LAVTA

Long Range Transit Plan

Final Report

March 2024

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1 INTRODUCTION

Following the completion of LAVTA's Short Range Transit Plan (SRTP) in December 2022, the agency began work on a Long Range Transit Plan (LRTP) which focuses on the long term vision of transit for the Tri-Valley Region, including an evaluation of housing and employment growth, an updated evaluation of demographic characteristics, and specific transit service changes to align with and complement planned Valley Link commuter rail service.

The SRTP was cost-constrained per Metropolitan Transportation Committee (MTC) guidelines and focused on prioritized service restoration following reductions related to the Covid-19 Pandemic. The LRTP is focused on aligning future service investments with planned housing and employment growth areas and coordinating services with planned Valley Link commuter rail station locations and schedules. The LRTP is cost unconstrained and illustrates likely transit needs by 2034.

WHAT IS A LONG RANGE TRANSIT PLAN?

This Long Range Transit Plan establishes a vision for future transit priorities in the Tri-Valley based on our current understanding of existing and future transportation needs. In addition to existing demographics and comprehensive plan housing elements, these recommendations also consider significant planned future developments, including Boulevard in Dublin, Stoneridge Mall, and Hacienda. However, it is impossible to account for all planned developments over such a long term planning horizon as new developments emerge.

This document provides a guide for potential service improvements over the long term but should not be used as a prescriptive solution for short term service changes. LAVTA's current service change process allows for three service changes per year to better align service with new development, demand for service, and financial capacity. This process should continue to be used to make iterative service changes that best align with observed demand.

The recommendations included in this document should be viewed as a pathway for additional investment as resources become available through the 2034 planning horizon.

DOCUMENT ORGANIZATION

In addition to this introduction chapter, this Final Report consists of four additional chapters, including:

- **Chapter 2 Document Review** – Includes a detailed review and summary of several regional planning documents, including regional housing elements and Valley Link service plans.
- **Chapter 3 Demographic Analysis** – Builds upon the demographic analysis completed during the SRTP process but with more recent data made available following the 2020 American Community Survey and 2019 Longitudinal-Employer Household Dynamics survey to reflect current conditions more accurately.
- **Chapter 4 LAVTA Wheels in Motion Network Changes** – Identifies the near-term service changes that are planned for 2024 and will be built upon by the long-term recommendations.
- **Chapter 5 Recommendations** – Details the specific service change recommendations included in this LRTP to continue meeting the growth needs of the community and aligning with other regional transit investments.

2 DOCUMENT REVIEW

Current transit planning efforts in the Tri-Valley area exist within a broader planning context that has evolved over time. This chapter reviews that planning context, focusing on plans for new or modified service throughout the region, including in Contra Costa and Alameda counties, as well as potential transit supportive infrastructure improvements along major corridors such as I-580 and I-680.

The primary documents reviewed in this chapter include:

Regional Transit Studies

- Tri-Valley Hub Network Integration Study (2021)
- The Valley Link Rail Project (ongoing)

Local Housing Elements

- Dublin 2023-2031 Housing Element Initial Study
- Livermore 2023-2031 Housing Element
- Pleasanton 2023-2031 Housing Element

General Plans and Neighborhood Specific Plans

- Imagine Livermore 2045 General Plan Update
- Isabel Neighborhood Specific Plan

Findings from this chapter contextualize future transit planning work in the Tri-Valley by enumerating the region's planning goals, highlighting consistent visions, and identifying unfulfilled objectives of the planning process.

KEY FINDINGS

The following are key findings from the document review:

- **Current plans emphasize the need to maintain and improve existing connections between residential and employment centers.** Past planning efforts focus on connecting residents from suburban and exurban communities in south Contra Costa and Alameda counties to employment corridors in and around Oakland and San Francisco though rapid transit, commuter rail, and bus service.

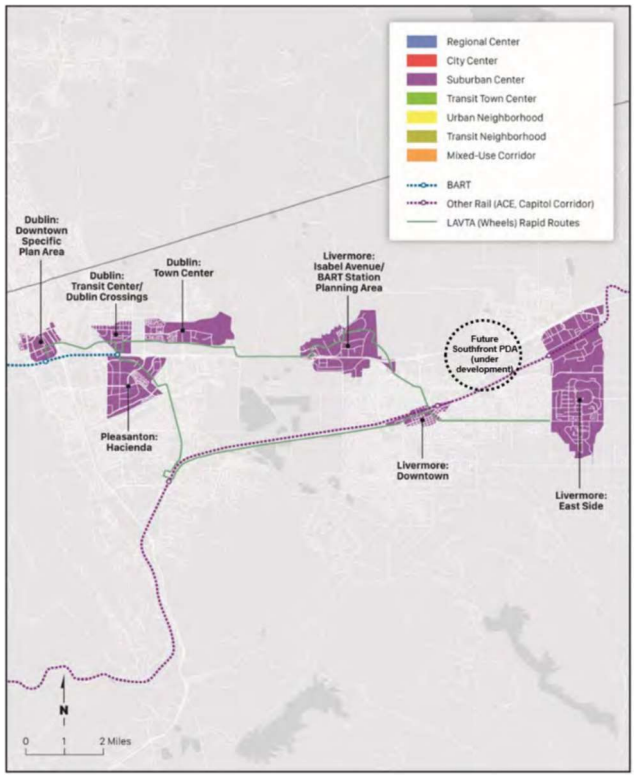
- **Bus service plays a critical role in connecting riders to high-capacity corridors.** BART service is essential in carrying commuters into Oakland, San Francisco, and beyond. However, extending existing BART facilities is increasingly expensive and time intensive. Express Bus service is nimble and can expand transit catchment areas and connect communities that have limited access to fixed rail service. Express bus service can also capitalize on express lanes.
- **The Dublin-Pleasanton-Livermore area is a key connection point between communities in the East Bay.** Because of its central location, this area is a strategic convergence point for public transit to carry travelers across the region. As population grows, new and innovative travel modes will be necessary to meet the needs of regional residents.

REGIONAL TRANSIT STUDIES

Tri-Valley Hub Network Integration Study (2021)

The Tri-Valley Hub Network Integration Study investigates how bus service would connect Dublin, Pleasanton, and Livermore to the broader inter-city and commuter rail system described in the 2018 California State Rail Plan. The Tri-Valley area was identified in the 2018 plan as a connection point for regional bus services and the Suisun-Fairfield Amtrak Station, which is served by Amtrak's Capitol Corridor line. The Study also explores potential improvements to the Dublin/Pleasanton BART Station that would allow it to more effectively serve as a regional transit hub.

Needs Assessment and Feasibility



The report establishes the need for improved connections in the Tri-Valley area, which has seen a significant uptick in traffic congestion on I-580 and I-680 as jobs, population, and housing supply have increased in the last 15 years. Population and jobs are expected to grow further over the next 20 years. The plan identified multiple growth areas in the Tri-Valley.

The recommendations from this study would help alleviate mounting stress on the I-580 and I-680 corridors by providing fast and reliable connections between regional transit hubs at existing Amtrak and BART stations. This effort would be aided by the ongoing construction of a regional express lane network on I-680 and I-580. At the time of writing, there were no one-seat ride connections between the Tri-Valley and either the Suisun or Martinez Amtrak stations.

A hub station as described in the 2018 California State Rail Plan would provide connections to transit, rail, bicycle, and pedestrian facilities and expand the overall reach of the state rail system. The 2018 plan states that the Tri-Valley hub should provide connections to additional hubs in the East Bay, Stockton, and Solano County.

The report explores the feasibility of three potential Tri-Valley hub locations in order of preference:

- **DUBLIN/PLEASANTON BART STATION**: Located along I-580 and less than one mile from the I-580/I-690 interchange, planned connection to Stockton through Valley Link project, existing connection to BART and seven regional bus routes.
- **WEST DUBLIN/PLEASANTON BART STATION:** Located along I-580 and less than ¼ mile from the I-580/I-690 interchange, existing connection to BART and three LAVTA bus routes.
- **PLEASANTON ACE STATION:** Located three miles south of the I-580/I-680 interchange and one mile east of I-680, existing connections to Stockton and South Bay, existing connection to three regional bus routes and Wheels Routes 53 and 54 to BART.

Ridership and Service Plan

The report proposes several service additions and improvements, shown below in Figure 2-1 and Figure 2-2.

Figure 2-1 I-680 Express Connection Operating Concepts

Improvement Category	Recommendations
Routing and Stops	▪ Suisun-Fairfield Amtrak Station ▪ Martinez Amtrak Station, ▪ *Pleasant Hill/Contra Costa Centre BART Station** ▪ Walnut Creek BART Station ▪ Bollinger Canyon Park-and Ride ▪ Dublin/Pleasanton BART Station ▪ *West Dublin/Pleasanton BART Station** ▪ *Pleasanton ACE Station***
Headways and Service	▪ Half-hourly AM peak departures, southbound only ▪ Hourly AM off-peak departures ▪ PM departures timed with ACE, northbound only ▪ Peak hour only connection to Pleasanton ACE
Est. Run Time	▪ AM Peak: 105-112 minutes ▪ AM off-peak: 93-103 minutes ▪ PM peak: 111-120 minutes ▪ PM off-peak: 94-101 minutes
Est. Ridership	▪ 1,107-1,555 forecasted daily boardings ▪ 24-39 average riders per bus (based on 2019 ridership)
Est. VMT Reduction	▪ 27,000 – 35,000 daily VMT reduction (based on 2019 ridership)
Fleet Requirements	▪ Six buses, including one spare

* Alternative stops

** Peak service only

Figure 2-2 Tri-Valley Hub Infrastructure Improvements

Improvement Category	Recommendations
Additional Bus Bays	▪ Between two and six additional bays ▪ Cost per bay $299,000-$405,000 depending on alternative
AV Shuttles	▪ AV shuttles connecting to ADA parking, employer parking, and nearby development ▪ Est. capital cost of $2.7 million ▪ Est. annual operating cost of $4.4 million
Wayfinding	▪ Signage improvements ($53,000)

Improvement Category	Recommendations
Bike and Scooter Parking	▪ Ten additional bike lockers ($27,000) ▪ Overhead sidewalk coverings ($458,000)

The report recommends an independent governance structure for new service provided to the regional hub, comprised of the three existing service providers operating in the Tri-Valley. The report also highlights the need to identify a consistent funding source for implementation and ongoing operations.

The Valley Link Project

The Tri-Valley – San Joaquin Valley Regional Rail Authority, in cooperation with the Federal Transit Administration (FTA) and Caltrans, is advancing environmental clearance and project design for the Valley Link Rail Project. The project will establish a new passenger rail service along a 22-mile corridor between the existing Dublin/Pleasanton BART Station in Alameda County and the proposed Mountain House Community Station in San Joaquin County with all-day bi-directional service on weekdays and weekends at frequent intervals using zero-emission multiple-unit vehicles. The proposed alignment for this project is shown in Figure 2-3.

The project goals are to:

- Improve connectivity within the Northern California Megaregion, connecting housing, people, and jobs.
- Provide rail connectivity between the BART rapid transit system and the ACE commuter rail service.
- Project implementation that is fast, cost-effective and responsive to the goals and objectives of the communities it will serve.
- Be a model of sustainability in the design, construction, and operation of the system.
- Support the vision of the California State Rail Plan to connect the Northern California Megaregion to the State rail system.

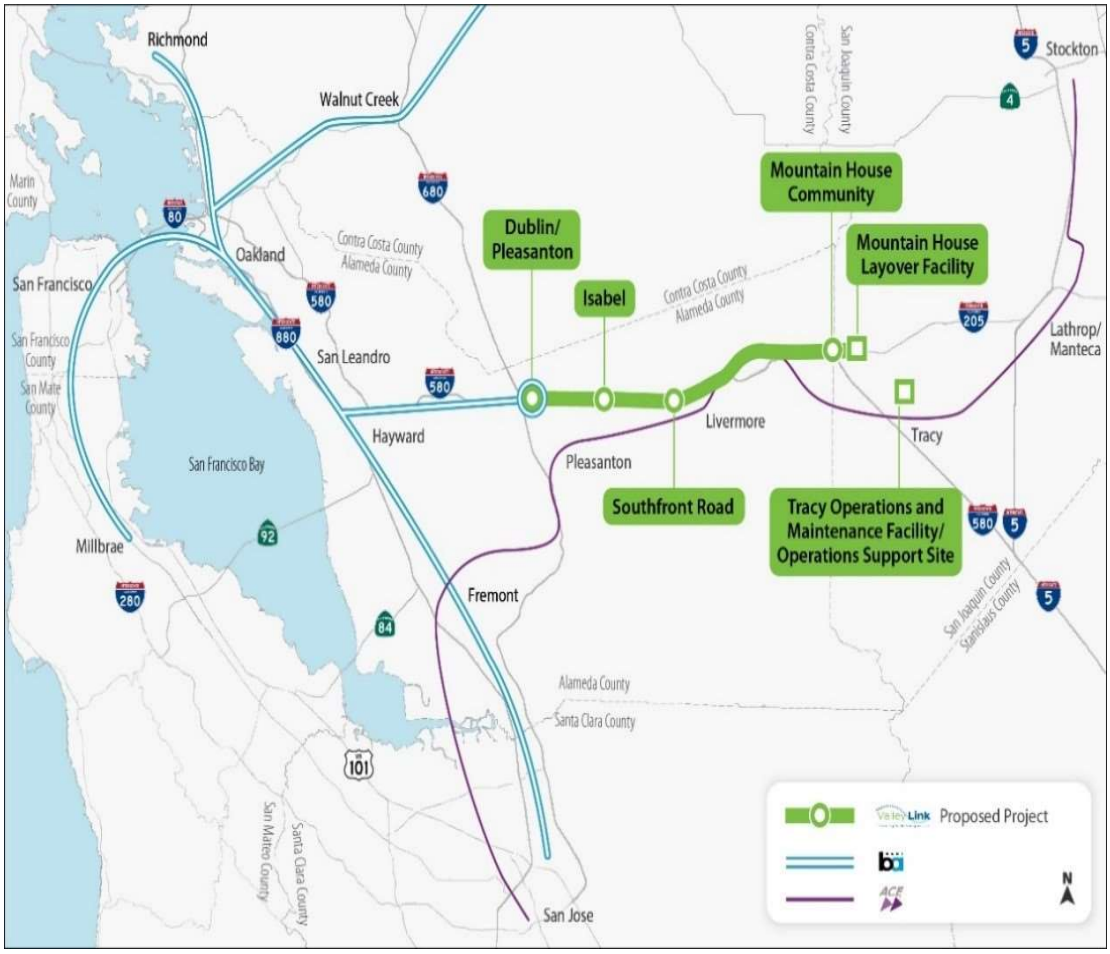
The alignment would be constructed in a combination of the existing I-580 freeway median, the existing transportation corridor owned by Alameda County, existing Caltrans right-of-way adjacent to the westbound I-580 freeway, and new right-of-way to be acquired for the proposed project and include four new stations, as shown in Figure 2-3 and described below.

