



# Drones for Construction Project Management

An Introduction to Drones for Construction Project Management

# Explore this eBook

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# 01 Introduction: A Drone in Every Project Manager's Toolkit

Managing a construction project is no small task. From tracking site progress and monitoring safety, to overseeing subcontractors and keeping stakeholders informed, there is almost no end to the amount of coordination you face on any given day.

It's no wonder project managers on job sites of all sizes are adding drones to their toolkit. Aerial photos, maps, and 3D models have the power to transform your workflow. Not only can drones save your project money and resources, but they also give your team a rich set of data for more informed communication and decision making. By spending less than an hour each week mapping your job site, you gain access to an unprecedented amount of knowledge about nearly every aspect of your project.

If you are a project manager looking to bring drones to your job site, we've put together this primer to get you started.

**In this ebook, you will learn:**

- Why aerial maps and 3D models are a game-changer for the construction industry
- Five workflows that are a good fit for drone data
- Favorite tools and integrations used by construction project managers
- How two major construction companies are putting drones to work today



**Believe the hype you are hearing about drones. Drones are going to change the construction industry—it's already happening.**

Grant Hagen, Virtual Design and Construction Manager





# 02 Why Aerial Maps and 3D Models are Transforming Project Management



As a construction project manager, you are the hub of an ever-changing landscape. But staying up to date on the many moving parts of a project sometimes feels like an impossible task: you just can't be everywhere at once. Until now.

Most construction project managers choose to map their entire job site each week. This regular, overhead view is invaluable when it comes to tracking progress, inspecting for safety issues, and keeping real-time tabs on every corner of a site. Because drone maps are geotagged, it's even possible to take basic area measurements and instantly estimate stockpile volumes for real-time decision making right on the spot. Annotate and share drone maps across teams for streamlined communication and reporting. Drone data can also be overlaid with additional site data, or imported into industry software for more advanced oversight and planning.

## Traditional Project Management



- Incomplete information
- Time-consuming analysis
- Multi-channel communication

## Aerial Maps and Models



- High-resolution aerial data sets
- Real-time insights
- Streamlined communication



**We've created a much more efficient process. We can literally take weeks out of the schedule, our projects are much higher quality than before, and they're safer.**

Jim Gorrie, CEO Brasfield & Gorrie



## Five Workflows for Project Management and Drones

So how, exactly, are project managers using drone data? Here are five everyday workflows that can be streamlined and enhanced with aerial maps and 3D models.

### Progress Tracking and Reporting

Weekly drone maps reduce the amount of time spent walking a site to monitor, track progress, and inspect for safety issues.

Create a comprehensive visual record of a project. Use DroneDeploy's side-by-side view for easy comparison of progress over time. Leverage built-in annotation tools to generate reports for internal and external stakeholders.



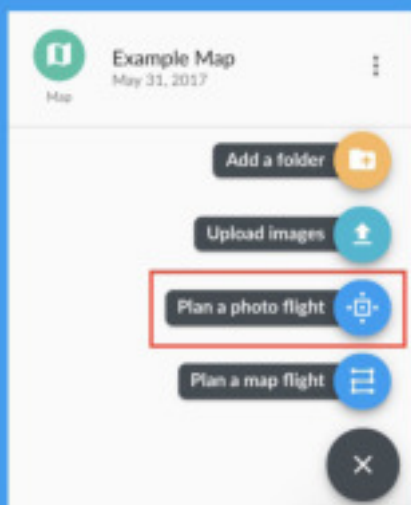




# DroneDeploy Progress Photos— An End-to-End Progress Reporting Solution

It's never been easier to report job site progress to stakeholders, customers, and collaborators. DroneDeploy's newest feature—Progress Photos—is an effortless solution that fits right into a traditional drone mapping workflow. Save time and create a complete photo reports of your job site in minutes.

Not only does this new feature simplify the data collection workflow, but it makes it possible to store all of your drone data (photos, maps, and models) on a single, easy-to-share platform. Say goodbye to multiple apps and programs, now you can manage all your images within DroneDeploy.



1. Plan flight



2. Capture photos



3. Generate reports

The new feature makes it simple to get gorgeous corner shots of your project and export them into a digestible report to keep stakeholders and clients informed of a site's progress. Just plan the photo mission, set your boundaries, and let the drone do its job.

