

# An Engineer Explains Nearmap's AEC Content Stack

By Connor Tluck

**I**n civil engineering, imagery is a well-established and core component of the design process. Up-to-date and high-resolution imagery can be a huge aid for engineers as they conduct their work. Imagery works as an ultimate source of truth; it provides a continuous dataset in which gaps in survey information can be identified and confirmed visually.

Engineers are limited by the quality of the data they design from. Good quality data that accurately describes the current site conditions can be a deciding factor in the effectiveness of a design as well as giving a competitive advantage in the bidding process.

For any engineer to begin work on a concept level or preliminary design, they need three different pieces of data to represent the existing world:

The first is high-resolution imagery that's correctly georeferenced in the applicable design environment they're using. This serves as a ground to reality and helps visually confirm most additional data they may be working with. The

second is terrain data and 3D data. We live in a 3D world, so to make design assumptions within this space, engineers need that third dimension to fully integrate a proposed design into the project space. The final piece of data necessary to begin design is a planimetric basemap with vectorized linework. The planimetric drawing is what allows the engineer to interact with the existing ground features in a CAD

environment rather than simply visually seeing what's on the ground.

When a firm is pursuing a new project, these basic building blocks of data are needed to perform early concept planning, high-level cost estimates and ultimately make a bid for a job.

## Imperfect Data Acquisition

Engineering firms have developed numerous ways to acquire the basic datasets necessary for design, including utilizing free imagery sources, public DOT datasets and USGS terrain data. This process can ultimately satisfy the data requirements to begin design, but substantial issues can arise when utilizing this outdated workflow, including outdated datasets, inconsistent geolocation, issues with file formatting, cost of time of acquisition and the total lack of scalability that comes with a piecemeal solution.

These issues limit a firm's ability to deliver quality proposals, increase the risk that comes with early design submissions and add a level of ambiguity to the cost estimates associated with substandard datasets, making bids less competitive.

## What's the Solution?

Nearmap is uniquely positioned to fill this need in the market and provide AEC customers comprehensive data, including

## Video Demonstrations

For more information, watch these videos made by Connor Tluck, a solution engineer for Nearmap. Click on the accompanying link or scan the QR code.