- **Dublin/Pleasanton Station** would be constructed south of the eastbound I-580 freeway lanes in proximity to the existing Dublin/Pleasanton BART Station and would be designed to provide seamless intermodal passenger service between Valley Link, BART, and local bus transit services.

- **Isabel Station** would be constructed within the I-580 median with adjacent parking on a 24-acre site along East Airway Blvd south of I-580 and east of the Isabel Ave I-580 overcrossing in Livermore.
- **Southfront Road Station** in Livermore would be constructed within the I-580 median with adjacent parking located south of I-580 on a seven-acre site along Southfront Rd between McGraw Ave and Franklin Ln. This station is sometimes referred to as "Midtown Station" in the City of Livermore planning documents.
- **The Mountain House Community Station** would be constructed north of I-205 on an approximately 54-acre site west of Mountain House Pkwy near the I-205/Mountain House Pkwy interchange.

Facilities to support the operations and maintenance and ancillary project activities are planned at the eastern end of the alignment and include the Altamont Maintenance of Way (MoW) Staging Area; Mountain House Layover Facility (LF); and Tracy Operations and Maintenance Facility/Operations Support Site (OMF/OSS).

Figure 2-3 Proposed Valley Link Route and Station Locations



LOCAL HOUSING ELEMENTS

The state of California requires that all local governments adequately plan to meet the housing needs of everyone in their community through the development of housing elements that serve as the blueprint for how cities and counties will grow and develop. In the Tri-Valley, the housing elements developed by Dublin, Livermore, and Pleasanton identify specific locations for future housing growth which may be supportive of transit service in the long-term.

Dublin 2023-2031 Housing Element

The housing element outlines where expected residential growth is expected by 2031. This document also shows how the City of Dublin is anticipating reaching its RHNA requirements, including low-income housing.

Just over 5,000 new units are anticipated to be necessary to accommodate growth. Much of this is already in the pipeline and within existing zoning. However, 755 near low- or low-income units would require changes in zoning or ownership to allow their construction. The City has proposed sites for these, and they are almost all within walking distance of BART stations or Dublin Boulevard.

Livermore 2023-2031 Housing Element

The Livermore Housing Element outlines where expected residential growth is expected by 2031. Concentrations of residential growth are identified in the proposed Isabel Avenue Neighborhood, which will surround a new Valley Link station. An additional area of residential development is projected to surround the 1st Street/I-580 interchange. Most other growth is anticipated to be infill.

Pleasanton 2023-2031 Housing Element

The housing element outlines where expected residential growth is expected by 2031. This document also shows how the City of Pleasanton is anticipating reaching its Regional Housing Needs Allocation (RHNA) requirements, including low-income housing.

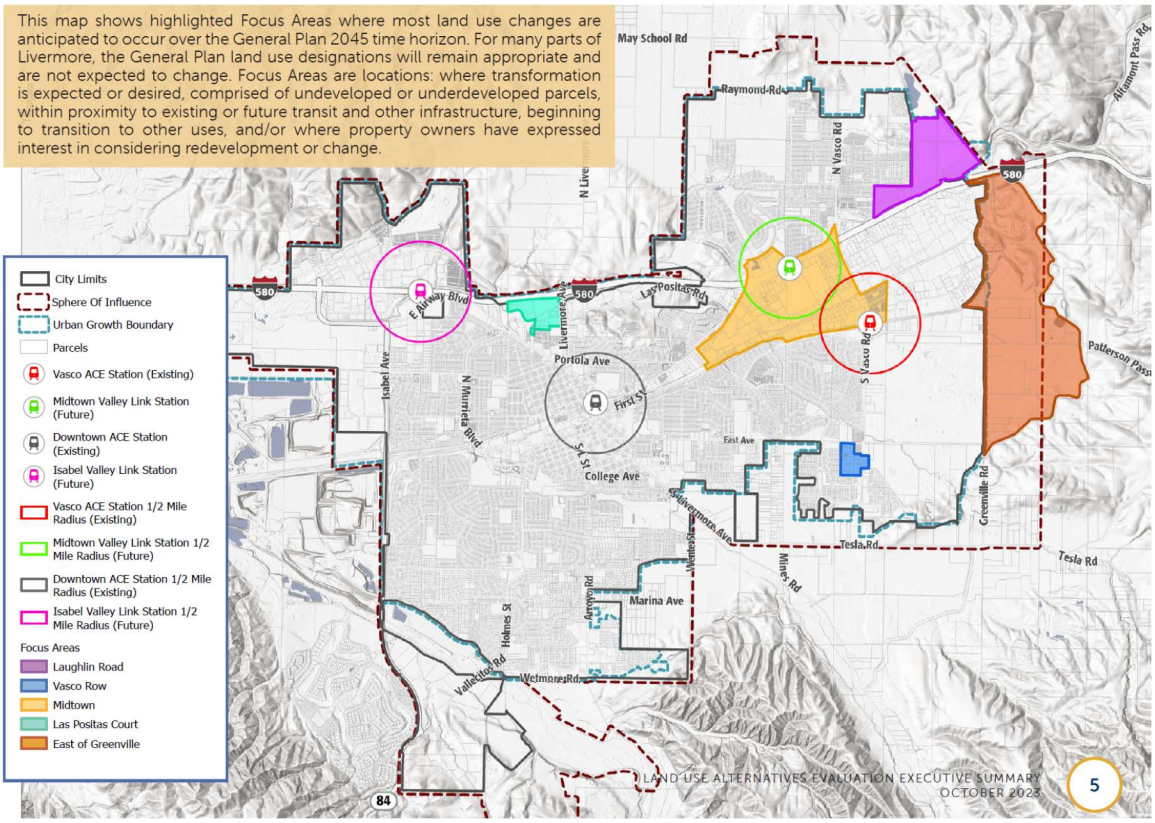
Just over 5,000 new units are anticipated to be necessary to accommodate growth. Approximately 4,000 new units must be accommodated by rezoning existing land. The biggest opportunities for this are around Stoneridge Mall, Hacienda Business Park, and around the intersection of Stanley Blvd and Valley Ave.

GENERAL PLANS AND NEIGHBORHOOD SPECIFIC PLANS

Imagine Livermore 2045 General Plan Update

This planning effort is currently ongoing. Two of the land use alternatives developed through the plan can have significant impacts on the need for transit within Livermore. The Isabel Neighborhood area (discussed above) is one. The other is the area around the proposed Southfront Station, or Midtown Livermore. Rezoning in the Midtown Focus Area could transition the area away from industrial land uses to more residential and commercial areas.

Figure 2-4 Imagine Livermore 2045 General Plan Land Use Alternatives Map



Isabel Neighborhood Specific Plan

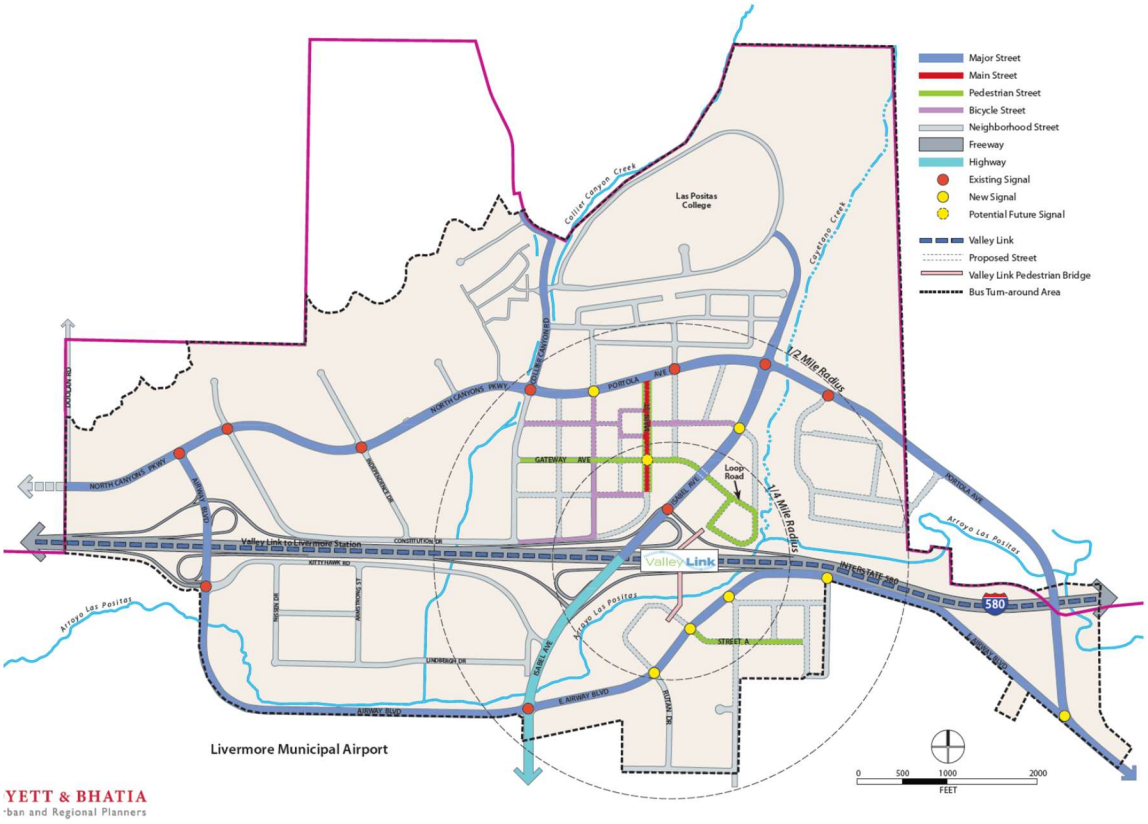
The Isabel Neighborhood Specific Plan would allow development of 4,095 new multi-family housing units and approximately 2.1 million square feet of net new office, business park, and

commercial development (including a neighborhood commercial center). It also envisions three new neighborhood parks, pedestrian and bike facilities, and infrastructure improvements. The majority of changes are focused around the future Valley Link rail station, which would be located in the median of I-580, just east of Isabel Avenue.

The three primary objectives of the Isabel Neighborhood Specific Plan are to:

- Create a safe, vibrant neighborhood that includes amenities for residents, workers, and students and that is compatible with existing development and community character.
- Support citywide goals for increased transportation options, housing choices, and economic vitality.
- Support the Valley Link rail project through development of a complete neighborhood.

Figure 2-5 Isabel Neighborhood Specific Plan Area Map



3 DEMOGRAPHIC ANALYSIS

LAVTA's Short-Range Transportation Plan (SRTP) was developed during the COVID-19 pandemic, a time of significant demographic and labor shift, both of which impact transit service feasibility. To account for these demographic shifts, the Long-Range Transportation Plan includes an updated demographic and employment analysis with more recent data from the US Census Bureau that better reflects the current conditions within the LAVTA service area. This chapter of the LRTP uses 2020 American Community Survey (ACS) population and demographic data and 2019 Longitudinal-Employer Household Dynamics (LEHD) employment data to paint an updated picture of LAVTA's customer base, identify areas with higher demand for transit, and determine areas with high concentrations of people that are more likely to rely on transit service.

KEY FINDINGS

- Transit demand is generally concentrated in downtown Livermore, Pleasanton, and along major arterials.
- The highest-density employment areas do not align with existing or future high-capacity transit (BART, ACE, Valley Link). These areas will continue to require reliable bus service to connect workers to their employment opportunities and regional transportation alternatives.
- Growth in transit-dependent populations like zero-vehicle households and seniors is outpacing general population growth, which may increase demand for transit and support higher frequency service and additional routes.

DEMOGRAPHICS

Figure 3-1 provides a summary of various demographic indicators in the Tri-Valley. For each indicator, the table lists the total number of people in the service area, areas with higher densities, and potential gaps in transit service provision. Maps of each indicator are available on subsequent pages.

