

## 4 Circulation

The Circulation Element provides the framework for a comprehensive and multimodal transportation network that supports and integrates the other elements of the General Plan. This chapter summarizes existing conditions and issues relevant to the roadway network, transit, trucks, bicycling, and emerging transportation technologies.

### Circulation Network

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Roadway networks in San Pablo are illustrated in Figure 4-1. It includes major roads (interstates, principal arterials, minor arterials, or major collectors) and minor roads (local streets) identified in the City's General Plan, the Congestion Management Program (CMP) network designated by the Contra-Costa Transportation Authority (CCTA), and Routes of Regional Significance adopted by CCTA and the West Contra Costa Transportation Advisory Committee (WCCTAC). Major roads are regional and local serving routes, while minor roads are neighborhood roadways that connect residences to local and regional service roadways. The CMP network is a subset of the Routes of Regional Significance, which are roadways that provide regional connections, facilitate access to one or more regional highways or transit facilities, and carry high volumes of through traffic.

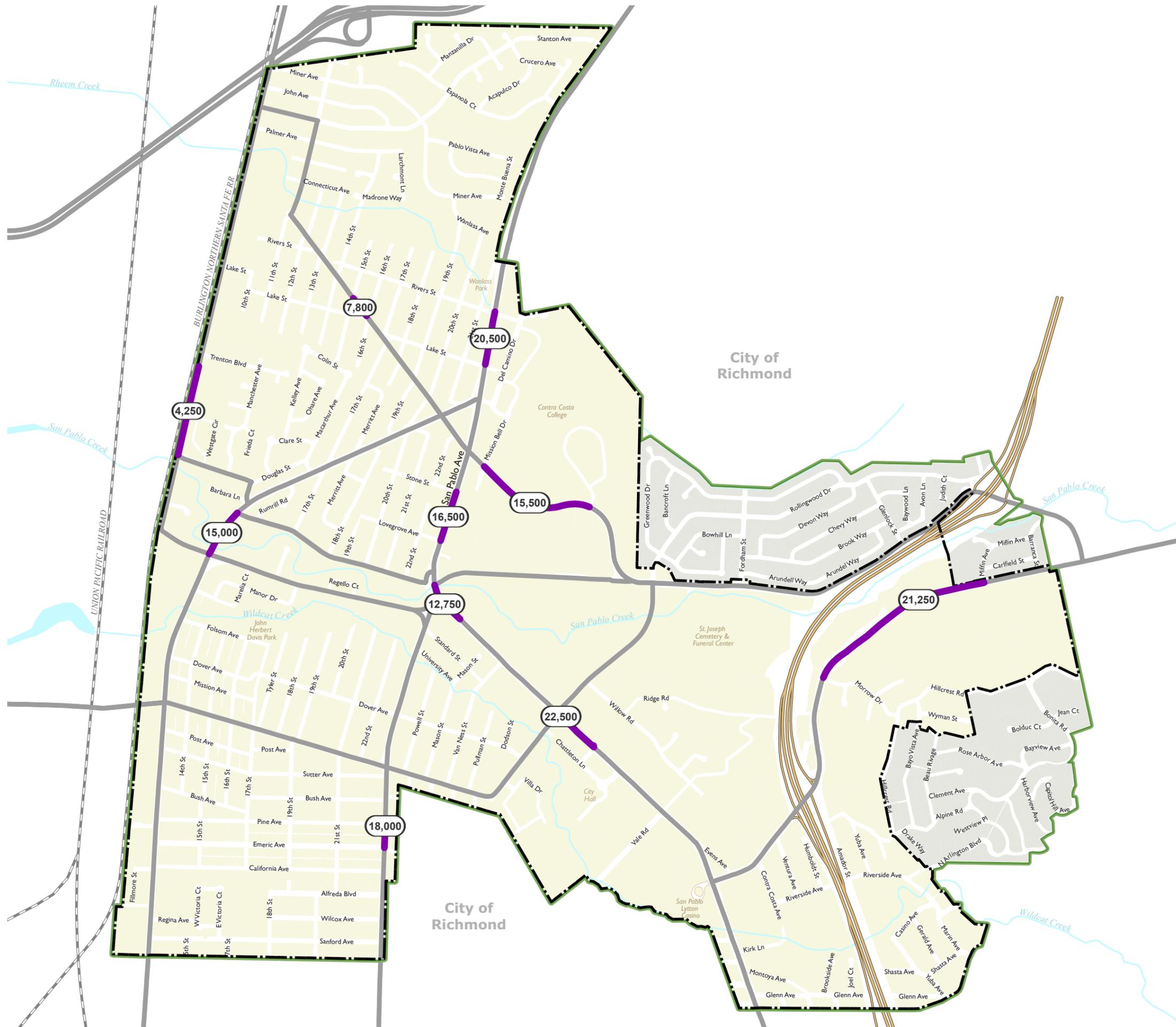
#### AVERAGE DAILY TRAFFIC

Figure 4-1 also illustrates existing Average Daily Traffic (ADT) volumes at selected locations. The ADT for these locations is provided in Table 4-1. Data from 2016 and 2022 is presented to characterize conditions before and after the COVID-19 pandemic, which has changed regional and local travel patterns as more people work from home some or all of the time.

