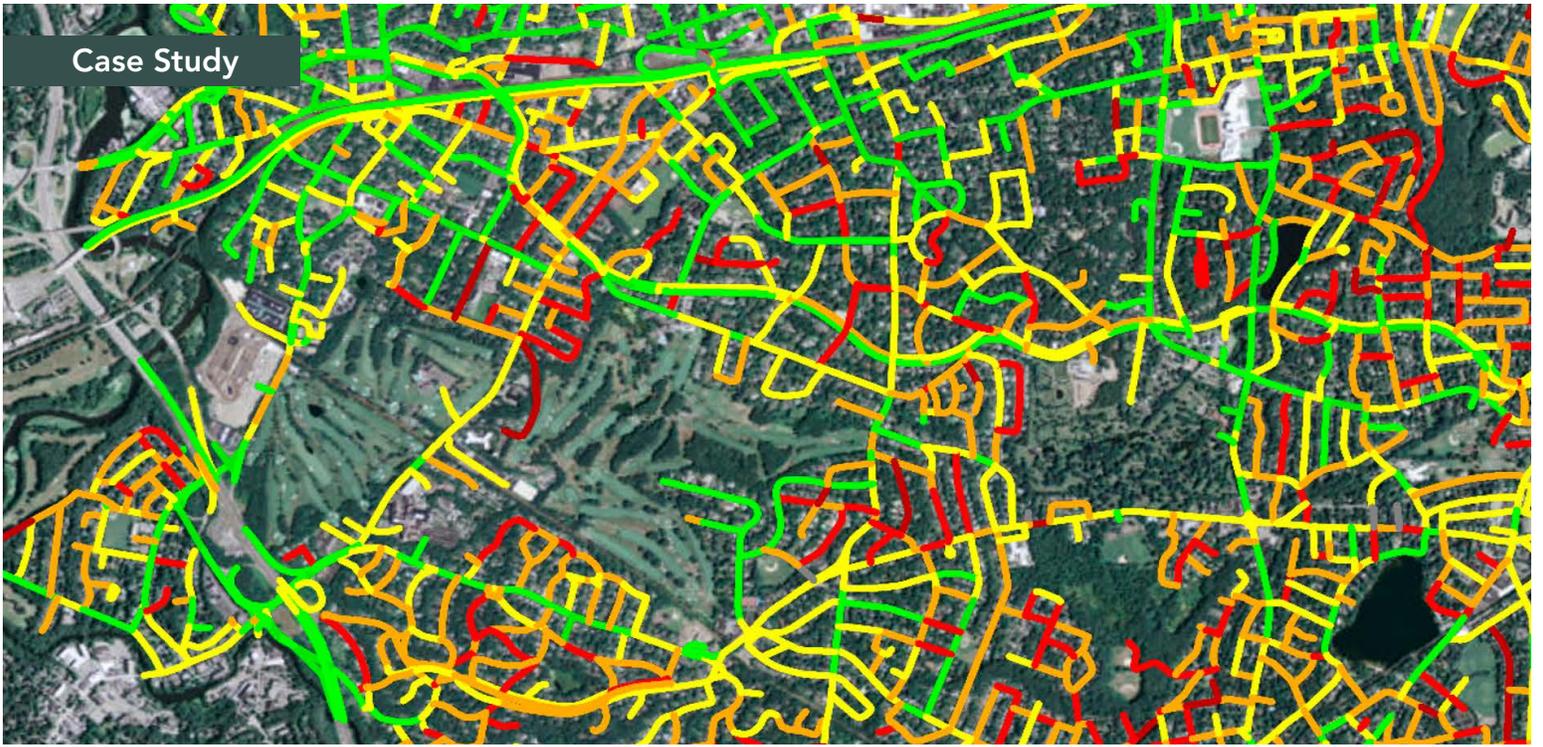


Case Study



PUBLIC WORKS

User

City of Newton, Massachusetts

Challenge

To secure its road-repair budget and prioritize maintenance projects, the city needed a data-driven way to assess the condition of its street network and right-of-way assets.

Solution

- StreetScan ScanVan
- StreetScan PavEMON
- ArcGIS® Desktop
- ArcGIS Enterprise
- ArcPy™ scripts

Results

Based on the results generated by PavEMON, the city was able to raise \$100 million over a 10-year period to improve roadway conditions. The data allowed Newton to show progress and results to stakeholders, making it easier to raise funds and justify the repair decisions.