Figure 3-1 Demographic Details

Indicator	Total within LAVTA Service Area	High Density Areas	Potential Service Gaps
Population Figure 3-2	241,639 Population, 2020 ACS 5-Year Estimates	▪ Downtown Livermore, between Portola Avenue and the ACE corridor ▪ Dublin between Central Parkway and I-580 ▪ Multi-family residential complexes along W Las Positas Blvd ▪ Multi-family residential complexes near First St & Vineyard Ave	▪ Holmes St corridor in Livermore
Employment Figure 3-4	147,719 Employment, 2019 LEHD	▪ West Pleasanton, in and around the Stoneridge shopping center ▪ Hacienda Business Park area in Pleasanton ▪ Central Pleasanton, along Santa Rita Rd/Main St ▪ Central Dublin, between Amador Valley Boulevard and I-580 ▪ Lawrence Livermore and Sandia National Laboratories ▪ Downtown Livermore, between College Ave and the ACE corridor	▪ Lawrence Livermore and Sandia National Laboratories ▪ U.S. Army Camp Parks ▪ Central Livermore at Concannon Blvd and Holmes St
Zero-vehicle households Figure 3-8	3,272 People living in households without access to a vehicle, 2020 ACS 5-Year Estimates	▪ Central Livermore, within one mile of the Livermore ACE station	▪ Livermore neighborhood south of Granada High School

Indicator	Total within LAVTA Service Area	High Density Areas	Potential Service Gaps
Low-income households Figure 3-7	11,832 People living in households with incomes below $50,000, 2020 ACS 5-Year Estimates	▪ Downtown Livermore, within one mile of the Livermore ACE station ▪ Vineyard Avenue corridor in Pleasanton ▪ Alamo Creek Villas, immediately west of Camp Parks on Dougherty Road ▪ Westport Village corridor between Dublin Blvd and Gleason Dr ▪ West Pleasanton at W Las Positas Blvd and I-680	▪ West Pleasanton at W Las Positas Blvd and I-680
Older adults (65+) Figure 3-9	31,547 People aged 65+, 2020 ACS 5-Year Estimates	▪ Central and South Livermore, south of Portola Avenue and west of Wente Street ▪ Central Pleasanton, south of Stoneridge Drive and west of Iron Horse Trail ▪ Alamo Creek Villas, immediately west of Camp Parks on Dougherty Road ▪ East Pleasanton, east of Santa Rita Road and between Stoneridge Drive and I-580 ▪ Westport Village corridor between Dublin Blvd and Gleason Dr ▪ West Pleasanton at W Las Positas Blvd and I-680	▪ South Livermore, south of 4th Street and Stanley Boulevard

Indicator	Total within LAVTA Service Area	High Density Areas	Potential Service Gaps
People with disabilities Figure 3-10	7,253 People with a disability; 2020 ACS 5-Year Estimates	▪ East Avenue corridor in Livermore ▪ Central Livermore east of Rincon Ave ▪ Central and West Pleasanton, along Las Positas Blvd west of Santa Rita Rd	▪ South Livermore, south of 4th Street and Stanley Boulevard
People identifying as a race/ethnicity other than White Figure 3-11	127,961 People identifying as a race/ethnicity other than White alone; 2020 ACS 5-Year Estimates	▪ Central Pleasanton, near the intersection of Las Positas Boulevard and Santa Rita Road ▪ Downtown Livermore, south of Portola Avenue ▪ Alamo Creek Villas, immediately west of Camp Parks on Dougherty Road ▪ Central Dublin north of I-580 between Fallon Rd and Dougherty Rd	▪ South Livermore, south of 4th Street and Stanley Boulevard ▪ West Dublin

POPULATION AND EMPLOYMENT

For scheduled transit to be successful, it must be direct, frequent, easy to access, and available when people need it. For non-school routes, more than any other factors, population and employment density determines whether this is possible:

- Transit needs to serve sufficiently high volumes of travelers to be cost-effective, and the density of development in an area determines the overall size of the travel market. The reach of transit is generally limited to within one-quarter to one-half mile of the transit line or station; thus, the size of the travel market is directly related to the density of development in that area.
- To attract travelers who have other options, such as automobiles, transit must be relatively frequent. Typically, 30-minute service is the minimum service level to attract all potential users. Below that, transit can be expected to serve only those who do not or cannot drive. Further improvements to frequency, better than 30 minutes, may attract even more potential riders.

Population-Based Demand

Demand for transit service is derived in part from having a population base to support that demand for transit service. The population density of a place can indicate what kind of transit service may be appropriate and how frequently it should operate; an area with higher population density can support more frequent transit service

Overall population densities are relatively low (below 10 residents per acre) in many areas of the Tri-Valley, and few areas are able to support high-frequency transit service, with headways of 15 minutes or less, based on population density alone. Population density is highest in the following areas, which may support transit service frequencies of 15 minutes or better:

- Downtown Livermore, within roughly one mile of the Livermore ACE station
- North Central Pleasanton, within roughly ¼ mile north or south of Las Positas Boulevard
- North Central Dublin, along Dougherty Rd, such as Alamo Creek Villas
- East Dublin between Dublin Blvd and Gleason Dr
- East Livermore multi-family developments, just west of Lawrence Livermore National Laboratory

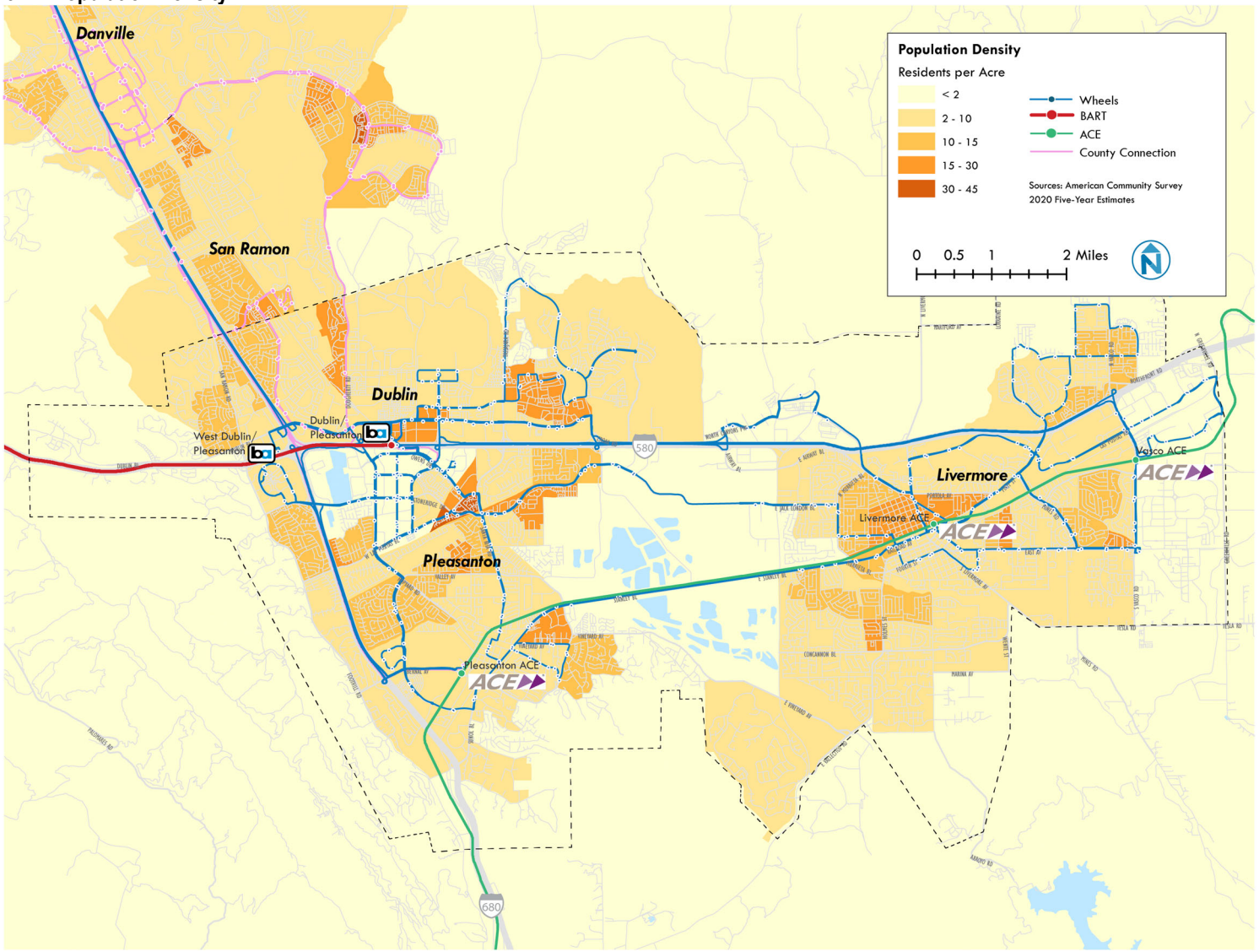
There are some areas that are not currently served by transit but have the density to support future high-frequency service. These include:

- Southwest Livermore, near Granada High School and Robertson Park
- Central Pleasanton, along Valley Ave between Santa Rita Rd and Hopyard Rd

In other areas of the Tri-Valley, current population densities are more likely to support transit service frequencies of between 15 and 60 minutes. However, some portions of the Tri-Valley have low population densities of fewer than two residents per acre, and these areas may not support fixed-route transit service based on population density alone. In addition to low population densities, these areas typically feature challenging topography, circuitous roadway networks, limited pedestrian facilities, or other features that make operating fixed-route service difficult. Such low-density areas unlikely to support fixed-route service include:

- Schaefer Ranch
- Hillside communities of Pleasanton west of Foothill Road
- Hagemann Ranch neighborhood of Livermore, between Jack London Boulevard and Stanley Boulevard, Isabel Avenue, and Murrieta Boulevard
- Other residential areas of Livermore generally south of Concannon Boulevard and east of Holmes Street

Figure 3-2 Population Density



Employment-Based Demand

The concentration of jobs is also an indication of the level of transit service that may be useful and productive. Like population density, the underlying demand for transit generally grows with an increase in employment density. In general, an area with two to five jobs per acre can support hourly transit service while an area with five to 10 jobs per acre can support service every thirty minutes. Understanding where there is a concentration of jobs and when people need to be commuting is important when thinking about transit service because in many places, transit services are largely supporting trips to and from work. The employment density map for the Tri-Valley is included in Figure 3-4

Major employment centers of the Tri-Valley are generally distinct from the areas with highest population density identified in the preceding section. Some of the most significant employment centers in the LAVTA service area include:

- Lawrence Livermore and Sandia National Laboratories;
- Stoneridge Mall;
- Central Livermore, between 4th Street and the ACE corridor;
- Central Pleasanton, between Las Positas Boulevard and I-580;
- Central Dublin, along Dublin Boulevard

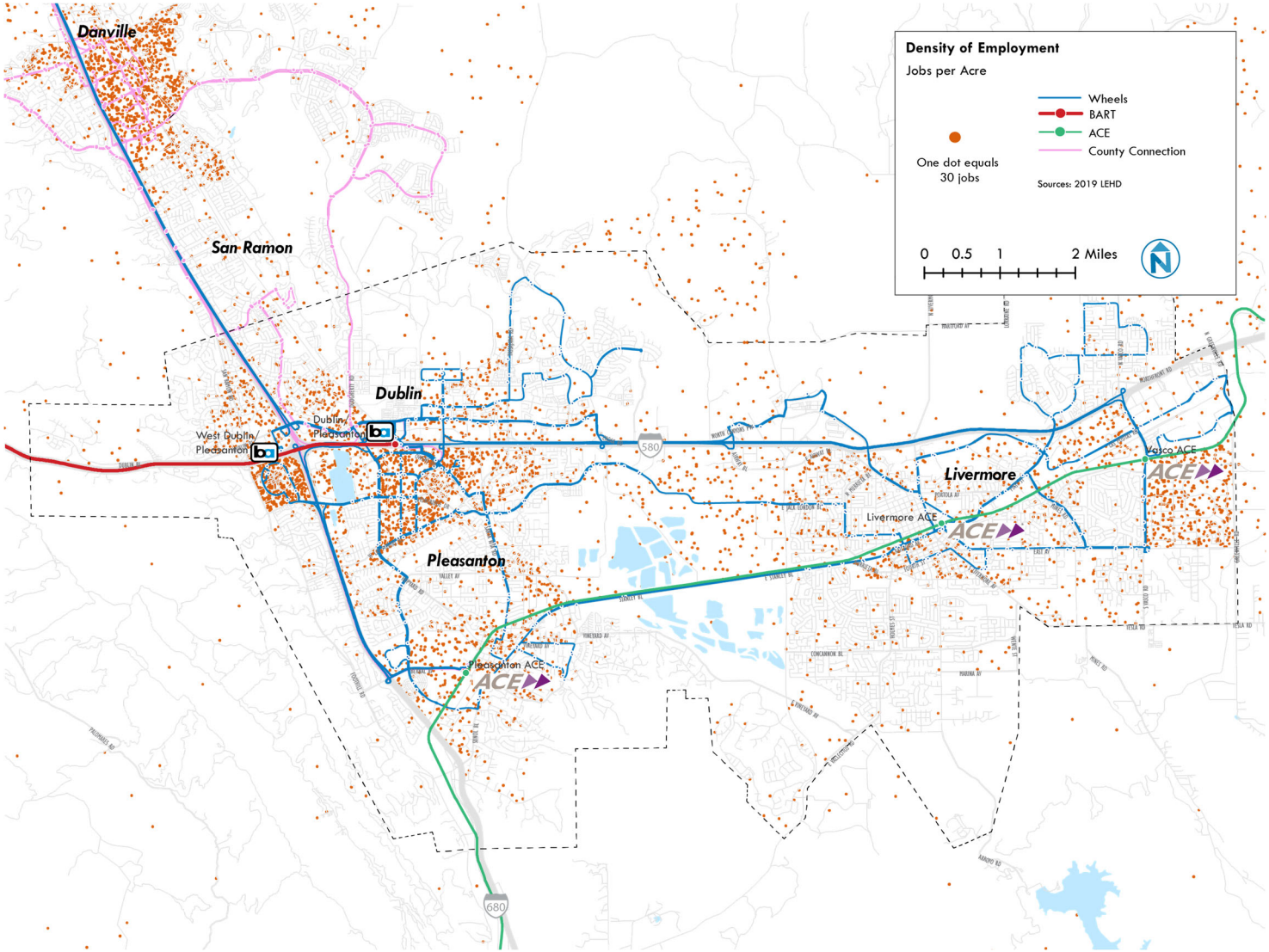
Some of the largest employers associated with each of these areas are shown Figure 3-3.

