

## **F.2 Transportation – Transit Ridership and Vehicle Miles Travelled Under Alternative Land Use Assumptions**

**BART TO LIVERMORE EXTENSION PROJECT EIR**  
APPENDIX F: TRANSPORTATION  
F.2 TRANSIT RIDERSHIP AND VEHICLE MILES TRAVELLED  
UNDER ALTERNATIVE LAND USE ASSUMPTIONS

**JULY 2017**

## **APPENDIX F.2 TRANSIT RIDERSHIP AND VEHICLE MILES TRAVELED UNDER ALTERNATIVE LAND USE ASSUMPTIONS**

### **A. INTRODUCTION**

This appendix compares project and land use alternatives of specific interest to the City of Livermore relating to land use assumptions under No Project conditions that were not considered in the main body of the BART to Livermore Extension EIR. Specifically, this appendix compares the scenarios of the main body of the EIR, which assume land uses associated with Plan Bay Area projections, to a scenario that assumes a different set of land uses in Livermore – those reflecting the Livermore General Plan. Transit ridership and vehicle miles traveled are presented below.

### **B. ALTERNATIVES**

For the 2025 forecast year, four project + land use alternatives were compared against a No Project alternative (No Project + Existing Livermore General Plan Zoning):

- Proposed Project (Conventional BART) + Isabel Neighborhood Plan (INP) zoning
- DMU Alternative + INP zoning
- Express Bus / BRT Alternative + Existing Livermore General Plan zoning
- Enhanced Bus Alternative + Existing Livermore General Plan zoning

For the 2040 forecast year, four project + land use alternatives were compared against a No Project alternative (No Project + Existing Livermore General Plan Zoning):

- Proposed Project (Conventional BART) + INP zoning
- DMU Alternative + INP zoning
- Express Bus / BRT Alternative + Existing Livermore General Plan zoning
- Enhanced Bus Alternative + Existing Livermore General Plan zoning

### **C. TRANSIT RIDERSHIP**

#### **1. Results**

Systemwide average weekday transit ridership estimates are provided for four transit operators below:

- BART
- Altamont Corridor Express (ACE)
- Livermore Amador Valley Transit Authority (LAVTA)
- San Joaquin Regional Transit District (RTD)

**TABLE 1: TRANSIT RIDERSHIP (WEEKDAY BOARDINGS), BY OPERATOR (CHANGE FROM NO PROJECT)**

Scenario	Operator			
	BART	ACE	LAVTA	RTD
<b>2025</b>				
No Project	472,200	5,600	10,400	370
Conventional BART + INP Zoning	479,600 (+7,400)	4,600 (-1,000)	10,800 (+400)	30 (-340)
DMU Alternative + INP Zoning	478,000 (+5,800)	4,700 (-900)	11,200 (+800)	70 (-300)
Express Bus/BRT Alternative + Existing Livermore General Plan	473,900 (+1,700)	5,500 (-100)	11,700 (+1,300)	60 (-310)
Enhanced Bus Alternative + Existing Livermore General Plan	472,200 (0)	5,600 (0)	10,700 (+300)	360 (-10)
<b>2040</b>				
No Project	657,300	6,900	14,500	340
Conventional BART + INP Zoning	670,700 (+13,400)	5,500 (-1,400)	15,400 (+900)	50 (-290)
DMU Alternative + INP Zoning	665,600 (+8,300)	5,900 (-1,000)	15,700 (+1,200)	50 (-290)
Express Bus/BRT Alternative + Existing Livermore General Plan	660,800 (+3,500)	6,600 (-300)	17,000 (+2,500)	70 (-270)
Enhanced Bus Alternative + Existing Livermore General Plan	657,300 (0)	6,900 (0)	14,700 (+200)	340 (0)

Notes:

Ridership refers to the number of linked trips on each respective transit system; a passenger boarding the Dublin/Pleasanton-Daly City line at the Dublin/Pleasanton Station and transferring at the Coliseum Station to the Richmond-Fremont line would count as one trip on BART.

ACE ridership numbers only include boardings in San Joaquin County and the Bay Area. These numbers do not reflect boardings along potential future ACE extensions into Stanislaus and Merced Counties.

Source: Cambridge Systematics, 2017. BART to Livermore Ridership Projections (Draft). July

\*Source for 2016 Existing Conditions data: BART, 2016.

