East Bay Municipal Utility District

Wildcat Pumping Plant Project

Final Transportation and Traffic Technical Report

May 2021

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East Bay Municipal Utility District

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Final Transportation and Traffic Technical Report

May 2021

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1 Introduction

1.1 Project Overview

The East Bay Municipal Utility District (EBMUD) is proposing to construct a new Wildcat Pumping Plant (PP) at EBMUD's existing Road 20 Rate Control Station (RCS) site in the City of San Pablo in Contra Costa County (see **Error! Reference source not found.** and Figure 2). The Wildcat PP would replace the existing Road 20 Portable PP (approximately 10-million-gallon-per-day [mgd] capacity). The Wildcat PP Project (project) is necessary to improve the reliability of water service to major portions of the Aqueduct Pressure Zone (PZ)and to provide transmission capacity south from the Sobrante Water Treatment Plant (WTP) during Orinda WTP, Claremont Tunnel and Wildcat Aqueduct planned and unplanned outages that could occur due to maintenance and inspection or emergency shutdowns. Although the existing Road 20 Portable PP and San Pablo WTP have been providing service in the event of outages, the Road 20 Portable PP is a temporary facility that cannot meet all the demands in the Aqueduct PZ and upper cascades, and the San Pablo WTP is an aging facility that is planned to be decommissioned. The project will also allow EBMUD to distribute water that is stored in San Pablo Reservoir and treated at Sobrante WTP to EBMUD's West of Hills service area, particularly in drought years.

The project includes the following primary components:

- Construction of a new 25-mgd Wildcat PP (shown on Figure 3) at the existing Road 20 RCS site at the intersection of El Portal Drive and Road 20 in the City of San Pablo;
- Replacement of a 4-inch slow-venting air valve near 1303 Walnut Street in the City of Berkeley and installation of a new 2-inch slow-venting air valve at Crockett PP, west of San Pablo Avenue at Robert Miller Drive in the City of San Pablo;
- Construction of an onsite stormwater drainage system that would connect to a new manhole and storm drain pipeline on El Portal Drive, which would extend westerly for approximately 725 feet before connecting to an existing curb inlet on the south side of Road 20; and
- Construction of approximately 170 feet of new 36-inch-diameter suction and discharge pipelines, which would be installed on site to connect the new Wildcat PP to the existing Wildcat Aqueduct.

The Wildcat PP would consist of four approximately 8-mgd variable frequency drive pumps (for a total capacity of 25 mgd) and associated mechanical and electrical equipment located inside an approximately 40-foot-wide, 80-foot-long, and 24-foot-tall building. The site will be enclosed by an eight-foot-high, black-vinyl coated security chain link fence on all sides with the exception of the south and southeastern sides where an eight-foot-high concrete masonry unit

wall topped with barbed wires will be installed in place of the chain link fence. The Wildcat PP would include an approximate 25-foot-tall antenna (from the ground floor), outdoor light fixtures, site access double swing gates, a parking area, outdoor transformer and switchgear, auto-transfer switch, generator control panel, and staging areas for a temporary emergency generator, portable diesel tank, and portable pumps. The existing Road 20 Portable PP will be removed from the project site after the project is constructed; however, the existing portable pump connections will remain for emergencies and planned outages of the Wildcat PP. The project would also include building architectural treatments as described in the *East Bay Municipal Utility District Wildcat Pumping Plant Aesthetics Conceptual Design Report* (Panorama Environmental, Inc., MWA Architects, and Dillingham Associates, 2020).

Figure 1 Regional Location

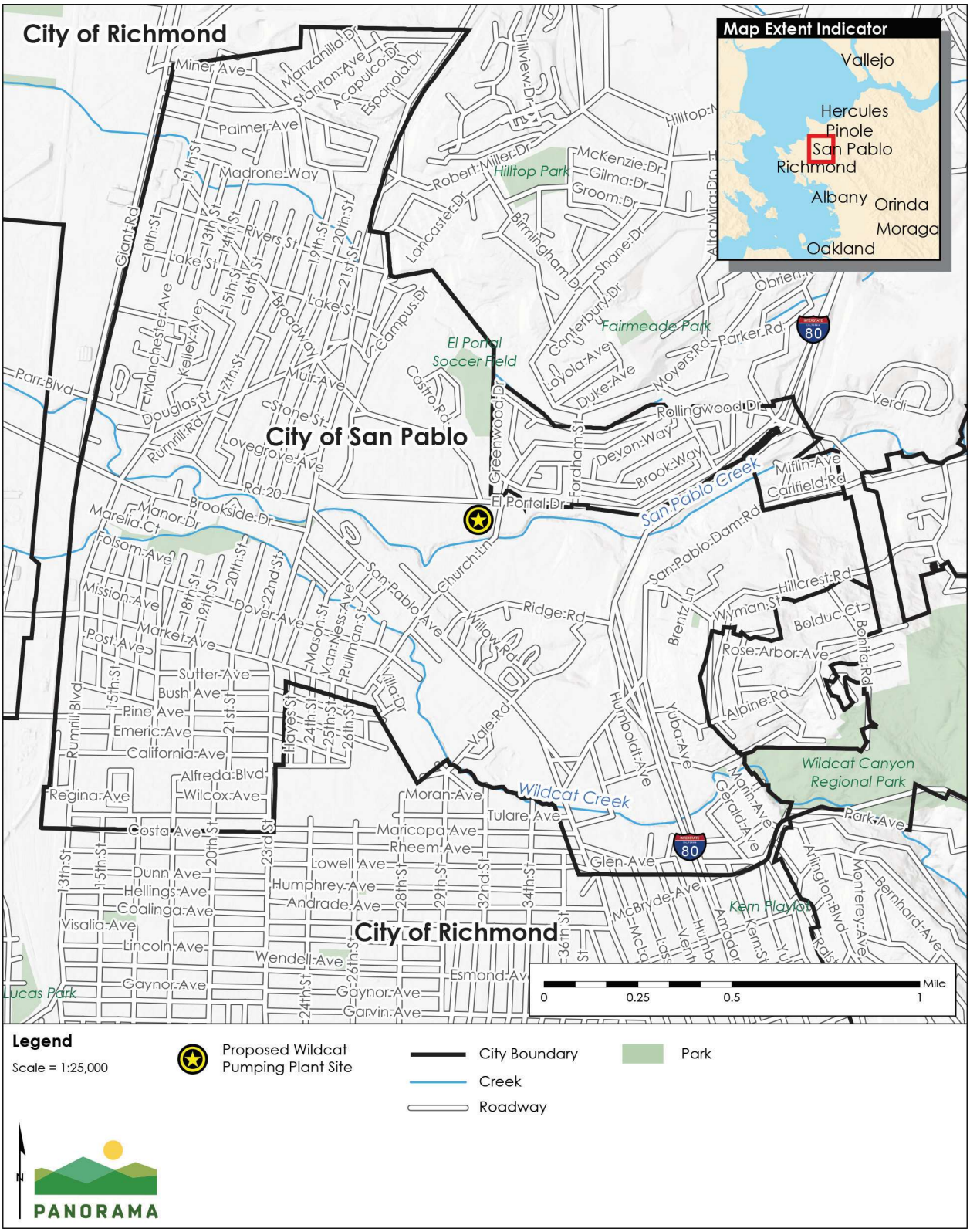
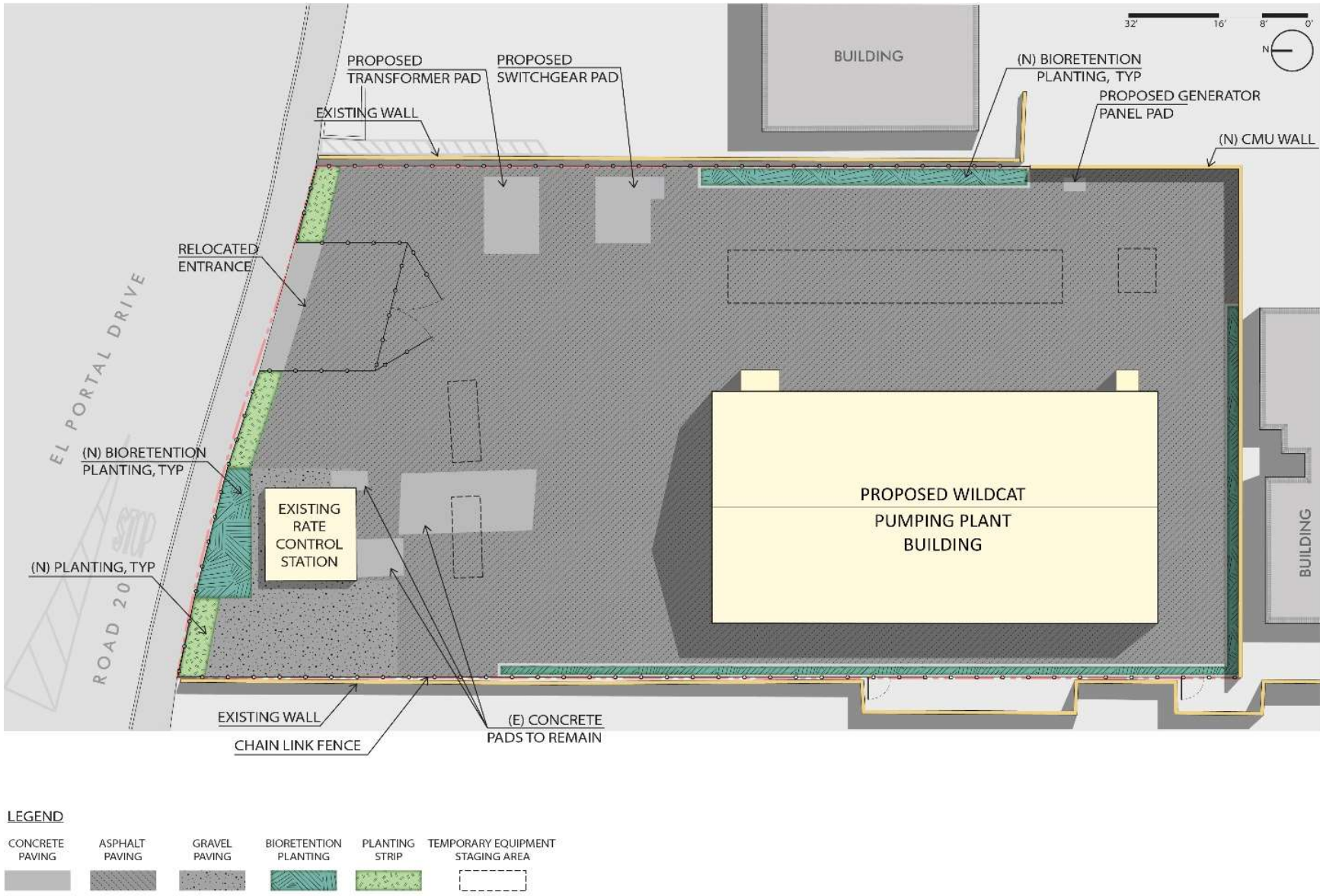


Figure 2 Proposed Wildcat Pumping Plant Site and Road 20 Storm Drain Pipeline Alignment

Figure 3 Proposed Wildcat Pumping Plant Site Plan



1.2 Definitions

1.2.1 Level of Service

Intersection Level of Service (LOS) is used to rank traffic operation on several types of facilities, based on traffic volumes and roadway capacity, using a series of letter designations ranging from A to F. LOS measures the operational effectiveness of a roadway or intersection. LOS A represents free-flow conditions with little delay at intersections and LOS F represents a significantly congested condition where traffic flows can exceed design capacities resulting in long vehicle delays.

The Highway Capacity Manual (HCM) 2010 method used in this analysis to evaluate intersection operations calculates control delay at an intersection based on inputs including traffic volumes, lane geometry, intersection control, pedestrian crossing times, and peak-hour factors (Transportation Research Board, 2010). Control delay is defined as the delay directly associated with the traffic control device and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

At signalized and all-way stopped controlled intersections, the LOS rating is the weighted average control delay of all movements measured in seconds per vehicle. At side-street stop-controlled intersections, LOS is calculated for each controlled movement, as well as for the whole intersection. Table 1 provides definitions of the LOS used in this analysis, as defined in the HCM.

1.2.2 Average Daily Traffic

Average daily traffic (ADT) is a term that describes the average number of vehicles or volume of traffic on a roadway segment over a weekday 24-hour period. In this report the ADT was determined from peak hour traffic for the roadway of interest and are, therefore, generalizations. Per the Federal Highway Administration's (FHWA) Traffic Computation Method, peak hour traffic on a roadway typically represents 8 to 12 percent of daily traffic (FHWA, 2018). Using the middle of this range, the ADT was empirically estimated to be 10 times the peak hour traffic using the following calculation:

Average daily traffic = (AM peak hour traffic + PM peak hour traffic)/2 x 10

1.2.3 Peak Hour Traffic

Peak hour traffic is the hour in which the four highest traffic volume 15-minute periods (consecutive) fall during the typical two-hour commute period. There is an AM and a PM peak hour traffic. The AM (7:00 a.m. to 9:00 a.m.) and PM (4:00 p.m. to 6:00 p.m.) commute periods are generally considered the peak flow of traffic during the weekday periods. Depending on the specific region, these periods can fluctuate by as much as an hour or more depending on a variety of factors, including commute distances, freeway operations, and local incidents.

The peak hour of traffic flow is determined from the AM and PM peak commute period counts. From these peak hour volumes, intersection LOS is calculated to understand each intersections operation. As previously indicated, operational conditions are assigned a letter grade from LOS A to LOS F.