[LEARN MORE](#)



**I can tell how many square feet of roof we've put down, how much square footage of concrete is left to pour. If we're trying to figure out truck access, we can measure the width of a road or gate or how much room we need to clear out for material to make the site clean and organized.**

Ryan Moret, Field Solutions Manager



### Communication and Information Sharing

Drones simplify communication and information sharing, both internally and externally. Keep everyone aligned and informed with up-to-date, easily digestible visual data.

DroneDeploy is cloud based, so it's easy to share annotated maps between team members in real time, or keep external stakeholders up-to-speed on the progress of a project through share links and interactive 3D models of a job site.



Sharing an interactive 3D model allows customers, collaborators, and stakeholders to explore a job site remotely. This gives them a 360 perspective of the entire project.





### Multilateral Collaboration

Streamline collaboration and enhance the decision-making process by referencing an up-to-date drone map any time changes need to be made on a project.

Easily reference current site issues during contractor meetings. Communicate changes and distribute information efficiently, even across large teams.



**If I need a contractor to be aware of a design change before he lays pipe, I simply walk over to him with my tablet, blow up a particular section of overlaid plans and show him exactly what he needs to know. I have it all in a PDF, so I can pencil in the new route of the pipe right there in front of him and then send the information over to the engineers. This cuts out weeks of back and forth and boils it all down to less than an hour.**

Jesse Creech, VDC Coordinator at Brasfield & Gorrie





### Site Planning

For more informed planning, overlay drone maps with site plans such as utility, wastewater, and equipment clearances. Compare real-time site conditions against plans. Catch conflicts early and redirect them at minimal cost.

For more advanced oversight and planning, export drone maps into industry software like BIM, GIS and CAD.

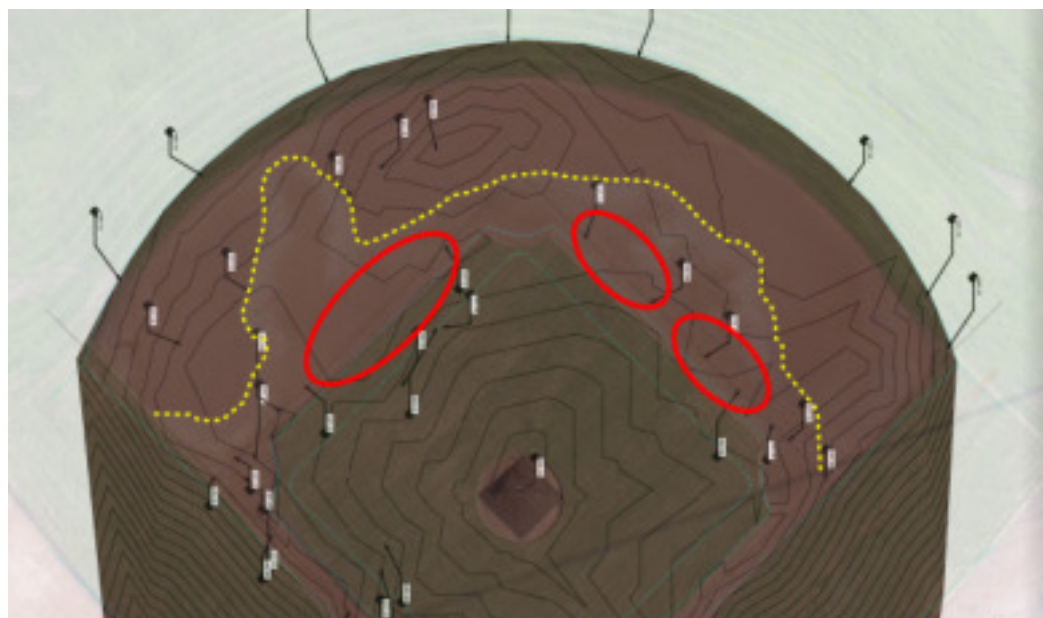


**Combining surveying, drones and CAD information allows us to display our projects in ways never seen before. We provide our team with the big picture and the information they need to more effectively share information and make better informed decisions.**

Michael Lambert, VDC Manager at Chasco Construction

### Subcontractor Management

Reference drone maps for real-time quality assurance, often before subcontractors even leave the site. Maintain accountability, preserve subcontractor relationships, and negotiate timely solutions that minimize project downtime.



