SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

Memorandum

TO: Board of Directors **DATE:** May 7, 2018

FROM: Carl Holmes

SUBJECT: BART to Livermore Extension Project, Responses to BART Board Requests

Staff provided an overview of the BART to Livermore Extension Project (LVX) at the March 8, 2018 and April 26, 2018 BART Board meetings, which included a proposed process to inform the Board's decision making on the environmental document. This memorandum provides responses to several of the information requests made by BART Board Directors regarding LVX. Each of the requests is listed in the attachment in italics, with BART staff's response immediately following each request.

Carl Holmes

Attachments

cc: Board Appointed Officers
Deputy General Manager
Executive Staff

ATTACHMENT
BART to Livermore Extension Project
Responses to BART Board Requests

This attachment provides responses to several information requests or questions from the BART Board of Directors during Board meetings of March and April 2018. Each of the requests is listed below in italics, with BART staff's response immediately following each request. In the text below, "Evaluation Report" refers to the BART to Livermore Extension Proposed Project and Build Alternatives Evaluation Report, April 2018, available at bart.gov/Livermore.

1) During the two BART to Livermore public meetings (February 26, 2018 in Oakland and February 27, 2018 in Livermore), the public was given an opportunity to indicate which of the five LVX goals is most important to them. Please provide a summary of the results.

During the two public meetings, participants were given three sticky dots each and were asked to place the sticky dots near the project goals that were the most meaningful or most important to them.

The results are in the following table.

Project Goal	Responses at Oakland Meeting	Responses at Livermore Meeting
Provide a cost-effective transit extension	4	15
Provide an intermodal link between BART, inter-regional rail and priority development areas	2	55
Support integrating transit and land use policies to create transit-oriented development (TOD) opportunities	3	10
Provide alternative to I-580 congestion	2	58
Improve air quality, reduce greenhouse gases (GHGs)	3	24
TOTAL RESPONSES	14	162

2) How would BART to Livermore support future regional transit networks? How do each of the BART to Livermore alternatives relate to interregional connections to the Central Valley and broader statewide rail plan considerations?

The San Francisco Bay Area Regional Rail Plan (MTC, BART, Caltrain, 2007) recommends improvements to connect BART with ACE, and running ACE trains every 60 minutes over the Altamont Pass (30 minutes during peak periods). It also states that the logical terminus of BART's Blue Line is Livermore.

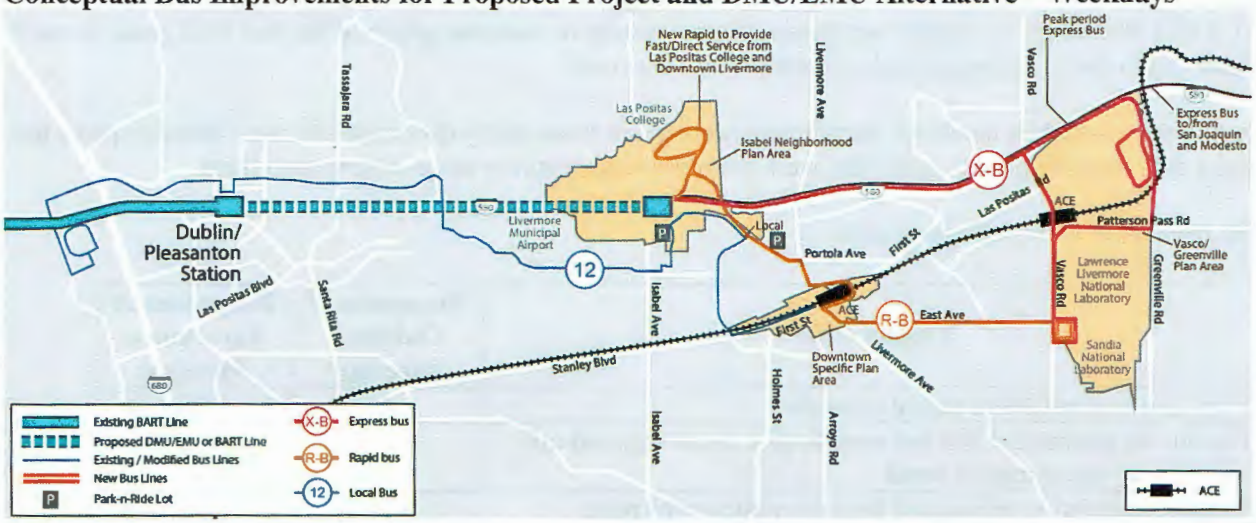
The Draft California State Rail Plan (Caltrans, 2017) establishes a goal of running trains across the Altamont Pass every 60 minutes off-peak and 30 minutes peak, and establishing a Tri-Valley hub where BART, ACE and I-680 buses would connect.

The service levels in the San Francisco Bay Area Regional Rail Plan and Draft California State Rail Plan are policy objectives, and would be refined during the development of transit projects to meet the objectives.

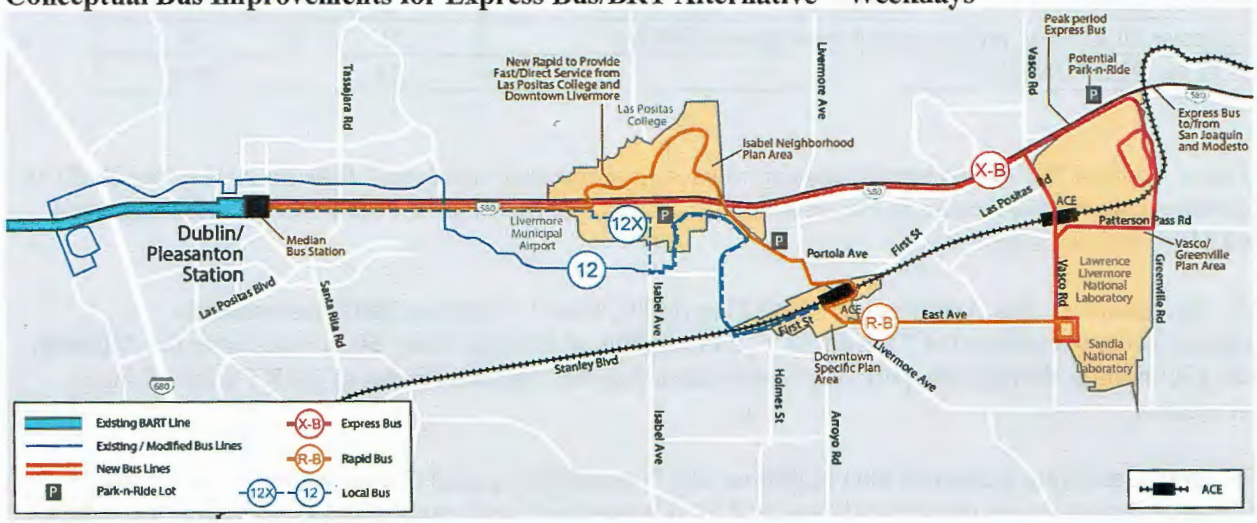
3) Please provide information on the plan for bus services for the four LVX build alternatives.