1.2.4 Roadway Types

The roadways described below include State Highways, Auto Arterials, Urban Arterials, Mixed Use Boulevards, Avenues, and Local Streets. The Circulation Element of the City of San Pablo's General Plan (2011) defines these roadway types as follows (City of San Pablo, 2011):

- **State Highway** is the classification for Interstate 80 (I-80), which serves high volumes of high-speed regional vehicle traffic, including automobiles and trucks. Bicycles and pedestrians are prohibited.
- **Auto Arterials** are two- to four-lane roadways that serve high volumes of regional motor vehicle traffic, including automobiles and trucks. These roadways prioritize vehicles; bicycle and pedestrian movements are secondary. Auto Arterials have limited intersections and curb cuts, and they serve as primary connections between destinations both within and outside of the city. Transit riders are served on these roadways except for along Giant Road. San Pablo Avenue, Giant Road, and San Pablo Dam Road also serve as truck routes. All Auto Arterials provide bicycle access; however, the higher design volumes on these roadways also require bike signage and painted arrows in Class III designations as defined below in Section 1.2.5. On-street parking is generally not provided along Auto Arterials. Sidewalks are required on at least one side of the roadway.
- **Urban Arterials** are similar in function to Auto Arterials but differ in character. They are two- to four-lane roadways that serve high volumes of regional motor vehicle traffic. However, they also provide access to adjacent neighborhoods and pedestrian-intensive commercial areas, and they better accommodate bicycle and pedestrian traffic. They provide primary connections within the city and have frequent intersection and points of access. Except for Rumrill Boulevard south of Market Street, these roadways include a Class II bike lane as defined below in Section 1.2.5. Most importantly, Urban Arterials emphasize the pedestrian environment: they have continuous sidewalks with minimum width of eight feet; a continuous row of street trees, and well-delineated sidewalks.
- **Mixed Used Boulevards** are located along the city's central commercial corridors and accommodate moderate to high volumes of through-traffic within and beyond the city. They are also key transit corridors for Alameda-Contra Costa Transit District (AC Transit) bus service. Signal preemption for transit vehicles, bus stops/shelters, and, where appropriate, bus lanes are provided. Other travel modes, including automobiles and bicycles, are accommodated in the roadway, but if there are conflicts, transit has priority. Continuous Class II bike lanes, as defined below in Section 1.2.5, are provided. In general, pedestrians have priority on all these roadways and particularly around major retail commercial nodes. Pedestrians are accommodated with minimum eight-foot

sidewalks on both sides of the street, and amenities around bus stops (e.g. shelters, benches, lighting, etc.). There are continuous street trees, pedestrian-scale lighting, well-delineated crosswalks, curb ramps, pedestrian refuges, and actuated pedestrian signals, where appropriate.

- **Avenues** function as collector streets, connecting Local Streets to Auto and Urban Arterials and Mixed Use Boulevards. Avenues have moderate to high volumes of vehicular traffic, and equally accommodate automobiles, bicycles, and pedestrians within the right-of-way. Transit use, if any, is incidental, and pedestrians are provided with continuous sidewalks (six-foot minimum width) on both sides of the street. On-street parking is allowed and encouraged.
- **Local Streets** accommodate automobiles, bicycles, and pedestrian equally in the right-of-way. Transit use, if any, is incidental. Local streets accommodate low volumes of local traffic and primarily provide access to abutting property. On-street parking is provided, and through-traffic is discouraged using traffic calming techniques.

1.2.5 Bicycle Route Classes

The California Department of Transportation (Caltrans) designates bikeways into four classes that vary by their level of separation from motor vehicle travel. These classifications are used by the City of San Pablo in the 2017 San Pablo Bicycle and Pedestrian Master Plan (City of San Pablo, 2017).

Class I Shared Use Paths are located off-street and can serve both bicyclists and pedestrians. Recreational trails can be considered Class I facilities. Class I paths are typically 8 to 10 feet wide, excluding shoulders, and are generally paved.

Class II Bicycle Lanes provide a dedicated area for bicyclists within the paved street width using striping and appropriate signage. These facilities are typically 5 to 6 feet wide.

Class III Bicycle Routes are routes where the travel lane is shared by drivers and bicyclists. These facilities are designated on roadways with low levels of motor vehicle traffic where bicyclists may share the travel lane. Bicycle routes use signs, pavement markings and traffic calming techniques along the route to identify the bicycle route.

Class IV Separated Bikeways, also known as cycle tracks, provide space that is exclusively for bicyclists and separated from motor vehicle travel lanes, parking lanes, and sidewalks. Parked cars, curbs, bollards, or planter boxes provide physical separation between bicyclists and moving cars. Where on-street parking is allowed, the parking is placed between the bikeway and the travel lanes.

Table 1 Level of Service

Level of Service	Type of Flow	Delay	Maneuverability	Intersection Control Delay (seconds/vehicle)		
				Signalized	Unsignalized	All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and most drivers find freedom of operation.	< 10.0	< 10.0	< 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel restricted within groups of vehicles.	>10.0 and < 20.0	>10.0 and < 15.0	>10.0 and < 15.0
C	Stable Flow	Higher delays resulting from fair progression and longer cycles. Individual cycle failures begin to appear at level C. The number of vehicles stopping is significant, although many pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel restricted.	>20.0 and < 35.0	>15.0 and < 25.0	>15.0 and < 25.0
D	Approaching Unstable Flow	Influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycles, or high volume-to-capacity ratios. Many vehicles stop, and proportion of vehicles not stopping declines. Cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and < 55.0	>25.0 and < 35.0	>25.0 and < 35.0
E	Unstable Flow	Considered the limit of acceptable delay. Indicative of poor progression, long cycles, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and < 80.0	>35.0 and < 50.0	>35.0 and < 50.0
F	Forced Flow	Considered unacceptable to most drivers. Often occurs with over saturation. May occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycles are major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes vary widely, depending on downstream conditions.	> 80.0	> 50.0	> 50.0

2 Environmental Setting

2.1 Roadway Network

2.1.1 Regional Roadways

I-80 is a north-south freeway that runs through the eastern portion of the City of San Pablo. I-80 is a designated truck route for federal Surface Transportation Assistance Act trucks and California legal trucks (City of San Pablo, 2015). I-80 generally provides four travel lanes in each direction.

2.1.2 Local Roadways

El Portal Drive is an east-west, four-lane Auto Arterial street east of Church Lane and an Urban Arterial between Rumrill Road and Church Lane. El Portal Drive connects to San Pablo Avenue, Church Lane Road, and I-80, extending through the eastern edge of the City of San Pablo to San Pablo Dam Road. On-street parking is allowed with a four-hour time restriction on the south side of the street between Church Street and Fordham Street and prohibited elsewhere. The posted speed limit is 30 miles per hour (mph). As detailed below in Section 2.2, two transit lines serve El Portal Drive. No bike route is present along this corridor.

Church Lane is a north-south, two-lane Urban Arterial street. Church Lane connects to El Portal Drive to the north and San Pablo Avenue to the south. On-street parking is allowed on both sides of the street. According to the San Pablo Bicycle and Pedestrian Master Plan (Appendix A, page A-8), the prima facie speed limit is 25 mph. As detailed below in Section 2.3, Church Lane provides a Class II bicycle lane except for the segment between San Pablo Avenue and Willow Road. As described below in Section 2.2, two transit lines also serve Church Lane.

Road 20 is an east-west, two-lane Avenue with a center turn lane. Road 20 begins west of San Pablo Avenue and merges into El Portal Drive in the eastbound direction. Road 20 serves as the only accessway to the project site and serves a residential neighborhood, Walter T. Helms Middle School, and the San Pablo Community Center. On-street parking is allowed on both sides of the street west of Walter T. Helms Middle School. White curb passenger loading zones are provided along the frontage of the middle school and on the north side of the street across from the school. The posted speed limit is 30 mph eastbound and 25 mph westbound. As detailed below in Section 2.2, one transit line serves Road 20. No bike route is present along this corridor.

San Pablo Dam Road is an east-west, four-lane Urban Arterial between I-80 and San Pablo Avenue and Auto Arterial east of I-80. San Pablo Dam Road connects San Pablo Avenue to I-80 and continues east beyond the San Pablo border. San Pablo Dam Road is a designated local

truck route for the entire length of the corridor within the city. On-street parking is prohibited. The posted speed limit is 30 mph between San Pablo Avenue and the I-80 overpass and 35 mph east of the freeway. As detailed below in Section 2.2, three transit lines serve San Pablo Dam Road. The street does not provide a bike route.

San Pablo Avenue is a north-south, four-lane Mixed Use Boulevard serving low- and mid-density residential and commercial uses. San Pablo Avenue extends beyond the boundaries of the City of San Pablo, becoming California State Route 4 (CA-4) to the north and California State Route 123 (CA-123) to the south. On-street parking is typically allowed on both sides of the street. The posted speed limit is 35 mph. As detailed below in Section 2.2, three transit lines serve San Pablo Avenue, and a Class II bicycle lane is provided between Road 20 and San Pablo Dam Road.

2.1.3 Traffic Operations

Study Intersection and Roadway Segment Selection

Anticipated construction volumes for all project components were provided by EBMUD. These volumes were reviewed to identify the construction phases that would result in the maximum construction impacts to traffic, which include pumping plant suction and discharge pipeline work and off-site storm drain installation. The traffic operations analysis for the project conservatively focuses on maximum construction impacts to traffic because the period of maximum construction related traffic is most likely to trigger significant impacts and the need for mitigation. Other construction activities with less traffic would be expected to have less impact compared to the maximum construction traffic condition.

Study Intersections

Four study intersections were identified for this analysis. These intersections are listed below and presented in Figure 4.

1. San Pablo Avenue/Road 20/23rd Street
2. El Portal Drive/Church Lane
3. San Pablo Avenue/Church Lane
4. San Pablo Avenue/San Pablo Dam Road

Roadway Segments

Three roadway segments were identified for analysis. These segments are listed below.

1. Road 20 between San Pablo Avenue and Paseo Way
2. El Portal Drive between Church Lane and Fordham Street
3. San Pablo Avenue between Church Lane and Van Ness Street

2.1.4 Existing (Current) Conditions

Due to the COVID-19 pandemic, traffic volumes have decreased, resulting in atypical and non-representative traffic levels in the area. As a result, alternative methods to estimate current traffic volumes in typical conditions were used. Traffic counts were taken in the AM and PM peak periods in 2017 at the study intersections for the San Pablo City Hall Reuse Project Transportation Impact Assessment (Fehr & Peers, 2017). The counts were multiplied by one percent per year for four years to establish existing (2021) traffic conditions. The one percent growth factor is consistent with the upper bounds of growth used by Caltrans when forecasting traffic in Alameda County and west Contra Costa County and has been applied to multiple highway improvement projects on Interstates 880, 580, and 680 over the past 20 years.

Table 2 summarizes the existing (year 2021) weekday daily, AM peak hour, and PM peak hour road segment traffic volumes. Figure 4 shows the AM and PM peak hour intersection turning movements (year 2021) used in the intersection operations analysis. The road segment traffic volumes were input into Synchro software along with other intersection features such as geometry and traffic control. Signal timing at the study intersections reflect timing sheets and observations collected alongside the traffic counts taken in 2017. Intersection delay and LOS was calculated using the HCM 2010 methods (Transportation Research Board, 2010) which is documented in Chapter 16 (Signalized Intersections) and Chapter 17 (Unsignalized Intersections) of the HCM. For description of delay and LOS, see Section 1.2.1. Table 3 presents the intersection analysis results for the study intersections listed above. The detailed intersection analysis worksheets are provided in Appendix A.

Table 2 Existing (2021) Daily and Peak Hour Traffic Volumes

Roadway	Location	Average Daily Traffic[a]	AM Peak Hour[b]	PM Peak Hour[c]
1. Road 20	Between San Pablo Avenue and Paseo Way	5,800	750	410
2. El Portal Drive	Between Church Lane and Fordham Street	17,500	1,680	1,820
3. San Pablo Avenue	Between Church Lane and Van Ness Street	14,200	1,270	1,570

a. Average Daily Traffic over a 24 -hour period is empirically estimated to be 10 times the Peak Hour Traffic. Therefore, Average Daily Traffic = (AM Peak Hour Traffic + PM Peak Hour Traffic)/2 x 10

b. Maximum hourly volume between the hours of 7:00 a.m. and 9:00 a.m. Volumes calculated based on 2017 AM peak hour traffic counts with 1% annual growth.

c. Maximum hourly volume between the hours of 4:00 p.m. and 6:00 p.m. Volumes calculated based on 2017 PM peak hour traffic counts with 1% annual growth.

