



APPENDIX A - Site Specifications and Network Resources Available

Gate 4 Layout and Description

The ACP at Gate 4 is located on Magrath Ave. near the northside of Fort Carson at the GPS coordinates of 38°45'42.5"N 104°47'36.8"W. This gate experiences a high volume of commuters from Interstate 25 through South Academy Blvd. exit to a signalized intersection at Magrath Ave. In order to prevent traffic congestion and failure of this intersection the queue length at the ACP must be closely monitored.

The current operating procedure for the ACP staff is to always be visually aware of the queue of vehicles developing at the gate. Once congestion starts to build to an unacceptable level modifications to the security check procedures are made to speed the processing of vehicles. If available, an additional lane may be opened to increase the throughput.

The length of the vehicle queue is an important metric the project will collect to better understand the traffic flow in the surrounding community. For this reason, the maximum queue length needs to be measured out to a minimum distance of 1,200 feet (365 m) from the gate. Fort Carson does not have jurisdiction over the roadways out at this distance so Proposers must develop a sensor strategy to overcome this. The Fort Carson property boundary is adjacent to the roadway and may provide an opportunity for mounting traffic detection sensors from those locations.

It is not uncommon for a traffic anomaly to disrupt the operation of the ACP. This may occur if there is an accident, a disabled vehicle, or a disturbance requiring a police or emergency response. Large commercial vehicles can create issues when trying to turn after discovering they are at the wrong ACP. Fort Carson also hosts a number of graduations and ceremonies that bring a high volume of visitors that may not be familiar with the ACP procedures.

Another area of interest is the traffic flow at the intersection of Magrath Ave. and the exit ramp of S Academy Blvd. This signalized intersection feeds the high traffic flow to Magrath Ave. and understanding how that intersection is functioning will provide useful insight to the demand placed on the ACP. With that in mind, the Proposer will be asked to support discussions with the municipality in incorporating any available traffic data from this intersection or signal equipment.

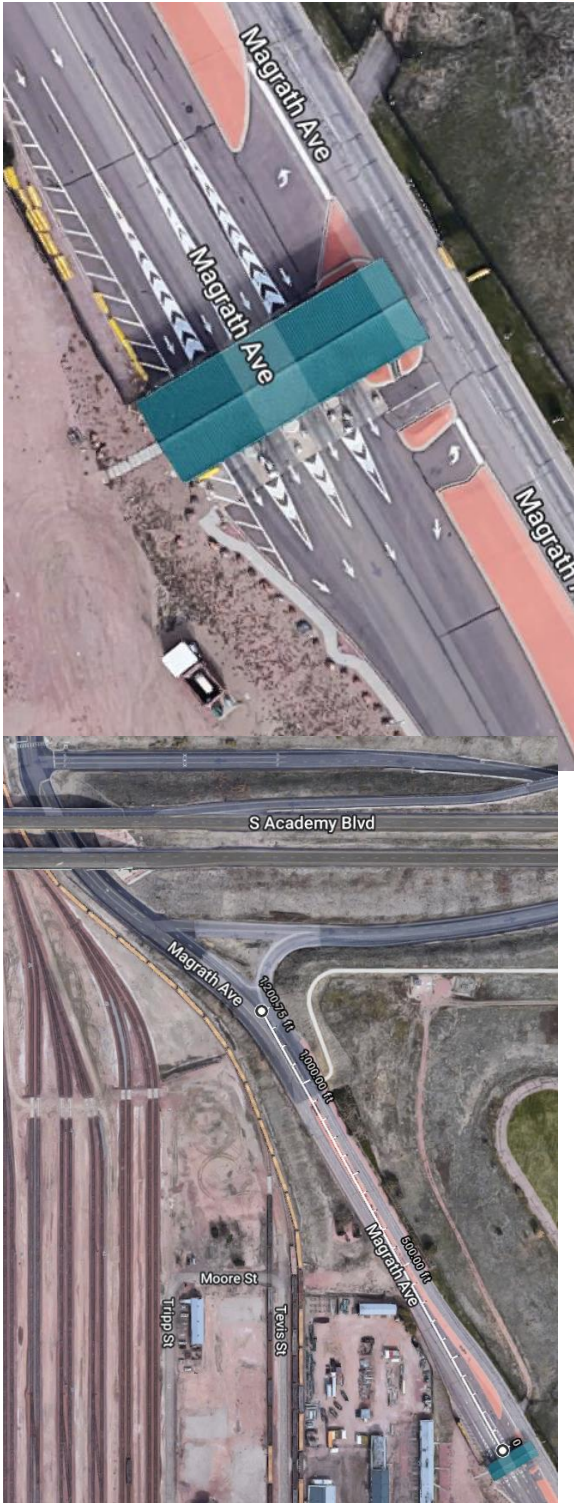


Figure 1. Access Control Point at Gate 4 - Plan view layout of the gate and the Magrath Ave. corridor



The Proposer will have access to the ACP's existing conduit runs and equipment room, which includes mounting racks and power, for the installation of computing and networking equipment. There are also a number of mounting options underneath the gate canopy for the installation of sensors and equipment. Details of this infrastructure will be provided during an initial site visit after contract award since security restrictions prevent that information to be included here.

Gate 20 Layout and Description

The ACP at Gate 20 is located on Magrath Ave. near the eastside of Fort Carson at the GPS coordinates of 38°43'32.4"N 104°44'23.2"W. Gate 20 is fed by exit 132 of I-25 as well as Mesa Ridge Parkway. Similar to Gate 4, excessive traffic queues create congestion and unacceptable safety risk on the interstate exit ramps and the surrounding roadways feeding Magrath Ave. The same 1,200 foot length queue detection is required at this ACP as shown in the figure below. Fort Carson does not have jurisdiction over the roadways out at this distance so Proposers must develop a sensor strategy to overcome this. The Fort Carson property boundary is adjacent to the roadway and may provide an opportunity for mounting traffic detection sensors from those locations.

Understanding the traffic patterns from the surrounding roadways is also important at this ACP so the Proposer will be requested to support discussions on how best to monitor these traffic flows.



Figure 2. Access Control Point at Gate 20 - Plan View Layout



Figure 3. Gate 20 and I-25 Exit Ramps to Magrath Ave.

The structure and functionality of gate 20 is nearly identical to gate 4 so the descriptions provided above apply to this ACP.

Fort Carson Fiber Optic Network

The selected Proposer will work with the Fort Carson Network Enterprise Center (NEC) to utilize existing dark fiber optic infrastructure, managed by the installation, to expand the CBRS network to fiber access points at both gates. Use of this dark fiber by the project has already been approved by the NEC through a request submitted by US Ignite.

The selected Proposer will coordinate with NEC to understand the available infrastructure and how to connect the traffic and weather system new equipment at gate4 and gate20 to the CBRS network in the best technical efficiency and cost-effective way.

The selected Proposer will be responsible for installing the equipment required to complete the fiber connection as well as integrating the traffic and weather monitoring devices deployed as part of the solution.

The fiber is accessible through the communications buildings adjacent to the gates and the Proposer will need to work with the NEC to identify the final fiber route to the CBRS network. Additional details on the fiber connection are available after contract award.

CBRS Network Connectivity

A dedicated private CBRS Network is available at Fort Carson to support the smart base program effort. The network is located in the central cantonment area and includes five cells that are connected via point-to-point Bridgewave radios. Each location includes JMA Wireless TEKO CellHub CBRS radio units connected to Dell X-RAN servers. Unite Private Networks (UPN) is the internet service provider to the CBRS network through a fiber optic connection at Cell 9. More details are provided in Appendix B - CBRS LTE Network Description