#### VEHICLE MILES TRAVELED

In 2013, Governor Brown signed Senate Bill (SB) 743 (Steinberg), which created a process to change the way that transportation impacts are analyzed under the California Environmental Quality Act (CEQA). Specifically, SB 743 amended the CEQA guidelines to state that automobile delay metrics (i.e., level of service or LOS) is no longer considered to be a significant impact under CEQA. The Governor's Office of Planning and Research (OPR) and the California Natural Resources Agency have certified and adopted changes to the CEQA Guidelines that identify Vehicle Miles Traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. In 2018, OPR released a "Technical Advisory" containing non-regulatory methodologies and thresholds for VMT. While LOS can no longer be used as the basis for determining transportation impacts under CEQA, the metric may still be useful for transportation planning purposes.

Figure 4-1: Existing Road Network



— Average Daily Traffic (ADT)

City Limits

Sphere of Influence

Major Highway

Major Roads

Railroads



SOURCE: Kittleson, 2021; City of San Pablo, 2021; Contra Costa County GIS, 2021; Dyett & Bhatia, 2021

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**Table 4-1: Average Daily Traffic (ADT) Volumes for Select Locations**

No.	Location	2016 ADT	2022 ADT
1	Broadway Ave from 15th St to 16th St	7,800	5,455
2	San Pablo Ave from Rivers St to Lake St	20,500	20,826
3	San Pablo Ave from Stone St to International Market Pl	16,500	n/a
4	Giant Rd from s/o Trenton Blvd to Parr Blvd/Rd 20	4,250	5,674
5	Rumrill Blvd from Rd 20 to Brookside Dr	15,000	16,080
6	San Pablo Ave from 23rd St to Campo Verde Circle	12,750	n/a
7	El Portal Dr from Mission Bell Dr to Castro Rd	15,500	11,571
10	23 <sup>rd</sup> St from Pine Ave to Emeric Ave	18,000	14,849
11	San Pablo Ave from Church Ln to Pinewood	22,500	23,243
13	San Pablo Dam Rd from Morrow Dr to Mifflin Rd	21,250	18,274

Source: Kittleson & Associates, City of San Pablo, 2016 and 2022.

In 2020, Contra Costa County released their Transportation Analysis Guidelines (TAG) to aid in the preparation of traffic analysis and establish a uniform approach to evaluate impacts on the County transportation system. VMT measures the number of miles traveled during a specified time within a specific region. VMT is estimated using the CCTA model and evaluated either on a per resident, per employee, or per service population (resident population plus employment) basis.

Table 4-2 presents VMT information from 2020 for multiple cities in Contra Costa County. San Pablo VMT per resident is about half of the county average and the VMT per employee is also less than the County average. San Pablo VMT per resident and per employee are also both less than the overall Bay Area Average VMT. These VMT estimates indicate that San Pablo is relatively accessible to key destinations and job centers, which contributes to more efficient VMT for the area. San Pablo VMT per employee is notably higher than VMT per resident. According to data from the U.S. Census, 86.9 percent of people employed in the city live elsewhere and commute to San Pablo for work, primarily in single occupant vehicles.<sup>1</sup> Further, nearly 25 percent of people employed in the city commute more than 25 miles each way, which contributes to the higher VMT per employee metric. Creating more housing in San Pablo for those who work in the community can help to reduce VMT per employee, and creating more local jobs can help reduce total VMT per capita.

## Planned Transportation Improvements

Planned transportation improvement projects identified in the City's 2022-4 Capital Improvements Program (CIP) are illustrated on Figure 4-2 and described in more detail in Table 4-3. These transportation projects consist of roadway and bridge improvements that are intended to improve multimodal connectivity and safety for all modes. The total cost of these improvements is estimated at more than \$175 million.

<sup>1</sup> U.S. Census On the Map, Inflow/Outflow Analysis within San Pablo, CA, accessed on December 17, 2024 at <https://onthemap.ces.census.gov>

