LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY

STAFF REPORT

SUBJECT: Resolution in Support of Allocation Request for Regional Measure 2 Funding for the Shared Autonomous Vehicle Phase 2 Deployment Project

FROM: Jennifer Yeamans, Senior Grants & Management Specialist

DATE: September 13, 2021

Action Requested
The Projects & Services Committee recommends the Board of Directors approve Resolution 26-2021 in support of an allocation request to the Metropolitan Transportation Commission (MTC) for $150,000 for the design phase of the Shared Autonomous Vehicle Phase 2 Deployment Project. This resolution is required to request an allocation of this funding from MTC.

Background
In 2004, Senate Bill 916 established the Regional Traffic Relief Plan, including a list of projects eligible to receive funding authorized by Regional Measure 2 (RM2), which increased tolls on the seven state-owned toll bridges in the Bay Area by $1 to fund various traffic relief programs and projects in eligible bridge corridors. SB 916 identified the Alameda County Transportation Commission (CTC) as the project sponsor of $65 million in anticipated revenues to be allocated for RM2 Project 32, *I-580 (Tri-Valley) Rapid Transit Corridor Improvements in Alameda County*. To date funds have been allocated in the corridor on construction of the I-580 High Occupancy Toll (HOT) lanes and other HOV improvements, improvements to the I-580/I-680 interchange, and construction of the Dublin-Pleasanton BART Parking Garage.

In late 2020, MTC notified LAVTA staff that a balance of approximately $5 million remained on the Project available for allocation to eligible transit-related projects in the corridor and requested proposal(s) from LAVTA that could utilize the funds. In December 2020, Alameda CTC approved the update to the Countywide Transportation Program, which included several LAVTA priority projects, including $3 million for systemwide passenger facilities rehabilitation and enhancements, and $2 million for capital costs related to Phase 2 deployment of the Shared Autonomous Vehicle (SAV) project. LAVTA initiated formal requests to MTC for RM2 capital funding for both projects as they relate to addressing congestion on the I-580 corridor. In May 2021, MTC approved LAVTA's allocation request for design-engineering funding toward construction of $2.3 million in Rapid Bus Stop Improvements, while discussions continued regarding the SAV proposal.

Discussion
Per MTC Regional Measure 2 Policies and Procedures (MTC Resolution 3636), project sponsors must submit a governing-board certification of compliance with RM2 provisions (Attachment 1) in order to receive allocations. Because the RM2 legislation identifies Alameda CTC as the project sponsor, Alameda CTC must also submit a resolution of local support for the project. On September 13, Alameda CTC's Programs and Projects Committee is scheduled to consider its resolution to sponsor the project and designate LAVTA as the project's Implementing Agency, delegating responsibility to LAVTA for compliance with all RM2 Policies and Procedures. Contingent upon actions by both the LAVTA Board on September 13 and Alameda CTC on September 23, MTC would consider the allocation request in October.

RM2 Policies and Procedures require each allocation to fund a minimum usable segment and/or deliverable. Thus MTC's initial allocation will fund $150,000 budgeted for the project's design phase only. Pending acceptance of 100% plans, specifications, and estimates for the project, MTC will consider allocating an additional $2.545 million for the construction phase as described in the Initial Project Report (IPR), shown in Attachment 2.

The initial project scope defined in the IPR calls for design-engineering work to support construction of two key facilities necessary to support the expansion of LAVTA's existing SAV route tested in Phase 1 (summarized in Attachment 3):

- Local infrastructure upgrades including vehicle-to-everything (V2X) communication with traffic lights and streetside signage
- Construction of modern, attractive passenger facilities at or near the Ross Headquarters business park to serve as the route endpoint from the Dublin/Pleasanton BART station.

A subsequent construction phase would provide for the construction of these facilities as well as the acquisition of three next-generation SAVs needed to operate on the proposed Phase 2 route, shown in Attachment 4. Storage of the vehicles is provided for in the plans for the new Dublin-Pleasanton BART parking garage scheduled to begin construction next year.

Budget
The project budget is funded 100% by RM2 funds in the design phase and by a combination of RM2 and potential future MTC discretionary funds from the Innovative Deployments to Enhance Arterials (IDEA) Shared Autonomous Vehicle (SAV) program in the construction phase, as shown below (all amounts shown in thousands of dollars).

