

# Title: How can drones stop my projects from going late and over-budget?

*Company: Kokosing | Industry: Construction & Excavation*



## BACKGROUND:

Westerville, Ohio-based Kokosing Construction Company, Inc. is one of the largest family-owned construction companies in the Midwest. Kokosing's primary business lines include heavy industrial, transportation, buildings, pipelines, environmental and marine work.

## GOAL/SOLUTION:

Aerial mapping of two 500-acre sites in Elkhorn City, Kentucky via a Boomerang drone system as part of two highway projects for the Kentucky Department of Transportation that involved cutting through five mountains and using the rock excavation for fills. There was a total of 33 million cubic yards of earth moved throughout these project.

## RESULTS:

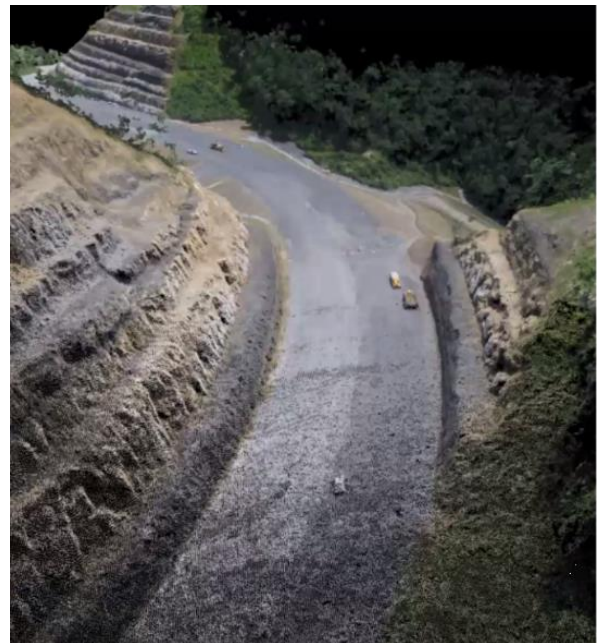
Total time on site for both locations was less than a half-day versus two months via the traditional process of waiting a month to book an aerial craft or manned survey team and waiting an additional month for the data results after the site is mapped.

## VALUE:

Kokosing was able to defer project survey related costs with Identified Technologies drone solution. Beyond direct mapping savings vs alternatives, the Boomerang system also reduced heavy equipment rental and labor costs by providing more timely, accurate, and sharable mapping data.

## CASE STUDY:

Cutting through the Kentucky mountainside for a new highway project requires both precise measurement and an accurate estimate of the amount of rock being removed. Beyond that, the mountainous terrain is difficult to transverse on foot.



*"The combination of precision, 200 times faster speed, reduced cost, and increased safety just checked every box for us."*

Bill Clifford, Head Surveyor | Kokosing Construction

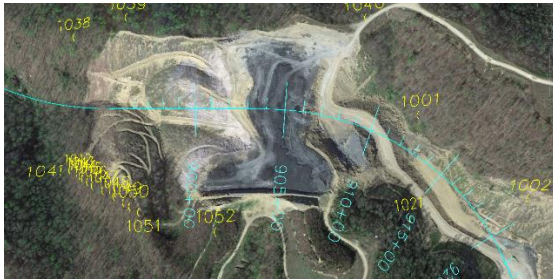
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When the Kentucky Department of Transportation selected Kokosing Construction for a pair of sites for a new highway in Pike County, Kentucky, the Ohio based contractor turned to Identified Technologies and its Boomerang drone system. The two 500-acre sites in Elkhorn City, Kentucky were both mapped in less than a half-day.

Kokosing had been using scanner technology to track between the mountains, according to Head Surveyor Bill Clifford. “We were already looking at drones for this particular project,” Clifford said. “Identified Technologies’ Boomerang system worked out great! We had our data back even faster than we expected. The peace of mind we had knowing our data was current and our project was on track was invaluable.”

**Pike #1 – Before:**



**Pike #1 – After:**



Another advantage of using the Boomerang system is that, unlike Lidar, it is able to generate photo-stitched video overlays that can then be shared with off-site team members in distant locations.

“The combination of precision, 200 times faster speed, reduced cost, and increased safety checked every box for us,” said Clifford. Clifford sees that safety is a major benefit of using the Boomerang system. “The drone takes workers out of harm’s way. You can just sit back safely and watch it work.”

Kokosing used a rock crusher to break down some of the mountains to perform grading, drainage, and rock channel protection along the new highway. “In such a remote area, there’s no opportunity to sell extra rock, so any excess is wasted. The Boomerang helped us see how much rock we had, so we were able to double check quantities and confirm we had enough without making extra,” said Clifford.

“Without updated mapping data, when we stockpile aggregate, we just have to guess at the actual volumes, not knowing if the ground underneath is level. With the updated topographical maps that the Boomerang system provides, we knew exactly what our rock volumes were,” Clifford said. “We were able to keep overproduction costs way down and I think any construction firm would see at least the same savings.”

### SAVINGS CHART – Based on Standard Industry Costs

Category	Cost	Per	Needed	Reduced	Value
Ground Survey	\$1K	Day	40	100%	\$40K
Aerial Survey	\$20K	Site	2	100%	\$40K
Rock Crusher	\$10K	Day	60	10%	\$60K
Bringing update to clients/directors instead of sending them out to site	\$2K	Person	10	100%	\$20K
<b>Total Deferred Cost, Using Either Survey Option:</b>					<b>\$120K</b>