TOWN OF FAIRFAX
STAFF REPORT
November 16, 2022

TO: Mayor and Town Council

FROM: Loren Umbertis, Director of Public Works

SUBJECT: Authorize the Town Manager to execute an agreement, approved as to form by the Town Attorney, with DC Electric for the purchase and installation of a Traffic Detection Device at the intersection of Claus Drive and Sir Francis Drake Boulevard in an amount not to exceed $28,325.

RECOMMENDATION

Staff recommends that the Town Council authorize the Town Manager to execute an agreement, approved as to form by the Town Attorney, with DC Electric in the amount not to exceed $28,325 for the purchase and installation of a Traffic Detection Device at the intersection of Claus Drive and Sir Francis Drake Boulevard.

BACKGROUND

The Town of Fairfax has three intersections along Sir Francis Drake that are controlled by traffic signals: Oak Manor Drive, Claus Drive, and Willow/Pastori Ave. Historically, the traffic signals were controlled by electromagnetic loops embedded in the asphalt that sense a vehicle as they are passed over which sends a signal to the controller to change the traffic signal lights.

Traffic loops over time typically lose functionality causing the traffic controller to go into a default automatic rotation where the signals will automatically cycle through red and green regardless as to whether or not a vehicle is calling for a change in the lights.

The traffic loops at the intersection of Claus Drive and Sir Francis Drake have begun to fail and currently the traffic signals are in their default automatic rotation as a result. This results in vehicles and bicycles having to stop in the east and west directions while the traffic signal shows a green light to Claus Dr. even when no vehicle is present. This results in unnecessary delays to traffic flow for both vehicles, bicycles and pedestrians and results in vehicles needlessly having to idle while waiting for the lights to complete their cycle, while also delaying bicycles and pedestrians.

The repair and replacement of traffic loops requires closure of lanes to excavate the old loops and replace them with new loops. When loops are replaced, it is recommended that all of them are replaced at the same time as loops currently functioning may fail in a cascading manner over time. Performance of this work will have a significant impact upon traffic along Sir Francis Drake and particularly at this specific intersection. Currently, at this intersection, there are approximately 20-24 loops that would require replacement as the loops are set back within lanes from the intersection to assess multiple cars and approaches. Typical costs for the replacement of a single loop range between $800-1000 when included as a group, which does not include the impacts of extended construction and traffic congestion. It should be noted that traffic loops do a very poor job of detecting bicycles.

DISCUSSION

Current common practice recommends the abandonment of embedded traffic loops and the use of Traffic Detection Device (TDD's) that are located on the mast arms and poles of existing traffic signals. Currently within the Town of Fairfax, TDD's are located at Oak Manor Dr. and Pastori (the intersection at Pastori is a shared traffic signal system with San Anselmo as it is connected with other traffic signals in San Anselmo for efficiency of traffic flow). TDD's can 'view' vehicles as well bicycles as they approach an intersection and stack up. If there are turn lanes, the devices can detect vehicles if they happen to be within those lanes to activate the green turn signal only when there is a vehicle needing it. The ability of the TDD's to detect bicyclists more effectively than traffic loops will enhance the safety of bicyclists using Sir Francis Drake.

While the TDDs have a video component, their connection is solely with the traffic signal controller, typically located in a traffic signal controller box located adjacent to the intersection. The existing TDDs do not have a 'feed' either wirelessly or by cable to any other location for remote viewing, nor is there a video recording capability installed or active at either of these locations. Without recording devices, no information can be extracted at a later time for use in any other capacity or for any other purpose. This project will not have video feed or recording capabilities included.

Shown here is a screenshot of how the device analyzes traffic:

As previously noted, these TDDs are already located at two other intersections and are being used by most other municipalities in Marin County. The devices are not designed with the same hardware and software capabilities as License Plate Readers (LPR's) and are not

intended for that purpose, nor could the proposed equipment be converted to that purpose. The TDD's are not able to be manually controlled to pan or readjust focus or adjust their angle after placement; they are placed in a manner to be able to read the intersection and remain in that fixed position without the ability to be altered. In the event wind or some other event changes the orientation of the TDD, it will need to be physically manipulated to place it back into the correct position.

Initial installation of the devices will have minor traffic impacts, involving the use of bucket trucks and traffic control and temporary lane closure. The adverse impacts for TDD installation will be minimal when compared to the impacts of street excavation and lane closures that would be required for the replacement and installation of traffic loops.

In the future, should a TDD fail, the device can be easily replaced with minimal impact upon traffic and at a significantly lower cost and impact upon traffic flow. As noted previously, as loops are all interconnected, it is difficult to determine the actual location of the failed link which makes future repair and replacement difficult, and again, it is standard practice that when loops begin to fail, it is recommended that all or most be replaced at the same time; therefore Staff recommends converting to the Traffic Detection Device system to reduce costs and limit future traffic impacts.

Not Recommended:
While not recommended, the ability to add/purchase additional equipment is possible with this system to allow for recording or remote viewing. However, that would require additional wiring, including excavation work to a remote viewing site, and additional hardware equipment; that is not recommended for Fairfax. While not proposed for Fairfax, other communities use remote viewing or recording in the event of traffic delays to inspect in real time an intersection or to review the details of a crash/accident/incident at an intersection as those locations typically have higher rates of accidents than other locations. Staff is not recommending that these capabilities be considered in this current project.

FISCAL IMPACT

Staff requested a proposal from DC Electric and they presented a cost of $28,325 for the purchase and installation of four (4) TDDs and the necessary wiring back to the Traffic Controller Box and the traffic signal loops will be deactivated and abandoned in place.

The cost of the equipment and installation exceeds the purchasing limits and authority of the Town Manager, therefore Staff is seeking authorization from the Town Council to procure the equipment and services.

DC Electric currently operates under a Marin General Services Authority (MGSA) Agreement to service the Town of Fairfax's streetlights and also allows Marin County's towns and cities to utilize their services for traffic signal maintenance and repair, which the Town currently takes advantage of. Staff has not sought out other proposals for this work as the rates have already been vetted as part of the MGSA contract for those electrical services related to traffic signals and streetlights.

ATTACHMENT

None