	RM2	**MTC IDEA SAV Program (uncommitted)**	**Total**
PS&E *(current allocation)*	$150	--	$150
Construction *(future allocation)*	$2,545	$600	$3,145
Total	**$2,695**	**$600**	**$3,295**

Next Steps
Following MTC approval of the RM2 allocation in October, LAVTA will initiate one or more Task Order Requests with its on-call design-engineering firm, Kimley-Horn, to finalize the scope of work for the design-engineering phase of the project. The design phase is expected to If additional funding for the future construction phase is not secured from MTC's IDEA SAV Program, staff will seek out other potential funding sources for the project's construction phase.

Recommendation
The Projects & Services Committee recommends the Board of Directors approve Resolution 26-2021 in support of an allocation request to the Metropolitan Transportation Commission for $150,000 for the design phase of the Shared Autonomous Vehicle Phase 2 Deployment Project.

Attachments:
1. Resolution 26-2021
2. Initial Project Report: LAVTA Rapid Bus Stop Improvement Project
3. IPR Attachment A: Phase 1 Summary
4. IPR Attachment B: Proposed Phase 2 Route and Vehicle

Approved: _____

RESOLUTION NO. 26-2021

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE LIVERMORE AMADOR VALLEY TRANSIT AUTHORITY AS IMPLEMENTING AGENCY FOR REGIONAL MEASURE 2 FUNDING FOR THE SHARED AUTONOMOUS VEHICLE PHASE 2 DEPLOYMENT PROJECT

WHEREAS, SB 916 (Chapter 715, Statutes 2004), commonly referred as Regional Measure 2, identified projects eligible to receive funding under the Regional Traffic Relief Plan; and

WHEREAS, the Metropolitan Transportation Commission (MTC) is responsible for funding projects eligible for Regional Measure 2 funds, pursuant to Streets and Highways Code Section 30914(c) and (d); and

WHEREAS, MTC has established a process whereby eligible transportation project sponsors may submit allocation requests for Regional Measure 2 funding; and

WHEREAS, allocations to MTC must be submitted consistent with procedures and conditions as outlined in Regional Measure 2 Policy and Procedures; and

WHEREAS, Streets and Highways Code Section 30914(c) and (d) identifies the Alameda County Transportation Commission as Project Sponsor for RM2 Project 32, I-580 (Tri-Valley) Rapid Transit Corridor Improvements in Alameda County; and

WHEREAS, the Alameda County Transportation Commission plans to designate the Livermore Amador Valley Transit Authority (LAVTA) as implementing agency for the design and construction of the Shared Autonomous Vehicle Phase 2 Deployment Project, an eligible project under RM2 Project 32, I-580 (Tri-Valley) Rapid Transit Corridor Improvements; and

WHEREAS, LAVTA is an eligible implementing agency for transportation project(s) in Regional Measure 2, Regional Traffic Relief Plan funds; and

WHEREAS, the Shared Autonomous Vehicle Phase 2 Deployment Project is eligible for consideration in the Regional Traffic Relief Plan of Regional Measure 2, as identified in California Streets and Highways Code Section 30914(c) or (d); and

WHEREAS, the Regional Measure 2 allocation request, attached hereto in the Initial Project Report and incorporated herein as though set forth at length, lists the project, purpose, schedule, budget, expenditure and cash flow plan for which LAVTA is requesting that MTC allocate Regional Measure 2 funds; now, therefore, be it

RESOLVED, that LAVTA, and its agents shall comply with the provisions of the Metropolitan Transportation Commission's Regional Measure 2 Policy Guidance (MTC Resolution No. 3636); and be it further

RESOLVED, that LAVTA certifies that the project is consistent with the Regional Transportation Plan (RTP); and be it further

RESOLVED, that the year of funding for any design, right-of-way and/or construction phases has taken into consideration the time necessary to obtain environmental clearance and permitting approval for the project; and be it further

RESOLVED, that the Regional Measure 2 phase or segment is fully funded, and results in an operable and useable segment; and be it further

RESOLVED, that LAVTA approves the updated Initial Project Report, attached to this resolution; and be it further

RESOLVED, that LAVTA approves the cash flow plan, attached to this resolution; and be it further

RESOLVED, that LAVTA has reviewed the project needs and has adequate staffing resources to deliver and complete the project within the schedule set forth in the updated Initial Project Report, attached to this resolution; and, be it further

RESOLVED, that LAVTA is an eligible sponsor of projects in the Regional Measure 2 Regional Traffic Relief Plan, Capital Program, in accordance with California Streets and Highways Code 30914(c); and be it further

RESOLVED, that LAVTA is authorized to submit an application for Regional Measure 2 funds for the Shared Autonomous Vehicle Phase 2 Deployment Project in accordance with California Streets and Highways Code 30914(c); and be it further