The LVX Draft Environmental Impact Report (EIR) includes plans for improving connecting bus services to Tri-Valley BART stations for each of the Proposed Project and three build alternatives. The plans are conceptual and were developed for the purpose of estimating BART ridership and operational cost. Following adoption of a LVX project, specific routes would be developed by the bus operators based on detailed service planning. The conceptual plans were developed in collaboration with the local bus operators, and are summarized in the following figures and tables.

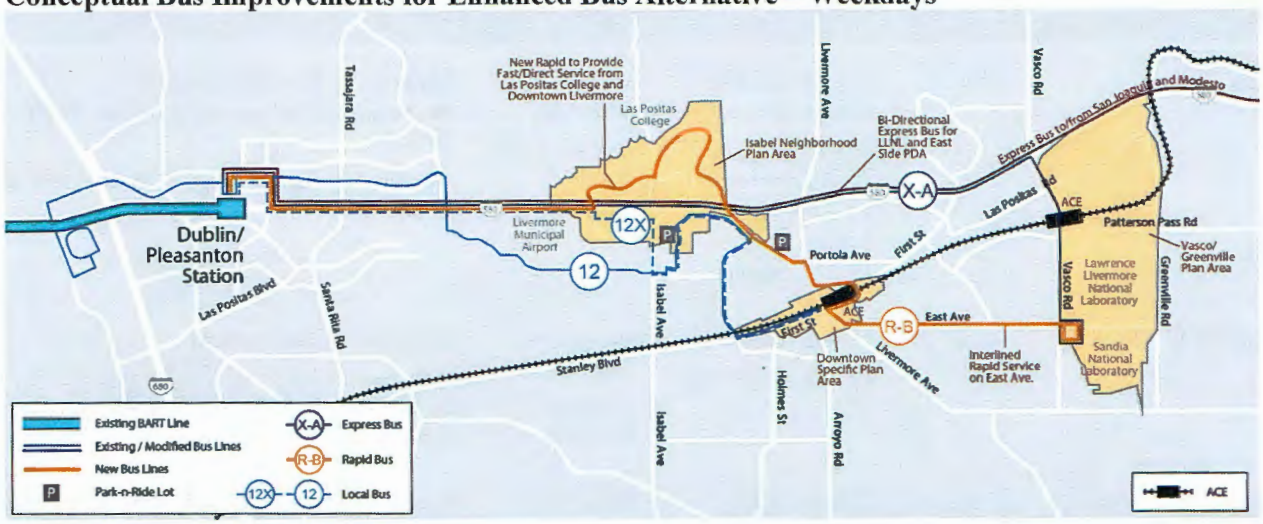
Conceptual Bus Improvements for Proposed Project and DMU/EMU Alternative – Weekdays



Conceptual Bus Improvements for Express Bus/BRT Alternative – Weekdays



Conceptual Bus Improvements for Enhanced Bus Alternative – Weekdays



Proposed Project and DMU/EMU Alternative – New and Modified Routes

Operator	Route	Type	Peak Headway	Service Span	Details
LAVTA	12	Local	12 min (all day, weekdays) 30 min (9:00 – 21:00, weekends) 40 min (5:00 - 9:00 & 21:00 – 1:00, weekends)	Weekdays: 4:30-1:00 Saturday and Sunday: 5:00 – 1:00	**Livermore Transit Center to Stoneridge Mall** via Dublin Pleasanton BART Operates similar to today with new stop at Isabel BART.
LAVTA	R-B	Rapid	12 min (peak) 20 min (off peak)	Weekdays: 5:30-19:30 Weekends: No service	**LLNL to Isabel Station** New rapid service to directly link LLNL, Downtown, Portola, with Isabel Station and Las Positas College
LAVTA	X-B	Peak Period Express	12 min (peak)	Weekdays: 6:15-9:15 and 15:30-18:00 Weekends: No service	**East-side PDA to Isabel Station to ACE and LLNL** Modified 20X peak express service to operate on I-580 • AM westbound: From East Side PDA to Isabel station • AM eastbound: From Isabel station to Vasco Road ACE station, to LLNL, back to East Side PDA. • PM westbound and eastbound trips will do the reverse of the AM trips.
RTD	150	Express	45 min (all day)	Weekdays: 5:00 – 19:00 Weekends: No service	Downtown Stockton Transit Center to Isabel Station
MAX	BART Express	Express (peak period only)	60 min (Two roundtrips in A.M; Two roundtrips in P.M.)	Weekdays: 4:40 – 9:00 and 15:45 – 20:00 Weekends: No service	Modesto Downtown Transportation Center to Isabel Station

Express Bus/BRT Alternative – New and Modified Routes

Operator	Route	Type	Peak Headway	Service Span	Details
LAVTA	12	Local	12 min (all day, weekdays) 20 min (all day, weekends)	Weekday: 6:30-22:30 Saturday and Sunday: 9:00 – 22:00	**Livermore Transit Center to Stoneridge Mall**, via Dublin Pleasanton BART Operates similar to today
LAVTA	R-B	Rapid	12 min (peak) 20 min (off-peak)	Weekday: 5:30-19:30 Weekend: No service	**LLNL to Dublin Pleasanton BART** New rapid service to directly link LLNL, Downtown, Portola, and Las Positas College with DP BART
LAVTA	X-B	Peak Period Express	12 min	Weekday: 6:15-9:15 and 15:30-18:00 Weekend: No service	**East-side PDA, Laughlin P&R to Dublin Pleasanton BART to ACE and LLNL** Modified 20X peak express service to operate on I-580 • AM westbound: From East Side PDA, Laughlin park and ride to Dublin Pleasanton station • AM eastbound: From Dublin Pleasanton station to Vasco Road ACE station, to LLNL, back to East Side PDA and Laughlin park and ride. • PM westbound and eastbound trips will do the reverse of the AM trips.

Enhanced Bus Alternative – New and Modified Routes

Operator	Route	Type	Headway	Service Span	Details
LAVTA	12	Local	12 min (all day, weekdays) 20 min (all day, weekends)	Weekday: 6:30-22:30 Saturday and Sunday: 9:00 – 22:00	**Livermore Transit Center to Stoneridge Mall**, via Dublin Pleasanton BART Operates similar to today
LAVTA	R-B	Rapid	12 min (peak) 30 min (off-peak)	Weekday (5:30-19:30) Weekend: No service	**LLNL to Dublin Pleasanton BART** New rapid service to directly link LLNL, Downtown, Portola, and Las Positas College with DP BART
LAVTA	X-A	Peak Period Express	12 min	Weekday: 6:15-9:15 and 15:30-18:00 Weekend: No service	**LLNL to Dublin Pleasanton BART** Modified 20X, operating bi-directionally to serve LLNL and Vasco ACE

4) What land use plans are being used to assess development potential in Dublin (Evaluation Report, p. 50)? Does this take into account the current backlash against development there? It seems that increased development in Dublin is key to the Livermore extension meeting its MTC TOD goals, even though the Dublin development is not contingent on the Livermore extension.

According to MTC, LVX is not subject to Resolution 3434 TOD Policy, so meeting its requirements is for information only and would not drive any decision MTC might make about funding or programming LVX. For information purposes, the assessment of development near Dublin/Pleasanton station is from a Community Design + Architecture (CD+A) memorandum written for the MTC, dated 2015. As discussed in the Evaluation Report, Section 5.4, based on the information in the CD+A memorandum and Livermore's draft INP, the LVX Proposed Project would meet the requirements of MTC's Resolution 3434 TOD Policy – if LVX were subject to this policy.

