



NYCDOT launches AI project to improve street safety, mobility, and sustainability

Blynscsy® eliminated costly manual inspections and facilitated holistic approach to roadway condition monitoring

Rising to the challenge

New York City has the potential to become a sought-after place for companies to design, test, and scale innovative new uses of AI in government and the public realm. To maximize this potential and attract cutting-edge talent, the city proposed AI procurement competitions that focused on three significant areas of need, offering multimillion-dollar contracts to deploy AI solutions. Street safety was one of these focus areas. Committed to improving safety and mobility along the city's streets, New York City Department of Transportation (NYCDOT) quickly rose to the challenge and initiated a project to utilize AI to monitor and assess roadway conditions.

NYCDOT is a massive organization responsible for managing and maintaining over 6,300 miles of roads, 800 bridges, one million street signs, 315,000 street lights, and over 1,600 crosswalks. Given the immense city pedestrian and cycle traffic, combined with the amount of cars on the road, crosswalks are an incredibly vulnerable place for potentially fatal accidents, especially where pavement markings are fading. To minimize risks in these areas, NYCDOT piloted AI-powered technology to inspect their 1,650 crosswalks and identify crosswalk pavement markings across 500 intersections. They sought to establish a baseline of the paint condition across the identified intersections.

Slow, manual, and expensive workflows

To ensure pedestrian safety and identify key intersections that require repainting, NYCDOT

maintenance workers have been going out in trucks to survey the crosswalks across thousands of miles of roadway and detect issues. In such a densely populated city as New York, there are often vehicles blocking these crosswalks or pedestrian traffic in the intersection, preventing the teams from getting a clear image of the paint markings. Then, the teams would have to go out another day to try and recapture and reinspect those same crosswalks, making the process even longer. Manual surveys and image capture are also very limited, isolating one particular aspect of the street. For example, it is very difficult for two workers in a truck to look for paint while simultaneously assessing other roadway assets and conditions, such as street signs and potholes. To complement periodic manual inspections, NYCDOT implemented a public hotline alert system for citizens to report roadway problems that they may see along their journeys. While this hotline provides an added resource to help identify issues, it's a reactive approach to maintenance. NYCDOT sought to start being more proactive, and the best way to do that is to know in advance where the problem areas are from the start.

Finally, with so much roadway to maintain, NYCDOT lacks the resources to manage it all and meet their [Vision Zero](#) traffic fatality targets and sustainability goals. It's a slow, expensive, error-prone, and reactive workflow. So, when the city decided to initiate the AI challenges, NYCDOT was ready to capitalize on the opportunity to find a smarter solution to better manage and maintain their city streets, ensuring safe mobility for city residents and visitors.

Project summary

Organization

New York City Department of Transportation

Solution

Roads and Highways

Location

New York City, New York, United States

Project playbook

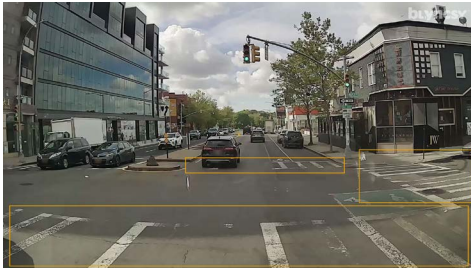
Blynscsy

Fast Facts

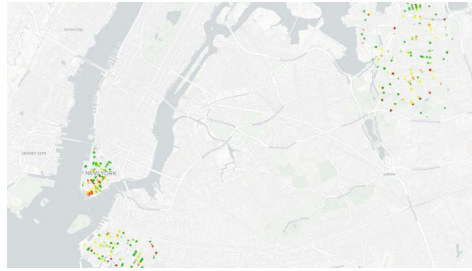
- NYCDOT manages over thousands of miles of roads, one million street signs, 800 bridges, over 300,000 street lights, and 1,650 crosswalks.
- They partnered with Blynscsy to map 500 intersections, assess pavement markings within each crosswalk, and assign a condition rating.
- The goal was to utilize AI-powered technology to improve pedestrian safety and enhance the overall safety of the city's transportation network.

ROI

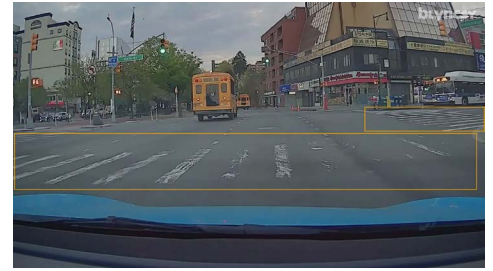
- If NYCDOT is able to reduce their manual inspection by half through using Blynscsy, it would result in savings of about USD 300,000.



Blynscsy's AI and crowd-sourced imagery accurately identified the crosswalks and provided a reliable scoring system.



NYCDOT can utilize the same captured images to implement smarter roadway management practices across the entire city's street network.



Using AI-based technology transformed reactive maintenance into proactive management.

Leveraging Blynscsy for AI-powered roadway condition monitoring

Focusing primarily on pedestrian safety, NYCDOT partnered with Blynscsy to automatically inspect all 1,650 crosswalks and, using artificial intelligence models developed by Blynscsy, analyze the condition of the paint lines within each crosswalk across 500 intersections. Blynscsy conducted monthly assessments and detection of crosswalk locations and provided a condition rating. Using the technology, NYCDOT passively collected the imagery from all the crosswalks and intersections, then identified where the problem areas were and where the paint was fading down to a certain threshold. Leveraging AI and crowd-sourced imagery, Blynscsy's models extract the crosswalk from the images, and the processing algorithms determine the percentage of paint remaining in each crosswalk, facilitating a proactive maintenance approach, prioritizing the areas that are in most need of repainting.

While this initial project focused specifically on resolving the faded pavement markings, the same images can be used to detect other roadway anomalies. Considering the congestion

that New York City endures, Blynscsy could not only to inspect the crosswalks, but also help run multiple detections on the same image. In addition to extracting and analyzing multiple detections from the same image, Blynscsy can also conduct multiple passes and automatically recapture areas where the AI features detect something obstructing the view of the paint, for instance, to obtain a clean, usable image. By partnering with Blynscsy, NYCDOT now has real-time, data-driven insight to proactively manage pedestrian safety and perform advanced roadway condition monitoring.

Smart solution drives safety, savings, and sustainability

Through AI-powered workflows, Blynscsy optimized image capture and analysis, eliminating risky, redundant, time-consuming, and costly manual surveys. If NYCDOT is able to reduce their manual inspection by half through using Blynscsy, it would result in savings of about USD 300,000. By conducting multiple passes and automatically recapturing areas blocked by trucks or pedestrians, Blynscsy obtains an optimal image, saving NYCDOT

the additional time and costs associated with the resources and rework required to redo their manual inspections.

The time and cost savings are just the tip of the iceberg. Utilizing Blynscsy, NYCDOT saw improved accuracy and reliability in identifying crosswalk locations, determining the real-world paint line visibility, and providing a scoring system. The technology transforms NYCDOT's reactive maintenance process into a proactive workflow, improving pedestrian safety throughout the city.

Blynscsy not only addresses the pedestrian aspect, but also provides NYCDOT with a network-wide, smart street management solution. Opportunities were opened to adding additional cameras on city vehicles, including sanitation trucks and other maintenance vehicles. While the initial project focused on identifying the intersections, mapping the crosswalks, and assessing the quality of those pavement markings, Blynscsy can use the same captured images to address other roadway conditions and assets, offering an intelligent, holistic workflow for safer, more sustainable streets.