RESOLVED, that LAVTA certifies that the projects and purposes for which RM2 funds are being requested is in compliance with the requirements of the California Environmental Quality Act (Public Resources Code Section 2l000 et seq.), and with the State Environmental Impact Report Guidelines (l4 California Code of Regulations Section l5000 et seq.) and if relevant the National Environmental Policy Act (NEPA), 42 USC Section 4-1 et. seq. and the applicable regulations thereunder; and be it further

RESOLVED, that there is no legal impediment to LAVTA making allocation requests for Regional Measure 2 funds; and be it further

RESOLVED, that there is no pending or threatened litigation which might in any way adversely affect the proposed project, or the ability of LAVTA to deliver such project; and be it further

RESOLVED, that LAVTA agrees to comply with the requirements of MTC's Transit Coordination Implementation Plan as set forth in MTC Resolution 3866; and be it further

RESOLVED, that LAVTA indemnifies and holds harmless MTC, its Commissioners, representatives, agents, and employees from and against all claims, injury, suits, demands, liability, losses, damages, and expenses, whether direct or indirect (including any and all costs and expenses in connection therewith), incurred by reason of any act or failure to act of LAVTA, its officers, employees or agents, or subcontractors or any of them in connection with its performance of services under this allocation of RM2 funds. In addition to any other remedy authorized by law, so much of the funding due under this allocation of RM2 funds as shall reasonably be considered necessary by MTC may be retained until disposition has been made of any claim for damages, and be it further

RESOLVED, that LAVTA shall, if any revenues or profits from any non-governmental use of property (or project) that those revenues or profits shall be used exclusively for the public transportation services for which the project was initially approved, either for capital improvements or maintenance and operational costs, otherwise the Metropolitan Transportation Commission is entitled to a proportionate share equal to MTC's percentage participation in the projects(s); and be it further

RESOLVED, that assets purchased with RM2 funds including facilities and equipment shall be used for the public transportation uses intended, and should said facilities and equipment cease to be operated or maintained for their intended public transportation purposes for its useful life, that the Metropolitan Transportation Commission (MTC) shall be entitled to a present day value refund or credit (at MTC's option) based on MTC's share of the Fair Market Value of the said facilities and equipment at the time the public transportation uses ceased, which shall be paid back to MTC in the same proportion that Regional Measure 2 funds were originally used; and be it further

RESOLVED, that LAVTA shall post on both ends of the construction site(s) at least two signs visible to the public stating that the Project is funded with Regional Measure 2 Toll Revenues; and be it further

RESOLVED, that LAVTA authorizes its Executive Director or his/her designee to execute and submit an allocation request for the design phase with MTC for Regional Measure 2 funds in the amount of one hundred fifty thousand dollars ($150,000), for the project, purposes and amounts included in the project application attached to this resolution; and be it further

RESOLVED, that the Executive Director or his/her designee is hereby delegated the authority to make non-substantive changes or minor amendments to the IPR as he/she deems appropriate; and be it further

RESOLVED, that a copy of this resolution shall be transmitted to MTC in conjunction with the filing of the LAVTA application referenced herein; and be it further

RESOLVED, that allocation of Regional Measure 2 funding for the Shared Autonomous Vehicle Phase 2 Deployment Project is contingent upon action by the Alameda County Transportation Commission designating LAVTA as implementing agency for the Project and the

Metropolitan Transportation Commission's approval of this designation with the allocation request.

PASSED AND ADOPTED BY the governing board of the Livermore Amador Valley Transit Authority on this 13th day of September 2021.

_____
Karla Brown, Chair

Attest:

_____
Michael Tree, Executive Director

Regional Measure 2 – INITIAL PROJECT REPORT

Regional Measure 2
Initial Project Report (IPR)

Project Title: LAVTA Shared Autonomous Vehicle Phase 2 Deployment

RM2 Project No.

Allocation History:

	MTC Approval Date	Amount	Phase
#1:			
#2			
#3			

Total: $

Current Allocation Request:

IPR Date	Amount Being Requested	Phase Requested
June 18, 2021	**$150,000**	**PS&E: Design-engineering for Passenger Facilities and V2I Intersection Upgrades**

Regional Measure 2 – INITIAL PROJECT REPORT

I. OVERALL PROJECT INFORMATION

A. Project Sponsor / Co-sponsor(s) / Implementing Agency

Alameda County Transportation Commission (TBD) / Livermore Amador Valley Transit Authority (LAVTA)

B. Project Purpose

The primary purpose of this project is to advance deployment of LAVTA's Shared Autonomous Vehicle (SAV) Project with capital investments necessary to support Phase 2 operations. Phase 2 will build on the success of Phase 1 testing and demonstration activities and involve the following principal components:

- Acquisition of three (3) next-generation SAVs
- Implementation of advanced traffic-signal technologies to enable vehicle-to-infrastructure (V2I)/vehicle-to-everything (V2X) communications
- Construction of attractive, modern passenger facilities at a business park approximately one mile from the East Dublin/Pleasanton BART station in LAVTA's service area.