Source: Fehr & Peers, 2021

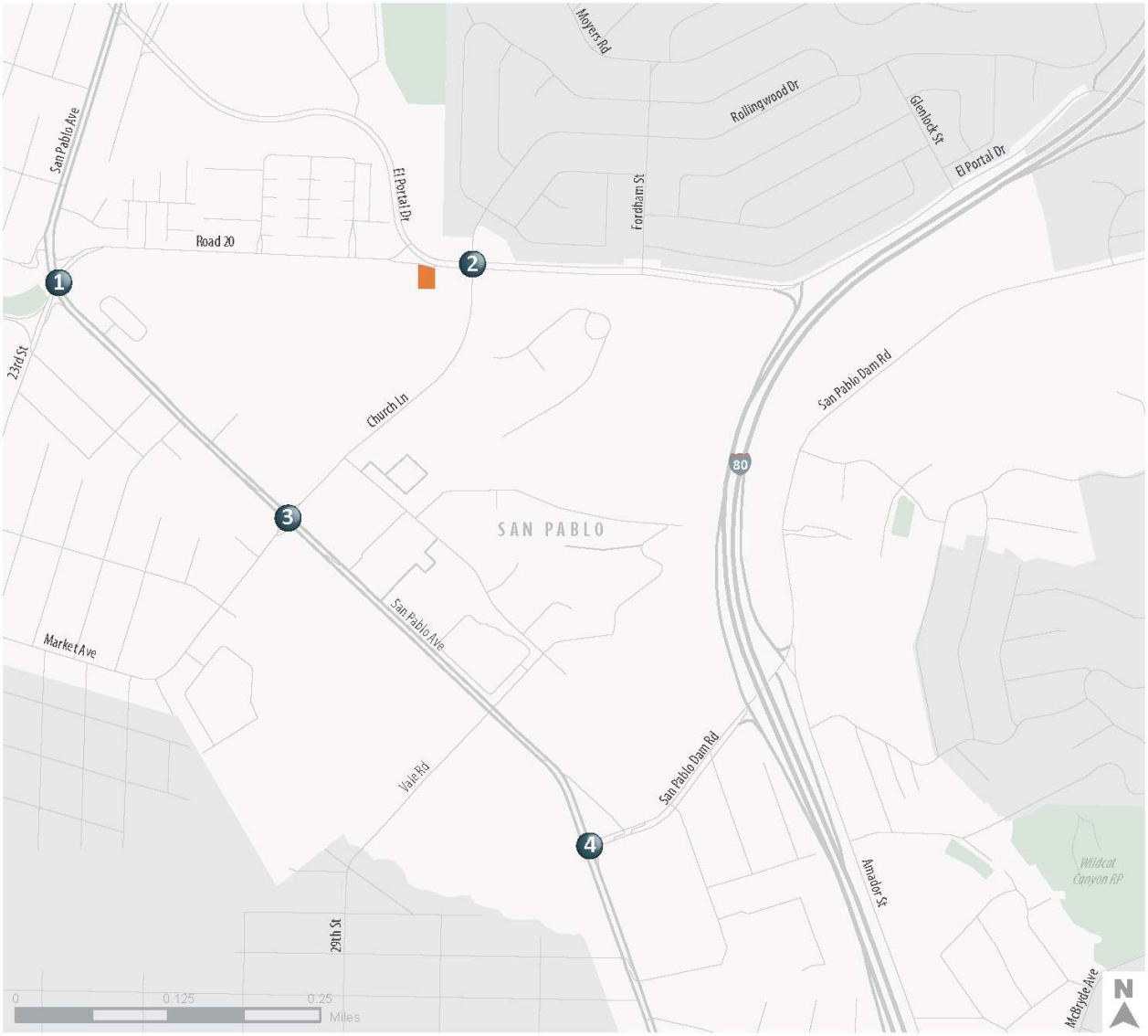
Table 3 Existing (2021) Peak Hour Intersection Levels of Service

Intersection	Control	Peak Hour	Existing	
			Delay[a]	LOS
1. San Pablo Avenue/23rd Street/Road 20	Signal	AM	45.9	D
		PM	34.4	C
2. Church Lane/El Portal Drive	Signal	AM	30.7	C
		PM	33.0	C
3. San Pablo Avenue/Church Lane	Signal	AM	29.3	C
		PM	30.2	C
4. San Pablo Avenue/San Pablo Dam Road	Signal	AM	21.1	C
		PM	39.7	D

a. Average vehicle delay in seconds, calculated using HCM 2010 methods.

Source: Fehr & Peers, 2021

Figure 4 Existing (2021) Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls



2.1.5 Construction Year (2026) Conditions

Because construction is expected to begin in 2026, construction-year baseline traffic projections account for a one percent per year growth compounded over five years and added to year 2021 traffic volumes for all road segments and study intersections presented above. Table 4 shows construction-year traffic projections for each study segment. Corresponding intersection levels of service for construction-year baseline conditions are summarized in Table 5. Construction-year baseline peak hour intersection volumes are shown on Figure 5. Detailed intersection LOS analysis worksheets are provided in Appendix A.

Table 4 Construction-Year (2026) Baseline Daily and Peak Hour Traffic Volumes

Roadway	Location	Average Daily Traffic[a]	AM Peak Hour[b]	PM Peak Hour[c]
1. Road 20	Between San Pablo Avenue and Paseo Way	6,050	780	430
2. El Portal Drive	Between Church Lane and Fordham Street	18,400	1,770	1,910
3. San Pablo Avenue	Between Church Lane and Van Ness Street	14,950	1,340	1,650

a. Average Daily Traffic over a 24 -hour period is empirically estimated to be 10 times the Peak Hour Traffic. Therefore, Average Daily Traffic = (AM Peak Hour Traffic + PM Peak Hour Traffic)/2 x 10

b. Maximum hourly volume between the hours of 7:00 a.m. and 9:00 a.m. Volumes calculated based on 2017 AM peak hour traffic counts with 1% annual growth.

c. Maximum hourly volume between the hours of 4:00 p.m. and 6:00 p.m. Volumes calculated based on 2017 PM peak hour traffic counts with 1% annual growth.

Source: Fehr & Peers, 2021

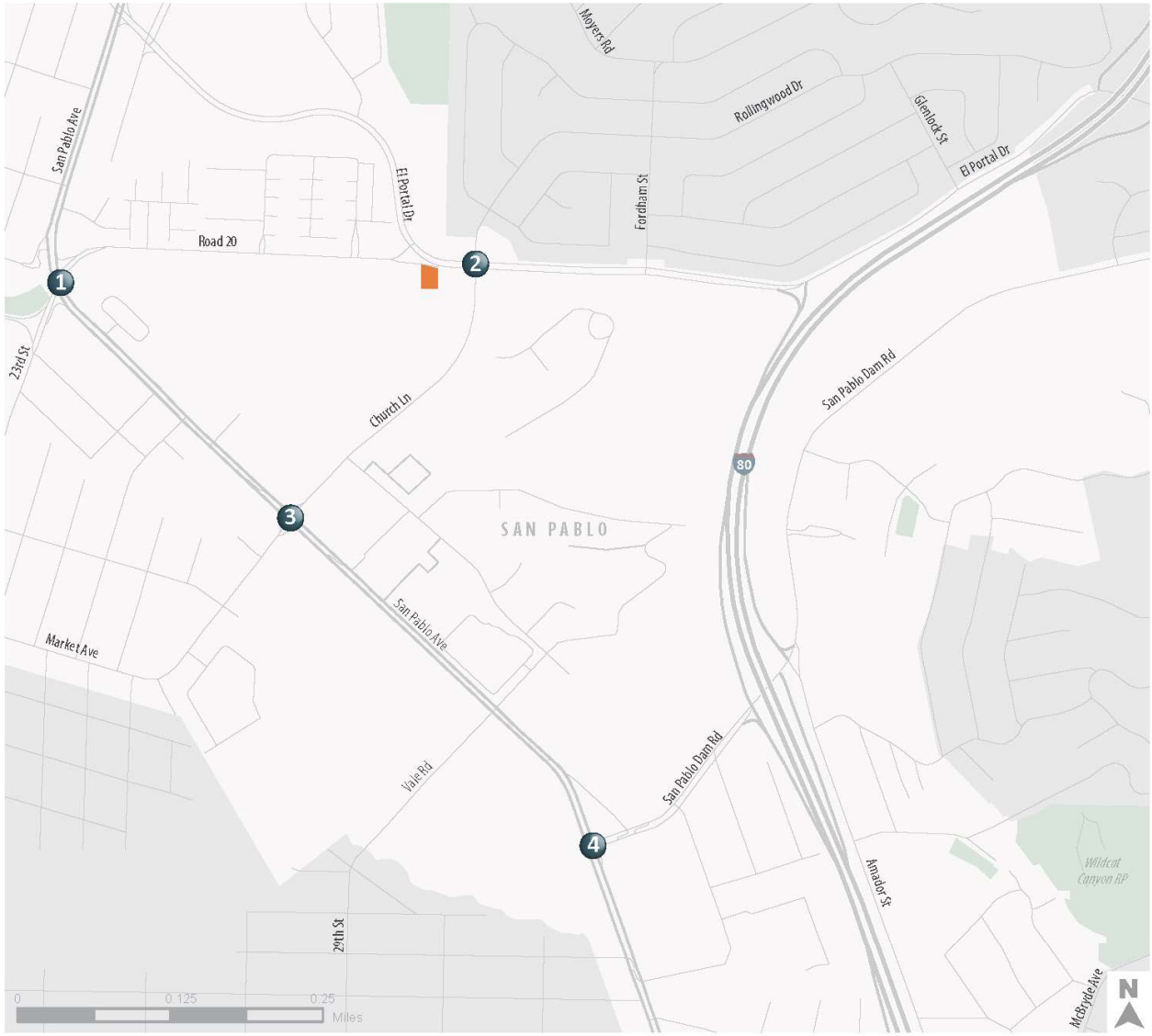
Table 5 Construction-Year (2026) Baseline Peak Hour Intersection Levels of Service

Intersection	Control	Peak Hour	Existing	
			Delay[a]	LOS
1. San Pablo Avenue/23rd Street/Road 20	Signal	AM	50.4	D
		PM	38.0	D
2. Church Lane/El Portal Drive	Signal	AM	32.8	C
		PM	34.8	C
3. San Pablo Avenue/Church Lane	Signal	AM	31.4	C
		PM	32.4	C
4. San Pablo Avenue/San Pablo Dam Road	Signal	AM	22.6	C
		PM	42.8	D

a. Average vehicle delay in seconds, calculated using HCM 2010 methods.

Source: Fehr & Peers, 2021

Figure 5 **Construction-Year (2026) Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls**



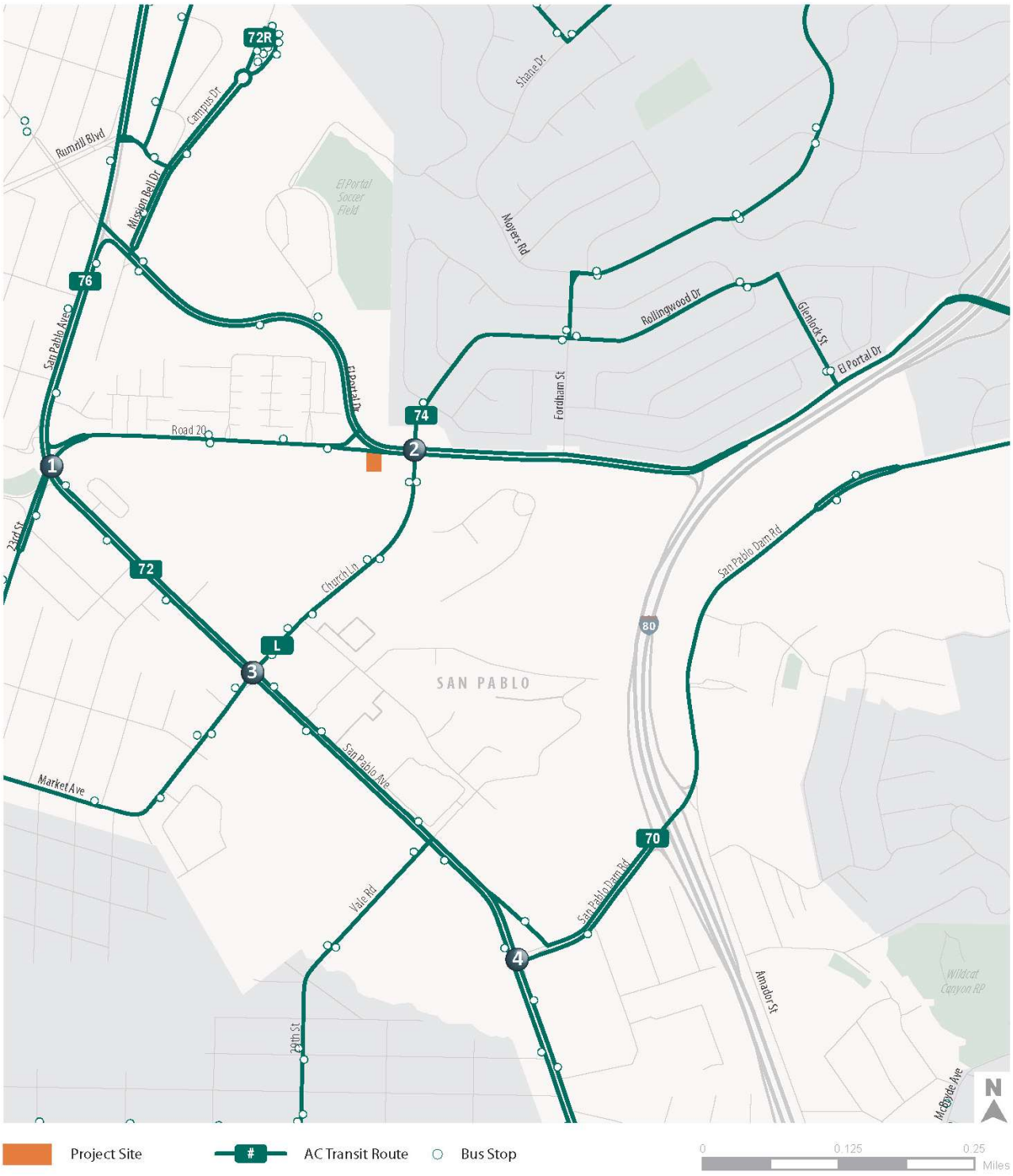
2.2 Transit Service

The project area is served by multiple AC Transit bus routes (AC Transit, 2020). While many transit lines have been impacted by the COVID-19 pandemic, several transit lines served the project area regularly before the pandemic. It is unclear how or if existing transit lines near the project site will change by the start of project construction. This report assumes limited changes.

AC Transit bus lines 70, 72, 72R, 74, and 76 serve streets accessing the project on weekdays and weekends at all hours of the day. Bus line 70 is an east-west route south of the project site, which stops along San Pablo Avenue and San Pablo Dam Road. In the north-south direction, bus lines 72 and 72R connect to Jack London Square in Oakland and stop along San Pablo Avenue. Bus line 72 also stops on El Portal Drive west of Church Lane. Bus line 74 operates between Richmond's Marina Bay and the Hilltop Mall, stopping along San Pablo Avenue near the project site. Bus line 74 also operates along El Portal Drive and continues east of the I-80 freeway. Bus line 76, which operates between the El Cerrito Del Norte Bay Area Rapid Transit Station and the Hilltop Mall in Richmond, is the only bus line that stops along Road 20 near the project site.

Bus line L is a transbay route serving commuters on weekdays. Line L stops along El Portal Drive, Church Lane, and San Pablo Avenue near the project site. Bus stops are present at all study intersections associated with the project construction. Figure 6 shows the existing transit routes near the project site.

Figure 6 Existing Transit Routes



2.3 Pedestrian/Bicycle Circulation

2.3.1 Pedestrian Facilities

Pedestrian facilities, which include sidewalks, crosswalks, and pedestrian signals, are described for the project area below. Figure 7 shows the existing sidewalk gaps and existing and proposed shared-use (bicycle and pedestrian) paths near the project site.

