LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY

# STAFF REPORT

SUBJECT: Traffic Signal Priority Upgrade

FROM: Christy Wegener, Director of Planning and Operations

DATE: March 27, 2017

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**Action Requested**
None – Information Only

**Background**
This is a briefing of a project to upgrade the Transit Signal Priority to GPS-enabled technology.

**Discussion**
As a part of the 2011 Rapid plan and deployment, Transit Signal Priority (TSP) was introduced into the Wheels bus network along the Rapid corridor in Livermore, Pleasanton, and Dublin. The TSP technology implemented as a part of the Rapid deployment utilized infrared (IR) optical technology from Global Traffic Technology (GTT) Opticom, which interfaced with the Emergency Vehicle Priority (EVP) sensors/emitters utilized by the Tri-Valley cities for emergency vehicles. TSP software was also installed by the Tri-Valley city traffic engineers.

The TSP implemented for the Rapid deployment allowed buses to extend green lights or shorten red lights when approaching the signals. A buffer of 8-10 minutes was put in place to prevent bus-bunching. Because of the near-side placement of certain bus stops, a provision was implemented to cancel the TSP "call" to the signal when the bus door is open, preventing unnecessary signal timing changes when passengers are boarding or alighting the vehicle. Included in the TSP plan were two queue jump lanes for the Rapid line, one located at westbound Stanley and Murrieta, and one located at westbound Dublin and Dougherty. Queue jump signals allow the bus to receive a special bus-only signal and travel through the intersection ahead of the queue of cars.

Reports from the TSP software indicate that the system appears to be working as calls are made and granted; however, no reports are available to indicate whether the bus actually makes it through the intersection when extended greens or shortened reds are granted. Accordingly, it is hard to determine what impact TSP has on the overall travel time of the buses.

Since the Rapid project was implemented in 2011, the TSP technology commercially available has improved both with accuracy of bus-to-intersection controller signals, but also reports. The newest TSP products are embedded with GPS-technology that offers improved functionality; additionally, the newest models have improved software that only turns the GPS "on" when the buses run late, but keep the TSP "off" when the buses are on-time or bunching. The new technology is installed in parallel to the optical IR technology utilized for EVP. The newest technology removes the need for buffer in-between TSP calls, can more accurately measure the travel time improvement of the buses, and provides more accurate queue jump signals. Transit properties that have implemented the GPS-based technology typically see an improvement in operations immediately. Both San Francisco Muni and AC Transit have recently upgraded their TSP systems.

When the Rapid line (Route 30R) was realigned in August 2016, and when the old Route 10 became "Rapidized," an opportunity arose to revisit the TSP plan. The new 10R has TSP throughout Livermore, but there is no TSP along Santa Rita Road, which is a key corridor that has been identified for increased ridership. Staff has reached out to the City of Pleasanton staff to discuss implementing TSP on Santa Rita Road, and staff was amenable to piloting the technology at three intersections on Santa Rita Road (Mohr, Valley, and Stoneridge).

Staff is proposing to upgrade the entire TSP network in the Tri-Valley to a GPS-based system, and staff has identified a local funding source that would fund the system-wide upgrade.

**Budget Considerations**
The Strategic Expenditure Plan (SEP) for the Tri-Valley Transportation Council (TVTC) includes a project (Project A-11, Attachment 1) to implement, enhance, and expand "Rapid" BRT service throughout the Tri-Valley. Project A-11 describes enhancements such as upgraded bus shelters, turn-outs/bulb-outs, off-vehicle fare collection, as well as enhanced TSP as elements eligible for funding. Total available funding is $1.1 million. Funding a TSP upgrade would be well within the scope of the project.

**Next Steps**
Staff has reached out to Kimley-Horn, LAVTA's on-call engineering firm, to discuss the project. Staff expects to request funding from TVTC in early FY2018 to fund the upgrade. Staff will return to the Committee in early 2018 with a recommendation for a contract award.

**Recommendation**
None – Information only

Attachments
1 – TVTC SEP Project A-11