

STAFF REPORT

SUBJECT: Transit Signal Priority Upgrade Project
Scope of Work for Design and Project Management

FROM: Christy Wegener, Director of Planning and Operations

DATE: October 2, 2017

Action Requested

Authorize Executive Director to execute a task-order contract with Kimley-Horn Associates, Inc. to perform project management, design, and construction management services for the LAVTA Transit Signal Priority (TSP) upgrade project pursuant to the terms of LAVTA's existing on-call Engineering Services Contract (Agreement #842, RFP #2016-14) for \$256,285.18, with a 10% contingency to be used at the Executive Director's discretion.

Background

The Rapid TSP upgrade and expansion project will update the onboard and on-street TSP equipment throughout the Tri-Valley to GPS-based technology, and will expand the TSP network to new Rapid corridors in Pleasanton and Livermore. A map of the existing and potential new locations for TSP is included as Attachment 1.

Upgrading the TSP equipment will ensure that the Rapid buses travel through the Tri-Valley as quickly as possible in order to remain competitive with the Single Occupant Vehicle (SOV) and attract riders. The GPS-based technology is more accurate, is conditionally activated (turns on when the bus is late), provides more accurate reporting and schedule adherence data, and can more reliably impact a corridor's on-time performance.

The funding for this project (\$1.14m) is being provided by the Tri-Valley Transportation Council (TVTC) and was secured on July 17, 2017 (TVTC Resolution 2017-17, Attachment 2). The LAVTA Board and the City Council of Dublin, respectively, approved an MOU in September 2017 which outlined how the TVTC funds would pass through the City to LAVTA for the project. The next step is to procure consultant services to oversee the project, and to begin the design of the network, and develop system and vendor specifications for the procurement and installation of the equipment.

Discussion

Kimley Horn is one of LAVTA's on-call Engineering services firms. Kimley Horn is the only LAVTA on-call contractor who specified advanced traffic management systems and Intelligent Transportation Systems as areas of service in their proposal. They have extensive experience working with the Tri-Valley traffic engineers, and also with working on similar TSP upgrade

projects at Bay Area transit agencies (AC Transit, for example). The brief project scope of work for the TSP Upgrade Project is provided below, and the detailed scope of work is included as Attachment 3.

Task 1 – Project Management and Meetings

This task includes project management related tasks and meetings. This includes on-going coordination between Kimley-Horn, LAVTA, the TSP vendor and the cities over the course of the project.

Task 2 – Data Collection and Field Reviews

Kimley-Horn will coordinate with LAVTA and the cities of Livermore, Dublin and Pleasanton to gather information on the existing TSP elements at the project intersections. This information will be used to conduct an initial assessment of the changes necessary at key locations to implement the new TSP system and provide an initial framework to coordinate the installation process with the new TSP system vendor. Kimley-Horn will also review previous efforts when the existing TSP system was deployed and identify constraints from that deployment to determine if anything needs to be done to install the new TSP system. This includes near side stops, roadway alignments that obscured the optical path between bus and traffic signals, queue jumps and any other field and operational constraints that will affect the new TSP.

Task 3 – Coordination with Local Cities

Kimley-Horn will coordinate and meet with the local cities (Dublin, Livermore and Pleasanton) to gather specific issues, needs and requirements that will be required of the new TSP system, or the new TSP system will be able to address. This includes the potential for TSP parameters modifications in the traffic controllers, as well as the implementation of TSP at new or additional locations. The team will also coordinate with the cities on different ways of incorporating the new TSP system into each of the local agency's traffic management system.

Task 4 – Detailed Installation Designs

Kimley-Horn will prepare detailed designs for the installation of the new TSP field elements. The designs will include all necessary details for the installation of the TSP equipment such as mounting details, installation and connection details. It will also include details on re-connecting existing connections within each cabinet to retain any existing functionality, e.g., emergency vehicle preemption. The detailed designs will include plans and technical specifications as necessary for LAVTA to hire a construction contractor to perform the field installations. The detailed designs will be able to be used by the TSP vendor to perform the field installation should that be the preferred direction by LAVTA. The detailed designs will be prepared for up to 54 traffic signal locations (Dublin and Livermore), which includes the potential for TSP installations in Pleasanton at up to 8 intersections.