Sidewalks exist on both sides of most of the roads accessing the project site. All of San Pablo Avenue, Road 20, and Church Lane provide sidewalks on both sides of the street. El Portal Drive provides a sidewalk on one side of the street approaching I-80 and San Pablo Dam Road does not provide sidewalk facilities adjacent to I-80 and continuing to the east. Marked pedestrian crossings are provided at each of the four study intersections on all crossing legs, except the San Pablo Avenue/23rd Street/Road 20 intersection, which does not provide a marked crossing on the north leg of the intersection. Each study intersection also provides pedestrian crossing signals.

2.3.2 Bicycle Facilities

Bicycle facilities, which include the bicycle routes described in Section 1.2.5, are described below. Figure 7 shows the existing and proposed bicycle facilities near the project site.

Class II bike lanes currently exist on Church Lane, San Pablo Avenue, and 23rd Street in the vicinity of the project site. There are no existing bicycle facilities directly adjacent to the project site on Road 20 or El Portal Drive. Based on the City of San Pablo Bicycle and Pedestrian Master Plan (City of San Pablo, 2017), a Class III bike route is proposed along Road 20 west of San Pablo Avenue; however, it is currently unclear when this facility would be constructed.

Figure 7 Existing Bicycle and Pedestrian Facilities

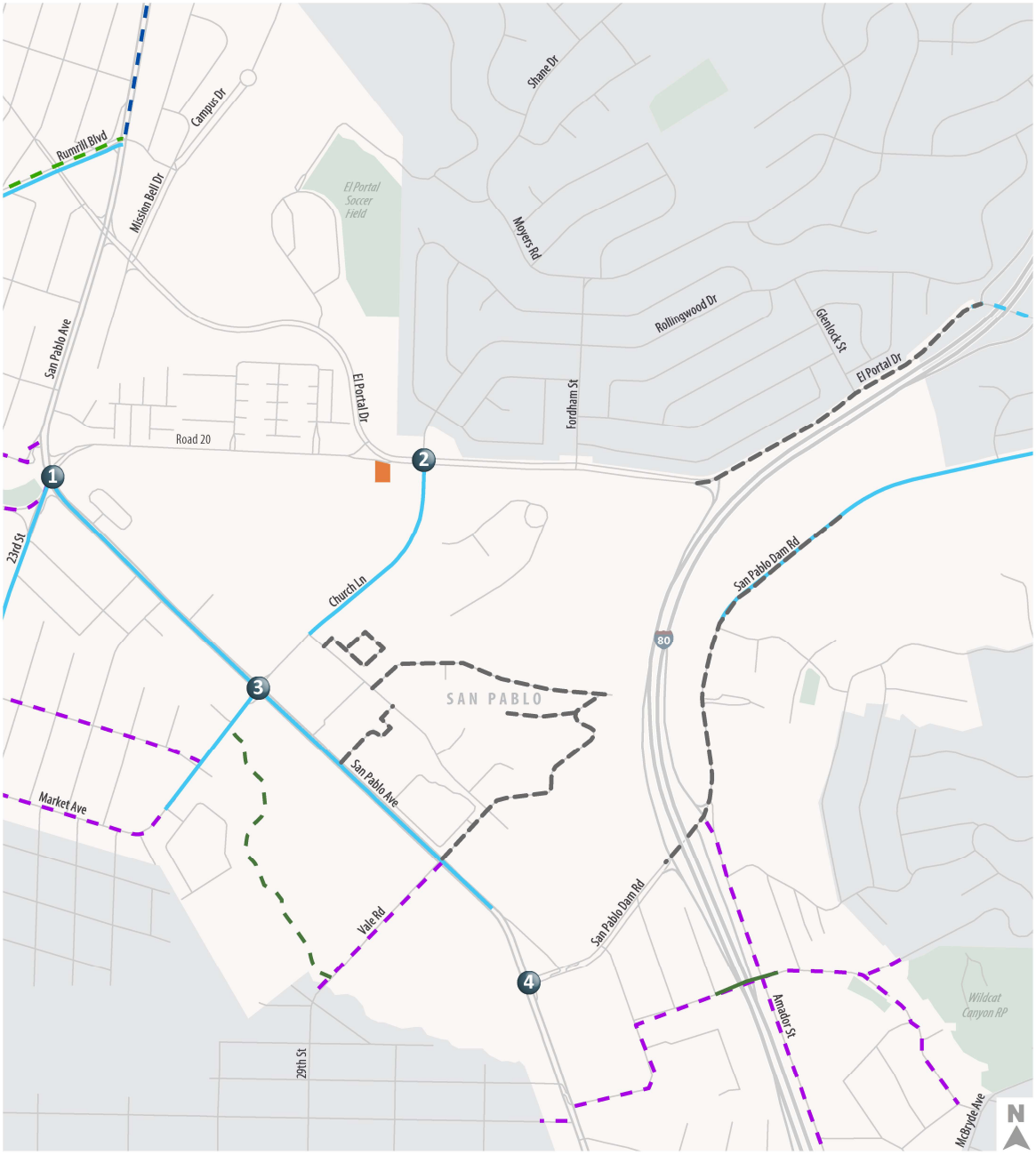


Figure 7

Existing Bicycle and Pedestrian Facilities

OK20-0357.01_X_BaseMap

3 Regulatory Setting

3.1 Federal Regulations

The Code of Federal Regulations (CFR) includes the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government. The rules under Title 49 of the CFR address safety considerations for the transport of goods, materials, and substances and govern the transportation of hazardous materials, including types of materials and marking of the transportation vehicles.

3.2 State Regulations

Caltrans manages interregional transportation, including management and construction of the California highway system. Caltrans is also responsible for permitting and regulation of the use of state roadways. Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related rail-traffic disturbance.

3.2.1 Senate Bill 743

On September 27, 2013, Senate Bill (SB) 743 was signed into law, building on legislative changes from SB 375 and Assembly Bill (AB) 32. SB 743 began the process to modify how impacts to the transportation system are assessed for purposes of California Environmental Quality Act (CEQA) compliance. SB 743 created a shift in transportation impact analysis under CEQA from a focus on automobile delay, as measured by LOS and similar metrics, toward a focus on reducing vehicle miles traveled (VMT).

SB 743 also includes amendments that revise the definition of "infill opportunity zones" to allow cities and counties to opt out of traditional LOS standards established by Congestion Management Programs, and requires the Governor's Office of Planning and Research to update the CEQA Guidelines and establish criteria for determining the significance of transportation impacts. The statute states that upon certification of the new criteria, automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, would not be considered a significant impact on the environment under CEQA, except in certain locations specifically identified in the new criteria.

The new criteria, contained in CEQA Guidelines Section 15064.3, were certified and adopted in December 2018 and applied statewide beginning on July 1, 2020. Section 15064.3 states that VMT is the most appropriate metric to assess transportation impacts and that, with limited

exceptions, a project's effect on automobile delay does not constitute a significant environmental impact.

3.3 Local Regulations

Pursuant to California Government Code Section 53091, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protected policies for guidance.

3.3.1 Contra Costa County Plans and Policies

In Contra Costa County, the Contra Costa Transportation Authority (CCTA) plans, funds, and delivers transportation programs and projects that expand access to and improve mobility for Contra Costa County. CCTA is responsible for ensuring the completion of a wide variety of projects that were included in the original Measure C Expenditure Plan and the Measure J Expenditure Plan. Applicable CCTA plans and policies are described in further detail below.

Contra Costa County Transportation Authority VMT Analysis Methodology for Land Use Projects in Contra Costa County

In July 2020, the CCTA Board adopted the CCTA VMT Analysis Methodology for Land Use Projects in Contra Costa County (CCTA, 2020). As described in the CCTA VMT Methodology, the first step in the VMT analysis process is project screening, in which the project is compared against a set of criteria to determine if the project can be screened out of conducting further VMT analysis. If the project does not satisfy the screening criteria, the next step is to estimate the project's VMT and compare it against a set of significance thresholds to determine if the project causes a significant VMT impact. If the project does cause a significant VMT impact, the last step is to identify feasible mitigation measures that could reduce or eliminate that impact.

The CCTA VMT Methodology presents five screening criteria to determine if a project can be screened out of conducting further VMT analysis.

1. **CEQA Exemption**. Any project that is exempt from CEQA is not required to conduct a VMT analysis.

2. **Small Projects**. Small projects can be presumed to cause a less-than-significant VMT impact. Small projects are defined as having 10,000 square feet or less of non-residential space or 20 residential units or less, or otherwise generating less than 836 VMT per day.[1]
3. **Local-Serving Uses**. Projects that consist of Local-Serving Uses can be presumed to have a less-than-significant impact, absent substantial evidence to the contrary, because these types of projects will primarily draw users and customers from a small geographic area that will lead to short-distance trips and trips that are linked to other destinations.
4. **Projects Located in Transit Priority Areas (TPAs)**. Projects located within a TPA can be presumed to have a less-than-significant impact, absent substantial evidence to the contrary.[2] This exemption would not apply if the project:

    1. Has a Floor Area Ratio (FAR) of less than 0.75;

    2. Includes more parking for use by residents, customers, or employees than required by the lead agency (if the agency allows but does not require the project to supply a certain amount of parking);

    3. Is inconsistent with the applicable Sustainable Communities Strategy (SCS) (as determined by the lead agency, with input from the Metropolitan Transportation Commission); or

    4. Results in a net reduction in multi-family housing units.

5. **Projects Located in Low VMT Areas**. Residential and employment-generating projects located within a low VMT-generating area can be presumed to have a less-than-significant impact absent substantial evidence to the contrary.

    A low VMT area is defined as follows:

    - For housing projects: Cities and unincorporated portions within CCTA's five subregions that have existing home-based VMT per capita that is 85 percent or less of the existing County-wide average.

[1] This threshold ties directly to the OPR Technical Advisory which notes that CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Using statewide average data from the California Statewide Household Travel Survey (CHTS), the amount of daily VMT associated with 10,000 square feet of non-residential space is 836 VMT. Also using statewide average CHTS data, this level of VMT is associated with 20 housing units. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 20 housing units or 10,000 square feet of non-residential space could be considered not to lead to a significant impact.

[2] https://ccta1.maps.arcgis.com/apps/webappviewer/index.html?id=4135020bb272458f824152fedb78a088

- For employment-generating projects: Cities and unincorporated portions of CCTA's five subregions that have existing home-work VMT per worker that is 85 percent or less of the existing regional average.

There is no definition of a low VMT area for Regional-Serving and Other Projects because these projects always require a VMT Analysis unless they are screened out under Criteria 1 through 4.

Contra Costa County Transportation Authority Congestion Management Program

As the designated Congestion Management Agency (CMA) representing the jurisdictions of Contra Costa County, the CCTA is responsible for preparing and adopting a Congestion Management Program (CMP) and updating it every other year. The CMP for Contra Costa County incorporates various strategies and measures to improve congestion management on the Contra Costa County multi-modal transportation system, including LOS monitoring of a designated CMP roadway network (CCTA, 2019). The CMP indicates a standard of LOS F for the freeway segments along I-80 in the vicinity of the project site.

West County Action Plan for Routes of Regional Significance

The West County Action Plan for Routes of Regional Significance (2017) outlines Goals and Objectives, including route-specific multi-modal transportation service objectives (West Contra Costa Transportation Advisory Committee and CCTA, 2017). Peak hour LOS at signalized intersections along arterial Routes of Regional Significance should be at the level defined below and calculated based on the method of analysis in the CCTA's 2013 Technical Procedures (CCTA, 2013). LOS standards on Routes of Regional Significance in the project area are as follows:

- San Pablo Avenue: LOS E
- San Pablo Dam Road: LOS E

Any physical improvement identified as being necessary to achieve this standard is required to be evaluated for is effects on all intersection users, including pedestrians, cyclists, and transit users.

3.3.2 City of San Pablo Plans and Policies

The City of San Pablo's adopted plans and policies shape the transportation analysis framework. The overall goals of these policies are to achieve an effective, sustainable, multi-modal transportation system for the city, including the General Plan Circulation Element (2011) and the Bicycle and Pedestrian Master Plan (2017), which affirm that the City will provide transportation facilities that are safe and convenient for all users of the roadway, including pedestrians, bicyclists, motorists, persons with disabilities, users and operators of public transit, seniors, children, and movers of commercial goods. Applicable plans and policies are described in further detail below.

San Pablo General Plan 2030 Circulation Element

The circulation element ensures an efficient circulation system for all road users. The City is committed to designing a multi-modal system of regional routes, local roads, public transit, and bicycle and pedestrian routes that will enhance the community and protect the environment (City of San Pablo, 2011). Applicable policies from the Circulation Element include:

> C-I-1: Design and operate city streets based on a "Complete Streets" Concept that enables safe, comfortable, and attractive access and travel for pedestrians, bicyclists, motorists, and transit users of all ages and abilities.
>
> C-I-7: Apply traffic Level of Service (LOS) standards to signalized intersections on Regional Routes of Significance to be consistent with the Contra Costa Transportation Authority's West County Action Plan.

San Pablo Bicycle and Pedestrian Master Plan

The Bicycle and Pedestrian Master supports local and regional policies that advocate for improved health, air quality, and transportation choices and was developed to help the City of San Pablo implement its General Plan concerning bicycle and pedestrian planning (City of San Pablo, 2017). Applicable policies from the Bicycle and Pedestrian Master Plan include:

> CIR-1.1: Where feasible, provide mid-block pedestrian connections to facilitate pedestrian crossings and slow vehicle speeds.

3.3.3 EBMUD Standard Construction Specifications

EBMUD Standard Construction Specifications set forth the contract requirements for environmental compliance to which construction workers must adhere and stipulate that the construction contractor is responsible for maintaining compliance with applicable federal, state, and local requirements. These specifications are implemented on all EBMUD projects as part of standard construction procedures. EBMUD reviews contractor submittals for conformance with contract document requirements and specified laws and regulations.

Standard Construction Specification 01 55 26 (Traffic Regulation) is applicable to transportation and traffic (EBMUD, 2017). Specific planning documents and procedures related to transportation and traffic required by EBMUD and its contractors are described below.