Newton, Massachusetts, Maximizes Road Repair Budget with GIS

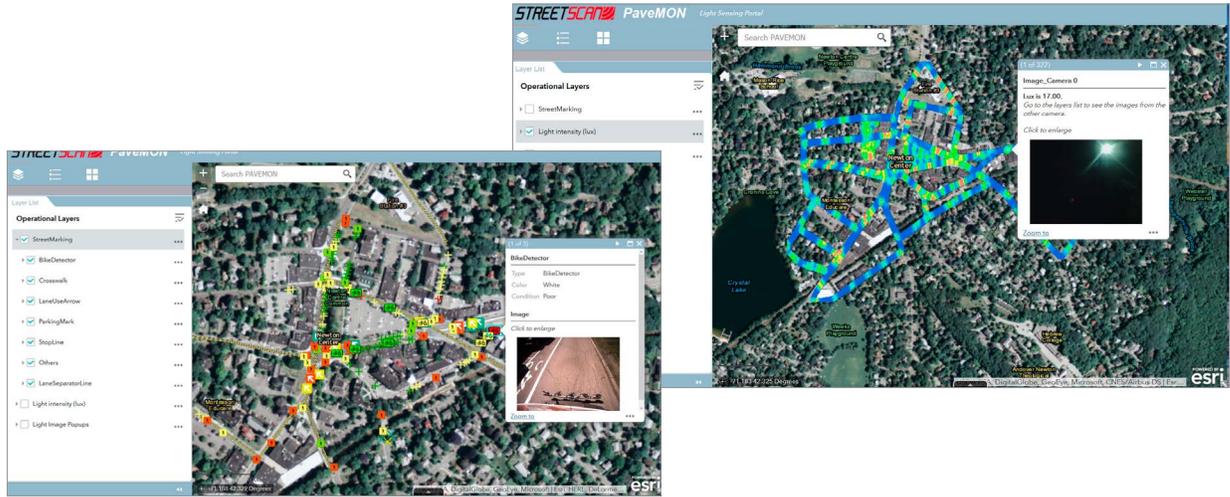
Settled in 1630 and covering 18 square miles, the City of Newton, Massachusetts, consists of 13 villages supported by an aging street network. Host to Heartbreak Hill, the Boston Marathon's most grueling uphill challenge, Newton's roads get special attention once a year when tourists and media flock to the area. Home to 80,000 residents, the city needed a cost-effective method to assess and repair its road network for citizens and visitors.

The Challenge

Like most regional governments, Newton lacked data on the condition of its vast road network, which limited the city's ability to make repairs. In surveys, Newton residents expressed concern about their deteriorating infrastructure assets. The city needed a fast, objective, and transparent way to assess roadway conditions and determine which roads needed repair, along with how and in what order they needed to be repaired. In addition to managing road maintenance, the city needed a more efficient way to keep a record of its streetlights and pavement markings.

The Partner

StreetScan provides a fast and affordable pavement and right-of-way asset management service that can be deployed citywide on a frequent basis. StreetScan uses vehicle-mounted sensing technology to assess road conditions in normal traffic flow and displays gathered information in a geographic information system (GIS) application: a web app with up-to-date data and a range of tools for decision-making.



“Using StreetScan has saved us significant work assessing our transportation infrastructures. Our confidence in StreetScan’s results has led us to make our largest financial investment in road improvements in years.”

Nicole Freedman
 Director of Transportation,
 City of Newton

The Solution

StreetScan’s mobile-sensing vehicle, ScanVan, is the physical heart of the asset management system, assessing pavements, traffic signs, pavement markings, and streetlight brightness on every road it traverses. ScanVan traveled Newton’s roads in normal traffic flow to gather data on the condition of the entire street network with optical, acoustic, and electromagnetic sensors. Once scanned, a variety of technologies from StreetScan and Esri, such as ArcPy scripts, ArcGIS Desktop, and ArcGIS Enterprise, was leveraged to generate PaveMON, a GIS web app with powerful visualization and budget-planning tools. This app provides road condition ratings on a scale of 0 to 100, with 0 being the worst and 100 being ideal, and prioritizes the areas to remediate. In addition to ScanVan results, traffic flow and proximity to schools were considered to prioritize roadway projects, addressing one of the main concerns of Newton residents for having safer school zones.

The Results

Using PaveMON, the city can now see an enriched view of its street network with color-coded pavement conditions and other assets, along with images for every road and tools for data-driven budget and maintenance planning. StreetScan reported that Newton’s overall pavement condition index (PCI) was 62.5—almost 12 points below what is considered industry standard. With the objective and data-driven approach of ScanVan and PaveMON, the city was able to secure \$100 million for a 10-year pavement management program that will raise the current average PCI to a projected rating of 80 on main roads and at least 72 on residential streets, making Newton a leader in infrastructure asset management.

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