# 03 Common Tools and Integrations

## The DroneDeploy App Market

The [DroneDeploy App Market](#) features tools and integrations to further streamline your workflows. Here's an overview of the most popular apps for use in construction project management.



### [The Procore App:](#)

Easily export DroneDeploy maps (Orthomosaic or Elevation) into your Procore project album.



### [The Autodesk App:](#)

Securely sync your drone data and maps directly from DroneDeploy to your Autodesk Forge account storage.



### [Export for AGTEK:](#)

Automatically initiates the correct export formats from DroneDeploy to use in AGTEK software. Supports state plane and local coordinate systems via an EPSG code.



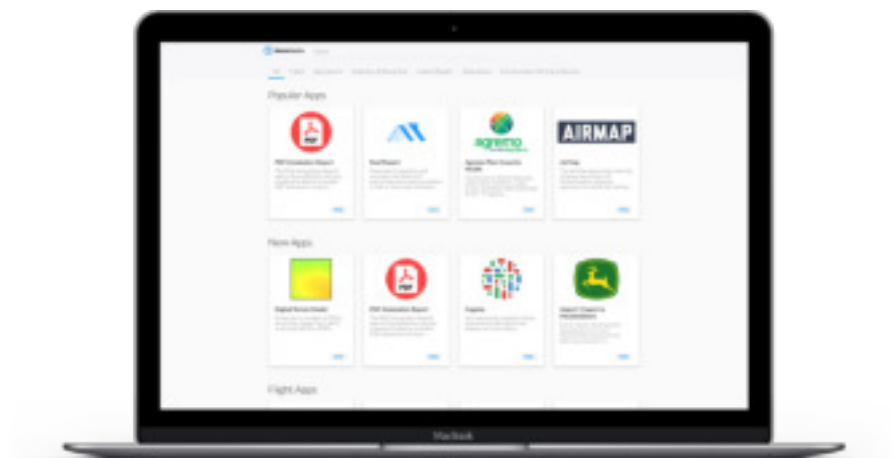
### [Side by Side:](#)

Quickly compare two maps of the same area, side by side.



### [Quick Map Overlays:](#)

Easily overlay roads, terrain info, waterways, buildings, US PLSS TRS data, and more on your maps to enhance location awareness and add an extra layer of data on your maps.



EXPLORE THE APP MARKET

### Live Map: Real-time Drone Maps for the Job Site

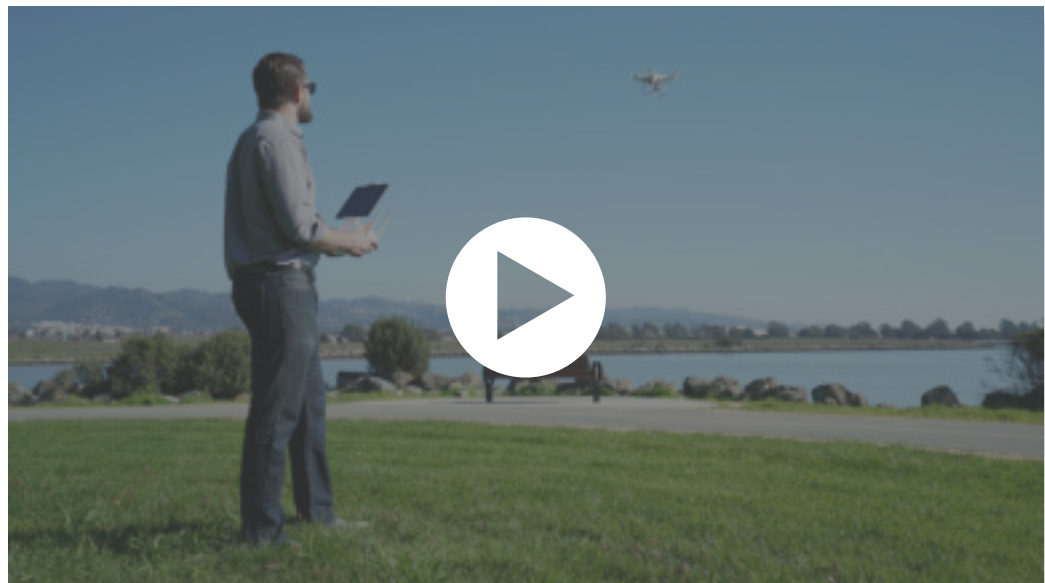
Live Map turns hundreds of acres into consumable maps without the need to go back to the office. Get accurate aerial views of your job site faster than ever before.

