



PROJECT SUMMARY

- Location: Chicago, IL
- Project Owner: Chicago Department of Transportation
- Construction Management: TranSystems
- Project Value: \$33M
- Project Duration: 1.5 Years
- Project Delivery Method: Design-Bid-Build

PROJECT OBJECTIVES

- Collect mission-critical data and provide real-time access to project information for all project stakeholders.
- Reduce the owners' risk of claims with consistent, searchable project data.
- Increase productivity and eliminate data silos to improve collaboration among project stakeholders.

FAST FACTS

- Solution: HeadLight Fieldbook and HeadLight Portal
- No. of Inspectors: 12
- No. of Images: 5,900
- No. of Weather: 1,566
- No. of Equipment: 2,681
- No. of Field Personnel: 3,324

ROI

- Completed 6 months ahead of schedule and under budget, saving \$1M+.
- Zero claims for the project duration.
- 30% increase in communication between stakeholders.

TranSystems Delivers Complex Chicago Bridge with E-Construction

Bridge Completed 6 months early, under budget, without claims

Bridging the Drive

Lake Shore Drive is a 16-mile stretch of road in Chicago that links the city's north and south sides along the waterfront. While the northside neighborhoods are well-connected to the waterfront and parks at regular, quarter-mile intervals, the southside is lacking in these connections, with many of them being inaccessible for wheelchairs and not ADA-compliant. The City of Chicago Department of Transportation (CDOT) launched the South Lakefront Study to address the decades of underinvestment. In response to challenges identified, the Bronzeville neighborhood was chosen as a focal point for improving multi-modal connectivity along Chicago's lakefront. To this end, the mayor's office partnered with CDOT to initiate the "Bridging the Drive" international design competition to create a connection between South Chicago and the lakefront.

TranSystems, ranking #15 on the [ENR Top Transportation Firms list](#), emerged as the ideal construction engineer for the 41st Street Pedestrian and Bicycle Bridge. Their "all-in" leadership approach positioned them as a clear champion to navigate the complexities involving various stakeholders, including Chicago and Illinois DOTs, multiple rail and power firms, and multi-discipline trades.

The \$33 million bridge, an iconic serpentine structure, aimed to provide efficient and accessible access for the Bronzeville neighborhood to the Chicago beachfront. This bridge not only addressed accessibility concerns but also crafted an aesthetically pleasing and iconic structure, marking a crucial step towards reversing underinvestment and improving access for South Chicago residents.



A Nice Twist: Challenges and Innovation

The 41st Street bridge is a rare and unique structure due to its single-arch design with inclined arches on the outside of the horizontal curvature. The graceful and sweeping arches in this design make it iconic - but also posed significant structural challenges. The complexity of this design created additional challenges for 3D fabrication, transportation, and erection. This project location also presented several challenges given the structure passes over extremely busy railroad tracks (263 trains daily) and a major highway (carrying 100,000 vehicles per day). The project also required navigating through existing power lines, which resulted in limited access for construction.



TranSystems' innovative use of e-construction technologies and an "all-in" approach helped overcome these challenges, ensuring real-time collaboration, efficient data management, and a reduction in the risk of claims. Their implementations of HeadLight technology allowed their team to:

- Collect mission-critical data and provide real-time access to project information for all project stakeholders.
- Increase productivity and eliminate data silos to improve collaboration between the designer, construction engineers, contractor, and project owner.
- Reduce the owners' risk of claims, ultimately eliminating claims altogether.

An All-In Approach to Project Management

To effectively manage the project, a combination of modern e-construction workflows from HeadLight and traditional methods were utilized. HeadLight's visual-based inspection and digital data collection solution, Fieldbook, enabled real-time access to project information. As a result of providing key stakeholders with real-time field data, decision-making timeframes were reduced and the risk of claims was minimized. By collaborating with all stakeholders, including the designer, contractor, fabricator, and erector, the challenges associated with the bridge's complex geometry were successfully addressed. The quantity and quality of data gathered exceeded what teams typically collect with traditional documentation methods. This enhanced field data increased the team's efficiency, as key stakeholders, documentation engineers, and resident engineers were all able to access vital project data in real time, empowering them to make informed decisions with confidence. By leveraging a single source for all project data, TranSystems simplified coordination between federal, state, and local authorities, as well as project stakeholders, to maintain their tight and complex work plans and avoid any delays. As a result, the project was completed nearly six months ahead of schedule, under budget, and without any issues during the bridge's erection.

Coordinated Stakeholder Collaboration

Real-time project information and constant coordination between stakeholders were fundamental to the success of this project. TranSystems facilitated seamless coordination between two rail companies, federal, state, and local authorities and project construction teams. The firm acted as a single contact for each organization involved throughout the life of the project and provided a unified source of project data. The "all-in" approach to delivering a successful project promoted collaboration and fostered a culture of trust. By providing stakeholders with in-the-moment access to critical project information, teams could view project documents and data stored in the cloud to collaborate quickly, resulting in minimized decision-making time frames. The ability to quickly search and retrieve archived project information proved to be invaluable to maintaining the quality and timeliness of work done.

Fieldbook's Role in Risk Mitigation

TranSystems' commitment to safety, excellence, and compliance further underscored the value of Fieldbook to this project. Fieldbook played a pivotal role in mitigating project risk by introducing efficiency, transparency, and real-time collaboration in the construction process. By providing immediate access to critical project information, project stakeholders could address challenges promptly and make informed decisions quickly. When all parties have access to the same high-quality data, maintaining effective communication channels becomes easier, creating transparency and fostering a sense of teamwork and trust that proved vital to the success of the project.

The project data that is collected in Fieldbook ultimately creates a clear, irrefutable, and comprehensive project record. Daily reports include multiple different observation types, including photos, narratives, and location information. Reporting can be easily configured to meet the requirements of the project owner, including relevant information and simplifying compliance. In the event of a dispute, all project data can be easily mined later on to quickly review and resolve issues raised.

Outcomes & Ongoing Benefits

By investing in Fieldbook, TranSystems' engineers and inspectors were able to accurately collect mission-critical data, collaborate with stakeholders in real-time, and easily view project documents and data stored on the cloud. The field team also gained the proper tools to create a digital field diary, and as a result, navigate the project with increased speed and finesse.



A success as both an efficient means of transportation and as a work of art, the 41st Street Pedestrian and Bicycle Bridge has already received numerous awards, including Engineering News-Record's Project of the Year and the American Council of Engineering Companies of Illinois 2020 Grand Conceptor Award.

Schedule a demo to learn how you can improve project outcomes and reduce your risk with field inspection software from HeadLight.