Figure 3-3 Selected Large Tri-Valley Employers

Employment Center	Largest Employers
Dublin	Alameda County's Santa Rita Jail and the Federal Correctional Institute (FCI), Ross Stores HQ, Zeiss Meditec
Stoneridge Mall	Safeway HQ, Workday, Macy's, 10x Genomics
Hacienda Business Park (Pleasanton)	Oracle, Kaiser Permanente, State Fund - Compensation Insurance, Stanford Healthcare ValleyCare, Clorox
Lawrence Livermore/Sandia National Laboratories	
Livermore	Stanford Healthcare ValleyCare, FormFactor, US Foods

Sources: City of San Ramon; City of Dublin Comprehensive Annual Financial Report FY 2021, p. 200; City of Pleasanton; Livermore Chamber of Commerce

Figure 3-4 Employment Density



Composite Density of Population and Employment

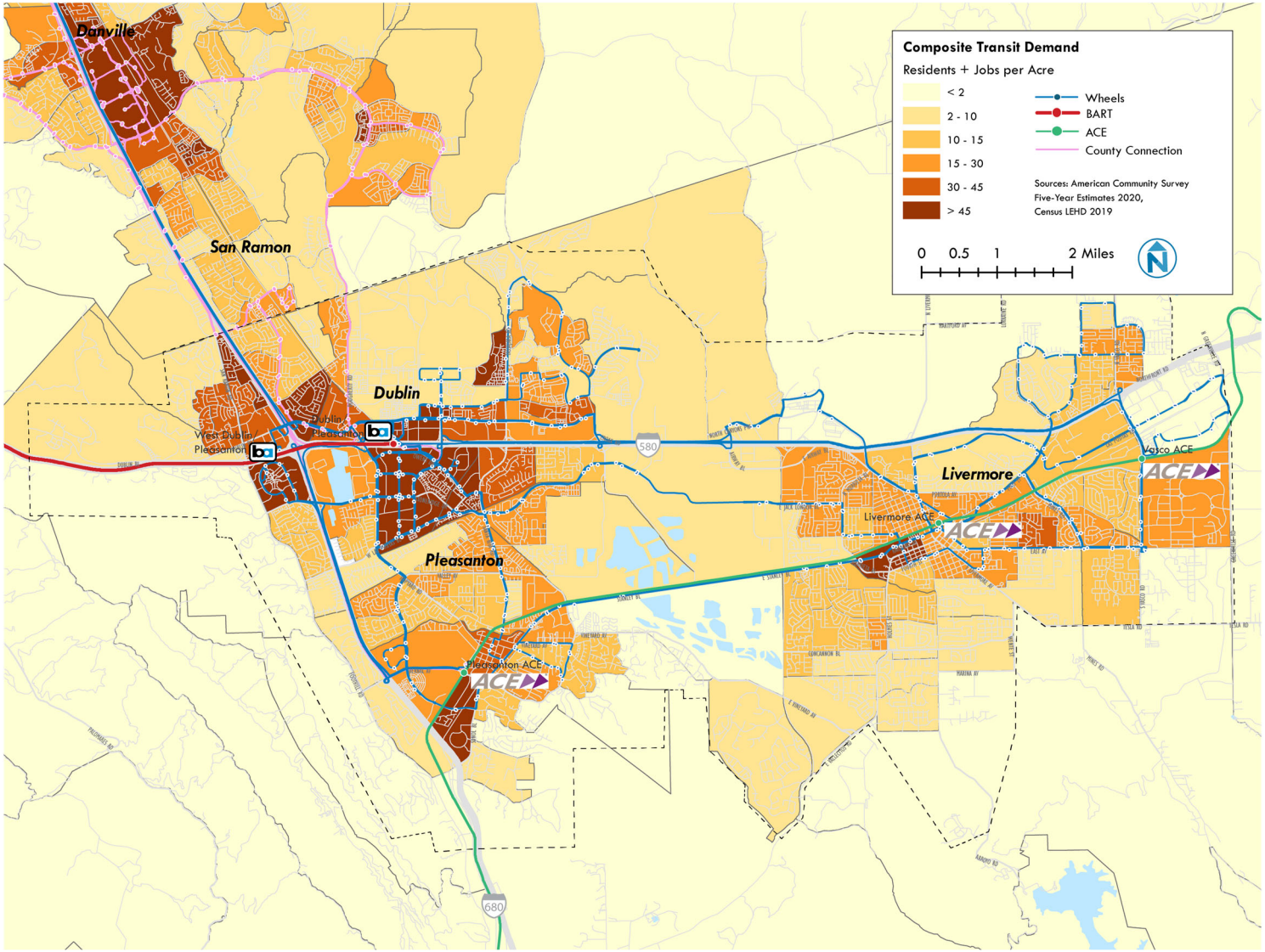
Combining the employment density and adjusted population density maps allows us to layer the potential demand for transit based on population, employment, and socioeconomic characteristics in one value and one map. The composite transit demand based on population and employment, combined, is shown in Figure 3-5

Areas of high population and employment density include:

- Downtown Dublin between Gleason Dr and Dublin Blvd
- Central Dublin on either side of I-680 at the I-580 Junction
- Downtown Livermore along the ACE corridor
- South Pleasanton along the ACE corridor

Currently, all of these areas are well served by existing LAVTA routes, except for the residential areas due West of I-680 in Central Dublin. As this area continues to grow, it will be important to provide local service to the residents and employees of the neighborhood. Local service in this area will be restored through the Wheels in Motion plan discussed in Chapter 4 of this report.

Figure 3-5 Composite Transit Demand



DEMOGRAPHIC TRENDS

Trends in demographic indicators help to understand changes over time, and changes to anticipate in the future. Figure 3-6 lists each of the demographic indicators found within the LAVTA service zone, with values from 2018 and 2020. All indicators except low-income households have increased over the two-year period.

The indicators that increased the most, and at rates higher than the growth in population, are: older adults (65+), people who identify as a race/ethnicity other than white, employment, zero-vehicle households. Populations of low-income households declined significantly, likely the result of the Bay Area's affordable housing crisis pushing these communities to lower-cost regions as higher income households, also displaced by the housing crisis, continue to move further out.

Figure 3-6 Change in Demographic Indicators

Indicator	2018	2020	Change	Percent Change
Population	236,804	241,639	4,835	2%
Employment	142,850*	147,719**	4,869	3%
Zero-vehicle households	3,050	3,272	222	7%
Low-income households	13,353	11,832	(1,521)	-11%
Older adults (65+)	29,527	31,547	2,020	8%
People with disabilities	7,110	7,253	143	2%
People identifying as a race/ethnicity other than White	114,867	127,961	13,094	11%

Source: 2014-18 and 2015-2020 ACS 5-Year Estimates

* 2017 LEHD Data

** 2019 LEHD Data

Figure 3-7 Density of Residents with Low Incomes

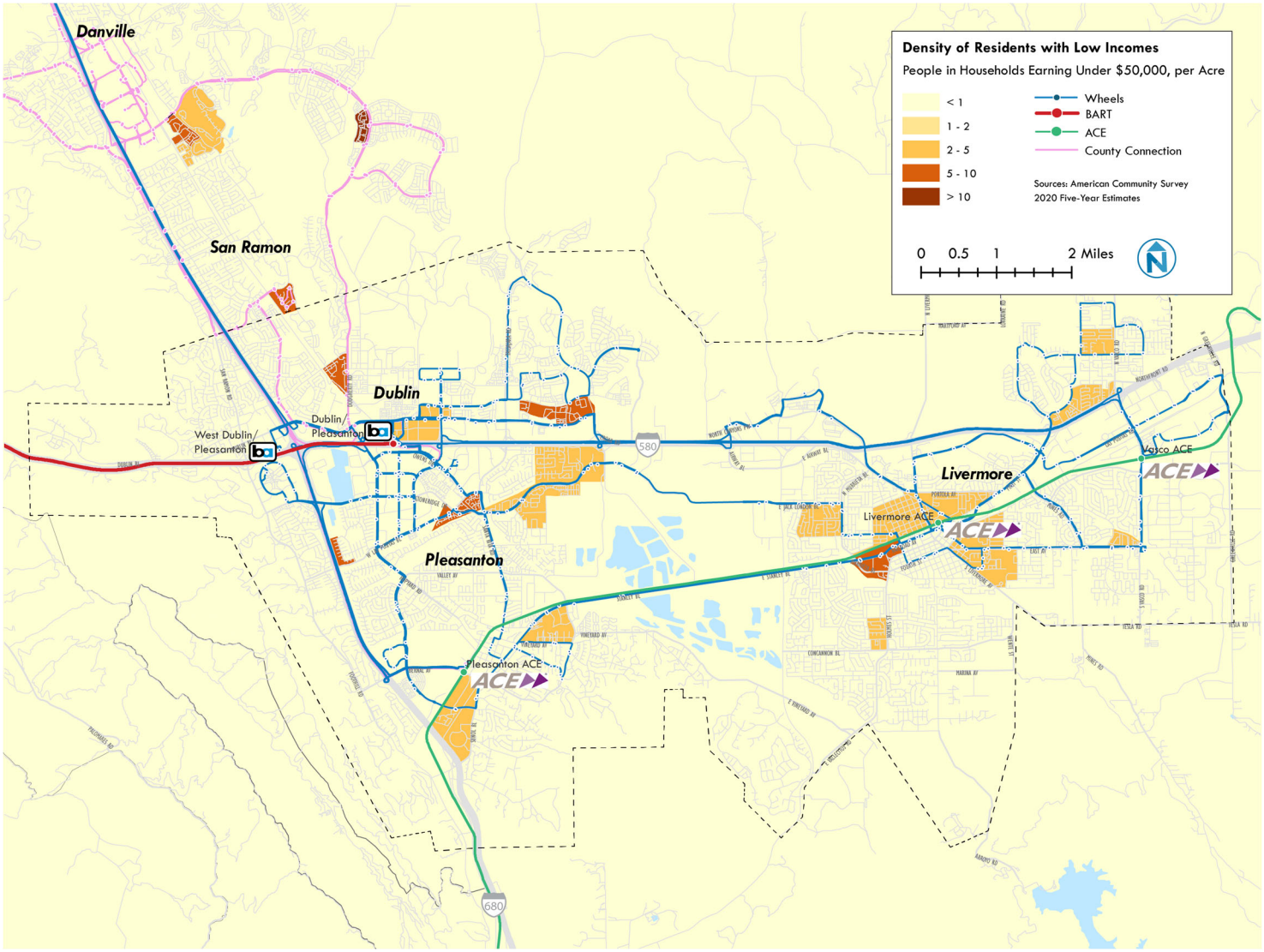


Figure 3-8 Density of Zero Vehicle Households

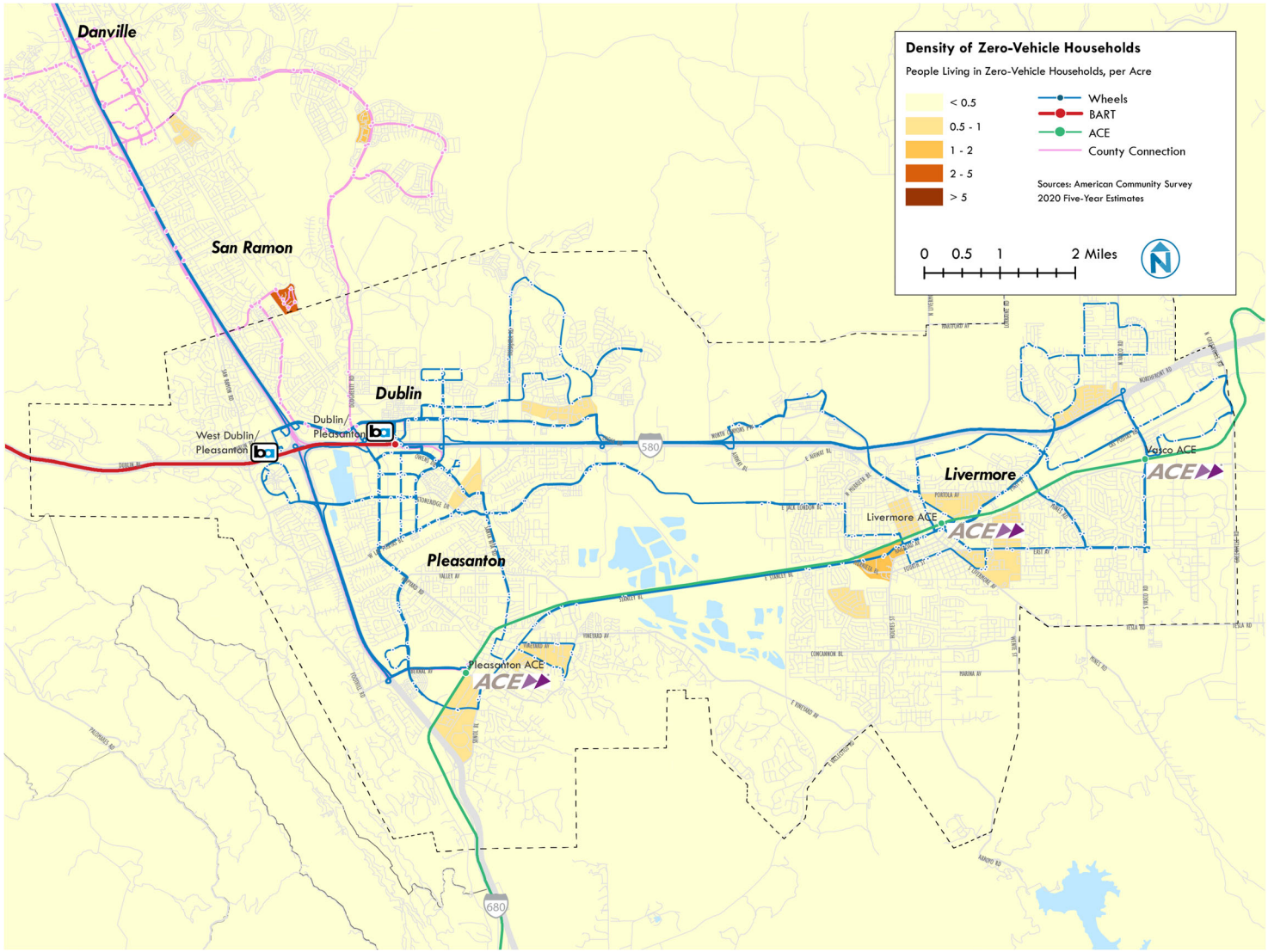


Figure 3-9 Density of Older Adults (65+)

