



San Joaquin
Joint Powers Authority



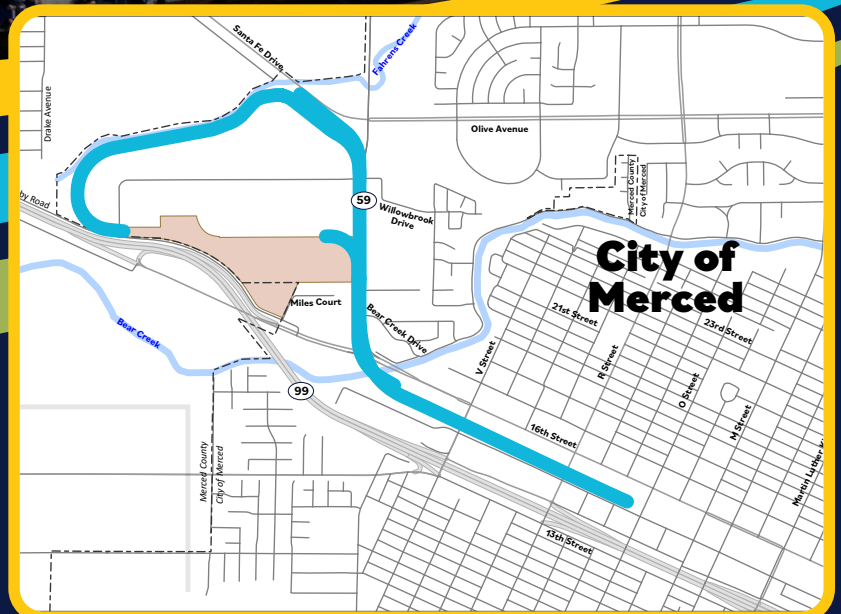
MITC
Merced Intermodal Track Connection

Appendix 2.0-3:

Merced Intermodal Track Connection Ridership and Revenue Methodology Memorandum

July 2024

SCH # 2023010061



To: Dan Leavitt, San Joaquin Regional Rail Commission
Subject: San Joaquin Joint Powers Authority (SJPA) Merced Intermodal Track Connection (MITC) Project – Ridership and Revenue Technical Memorandum
From: AECOM
Date: July 11, 2024

1. Introduction

This technical memorandum summarizes the methodology used to develop ridership forecasts for the Merced Intermodal Track Connection (MITC) Project (project) to support a proposed new rail hub station, which will be located in downtown Merced between R and O Street extension. This integrated station will be able to provide a cross-platform transfer between Amtrak San Joaquins and California High-Speed Rail (HSR), adding significant convenience to passengers in need of multimodal travel. However, this project only includes the construction of the track connection and the San Joaquins platform; it does not include the construction of the rest of the proposed integrated station.¹

The ridership forecast effort considers two scenarios that use different service plans: a “Project” scenario and a “Cumulative” scenario. The Project scenario uses the environmentally cleared rail alignment of Amtrak San Joaquins service and Altamont Corridor Express (ACE) service and has eight daily San Joaquins trains to/from Merced. The Cumulative scenario includes twelve daily San Joaquins trains to/from Merced and ACE service to the Union City Intermodal Station, where ACE will connect with the BART system, Transbay buses to the Peninsula, and other local transit services. The ridership forecasting effort also includes the expanded Valley Rail Program that provides connectivity to the HSR Early Operating Segment (EOS) between Merced and Bakersfield, as well as the North Valley Rail project to extend rail service north of Sacramento into Yuba and Butte Counties.

The following sections describe the ridership forecasting methodology, highlight key inputs to the modeling process, and present ridership forecasts for future scenarios.

2. General Methodology

The ridership forecasts were developed by combining and synthesizing results from two independent models: (1) the ACE Passenger Rail Forecasting Model (“ACE Model”), and (2) the Alameda County Transportation Commission (ACTC) travel demand forecasting model (“ACTC Model”). This joint-model approach allows the ridership forecasting effort to take advantage of each model’s strengths.