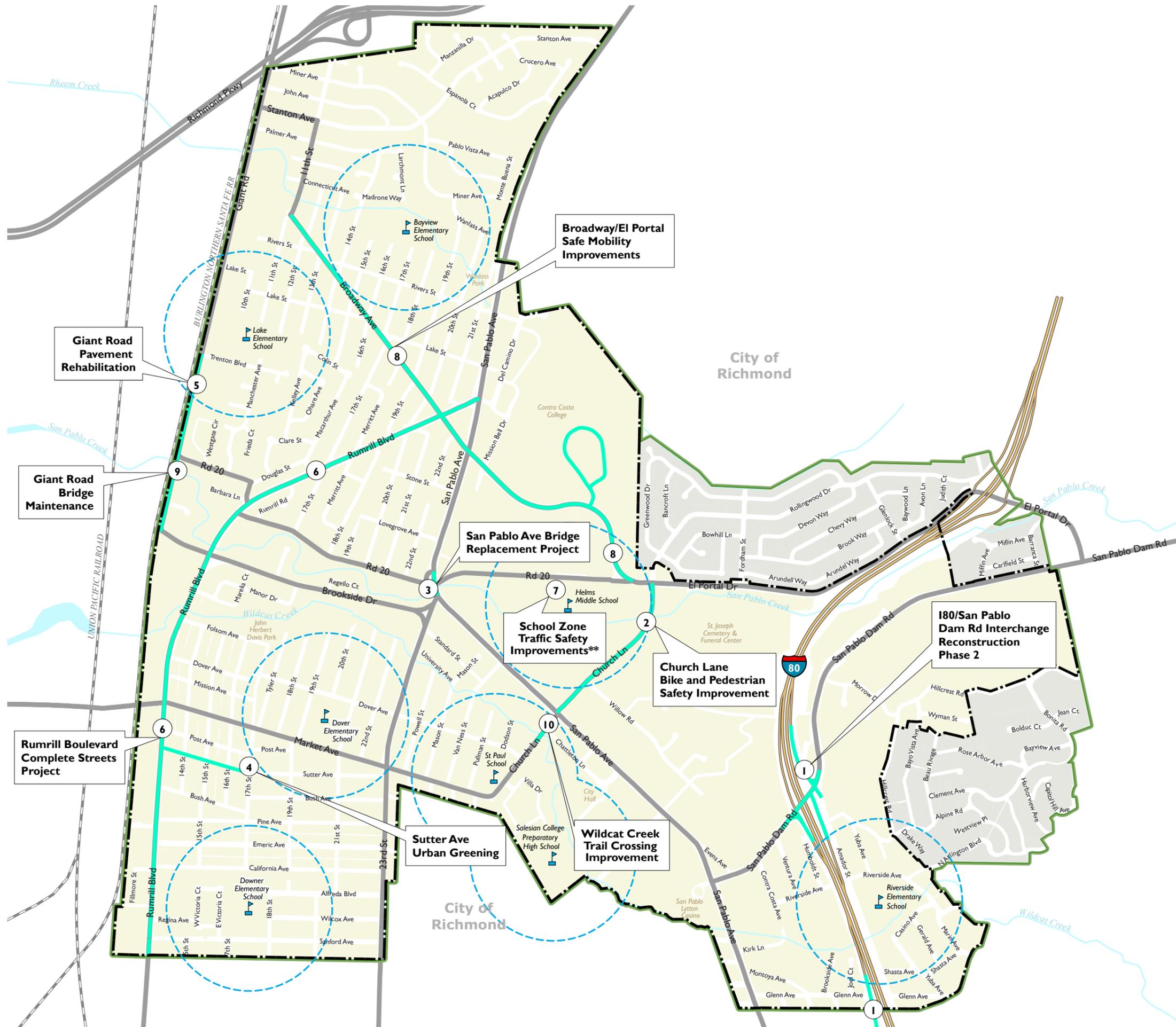
**Table 4-2: 2020 San Pablo VMT Metrics**

<i>City/ Region</i>	<i>Home-Based VMT per Resident</i>	<i>Commute VMT per Worker</i>
<b>San Pablo</b>	<b>8.7</b>	<b>13.6</b>
Countywide Average	17.3	14.9
Bay Area Average	13.3	15.6
<i>Other City VMT for comparison purposes only</i>		
Richmond	10.4	15.5
El Cerrito	11.2	14.9
Pinole	15.3	13.6
Hercules	18.5	15.9
West (Uninc)	14.6	17.5
Orinda	17.6	21.4
Moraga	14.0	21.7
Lafayette	15.8	16.8
Martinez	15.9	17.3
Concord	13.5	13.4
Pleasant Hill	13.1	14.1
Walnut Creek	13.7	14.1
Clayton	23.4	15.1
Central (Uninc)	15.2	15.3
Pittsburg	16.2	13.6
Antioch	21.6	10.9
Oakley	24.1	10.2
Brentwood	23.9	9.1
East (Uninc)	28.2	17.8
Danville	22.3	18.5
San Ramon	18.7	14.7
Trival (Uninc)	25.0	24.5

Source: CCTA, 2020

Notes: Estimates for the region were prepared using the CCTA Transportation Demand Model.