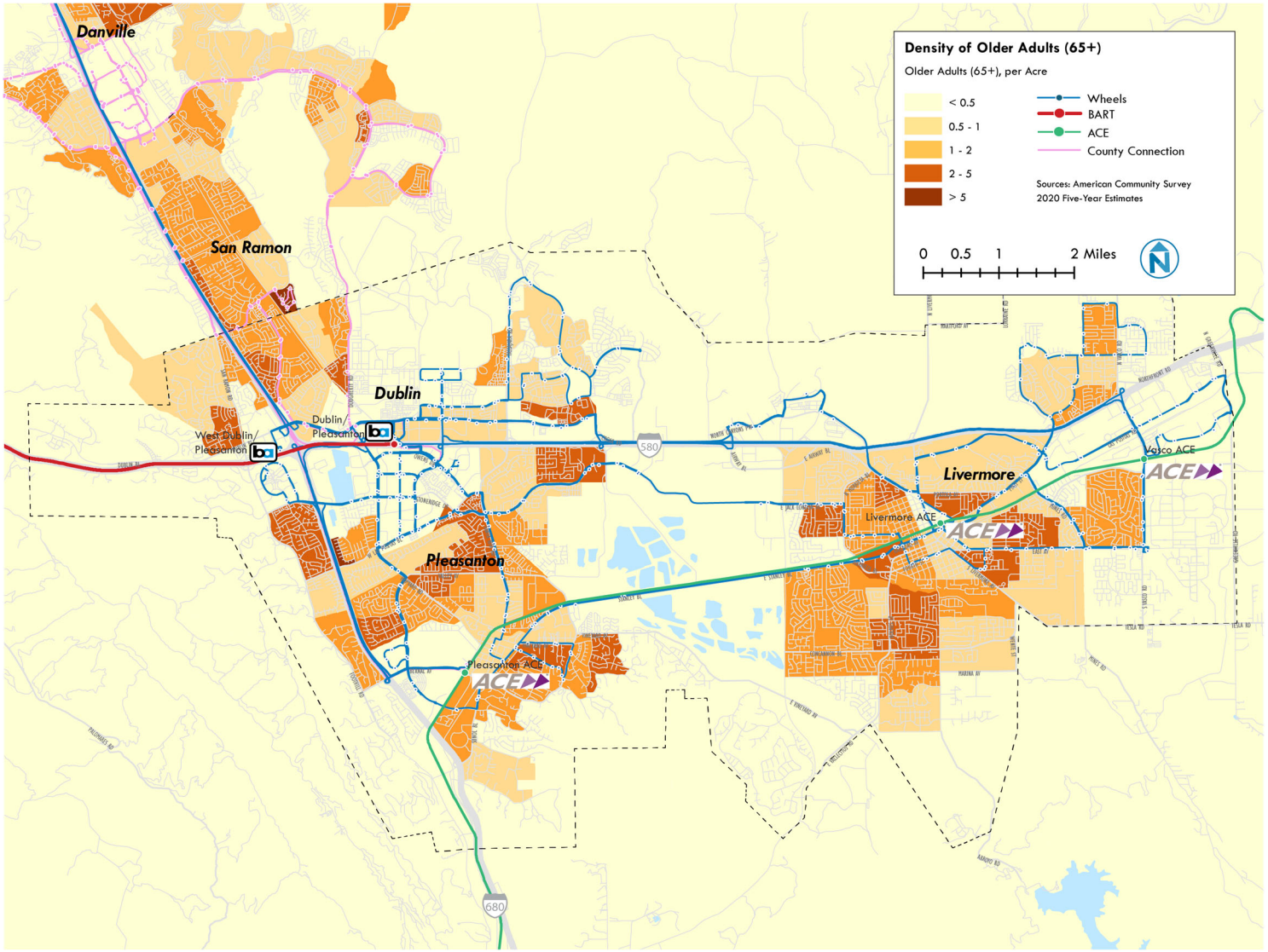


Figure 3-10 Density of People with Disabilities

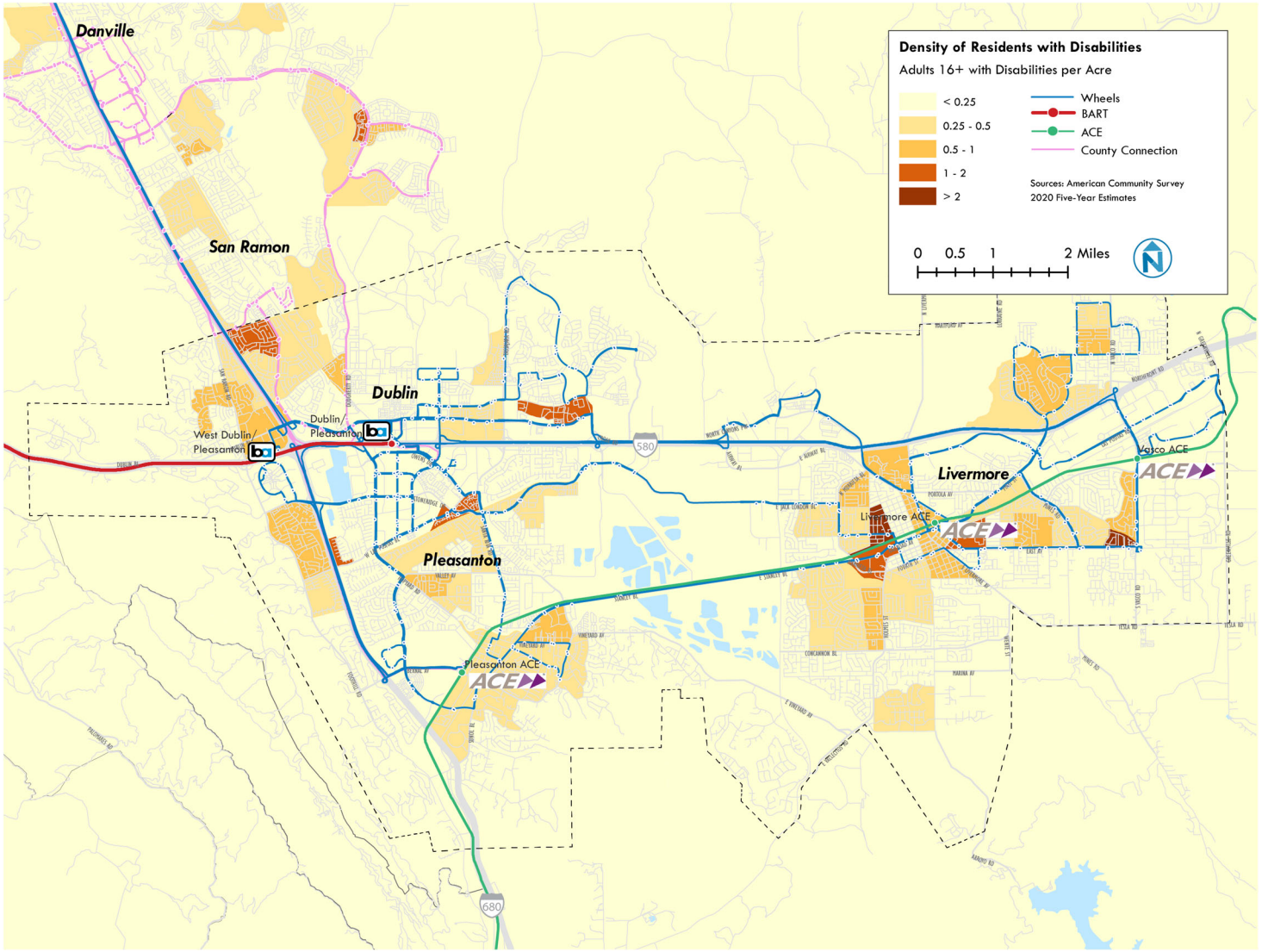
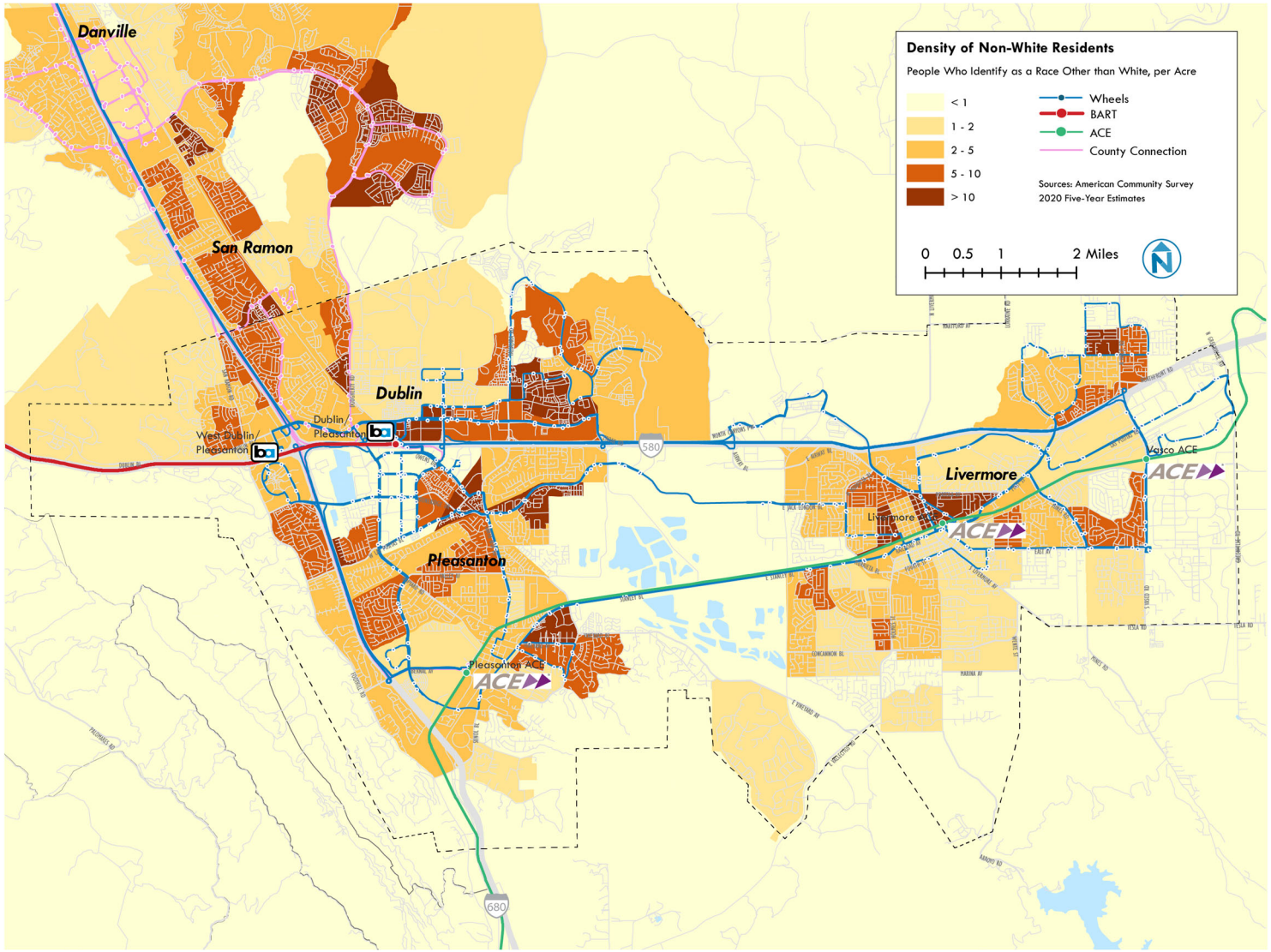


Figure 3-11 Density of Non-White Residents



TRANSIT PROPENSITY INDEX

The combination of the demographic variables presented previously indicate locations where transit demand is expected to be highest. When just identifying where there is population dense enough to support transit use, it is possible to overlook areas with perhaps lower population density, but a higher likelihood of using transit, and focus on areas that may have greater population density but people living there who are less likely to use transit.

Certain factors may play a more dominant role in an individual's decision to use transit, though the variables are all weighted equally in this analysis for simplicity. Transit propensity in LAVTA's service area was evaluated by the density of people with the following attributes:

- **Vehicle Ownership**: People living in households without a vehicle, either by choice or due to limited resources, are more likely to use transit than those with access to a car.
- **Household Income**: Owning and operating a car is expensive. People living in households with low incomes, earning less than $50,000 per year, are more likely to use local bus service more regularly than other groups due to limited access to a vehicle, and they may rely on transit as their primary mode of transportation.
- **Race and Ethnicity**: Residents who identify as a race/ethnicity other than white generally have higher rates of transit use, and the provision of effective transit service to minority populations is also particularly important to the Federal Transit Administration and is a requirement under Title VI of the Civil Rights Act of 1964.
- **Disability Status**: People with disabilities[1] may be more likely to rely upon public transit and paratransit services to get around, particularly if the nature of their disability prevents them from driving.

Figure 3-12 shows the areas with highest transit propensity. The figure also shows transit demand outside of LAVTA's service area, such as San Ramon and Danville, to compare transit demand with neighboring municipalities. The figure indicates the areas with the highest transit demand are:

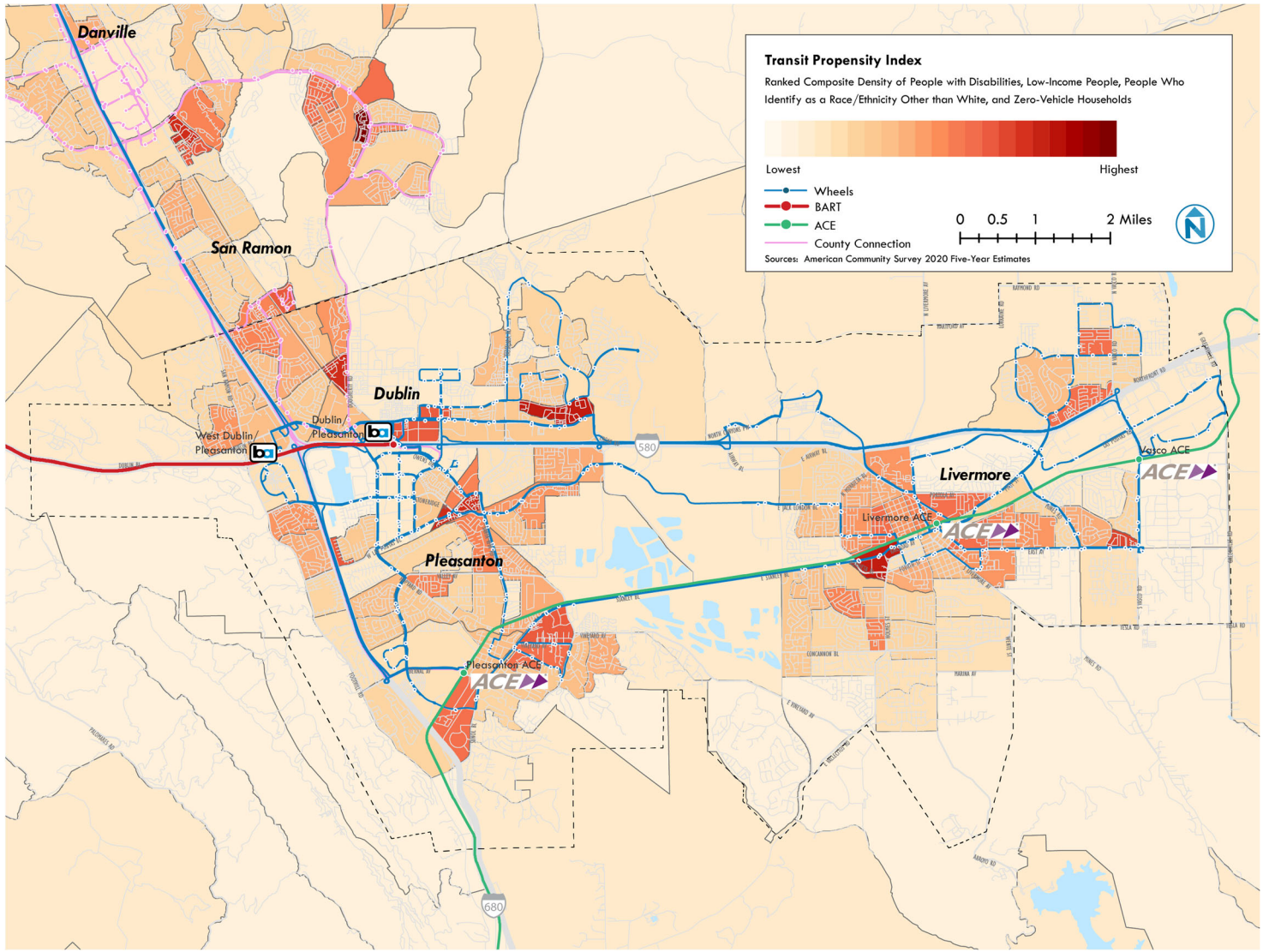
- In Livermore, within roughly one mile of the Livermore Transit station;
- The East Avenue corridor in Livermore;
- The multi-family apartment communities in central Pleasanton, near the intersection of Las Positas Boulevard and Santa Rita Road.