5) The City of Livermore is developing the Isabel Neighborhood Plan (INP), which increases the number of residential units and jobs around the proposed Isabel station. Are the results in the March 8, 2018 BART to Livermore presentation to the BART Board consistent with the inclusion of the INP?

Three land use scenarios in the area covered by the INP are of relevance:

1. Existing
2. Plan Bay Area (as adopted by MTC in 2013)[1]
3. Isabel Neighborhood Plan (INP) Build Out

The following table compares land use assumptions under these three scenarios:

[1] LVX analyses were conducted using Plan Bay Area, adopted by MTC in 2013. Plan Bay Area 2040, adopted by MTC in 2017, was not available at the time analyses for LVX were conducted.

INP Area Land Use Scenarios

	Existing	Plan Bay Area, year 2040 (net increase over Existing)	INP Build Out (net increase over Existing)
Housing Units	1,400	+2,200	+4,100
Jobs	8,700	+1,800	+9,100

The BART to Livermore Evaluation Report contains several metrics comparing the Proposed Project and build alternatives. These metrics were calculated for both "Project Conditions" and "Cumulative Conditions". Year 2040 Project Conditions assumes Plan Bay Area land use throughout the nine-county Bay Area including the INP area. Year 2040 Cumulative Conditions assumes INP Build Out land use in the INP area and Plan Bay Area elsewhere. In the INP area, the INP Build Out assumes 1,900 more housing units and 7,400 more jobs than Plan Bay Area. Cumulative Conditions also assumes an expansion of BART parking at Dublin/Pleasanton station by 540 spaces.[2] Project Conditions do not assume an expansion of Dublin/Pleasanton BART parking. The metrics were not calculated with Existing land use in the INP area.

The following table compares the metrics presented during the March 8, 2018 BART Board meeting under Project Conditions and Cumulative Conditions for the Proposed Project.

Proposed Project – Evaluation Metrics Under Project and Cumulative Conditions

Metric	Project Conditions	Cumulative Conditions
Increase in BART Systemwide Boardings – average weekday, year 2040	11,900	13,400
Reduction in VMT – average weekday, year 2040	244,000	272,700
Reduction in Greenhouse Gas Emissions – metric tons of CO_2 equivalents, year 2040	11,200	12,800
Farebox recovery, opening year	58%	64%
Farebox recovery, year 2040	88%	101%
Cost per New BART Boarding (2016$), year 2040[3]	$20.56	$18.26
Cost per New BART Boarding Net of Fares (2016$), year 2040[3]	$14.56	$12.26

6) How do the Isabel Neighborhood Plan station density and parking ratios compare to other BART stations?

On February 26, 2018, BART sent the City of Livermore the attached letter commenting on their Draft Isabel Neighborhood Plan. The following are statements about density and parking from the letter.

"BART is pleased with the INP land use plan. The diversity of the residential and non-residential uses has great potential to achieve a vibrant TOD environment. Additionally, land uses are well distributed, minimizing exposure of future residents to Toxic Air Contaminants (TACs) by concentrating office uses along the north side of I-580, near the BART station, while most new residential uses would be located at least 500 feet away from I-580 to meet the Bay Area Quality Management District's (BAAQMDs)

[2] At the time analyses were conducted for LVX, BART was considering expanding the existing Dublin/Pleasanton BART parking structure by a net of 540 parking spaces. The plans for parking expansion at Dublin/Pleasanton BART have since changed. The County of Alameda is now considering building a 398-space parking structure, and BART will re-stripe its existing parking facilities to increase the number of parking spaces by 55.

[3] Includes the cost to build, operate, and maintain the Proposed Project, as well as the cost to rehabilitate and replace capital assets as they deteriorate.

regulations.

BART acknowledges the City's efforts to plan for higher densities in the INP area and that the plan will meet the current Plan Bay Area Priority Development Area (PDA) goals and BART's TOD Performance Targets, if the plan is implemented as currently envisioned. However, where possible, it is important to have a more compact footprint within the ¼- (most important) and ½-mile radius of the station to:

1) Generate the highest level of ridership commensurate with a regional transit investment;
2) Address our regional housing crisis; and
3) Achieve regional greenhouse gas reduction targets."

"BART acknowledges the City's efforts to minimize parking and enhance other multimodal access opportunities. However, BART believes that the INP parking plans and policies can still be improved.

Despite the BART parking garage south of I-580 being sized appropriately for the projected 2040 ridership/parking demand based on the BART to Livermore Extension analysis, the INP plans for additional parking in the neighborhood commercial center.... As stated in the INP, any future commuter structure on this site adjacent to BART station area will need to be further analyzed depending on future demand.

...BART is concerned that the location of the additional parking capacity ... in such close proximity to the BART station entrance at a key point of pedestrian and bicycle access to the station will diminish the placemaking features of the development and discourage active and shared-ride modes of transit access, as well as diminish the overall quality of the transit-oriented development."

"In general, the neighborhood is still over-parked and is not entirely consistent with BART's TOD policy and guidelines which recommend against parking minimums and recommend lower parking maximums (1 space per unit for residential and 2.5 spaces/1,000 square feet for non-residential)."

7) Are trips to Santa Clara County accounted for in the ridership analysis?

Yes. The LVX ridership analysis accounts for trips from the Tri-Valley and San Joaquin County to destinations all over the Bay Area, including Santa Clara County. Consistent with the MTC-adopted Plan Bay Area, the LVX ridership analysis assumes the Plan Bay Area transit network, which includes BART to San Jose / Santa Clara (Phase II). The following two tables show the total volume of trips by all modes, and the volume of trips by BART without and with an extension to Isabel (NP BART = No Project, without extension; BART Alt = with extension).

2040 Average Weekday Trips from and to San Joaquin County

Destination Market	2040 All Trips	2040 NP BART Trips	2040 NP BART Share	2040 BART Alt BART Trips	2040 BART Alt BART Share
San Francisco	8,800	1,700	19.30%	2,400	27.30%
N Alameda County	19,800	1,300	6.60%	1,800	9.10%
C Alameda County	16,600	100	0.60%	200	1.20%
San Mateo County	10,200	100	1.00%	400	3.90%
Santa Clara County	24,100	100	0.40%	400	1.70%
S Alameda County	13,500	–		–	–
West Contra Costa	4,000	–		–	–
East Contra Costa	25,100	–		–	–
North Bay Counties	23,100	–		–	–
Central Contra Costa	20,600	–		–	–
Dublin, Pleasanton	19,900	–		200	1.00%
Livermore	28,500	–	–	–	–
Total	214,200	3,400	1.60%	5,400	2.50%