Task 5 – TSP System Procurement, Installation, Configuration and Integration

Kimley-Horn will provide project management, construction management, oversight and coordination of the procurement, installation, configuration, integration and testing of the new TSP system. This effort will cover through the TSP system commissioning after the successful completion of the acceptance tests and the final burn-in test.

Budget

The cost for project management including design, procurement, and construction management is estimated at 25% of the project budget, or \$285,000. Based on the scope of work detailed in Attachment 3 and briefly described above, Kimley Horn will provide the work for a firm fixed price fee of \$256,285.18. With a standard 10% contingency in place, the total budget for this portion of the project is \$281,913.70.

Next Steps

Upon executing the task order contract with Kimley Horn, LAVTA will issue the Notice to Proceed.

Recommendation

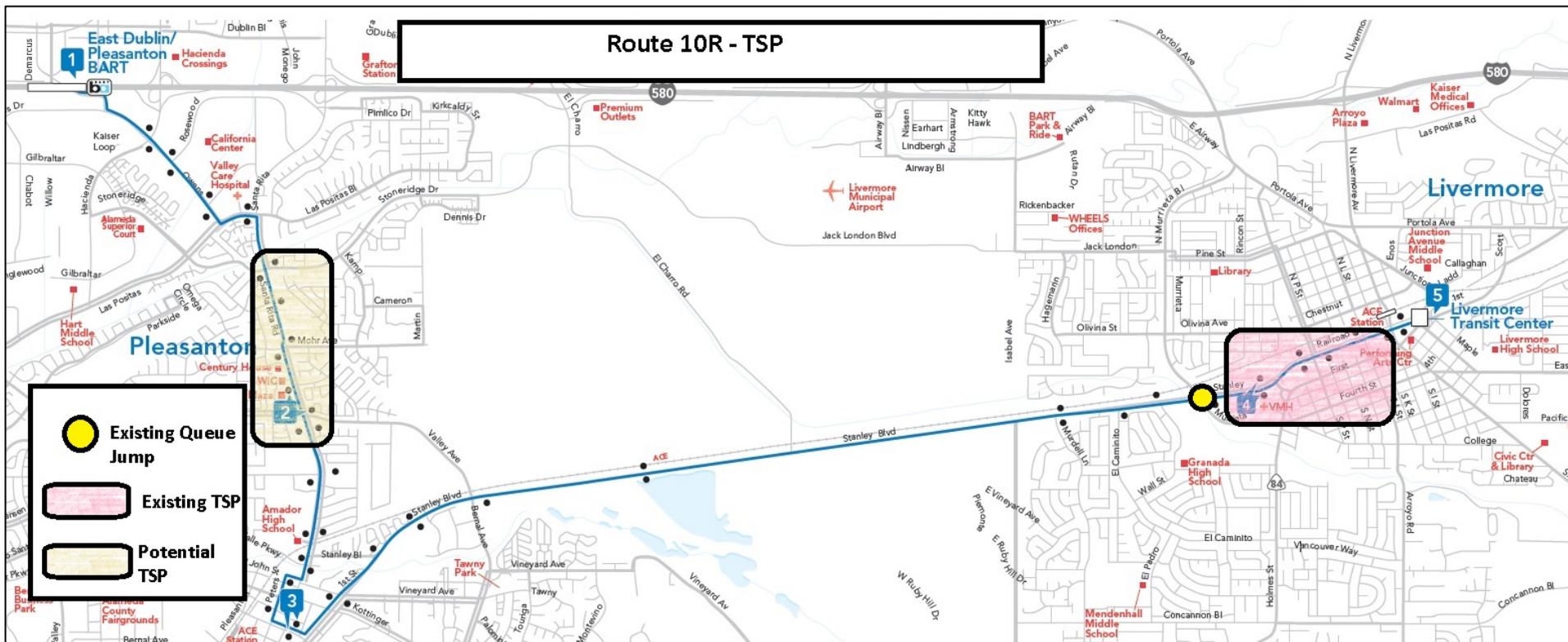
The Projects and Services Committee recommends the Board approve Resolution 32-2017 awarding the TSP Upgrade Project task order contract to LAVTA's on-call contractor Kimley Horn for a not-to-exceed amount of \$256,285.18 with a contingency amount of \$25,628.51 (10%).