Figure 4-2: Planned Improvements



# Planned Improvements (see Table)\*

Schools

1,000 ft Radius for Schools\*\*

City Limits

Sphere of Influence

Major Highway

Major Roads

Railroads

\*Note: Citywide Projects (See Table for details)

11 Rectangular Rapid Flashing Beacon Crosswalk Project

12 Local Roadway Safety Plan

\*\* Note: Traffic calming measures, sidewalk repairs, curb ramp installations, crosswalk lights, signage etc in the school zone generally 1,000 ft around existing schools



SOURCE: Kittleson, 2021; City of San Pablo, 2024; Contra Costa County GIS, 2021; Dyett & Bhatia, 2024

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**Table 4-3: Major Transportation Improvements**

No.	Project	Location and Description	Project Cost	Status
1	I-80 / San Pablo Dam Road Interchange Reconstruction Phase 2	Caltrans-led reconstruction of freeway interchange and bridge overcrossing	\$112,000,000	Design
2	Church Lane Bike and Pedestrian Safety Improvement	Install new pedestrian bridge alongside roadway bridge, improve pedestrian and bike safety features along Church Lane between San Pablo Avenue and El Portal.	\$1,700,000	Not Begun
3	San Pablo Ave Bridge Replacement Project	Replacement of San Pablo Avenue bridge at Road 20 and 23 <sup>rd</sup> street, along with realignment of the intersection and pedestrian/bicycle improvements.	\$19,641,829	Design
4	Sutter Ave Urban Greening	Street retrofit incorporating several green interventions to reduce flooding, calm traffic, and enhance pedestrian safety.	\$5,392,000	Construction
5	Giant Road Pavement Rehabilitation	Pavement rehabilitation and restriping of Giant Road between Brookside Drive and Trenton Boulevard.	\$708,000	Design
6	Rumrill Boulevard Complete Streets Project	Improvements to improve safety on Rumrill Boulevard from Costa Ave to San Pablo Ave.	\$23,137,327	Complete
7	School Zone Traffic Safety Improvements	Traffic calming measures, sidewalk repairs, curb ramp installations, crosswalk lights, signage etc.	\$700,000	Ongoing
8	Broadway/El Portal Safe Mobility Improvements	Bicycle and pedestrian improvements to the Broadway and El Portal corridors and the area around Contra Costa College.	\$11,186,000	Not begun
9	Giant Road Bridge Maintenance	Maintenance, including resurfacing and repairs, to Giant Avenue bridge over San Pablo Creek	\$493,863	Not begun
10	Wildcat Creek Trail Crossing Improvement	Installation of intersection safety improvements for drivers, pedestrians, and cyclists at Church Lane and Chattleton Lane.	\$175,246	Not begun
11	Rectangular Rapid Flashing Beacon Crosswalk Project	Install intersection improvements to increase pedestrian safety at various locations citywide.	\$120,000	Construction
12	Local Roadway Safety Plan	Development of a data-driven traffic safety plan to identify safety problems and improvements.	\$48,000	Completed

ROW = Right-of-Way acquisition.

Sources: City of San Pablo FY2024-2027 Capital Improvement Plan, City of San Pablo, 2024.

## Transit and Truck Routes

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Regional and local bus services in the City of San Pablo are provided by the Alameda-Contra Costa Transit District (AC Transit) and Western Contra Costa County Transit (WestCAT). Heavy and commuter rail services are provided by the Bay Area Rapid Transit (BART) and Amtrak via the Richmond station about 1.5 miles south of San Pablo and the El Cerrito Del Norte station about 2.2 miles southeast of San Pablo. Bus routes and truck routes are illustrated on Figure 4-3.

### AC TRANSIT

AC Transit serves 13 cities and adjacent unincorporated areas in Alameda and Contra Costa counties from Richmond/Pinole in the north, to Fremont in the south, Castro Valley in the east, and San Francisco in the west. It provides fixed-route bus service on weekdays, weekends, and holidays, linking San Pablo users to major retail, institutional, and governmental activity centers located within the service area. There is a major bus terminal in the campus of Contra Costa College, near the Student Association Building and the Vocational Building. This stop is a “Timed Transfer Stop” which provides synchronized bus-to-bus transfers.

Major routes that originate or pass through San Pablo include the following:

- *Route 70*: A daily regional transit route going through San Pablo, North Richmond, El Sobrante, and Richmond.
- *Route 71*: A daily regional transit route serving the cities of San Pablo, Richmond, and El Cerrito.
- *Route 72/72R*: A daily regional transit route connecting the cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville, and Oakland. A “Rapid” version of the bus is denoted by 72R.
- *Route 74*: A daily regional transit route serving the cities of San Pablo and Richmond. This bus has route variations that also reach the Orinda BART station.
- *Route 76*: A daily regional transit route going through San Pablo, Richmond, and stopping at El Cerrito.
- *Route 376*: A daily regional transit route going through San Pablo, Richmond, and stopping at El Cerrito.