- **Submittal of a Traffic Control Plan (TCP)**. In accordance with Section 1.2, Submittals, of Standard Construction Specification 01 55 26 (Traffic Regulation), the project contractor must prepare a TCP that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and the Manual on Uniform Traffic Control Devices. The TCP must be prepared by a California-licensed Traffic Engineer and include:
  - circulation and detour plans to minimize impacts to local street circulation (haul routes should minimize truck traffic on local roadways to the extent possible);

- a description of emergency response vehicle access (a contingency plan must be included if the road or area is completely blocked, preventing access by an emergency responder);
- procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling;
- designated contractor staging areas for storage of all equipment and materials in such a manner to minimize obstruction to traffic;
- locations for parking by construction workers;
- temporary signs, flashing lights, barricades, and other traffic safety devices where required to direct the flow of traffic;
- temporary traffic marking installation requirements where required to direct the flow of traffic (traffic markings must be maintained for the duration of need and removed by abrasive blasting when no longer required);
- flagger requirements to control traffic where required;
- procedures, to the extent safe, to keep sidewalks open for pedestrians or provide alternative routes and signing if sidewalks are to be closed;
- procedures to maintain driveway access unless other arrangements are made; and
- a minimum of 12-foot-wide travel lanes must be maintained unless otherwise approved by EBMUD.

4 Impact Analysis

4.1 Methodology for Analysis

The transportation and circulation analysis evaluated transportation impacts for the following three traffic scenarios:

- **Existing (2021) Plus Project Construction** – Existing conditions with added maximum anticipated construction traffic.
- **Construction-Year (2026) Plus Project Construction** – Anticipated 2026 baseline traffic conditions with added maximum anticipated construction traffic.
- **Project Operation** – Post-construction when the project would be expected to generate two vehicle trips per month for routine maintenance.

An analysis of intersection operations as LOS and other measures of vehicle delay is not required to determine significant impacts under CEQA. However, an intersection operational analysis was performed for locations where maximum construction impacts to traffic would occur at the project site to provide information on projected intersection operating conditions with the addition of project traffic and to identify any deficiencies (such as highly congested conditions that could lead to hazardous conditions for vehicles, bicycles, and pedestrians).

4.2 Short-Term Construction Traffic

EBMUD estimated a construction schedule and the number of worker vehicles and construction trucks anticipated for each phase. Worker vehicles are vehicles used by workers to commute to and from the project work sites. Construction trucks consist of material delivery or off-haul trucks entering and exiting the project work sites. The estimates were based on the number of worker vehicles and construction trucks needed during each phase. The number of project-generated trips would vary daily, depending on the construction phase, planned activity, and material delivery needs. Table 6 provides a summary of the number of worker vehicles and construction truck trips.

Table 6 Construction Vehicle and Truck Trips

Construction Phase	Approx. Duration Weeks (days)	Major Equipment	Haul/ Material Trucks (roundtrips per day)	Max Hourly One-Way Trips	
				Worker Vehicles[a]	Trucks[b]
Mobilization	1 (5)	Backhoe, Haul Truck	2	2	1
Site Preparation and Tree Removal	1 (5)	Backhoe, Chain Saw, Haul Truck	2	8	1
Initial Excavation and Grading	2 (10)	Backhoe, Excavator, Drill Rig, Haul Truck	10	6	3
Pumping Plant Construction (Concrete Work)	26 (130)	Concrete Mixer Truck, Concrete Pump Truck, Material Truck	7	10	2
Pumping Plant Construction (Other)	19 (95)	Boom Truck, Crane, Forklift, Material Truck	2	8	1
Pumping Plant Suction and Discharge Pipelines	2 (10)	Asphalt Paver, Backhoe, Compactor (Plate), Excavator, Generator, Haul Truck, Material Truck, Welding Machine	23	11	6
Pumping Plant Equipment Testing	10 (50)	N/A	0	4	0
Pumping Plant On-Site Drainage	1 (5)	Asphalt Paver, Backhoe, Compactor (Plate), Haul Truck, HDPE Fusion Machine, Material Truck	6	13	2
Off-Site Storm Drain Installation on Road 20	2 (10)	Asphalt Paver, Backhoe, Compactor (Plate), Compactor (Roller), Concrete Saw, Excavator, Haul Truck, HDPE Fusion Machine, Material Truck, Street Sweeper	7	15	2
Final Grading, Backfill, and Paving	2 (10)	Asphalt Paver, Backhoe, Compactor (Plate), Compactor (Roller), Excavator, Haul Truck, Material Truck	10	6	3
Civil Site Work (Concrete Masonry Unit Wall, Fence, Driveway, and Landscaping)	2 (10)	Backhoe, Compactor (Plate), Concrete Mixer Truck, Concrete Saw, Haul Truck, Material Truck	2	6	1

Construction Phase	Approx. Duration Weeks (days)	Major Equipment	Haul/ Material Trucks (roundtrips per day)	Max Hourly One-Way Trips	
				Worker Vehicles[a]	Trucks[b]
Demobilization	1 (5)	Street Sweeper	0	3	0
Total Duration weeks (days)	**69 (345)**				
MAXIMUM ONE-WAY TRIPS PER HOUR =				**15**	**6**
				Vehicles	**Trucks**

Table Notes:

a. Maximum hourly worker trips are estimated by assuming all workers arrive separately at the job site in a one-hour period in the a.m. peak period and leave the job site in a one-hour period during the p.m. peak period.

b. Maximum hourly truck trips are estimated by averaging the number of trucks trips going to and truck trips leaving the job site daily over an eight-hour period and rounded up to the nearest whole number.

General Notes:

- Work schedule: eight-hour workday within construction hours, Monday-Friday between 7:00 a.m. and 7:00 p.m.
- Active construction time does not include down-time, submittal review, material procurement, or fabrication inspection and approval.
- Haul trucks average twenty cubic yards (CY) per load; concrete trucks average nine CY per load; and material trucks average ten CY per load.
- Assume that all excess soil excavation will be off hauled.

Source: EBMUD, 2021

For the purposes of this analysis, the following information was provided by EBMUD, regarding construction schedule, staging areas, and work zones was used.

- **Construction Schedule.** Typical construction hours would occur between 7:00 a.m. and 7:00 p.m., Monday through Friday, with an exception for emergencies. A typical eight-hour workday between Monday and Friday serves as the basis of estimated construction durations for this project. Construction is estimated to take approximately 69 weeks (about 17 months) total beginning in 2026.
- **Staging Areas and Work Zones.** During the construction phase, equipment and materials would be staged onsite and at a nearby offsite location chosen by the contractor, as necessary.

  To accommodate construction of the off-site storm drain, a minimum construction work zone width of up to 15 feet would be needed on the south side of Road 20 for approximately 725 linear feet west of the project site. The work zone would progress segment by segment, with each work zone segment in effect for approximately one day. The work zone would be open to traffic outside the construction work hours.

4.2.1 Project Trip Generation

Project trips were generated by using the largest number of hourly one-way worker and truck trips over the project duration. Project trip generation reflects the periods of maximum construction impacts to traffic from worker vehicle trips during off-site storm drain installation on Road 20 and construction truck trips during the pumping plant suction and pipeline discharge phase. The project trip generation represents a conservative approach to trip generation that accounts for unexpected overlapping of phases, as the maximum number of worker vehicles and truck trips are not expected to occur at the same time during construction.

As indicated in Table 6, the maximum hourly one-way worker trips is 15 trips, occurring during construction of the off-site storm drain along Road 20. All workers are assumed to arrive during the AM peak hour and to depart during PM peak hour; therefore, 30 maximum daily worker trips would occur during this phase. Based on the duration of each construction phase and the workers per day for each phase, the average number of workers per day was calculated to be eight workers per day which equates to eight worker trips arriving during the AM peak hour and eight worker trips departing during the PM peak hour, for a total of 16 average daily work trips.

As indicated in Table 6, the maximum number of daily truck trips is 23 roundtrips, occurring during construction of the suction and discharge pipelines, representing 46 one-way maximum daily truck trips. Using an even distribution over an eight-hour day, the maximum hourly one-way truck trips is six trips, which also applies in the AM and PM peak hours. The average daily truck trips over the course of the construction was estimated based on the total duration of each construction phase and the total daily roundtrip truck trips for each phase. On average over the duration of construction, there would be five roundtrips for trucks, representing 10 one-way daily truck trips. These 10 trips are assumed to be equally distributed over the eight-hour day

and is equivalent to one to two truck trips during each hour, which also applies to the AM and PM peak hours. The project trip generation estimate is summarized in Table 7.

Table 7 Project Trip Generation Estimates

Trip Type	Average Daily Trips [a,]	Maximum Daily Trips [a,d]	Average Hourly Trips [a,b,c]	Maximum Hourly Trips [a,b]
Workers [b]	16	30	8	15
Trucks [c]	10	46	2	6
Total Trips	**26**	**76[d]**	**10**	**21[d]**

a. Trips refer to the number of inbound and/or outbound trips expected to occur.

b. Maximum hourly worker trips from Table 6 are conservatively assumed to occur only during the AM and PM peak hour. Each worker would arrive during the AM peak hour and leave during the PM peak hour. The same methodology was applied to the average hourly worker trips.

c. Average hourly truck trips are daily trips over eight hours, rounded up to the nearest whole number.

d. The maximum daily worker trips and maximum daily truck trips are expected to occur at separate phases of project construction. This analysis conservatively uses each separate daily trip maximum for workers and trucks, although both maximum volumes are not expected to occur concurrently in one single phase.

Source: EBMUD and Fehr & Peers, 2021

4.2.2 Project Trip Distribution

This section describes the distribution patterns of vehicle trips during construction. The distribution and routing of worker and truck trips to the project site is presented on Figure 8 and the truck routing plan is presented on Figure 9. Routes to/from the project site and the regional roadway network were reviewed in the development of preliminary truck routing plans.

Construction Worker Trip Distribution

Construction workers are assumed to be non-local residents, and a trip distribution pattern was developed based on the location of residential land uses where worker trips would originate. It is estimated that 40 percent of workers would access the project site via I-80 at El Portal Drive, 40 percent would access the site via I-80 at San Pablo Dam Road, 10 percent would access the site via southbound San Pablo Avenue, and 10 percent would access the site via 23rd Street. Workers are expected to park on-street along Road 20, El Portal Drive, and Church Lane.

When leaving the project site, it is estimated that 80 percent of workers would travel eastbound on El Portal Drive to I-80, 10 percent would travel southbound on Church Lane to southerly destinations, and 10 percent would travel southbound on Church Lane to northbound San Pablo Avenue. Worker vehicle distribution and routing is presented on Figure 8.

Truck Trip Distribution

Project-related truck traffic for off-hauling, large equipment deliveries, and material deliveries would access the project site via I-80 at San Pablo Dam Road. Although El Portal Drive provides a potential route from I-80 to the project site, that route would involve trucks utilizing Church Lane, a low-volume, two-lane street with on-street parking and Class II bicycle lanes.

