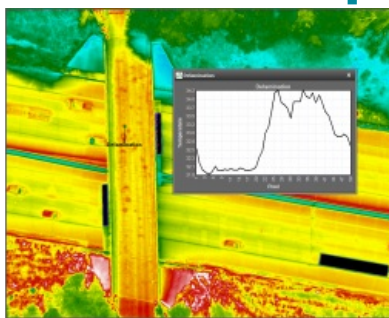
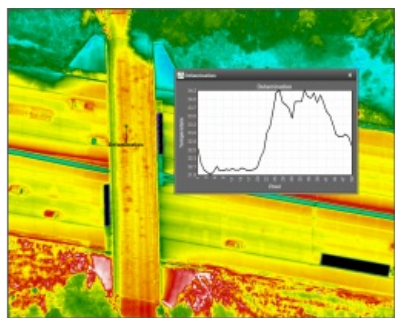


NV5 Geospatial's thermal infrared solutions implemented in US infrastructure projects



NV5 Geospatial's thermal infrared (TIR) solutions for transportation infrastructure challenges are currently being implemented in projects to analyse concrete bridges in the USA's Midwest. NV5 Geospatial, a leading geospatial data firm in North America, announced this groundbreaking initiative ahead of the 103rd Transportation Research Board (TRB) Annual Meeting.

TIR remote sensing technology allows local, regional and governmental transportation agencies to detect structural issues well before they manifest on the surface of concrete bridge decks. This significant advancement is particularly timely, as 42% of bridges in the USA are over 50 years old, with over 46,000 deemed "structurally deficient", according to the 2021 Report Card on Infrastructure by the American Society of Civil Engineers (ASCE). The ASCE report highlights that 178 million trips are taken across these "structurally deficient" bridges every day, posing potential risks to countless lives. In the global context, according to the World Economic Forum the USA ranks 13th in the overall quality of infrastructure.

The advances of aerial thermal infrared mapping

Concrete bridge decks, which are crucial components of the bridge structure, require periodic inspections for ongoing maintenance, rehabilitation and replacement. TIR plays a pivotal role in non-destructive inspection (NDI) techniques for analysing concrete bridge decks, efficiently identifying potential delamination through aerial collection.

Bob Vandermeer, vice president, state & regional lead at NV5, commented: "For decades, NV5 Geospatial has been entrusted to provide precise geospatial solutions for roadways, airports and all modes of rail infrastructure. Our clients rely on us because we consistently find better ways to ensure tailored solutions for their specific needs. We believe that our innovative bridge inspection approach, facilitated by our TIR solutions, is forging a new path for cost-effective, highly accurate analysis that will undoubtedly yield substantial benefits for departments of transportation and, more importantly, contribute to safer roads across America."

NV5 Geospatial recently completed two separate pilot projects with two Midwestern states' Departments of Transportation. These projects utilized aerial data collection to identify thermal anomalies indicative of potential delamination on 200 bridge concrete surfaces. Both initiatives involved flying a fixed-wing aircraft at a low elevation with the thermal sensor mounted to its floor, eliminating the need for ground-based support.

NV5's thermal imaging solutions

With over 25 years of experience, NV5 Geospatial specializes in collecting, processing and interpreting TIR imagery for various applications, including natural resources, geothermal and river systems, buildings insulation, bridges and roadways.

Thermal data accurately depicts temperature distribution across landscapes at high resolution, a scope and calibre unattainable through traditional ground-based monitoring techniques. NV5 Geospatial's project design prioritizes optimal timing and resolution to maximize thermal contrast, ensuring precise detection of features or patterns of interest. The acquired thermal imagery is orthorectified to create a seamless mosaic for each bridge. TIR imagery can be co-acquired with other airborne technologies, such as true-colour imagery and Lidar, to provide supplementary information.



NV5 Geospatial's thermal infrared solutions gain traction for U.S. infrastructure challenges. (Image courtesy: NV5 Geospatial)