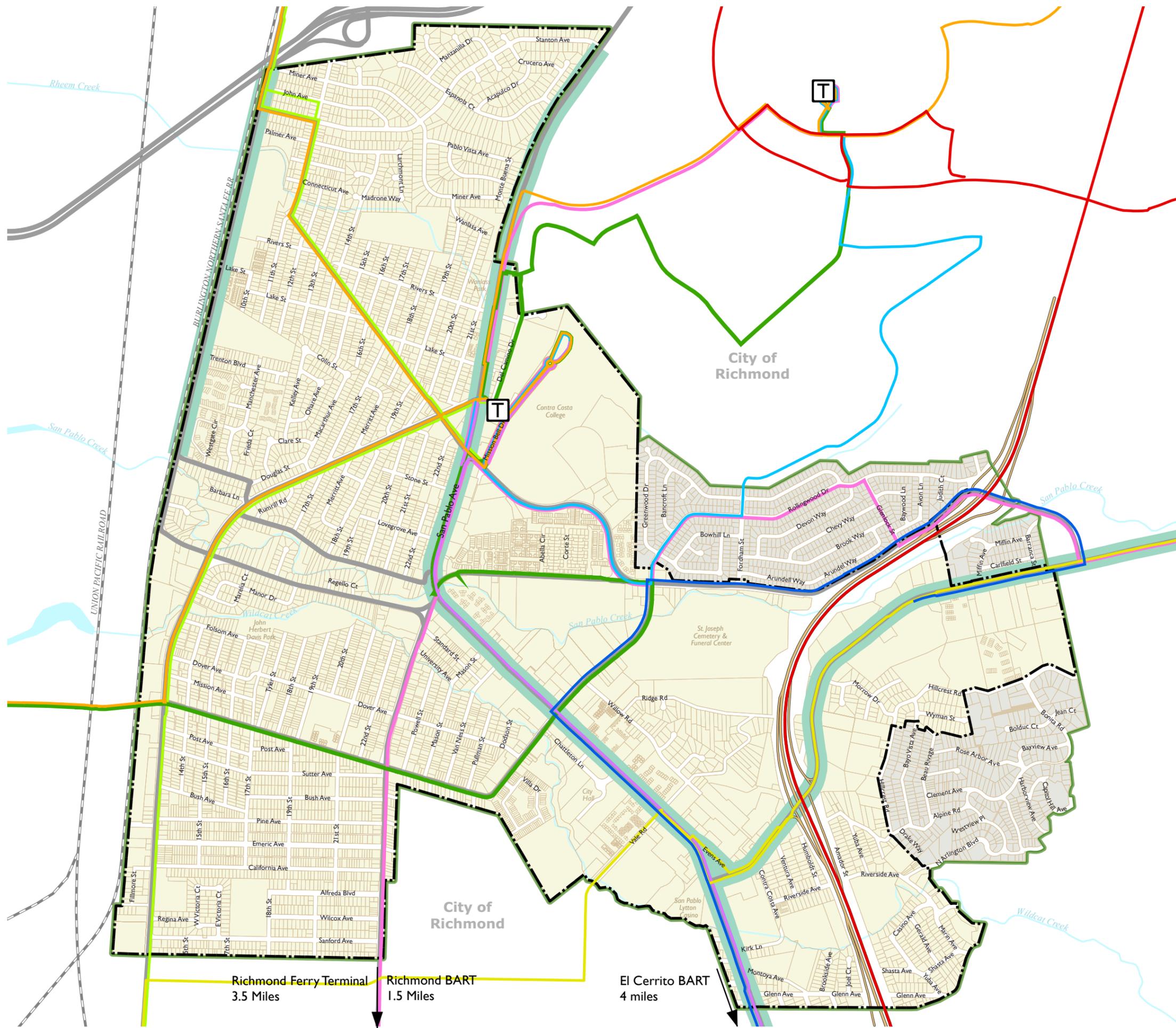
### WESTCAT

WestCAT primarily serves the cities of Pinole and Hercules, but one of its service routes (known as the C3 route) starts from the bus terminal at Contra Costa College. This weekday-only service passes through the City of Pinole and ends at the City of Hercules.

### RICHMOND FERRY

The Richmond Ferry provides service between the Richmond Ferry Terminal and downtown San Francisco. AC Transit Route 74 connects the Richmond Ferry Terminal to several bus stops in San Pablo. The Richmond Ferry operates with varying intervals and departure times between 6:30 am and 9:00 pm on weekdays and has one morning, one mid-day, and two evening trips on weekends.

Figure 4-3: Truck and Transit Routes



**Local Transit Routes**

- 376
- 70
- 71
- 72
- 72R
- 74
- 76

**Public Transit Hubs**

- Public Transit Hubs

**Transbay Transit Lines**

- L
- LA

**Truck Routes**

**City Limits**

**Sphere of Influence**

**Major Highway**

**Major Roads**

**Railroads**



SOURCE: Kittleson, 2021; City of San Pablo, 2021; Contra Costa County GIS, 2021; Dyett & Bhatia, 2021

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## **BART/AMTRAK**

The Bay Area Rapid Transit (BART) provides service to San Francisco as well as Contra Costa, Alameda, San Francisco, San Mateo, and Santa Clara counties from the Richmond BART/Amtrak station. BART operates in 15- to 20-minute intervals between 4:00 a.m. and midnight Monday through Friday; 6:00 a.m. to midnight on Saturdays; and 8:00 a.m. to midnight on Sundays and major holidays.

The closest BART stations to San Pablo residents are the Richmond Station, 1.5 miles to the south just west of 23rd Street and the El Cerrito Del Norte station 2.2 miles to the south along San Pablo Avenues. The Richmond BART station is also the connecting point for two Amtrak routes, the Capitol Corridor, which serves Sacramento and Auburn to the east and Oakland and San Jose to the south, which operates sixteen eastbound and sixteen westbound trains on weekdays and eleven trains per direction on weekends. Amtrak's San Joaquin Train line, which serves the Central Valley corridor of Stockton, Fresno and Bakersfield, operates four trains in each direction through the Richmond station on a daily basis.