Figure 8 Worker and Truck Trip Distribution

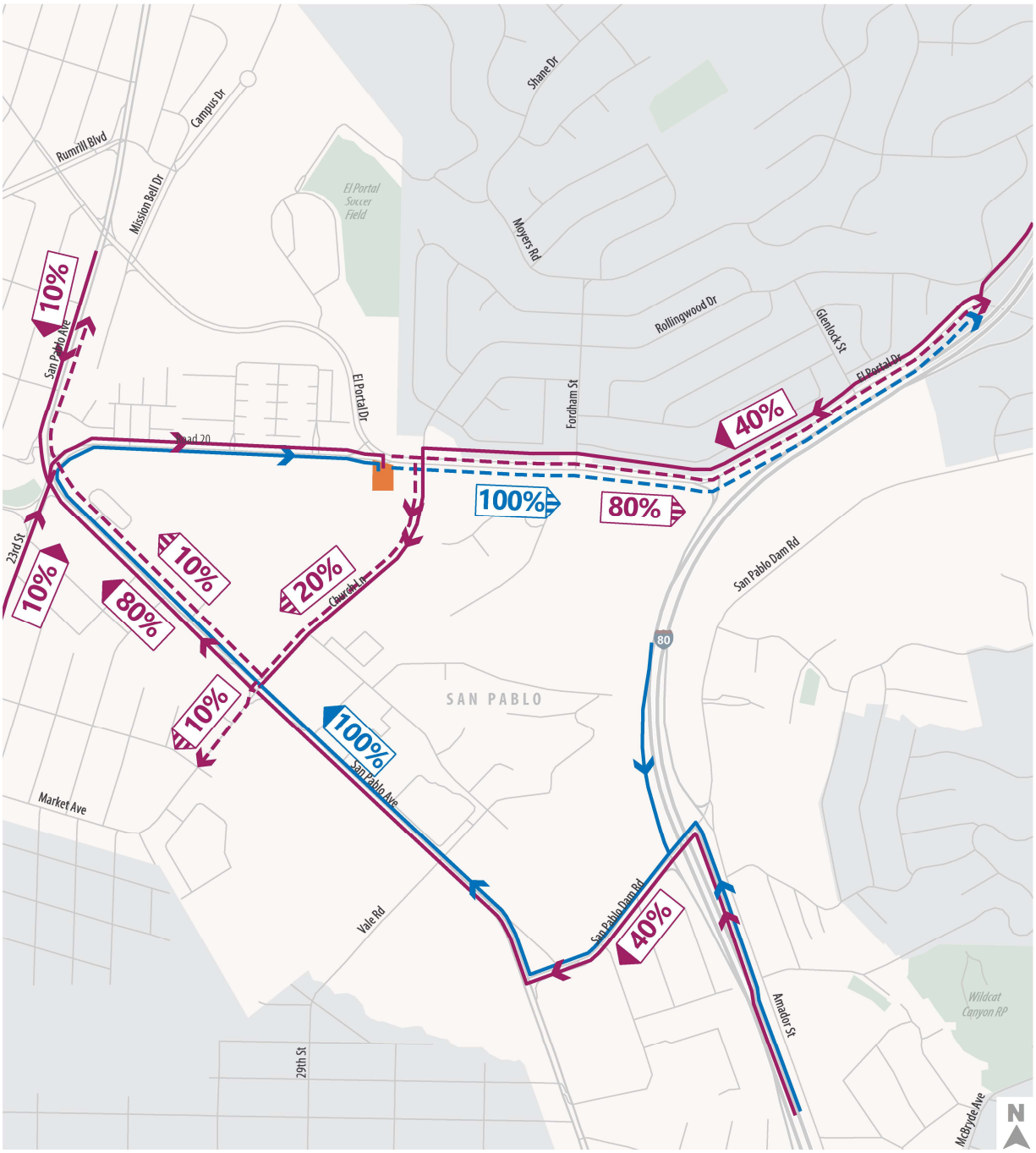
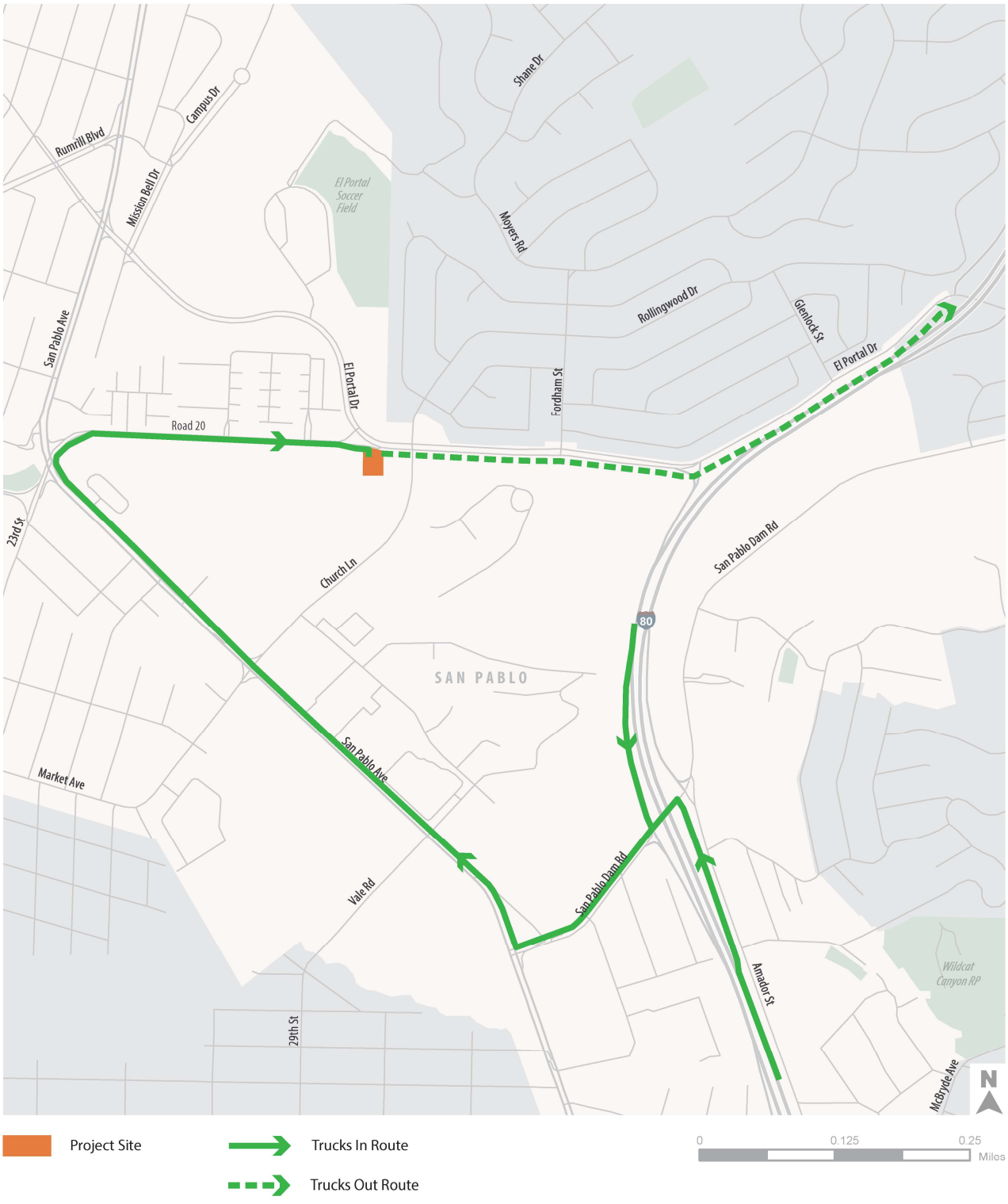


Figure 9 Truck Routing Plan



Although truck use of Church Lane is not prohibited, roadway characteristics on Church Lane (e.g., single lane in each direction, on-street parking, presence of a bicycle lane, etc.) and a lack of travel time savings makes use of Church Lane as a truck route unlikely.

Trucks exiting the site would travel eastbound on El Portal Drive to I-80. The clockwise truck route minimizes the number of turns to access and exit the site.

4.3 Long-Term Operational Traffic

The new Wildcat PP would operate in a comparable manner as the existing temporary portable PP at the project site, which is currently operated and monitored remotely. Worker vehicle trips for operation and maintenance would be like existing conditions, with approximately four one-way trips (two roundtrips) per month.

5 Project Impacts and Mitigation Measures

5.1 Significance Criteria

Consistent with Appendix G of the CEQA Guidelines, a project is considered to have a significant impact related to transportation and traffic if it would:

1. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision(b)[3]
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
4. Result in inadequate emergency access

5.2 Impacts and Mitigation Measures

Impact Traffic-1: Potential to conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. ***(Less than Significant with Mitigation)***

Construction

This section describes the project's potential to impact the circulation system during the construction of the project.

Vehicle Traffic Operations

As discussed in Section 4.1, traffic operations analysis for the project conservatively focuses on the maximum construction-related traffic for worker personal vehicles and construction heavy trucks. The maximum number of worker vehicles would occur during the off-site storm drain installation on Road 20, and the maximum number of construction trucks would occur during the pumping plant suction and discharge pipelines phase. These construction periods do not overlap; however, to present a conservative approach, the vehicle operations analysis of the construction-related impacts to traffic assumed that the maximum number of trips from worker vehicles and construction trucks could occur at the same time.

[3] CEQA Guidelines section 15064.3, subdivision(b) refers to vehicle miles traveled criteria for analyzing transportation impacts.

Existing (2021) Plus Project Construction

As shown in Table 7, the project would generate a maximum total of 76 daily vehicle trips, including 30 worker vehicle trips and 46 truck trips, during peak construction at the project site.

Using the hourly trip generation estimates and the trip distribution described above, Existing (2021) Plus Project segment traffic volumes were determined for the project's construction phase. These segment volumes are shown in Table 8. For a conservative analysis, it was assumed that all worker vehicle trips would travel to the project sites during the AM peak hour and leave during the PM peak hour. It was also assumed that the hourly truck trips would arrive at the sites and leave the sites during each peak hour.

Table 8 Existing (2021) Plus Project Daily and Peak Hour Traffic Volumes

Roadway	Location	Average Daily Traffic[a]	AM Peak Hour[b]	PM Peak Hour[c]
1. Road 20	Between San Pablo Avenue and Paseo Way	5,940	771	416
2. El Portal Drive	Between Church Lane and Fordham Street	17,650	1,692	1,838
3. San Pablo Avenue	Between Church Lane and Van Ness Street	14,330	1,288	1,578

a. Average Daily Traffic over a 24-hour period is empirically estimated to be 10 times the Peak Hour Traffic. Therefore, Average Daily Traffic = (AM Peak Hour Traffic + PM Peak Hour Traffic)/2 x 10

b. Maximum hourly volume between the hours of 7:00 a.m. and 9:00 a.m.

c. Maximum hourly volume between the hours of 4:00 p.m. and 6:00 p.m.

Source: Fehr & Peers, 2021

Peak hour volumes for the Existing (2021) Plus Project scenario, which are shown on Figure 10, were used to evaluate intersection operations. Peak hour intersection operations with maximum construction traffic volumes assigned to the roadway network are summarized in Table 9. Trucks behave differently than passenger vehicles as they take longer to accelerate, decelerate, and negotiate turns. As such, they affect intersection and roadway operations differently. For the purposes of intersection operations analysis, truck trips are analyzed as passenger car equivalent (PCE), using a ratio of 1:2 (one truck is equivalent to two cars). Detailed intersection LOS analysis worksheets are provided in Appendix A.

All study intersections would be expected to operate at LOS D or better during peak hours with the addition of project construction traffic, and project construction traffic is not expected to increase the average LOS for any study intersection.

CCTA and the City of San Pablo have LOS standards of LOS E or better during peak hours at signalized intersections along San Pablo Avenue and San Pablo Dam Road. Therefore, the impact of construction traffic on vehicle operations would be less than significant under Existing (2021) Plus Project Intersection Operations.

Figure 10 **Existing (2021) Plus Project Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls**

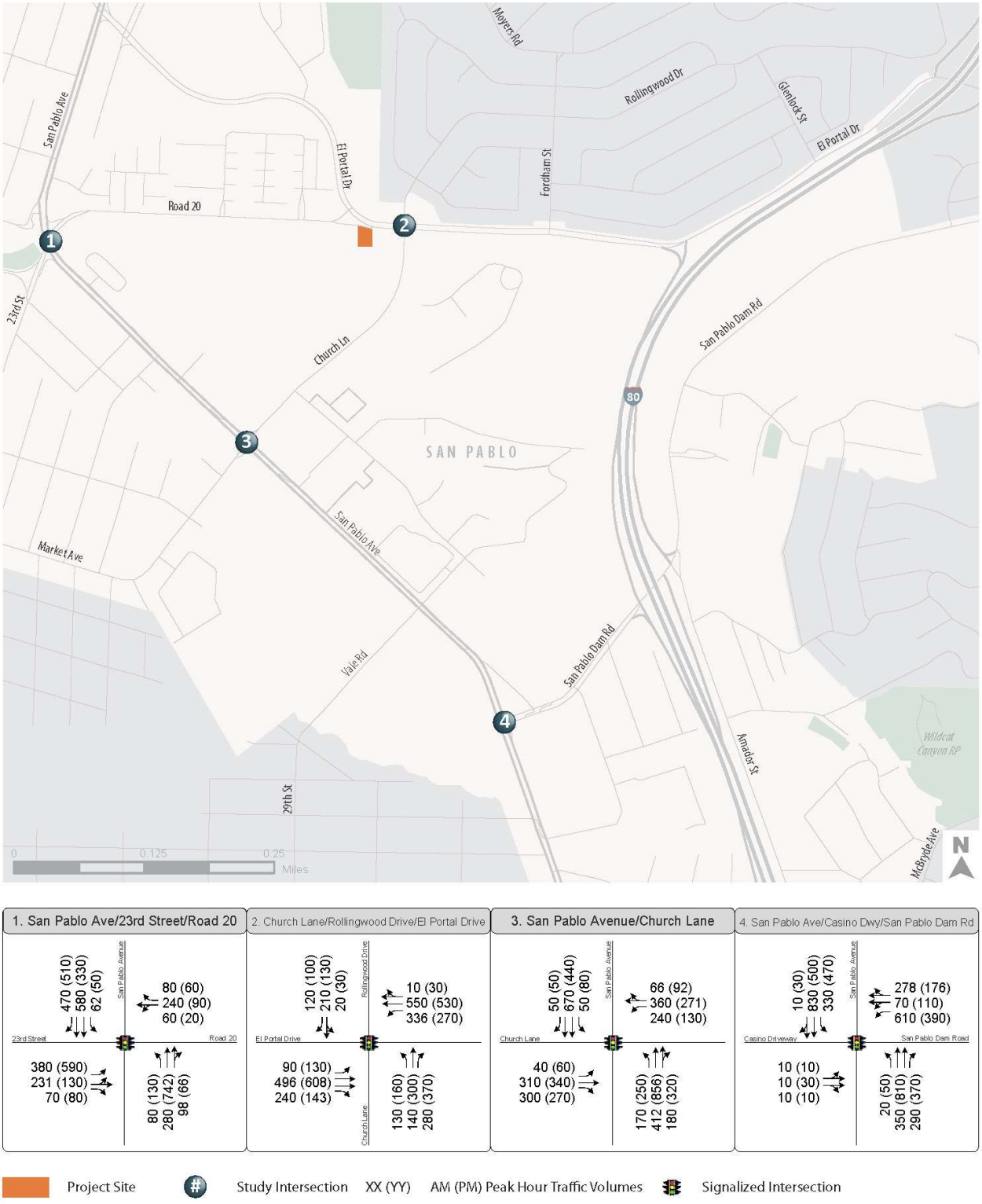


Table 9 Existing (2021) Plus Project Intersection Operations

Intersection	Control	Peak Hour	Existing		Existing (2021) Plus Project	
			Delay[a]	LOS	Delay[a]	LOS
1. San Pablo Avenue/23rd Street/Road 20	Signal	AM	45.9	D	45.9	D
		PM	34.4	C	34.4	C
2. Church Lane/El Portal Drive	Signal	AM	30.7	C	31.2	C
		PM	33.0	C	33.4	C
3. San Pablo Avenue/Church Lane	Signal	AM	29.3	C	29.3	C
		PM	30.2	C	30.4	C
4. San Pablo Avenue/San Pablo Dam Road	Signal	AM	21.1	C	21.1	C
		PM	39.7	D	39.7	D

a. Average vehicle delay in seconds.

Source: Fehr & Peers, 2021

Construction-Year (2026) Plus Project Construction

The Construction-Year (2026) Plus Project Construction scenario represents construction-year (2026) baseline traffic conditions with the addition of the proposed maximum construction activity project traffic volumes. The maximum proposed project traffic volumes, using the project trip generation and trip distribution to assign the trips to the network, were added to the construction-year baseline traffic projections to develop the traffic forecasts. Construction-Year Plus Project Construction peak hour segment volumes are shown on Table 10.