The ACE Model focuses specifically on ACE and passenger rail in general. The ACE Model encompasses a larger, megaregional and interregional geography for the expanded ACE and Amtrak San Joaquins systems that is well beyond the geographic extent of any of the urban travel demand models used by the Metropolitan Transportation Commission (MTC), the San Joaquin Council of Governments (SJCOG), or other applicable

¹ Merced Intermodal Track Connection Report Draft EIR, Chapter 2 Project Description.

metropolitan planning organizations (MPOs). The ACTC Model provides finer modeling detail near Union City, including network assignment procedures to allow for better reporting of transfers within the Bay Area.

The ACE Model, ACTC Model, and joint-modeling approach are described in more detail in the following subsections.

2.1 ACE Model

AECOM developed and has used the ACE Model to forecast ridership for recent and ongoing plans and projects to implement service improvements to and extensions of the ACE and Amtrak San Joaquins services as part of the Valley Rail Program (including ACE extensions to Sacramento and Merced). The ACE Model has also been used to support ridership forecasting efforts for the Valley Link project.

The ACE Model considers both intercity and commuter passengers and is based on a ridership forecasting model for Amtrak called the National Intercity Model, also developed by AECOM. The ACE Model was calibrated in Spring 2024 to match existing ACE and San Joaquins ridership in 2019 and has been updated to account for future short- and long-term investments in the passenger rail network in Northern California, including select connections with BART.

The ACE Model is an incremental model designed to produce ridership forecasts for mainline passenger rail services. The model pivots off of observed ridership and service by station pair to capture the ridership impacts of making incremental changes to service. Forecasts are based on demographic growth around stations and on service characteristics (such as train frequency, travel times, and the time of day that trains operate). In cases where there is no existing service, a new station is assigned a "proxy" station that has similar characteristics (e.g., station area population and employment levels) to the new station, and the base ridership is adjusted to account for differences in market size and service. Each train is modeled separately, which allows for time-of-day factoring for both departure and arrival times. Connections are explicitly modeled and factored down to reflect the lower appeal of a required transfer. The model produces ridership forecasts that are unconstrained with regards to train capacity and parking capacity.

2.2 ACTC Model

The ACTC Model is the countywide transportation planning model for use within Alameda County and is maintained and updated by ACTC in consultation with MTC, Alameda County, and local jurisdictions within Alameda County. Like the other countywide models in use within the nine-county San Francisco Bay Area, the ACTC Model is consistent with the regional travel demand forecasting models maintained by MTC, as well as the land use and socio-economic database maintained by the Association of Bay Area Governments (ABAG).

The ACTC Model is a typical four-step model and includes an iterative feedback loop to ensure that travel choices are predicted based on congested travel conditions. After traffic is assigned to the road network, congested travel times are calculated based on traffic congestion, and these congested times are brought back to the mode choice step which considers the attractiveness of auto versus transit for each trip. The loop is repeated to ensure stable results.

In support of the BART to Livermore Extension Draft Environmental Impact Report ("BLVX DEIR"), a modified version of the ACTC Model was developed, with refinements to improve model validation for travel between the Tri-Valley and San Joaquin County and the rest of the San Francisco Bay Area. This version of the ACTC

Model was then used to forecast traffic volumes and transit ridership in the Tri-Valley area for the BLVX DEIR. The model demographics were updated to include the demographics from Plan Bay Area 2040 and SJCOG's 2018 Regional Transportation Plan (RTP), as discussed in more detail in Section 4.

The ACTC Model includes a network representation of local transit services within Alameda County, as well as key regional transit services that connect Alameda County with the larger Bay Area. Transit services represented in the ACTC Model include BART, Amtrak, Caltrain, Muni Metro, Santa Clara Valley Transportation Authority ("VTA"), Sonoma–Marin Area Rail Transit (SMART), AC Transit, Union City Transit, the San Joaquin Regional Transit District ("RTD") (bus service to / from BART's Dublin / Pleasanton Station), and ferry services. In particular, the ACTC Model represents BART service and the interaction between BART and other services well. The ACTC Model therefore serves as a good tool to understand the interaction between urban transit services.

The ACTC Model covers Alameda County, the other eight counties of the nine-county Bay Area, and San Joaquin County. However, the network is not very detailed in San Joaquin County and the zones are coarser. Planned ACE extensions and other transit services beyond San Joaquin County are not represented in the ACTC Model.

