

# Built With GNSS: A Busy Port's First GIS



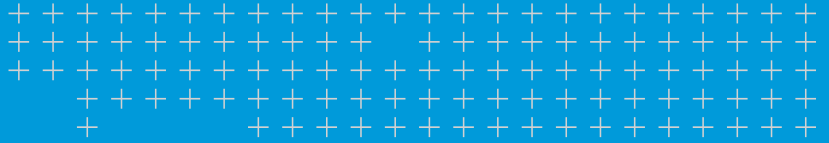
*The Port of New Orleans is one of the busiest ports in North America. An updated and modernized GIS was developed through the digitalization of legacy records, aerial imagery and GNSS field asset mapping.*

The Port of New Orleans utilizes precise field asset mapping as the foundation for its new Enterprise GIS

Trimble technologies add precise positioning into a streamlined field mapping workflow

## Solution

Trimble® R2 Integrated GNSS System  
Trimble T10 Tablet  
Esri® Collector®



# overview

Port NOLA, in New Orleans, Louisiana, is one the world's busiest ports; it sits at the nexus of a large continental network of rail, rivers and inland waterways. The recent acquisition of a rail system underscored the need to develop the port's first enterprise GIS. Port NOLA began a pilot to verify existing asset records and capture features missing from existing datasets. The mapping campaign utilized high-precision GNSS rovers paired with mobile tablets running GIS asset inventory software.



Location  
NEW ORLEANS, USA



With a goal of streamlining port operations and improving port security and disaster response capabilities, Port NOLA created a new modernized enterprise GIS made accessible throughout the port via a custom web portal. The project tapped the latest technologies in GIS and Trimble field asset mapping equipment.

## OVERCOMING LEGACY CHALLENGES

Prior to 2016, Port NOLA had “No enterprise GIS, no GIS software, and no dedicated GIS staff,” according to Maggie Cloos, Port NOLA GIS Manager. “We got a grant for port security, secured GIS software, and plans were formed to convert disparate legacy records, site plans and institutional knowledge.” And—most importantly—an initial phase of field asset mapping.

Cloos says the port fully recognized three fundamentals of a GIS: completeness, currency and accuracy. The state of the port's infrastructure records included manual and CAD drawings, engineering plans, site plans—but mostly institutional knowledge held in the memories and notes of Port NOLA employees. “This is a big challenge for us when people retire or if we need information and someone is not available at the time,” said Cloos. An influx of additional records from the Port's acquisition of a shortline railroad exacerbated the challenges.

The port sought to map every crane rail, crane tie-down points, container gantry cranes, wharf decks, piles; things used in everyday operations and disaster response. “Always on our minds is port security and domain awareness,” said Cloos. “Say if there were a train derailment, we would need to know the critical utilities in our massive terminals that might be affected.”





*Rapidly mapping all of the expansion joints of the Huey P. Long bridge was done by mounting Trimble R2 rover on a high-track truck. Real-time corrections from the local VRS network yielded accurate locations, and the rover performed well despite the obscured sky view through the iron structure.*

## FIRST PHASE MAPPING

The local consulting firm, Environmental Science Services, Inc. (Es<sup>2</sup>) was enlisted to help create the new enterprise GIS. “We were able to do heads-up digitizing of much of the rail infrastructure with digital orthophotos,” said Andrew Milanes, PE, GISP, president of Es<sup>2</sup>. “But by the time we digitized paper maps and merged this with features gathered from aerial photos, we would find a lot of uncertainty in the data. Field mapping was the only way we could be sure.” And for Es<sup>2</sup>, that meant using the Trimble R2 GNSS Rover.

## MAPPING KIT

Port NOLA has been quite pleased with this first mapping phase and has recently put out a request for proposal



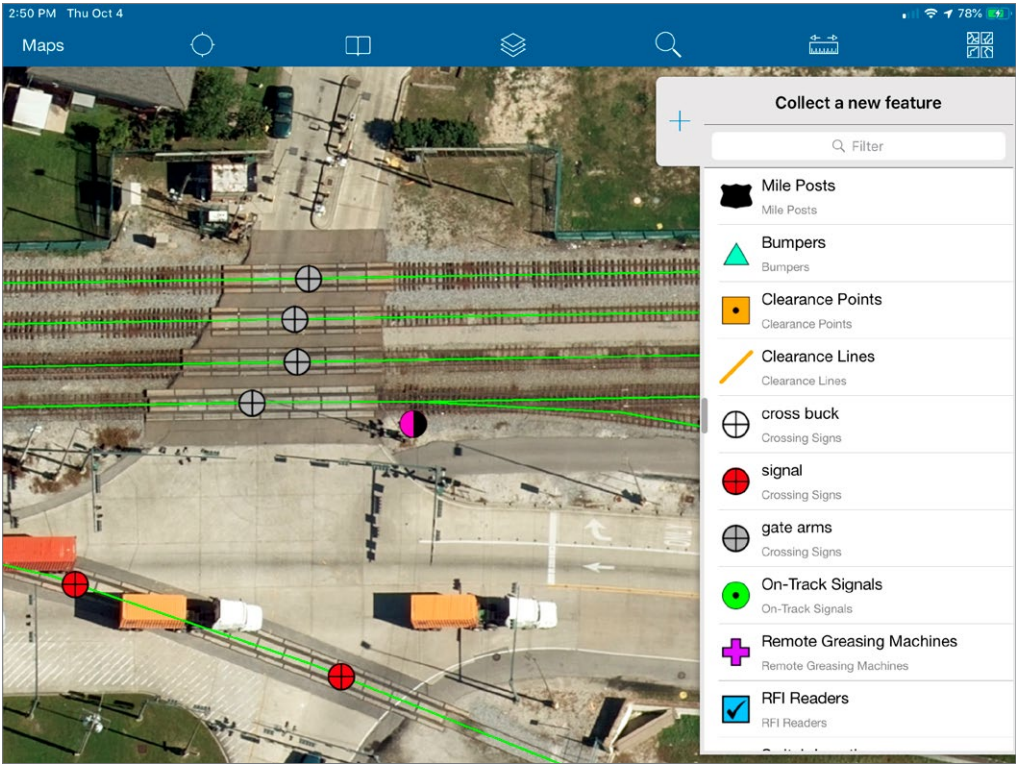
Brennon Alvarez (left), field technician, and Andrew Milanes (center), president of Es<sup>2</sup>, consultants for the mapping pilot with Maggie Cloos (right), Port NOLA GIS manager on the railroad portion of the Huey P. Long Bridge over the Mississippi River. The team collected fixed asset features for the New Orleans Public Belt Railroad, such as rail line expansion joints and signals, using a Trimble R2 and T10 tablet with Esri Collector.





(RFP) for the next phase. The goal is to continue to digitize existing records, ground-truth these via field mapping, and perform new mapping with high-precision GNSS paired with user-friendly mobile apps. A web portal then serves up these updated GIS datasets for the entire enterprise.

This first GNSS field mapping phase for Port NOLA demonstrated that field mapping is a cost-effective alternative to legacy—often incomplete and inaccurate—records conversions. No matter how much legacy data is available, sometimes the only way to be sure of an asset is to field-locate, verify and update.



Port NOLA authored their Esri Collector app for the fixed asset mapping, verification, and update. The software was deployed with field mapping teams on Trimble T10 tablets with Trimble R2 GNSS receivers.

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— Andrew Milanes, GISP, President, Environmental Science Services, Inc

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