## **FREIGHT SERVICE**

The Burlington Northern Santa Fe (BNSF) and the Union Pacific Railway own and operate freight rail services along the tracks that run parallel to Giant Road to the west of the Planning Area. Several roadways cross the BNSF tracks at-grade, including Brookside Drive, Road 20/Parr Boulevard, and John Avenue. Additionally, two access driveways cross the BNSF tracks to provide exclusive connections to industrial businesses located west of the tracks.

## **TRUCK ROUTES**

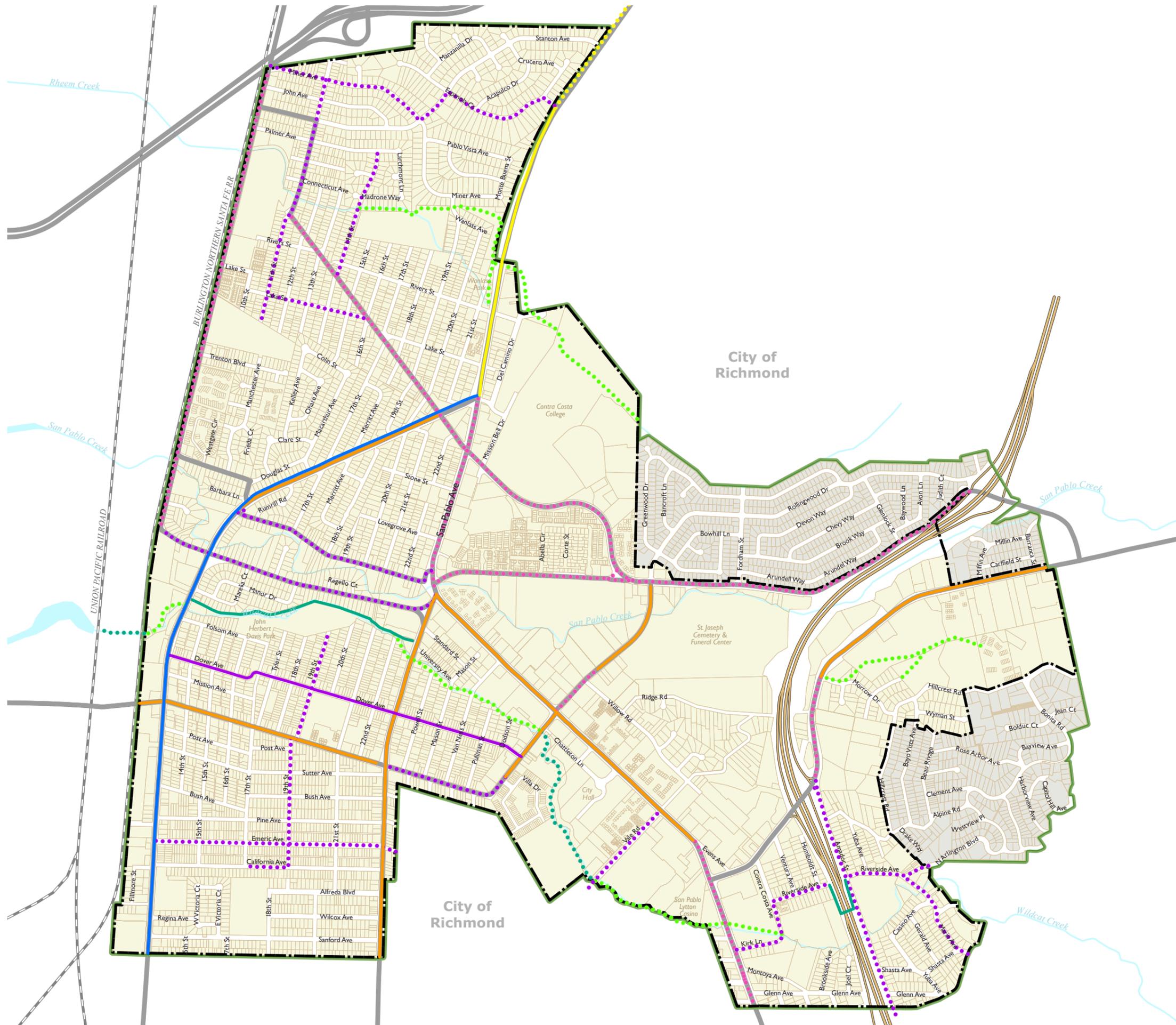
The City aims to reduce truck through traffic from impacting residential streets by restricting certain trucks to Routes of Regional Significance and designated truck routes. The City has identified Giant Road (north of Road 20), San Pablo Avenue, and San Pablo Dam Road as designated truck routes in the existing General Plan. These routes are shown in Figure 4-3.