## 2. Discussion

The Proposed Project results in the highest increases to BART ridership in both 2025 and 2040, reflecting the relatively high appeal of a direct connection to the BART system from the Isabel area that eliminates the need for additional transfers. In 2040 the Proposed Project generates 13,400 more BART trips compared to the No Project scenario. The ridership increase is partly due to extending BART to Livermore and partly due to the intensified land use from the INP. The DMU Alternative is less attractive as a rail option due to the required transfer at the Dublin/Pleasanton Station, and adds fewer new BART trips (8,300) in 2040. The Express Bus/BRT Alternative adds even fewer BART trips (3,500). While the bus-only lane on I-580 enables faster travel times than buses traveling with other traffic, the bus service is still less attractive than rail and requires a transfer at the Dublin/Pleasanton Station for entrance into the BART system. The Express Bus/BRT Alternative also assumes a continuation of zoning consistent with the existing Livermore General Plan, and does not benefit from the intensified land use from the INP. Finally, the Enhanced Bus Alternative results in negligible changes in BART ridership, a reflection of the lower reliability and speed of bus service on surface streets compared with exclusive transit-ways as well as continuation of zoning consistent with the existing Livermore General Plan.

ACE ridership is expected to drop under the Proposed Project and DMU Alternative, as some ACE riders traveling to southern Alameda County and Santa Clara County who might have taken BART once it's extended to Santa Clara County, but are unable to find parking at Dublin/Pleasanton BART station, would choose to park at the new Isabel station and take BART/DMU instead. For the same reason, RTD ridership would also drop under multiple build alternatives. LAVTA ridership is expected to increase under the Proposed Project and DMU Alternative, as extended rail service increases the draw of connecting bus service. The intensified land use from the INP also increases LAVTA ridership. LAVTA ridership is expected to increase the most under the Express Bus/BRT Alternative, as the assumed LAVTA bus routes using the I-580 express lanes and direct bus-only ramps to the Dublin/Pleasanton Station would attract some of the riders that would have taken the extended rail service.

## D. VEHICLE-MILES TRAVELED

### 1. Results

Reductions in vehicle-miles traveled are presented below (VMT), compared to the No Project scenario for each forecast year:

**TABLE 2: VMT REDUCTIONS SUMMARY, AVERAGE WEEKDAY**

<b>Scenario</b>	<b>Auto VMT Reduction Compared With No Project Conditions</b>	<b>Bus VMT Increase Relative to No Project Conditions</b>	<b>Total VMT Reduction</b>
<b>2025</b>			
Conventional BART + INP Zoning	112,900	1,900	111,000
DMU Alternative + INP Zoning	65,000	1,900	63,100
Express Bus/BRT Alternative + Existing Livermore General Plan	40,000	2,700	37,000
Enhanced Bus Alternative + Existing Livermore General Plan	5,100	2,600	2,500
<b>2040</b>			
Conventional BART + INP Zoning	294,900	1,900	293,000
DMU Alternative + INP Zoning	186,600	1,900	184,700
Express Bus/BRT Alternative + Existing Livermore General Plan	86,900	2,700	84,200
Enhanced Bus Alternative + Existing Livermore General Plan	500	2,600	(2,100)

Source: Cambridge Systematics, 2017. BART to Livermore Ridership Projections (Draft). July

## **2. Discussion**

The Proposed Project and all Build Alternatives result in VMT reductions compared with No Project Conditions, except for the Enhanced Bus Alternative in 2040. The Proposed Project results in the highest VMT reductions; by attracting the most new BART riders, it reduces auto vehicle trips the most. The DMU Alternative has the second-highest amount of VMT reductions – a lower reduction than under the Proposed Project, likely because this Alternative requires passengers starting at the Isabel DMU station to transfer at the Dublin/Pleasanton Station, whereas under the Proposed Project, passengers don’t need to transfer. Express Bus/BRT provides the next highest VMT reduction, as bus service is less attractive to transit riders than rail service. The Express Bus/BRT Alternative also does not benefit from the intensified land use associated with the INP, and assumes a continuation of the less intense land use allowed under zoning consistent with the existing Livermore General Plan.

The Enhanced Bus Alternative results in negligible VMT reductions. The difference in VMT reduction under the Express Bus/BRT Alternative and the Enhanced Bus Alternative may be because while the Enhanced Bus Alternative includes improvements to bus service, it does not provide any major capital improvements to improve bus travel times and results in fewer additional transit riders. VMT reductions under the Enhanced Bus Alternative for 2040 are especially minor, eclipsed by the increase in the bus VMT (due to the bus service improvements proposed under the Alternative) – overall leading to a small increase in VMT for 2040 project conditions. It is the only scenario under which there is an increase in VMT.

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