CANOGA™ | Bicycle Detection

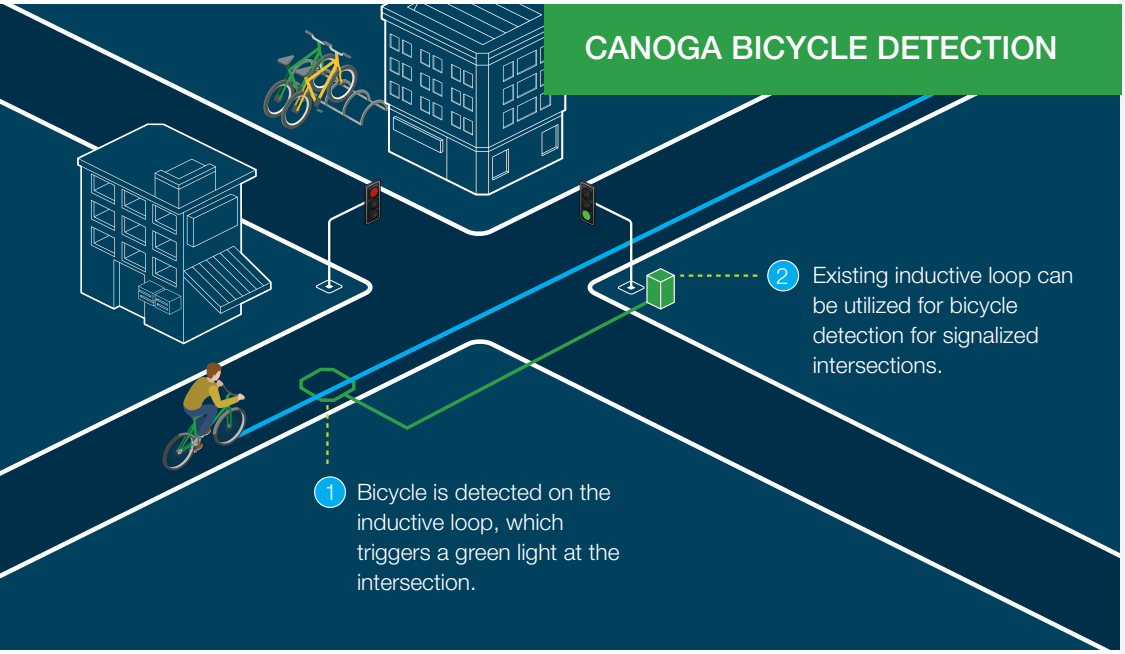
Bicycle Detection and Classification in Minneapolis

CHALLENGE: *Improve safety and convenience at signalized intersections*

Minneapolis is consistently recognized as one of the top five bicycle-friendly cities in North America. The city is host to the Twin Cities campus of the University of Minnesota, as well as many other colleges and universities. Additionally, there are numerous high-tech startups, creating a large population of public transportation and bicycle commuters.

The city's traffic division is taking a proactive approach in dealing with bicycle traffic in the city, knowing that a cyclist could sit at an intersection undetected, waiting for a car to approach to activate the signal.

Where possible, the city wanted to implement bicycle detection at key signalized intersections, without investing in expensive detection technologies. With lots of inductive loop-based intersections already present, the traffic division wanted to leverage the existing infrastructure, without the need for cutting new loops or mounting new pole-based detection technologies.



LOCATION
Minneapolis, Minnesota

MUNICIPALITY
Minneapolis Department of Public Works Traffic Division

CHALLENGE
- More people are choosing bicycles to commute to school and work.
- Only vehicles could trigger green traffic signals at the city's signalized intersections before the pilot.
- Adding new bicycle detection technologies would have been expensive.

SOLUTION
- Added Canoga 9004 traffic management cards to existing inductive loop sensors to detect bicycles, as well as vehicles.
- Give bicyclists traffic signal priority when possible.

PERFORMANCE
- Detectors use classification and counting tools to differentiate between vehicles and bicycles.
- Signals are triggered accurately, so bicyclists can often ride through the intersection without stopping or slowing down.
- If stopped at the intersection, the Canoga 9004 can detect the bicycle's presence.

SOLUTION: *Use existing inductive loops to detect bicyclists*

The city considered several options for enabling bicycle detection. The primary goal was to retain presence detection for both bicycles and vehicles at the stop bar, while accommodating for special bicycle-specific controller treatment. They considered utilizing the Canoga 9004 to classify bicycles on the stop bar loop, but decided the best option was to use existing, advanced detector loops for classifying and counting, enabling safe bicycle passage. Using these advanced detectors and the Canoga 9004, approaching bicycles are acknowledged within enough time for the controller to react without the bicycle having to slow down or stop.

Utilizing existing 6x6 advanced-loop infrastructure and the Canoga™ 9004 traffic-sensing technology in the traffic cabinet, the traffic department was able to immediately recognize results by being able to detect and classify bicycles that travel on the roadway, using the advanced loops to produce a classification-specific 15 second output to the controller. While doing so, the detector calculated, recorded and stored the information for subsequent data retrieval, through a local (or it can be central) Ethernet-enabled connection.

"We can now distinguish between a bike and a car and then use that information to take action."

- Paul Fellows,

Sales Engineer
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