Advances in SAV technology since LAVTA began road-testing its first SAV in 2019 are moving forward at a rapid pace. With an ability to operate much more efficiently than traditional first- and last-mile shuttles, the electric SAV can leverage the full potential of the region's transit investments by functioning as a reliable first/last mile feeder service into fast, frequent local and regional transit, such as the BART system and the Livermore Amador Valley Transit Authority's (LAVTA) bus rapid transit network.

LAVTA's SAV service between the Ross Headquarters business park (Zeiss and other businesses are also in the high-density office park) will generate new public transit ridership on BART and LAVTA that will reduce congestion on I-580, decrease pollution, and contribute to greater safety on roadways.

C. Project Description (please provide details)

☒ **Project Graphics to be sent electronically with This Application**

The current LAVTA SAV Demonstration and Deployment Project - Phase 1 route operates between the East Dublin/Pleasanton BART station and the intersection near Persimmon Place, a retail shopping center approximately one-half mile from the BART station (see Attachment A – Project Background and Phase 1 Summary). The proposed extension of this route in Phase 2 will include additional key stops and serve even more passengers at the Zeiss Innovation Center and Ross Headquarters business park approximately one mile from the BART station (see Attachment B – Phase 2 Map and Vehicle).

Design-engineering work will provide for 100% plans, specifications, and estimates (PS&E) for the construction of two key facilities necessary to support this expansion:

- Local infrastructure upgrades including vehicle-to-everything (V2X) communication with traffic lights and streetside signage
- Construction of modern, attractive passenger facilities at or near the Ross Headquarters business park to serve as the route endpoint from the Dublin/Pleasanton BART station.

To support the expanded route, Phase 2 will also include an upgraded and expanded SAV fleet of vehicles capable of traveling up to 25 mph, with greater capacity to accommodate the increase in ridership. LAVTA anticipates these vehicles will be manufactured in the United States. A subsequent allocation request for the construction phase will include:

- Construction of local infrastructure upgrades, such as vehicle-to-everything (V2X) communication with traffic lights and streetside signage.

- Construction of the passenger facilities
- Acquisition of three SAVs

The passenger facility improvements are envisioned as an attractive, safe and, convenient place to board and alight the SAVs. LAVTA will work with professional engineering support services in Phase 2 to finalize access and circulation agreements as well as securing any necessary approvals from City of Dublin, the California Department of Motor Vehicles (DMV), and the National Highway Traffic Safety Administration (NHTSA).

The SAV project will continue to be overseen by LAVTA's Director of Operations and Innovation, Toan Tran, as well as the agency's SAV Operations and Maintenance General Manager, Neal Hemenover. Neal is the lead of the Transdev North America Autonomous Vehicle team, focused on implementation and deployment of autonomous vehicles for transit and city services.

LAVTA has also been collaborating closely with City of Dublin's Traffic Engineer, Sai Midididdi, and the Gray-Bowen-Scott engineering consultant team led by Obaid Khan, P.E. Sai and Obaid have extensive experience in implementing traffic signal communication systems and exploring a potential SAV dedicated lane in the project area. LAVTA and the City of Dublin executed an MOU in September 2018 affirming each agency's roles and responsibilities in advancing development of the SAV project within the City of Dublin.

D. Impediments to Project Completion

While LAVTA was successful in securing permits for the current Phase 1 route, shared autonomous vehicles are still highly regulated by state and federal entities including NHTSA and the DMV. It is foreseeable that as the technology matures there could be delays from time to time to address unknown issues originating from these agencies in testing and deployment of passenger service. However, LAVTA expects these delays to be sporadic and short-term in nature as the agency has a past successful track record of working with state and federal regulators on the Phase 1 project.

Considering the careful, successful testing and service conducted thus far in Phase 1, LAVTA does not expect to encounter any unanticipated safety issues. Even though unanticipated, future legislation on SAVs at the federal and/or state level could influence the project and/or create potential for delays.