## **BICYCLE ROUTES**

Existing bicycle routes in San Pablo are shown with solid lines in Figure 4-4. Class I shared use paths are off-street facilities, dedicated exclusively to use by bicyclists and pedestrians, and in some cases may be used by other non-motorized travel such as roller skating or skateboarding. Class II bicycle lanes delineate a portion of the street for bicyclists through the use of pavement markings and signage. Existing bicycle routes are primarily Class II bike lanes with the Wildcat Creek Trail providing a Class I shared-use path north of John Herbert Davis Park and southwest of the Mixed-Use Center South development area. There is also a separated Interstate 80 overcrossing at Riverside Avenue. Class II bike lanes are currently found at the following locations:

- Rumrill Boulevard between Road 20 and Broadway Avenue
- Market Avenue between Giant Road and Church Lane
- 23rd Street between San Pablo Avenue and California Avenue (City limit)
- San Pablo Avenue between 23rd Street and Evans Avenue
- Church Lane between El Portal Drive and Willow Road
- Church Lane between San Pablo Avenue and Market Avenue

Figure 4-4: Existing and Recommended Bicycle Routes



**Existing Bikeways**

- Class I - Shared Use Path
- Class 2 - Buffered Bike Lane
- Class 2 - Bike Lane
- Class 3 - Bike Route or Bike Boulevard
- Class 4 - Separated Bikeway

**Proposed Bikeways**

- ⋯ Class I - Shared Use Path
- ⋯ Class II - Buffered Bike Lane
- ⋯ Class III - Bike Route or Bike Boulevard

**Proposed Studies**

- - - Shared Use Path Study
- - - Corridor Study (Class II, III or IV)

- City Limits
- Sphere of Influence
- Major Highway
- Major Roads
- Railroads



SOURCE: City of San Pablo Bicycle & Pedestrian Plan, 2017; Kittleson, 2021; City of San Pablo, 2021; Contra Costa County GIS, 2021; Dyett & Bhatia, 2021

- El Portal Drive between Church Lane and Fordham Street (westbound; eastbound is Class IV)
- San Pablo Dam Road between Princeton Plaza and Barranca Street

The City of San Pablo Bicycle and Pedestrian Master Plan has proposed 10 miles of additional bicycle facilities to create a more convenient and comfortable bicycling environment in San Pablo. The recommended facilities will more than double the existing 4.4 miles of bikeways and trails.

## Emerging Technologies

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Innovation in transportation technologies is occurring at a fast pace, which will lead to changes in trip-making, mode choice, vehicle miles traveled (VMT), deliveries, and goods movement. Outcomes will depend on how well governments respond to the coming shifts in transportation technology. This section identifies evolving mobility technologies with the intent of initiating a dialogue on how the City of San Pablo can monitor, anticipate, and prepare for these changes and shape policies for the General Plan update to achieve desirable outcomes. The specific topics addressed are:

- Connected and Autonomous Vehicles
- Electrification and Alternative Fuels
- Transportation Network Companies
- Big Data and Smart Cities

### CONNECTED AND AUTONOMOUS VEHICLES

Connected vehicles and autonomous vehicles (CV/AVs), though related, are two distinct vehicle types. An autonomous vehicle contains all the required software and technology needed to operate with minimal or no human driver assistance. Autonomous vehicles operate at varying levels of autonomy, from driver assistance (e.g., adaptive cruise control, parking assistance) to full automation (i.e., operate under any conditions without human input). A connected vehicle allows wireless communication between vehicles, roadside infrastructure, and other personal communication devices to improve the driving experience. In order for autonomous vehicles to function most effectively, they need to be electronically connected to a network of data sources. Thus, the term “CV/AV” is generally applied to the coming wave of vehicles that will be both autonomous and connected. The following are generally viewed as the main implications with adoption of CV/AVs:

- **Vehicle Miles Travelled and Congestion:** The changing transportation system could contribute to an increase in VMT and congestion on the street network. As these vehicles improve the commute experience, commuters may be incentivized to move further from the urban core. Individually owned CV/AVs could be driven to work and then either sent home or sent to drive around on local streets to avoid parking fees. Convenience may lead consumers to take longer commutes and drive longer distances, vastly increasing VMT and congestion. If CV/AVs continue to reduce incentives to ride transit, walk or bike—whether for work or other purposes—it is also probable that congestion will increase, though it is not certain with hybrid and remote workforce arrangements that have become more common since the COVID-19 pandemic.
- Local and regional government bodies have a strong interest in ensuring that increases in VMT as a result of emerging technologies do not occur, and that the transportation system instead lessens both VMT and congestion. On the other hand, the new transportation system could improve travel

times. Since CV/AVs will maintain speed limits and eliminate driver errors, there is the potential for reduced travel times, less congestion and fewer accidents. Emerging Smart City technologies could allow for real time adjustments to the transportation network to improve traffic flow for all modes. CV/AVs will allow vehicles to drive closer together, which could free up land for other uses such as bike lanes, dedicated transit lanes, walkways, parks, and other uses. CV/AVs also have the potential to increase transit use by making it easier to access to first- and last-mile trip-making options.