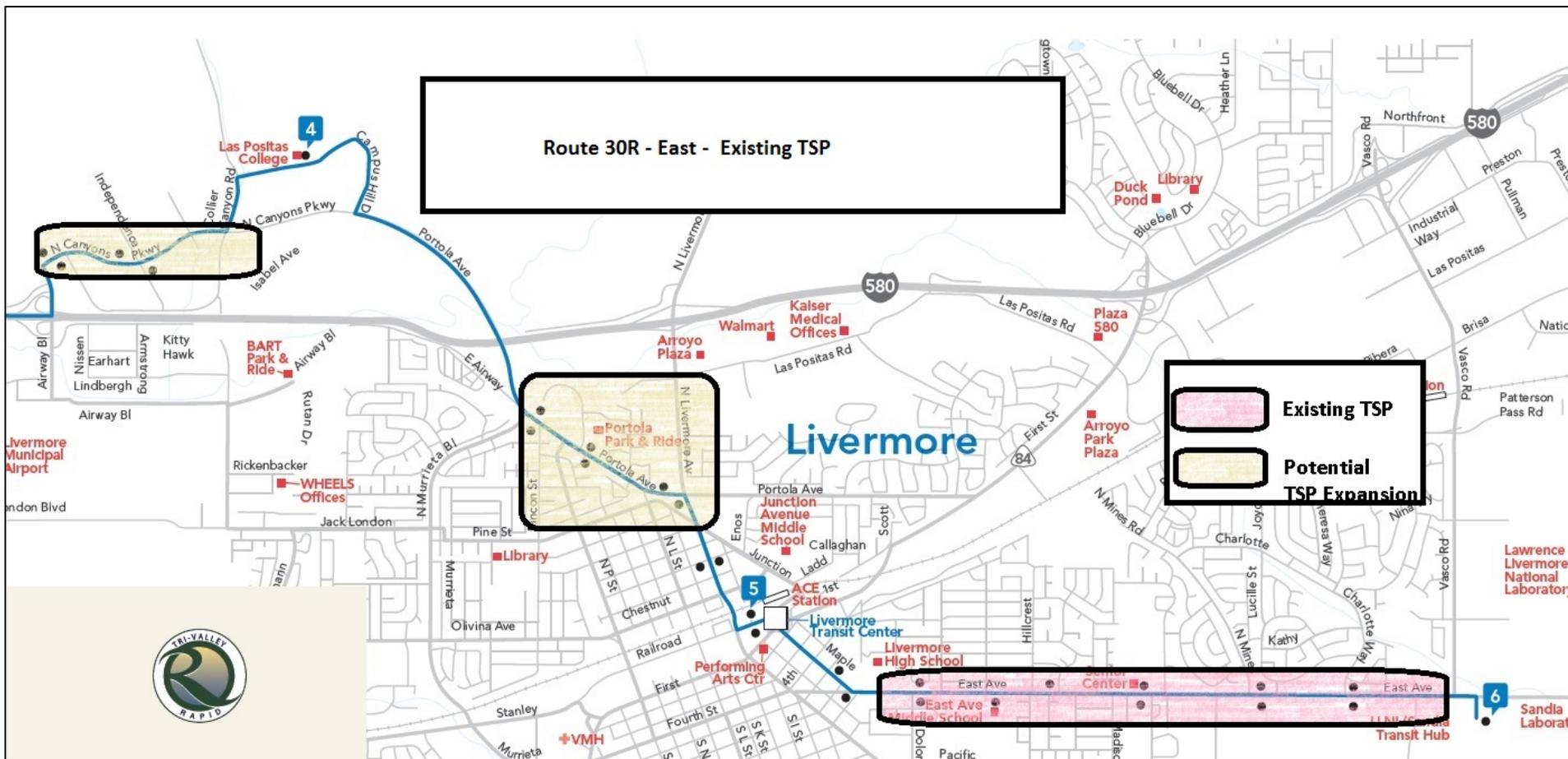
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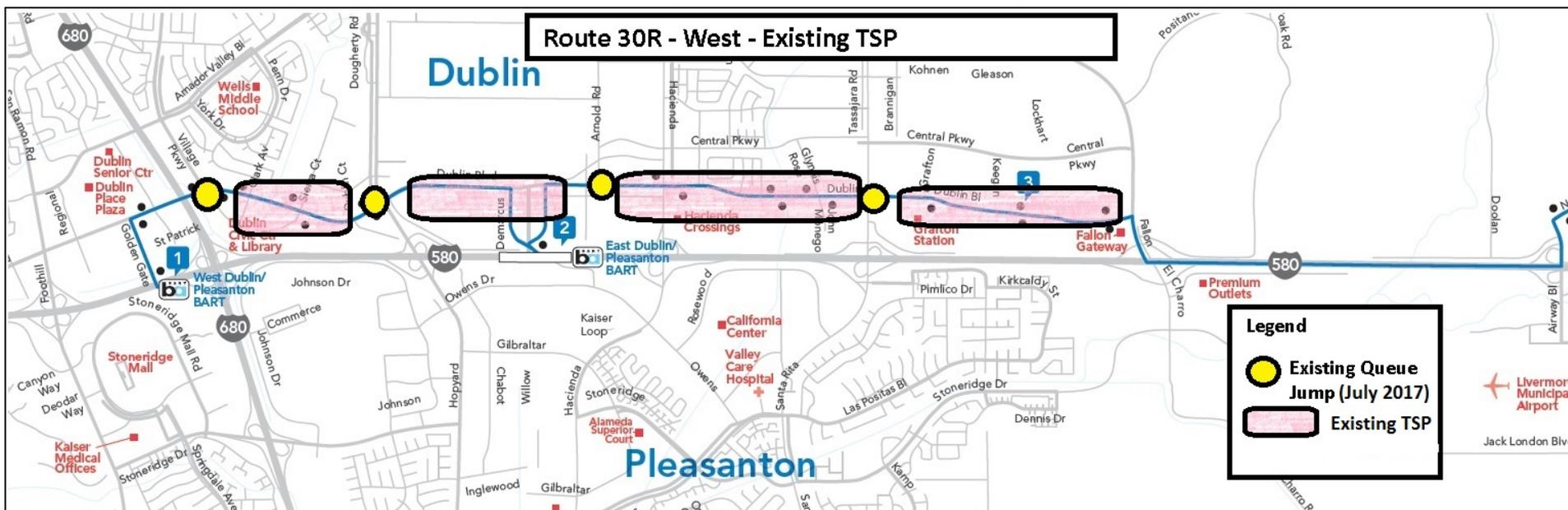
1. Existing and Potential TSP Locations
2. TVTC Resolution 2017-17
3. Kimley Horn - Detailed Scope of Services
4. Resolution 32-2017