[1] This analysis analyzes disability status among the population ages 20 to 64, per the universe defined by the American Community Survey's Table B23024.

- The multi-family apartment communities in northeast Dublin between Dublin Blvd and Gleason Dr
- Residential areas of Pleasanton south and east of the ACE line

These areas are all served by transit. One notable area with moderate levels of transit demand but no transit access is in Livermore south of 4th Street. There is also high transit propensity in several northwest Dublin neighborhoods that are not served by LAVTA but are served by County Connection. LAVTA intends to start serving these areas in the upcoming 2024 service change.

Figure 3-12 Transit Propensity Index



4 LAVTA WHEELS IN MOTION NETWORK CHANGES

One of LAVTA's largest traditional markets has been to connect Tri-Valley destinations to BART. Prior to the pandemic, BART station parking was often at or over capacity, leaving LAVTA one of the only consistent, reliable ways to access BART.

The pandemic and its aftermath have led to changed Bay Area travel patterns, particularly for white collar workers, which made up much of BART's ridership. BART ridership has been among the slowest of all major transit agencies to recover from the pandemic. In late 2023, BART changed schedules to better match the new demand profile. In the Tri-Valley, BART changed Blue Line schedules to operate every 20-minutes, seven days a week. Prior to the pandemic, BART had operated every 15-minutes for most of the day on weekdays, with less frequent service on evenings and weekends. BART implemented these changes in Fall 2023.

Traditionally, LAVTA's routes were designed for timed connections at Dublin/Pleasanton BART, with bus service coming every 15, 30, or 60-minutes. After Fall 2023, LAVTA buses no longer easily connect with most BART trains.

In late Summer 2023, LAVTA initiated the process to better match its schedules with BART. Three different scenarios were developed and presented to the Tri-Valley public and stakeholders. The public clearly supported shifting service times from traditional 15/30/60 minute frequencies to BART's 20/40/60 minute frequencies. With minor modifications, the most publicly supported alternative was prepared for implementation in 2024. The preferred 2024 service network did not require additional service hours or buses to implement.

This chapter describes the route network that LAVTA will be implementing in early 2024. This network forms the basis for the LRTP.

Spring 2024 Route Level Changes

The section describes the proposed changes from 2023 service patterns to Spring 2024. The changes better align with changed BART schedules and are cost neutral. In some instances, route frequencies are reduced from 30 minutes to 40 minutes. Typically, reducing service levels from 30 minutes to 40 minutes should be avoided due to ridership loss. However, historically, a majority of trips on LAVTA were transferring to or from BART, suggesting that a timed transfer to the new BART schedule was more important than maintaining a base frequency on a corridor. Public feedback prior to the service change confirmed that transfers to BART should be prioritized.

Route 1

The alignment and service span for Route 1 would be unchanged. Weekday peak service frequency would be reduced from 30 minutes to 40 minutes to more effectively align with transfer opportunities at the East Dublin/Pleasanton BART Station.

Route 2

The service span of Route 2 would be extended to provide two additional trips in both the morning peak period between 7:30 am and 9:30 am and in the afternoon peak period between 3:15 pm and 6:00 pm. The alignment and frequency of the route would be unchanged.

Route 3

The alignment and service span for Route 3 would be unchanged. Weekday peak service frequency would be reduced from 30 minutes to 40 minutes to more effectively align with transfer opportunities at the East Dublin/Pleasanton BART Station. Route 3 would continue to operate hourly during off-peak times.

Route 4

Route 4 would be a new service operating between the West Dublin BART Station and the East Dublin/Pleasanton BART Station along Golden Gate Dr, Dublin Blvd, Amador Valley Blvd, Village Pkwy, Alcosta Blvd, Stagecoach Rd, Dougherty Rd, Horizon Pkwy, and Sterling St. The route would provide direct connections between both BART stations in Dublin with Dublin High School, the Alcosta Blvd Walmart, two senior centers, and growing residential areas along Horizon Pkwy.

The route would provide weekday peak only service every 40 minutes between 6:30 am and 9:30 am and between 2:30 pm and 7:30 pm. The route would also operate every 40 minutes on Saturdays.

Route 8

The alignment and service span for Route 8 would be unchanged. Weekday peak service frequency would be reduced from 30 minutes to 40 minutes to more effectively align with transfer opportunities at the East Dublin/Pleasanton BART Station. Route 8 would continue to operate hourly during off-peak times.

Route 10R

The alignment for Route 10R would be unchanged. Route 10R would operate one hour later, until midnight, on weekdays. Weekday service would be reduced from every 15 minutes to every 20 minutes to better align with transfer opportunities at the East Dublin/Pleasanton BART Station. Evening service frequency would remain hourly. Saturday service frequency would also be improved from every 30 minutes to every 20 minutes. Sunday service frequency would be adjusted to 40 minutes.

Route 11

Route 11 would be restored to provide two weekday morning and afternoon trips between the Livermore Transit Center and the Vasco Rd ACE Station along First St, Las Positas Rd, Greenville Rd, and National Dr,

Route 14

The alignment and service span for Route 14 would be unchanged. Weekday peak service frequency would be reduced from 30 minutes to 40 minutes to more effectively align with transfer opportunities at the East Dublin/Pleasanton BART Station. Route 14 would continue to operate hourly during off-peak times.

Route 15

The alignment and service span for Route 15 would be unchanged. Weekday peak service frequency would be improved from 30 minutes to 20 minutes to more effectively align with transfer opportunities at the Livermore Transit Center. Route 15 would continue to operate hourly during off-peak times.

Route 18

Route 18 would be a new service between the Livermore Transit Center to the Railroad Ave Safeway and P St before operating a clockwise loop around Fourth St, Holmes St, Concannon Blvd, El Padro Dr, El Caminito, Wall St, and Stanley Blvd. The route would provide service to Mendenhall Middle School and operate with weekday peak only service every 40 minutes between 6:30 am and 9:00 am and between 3:00 pm and 7:00 pm.

Route 20X

Route 20X currently provides peak only service between the East Dublin/Pleasanton Bart Station and the Livermore Transit Center along Dublin Blvd, Hacienda Dr, I-580, Vasco Rd, East Ave, N Mines Rd, and First St. Additional service will be added to Route 20X in March to better serve commuters and to support the future Valley Link service. Nearly all of this route would be duplicated by a combination of the planned Valley Link alignment and the new connector route between the Southfront Valley Link Station and Lawrence Livermore National Laboratory. Only the small segment along N Mines Rd and First St would no longer be served.

Route 30R

The alignment of Route 30R and span of service would remain unchanged. Service frequency would also be reduced on weekdays from every 15 minutes to every 20 minutes to more effectively align with transfer opportunities at the East Dublin/Pleasanton BART Station. Saturday service frequency would shift to every 40 minutes, while Sunday service would continue to run hourly. Evening service would be hourly seven days a week.

Route 70X

Route 70X currently provides direct commuter service between the East Dublin/Pleasanton BART Station and Walnut Creek along I-680. Route 70X would be extended into the Hacienda business Park. A third afternoon trip will be added to Route 70X.

Route 53

Route 53 currently provides weekday peak only service between the Pleasanton ACE station and Stoneridge Mall. This route would be unchanged.

Route 54

Route 54 currently provides weekday peak only service between the Pleasanton ACE Station and several employment centers including the Regus – Pleasanton – Bernal corporate park, Hacienda Business Center, and California Center before serving the East Dublin/Pleasanton BART Station. This route would be unchanged.

Route 580X

Route 580X would be restored and provide limited peak express service between the Livermore Transit Center and the East Dublin / Pleasanton BART station. The route will connect the future Isabel Road Valley Link Station and bring direct service to the LAVTA administrative office and adjacent industrial park. The route would provide weekday peak only service every 60 minutes between 7:30 am and 9:15 am and between 4:45 pm and 6:15 pm.

School Routes

No changes are made to school service as a result of the BART schedule changes. These routes will continue to be operated and reevaluated as school transportation needs evolve. However, planning for service to Emerald High School is underway and will be finalized in Summer 2024.

Monitoring of Wheels in Motion (Spring 2024) Route Level Changes

The Spring 2024 service network introduces service into new lower density areas. LAVTA staff will closely monitor results of new services to determine if the ridership response corresponds to the combination of density, schools, and employment along each route. If ridership response does not match the level of investment, alternative service delivery methods may be considered, such as microtransit or on-demand services.

Figure 4-1 LAVTA 2024 Network Weekday Frequency and Service Span

Route	Peak Frequency (mins)	Off-Peak Frequency (mins)	Service Span
1	40	60	6:00 am - 8:45 pm
2	60	-	7:30 am - 9:30 am; 3:15pm - 6:00 pm
3	40	60	6:15 am - 10:45 pm
4	40	-	6:30 am - 9:30 am; 2:30 pm – 7:30 pm
8	40	60	6:00 am - 8:45 pm
10R	20	20	4:15 am - 12:15 am
11			6:15 am - 7:30 am; 4:15 pm – 6:15 pm
14	40	60	6:30 am - 9:30 pm
15	20	60	4:45 am - 10:30 pm
18	40	-	6:30 am - 9:00 am; 3:00 pm - 7:00 pm
20X			7:30 am - 9:15 am; 4:00 pm – 6:30 pm
30R	20	20	5:00 am - 10:45 pm
53			5:30 am – 9:00 am; 4:00 pm – 7:20 pm
54			6:45 am – 8:20 am; 3:45 pm – 6:30 pm
70X	60	-	6:15 am - 8:15 am; 4:00 pm - 6:30 pm
580X	20	40	6:30 am - 9:15 am; 4:45 pm - 6:15 pm

Figure 4-2 LAVTA 2024 Network Weekend Frequency and Service Span

Route	Saturday Frequency (mins)	Sunday Frequency (mins)	Service Span
1	60	60	8:00 am - 9:15 pm
3	40	40	8:30 am - 10:45 pm
4	40	-	8:30 am - 7:30 pm
8	60	60	8:00 am - 9:15 pm
10R	20	40	5:00 am - 12:15 am
14	60	60	8:15 am - 10:00 pm
15	60	60	6:00 am - 9:30 pm
30R	40	60	5:15 am - 11:00 pm

5 RECOMMENDATIONS

Recommendations for the LAVTA LRTP were developed using previously conducted public input, an assessment of todays and future market conditions, regional transit plans, and local municipal plans. They build upon the upcoming changes that LAVTA is implementing in 2024 to better coordinate service with the revised BART schedules, namely BART going to 20-minute all day frequencies. In response to BART service operating every 20 minutes, local LAVTA service has been prioritized to operate every 20, 40, or 60 minutes to better align with planned rail frequencies and improve transfer timing between services. While 15, 30, and 60 minute frequency is typically considered a best practice, this 20, 40, 60 approach is tailored to the unique operating context in the Tri-Valley and the importance of timed connections to BART.

KEY ATTRIBUTES

These recommendations provide a series of improvements to LAVTA's transit network that align with public priorities, proactively serve future growth areas in the region, and align with new regional transit investments in the Tri-Valley. ***These recommendations are cost-unconstrained and will require additional capital and operating resources to implement.*** Specific recommended include:

- **New On-Demand Service** – Four new on-demand service zones are proposed within the City of Dublin north of I-580, the Isabel Avenue Valley Link Station Area, the Midtown Valley Link Station Area, and a portion of the City of Pleasanton south of I-580.
- **New Routes Serving More Areas** – Several new routes would be implemented providing more access to residential areas in Livermore, Dublin, and north along I-680.
- **Connecting Bus Service at Isabel Road Valley Link Station** – The existing Route 30R would deviate to provide direct access to the planned Isabel Avenue Valley Link Station. Likewise, existing Route 14 would deviate to connect to the south entrance of the planned Isabel Avenue Valley Link Station.

- **New Shuttle Routes Connecting to Midtown Valley Link Station** – Two new shuttle routes would be added connecting the Midtown Station to the residential areas north of I-580 and to Lawrence Livermore National Laboratory to the south.
- **Replacing Existing 580 Express Service with Valley Link Rail Service** – Some existing routes would be removed and replaced with the new Valley Link rail service.
- **Improved Weekend Frequency** – Routes 10R and 30R will operate every 20 minutes, 7 days per week.
- **New Regional Express Service** – A new express service operating along I-680 between the Pleasanton ACE Station, the East Dublin/Pleasanton BART Station, San Ramon, Walnut Creek, Contra Costa Centre, and Martinez is being explored as a partnership between LAVTA and County Connection. Service is anticipated to begin operations in 2026.