Although the COVID pandemic might create new commuting patterns that could affect the projected ridership of the LAVTA SAV project as well as related transit services, freeways are quickly returning to pre-pandemic congestion levels as previously remote workers are called back to offices. The pent-up demand for freeway space during commute hours given the job and housing imbalance at the regions outskirts is too severe to think otherwise, thereby driving demand for alternative transportation solutions, which can be facilitated by the LAVTA's SAV project.

At this time LAVTA is anticipating full funding of the construction phase to include additional grant funding from MTC's IDEA SAV Program and/or other source(s) to achieve the full scope. Should additional funds as listed in the Project Funding Sheet not be available, the scope of the project can be modified accordingly, such as by acquiring two SAVs to initiate service instead of three.

E. Operability

LAVTA projects ridership in Phase 2 (based on a pre-COVID operating environment) to be 40 rides per hour and 300 rides per day on average with these operating assumptions:

- 2 revenue vehicles (12-15 minute headways), plus one spare vehicle
- 12 hours/day, Mon-Fri

	Peak one hour demand, peak direction only	Peak four-hour demand, peak direction only	Total daily ridership – 8 hours per day	Total Daily ridership- 16 hours per day
BART only	40	120	300*	380**
BART and Valley Link	99	300	660*	740**

Based on the above assumptions, the estimated annual operating budget is $1.8 million annually. Farebox return is expected at 20-30 percent of operating costs, as operating costs will be low relative to more conventional modes of transit. LAVTA is working with businesses in the Ross Headquarters business park to utilize TDM benefits available to employees toward the SAV and other public transit options.

LCTOP and TDA funds have been identified as potential funding sources for ongoing operations.

For vehicle-storage facilities, LAVTA has included space for secure storage and charging facilities for up to six SAVs to be located on the ground floor of the new Dublin BART Parking Garage being constructed by Alameda County in part with RM2 funds sponsored by the Alameda County Transportation Commission (RM2 Project 32.3). Garage construction is currently expected to be completed in 2023. In the meantime, as may be necessary, vehicles can be transported by flatbed to LAVTA's Livermore O&M facility for overnight storage as is the case now in Phase 1 testing.

II. PROJECT PHASE DESCRIPTION and STATUS

F. Environmental – Does NEPA Apply: ☐ Yes ☒ No

Based on the recent adoption of SB 288, this project is exempt from CEQA.

G. Design –

Phase 2 design and engineering work will build on the Phase 1 test environment already in operation, by expanding the number of vehicles deployed and their reach from the BART station. Design and engineering work will involve the following tasks/milestones:

1. Initiate Task Order Contracts with On-Call Engineering Firms for passenger facilities and local infrastructure upgrades - December 2021
2. Complete 100% PS&E for passenger facilities, local infrastructure ready to advertise - May 2022

To complete these tasks, LAVTA currently has an on-call engineering contract in place with Kimley-Horn and Associates. It is anticipated that upon allocation of RM2 funding, LAVTA would execute a Task Order with Kimley-Horn to prepare 100% PS&E documents ready to advertise for construction and equipment acquisition for completion of the V2X Intersection Upgrades and Passenger Facilities projects within 6 months.

Regional Measure 2 – INITIAL PROJECT REPORT

H. Right-of-Way Activities / Acquisition –

For initial expansion of the route, LAVTA anticipates the SAVs will operate only in public right-of-way with the passenger facilities being constructed in public right of way adjacent to the Ross Headquarters Business Park and the Zeiss Innovation Center.

I. Construction / Vehicle Acquisition –

Once design-engineering work is completed for both the intersection upgrades and to guide the location, design, and construction of the passenger facilities, LAVTA will be ready to advance to the construction phase. This phase will involve construction and equipment acquisition for the passenger facilities as well as the acquisition of three SAVs and upgraded technology that allows for communication between the vehicles and traffic signals via Cellular Vehicle to Everything (CV2X) equipment. LAVTA anticipates that the vehicle acquisition will take approximately 12 months, with three months for procurement and 9 months for manufacture and delivery.