Submitted: _____

Map of Existing Transit Signal Priority







**TRI-VALLEY TRANSPORTATION COUNCIL
RESOLUTION NO. 2017-07**

**A RESOLUTION OF THE TRI-VALLEY TRANSPORTATION COUNCIL
APPROPRIATING \$1,140,000 IN TRI-VALLEY TRANSPORTATION
DEVELOPMENT FEE (TVTDF) FUNDS FOR THE PURPOSES OF FUNDING
ADVANCED TECHNOLOGY EXPRESS BUS/BRT PHASE 2**

WHEREAS, in 1995, the Tri-Valley Transportation Council (TVTC) adopted the "Tri-Valley Transportation Plan/Action Plan (TVTP/AP) for Routes of Regional Significance; and

WHEREAS, the TVTP/AP identified 11 specific transportation improvements to be given high priority for funding; and

WHEREAS, in 1998, the TVTC, and entered into a Joint Exercise Powers of Agreement (JEPA) to provide authority to collect a Tri-Valley Transportation Development Fee (TVTDF) to collect impact fees for the traffic mitigation to be applied to the 11 high priority projects; and

WHEREAS, in 1999, the TVTC prepared and approved a Strategic Expenditure Plan (SEP), which guides the expenditure of revenue collected from TVTDF; and

WHEREAS, the SEP identifies priorities, project sponsors, and funding for TVTDF projects; and

WHEREAS, in 2004, the TVTC adopted an update to the SEP that reflected an update to the regional and sub-regional transportation outlook for the Tri-Valley; and

WHEREAS, in 2011, the TVTC prepared and approved the 2011 TVTDF Funding Plan that provides guidance for expenditure of the TVTDF on 22 projects (List A and List B) including Express Bus/BRT Phase 2 (Project A-11); and

WHEREAS, in 2017, the TVTC prepared and approved an update of the 2011 SEP, and provided a funding plan for the remaining projects; and

WHEREAS, the 2017 update of the SEP programmed \$1.00 million in fiscal year 17/18 and \$0.140 million in fiscal year 16/17 for a total of \$1.140 million to Express Bus/BRT Phase 2 (Project A-11); and