**AEC Data Stack Overview**  
[bit.ly/3fsOY78](https://bit.ly/3fsOY78)



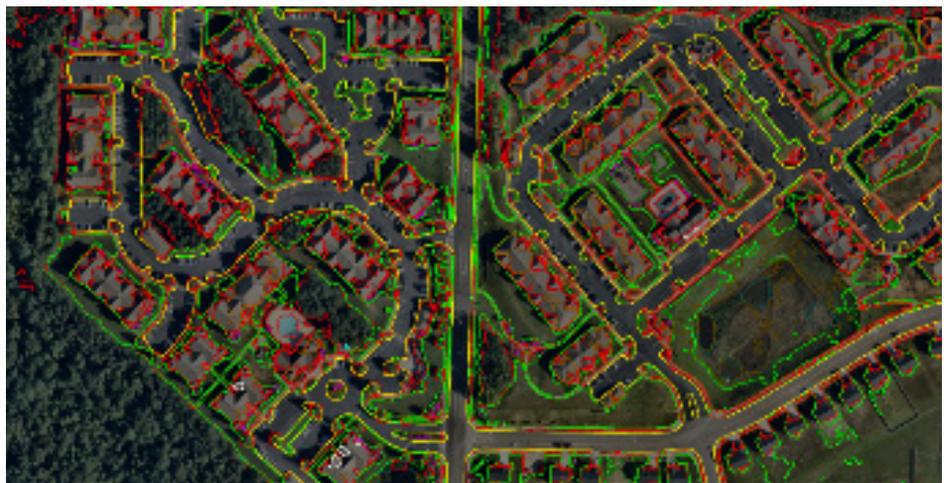
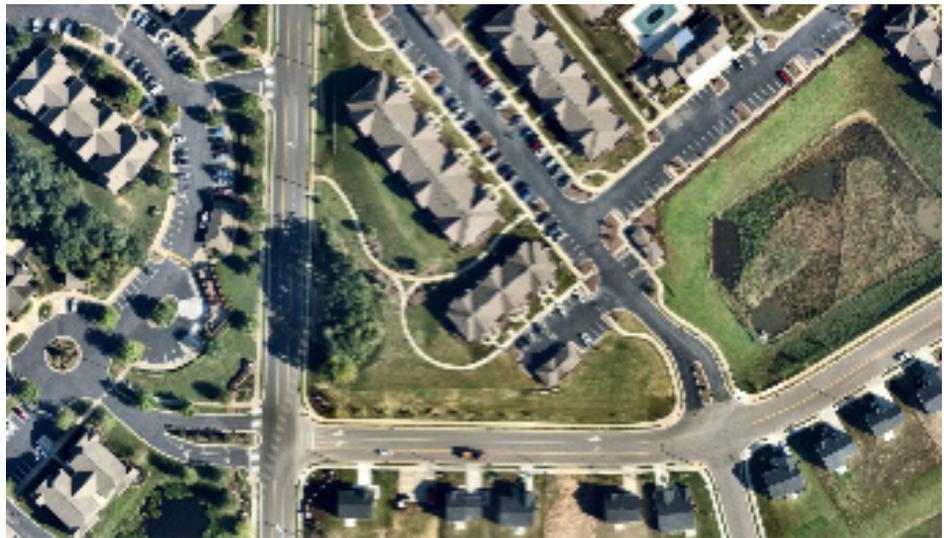
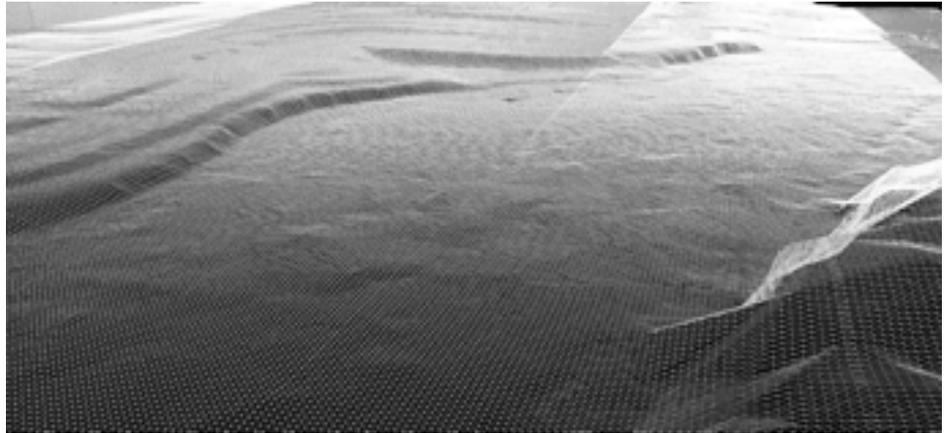
**Openroads Data Stack Walkthrough**  
[bit.ly/3sRHsWq](https://bit.ly/3sRHsWq)

high-resolution imagery, planimetric CAD base maps and 3D data of both the existing environment as well as bare-earth terrain, which allows AEC professionals to tackle their projects with a competitive edge. Nearmap flies up to three captures a year of high-resolution imagery that generates our 3D and AI basemap products. Our content is consistently formatted, accurately geolocated in a variety of projection systems, and, most importantly, scalable across national enterprise organizations.

Nearmap serves as a single source of truth during the data-acquisition phase. Our content is hosted within our web application to view and download, but, more importantly, we host our content on accessible API endpoints. This allows us to create a world in which our AEC professionals can painlessly automate the data-acquisition process, and, with a single click, define their project area and download the data they need to get started.

### About the Author

As a solution engineer for Nearmap, Connor Tluck brings a unique skillset derived from a background in civil engineering combined with a passion for Python development and data analytics projects. Prior to Nearmap, Tluck worked as a civil engineer in the transportation space for five years and was involved in highway design, work-zone traffic control, drainage design and rail design for some of the largest design/build projects in the country. He applies this background for Nearmap clients to find innovative solutions that integrate well with existing workflows through API access, direct download and more custom-tailored integration solutions. **II**



Engineers and contractors need three things to form a picture of the existing world: A 2D high-resolution basemap, ideally in a locally stored file (top); 3D terrain data used for cut/fill, profiles, cross sections, drainage, etc. (middle); and CAD planimetrics that allow engineers to interact with the existing world data.