Monitor the progress of your job site by keeping track of earthwork, equipment, subcontractors, and structures in real time.



**Live Map helps me end each day with confidence knowing where a project stands and what our subcontractors have completed so that we can provide the best product for our clients.**

Ryan Moret, Field Solutions Manager at McCarthy Building Companies





# 04 Case Studies

## Choate Construction Uses Drones as a Cost-Effective Management Solution for 550,000 Square-Foot Project

Matthew Forster, project engineer on a 550,000 square-foot bottling plant project, mapped the site weekly to keep off-site stakeholders informed, and to give project managers and site engineers real-time data that helped them make efficient, informed decisions.



**I can zoom down and find my superintendent on the map,” says Matthew. “You can clearly see cars, you can clearly see people.**

Matthew Forster



### A Cost-Efficient Option

Using drones instead of manned aircraft photographs saved about \$7,700 over the entire project

In addition to cost savings, the drone maps Matthew produced gave project stakeholders a more comprehensive, high-resolution picture of the site's progress. Instead of thumbing through a stack of aerial photographs, they could see the entire site at one glance. If something required a closer look, they could easily zoom in to ground level.

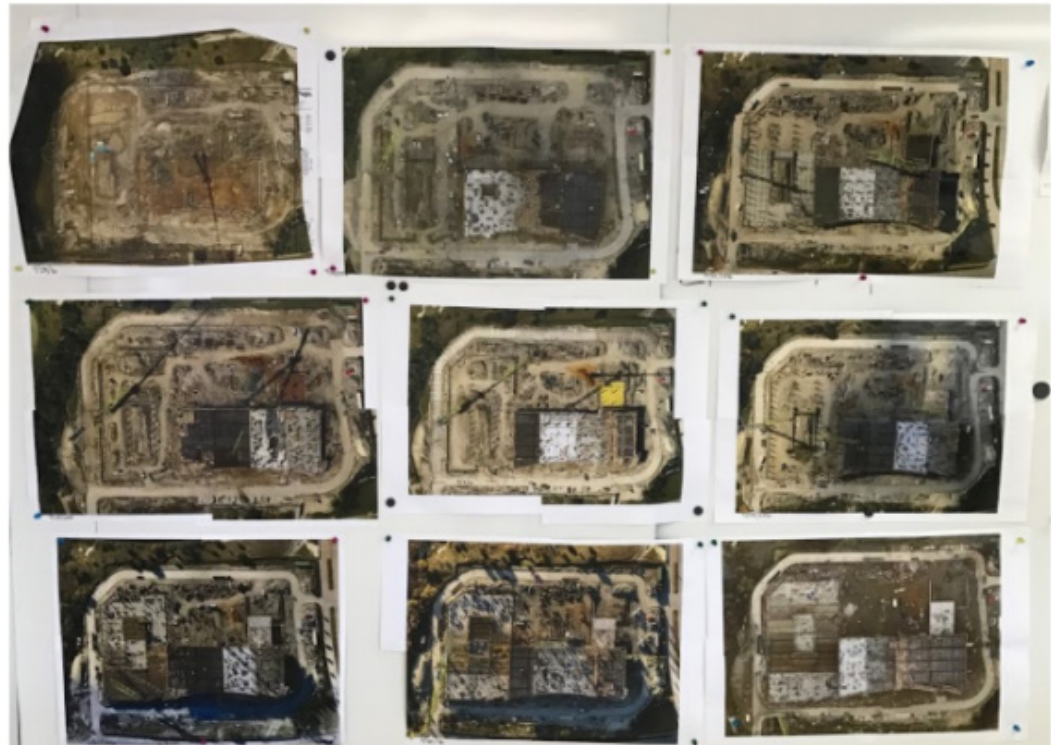
[Read the full case study](#)



## McCarthy Building Companies Uses Drone Maps to Improve Communication With Subcontractors and Across Teams

At every McCarthy Building Companies site, the wall of the job trailer is covered with weekly drone maps posted in sequence, giving anyone who walks into the room a clear picture of the project's progress over time, as well as a snapshot of any current issues on the site.