2040 Average Weekday Trips from and to Tri-Valley[4]

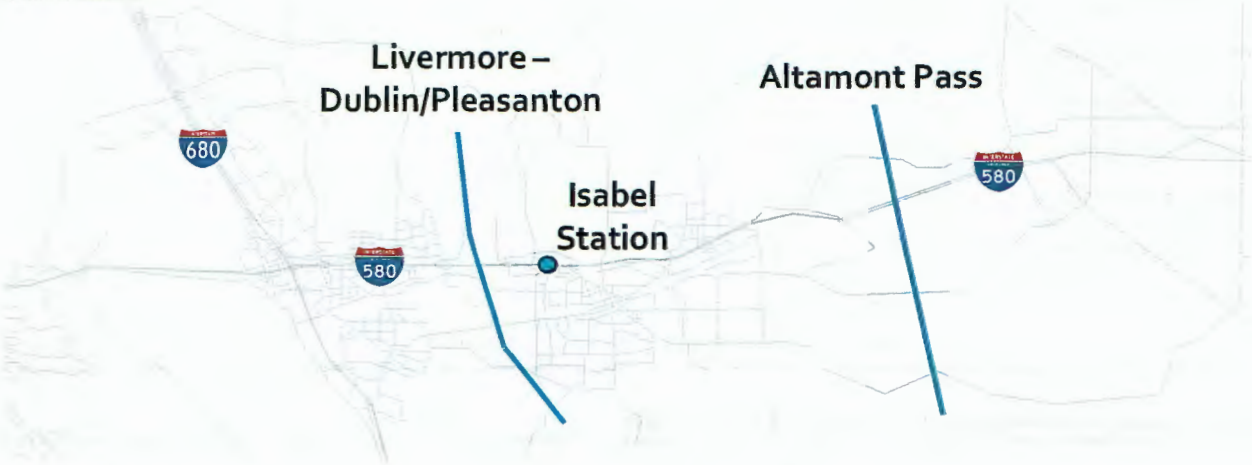
Market	2040 All Trips	2040 NP BART Trips	2040 NP BART Share	2040 BART Alt BART Trips	2040 BART Alt BART Share
San Francisco	26,000	14,500	55.80%	19,800	76.20%
N Alameda County	41,000	4,700	11.50%	6,200	15.10%
C Alameda County	66,400	2,300	3.50%	2,800	4.20%
San Mateo County	14,800	500	3.40%	600	4.10%
Santa Clara County	53,300	1,300	2.40%	2,000	3.80%
S Alameda County	48,300	800	1.70%	1,000	2.10%
West Contra Costa	9,200	200	2.20%	200	2.20%
East Contra Costa	17,300	200	1.20%	200	1.20%
North Bay Counties	17,100	200	1.20%	200	1.20%
Central Contra Costa	125,000	400	0.30%	800	0.60%
Dublin, Pleasanton	860,300	400	0.00%	1,200	0.10%
Livermore	613,700	–	–	1,000	0.20%
Total	1,892,300	25,400	1.30%	36,000	1.90%

[4] In this table, Tri-Valley is defined to be the Alameda County cities of Livermore, Dublin, and Pleasanton. This differs from the more common usage of the term Tri-Valley, which refers to the cities of Livermore, Dublin,

8) During the March 8, 2018 BART to Livermore presentation to the BART Board, information was provided on the change in traffic volumes on I-580 and at screenlines west of and east of the proposed Isabel Station. Please provide the base volumes associated with these locations.

The requested information is provided in the tables below under "Project Conditions" and "Cumulative Conditions". Year 2040 Project Conditions assumes Plan Bay Area 2040 land use throughout the nine-county Bay Area including the INP area. Year 2040 Cumulative Conditions assumes INP Build Out land use in the INP area and Plan Bay Area 2040 elsewhere. Cumulative Conditions also assumes an expansion of BART parking at Dublin/Pleasanton station by 540 spaces.[2] Project Conditions do not assume an expansion of Dublin/Pleasanton BART parking.

Screenlines



I-580 AM Westbound Peak Hour Volumes – Project Conditions, Year 2040
(change relative to No Project)

Location	No Project	Conventional BART	DMU/EMU	Express Bus/BRT	Enhanced Bus
East of Greenville Rd at Livermore Border	9,127	9,300 (+173)	9,249 (+122)	9,163 (+36)	9,159 (+32)
Between Airway and Fallon	9,823	9,569 (-254)	9,627 (-196)	9,824 (+1)	9,842 (+19)

I-580 AM Westbound Peak Hour Volumes – Cumulative Conditions, Year 2040
(change relative to No Project)

Location	No Project	Conventional BART	DMU/EMU	Express Bus/BRT	Enhanced Bus
East of Greenville Rd at Livermore Border	9,127	9,391 (+264)	9,299 (+172)	9,162 (+35)	9,159 (+32)
Between Airway and Fallon	9,823	9,570 (-253)	9,684 (-139)	9,847 (+24)	9,842 (+19)

Pleasanton, plus the Contra Costa County cities of San Ramon and Danville.

Screenline AM Westbound Peak Hour Volumes – Project Conditions, Year 2040
(change relative to No Project)

Location	No Project	Conventional BART	DMU/EMU	Express Bus/BRT	Enhanced Bus
Altamont Screenline[5]	19,564	18,547 (-1,017)	19,035 (-529)	19,517 (-47)	19,552 (-12)
Livermore – Dublin/ Pleasanton Screenline[6]	11,619	11,930 (+311)	11,853 (+234)	11,608 (-11)	11,614 (-5)

Screenline AM Westbound Peak Hour Volumes – Cumulative Conditions, Year 2040
(change relative to No Project)

Location	No Project	Conventional BART	DMU/EMU	Express Bus/BRT	Enhanced Bus
Altamont Screenline[6]	19,564	19,008 (-556)	19,059 (-505)	19,590 (+26)	19,594 (+30)
Livermore – Dublin/ Pleasanton Screenline[6]	11,619	12,093 (+474)	12,024 (+405)	11,638 (+19)	11,635 (+16)

9) What percent of trips in the I-580 corridor are BART trips, both with and without an extension of BART?

The following table compares the number of people traveling on BART in the I-580 corridor versus the number of people traveling in vehicles on the I-580 freeway. The numbers are projections for westbound travel on an average weekday in 2040.

I-580 Corridor Travel on BART Versus Freeway – Year 2040, Westbound, Weekday

	People on BART[7]	People in Vehicles on I-580[8]	BART Percent
No Project	10,800	164,500	8%
Conventional BART	17,100	163,400	13%
DMU/EMU	14,600	176,000	10%
Express Bus/BRT	12,700	165,600	10%
Enhanced Bus	10,900	166,400	8%

10) How does the Express Bus/BRT alternative relate to a broader Express Bus network future that could deliver appropriate transit to Tracy, Bishop Ranch, San Ramon, Danville, etc.?

The Express Bus/BRT alternative was developed to use the existing express lanes on I-580 and provide a more efficient bus-to-BART connection at the Dublin/Pleasanton station. This alternative assumed that existing express bus services would serve the station, with improvements to existing travel times, including improved bus service to Tri-Valley destinations and the Central Valley (e.g., faster San Joaquin Regional Transit District 150 and Modesto Area Express BART Express). It is possible that the Express

[5] Screenline includes I-580, Dublin Boulevard, Stanley Boulevard, Jack London Boulevard, Vineyard Road, SR-84
[6] Screenline includes I-580, Altamont Pass Road, Patterson Pass Road, Tesla Road
[7] Sum of BART boardings at Isabel and Dublin/Pleasanton stations. Assumes a negligible number of riders board at Isabel and exit at Dublin/Pleasanton.
[8] Daily vehicles on westbound I-580 just east of I-680, adjusted downward for percent trucks and upward for average vehicle occupancy.