School Routes

This long-term vision for service does not include any assumed changes to school - oriented services. These routes will continue to be operated and reevaluated as school transportation needs evolve.

The complete recommended improvements map is shown in Figure 5-1 and the service span and frequency for each route is shown in Figure 5-2 for weekday service and Figure 5-3 for weekend service.

Service changes in the recommended network include several new services, slight alignment changes, and weekend frequency improvement.

Service Expansion Benefits

Through expanded fixed-route service and new on-demand service zones, there is anticipated to be:

- A 34% increase in residents with access to service (166,000 residents total)
- A 23% increase in jobs accessible by transit (93,000 jobs total)

Figure 5-1 LAVTA LRTP Recommended Improvements System Map

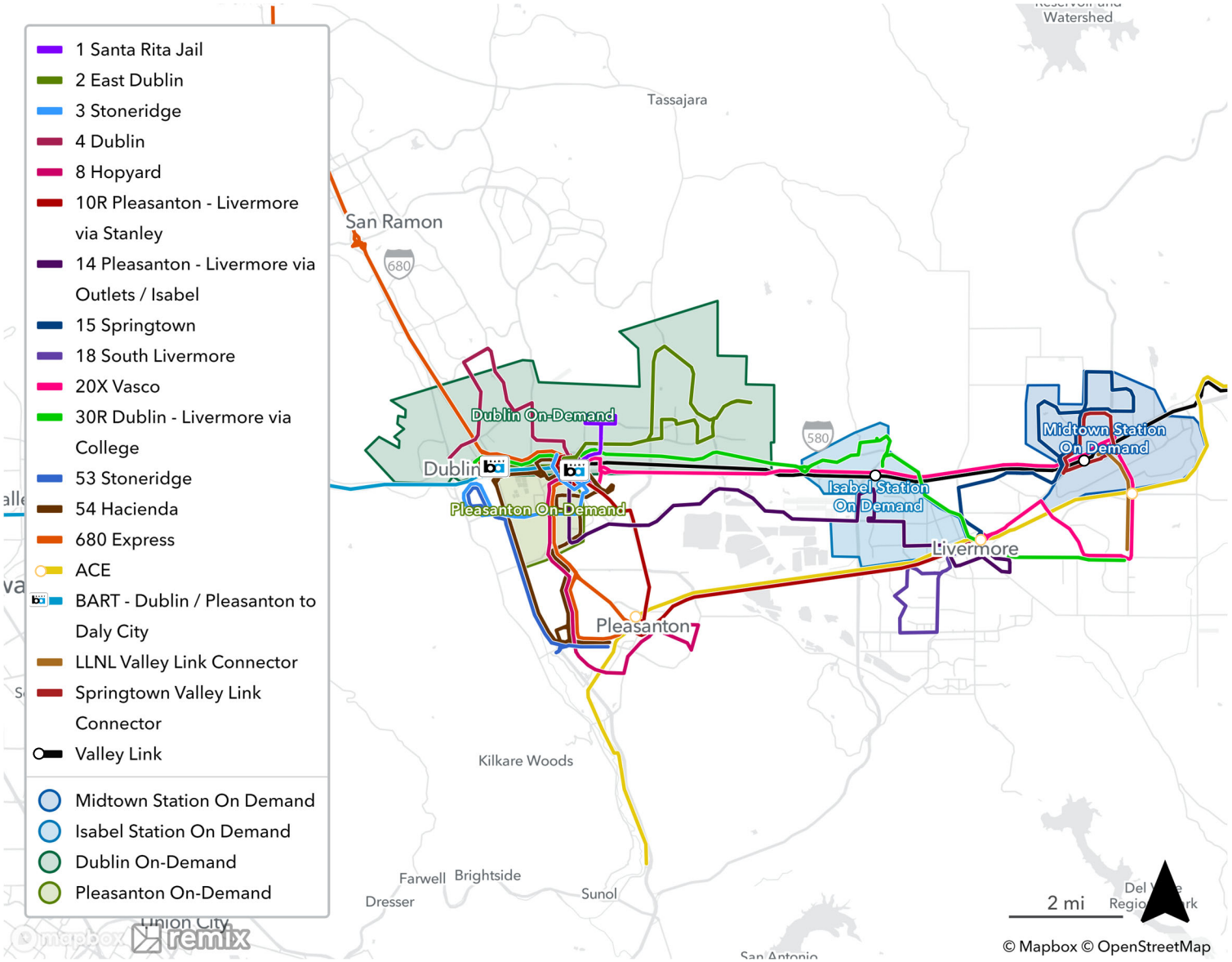


Figure 5-2 Long Range Recommended Weekday Frequency and Service Span

Route	Peak Frequency (mins)	Off-Peak Frequency (mins)	Service Span
1	40	60	6:00 am - 8:45 pm
2	60	-	7:30 am - 9:30 am; 3:15pm - 6:00 pm
3	40	60	6:15 am - 10:45 pm
4	20	60	6:30 am - 7:30 pm
8	40	60	6:00 am - 8:45 pm
10R	20	20	4:15 am - 12:15 am
14	20	40	6:30 am - 9:30 pm
15	20	60	4:45 am - 10:30 pm
18	40	-	6:30 am - 9:00 am; 3:00 pm - 7:00 pm
30R	20	20	5:00 am - 10:45 pm
New 680	30-45	60	7:30 am – 6:15 pm
Springtown Valley Link Connector	20	40	6:00 am - 9:00 am; 4:00 pm – 7:00 pm
LLNL Valley Link Connector	20	20	6:00 am - 9:00 am; 4:00 pm – 7:00 pm
Dublin On-Demand			6:00 am – 8:00 pm
Isabel Station On-Demand			6:00 am – 8:00 pm
Midtown Station On-Demand			6:00 am – 8:00 pm
Pleasanton On-Demand			6:00 am – 8:00 pm

Figure 5-3 Long Range Recommended Weekend Frequency and Service Span

Route	Saturday Frequency (mins)	Sunday Frequency (mins)	Service Span
1	60	60	8:00 am - 9:15 pm
3	40	40	8:30 am - 10:45 pm
4	40	60	8:30 am - 7:30 pm
8	60	60	8:00 am - 9:15 pm
10R	20	20	5:00 am - 12:15 am
14	60	60	8:15 am - 10:00 pm
15	60	60	6:00 am - 9:30 pm
30R	20	20	5:15 am - 11:00 pm
Dublin On-Demand			6:00 am – 8:00 pm
Isabel Station On-Demand			6:00 am – 8:00 pm
Midtown Station On-Demand			6:00 am – 8:00 pm
Pleasanton On-Demand			6:00 am – 8:00 pm

ROUTE LEVEL CHANGES

Long range route changes described here build on the anticipated Spring 2024 network that better connects to all-day 20-minute frequency BART service. Route changes are designed to support new growth areas and integrate the new Valley Link service into the LAVA network. Recommendations are cost unconstrained and would require additional buses and operating budget to implement.

While recommendations are made for about half of existing routes, none are made for Routes 1, 2, 3, 8, 15, and 18.

New Routes

Several new routes and services are included in these recommendations to improve access to growing residential areas and to complement the planned Valley Link investments in the Tri-Valley.

I-680 Express Service

This service would be a new regional express route providing direct connections between the Pleasanton ACE Station, the East Dublin/Pleasanton BART Station, San Ramon, Walnut Creek, Contra Costa Centre, and Martinez via I-680. Route 680 is currently being explored through a regional partnership with County Connection and specific funding and operating details have not yet been defined. The alignment in Dublin and Pleasanton has not been finalized and may be subject to change. A Memorandum of Understanding on the operating characteristics, operating costs, and operations responsibilities is currently being drafted and details are not yet finalized at the time of this report.

The long range transit plan assumes that Route 70X resources would be folded into the new I-680 Express Service, as almost all destinations Route 70X served would continue to be served by this new route. The decision to continue operating Route 70X after implementing I-680 Express Service has not yet been made.

Connecting to Fremont / Silicon Valley via I-680

The investment of new managed lanes on I-680 presents additional opportunities for LAVTA and other regional partners to explore additional commuter bus services further south along the I-680 corridor with service to Fremont. This should be considered in future study either led by LAVTA or other regional transit agencies.

LLNL Valley Link Connector

This new route provides a direct and convenient connection between the Midtown Valley Link station and Lawrence Livermore National Laboratory. The route would operate along Vasco Rd to and from the Lab.

The route would operate every 20 minutes on weekday peak periods only between 6:00 am and 9:00 am and between 4:00 pm and 7:00 pm. Service span may be adjusted as needed to align with Valley Link operations.

To further improve connections to Lawrence Livermore National Laboratory, there is an opportunity to explore potential partnerships for new services within the Laboratory campus. This could take the form of specialized on-demand service or shared autonomous vehicles to provide circulation functions within the campus. These recommendations are not identified in this document but should continue to be the focus of partnership conversations with Lawrence Livermore National Laboratory.

Springtown Valley Link Connector

This new route connects the Springtown residential area and the Midtown Valley Link Station. The route would operate a small clockwise loop north of I-580 to serve residential areas and return to the station area, along Vasco Rd, Scenic Ave, Heather Ln, Bluebell Dr, Springtown Blvd, First St, and Southfront Rd.

The route would operate every 20 minutes on weekday peak periods between 6:00 am and 9:00 am and between 4:00 pm and 7:00 pm. Midday, evening, and weekend service would be provided by the new Midtown Valley Link Station On-Demand service. Service span may be adjusted as needed to align with Valley Link operations.

Routes and Services with Alignment or Frequency Recommendations

Route 4

Route 4 service starts in 2024, operating between the West Dublin BART Station and the East Dublin/Pleasanton BART Station. The current alignment uses Dougherty Rd and Dublin Blvd to access the East Dublin/Pleasanton BART Station. When the streets are open, Route 4 should be realigned via Horizon Pkwy and Sterling St. to directly serve the Boulevard neighborhood.

Based on anticipated ridership and redevelopment along the line, Route 4 should be upgraded to 20 minute peak service during the morning and afternoon rush hour so that every train has a connecting bus. Route 4 would also operate on Sundays with hourly service.

Route 10R

The alignment and service span for Route 10R would be unchanged. Sunday service would be improved from 40 minute service to every 20 minute service to improve connectivity to more BART trains.

Route 14

The alignment for Route 14 would be altered to include a deviation to the Isabel Avenue Valley Link Station along Wright Brothers Ave, Rutan Dr, E Airway Blvd, and Isabel Ave. Service levels would be improved from 2024 service levels – with 20 minute weekday peak service, 40 minute weekday off-peak, and hourly service on weekends.

Route 30R

The alignment of Route 30R would be adjusted to provide more direct access to the Isabel Avenue Valley Link Station. This would increase one-way travel times by about 4 minutes. However, it would also provide more direct access from Valley Link to downtown Livermore and Los Positas College. Saturday and Sunday service frequency would also be improved to every 20 minutes.

Routes For Consideration of Future Consolidation

Regional investments such as Valley Link or the proposed Route 680 will affect several existing LAVTA routes, including Routes 11, 20X, 53, 54, and 70X. Service by these future investments will supplant and ultimately replace these services. Routes 11, 20X, and 70X will no longer be operating, but their travel markets will be served by alternative lines.

Route 11

Route 11 would be replaced by a new Midtown On-Demand Zone that is centered around the Midtown Valley Link station. The On-Demand service would provide more responsive service to the job-rich areas south of I-580, and offer later and earlier options.

Route 20X

Route 20X currently provides peak only service between the East Dublin/Pleasanton Bart Station and the Livermore Transit Center along Dublin Blvd, Hacienda Dr, I-580, Vasco Rd, East Ave, N Mines Rd, and First St. Nearly all of this route would be duplicated by a combination of the planned Valley Link alignment and the new connector route between the Midtown Valley Link Station and Lawrence Livermore National Laboratory. Only the small segment along N Mines Rd and First St would no longer be served.

Route 53

Route 53 currently provides peak only service between the Pleasanton ACE station and Stoneridge Mall along Bernal Ave, I-680, and Stoneridge Dr. All stops currently served by Route 53 would continue to be served by a combination of Route 680 and Route 3, although there would no longer be direct service between the two locations along I-680.

Route 54

Route 54 provides peak only service between the Pleasanton ACE station, East Dublin BART Station, and the Hacienda Business Park. Nearly all areas currently served by Route 54 would continue to be served by a combination of Route 8, Route 14, and Route 680.

Route 70X

Route 70X currently provides direct commuter service between the East Dublin/Pleasanton BART Station and Walnut Creek along I-680. The entirety of this route could potentially be replaced by the new Route 680 which would extend further north than the current Route 70X to Martinez and Fairfield.

New On-Demand Service and Considerations

On-demand service, as with other types of public transportation services, is delivered in four primary ways in the United States. These service delivery methods range from complete ownership to fully contracted service. Geographical parameters and pricing of the service can be designed to function in much the same way across all models, although different delivery methods may have consequences for other aspects of the digital and physical user experience, as well as service characteristics like wait times and hours of operation. To the municipality or transit provider, these service delivery methods have a significant impact on cost and general oversight requirements.

- **In-House Operation:** The City or agency acts as the sole entity responsible for all aspects of public transportation operations, employing every position, owning every vehicle, and managing all compliance and oversight requirements.

- **Hybrid:** The City or agency contracts with a private entity for a subsect of transportation management and operations. For microtransit, many agencies enter contracts with transportation technology companies for software and trip booking algorithm support. The agencies often provide vehicles and drivers in-house.

- **Turnkey Contract:** The City or agency contracts with a private transportation provider offering a full software platform and dedicated vehicles for the day-to-day management of the public transportation service and only remains responsible for the administration of the contractor and the assurance of all compliance and oversight requirements.

- **Ride-Hail Company Contract:** The City or agency contracts with a ride-hail provider, such as Uber or Lyft, offering its standard consumer-facing software and non-dedicated vehicles for the day-to-day management of the public transportation service and only remains responsible for the administration of the contractor and the assurance of all compliance and oversight requirements.

As shown in Figure 5-4, each on-demand operating model has benefits and challenges with regards to capital and staffing needs, costs, software needs, service quality, and launch timeline.

Figure 5-4 On-Demand Operating Models

In-House

Agency provides and manages vehicles, drivers, brand, payment system, marketing, customer service.

Procure custom app and dispatch software.