2.3 Joint ACTC–ACE Model

As mentioned above, the ACTC Model is a good tool to understand the interaction between BART and other transit services within the Bay Area, as well as the influence of traffic congestion within San Joaquin County. The ACE Model represents ACE and mainline passenger rail services well, especially beyond San Joaquin County. Therefore, for this project, AECOM developed a joint model based on the ACE Model and the "BLVX" version of the ACTC Model. Outputs from the ACE Model were combined with the ACTC Model to take advantage of the ACTC Model's network assignment procedures, enabling better reporting of transfers and other ridership statistics.

The first step in this process was to run the ACE Model to forecast ridership outside the geographic area of the ACTC Model. For this step, station-to-station trip tables were produced for the ACE network and new services to/from Union City.

Next, the base year ACTC Model was run. The proposed ACE service (described in more detail in Section 5.2) was inputted into the model as an additional ACE line with the service truncated to the portions of the proposed routes within the Bay Area counties (Alameda County and Santa Clara County) and San Joaquin County, as the ACTC Model's coverage does not extend beyond San Joaquin County. Like other transit services in the ACTC Model, the ACE extension to Union City was coded with the proposed stops, running times, and headways, in the standard model input format. Unlike the detailed train-level timetable in the ACE Model, the ACTC Model utilizes a headway representation of transit service.

The resulting station boardings were then compared to boardings from the ACE Model. The proposed ACE extension to Union City provides a connection to the Union City Intermodal Station, which opens up convenient access to BART for markets along the ACE network. However, the ACTC Model does not adequately represent demand beyond San Joaquin County. Therefore, station-to-station forecasts from the ACE Model were added to the ACTC Model. Station-to-station trips from the ACE Model were allocated to specific origins and destinations, approximated using a contiguous series of TAZs covering the geographic extent of the

modeling effort in the ACTC Model. The results were then checked to avoid double-counting trips forecasted in the ACTC Model, creating a combined set of transit trip tables to assign to the ACTC Model networks for generating estimates of boardings and alightings at the Union City station.

The integration of the ACE Model and the ACTC Model provides better distribution of ACE trips into the Alameda County area using the detailed transit network and transit assignment procedures in the ACTC Model. This joint-model approach also allows some effects, such as roadway congestion, to be partly accounted for explicitly within the Bay Area portion of the ACE system.

Combining the ACTC Model with the ACE Model also recognizes that the ACTC Model does not capture detailed effects outside of the nine-county Bay Area and San Joaquin County. In fact, most urban travel demand models are designed specifically for use at the city, county, or metropolitan/urbanized area level, and are not designed to produce forecasts or simulate effects at the megaregional scale of the combined ACE and San Joaquins system.

3. Post-Pandemic Travel Trends

Ridership forecasting efforts for this project began when rail ridership was still recovering from the effects of the COVID-19 pandemic. Given the unprecedented nature of the pandemic and the uncertainty regarding post-pandemic ridership trends, the ACE Model was calibrated using base ridership numbers for 2019, the last complete year of “unaffected” data prior to the pandemic.

As part of a November 2023 staff report, the San Joaquin Regional Rail Commission (SJRRRC) noted that the COVID-19 pandemic greatly reduced ACE ridership. However, ACE ridership recovered from 10 percent of pre-pandemic ridership in February 2021 to 45 percent of pre-pandemic ridership in September 2023. SJRRRC noted that extending a trendline through the monthly ridership data during this period indicated that ACE ridership would “reach pre-pandemic ridership levels by August 2028” if recent ridership recovery trends continued.² Because of recent ACE ridership recovery since February 2021, AECOM assumed that ACE ridership in 2030 would not be materially impacted by the COVID-19 pandemic other than by the pandemic’s effects on future demographics.

San Joaquins ridership also was adversely impacted by the pandemic, falling from 1.07 million passengers in FY2019 to 0.43 million passengers in FY2021. However, San Joaquins ridership rebounded strongly to 0.71 million and 0.85 million passengers in FY2022 and FY2023, respectively.³ Because of the strength and quickness in the San Joaquins ridership recovery, AECOM assumed that San Joaquins ridership would make a full recovery to pre-pandemic levels prior to 2030.