Bus/BRT investment might provide broader benefits, should bus service providers develop additional routes to the Dublin/Pleasanton Station in the future.

A sensitivity test has been conducted by developing and assuming a revised, expanded express bus network, including:

- New/modified bus routes serving the I-680 corridor north of I-580, utilizing express lanes that are assumed to be implemented by 2040; and
- Increased frequencies of existing express bus routes serving destinations east of the Altamont Pass, assumed to operate in the existing general-purpose freeway lanes east of Greenville Road.

The sensitivity test shows the following results. BART systemwide boardings increases by 5,300 per weekday in 2040 compared with the No Project condition; this ridership is 1,800 higher than the ridership increase reported for the Express Bus/BRT Alternative in the Draft EIR, which was 3,500 boardings per weekday. The increases stem almost entirely from the I-680 corridor bus service; the expanded bus services over the Altamont Pass see minimal ridership increases.

Buses departing the Dublin/Pleasanton BART station bus facility and serving the I-680 corridor north of I-580 would travel westbound on I-580 and use the I-580 to I-680 ramp to enter northbound I-680. When the westbound buses depart Dublin/Pleasanton BART, they at first travel in the left-most lane on I-580. The sensitivity test assumes these buses can safely transition over to the right-most lane in time to access the I-580 to I-680 ramp. A similar assumption is made for buses returning from the I-680 corridor to the Dublin/Pleasanton BART station bus facility. BART has not conducted bus operations analyses to determine whether these maneuvers are feasible, or if not, what modification to I-580 and I-680 would be needed to make them feasible.

11) How does BART to Livermore compare with broader investment trade-offs?

MTC's Project Performance Assessment compares the performance of a broad range of transportation improvements. See the response to request 12 below for more information on MTC's Project Performance Assessment.

12) How might we accelerate MTC's Project Performance Assessment (Evaluation Report, p. 50)?

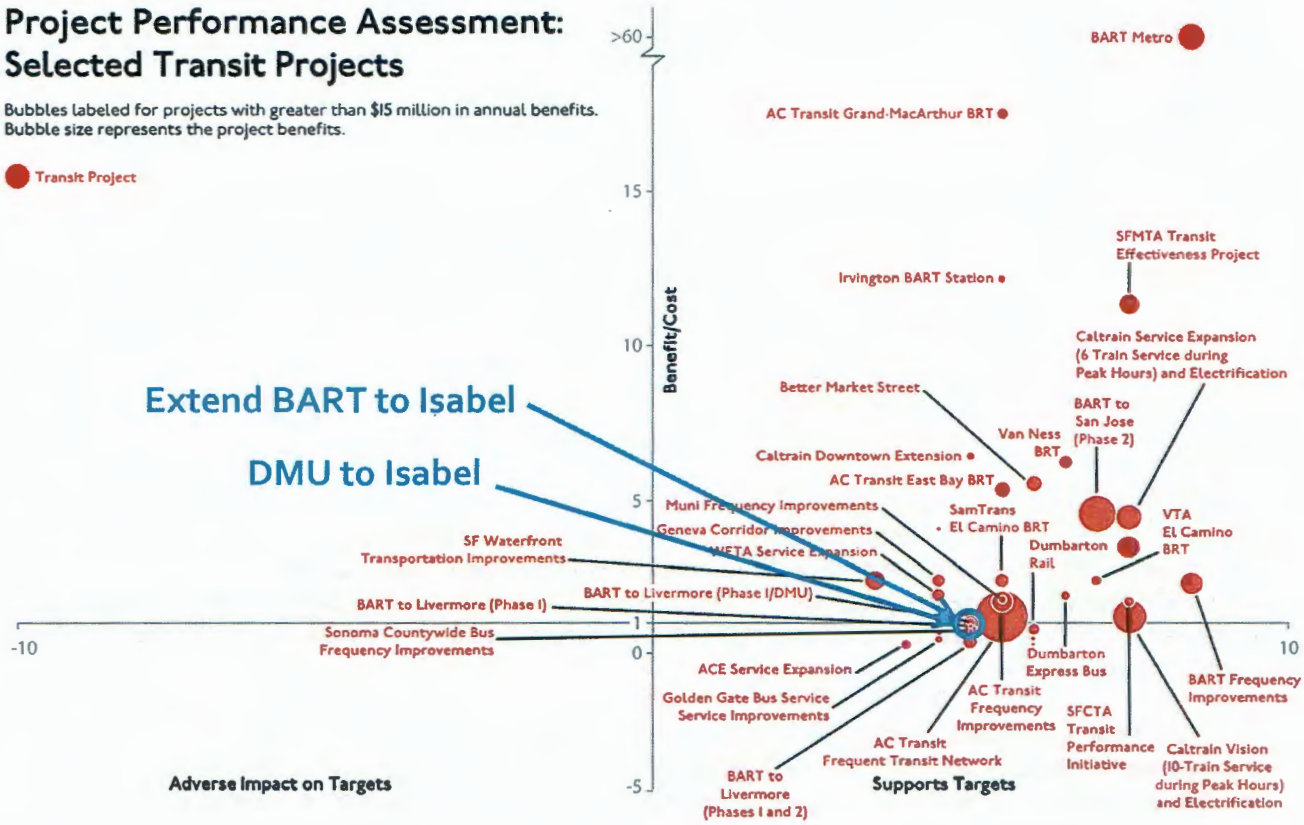
In the development of the original Plan Bay Area adopted by MTC in 2013 and the revised Plan Bay Area adopted by MTC in 2017, all major transportation capital improvement projects desiring discretionary regional funding were required to undergo MTC's Project Performance Assessment process. This process rates all projects according to two measures: Benefit/Cost Ratio and Targets Score.

For Plan Bay Area 2013, MTC conducted Project Performance Assessment for a conventional BART extension along I-580 to Isabel, a DMU along I-580 to Isabel, and an Express Bus along I-580. The following table contains the results of MTC's assessment.

	Benefit/Cost Ratio	**Targets Score**
Conventional BART to Isabel	1	5.0
DMU to Isabel	1	5.0
I-580 Express Bus	2	4.5

The following graphic displays the performance of all the projects MTC assessed for Plan Bay Area 2013, and indicates the relative performance of Conventional BART to Isabel and DMU to Isabel to these projects.

MTC Plan Bay Area 2013 Project Performance Assessment



Projects prioritized for discretionary regional funding in Plan Bay Area 2013 either had

1. Benefit/Cost Ratio at least 10 and Targets Score at least 2.0; or
2. Benefit/Cost Ratio at least 5 and Targets Score at least 6.0.

Had BART to Livermore sought discretionary regional funding in Plan Bay Area 2013, it would not have been prioritized for that funding.

No BART to Livermore project was assessed for Plan Bay Area 2017. The corridor transit investment was identified as being in "Project Development," reflecting the status of the environmental review at the time.

Should the BART to Livermore Extension Project seek discretionary regional funding, it would likely undergo MTC's Project Performance Assessment in the next update of Plan Bay Area, assuming MTC continues to use the Project Performance Assessment process. The next update of Plan Bay Area is expected to begin in 2019 with eventual plan adoption in 2021.

