

TxDOT Innovations and Technology Deployment Briefs

Traffic Signal Responsiveness Solution



PROBLEM

The US 377 corridor in Benbrook, Texas, experiences high levels of congestion. Traffic signals need to be responsive to the congestion and the changing traffic patterns throughout the year. Traffic signal retiming studies take time and resources.

SOLUTION

To help with congestion and increase the responsiveness of the Benbrook signal system, an infrastructure-to-vehicle (I2V) system was installed. The signal system reads the traffic conditions, is able to make adjustments to the plan based on real-time traffic and changes the signal timing plan. In some cases, auxiliary equipment was installed in some older TxDOT vehicles to allow them to interface with the system like other vehicles.

BENEFITS

Connected Vehicles (CVs) have the capability of communicating with traffic signals. This technology allows signals to send information to the connected vehicles that will be displayed to the driver. This information informs the driver when the traffic indicators will change. The system can also communicate when pedestrians have pushed the crossing buttons.

Another benefit to the signal system is the camera coverage it provides. The camera footage is able to be viewed in an office and if an issue is observed, TxDOT staff can remotely change the signals. The additional camera coverage helps to fill the gaps in information.

This innovative solution saves TxDOT time by eliminating the need for timing studies as the adjustments are done automatically. Additionally, by reducing time spent driving to locations, efficiency is improved. Since the same work can now be performed remotely.



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KEY TASKS

- Complete traffic counts for the corridor including any intersections.
- Develop four separate timing plans based on actual volumes.
- Purchase I2V system equipment.
- Install equipment using Intelligent Transportation Systems statewide contract.
- Program signal controller.
- Troubleshoot any issues.



Signal system equipment.

ADDITIONAL NOTES

Future plans include installation of the signal system on the US 377 corridor in Granbury, Texas. This system will help address significant congestion in the area.

The City of Burleson is also in the process of turning over the TxDOT signals to the city and plans to shift to this system.



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