² San Joaquin Regional Rail Commission Regular Board Meeting – November 3, 2023: Item #4. Meeting agenda packet available at <https://d2j5fyfnufxt9o.cloudfront.net/wp-content/uploads/20231030172331/SJRRRC-November-3-2023-Meeting-Agenda-Packet.pdf#page=44>.

³ Amtrak annual fiscal year ridership summaries available at the following URLs:
<https://media.amtrak.com/wp-content/uploads/2019/11/FY19-Year-End-Ridership.pdf>
<https://media.amtrak.com/wp-content/uploads/2021/12/FY21-Year-End-Revenue-and-Ridership.pdf>
<https://media.amtrak.com/wp-content/uploads/2022/11/FY22-Year-End-Revenue-and-Ridership.pdf>
<https://media.amtrak.com/wp-content/uploads/2023/11/Copy-of-FY23-Year-End-Ridership.pdf>

The demographic growth forecasts used in the ACE Model are based on Caltrans data that at least partially account for some of the effects of the pandemic (e.g., slower population and employment growth).

4. Demographic Assumptions

The demographic assumptions for the ACE Model and ACTC Model are described below.

4.1 ACE Model

The ACE Model uses long-term county-level demographic and socioeconomic forecasts published by the Transportation Economics Branch of Caltrans. These forecasts have been used in developing ridership forecasts for other megaregional and statewide rail planning efforts, including the latest ridership model developed for the California High-Speed Rail Authority (CHSRA) to support its 2023 Project Update Report on the statewide HSR system.

The Caltrans data are published annually and include both historical data (starting from 2000) and long-term socioeconomic forecasts for population, employment, and income. The latest available release of this data (published in 2022) was used, reflecting historical data up through 2021 and forecasts for 2022 through a horizon year of 2050. Because the dataset includes historical data through 2021, it can be considered to account, at least partially, for some of the effects of the COVID-19 pandemic on overall demographic trends. The demographic forecasts for 2030 and 2040 were incorporated into the ACE Model, as those data correspond with the forecast years for this ridership modeling effort.

The ACE Model requires demographic data for catchment areas around each station, as ridership is forecasted at the station-pair level. To translate county-level demographic data to station catchment-level data, the county-level forecasts were first broken down to the Census county division (CCD) level—a subcounty geographic unit defined by the Census Bureau—using Census data for the ratios of population and employment within each CCD relative to the corresponding county as a whole. AECOM then employed a custom geographic information system (GIS) application to calculate the population and employment contained within buffers around each station. Buffers ranging in radius from five to twenty miles around stations were used, and a weighted average for population and employment for each station’s buffer was inputted into the ACE Model.

4.2 ACTC Model

The BLVX version of the ACTC Model used land use and socioeconomic databases developed by ABAG and MTC as part of Plan Bay Area (PBA), which is the regionally adopted long-range plan for the nine-county Bay Area. Therefore, employment data for all Bay Area counties was readily available from the Plan Bay Area databases. The land use data were updated based on PBA40 forecasts (developed as part of Plan Bay Area 2040, adopted in 2017), as land use data for the latest PBA cycle (Plan Bay Area 2050) for the ACTC zone structure were still being developed and were not available for use at the time the ACTC Model inputs were developed.

San Joaquin County, however, is outside the nine-county Bay Area, and is under the jurisdiction of SJCOG, a separate MPO from the Bay Area’s MTC. Therefore, the employment numbers for this county were obtained

from SJCOG's RTP⁴. The San Joaquin County demographic data were updated using SJCOG's 2018 RTP, which was the latest available data source at the time of the update.⁵

Ridership forecasts were developed for an approximate opening year of 2030 and a horizon year of 2040. Demographics from the 2018 version of the ACTC Model, which contains data for 2020 and 2040 (based on PBA 2040), were used for this study, with the 2030 data derived by interpolating between the 2020 and 2040 data.