It is possible that the Conventional BART, DMU, and Express Bus/BRT alternatives analyzed for the BART to Livermore Extension Project differ from those analyzed by MTC for Plan Bay Area 2013, and MTC's Project Performance Assessment methodology has undergone revisions. Both factors may result in the Conventional BART, DMU, and Express Bus/BRT alternatives receiving different Project Performance Assessment scores from those received for Plan Bay Area 2013.

13) Given similarities in travel time, why is the Express Bus/BRT alternative rated Medium-Low on the "Provide alternative to I-580 congestion" goal? Do the travel demand models adequately capture express bus ridership? (The assumption here that broader VMT reductions will allow drivers better alternatives to I-580 is highly suspect. Why would one presume sustained congestion reduction on alternative routes rather than induced demand?)

The LVX ridership forecasts were developed using the Alameda County Travel Demand Model (Alameda Model). The Alameda Model is developed and maintained by the Alameda County Transportation Commission (ACTC) and is an industry standard 4-step travel demand model. The Alameda Model is used to evaluate transportation improvements throughout Alameda County. The Alameda Model explicitly accounts for several factors affecting a traveler's decision to use transit, including time to access the transit station or stop, time spent waiting for transit, time riding in transit, time transferring between transit routes, time to access the traveler's final destination, cost to park at transit, and cost to ride transit. Observed data and survey data were used to calibrate the Alameda Model so it forecasts travel behavior under existing conditions similar to what is observed.

To evaluate performance on the "provide alternative to I-580 congestion" goal, the LVX team examined two performance metrics: 1) improvements in transit travel time, and 2) reduction in VMT in 2040. Reduction in VMT was included as an indirect measure of how effective an alternative is to I-580 congestion: the better travelers perceive an alternative to be, the more VMT reduction one would expect to achieve. The LVX team did not assume that VMT reduction meant now less congested roadways would provide effective alternatives to I-580.

While the Express Bus/BRT and DMU/EMU alternatives produce similar transit travel time improvements, Express Bus/BRT fares worse than DMU/EMU on VMT reduction. This reflects travelers' observed preference for rail transit modes over bus transit modes, which is reflected by the poorer "modal constants" for bus modes in the Alameda Model. Thus, the Express Bus/BRT alternative was rated Medium-Low on this goal, which is worse than the Medium rating for the DMU/EMU alternative.

14) Why is 50% farebox recovery ratio considered high (Evaluation Report, p. 43)? This is lower than BART's system farebox recovery by a large margin.

According to the BART System Expansion Policy metrics, the farebox recovery ratio ratings are as follows: Low: <30%; Medium: 30-50%; and High: >50%.

15) In the Evaluation Report tables in Appendix A, what does "rail+bus" mean under the "Cost" and "Cost Effectiveness" sections?

The Proposed Project and each of the three build alternatives has a rail component and a bus component. Each of the cost and cost effectiveness metrics can be calculated for just the rail component, just the bus component, or both combined. "Rail+bus" means both combined. For example, the Express Bus/BRT alternative involves improved bus travel times and increased bus level of service. The bus operator experiences higher passenger revenue from higher bus ridership and higher operating costs. The Express Bus/BRT alternative results in 3,500 more weekday boardings on BART, which results in added passenger revenue to BART and some modest increase in BART operating costs.

Calculating metrics for bus only would only include the added passenger revenue and operating cost to the bus operator. Calculating for rail only would only include the added revenue and cost to the rail

operator. Calculating for rail+bus would include both.

16) In the Evaluation Report tables in Appendix A, how can the $1 billion in unfunded costs for the Proposed Project and the DMU/EMU alternative be classified as "High" for Stability, Reliability and Availability of Proposed Funding Sources? The need to secure $1bn would clearly compete for BART core system needs.

Per the BART System Expansion Policy metrics, the Capital Finance Plan rating for projects within the BART District consists of four components:
1) A fully-funded project;
2) The stability, reliability and availability of proposed funding sources;
3) Funding sources not competing with those that can be used for BART System Renovation and Core System Capacity needs; and
4) Core system improvements are funded in a parallel financial plan.

The LVX Proposed Project is rated "Not Fully Funded" for the first component since it has $533 million of committed funding, but a cost of $1.635 million. However, the proposed funding sources identified to date (ACTC Measure BB, MTC AB1171, MTC RM1, and City of Livermore Traffic Impact Fee Program) are stable, reliable, and available. Thus, the High rating for the second component. These funds are also programmed specifically for transit improvements in the I-580 corridor and cannot easily be re-programmed to fund BART system renovation and core system capacity needs. Thus, the High rating for the third component. BART staff is still completing its identification of core system improvements; thus, LVX was not rated on this component. When all four components are considered together, the LVX team assigned a Medium rating for Capital Finance Plan for the Proposed Project.

17) Is it possible to take a more proactive equity analysis approach by looking at how we can promote equitable outcomes rather than simply avoiding inequitable outcomes? What investment strategy would attract a higher share of minority or low-income riders per dollar invested?

Pursuant to Federal Transit Administration (FTA) Circulars 4702.1B and 4703.1A, BART must conduct equity and environmental justice analyses to ensure that BART projects do not have any adverse impacts on minority and/or low-income populations.

While CEQA does not require an equity analysis during the environmental phase of project development, BART does conduct equity analyses when reasonably possible. An example is the Title VI/Environmental Report for the BART to Livermore extension project. While an environmental justice analysis was not required during this stage of the planning development process, staff felt it was important to evaluate impacts to protected populations for all the different alternatives to support informed decision-making.

BART will continue to conduct studies on certain projects, although they may not be required by FTA, to assess impacts on customers. Such projects, such as service changes that do not meet BART's Major Service Change Policy threshold, could potentially have adverse impacts on minority and/or low-income populations. By conducting such studies, required or not, BART is looking to promote equitable outcomes.

BART's 2018 Annual Report also reports on some proactive equity measures:
1. Ratio of low income ridership to low income residents in the region;
2. Compliance with goals for disadvantaged business share of federal contract value;
3. Customer ratings for disabled access (1-7 scale); and

4. % of housing units on BART property that are affordable.

The first of these measures is developed using BART ridership survey data, which is not available for projects still in development such as BART to Livermore. The second and third measures are not relevant at the current stage of BART to Livermore development: design or construction contracts have not been issued, and there is no station in place where disabled access could be rated. The fourth measure addresses property development and not extension projects.

BART utilizes strategies such as the public participation process to receive feedback from the public. Public input has been instrumental in informing transportation decision-making because it asks people what they prefer. For the BART to Livermore Extension project, information on the proposed project was announced to the public through several communication channels such as multi-lingual flyers and newspapers, mailers, public meetings, and presentations to BART's Title VI/EJ and LEP Advisory Committees. By soliciting feedback from the public, BART ensures that the strategies identified are aligned with the public's objectives.