III. PROJECT BUDGET

J. Project Budget (Escalated to year of expenditure)

Phase	Total Amount - Escalated - (Thousands)
Environmental Studies & Preliminary Eng (ENV / PE / PA&ED)	N/A
Design - Plans, Specifications and Estimates (PS&E)	$150
Right-of-Way Activities /Acquisition (R/W)	N/A
Construction / Rolling Stock Acquisition (CON)	$3,145
Total Project Budget (in thousands)	$3,295

K. Project Budget (De-escalated to current year)

Phase	Total Amount - De-escalated - (Thousands)
Environmental Studies & Preliminary Eng (ENV / PE / PA&ED)	N/A
Design - Plans, Specifications and Estimates (PS&E)	$150
Right-of-Way Activities /Acquisition (R/W)	N/A
Construction / Rolling Stock Acquisition (CON)	$3,074
Total Project Budget (in thousands)	$3,224

L. Project Budget – Deliverable Segment (Escalated to year of expenditure)

Phase	Total Amount - Escalated - (Thousands)
Environmental Studies & Preliminary Eng (ENV / PE / PA&ED)	N/A
Design - Plans, Specifications and Estimates (PS&E)	$150
Right-of-Way Activities /Acquisition (R/W)	N/A
Construction / Rolling Stock Acquisition (CON)	N/A
Total Project Budget (in thousands)	$150

Regional Measure 2 – INITIAL PROJECT REPORT

M. Project Budget – Deliverable Segment (De-escalated to current year)

Phase	Total Amount - De-escalated - (Thousands)
Environmental Studies & Preliminary Eng (ENV / PE / PA&ED)	N/A
Design - Plans, Specifications and Estimates (PS&E)	$150
Right-of-Way Activities /Acquisition (R/W)	N/A
Construction / Rolling Stock Acquisition (CON)	N/A
Total Project Budget (in thousands)	$150

IV. OVERALL PROJECT SCHEDULE

Phase-Milestone	Planned (Update as needed)	
	Start Date	Completion Date
Environmental Document	N/A	
Environmental Studies, Preliminary Eng. (ENV / PE / PA&ED)	N/A	N/A
Final Design - Plans, Specs. & Estimates (PS&E)	November 2021	May 2022
Right-of-Way Activities /Acquisition (R/W) -- if needed	N/A	N/A
Construction (Begin – Open for Use) / Acquisition / Operating Service (CON)	September 2022	October 2023

V. ALLOCATION REQUEST INFORMATION

N. Detailed Description of Allocation Request

Describe the scope of the allocation request. Provide background and other details as necessary.

In order to continue expanding the SAV project (Phase 1 progress to date is summarized in Attachment A) and support new revenue service, estimated capital costs for additional SAVs, technology upgrades, and passenger facilities total $3.295 million, as shown in the attached IPR Estimated Budget Plan form, of which $2.695 million would be funded by RM2 over both PS&E and construction phases. The current allocation request as shown below would only be for the PS&E phase, with a subsequent construction allocation request occurring upon completion of all PS&E activities and deliverables listed in **Section P, Workplan**.

Regional Measure 2 – INITIAL PROJECT REPORT

Amount being requested (in escalated dollars)	$150,000
Project Phase being requested	PS&E
Are there other fund sources involved in this phase?	☐ Yes ☒ No
Date of anticipated Implementing Agency Board approval the RM2 IPR Resolution for the allocation being requested	September 13, 2021
Month/year being requested for MTC Commission approval of allocation	October 2021

O. Status of Previous Allocations (if any)

Not Applicable.

P. Workplan **Workplan in Alternate Format Enclosed** ☐

TASK NO	Description	Deliverables	Completion Date
1.	Award Design-Engineering Contract for **Passenger Facilities**	Executed Task Order encompassing design-engineering contract/scope of work + fee	November 2021
2.	Award Design-Engineering Contract for **V2X Intersection Upgrades**	Executed Task Order encompassing design-engineering contract/scope of work + fee	November 2021
3.	Design completion/ready to advertise/procure equipment for **Passenger Facilities**	100% Plans, Specifications & Estimates	May 2022
4.	Design completion/ready to advertise/procure equipment for **V2X Intersection Upgrades**	100% Plans, Specifications & Estimates	May 2022

Q. Impediments to Allocation Implementation

With the exception of minor delays for scoping comments requiring further effort, or alternatives that the Board wishes to study further, no impediments are foreseen in completing the allocation implementation.

