

# Case Study

## How a Suburban City Improved Traffic Management Efficiency With Leddar d-tec Traffic Detection Sensors

### 1. The Challenge

A city located in a large metropolitan area had recurring problems with traffic detection at crucial intersections, resulting in repeated complaints from the public. The city management was unhappy with their stop-bar video detection system's performance and, not unlike pedestrians, many motorists were also complaining about false vehicle detection that was hindering traffic flow at a specific location. As a default video cameras were also installed but despite this effort recurring issues continued.

Because of these problems, the city's traffic management department wanted to replace their systems with a new solution that would provide better performance and reliability. The system had to detect vehicles with high reliability and minimal false positives, in any lighting and weather conditions, with minimal maintenance requirements and without interruption (24/7).



### 2. The Solution

An authorized distributor of LeddarTech products met with city officials to propose a "try-before-you-buy" pilot project with the Leddar™ d-tec traffic detection sensors.

The [d-tec](#) offers an accurate stop bar and advanced detection of vehicles of all sizes—bicycles, motorcycles and pedestrians. It compiles data thousands of times per second for accurate detection in all environmental conditions. The d-tec provides a range of up to 75 m (250 ft), using Leddar optical time-of-flight sensors. Specific detection zones can be set in the sensor's field of view to discriminate between each traffic lane. The system also identifies the traffic flow direction, thereby preventing false calls to traffic signal controllers.

Its robust waterproof enclosure is designed to withstand the most adverse weather conditions. The Leddar d-tec works reliably in the rain, fog or snow, thanks to diffused LED light sources combined with proprietary signal processing, which filters out unwanted noise to generate cleaner detection results.



The typical d-tec installation is fast and simple. The sensor can be mounted to existing infrastructure using a simple Astro-Brac™ camera bracket. Power-over-Ethernet (PoE) supply and data communication to the d-tec are done through a single Cat5 cable pulled from the controller cabinet to the sensor. Inside the controller cabinet, a controller interface card is installed in the card rack. The card is NEMA compliant and is suitable for all standardized types of traffic controllers found in North America. The d-tec is configured

through user-friendly software installed on a laptop. An integrated onboard image processor enables the sensor's alignment remotely, further reducing installation and maintenance time. The onboard image processor provides the value-added capability to transmit the detection area's video images back to the traffic operations center (TOC).

## 3. The Outcome

An evaluation consisting of a 30-day trial was performed to compare the Leddar d-tec's performance with the former detection system. The d-tec performed flawlessly, as observed by the traffic management center manager, who praised the sensor's consistently reliable detection capabilities and positive impact on traffic flow. Following the trial, city officials decided to deploy the Leddar d-tec traffic sensors at a strategic intersection.



Based on Leddar d-tec's superior sensing capabilities, another installation was made, this time to detect cyclists and improve safety at a busy intersection. Once again, city officials were pleased with the results: "We just installed a d-tec sensor this week at one of our major bicycle corridors, and it seems to be working great, picking up the bicyclist anywhere in the detection zone. And since it sends out its own IR pulse, it is independent of the ambient light and works great at night, unlike some camera systems we have tried."

The IR pulse represents another significant advantage, as illustrated by the following feedback from one of the traffic signal technicians: "We have had nothing but success with this product. It was a cinch to install with the single Cat5 cable pull and the user-friendly programming interface. I have never set up a system so fast and with such ease."

The d-tec's easy installation, reliable performance, and ease of use were instrumental in the officials' decision to approve the Leddar d-tec as a vehicle detection system for the city. To date, more than 100 d-tec systems have been adopted by this specific city, and they continue to ensure safer and more efficient transportation systems by increasing the number of these LiDAR sensors on their roadways.

Learn more about these solutions at [leddartech.com/ITS](https://leddartech.com/ITS)