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2018

February 26, 2016

Ashley McBride
Assistant Planner
City of Livermore, Planning Division
1052 S. Livermore Ave.
Livermore, CA 94550

RE: Isabel Neighborhood Plan and Draft Environmental Impact Report

Dear Ms. McBride:

On behalf of the San Francisco Bay Area Rapid Transit District (BART), we appreciate the opportunity to provide comments on the Isabel Neighborhood Plan (INP) Public Review Draft and the Draft Environmental Impact Report (DEIR). BART appreciates the City of Livermore's willingness to incorporate the BART Board-adopted policies and performance measures for Transit-Oriented Development (2016), Station Access (2016), and Affordable Housing (2016), as well as consideration of the Transit-Oriented Development (TOD) guidelines, and Multimodal Access Design Guidelines (MADG) for the development of the plan.

Considering the potential BART to Livermore extension and BART's position as a primary landowner in the core of the INP, the region has a strong interest in seeing the Isabel Neighborhood become a vibrant transit-oriented development around the BART Station with rich multimodal access options. The vision of the Isabel area as a dynamic new neighborhood of Livermore, offering jobs, housing, retail and community spaces and parks with extensive pedestrian/bike trails and placemaking features, is closely tied to BART's interests and policy goals.

BART looks forward to collaborating with the City to make the INP vision a reality. Thank you for your thoughtful review and consideration of the comments below. If you have any questions, please contact Tim Chan at (510) 287-4705 or at TChan1@bart.gov.

Regards,

Val Menotti
Chief Planning and Development Officer
San Francisco Bay Area Rapid Transit

Draft Isabel Neighborhood Comments

General comments

Parking. BART acknowledges the City's efforts to minimize parking and enhance other multimodal access opportunities. However, BART believes that the INP parking plans and policies can still be improved.

Despite the BART parking garage south of I-580 being sized appropriately for the projected 2040 ridership/parking demand based on the BART to Livermore Extension analysis, the INP plans for additional parking in the neighborhood commercial center. Parking options include a surface, rooftop or underground lot initially to service the retail center. The neighborhood commercial center will be designed to accommodate a future multi-level parking structure for shared commercial and BART parking if the City determines one is necessary in the future. As stated in the INP, any future commuter structure on this site adjacent to BART station area will need to be further analyzed depending on future demand.

BART appreciates the decision not to include a parking structure adjacent to the station entrance from the outset of the plan implementation since demand for parking may decrease in the future if other multimodal access options are successful and/or autonomous vehicle services become prevalent. A parking lot can more feasibly be redeveloped than a garage, if no longer needed for parking.

That said, BART is concerned that the location of the additional parking capacity (as a surface, rooftop or underground lot) in such close proximity to the BART station entrance at a key point of pedestrian and bicycle access to the station will diminish the placemaking features of the development and discourage active and shared-ride modes of transit access, as well as diminish the overall quality of the transit-oriented development. Research indicates that distance from the station, and the quality of the built environment, both influence the use of rail transit and the willingness of a patron to walk to a station, especially for commercial destinations (see attached). This raises another concern that additional parking at a central location could stand between BART and the Innovation Hub, discouraging workers from taking BART to work and encouraging them to drive to work, particularly if parking is free or minimally priced. This would reduce the likelihood that the Isabel Station will contribute to BART's access mode share targets from BART's 2016 *Station Access Policy Performance Measures and Targets*. If the City were to include additional parking, BART would recommend locating it further north, outside the core area but still providing a connection to the retail proposed on Main Street. If a structured garage were eventually deemed necessary, BART suggests that other nearby parking supplies might serve the purpose sufficiently. The Airway Business Park District supplies an abundance of parking just west of and partially within a half-mile radius of the proposed Isabel BART station.

In general, the neighborhood is still over-parked and is not entirely consistent with BART's TOD policy and guidelines which recommend against parking minimums and recommend lower parking maximums (1 space per unit for residential and 2.5 spaces/1,000 square feet for non-residential). All land uses should have parking maximums, and there is currently no maximum for the Business Park designation. Eliminating parking minimums and reducing parking maximums can help reduce the cost of housing, consume less valuable land near transit and reduce associated environmental costs, such as water pollution from increased impervious surfaces.

Station area land use and densities.

BART is pleased with the INP land use plan. The diversity of the residential and non-residential uses has great potential to achieve a vibrant TOD environment. Additionally, land uses are well distributed, minimizing exposure of future residents to Toxic Air Contaminants (TACs) by concentrating office uses along the north side of I-580, near the BART station, while most new residential uses would be located at least 500 feet away from I-580 to meet the Bay Area Quality Management District's (BAAQMDs) regulations.

BART acknowledges the City's efforts to plan for higher densities in the INP area and that the plan will meet the current Plan Bay Area Priority Development Area (PDA) goals and BART's TOD Performance Targets, if the plan is implemented as currently envisioned. However, where possible, it is important to have a more compact footprint within the ¼- (most important) and ½-mile radius of the station to:

1) Generate the highest level of ridership commensurate with a regional transit investment;
2) Address our regional housing crisis; and
3) Achieve regional greenhouse gas reduction targets.

BART would like to see higher densities as suggested in the detailed comments below.

Pedestrian and bicycle infrastructure. BART acknowledges and supports the multiple pedestrian and bicycle features proposed in the INP, meeting many of BART's Multimodal Access Design Guidelines (MADG) recommendations, including: pedestrian-scale wayfinding, 6' minimum clear sidewalk for all the street types, extensive bike lanes and minimizing lane widths for several street types to enable safer, more inviting space for pedestrians and cyclists.

The plan emphasizes a connected bicycle and pedestrian network to access the BART station, which is consistent with BART's own 2016 Station Access Policy. However, the plan's approach focuses on potentially costly underpasses and overpasses. BART is concerned about ability to create high-quality walking and biking station access for BART riders from the neighborhood, given the high-level of investment needed for grade-separated pedestrian crossings. Nevertheless, these improvements are still less expensive than providing additional structured parking, and BART urges the City to prioritize bicycle and pedestrian infrastructure and conditions over additional parking and to make that priority clear in this plan.

Specifically, BART is concerned about the Isabel Avenue (Isabel Path) undercrossing. Due to increasing incidence of homelessness and drug use in the Bay Area, we are sensitive to potential personal safety and security issues often associated with pedestrian grade-separated crossings. Because of these concerns and higher comfort levels for users, BART recommends an at-grade crossing at this location. If the City does move forward with the Isabel Path however, a full funding plan will be critical, since it serves as the main pedestrian corridor to the station. Additionally, BART urges the City to consider the operating and maintenance costs associated with this type of infrastructure. If the space is not well-maintained and does not provide a high-level of safety and security, it could lead to detrimental effects on BART patron access and usage.