VI. RM-2 FUNDING INFORMATION

R. RM-2 Funding Expenditures for funds being allocated

☒ **The companion Microsoft Excel Project Funding Spreadsheet to this IPR is included**

S. Next Anticipated RM2 Allocation Request. N/A

Regional Measure 2 – INITIAL PROJECT REPORT

VII. GOVERNING BOARD ACTION

Check the box that applies:

☐ **Governing Board Resolution attached**

☒ **Governing Board Resolution to be provided on or before: September 13, 2021 (in consultation with Alameda CTC)**

VIII. CONTACT / PREPARATION INFORMATION

Contact for Applicant's Agency
Name: Toan Tran
Phone: (925) 455-7562
Title: Director of Operations & Innovation
E-mail: ttran@lavta.org
Address: 1362 Rutan Court Suite #100, Livermore, CA 94551

Information on Person Preparing IPR
Name: Jennifer Yeamans
Phone: (925) 455-7564
Title: Senior Grants & Management Specialist
E-mail: jyeamans@lavta.org
Address: 1362 Rutan Court Suite #100, Livermore, CA 94551

Applicant Agency's Accounting Contact
Name: Tamara Edwards
Phone: (925) 455-7566
Title: Director of Finance
E-mail: tedwards@lavta.org
Address: 1362 Rutan Court Suite #100, Livermore, CA 94551

Attachment A

Project Background and Accomplishments to Date in Phase 1

Being one of the first agencies in the nation to implement a Shared Autonomous Vehicle (SAV) program for public use has required extensive testing of both the vehicle operation and an approved route before passenger service could be initiated. The testing has given LAVTA insight into how the SAV can function on public streets with other pedestrian, cyclist, and vehicular traffic in the same space. Examples of the test route and the type of vehicle used during Phase 1 are attached.

LAVTA's SAV program has operated autonomously for more than 400 miles accident-free over the past year. Testing thus far has included data collection and analysis of schedule adherence, weather impacts, vehicle speed, battery consumption and mileage, reacting to various obstacles that include pedestrians, cyclists, and motorist, and issues requiring manual override. Gradual speed increases have been programmed with the consideration of safe operation of the vehicle and transportation of passengers. Speed increases allow the SAV to operate on streets with higher speed limits with the goal of more seamlessly integrating into the flow of traffic.

Recently, LAVTA reached a milestone in its SAV project by offering rides to the public wanting to experience the SAV technology by traveling from the BART station to a nearby retail shopping center. While the vehicle is fully autonomous, an operator is on board at all times that can take immediate control of the SAV. With respect to COVID-19 precautions, LAVTA has limited the number of riders that are allowed on the vehicle when public-health conditions have required.

LAVTA plans to continue collecting information as this initial phase comes to a close. Upcoming testing includes:

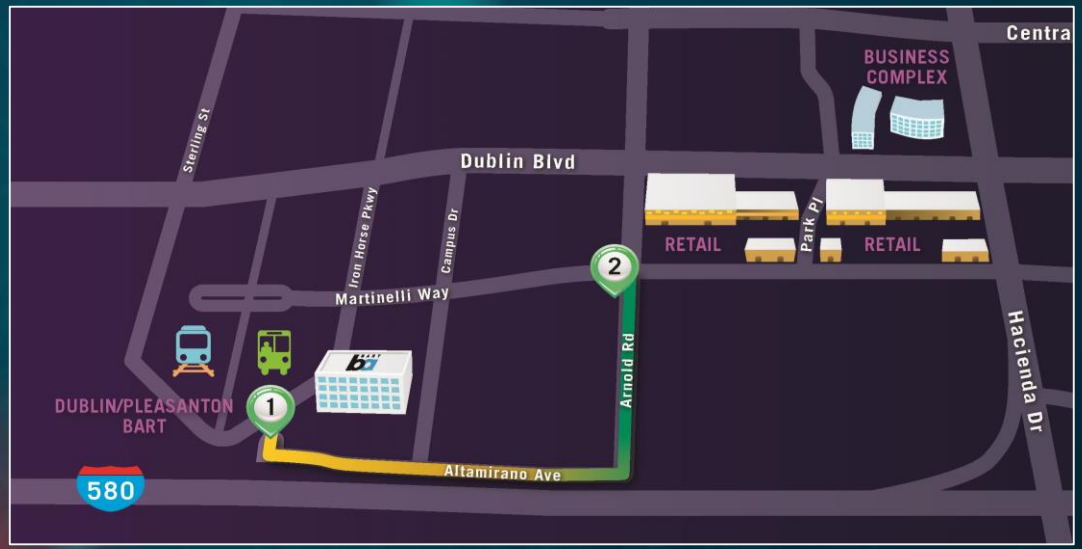
- Auditory and visual boarding/alighting indications to passengers (including disabled and visually impaired)
- Vehicle speed and delay in various crosswalk scenarios, with and without operator validation
- Verifying vehicle location during route and relaying to passengers
- Addressing the Vehicle to Infrastructure (V2I) communication at intersection traffic lights
- Routing and operation for potential service expansions