[Read the full case study](#)



**The trades love it, being able to walk up to the wall and see nine weeks of construction photos. They pull these up in every sub meeting, every owner meeting. We have data from that week to show contractors, 'Hey, the site's a mess, you guys need to go clean it up.' You can see rebar spread out all over the place, so there's no arguing. They see it for what it's worth.**

Ryan Moret



# 05 Next Steps: Getting Started with Drones in Construction

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## Get Started with DroneDeploy

Ready to give DroneDeploy a try? [Sign up to start a 30-day free trial](#) of our software and begin putting drone maps to work in your company.

## Talk with a Drone Mapping Expert

Still have questions? We are happy to hear from you. Please don't hesitate in reaching out to us with any questions. We'll connect you with one of our drone mapping experts to get you the information you need to get started with drones.

## Construction Webinar Series

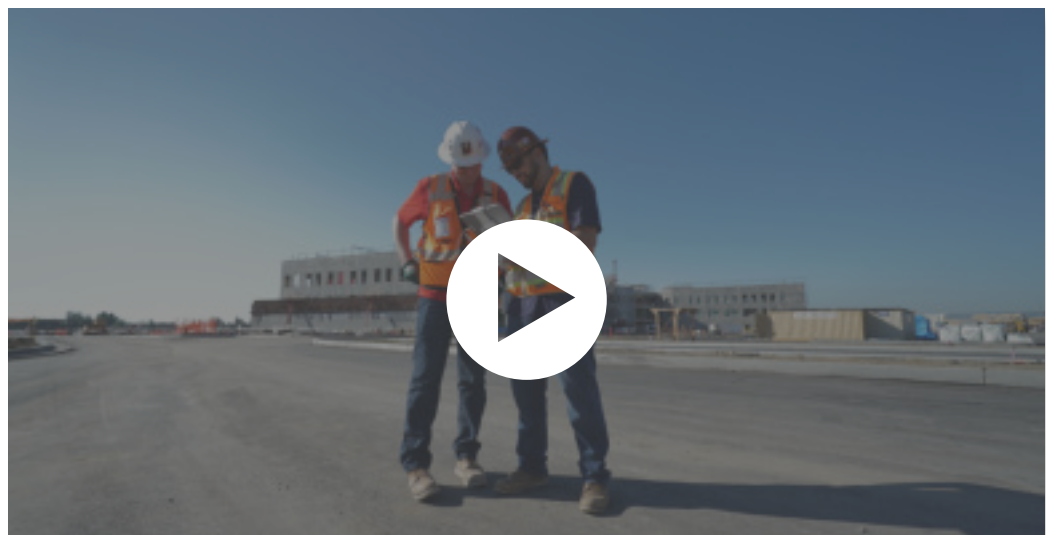
Our [construction webinar series](#), in conjunction with leading drone manufacturer DJI, gives great tips and tools to help your company get started with drones.

Watch our webinar, [Improving Commercial Inspections and Job Site Safety with UAVs](#) to hear how panelists from Beck Group and The Sequel Group use drones to streamline inspection workflows on their job sites.