Pros:

Most agency control over service experience, brand, data. Clear regulatory compliance.

Cons:

Highest capital and staff costs. Long time to launch. High per-ride costs & wait-times, limited service hours & coverage. Less sophisticated software and dispatch optimization.

Hybrid

Agency provides and manages vehicles, drivers, brand and marketing, customer service.

Partner provides off-the-shelf app and dispatch software, payment system.

Pros:

Good agency control over service experience, brand, data. Better software and dispatch optimization. Clear regulatory compliance.

Cons:

High capital and staff costs. Long time to launch. High per-ride costs & wait-times, limited service hours & coverage.

Turnkey

Turnkey contractor provides dedicated vehicles, drivers, app and dispatch software, brand, payment system, and customer service.

Pros:

Lower capital and staff costs. Moderate time to launch. Better software and dispatch optimization. Polished end-to-end experience with some agency customization. Moderate operating economics.

Cons:

Less agency control over service experience, brand, data. Moderate per-ride costs, wait-times, hours and service coverage. Some regulatory complexity.

Ride-hail

Non-dedicated TNC fleet serves rides meeting agency criteria, invoices agency based on agreed-upon subsidy structure.

TNC provides app and dispatch software, brand, payment system, and customer service.

Pros:

Lowest capital and staff needs. Quick to launch. Most sophisticated software. Lowest-per ride costs and wait times. Best hours and coverage. Familiar to many riders.

Cons:

Least agency control over service experience, brand, data. Regulatory limitations.

Go Tri-Valley and Shared Autonomous Vehicle

LAVTA currently has a form of on-demand that covers the entire service area. Go Tri-Valley is a ride hail company contract where LAVTA pays half the fare (up to $5) for rideshare trips on Uber and Lyft that start and end in Dublin, Pleasanton, and Livermore.

This service is targeted for first-last mile trips and for trips when LAVTA's service is not operating. Go Tri-Valley service is a cost-effective way to provide access and should be continued to provide geographic and temporal coverage.

Go Tri-Valley was initially developed as a cost-effective solution for providing transportation services in areas with low densities or at times of day when demand for transit is lower. New on-demand zones are planned for areas with relatively low density that may supplant some of these Go Tri-Valley trips. However, the Go Tri-Valley subsidy would continue to provide cost effective services at night when LAVTA fixed-route services are no longer operating. As both Go Tri-Valley and proposed on-demand zones serve different core markets, LAVTA may discontinue Go Tri-Valley service or offer the subsidy when the fixed-route service or on-demand service ends.

LAVTA tested a Shared Autonomous Vehicle (SAV) to provide first-last mile connections by a BART station. At the time of this writing, the SAV demonstration pilot has ended.

The LRTP assumes that the fare structure will remain as is. Service costs reflect the anticipated operating costs and do not include any additional fare revenues.

Dublin On-Demand Zone

This new on-demand zone would provide door-to-door on-demand service throughout the City of Dublin. The service is designed to offer 15-minute or better wait times for service once a trip has been requested. This service is designed to provide first-last mile connections to BART and LAVTA's fixed-route network and improve access to services where demand and road connectivity is not supportive of fixed-route transit service. This service would be available between 6:00 am and 8:00 pm seven days per week.

Isabel Avenue Station On-Demand Zone

This new on-demand zone would provide door-to-door on-demand service in the area surrounding the Isabel Avenue Valley Link Station. This zone would be generally bound by Portola Ave, Las Positas College, Doolan Rd, Airway Blvd, Isabel Ave, Jack London Blvd, Discovery Dr, Stanley Blvd, and Livermore Ave.

The service is designed to offer 15-minute or better wait times for service once a trip has been requested. This service is designed to provide first-last mile connections to the planned Isabel Avenue Valley Link Station. This service would be available between 6:00 am and 8:00 pm seven days per week.

Midtown Valley Link Station On-Demand Zone

This new on-demand zone would provide door-to-door on-demand service in the area surrounding the Midtown Valley Link Station. This zone would be generally bound by N Mines Rd, Patterson Pass Rd, N Greenville Rd, Southfront Rd, Laughlin Rd, Dalton Ave, Broadmoor St, Hartford Ave, Springtown Blvd, and First St.

The service is designed to offer 15-minute or better wait times for service once a trip has been requested. This service is designed to provide first-last mile connections to the planned Midtown Valley Link Station and to supplement the two new connector routes. This service would be available between 6:00 am and 8:00 pm seven days per week.

Pleasanton On-Demand Zone

This new on-demand zone would provide door-to-door on-demand service in the area of Pleasanton south of I-580, providing first-last mile connections between the Dublin / Pleasanton BART station and the surrounding residential, employment, and retail opportunities in Pleasanton and throughout the Hacienda Business Park. This zone would be generally bound by I-580, I-680, Las Positas Blvd, and Hacienda Dr.

The service is designed to offer 15-minute or better wait times for service once a trip has been requested. This service is designed to provide first-last mile connections and complementary service with existing and planned fixed-route service operating through the area. This service would be available between 6:00 am and 8:00 pm seven days per week.

Will BART Return to 15-minute Frequency?

In September 2023, BART made a major policy change to operate 20-minute service to the Tri-Valley area 7 days a week. Weekend and evening service is more frequent, but weekday service levels are no longer as frequent. At this writing, BART does not have plans to return to 15-minute service on the Blue Line.

The LRTP assumes that 20-minute service will continue. However, if BART peak demand starts increasing and reverts back to closer to 2019 levels, then BART may adjust frequencies.

If BART changes back to 15-minute service on weekdays, it is likely that LAVTA would make the following changes:

- Routes 10R and 30R would be retimed to operate every 15-minutes on weekdays and when needed on weekends.
- All other local all-day routes would need to have peak frequencies either reduced from 40-minutes to 60-minutes or improved from 40-minutes to 30-minutes.
- Routes 4 and 18, which were made possible savings from having Routes 10R and 30R shifting from 15-minute service to 20-minute service may need to see service adjustments if Routes 10R and 30R operate more frequently.

COSTING AND IMPLEMENTATION

The service changes included in these recommendations are not intended for full implementation until Valley Link service launches. I-680 Express Service may begin operations in the next three to five years, while Valley Link may not be implemented until approximately 2034. The change in revenue hours and peak vehicle requirements for each individual route and the LAVTA network as a whole are shown below for fixed-route service in Figure 5-5 and on-demand service in Figure 5-6. This section is related to service changes only, any other policy or fare structure changes are not included in this LRTP.

Overall, these changes are anticipated to increase LAVTA's revenue hours by 59,800 per year and require 10 additional peak vehicles, seven of which would be smaller vehicles used for on-demand services. This represents a 52% increase in revenue hours and a 19% increase in vehicles over planned 2024 conditions. However, 34,200 hours and seven vehicles are due to the addition of new on-demand services. Isolating fixed-route service changes only would result in 25,600 additional revenue hours (a 22% increase) and an increase of three peak

vehicles (6%). The increased revenue hours and peak vehicle requirements would require additional base capacity beyond what is available in the existing Rutan facility.

Rutan and Atlantis Facilities

LAVTA has outgrown its present operations and maintenance (O&M) facility on Rutan Court, which was built in 1991 and designed for 43 buses, 8 vans, and employee/visitor parking for 75, with administrative, operations & maintenance spaces. Although the present facility is 30 years into its 40-year useful life and in adequate-to-good condition, the existing site's capacity is insufficient and cannot be expanded due to the other occupied properties surrounding the facility. Building out the satellite Atlantis Operations and Maintenance facility will be essential in LAVTA's ability to provide expanded service.

LAVTA currently uses the partially-built Atlantis facility to store contingency fleet and materials, conduct driver training, and operate and dispatch paratransit vehicles. However, without further federal support from earmarks or other sources, further construction of the site has not progressed since 2017, despite the agency's continued outstanding need to support its heavy-duty bus fleet and support personnel. The Rutan facility continues to house LAVTA's core operations and maintenance functions at more than 50% over its original design capacity, and has been continuously for two decades. These long range recommendations are contingent upon additional vehicle base capacity currently being planning for the Atlantis facility to adequately support both current and planned future operations.

The exact operating model for these three on-demand zones has not yet been finalized and costs may be subject to change following final service design, procurement, and operations decisions.

Additionally, the financial contributions between partner organizations for the planned 680 express service remains unknown at this time. This evaluation assumes that the resources currently devoted to Route 70X would be reallocated to the Route 680 service. However, additional costs may be required to implement this service but are unknown at this time.

Figure 5-5 LAVTA LRTP Recommendations Fixed-Route Revenue Hour and Peak Vehicle Impacts

Route	Change in Revenue Hours	Change in Peak Vehicles
4	6,500	2
10R	1,700	-
11	(1,500)	(2)
14	6,700	2

Route	Change in Revenue Hours	Change in Peak Vehicles
20X	(800)	(1)
30R	5,300	1
53	(1,500)	(1)
54	(1,200)	(2)
70X	(1,400)	(2)
New 680	6,250	2
New Springtown Valley Link Loop	2,300	2
New Valley Link to LLNL	3,200	2
Total	**25,600**	**3**

Figure 5-6 LAVTA LRTP Recommendations On-Demand Revenue Hour and Peak Vehicle Impacts

Route	Change in Revenue Hours	Change in Peak Vehicles
Dublin On-Demand	18,900	4
Isabel Ave On-Demand	5,100	1
Midtown On-Demand	5,100	1
Pleasanton On-Demand	5,100	1
Total	**34,200**	**7**

Potential Joint Powers Agreement Implications

The Joint Powers Agreement (JEPA) between the cities of Dublin, Livermore, and Pleasanton that authorizes LAVTA to provide transit services in the Tri-Valley call for an equal distribution of transit service between the three municipalities based on population. However, due to various shifts in demand for transit overtime and aligning services to meet this demand, service is not always distributed evenly between the jurisdictions. While funding is not derived from service allocations between the municipalities, service provision based on revenue miles is required under the JEPA.

The LRTP proposals have the potential to shift the percentages of resources spent in each municipality. Figure 5-7 illustrates the potential differences between the current service distribution and what could be possible if all LRTP recommendations were implemented.

Currently, services are distributed such that approximately 21% of LAVTA services are in Dublin, 32% in Pleasanton, and 47% in Livermore. If all long-term recommendations are implemented, this distribution would shift to 32% Dublin, 24% Pleasanton, and 44%

Livermore. All three jurisdictions would have increased service levels compared to the existing network. The allocation of these additional services improves equitable geographic coverage by improving Dublin's allocation and reducing Livermore's allocation.

Figure 5-7 Existing and Potential Proposed Distribution of Services by Municipality

	Dublin	Pleasanton	Livermore
JEPA Allocations Range	26% - 35%	28% - 38%	31% - 42%
Existing	21%	32%	47%
Proposed	31%	26%	43%
Change	+10%	-6%	-4%

Schedule Maintenance Funding

Bus speeds are primarily dependent on passenger volumes and local traffic conditions. As the Tri-Valley has grown, traffic levels and congestion has increased. Over the past 10 years, routes have needed more time in the schedule to complete a round trip. Additional schedule time can translate into additional operating costs.

As a best practice, many larger agencies include a small percentage of their operating budget as "Schedule Maintenance" which allows the agency to add a bus or several minutes of travel time on routes that are experiencing schedule challenges.

LAVTA should consider adding a schedule maintenance line item in the operating budget and increasing it on an annual basis to cover future congestion impacts.

Valley Link Station Infrastructure

In conjunction with the development of the Valley Link Commuter Rail Line and oriented LAVTA service to improve connectivity to local stations, there are high level infrastructure improvements that will be necessary to accommodate these services more effectively. Specific improvements like bus bays, layover space, and operator restrooms will improve bus-rail connections, allow for more seamless transfer experiences, improve service efficiency for local bus service through on-site layover, and improve worker conditions by providing restrooms and relief facilities for operators taking a break while on layover.

Isabel Avenue Station

The long-term vision for service includes alignment changes to Routes 14 and 30R to directly serve Isabel Avenue Station as well as the addition of an on-demand zone. In order to accommodate these services and facilitate transfers between LAVTA and Valley Link, there

should be up to six total bus bays constructed, three on each side of the Isabel Avenue Station. The three bays on the south side would serve Route 14 in both directions and one space for an on-demand vehicle. The three bays on the north side would service Route 30R in both directions and one on-demand vehicle.

In addition to these bus bays, operator restroom and break facilities as well as pedestrian improvements along the adjacent roadways would further improve station access and layover opportunities.

Southfront/Midtown Station

The long-term vision for service includes two new routes serving Midtown Station, the Springtown Valley Link Connector and the Lawrence Livermore National Laboratory Valley Link Connector, as well as a new on-demand zone. In order to accommodate these services and facilitate transfers between LAVTA and Valley Link, there should be up to three total bus bays constructed on the south side of Midtown Station. These bays would serve both new routes as well as one on-demand vehicle.

In addition to these bus bays, operator restroom and break facilities as well as pedestrian improvements along the adjacent roadways would further improve station access and layover opportunities.

Regional Network Management Considerations

In the wake of the COVID-19 pandemic, the Metropolitan Transportation Commission (MTC) developed a Bay Area Transit Transformation Action Plan which identifies specific actions needed to reshape the region's transit system into a more connected, efficient, and user-focused mobility network across the region. The plan focuses on near term actions within the next three years to achieve these goals.

The plan identifies several transformational outcomes to work toward, including:

- **Fares & Payment** – Simpler, consistent, and equitable fare and payment options attract more riders.
- **Customer Information** – Integrated mapping, signage, and real-time schedule information makes transit easier to navigate and more convenient for both new and existing riders.
- **Transit Network** – Bay Area transit services are equitably planned and integrally managed as a unified, efficient, and reliable network.
- **Accessibility** – Transit services for older adults, people with disabilities, and those with lower incomes are coordinated efficiently.

- **Funding** – The Bay Area's transit system uses its existing resources more efficiently and secures new, dedicated revenue to meet its capital and operating needs.

Through this plan, there should be an increased emphasis on collaboration between agencies within the region, including LAVTA. The agency should continue working with other regional services like BART, ACE, and Valley Link to ensure the fare payment process is simplified between modes, customer information is clearly communicated, and the transit networks are integrated in such a way that service frequencies and schedules are aligned to improve transfer experiences.