WHEREAS, the City of Dublin ("Dublin") a signatory agency to the 1991 Joint Powers Agreement governing the TVTC and is the TVTC-member sponsor Agency for the purposes of administering the appropriation of TVTD Fees to the Express Bus/BRT Phase 2 Project; and

WHEREAS, the Livermore Amador Valley Transit Authority (“LAVTA”) is the Lead Agency for the implementation of Express Bus/BRT Phase 2 Project; and

WHEREAS, Dublin and LAVTA will enter into a Memorandum of Understanding (2017 MOU), which outlines how the funds will flow from TVTC through the City of Dublin to LAVTA, who will be managing the Express Bus/BRT Phase 2 Project; and

WHEREAS, sufficient revenue in the Joint TVTDF Fee Account is available for the FY 17/18 drawdown of \$1,140,000 for the Express Bus/BRT Phase 2 Project.

NOW THEREFORE BE IT RESOLVED THAT the Tri-Valley Transportation Council adopts:

1. The Tri-Valley Transportation Council authorizes an appropriation from the Tri-Valley Transportation Development Fee Account for the Express Bus/BRT Phase 2 TSP Upgrade (Project No. A-11) of \$1,140,000, as programmed in the Strategic Expenditure Plan for fiscal years 2017/18 and 16/17, subject to Dublin and LAVTA’s approval and execution of the 2017 MOU. Funds are to be dispersed in accordance with the TVTC Strategic Expenditure Plan.
2. Upon confirmation of Dublin and LAVTA’s approval and execution of the 2017 MOU, the Tri-Valley Transportation Council authorizes the TVTC Treasurer to transmit \$1,140,000 in funds in the Tri-Valley Transportation Development Fee Account to the City of Dublin, which will, in turn, pass the funds through to the Livermore Amador Valley Transit Authority, the party responsible for the management and construction of the Express Bus/BRT Phase 2 Project.
3. The Tri-Valley Transportation Council authorizes any related action to further the intent of this Resolution.

PASSED, APPROVED, AND ADOPTED at the meeting of July 17, 2017 by the following votes:

AYES: 6 (Spedowfski, Perkins, Biddle, Stepper, Haggerty, Anderson)

NOES: 0

ABSENT: 1 (Olson)

ABSTAIN: 0



Steven Spedowski, Chair
Tri-Valley Transportation Council

ATTEST:



Debbie Bell, TVTC Administrative Staff



1300 Clay Street, Suite 325
Oakland, CA 94612
(510) 625-0712
(916) 858-0885 fax

May 25, 2017

Ms. Christy Wegener
Director of Planning and Communications
Livermore Amador Valley Transit Authority
1362 Rutan Court, Suite 100
Livermore, CA 94551

RE: Proposal for Professional Services for the Planning, Design and Implementation Oversight and Construction Management of a new GPS-based TSP Solution

Dear Christy:

Kimley-Horn is pleased to submit our proposal and fee estimate to provide professional engineering services for the planning, design and installation oversight of a new Transit Signal Priority (TSP) system that will replace the existing TSP system that operates along the rapid routes. The new TSP system will be a GPS-based system that will interface and interoperate with the existing Emergency Vehicle Preemption (EVP) system.

We understand that LAVTA will be upgrading and migrating the existing optical-based TSP system to a GPS-based TSP system. We also understand that the existing Emergency Vehicle Preemption (EVP) system functionality that operates with the existing TSP system will need to be retained with the upgrade/migration.

Our services will consist of project management, vendor coordination, design of field equipment installations, coordination with the local cities and overall oversight of the installation, testing and commissioning of the migrated TSP system. It is our intent to provide these services to assist in the delivery of a turnkey system for LAVTA.

Attached is our detailed scope of services, schedule, and fee estimate for your review.

We appreciate the opportunity to work with you on this project. If you have any questions, please do not hesitate to call me at (510) 350-0217 (office) or (510) 393-6232 (cell).

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read "Kevin Aguigui".

Kevin Aguigui, P.E., T.E., E.E., CSEP
Project Manager

SCOPE OF SERVICES

Kimley-Horn and Associates, Inc. (Kimley-Horn) will provide professional engineering and project management and oversight services to deliver the migration of the existing TSP system to a new GPS-based TSP system. This new TSP system includes the field equipment elements, field modifications at traffic signals, equipment installation on LAVTA buses, new central management systems and traffic operating parameters necessary for the new TSP system to operate at the signalized intersections.