More information can be found at: https://www.wheelsbus.com/sav/

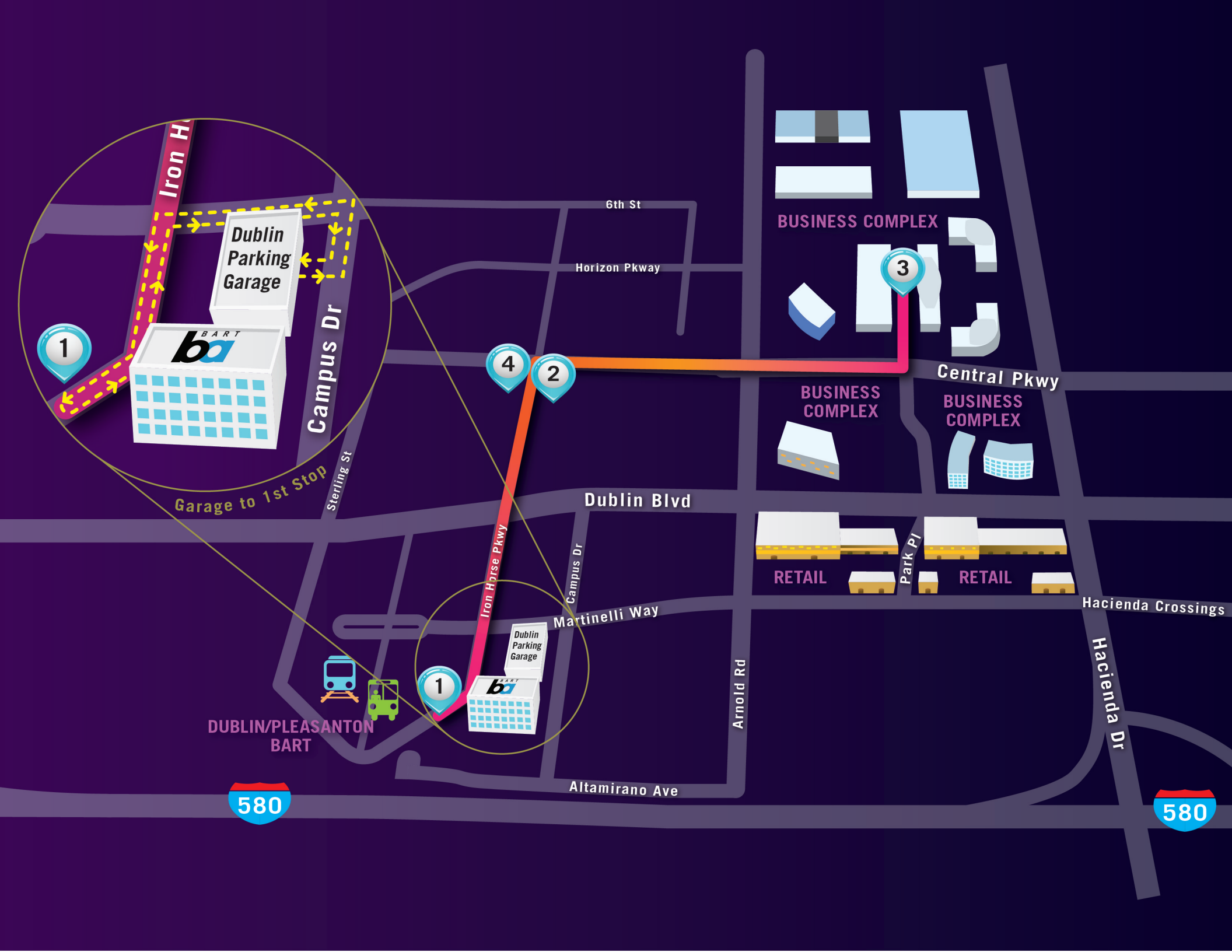
PHASE 1

VEHICLE SETUP AND TESTING

- Weather
- Speed



Attachment B:
Proposed Phase 2 Route and Vehicle


Iron H
Dublin Parking Garage
BART
Campus Dr
Sterling St
Garage to 1st Stop
1
6th St
Horizon Pkway
4
2
3
BUSINESS COMPLEX
Central Pkwy
BUSINESS COMPLEX
BUSINESS COMPLEX
Dublin Blvd
Iron Horse Pkwy
Campus Dr
Park Pl
RETAIL
RETAIL
Hacienda Crossings
Martinelli Way
Dublin Parking Garage
BART
1
DUBLIN/PLEASANTON BART
Arnold Rd
Hacienda Dr
Altamirano Ave
580
580

PHASE 2

UPGRADE VEHICLES

New technology

Increased speed capability