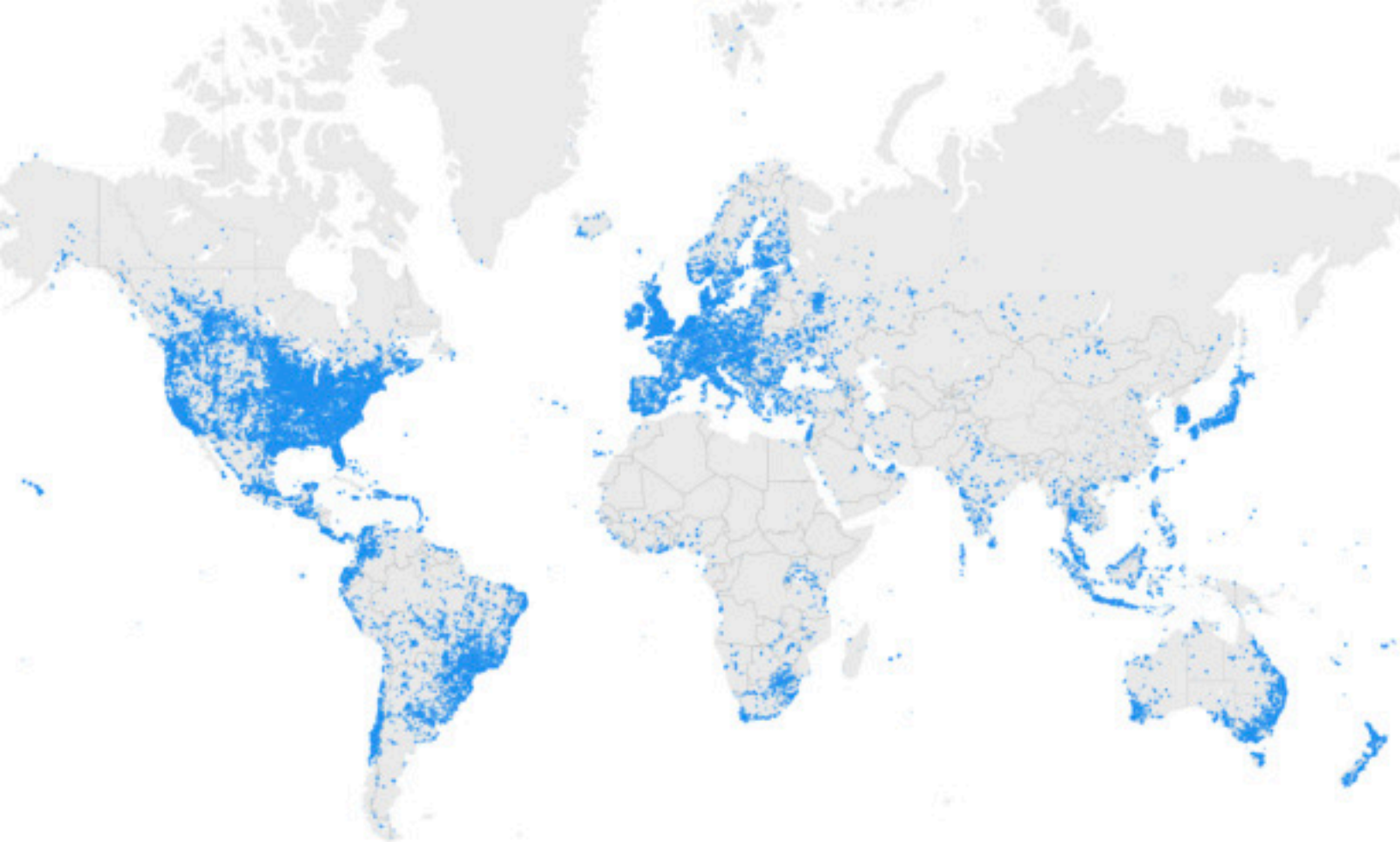
Tune into our webinar, [Mapping for Project Communication and Coordination](#) to learn how McCarthy Building Companies have been using shared maps for communication and project management across the organization.

## Construction Onboarding Guide

Our [Construction Onboarding](#) support documents are a one-stop shop to guide you through the steps to becoming a successful construction user of DroneDeploy.







## Areas Mapped with DroneDeploy

**7 Continents**

**160 Countries**

**25 Million Acres**

### About DroneDeploy

DroneDeploy is the leading cloud software platform for commercial drones, and is making the power of aerial data accessible and productive for everyone.

Trusted by leading brands globally, DroneDeploy is transforming the way businesses leverage drones and aerial data across industries, including agriculture, construction, mining, inspection and surveying. Simple by design, DroneDeploy enables professional-grade imagery and analysis, 3D modeling and more from any drone on any device.

DroneDeploy is located in the heart of San Francisco.

To learn more visit us online and join the conversation on Twitter.



 [www.dronedeploy.com](http://www.dronedeploy.com)

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