It is our understanding that the following list provides an overview of the required items for the implementation of the new TSP system:

- The migration of the existing TSP system will include those intersections along the 10R and 30R routes.
- There are about 20 traffic signals in Livermore that operate with TSP today and about 26 signals in Dublin.
- We understand that Pleasanton does not have any signals that operate with TSP, but there could be up to 8 traffic signals that could benefit LAVTA buses if they were to operate with TSP
- The new TSP system field equipment will be installed at those locations that currently operate with the existing TSP system.
- There are up to 60 buses that will be equipped with the new on-board TSP equipment, but only 28 buses will need the TSP equipment in the first phase.
- The new TSP vendor and/or other contractor will provide the installation, configuration and integration of the on-board TSP equipment on the buses
- There will be a TSP WLAN that will be used to communicate with the LAVTA buses to provide each bus with the route and pattern information that is necessary to operate the new TSP system
- The new TSP system field equipment at the existing traffic signals will be installed by a construction contractor
- The new TSP system vendor will be responsible for furnishing, configuring, integrating and testing the field and on-board TSP equipment

Kimley-Horn will provide overall project management, oversight and coordination of the migration of the existing TSP system to the new TSP system. In addition, Kimley-Horn will provide detailed design services and construction management and assistance for the installation and testing of new TSP field equipment at existing traffic signals currently operating with TSP along the rapid routes and existing traffic signals that are proposed to operate with TSP with the new TSP system (e.g., traffic signals in Pleasanton).

Task 1 – Project Management and Meetings

This task includes project management related tasks and meetings to consist of preparation of invoices, budget oversight, adherence to project scheduling, and general project coordination. Kimley-Horn will coordinate with the LAVTA throughout the project to track project requirements and expectations, project installation and implementation schedules, gathering of needed project information, and the coordination of project meetings amongst LAVTA and the local cities.



We anticipate that there will be on-going coordination between Kimley-Horn, LAVTA, the TSP vendor and the cities over the course of the project. Initially, there will be two (2) project meetings, one to kick-off the project and one with the TSP vendor to develop the overall project schedule.

We have included in our effort a recurring set of project meetings with LAVTA and/or the TSP vendor to continuously track the project's progress and milestones. We have assumed that this recurring meeting would initially occur on a weekly basis and then transition to a bi-weekly basis after a few months into the installation of the system for a total of up to 20 meetings.

Deliverables:

- Meeting agendas and notes
- Preparation and maintenance of the TSP System Implementation Schedule

Task 2 – Data Collection and Field Reviews

Kimley-Horn will coordinate with LAVTA and the cities of Livermore, Dublin and Pleasanton to gather information on the existing TSP elements at the project intersections. This information will be used to conduct an initial assessment of the changes necessary at key locations to implement the new TSP system and provide an initial framework to coordinate the installation process with the new TSP system vendor.

Several of elements of the existing TSP system where we will collect relevant information includes, but is not limited to:

- Existing Central Management System (CMS) infrastructure and configurations – what each city has and what they want different from the new TSP system.
- Traffic controller cabinet layouts – what may need to be modified or removed.
- Field issues or constraints for the installation of the new TSP field equipment – obstacles that may interfere with the GPS signals or with the type of operations including queue jumps
- Bus yard field issues with the TSP WLAN – placement of wifi antennas and TSP servers (if required)

We will also review previous efforts when the existing TSP system was deployed and identify constraints from that deployment to determine if anything needs to be done to install the new TSP system. This includes near side stops, roadway alignments that obscured the optical path between bus and traffic signals, queue jumps and any other field and operational constraints that will affect the new TSP.

We will prepare a technical memorandum that will summarize the findings from this information gathering. The memorandum will include recommendations for the detailed designs and installation of the TSP system.

Deliverable:

- Summary memorandum of the findings from the information gathering

Task 3 – Coordination with Local Cities

Kimley-Horn will coordinate and meet with the local cities (Dublin, Livermore and Pleasanton) to gather specific issues, needs and requirements that will be required of the new TSP system, or the new TSP system will be able to address. This includes the potential for TSP parameters modifications in the traffic controllers, as well as the implementation of TSP at new or additional locations.