Table 10 Construction-Year (2026) Plus Project Daily and Peak Hour Traffic Volumes

Roadway	Location	Average Daily Traffic[a]	AM Peak Hour[b]	PM Peak Hour[c]
1. Road 20	Between San Pablo Avenue and Paseo Way	6,190	801	436
2. El Portal Drive	Between Church Lane and Fordham Street	18,550	1,782	1,928
3. San Pablo Avenue	Between Church Lane and Van Ness Street	15,080	1,358	1,658

a. Average Daily Traffic over a 24 hour period is empirically estimated to be 10 times the Peak Hour Traffic. Therefore, Average Daily Traffic = (AM Peak Hour Traffic + PM Peak Hour Traffic)/2 x 10

b. Maximum hourly volume between the hours of 7:00 a.m. and 9:00 a.m.

c. Maximum hourly volume between the hours of 4:00 p.m. and 6:00 p.m.

Source: Fehr & Peers, 2021

Intersection LOS for Construction-Year (2026) Plus Project Construction conditions are summarized in **Error! Not a valid bookmark self-reference.** and peak hour volumes are shown on Figure 11. For the purposes of intersection operations analysis, truck trips are analyzed as PCE. Detailed intersection LOS analysis worksheets are provided in Appendix A.

Table 11 Construction Year (2026) Plus Project Intersection Operations

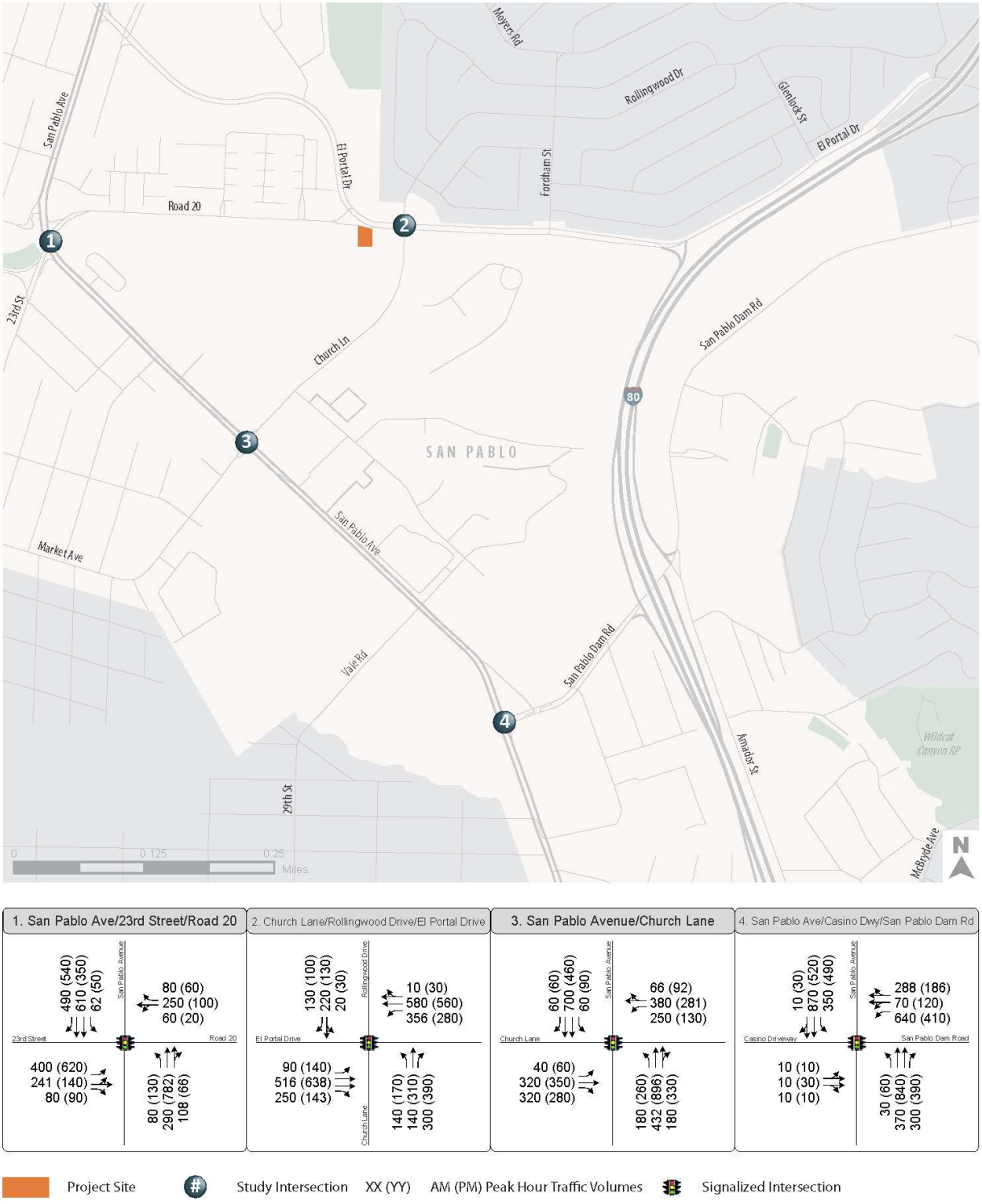
Intersection	Control	Peak Hour	Existing		Existing (2026) Plus Project	
			Delay[a]	LOS	Delay[a]	LOS
1. San Pablo Avenue/23rd Street/Road 20	Signal	AM	50.4	D	50.4	D
		PM	38.0	D	38.0	D
2. Church Lane/El Portal Drive	Signal	AM	32.8	C	33.4	C
		PM	34.8	C	35.3	D
3. San Pablo Avenue/Church Lane	Signal	AM	31.4	C	31.3	C
		PM	32.4	C	32.6	C
4. San Pablo Avenue/San Pablo Dam Road	Signal	AM	22.6	C	22.6	C
		PM	42.8	D	42.8	D

a. Average vehicle delay in seconds.

Source: Fehr & Peers, 2021

All study intersections would be expected to operate at LOS D or better with the addition of project construction traffic in the construction-year, and the addition of project construction traffic in the construction-year is not expected to degrade the average LOS of any study intersection, as compared to construction-year baseline conditions. Contra Costa County standards for peak hour LOS at signalized intersections on San Pablo Avenue and San Pablo Dam Road would therefore be met, and project impacts related to vehicle traffic operations would be less than significant for Existing (2021) Plus Project Intersection Operations.

Figure 11 Construction-Year (2026) Plus Project Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls



Pedestrian Facilities

Sidewalks are anticipated to always be open to the public throughout the duration of construction of the project; however, there may be temporary impacts to crosswalks during construction activities associated with trenching for the off-site storm drain installation along Road 20 west of the project site. Trenching for the storm drain is expected to occur over the course of nine to ten days, with partial road closures on the south side of Road 20 in 80-foot-long segments each day. Crosswalks adjacent to Walter T. Helms Middle School on the stop-controlled east and west approaches of Road 20 at Abella Circle would be blocked on the day or days when that segment of Road 20 is under construction. The nearest alternative crosswalks are 600 feet west at the signalized Road 20/Abella Circle intersection and a multiphase crossing 400 feet east at the uncontrolled crossing of the Road 20-El Portal Drive through-connection and the signalized Road 20/El Portal Drive intersection.

As detailed in Section 3.3.3, several EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated as part of the project, including EBMUD Standard Construction Specification 01 55 26 (Traffic Regulation), which requires that sidewalks be kept open if safe for pedestrians and, if alternative pedestrian routes are required, signage would be installed to direct pedestrians to detour routes. Even with implementation of EBMUD Standard Construction Specification 01 55 26 (Traffic Regulation), in the event project construction requires the concurrent closure of both crosswalks, these closures would conflict with the City of San Pablo's policy to provide pedestrian crossings where feasible. Additionally, the inconvenience of the pedestrian detours, if both crosswalks were closed at the same time, would conflict with the City of San Pablo's policy to operate city streets based on a "Complete Streets" Concept, which enables safe, comfortable, and attractive access and travel for pedestrians of all ages and abilities. Compliance with this policy is particularly important at the Walter T. Helms Middle School, where children use the sidewalks and crosswalks to access the school. To mitigate potential conflicts with City of San Pablo policies, EBMUD will implement the following:

- **Mitigation Measure Transportation-1: Road 20 Crosswalk Access.** Construction of the off-site storm drain installation along Road 20 shall be phased such that at least one crosswalk on Road 20 at Abella Circle adjacent to Walter T. Helms Middle School is accessible at any given time. Pedestrian access plans shall be reviewed and approved by the City of San Pablo and reviewed by Walter T. Helms Middle School prior to construction and included in the project's Traffic Control Plan.

With implementation of Mitigation Measure Transportation-1, the project would not conflict with any programs, plans, or policies related to pedestrian facilities, and impacts would be less than significant.

Bicycle Facilities
As described under Section 2.3.2, the existing bicycle facilities near the project site include Class II bike lanes on Church Lane, San Pablo Avenue, and 23rd Street.

As detailed in Section 3.3.3, several EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated as part of the project, including EBMUD Standard Construction Specification 01 55 26 (Traffic Regulation), which would require the contractor to prepare a Traffic Control Plan to minimize impacts on bicycle circulation on local streets. The Traffic Control Plan may include measures such as signs, flashing lights, barricades, and other traffic safety devices to minimize impacts on circulation on the streets surrounding the project sites.

Because EBMUD's Standard Construction Specification 01 55 26 (Traffic Regulation) would be incorporated into the project and requires implementation of a Traffic Control Plan, the project would not conflict with any programs, plans, or policies related to bicycle facilities, and impacts would be less than significant.

Transit Facilities
Temporary impacts to transit facilities may occur during construction activities associated with trenching for the off-site storm drain installation along Road 20 west of the project site. Trenching for the storm drain would require the partial lane closure, which would be up to approximately 15 feet wide, along the south side of Road 20 west of the project site. The partial closure would proceed in approximately 80-foot-long segments over the course of nine to ten days to complete installation of the approximately 725-foot-long off-site storm drain system. The through-connection between eastbound Road 20 and eastbound El Portal Drive is approximately 18 feet wide and 300 feet long. The through-connection would therefore need to be closed during construction on that segment. To provide sufficient space for vehicles to utilize the through-connection safely, the through-connection would also need to be closed during construction along any segments east of the Walter T. Helms Middle School parking lot that is on the east side of the school campus which would result in closure of the through-connection for approximately four days.

As described in Section 2.2, AC Transit Line 76 operates along Road 20. In the eastbound direction, Line 76 utilizes the Road 20 through-connection to continue onto eastbound El Portal Drive. The partial closure of Road 20 would therefore require temporary rerouting of eastbound Line 76 for approximately four days. The signalized Road 20/El Portal Drive intersection currently has a right-turn restriction for vehicles on the eastbound Road 20 approach, and potential route detours that avoid that intersection would require the short-term closure of both eastbound bus stops on Road 20, which serve the Walter T. Helms Middle School and the short-term closure of at least one additional bus stop on nearby roadways. Closure of transit stops would conflict with the City of San Pablo's policy to design and operate city streets based on a "Complete Streets" Concept that enables safe, comfortable, and attractive access and travel for transit users of all ages and abilities.

However, as shown in Figure 12, shifting the centerline of the eastbound Road 20 approach at the Road 20/El Portal Drive intersection to provide eastbound vehicles at least 18 feet of width at the crosswalk would provide adequate space for a 40-foot bus or a 40-foot single-unit truck (SU-40) to turn right onto El Portal Drive. Additionally, if the westbound travel lane continues to provide a minimum width of 12 feet, 40-foot buses would continue to have adequate space to make the left turn from El Portal Drive onto westbound Road 20. Temporarily rerouting eastbound Line 76 buses to turn right at the Road 20/El Portal Drive intersection would mean that no bus stops would be forced to close due to construction-caused route changes, though other construction impacts may still potentially result in the short-term closure of bus stops, as described below.

Accordingly, to mitigate potential conflicts with City of San Pablo policies, EBMUD will implement the following:

> **Mitigation Measure Transportation-2: Temporary Road 20 Centerline Adjustment and Line 76 Rerouting.** EBMUD shall coordinate with the City of San Pablo to the extent feasible for the temporary adjustment of the centerline on Road 20 at the signalized intersection with El Portal Drive during the closure of the Road 20-El Portal Drive through-connection to provide adequate space for transit vehicles traveling eastbound on Road 20 to turn right onto El Portal Drive and for transit vehicles traveling northbound on El Portal Drive to turn left onto Road 20. EBMUD shall coordinate with AC Transit for the temporary rerouting of eastbound Line 76 during the closure of the Road 20-El Portal Drive through-connection. Centerline adjustment and transit rerouting plans shall be reviewed and approved by the City of San Pablo and reviewed by AC Transit prior to construction and included in the project's Traffic Control Plan.