Detailed Isabel Neighborhood Plan comments

Chapter 2: Land Use

1. Figure 2-1: The transition and village uses east of the BART parking structure south of I-580 should be higher density -- this is the area shown as agricultural in the existing uses map, so it can be intensified, and is within the 1/4-mile radius of the station. Suggest all residential within 1/4-mile be designated "Core" and the remainder be designated "Village," except for the parcels backing up on Stetson Way. There doesn't need to be "Transition" up against the park/highway, and Sutter Street should provide enough buffer to densify higher than "Transition."
2. Table 2-2:
    - BART TOD Guidelines calls for a minimum net density 75 du/ac minimum for development on BART parcels (See Section 2.1). The BART parcels within a ¼ do meet the 75 du/ac. However, we recommend that all parcels within ¼ mile also aspire to this requirement.
    - We recommend increasing Village minimum stories to 3
    - We recommend increasing Center minimum stories to 4
    - We recommend increasing Core minimum stories to 4 and maximum to 7 stories
3. Figure 2-5: This figure shows narrow bike facilities and sidewalks, while parking is overabundant (assuming the curb here is meant for parking). Would suggest refining the rendering.
4. Page 2-38: Section 2-5 Airway Business Park Zoning District which is partially within the ½ mile buffer is concerning for the following reasons:
    - Auto-oriented uses (gas stations, auto dealerships, etc.) are allowed
    - Lot coverage is minimal (max 45%), creating a scale of community more amenable to driving than walking, biking, or riding transit
    - The zone is highly parked for any TOD, especially a TOD at least partially within 1/2 mile of the BART station

Chapter 3: Transportation

5. Page 3-7: For Bike Streets, bicycle wayfinding is important, especially since Isabel Ave bisects the area, making BART less visible in the core.
6. Figure 3-8 and Figure 3-9:
    - Elsewhere utility zone is called out as 4-6'. Assuming that is also the case here, the sidewalk is very narrow, especially given the overly generous travel lane width. These measurements would make for a less than ideal pedestrian environment.
    - Given more intense traffic on these streets, Class I bike lanes would be more appropriate.
7. Figure 3-10: Specify Bike Lane typology.
8. Figure 3-12
    - Recommend scaling back the number of undercrossings and pedestrian bridges in the planning area. In particular, BART recommends enhancing an at-grade crossing of the Isabel Path as an alternative to undercrossing C12.
    - Recommend ensure that underpass alignment C2 stays close to trail network so that there aren't any conflicts with the BART access road.
9. Page 3-14: In reference to text "While the Plan envisions the Isabel Path as an under-crossing running beneath Isabel Avenue," part of the sentence appears to be missing.

10. Figure 3-14: Add crosswalk on Portola Avenue east of Isabel Ave.
11. Table 3-3
    - See discussion in general comments and BART TOD Guidelines
12. Page 3-30: Under P-TRA-22, consider including pricing strategies.
13. Page 3-32: Under P-TRA-29, consider removing parking minimums.

Chapter 5: Urban Design

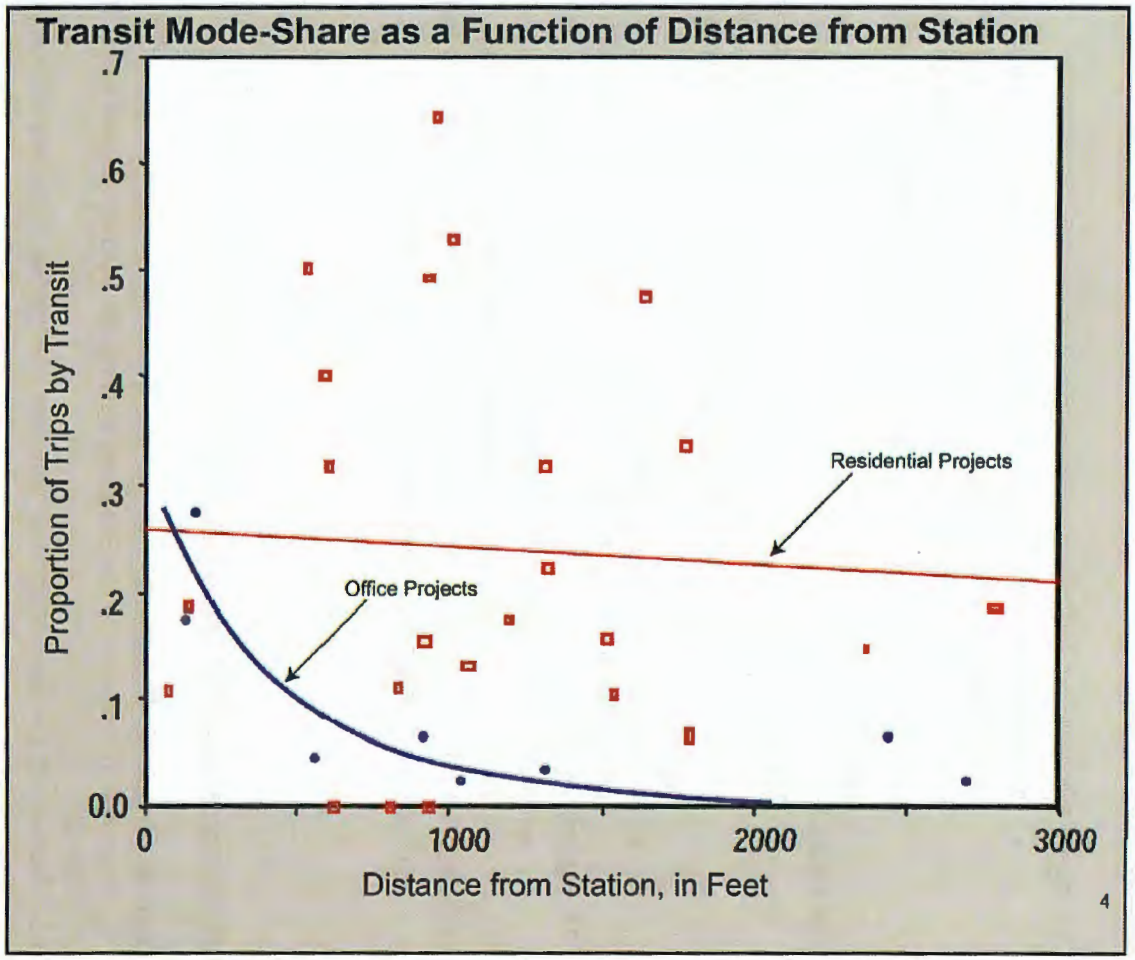
14. Figure 5-4
    - Assuming these retail spaces are quieter at certain parts of the day, this undercrossing could be daunting to pedestrians, particularly if the retail isn't busy at night.
    - Highly recommend a high-quality, at-grade crossing for pedestrians and bicyclists that facilitates access between the community and the BART station while also enhancing the livability of the neighborhood.
15. Figure 5-7:
    - The Figure indicates a parking garage north of the station directly across from the bus station on BART property within an area designated as office core. BART assumes this is an error since is not identified as part of the parking overlay in the land use maps. Please clarify.
    - Has office/retail delivery/garbage been considered? Driveways? How will deliveries/pick up happen in relation to on-street parking, bus needs, off street parking accesses, etc.
16. Figures 5-8 and 5-9
    - Please confirm clearance height of undercrossing as it appears very shallow which can enhance the perception of decreased personal safety and security.
17. Page 5-42: In reference to "Design Guidelines," In general, this section would benefit from a parking map/diagram or table to demonstration total parking.

<u>Draft Environmental Impact Report Comments</u>

Chapter 4: Analysis of Alternatives

1. Page 4-4: In reference to the Enhanced Parking Alternative, see parking comments from the INP above.
2. Table 4.2-2: Car-Light Alternative Vehicular and Parking Ratios are more aligned with BART TOD Guidelines.

Sensitivity to Distance from Station



Travel Characteristics of Transit-Oriented Development in California. Lund, Cervero, Willson, January 2004.
https://www.bart.gov/sites/default/files/docs/Travel_of_TOD.pdf