Our team will also coordinate with the cities on different ways of incorporating the new TSP system into each of the local agency's traffic management system. Our understanding is that the agencies are currently operating the following traffic management systems:

- City of Dublin – ATMS.now
- City of Pleasanton – ATMS.now
- City of Livermore - StreetWise

We will work closely with the cities, the TSP vendor, LAVTA and the traffic management system vendor, Trafficware to identify possible options for the incorporation of the new TSP system. We will prepare a brief memorandum to document the findings, decisions and directions.

Deliverable:

- Meeting agendas and notes
- Brief memorandum on possible options to incorporate the new TSP system

Task 4 – Detailed Installation Designs

Kimley-Horn will prepare detailed designs for the installation of the new TSP field elements. This includes, but is not limited to:

- GPS/Radio antenna assemblies
- Cabinet phase selectors
- Auxiliary interface panels
- Associated cabling

The GPS/radio assemblies include the required mounting hardware.

The designs will include all necessary details for the installation of the TSP equipment such as mounting details, installation and connection details. It will also include details on re-connecting existing connections within each cabinet to retain any existing functionality, e.g., emergency vehicle preemption.

The detailed designs will include plans and technical specifications as necessary for LAVTA to hire a construction contractor to perform the field installations. The detailed designs will be able to be used by the TSP vendor to perform the field installation should that be the preferred direction by LAVTA.

The detailed designs will be prepared for up to 54 traffic signal locations (Dublin and Livermore), which includes the potential for TSP installations in Pleasanton at up to 8 intersections.

In addition, we will work with the TSP vendor and the local cities to develop and design a mechanism to provide a feedback or indication to the bus operators when a queue jump call has been received and will be served by the traffic signal. This may include provisions for additional indications on existing traffic signal poles, traffic controller configuration changes and cabinet wiring modifications.

Deliverables:

- Detailed design plans and technical specifications for the field installation of the new TSP elements
- Detailed design for the field installation of the queue jump feedback indication (if feasible)



Task 5 – TSP System Procurement, Installation, Configuration and Integration

Kimley-Horn will provide project management, construction management, oversight and coordination of the procurement, installation, configuration, integration and testing of the new TSP system. This effort will cover through the TSP system commissioning after the successful completion of the acceptance tests and the final burn-in test.

A few of the work elements that we will provide management, construction management and oversight for the TSP system migration includes, but is not limited to:

- Oversee and manage the procurement and installation of the entire TSP system. This includes, but is not limited to, the preparation of Invitation for Bids (IFB), responding to Requests for Information (RFI), preparation of bid addendums, contract compliance reviews, analysis of bids and/or cost information and the preparation of project background information or clarification as necessary during the procurement process.
- Coordinate with LAVTA and the TSP vendor to gather specific information for the TSP WLAN, particularly information that will be needed to properly design and install the WLAN
- Work with LAVTA and the TSP vendor to lay out a plan for the installation of the new TSP equipment on-board the LAVTA buses. This would include an installation design schematic, installation schedule and a means for tracking the installation and testing progress.
- Coordinate with the local cities on the design and installation of the field TSP equipment at existing traffic signals
- Work with the City of Pleasanton on designing and implementing TSP at their intersections.
- Coordinate the installation of the on-board TSP equipment by the vendor and/or contractor
- Oversee the TSP WLAN installation and testing (integration and acceptance testing) at the Bus Yard
- Design the operator feedback mechanism for when a traffic controller will service a queue jump call
- Coordinate the installation, integration and testing of the new TSP system. The testing stages may include bench testing, integration testing and acceptance testing
- Review the Integration and Acceptance Test Plans to be prepared by the TSP vendor
- Oversee the planning, design and implementation of the data feed with the TSP system (e.g., GTFS feed to the TSP ASM unit)
- Coordinate and oversee the TSP WLAN installation and testing at the Bus Yard
- Coordinate the configuration of the TSP equipment including re-defining and calibrating the TSP parameters with the new GPS-based TSP system in the field and at the central locations
- Coordinate the integration and acceptance testing which will include the TSP equipment, the on-site software, and the CMS software.
- Coordinate the installation and integration of the CMS software at the local cities.
- Provide construction management and coordination services for the installation of the TSP elements in the field, on-board and at the local cities including the associated integration and testing. This includes, but is not limited to, attendance at the pre-construction meeting, preparation of contract change orders (if necessary), reviews of product submittals, responses to RFIs, reviews of shop drawings and block diagrams and field review meetings (as necessary),



Deliverables:

- Preparation of procurement documents (e.g., IFB, addendums, etc.)
- Monthly progress reports
- Progress tracking including action logs, installation checklists and punchlists
- Weekly status reports on field installation activities
- Reviews of product submittals
- Responses to RFIs
- Reviews of vendor and contractor invoices
- Observing and witnessing of tests (bench, integration and acceptance)

SCHEDULE

Kimley-Horn is prepared to begin work immediately upon receipt of the notice to proceed (NTP) and will endeavor to meet your scheduling needs. Kimley-Horn will conduct our services in accordance with the schedule and milestones as follows:

Task	Time
Kick-off Meeting	Within 2 weeks after NTP
Data Collection and Field Review	4 weeks after meeting with TSP vendor
Detailed Designs	TBD
Project Management, Construction Management and Coordination	TBD

PROFESSIONAL FEE

Kimley-Horn will provide the Scope of Services for a Firm Fixed Price fee of \$256,285.18. The fee includes labor cost, direct and indirect expenses incurred in performing these services. Fees will be invoiced monthly based upon the percent completed as of the invoice date. Materials expenditures shall be billed at cost with no mark-ups applied.

Those services other than those set forth in the Scope of Services shall constitute extra services. Extra services, such as attendance at meetings other than those included in the Scope of Services and evaluation of additional intersections, shall be performed only with your authorization, and for additional fees to be negotiated prior to authorization.

The following table outlines the estimated level of effort for each task. The table is provided for information only and the hours shown may not represent the actual hours dedicated by each staff to each task necessary to deliver the system.



Task	Project Manager	Sr. Professional	Professional	Jr. Professional	Analyst	Sr. Support Staff	Admin Staff	TOTAL
Task 1: Project Management and Meetings	30	12		40		8	16	106
Task 2: Data Collection and Field Reviews			16	28	84		8	136
Task 3: Coordination with Local Cities	16	48	8	8	8		4	92
Task 4: Detailed Installation Designs	8	4	16	168	336	8	8	548
Task 5: Procurement/Installation/Const Mgmt	96	40	32	416	128	8	16	736
Total Hours	150	104	72	660	556	24	52	
Direct Rate	\$85.00	\$74.78	\$53.48	\$47.61	\$36.49	\$40.91	\$30.30	
Overhead (204.54% included FCCM of 2.15%)	\$173.86	\$152.96	\$109.39	\$97.38	\$74.64	\$83.68	\$61.98	
Fee (6% Fee not calculated on FCCM)	\$15.43	\$13.57	\$9.71	\$8.64	\$6.62	\$7.43	\$5.50	
Fully Burdened Rate	\$274.29	\$241.31	\$172.58	\$153.63	\$117.75	\$132.01	\$97.78	
Labor Total	\$41,143.28	\$25,096.18	\$12,425.46	\$101,398.34	\$65,469.25	\$3,168.32	\$5,084.34	\$253,785.18
Direct Expenses								\$2,500
TOTAL								\$256,285.18

RESOLUTION NO. 32-2017

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY
AWARDING A TASK ORDER CONTRACT FOR THE TRANSIT SIGNAL
PRIORITY PROJECT**

WHEREAS, LAVTA requires the services of a traffic engineering firm to oversee the Transit Signal Priority (TSP) upgrade project, including providing design and project management services; and

WHEREAS, Kimley Horn was awarded an on-call Engineering services contract by LAVTA (RFP #2016-14); and

WHEREAS, Kimley Horn is the only on-call firm that has the qualifications to complete the work necessary to execute the TSP upgrade project; and

WHEREAS, Kimley Horn and LAVTA have negotiated a detailed scope of work for the TSP upgrade project at a firm fixed fee of \$256,285.18.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Livermore/Amador Valley Transit Authority that the Executive Director may enter into a task order contract with Kimley Horn for \$256,285.18 for this project.

BE IT FURTHER RESOLVED that the Board of Directors authorizes the Executive Director to expend a 10% contingency amount not to exceed \$25,628.51, for a total authorized amount not to exceed \$281,913.70.

BE IT FURTHER RESOLVED that the Executive Director is authorized to execute a task order contract with Kimley Horn in a form approved by LAVTA's Legal Counsel.

PASSED AND ADOPTED this 2nd day of October 2017

Karla Brown, Chair

ATTEST:

Michael Tree, Executive Director

APPROVED AS TO FORM:

Michael Conneran, Legal Counsel