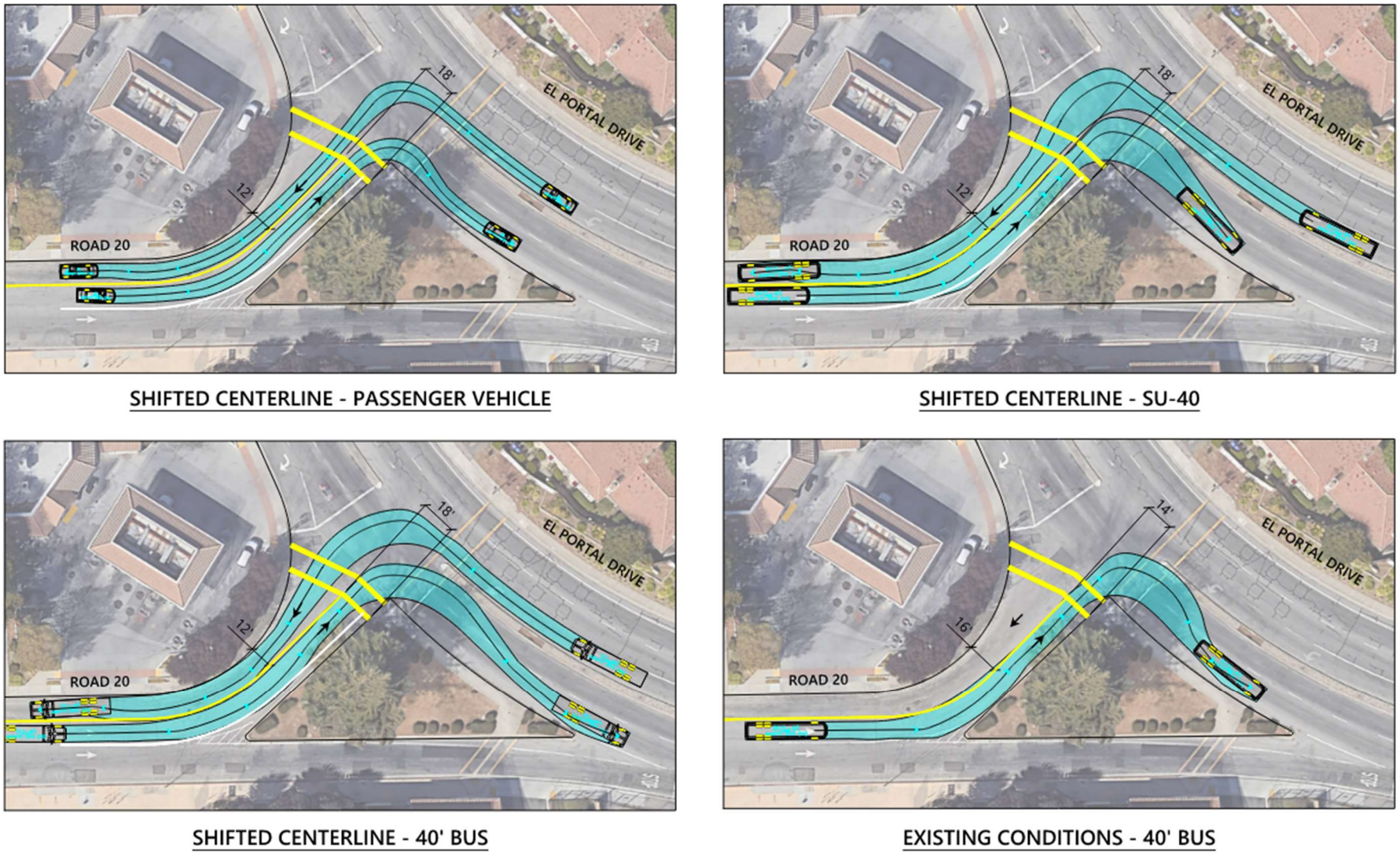
AC Transit Line 76 includes an eastbound stop east of the Road 20/Abella Circle intersection along the frontage of Walter T. Helms Middle School. The partial closure of Road 20 would require the closure or relocation of this bus stop for one or two days. The nearest alternative bus stops are located approximately 800 feet west and 800 feet southeast of the existing stop. Temporary closure or relocation of bus stops would require prior approval by AC Transit and the City of San Pablo. Closure of a transit stop would conflict with the City of San Pablo's policy to design and operate city streets based on a "Complete Streets" Concept that enables safe, comfortable, and attractive access and travel for transit users of all ages and abilities. To mitigate potential conflicts with City of San Pablo policies, EBMUD will implement the following:

> **Mitigation Measure Transportation-3: Road 20 Temporary Bus Stop Relocation.** EBMUD shall coordinate with AC Transit and the City of San Pablo, to the extent feasible, to temporarily relocate the eastbound bus stop on the east side of the Road 20/Abella Circle intersection as needed while construction occurs on the roadway segment that includes the existing bus stop. Any parking obstruction, sidewalk obstruction, travel lane obstruction, or other

accommodation required for the temporary bus stop shall be reviewed and approved by the City of San Pablo and reviewed by AC Transit prior to construction and included in the project's Traffic Control Plan.

With implementation of Mitigation Measure Transportation-2 and Mitigation Measure Transportation-3, the project would not conflict with any programs, plans, or policies related to transit facilities, and impacts would be less than significant.

Figure 12 Turning Assessment of a Shifted Centerline at the Road 20/El Portal Drive Intersection



On- and Off-Street Passenger Loading and Unloading

Temporary impacts to passenger loading and unloading may occur at Walter T. Helms Middle School during construction activities associated with trenching for the off-site storm drain installation along Road 20 west of the project site. Trenching for the storm drain would temporarily restrict 80-foot-long segments of on-street passenger loading along the frontage of Walter T. Helms Middle School, blocking approximately four on-street loading spaces per day over the course of up to approximately three days. Demand for passenger loading and unloading for Walter T. Helms Middle School is expected to be concentrated during the periods immediately preceding and following the school opening and closing bell times, which have historically been at 8:30 a.m. and 3:20 p.m., respectively. Additionally, trenching would block the one-way exit driveway at Road 20/Abella Circle used by parents for drop-offs on school property for up to approximately two days. Reduced space for passenger loading and unloading during periods of high demand would conflict with the City of San Pablo's policy to design and operate city streets based on a "Complete Streets" Concept that enables safe, comfortable, and attractive access and travel for all roadway users. However, there would be no storm drain pipeline construction activity during the normal school year (insert dates) for the Walter T. Helms Middle School. Therefore, potential impacts to passenger loading and unloading due to storm drain pipeline installation would be less than significant.

During the periods before and after bell times and other major events, the loading and unloading zones along Road 20 on the Walter T. Helms Middle School frontage would have high vehicle turnover, with frequent speed reductions to enter the loading zone and merge from the loading zone back into the travel lane. As described in Section 4.2.2, construction trucks traveling to the project site would travel eastbound along Road 20 adjacent to Walter T. Helms Middle School. Due to the high turnover of vehicles entering and exiting the loading zone and potential safety hazards related to the loading and unloading of children, construction truck travel during periods of high passenger loading and unloading demand at Walter T. Helms Middle School would conflict with the City of San Pablo's policy to design and operate city streets based on a "Complete Streets" Concept that enables safe, comfortable, and attractive access and travel for all users. To mitigate potential conflicts with City of San Pablo policies, EBMUD will implement the following:

> **Mitigation Measure Transportation-4: Construction Truck Travel Restriction.** EBMUD shall coordinate with Walter T. Helms Middle School to restrict construction truck traffic (e.g., material delivery and haul trucks) during the 30 minutes immediately preceding and 30 minutes immediately following the morning and afternoon bell times when school is in regular session, as well as around other major events (e.g., sporting events, parent-teacher conferences) that would bring a substantial number of people to campus. Bell times and other major events affecting the period of construction truck travel shall be documented in the project's Traffic Control Plan.

With implementation of Mitigation Measure Transportation-4 and because there would be no storm drain pipeline construction during the normal school year for the Walter T. Helms

Middle School, the project would not conflict with any programs, plans, or policies related to on-street passenger loading and unloading, and impacts would be less than significant.

Parking

Although parking is not a CEQA significance criterion, the availability and temporary loss of on-street vehicle parking and loading was considered in this analysis. On-street parking is available along Church Street, Road 20, and El Portal Drive in the vicinity of the project site. It is expected that construction workers would find an available on-street parking space and walk to the work site. Due to school closures related to the COVID-19 pandemic, observations of aerial imagery from 2018 and 2019 when schools were in session were used to assess parking availability. Based on the aerial imagery, the visual survey indicated that there is adequate available on-street parking within 0.35 miles (about a seven-minute walk) of the work site to accommodate construction worker parking throughout the construction period.

Operation

All roadways and sidewalks would be restored after construction is complete, and operation of the project would generate approximately two trips per month for routine maintenance and inspection of the facility. Operation of the proposed project would have a negligible effect on traffic circulation and not conflict with any program plans, ordinances, or policies addressing the circulation system. No impact would occur during operation.

Impact Traffic-2: Potential to conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision(b) *(Less than Significant)*

Consistent with the CCTA VMT Methodology, VMT impacts would be less than significant for the project if any of the five screening criteria outlined below are met:

1. **CEQA Exemption**. Any project that is exempt from CEQA is not required to conduct a VMT analysis.
2. **Small Projects**. Small projects can be presumed to cause a less-than-significant VMT impact. Small projects are defined as having 10,000 square feet or less of non-residential space or 20 residential units or less, or otherwise generating less than 836 VMT per day.[4]

[4] This threshold ties directly to the OPR Technical Advisory which notes that CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Using statewide average data from the California Statewide Household Travel Survey (CHTS), the amount of daily VMT associated with 10,000 square feet of non-residential space is 836 VMT. Also using statewide average CHTS data, this level of VMT is associated with 20 housing units. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 20 housing units or 10,000 square feet of non-residential space could be considered not to lead to a significant impact.

3. **Local-Serving Uses**. Projects that consist of Local-Serving Uses can be presumed to have a less-than-significant impact, absent substantial evidence to the contrary, because these types of projects will primarily draw users and customers from a small geographic area that will lead to short-distance trips and trips that are linked to other destinations.
4. **Projects Located in TPAs**. Projects located within a TPA can be presumed to have a less-than-significant impact, absent substantial evidence to the contrary.[5] This exemption would not apply if the project:

    1. Has a FAR of less than 0.75;

    2. Includes more parking for use by residents, customers, or employees than required by the lead agency (if the agency allows but does not require the project to supply a certain amount of parking);

    3. Is inconsistent with the applicable Sustainable Communities Strategy (SCS) (as determined by the lead agency, with input from the Metropolitan Transportation Commission); or

    4. Results in a net reduction in multi-family housing units.

5. **Projects Located in Low VMT Areas**. Residential and employment-generating projects located within a low VMT-generating area can be presumed to have a less-than-significant impact absent substantial evidence to the contrary.

    A low VMT area is defined as follows:

    - For housing projects: Cities and unincorporated portions within CCTA's five subregions that have existing home-based VMT per capita that is 85 percent or less of the existing County-wide average.
    - For employment-generating projects: Cities and unincorporated portions of CCTA's five subregions that have existing home-work VMT per worker that is 85 percent or less of the existing regional average.

    There is no definition of a low VMT area for Regional-Serving and Other Projects since these projects always require a VMT Analysis unless they are screened out under Criteria 1 through 4.

Construction and Operation

As summarized in Table 7, the construction of the project would generate an average of 26 daily worker and truck trips. Based on trip generation data published by the Institute of Transportation Engineers in the *Trip Generation Manual (10th Edition)*, 26 daily trips correspond

[5] https://ccta1.maps.arcgis.com/apps/webappviewer/index.html?id=4135020bb272458f824152fedb78a088

to the trip generation of three single-family homes. Because the construction phase of the project would generate the equivalent of fewer than 20 residential units, the construction phase satisfies the "Small Projects" screening criterion. Furthermore, once constructed, the project would generate approximately two trips per month, similar to existing conditions and operation of the existing equipment at the project site. Therefore, the project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) during construction, and impacts related to VMT would be less than significant.

Impact Traffic-3: Potential to substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) *(Less than Significant)*

Construction

Construction of the project would not modify the geometric design features of any publicly accessible roadway. An increase in hazards due to construction equipment present within roadways could occur during the storm drain installation on Road 20. As detailed in Section 3.3.3, several EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated as part of the project, including EBMUD's Standard Construction Specification 01 55 26 (Traffic Regulation) which requires EBMUD's contractor to incorporate various traffic control measures that reduce potential for traffic hazards. Specifically, Section 1.2, Submittals, requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and the Manual on Uniform Traffic Control Devices.

Because EBMUD's Standard Construction Specification 01 55 26 (Traffic Regulation), would be incorporated into the project and requires implementation of a Traffic Control Plan that includes, but is not limited to, the use of temporary traffic signs, flashing lights, barricades, markings and flaggers, project impacts related to short-term construction traffic hazards from the project would be less than significant.

Operation

All roadways and sidewalks would be restored to pre-project conditions after construction is complete. No impact would occur during operation.

Impact Traffic-4: Potential to result in inadequate emergency access *(Less than Significant)*

Construction

EBMUD would maintain adequate street width to maintain two-way traffic flow on Road 20, with the exception of the short transition to El Portal Drive. As detailed in Section 3.3.3, several EBMUD standard practices and procedures, applicable to all EBMUD projects, would be incorporated as part of the project, including EBMUD's Standard Construction Specification 01 55 26 (Traffic Regulation), which requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and the Manual on Uniform Traffic Control Devices including a description of emergency response vehicle access and would reroute vehicles around the work zone. Specifically, Section 1.2, Submittals, includes the following provision:

- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Furthermore, Section 3.1, General (Execution), of Standard Construction Specification 01 55 26 (Traffic Regulation) includes the following provision:

- For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.

Because EBMUD's Standard Construction Specification 01 55 26 (Traffic Regulation) would be incorporated into the project and requires implementation of a Traffic Control Plan that includes the development of an emergency vehicle access plan, and two-way access along Road 20 would be maintained during construction, project impacts related to emergency vehicle access on Road 20 would be less than significant.

Operation

All roadways and sidewalks would be restored to pre-project conditions after construction is complete. No impact would occur during operation.

6 References

AC Transit. (2020). Bus System Map. Available online at http://www.actransit.org/.

City of San Pablo. (2017). City of San Pablo Bicycle and Pedestrian Master Plan. Available online at https://www.sanpabloca.gov/DocumentCenter/View/8604/SanPabloBPP_FINAL_08_30_2017?bidId=.

City of San Pablo. (2015). City of San Pablo Designated Truck Routes. https://www.sanpabloca.gov/DocumentCenter/View/4833/Truck-Routes-2015?bidId=

City of San Pablo. (2011). San Pablo General Plan 2030 Circulation Element.

City of San Pablo. (2017). San Pablo Bicycle and Pedestrian Master Plan.

CCTA. (2020). VMT Analysis Methodology for Land Use Projects in Contra Costa.

CCTA. (2019). Congestion Management Program.

CCTA. (2013). Technical Procedures.

EBMUD. (2017). Standard Construction Specification 01 55 26 (Traffic Regulation).

FHWA. (2018). Traffic Data Computation Method – Pocket Guide (Publication No. FHWA-PL-18-027).

Fehr & Peers. (2017). San Pablo City Hall Site Reuse Project Transportation Impact Assessment.

MWA Architects. (2021). *East Bay Municipal Utility District Wildcat Pumping Plant Aesthetics Conceptual Design Report.*

Transportation Research Board. (2010). HCM 2010: Highway Capacity Manual. Washington, DC.

West Contra Costa Transportation Advisory Committee and CCTA. (2017). West County Action Plan for Routes of Regional Significance.