

Staten Island Advance



Cities using artificial intelligence to monitor aging infrastructure



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Photo of the Pleasant Plains train station overpass in July 2018. Pieces of the steel frame had started to fall apart due to rust. (Staten Island Advance/Erik Bascome)

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STATEN ISLAND, N.Y. -- With over 600,000 bridges across the United States, nearly 8% of which are deemed structurally deficient, monitoring and maintaining our country's infrastructure is critical to ensuring the safety of American motorists.

Dynamic Infrastructure, a New York- and Tel Aviv-based startup, is currently implementing an innovative artificial intelligence system that allows infrastructure operators to observe condition changes in real time.

The system provides live, cloud-based, 3-dimensional images of the bridge or tunnel, while detecting and alerting the operators to any observed change before it results in a collapse.

"The world faces an infrastructure crisis," said Saar Dickman, co-founder and CEO of Dynamic Infrastructure. "Specifically, deficient bridges and tunnels represent a severe infrastructure challenge in the U.S. and worldwide and their poor condition leads to life losses and millions in unplanned expenditures."

"Trying to repair America's deficient infrastructure without adopting new technologies will not work. Technology allows you to change the equation of one-dollar problem equals one dollar of solution. A single dollar of the right technology in the right place can save much more than one dollar of maintenance of a bridge," Dickman continued.

The system creates "medical records" for each bridge, tunnel and elevated highway by using existing images accumulated

through routine inspections to create a baseline of the existing conditions.

The technology compares older images to new ones, detecting any defects or anomalies that may have occurred and alerting the relevant operator.

Dynamic Infrastructure is already operating in the United States, Germany, Switzerland, Greece and Israel, with the company's clients operating over 30,000 bridges, tunnels and elevated highways.

"Till recently, there has been no effective system that can quickly and precisely identify defects in bridges throughout their lifetime. We provide actionable monitoring and alerts that can better manage expenditures and help prevent the next collapse. We are bringing the data revolution to the decision-making process of bridges and tunnel maintenance based on our cutting-edge imagery analysis," said Dickman.

NEW YORK'S BRIDGES

Preserving New York's Bridges, a [recent report](#) by national transportation research nonprofit TRIP, found that 1,757 of 17,521, or 10%, of locally and state-maintained bridges were rated as poor/structurally deficient by the Federal Highway Administration (FHWA). The report only looked at bridges over 20-feet long.

Bridges are deemed structurally deficient by the FHWA if the roadway deck, superstructure, substructure or culvert are rated in poor or worse condition (4 or lower on a scale of 0-9). Of the remaining bridges, 53% were rated as fair, with just 37% of New York bridges rated as good condition.

New York's 10% structural deficiency rate ranked among the highest in the nation, placing 12th out of 50 states.

According to the report, over 11 million vehicles cross over structurally deficient New York bridges each day, creating potential hazardous conditions.

On Staten Island, just three of the 158 bridges were rated as poor/structurally deficient, less than 2%.

Eighty-four Staten Island bridges rated as fair condition, totaling 53%, with 71 rated as good condition, totaling 45%.

While the exact locations of Staten Island's three structurally deficient bridges is not clear in the report, the locations are listed by the FHWA as:

- BLOOMINGDALE ROAD, .7 MI E JCT440+W SHORE EX
- RTE 909C, 1 MI E JCT SH440 & WS EXP
- WSE-WEST SERV RD, 0.5 MI S OF FRESH KILLS