitor drones for aerial surveillance and assessment of fire situations."
WILDLAND FIRE MONITORING/ACCESS POINTS	332022.00	Forest Fire Inspectors and Prevention Specialists	"Operate drones to monitor and assess fire conditions, track fire progress, and identify safe access points for firefighters."
EVIDENCE GATHERING IN DIFFICULT LOCATIONS	333021.00	Detectives and Criminal Investigators	"Operate drones for aerial surveillance or to gather evidence from difficult to reach locations."
CRIME SCENE AERIAL DOCUMENTATION	333021.02	Police Identification and Records Officers	"Use drone technology for aerial photography and videography of crime scenes."
INVESTIGATION TECH STACK INTEGRATION	339021.00	Private Detectives and Investigators	"Use advanced technology, such as drones, GPS trackers, and surveillance cameras, to facilitate investigations."
LOSS PREVENTION SURVEILLANCE	339099.02	Retail Loss Prevention Specialists	"Use drone technology for surveillance and loss prevention."
CRIME SCENE DOCUMENTATION	194092.00	Forensic Science Technicians	"Operate drones to capture aerial footage or photographs of crime scenes for further analysis."

D. Media, Film, and Live Event Production

INDUSTRY USE CASE	O*NETSOC	OCCUPATION	PUBLISHED DRONE TASK STATEMENT (VERBATIM)
AERIAL FILMING COORDINATION	272012.05	Media Technical Directors/Managers	"Coordinate the use of drone technology for aerial filming and photography."
LIVE EVENTS / RECORDED CONTENT	274011.00	Audio and Video Technicians	"Operate drones for aerial videography and photography during live events or for pre-recorded material."
AERIAL PHOTO/VIDEO CAPTURE	274021.00	Photographers	"Operate drones to capture aerial photographs and videos, following all regulatory guidelines."
FILM/TV AERIAL FOOTAGE	274031.00	Camera Operators, Television, Video, and Film	"Operate drones to capture aerial or unique angle footage for film, television, or video productions."
CAMERA SYSTEM REPAIR/CALIBRATION	499061.00	Camera and Photographic Equipment Repairers	"Repair and calibrate drone cameras and equipment for aerial photography and videography."

E. Transportation, Logistics, Utilities, Energy, and Aviation Operations

INDUSTRY USE CASE	O*NETSOC	OCCUPATION	PUBLISHED DRONE TASK STATEMENT (VERBATIM)
DELIVERY + INVENTORY WORKFLOWS	113071.00	Transportation, Storage, and Distribution Managers	"Direct the use of drones and autonomous vehicles for efficient and cost-effective delivery of goods and inventory management."

TRANSPORTATION SYSTEMS INTEGRATION	172051.01	Transportation Engineers	"Develop plans for integration of drone technology into transportation systems for purposes such as delivery of goods or traffic monitoring."
TECH EVALUATION (GPS/RFID/DRONE)	131081.01	Logistics Engineers	"Evaluate the use of technologies, such as... drone or robotic technology... to improve transportation efficiency."
TOWER/ANTENNA INSPECTION	492021.00	Radio, Cellular, and Tower Equipment Installers and Repairers	"Use drone technology to inspect towers and antennas for damage or maintenance needs."
HIGH-VOLTAGE INSPECTION	492095.00	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	"Use drones for inspection of high-voltage lines and other hard-to-reach equipment."
UAS TESTING/TROUBLESHOOTING	173021.00	Aerospace Engineering and Operations Technologists and Technicians	"Operate, test, and troubleshoot uncrewed aerial systems, commonly known as drones, to ensure optimal performance."
AUTONOMY DEVELOPMENT/TESTING	172011.00	Aerospace Engineers	"Develop and test autonomous systems for uncrewed aerospace vehicles."

AIRPORT AIRSPACE SAFETY	532022.00	Airfield Operations Specialists	"Monitor and manage the operation of drones within the airport airspace to ensure safe aircraft operations."
UAS COMPLIANCE INSPECTION	536051.01	Aviation Inspectors	"Inspect uncrewed aircraft systems, such as drones, to ensure compliance with safety and operation regulations."
MARITIME INSPECTION	535021.00	Captains, Mates, and Pilots of Water Vessels	"Oversee the use of drones for inspection and maintenance of hard-to-reach parts of the vessel."
SHIP INSPECTION/MAINTENANCE	535031.00	Ship Engineers	"Use drone technology for ship inspections, maintenance, or other tasks."
OILFIELD INSPECTION	537073.00	Wellhead Pumpers	"Conduct regular inspections of equipment using drones or other advanced technology."
MINING SITE SAFETY/EFFICIENCY	172151.00	Mining and Geological Engineers, Including Mining Safety Engineers	"Use drone technology for aerial surveys and inspections of mining sites to enhance safety and efficiency."
DRILLING SITE MONITORING	172171.00	Petroleum Engineers	"Use drone technology for aerial surveying and monitoring of drilling sites."
LARGE-SCALE COMMERCIAL UAS OPS	532012.00	Commercial Pilots	"Operate large scale uncrewed aerial vehicles (UAVs) or

			drones for various commercial purposes, such as aerial photography, surveying land and structures, or monitoring wildlife."
BLASTING SITE SURVEYS	475032.00	Explosives Workers, Ordnance Handling Experts, and Blasters	"Operate drones for aerial survey of blast sites and for post-blast damage assessment."
AVIONICS ON UNCREWED AIRCRAFT	492091.00	Avionics Technicians	"Perform installation, testing, adjustment, and repair of avionics equipment in uncrewed aerial vehicles, such as drones."
SITE CONDITIONS WHEN VISIT ISN'T FEASIBLE	131051.00	Cost Estimators	"Use remote sensing technologies or drones to evaluate site conditions when in-person visits are not feasible."
REMOTE/AUTOMATED INSPECTION	131041.04	Government Property Inspectors and Investigators	"Use emerging technologies, such as drones, for remote or automated inspections."

References (for Appendix A and B)

1. Federal Aviation Administration (FAA). (2025). What is an Unmanned Aircraft System (UAS)? https://www.faa.gov/faq/what-unmanned-aircraft-system-uas

2. Lewis, P., Gregory, C., & Morris, J. (2025, May). Adding Drone-Specific Tasks to the ONET Database: Initial Identification of Emerging Tasks using ChatGPT.* National Center for O*NET Development, U.S. Department of Labor. (See especially pp. 10 and Appendix D, pp. 25–29.)

3. U.S. Government Accountability Office (GAO). (2021). Unmanned Aircraft Systems. https://www.gao.gov/assets/gao-21-165.pdf