- **Parking and Deliveries:** Widespread implementation of CV/AVs and shared vehicles could significantly reduce parking demand. This decreased demand may result in lower rates of private vehicle ownership but could also result from owners sending their CV/AVs to remote locations when they finish their trips. Municipalities will likely see reduced revenues from parking fees and fines, and will need to plan for replacement of these revenue streams. The rise in e-commerce with increasingly fast delivery options also causes on-street congestion, particularly in narrow residential streets. Additionally, automation for home delivery services may allow full delivery automation by getting the package from the vehicle to the front door. Companies are exploring the use of delivery robots to fill the “last 50 feet” gap to deliver from an automated vehicle to a building. While the demand for parking may be reduced, the demand for curb-space for drop-off/pick-up and deliveries will increase.

## **ELECTRIFICATION AND ALTERNATIVE FUELS**

Reducing the reliance on gasoline and diesel fuels for transportation is an important component of meeting state goals to reduce greenhouse gas emissions. Federal and State policies have been promoting the adoption of electric vehicles (EVs) and other alternative fuels. Use of alternative fuels has the potential to decrease greenhouse gas emissions, reduce dependence on foreign energy sources, and improve air quality. Recent advances in electric battery technology and production have extended the charge range and reduced the costs of EV ownership, making it more attractive to consumers. San Pablo includes credits for electric and clean air vehicles in the City’s Zoning Ordinance under Chapter 17.54 to incentivize vehicle charging infrastructure.

## **TRANSPORTATION NETWORK COMPANIES**

Transportation Network Companies (TNCs) like Lyft and Uber have increased in popularity with the proliferation of smart phones, as they bring drivers and riders together with web-based applications. Studies have found that where the use of TNCs are widespread, they tend to reduce parking demand, and increase VMT. These companies are privately held and are largely unregulated. The TNC model may evolve to a model that would combine all modes of travel (e.g., car, rail, bus, bike share) with the use of one platform, filling the first/last-mile gap. Their pooled products could significantly increase the number of people who share vehicles and carpool. To promote desirable outcomes, San Pablo can develop strategies for curbside management, review parking requirements, and identify synergies with transit to increase user experience and efficient use of all modes of transportation.

## **BIG DATA AND SMART CITIES**

“Big Data” is commonly used to describe large datasets related to individual behavior generated from internet-based activities and global positioning system (GPS) data. Big data can increase transportation efficiencies by facilitating understanding of travel behavior. A smart city is one that uses interconnected, web-based technology to efficiently connect components across a city to utilize resources with the goal to improve the urban environment. With regard to the transportation system, smart cities can improve the

transportation system by tracking data to make real time adjustments to the network. Major benefits can include improving traffic flow by controlling intersection timing in real time, enhancing transit via transit signal priority systems, informing users, adjusting pricing, and allowing cities to better monitor the system and detect issues. San Pablo adopted a Smart City 5G Strategic Policy Framework, aptly named San Pablo Environment for Everything Digital (S.P.E.E.D) to focus on economic development and diversification, as well as improve public safety. While San Pablo's priorities with the S.P.E.E.D. initiative target economic development, San Pablo should be proactive in planning for the investment and operating costs that support transportation system goals as well.

## Key Findings

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1. **Average daily Vehicle Miles Travelled (VMT) is lower in San Pablo than in the County and the Bay Area.** San Pablo VMT per resident is about half of the county average and the VMT per worker is also less than the County average. San Pablo VMT per resident and per worker are also less than the overall Bay Area Average VMT. These VMT estimates show that San Pablo is accessible to key destinations and job centers.
2. **San Pablo is a transit-rich community, served by six regional bus routes and linked to BART and Amtrak rail stations, as well as to the Richmond Passenger Ferry Terminal.** This presents opportunities for transit-oriented development that can reduce reliance on single-occupant vehicles, contribute to improved air quality and help San Pablo meet State-mandated greenhouse gas reduction targets. Affordable housing projects located along high-quality transit corridors are eligible for enhanced density bonuses under SB1763, which may help to facilitate the production of housing affordable for lower income households in San Pablo.
3. **Planned Transportation infrastructure improvements will enhance multimodal connectivity and roadway safety citywide.** The 2022-4 CIP identifies a suite projects intended to improve multi-modal connectivity and safety for all roadway users. Projects include road and bridge repairs, rehabilitation, and stormwater retrofits as well as the installation of bicycle and pedestrian infrastructure, traffic calming, and safety improvements. The total cost is estimated at more than \$175 million, to be funded in part with federal and State grants. The single largest project, a \$112 million effort to reconstruct the I-80 / San Pablo Dam Road interchange and bridge overdrugging, is being led by Caltrans.
4. **Emerging transportation technologies and trends are promoting a shift toward electric vehicle use and shared modes of mobility, such as TNCs, scooters, and e-bikes.** Coupled with the continued rise of internet shopping and the advent of CV/AVs, this will require a re-thinking of how curb space is used in order to accommodate delivery trucks, EV charging infrastructure, and micro-mobility options.