For TAZs within San Joaquin County (TAZs 2301–2326), demographic data published by San Joaquin County for 2024 and 2042 (based on the 2018 RTP) were interpolated to derive data for 2030 and 2040. An equivalency between San Joaquin County zones and the TAZ system in the ACTC Model was then established, and the demographic data for the San Joaquin County zones in the ACTC Model were updated based on this equivalency.

5. Scenarios and Forecasts

The last of the three primary inputs driving the ACE Model is the service plan. The assumed service plan scenarios, schematic diagrams of proposed service, and corresponding San Joaquins train schedules are shared below.

5.1 Service Plan Scenarios

As mentioned in the CHSRA 2022 Business Plan, service on the EOS between Merced and Bakersfield is scheduled to be operational by the end of 2030.⁶ Therefore, HSR service between Merced and Bakersfield, together with the expanded Valley Rail Program, was included in the ridership modeling for 2030 and 2040 to appropriately capture the connections between HSR and San Joaquins service and between HSR and ACE. San Joaquins service is assumed to terminate at Merced instead of extending to Bakersfield by 2030 and beyond.

The 2030 and 2040 forecasts include a No-Build and Build scenario. The No-Build scenario assumes San Joaquins service terminates at the existing San Joaquins Merced station, and ACE and HSR services terminate at the proposed integrated station. A shuttle bus service is assumed to transport passengers between the existing San Joaquins Merced station and the proposed integrated Merced station. The Build scenario assumes that San Joaquins, ACE, and HSR services terminate at the same proposed integrated Merced station, which will allow for quick transfers between San Joaquins and HSR.

The shuttle bus in the No-Build scenario requires an additional transfer that is not necessary in the Build scenario since transfers between San Joaquins and HSR are within the same integrated station. In the No-Build scenario, the transfer from a rail station to a shuttle bus would be an inconvenience to passengers both

⁴ BART to Livermore Ridership Projections Report, February 2018

⁵ SJCOG's 2022 RTP was published in August 2022, after modeling work supporting this study was underway. Furthermore, the TAZ data was not yet fully approved at that time. Therefore, it was determined that for this effort, data from the 2018 RTP would be used.

⁶ CHSRA's 2023 Project Update Report, published on March 1, 2023, subsequently revised the start of service to an "envelope" between 2030 and 2033, recognizing that stable funding sources to achieve the 2030 opening ultimately feed into the risk in the overall project schedule. A 2030 forecast year was retained for this study.

because of the additional travel time that the shuttle bus requires and because passengers prefer fewer transfers. To reflect the inconvenience to passengers of the transfer from rail to a shuttle bus and to rail again, AECOM added an additional 15 minutes to trips making a transfer between San Joaquins and HSR in the No-Build scenario.

AECOM also incorporated two service plan alternatives: one is the “Project” alternative, and the other is the “Cumulative” alternative. The Project alternative includes only trains that have been environmentally cleared or qualify for CEQA exemption, and the Cumulative alternative builds off the service in the Project alternative by adding the following San Joaquins and ACE services:

- Four additional daily San Joaquins roundtrips to/from Merced
- Three daily ACE roundtrips to/from Union City that will include connections between ACE and BART and other local transit services at the Union City station
- Extension of San Joaquins and ACE services north of Sacramento into Yuba and Butte Counties, as part of the North Valley Rail project

The Project alternative and Cumulative alternative differ with respect to their service plan assumptions, as noted above. However, each of these two alternatives has a No-Build scenario and Build scenario in which the No-Build scenario assumes San Joaquins service terminates at the existing San Joaquins Merced station, which would require a shuttle bus connection to facilitate transfers between San Joaquins and HSR services. The Build scenario assumes San Joaquins service terminates at the integrated Merced station (where ACE and HSR services terminate), which would allow for quick transfers between San Joaquins and HSR within the same integrated station, as described earlier in this section. The impacts of the MITC project can be understood when comparing the forecast results of the No-Build scenario and Build scenario for one specific alternative, such as the Cumulative alternative. The impacts of the MITC project cannot be understood properly when comparing the results of one alternative to another (e.g., Cumulative alternative vs. Project alternative), because there are significant differences between the service assumptions for each alternative. More details about the No-Build and Build scenario assumptions are available in Section 5.2.

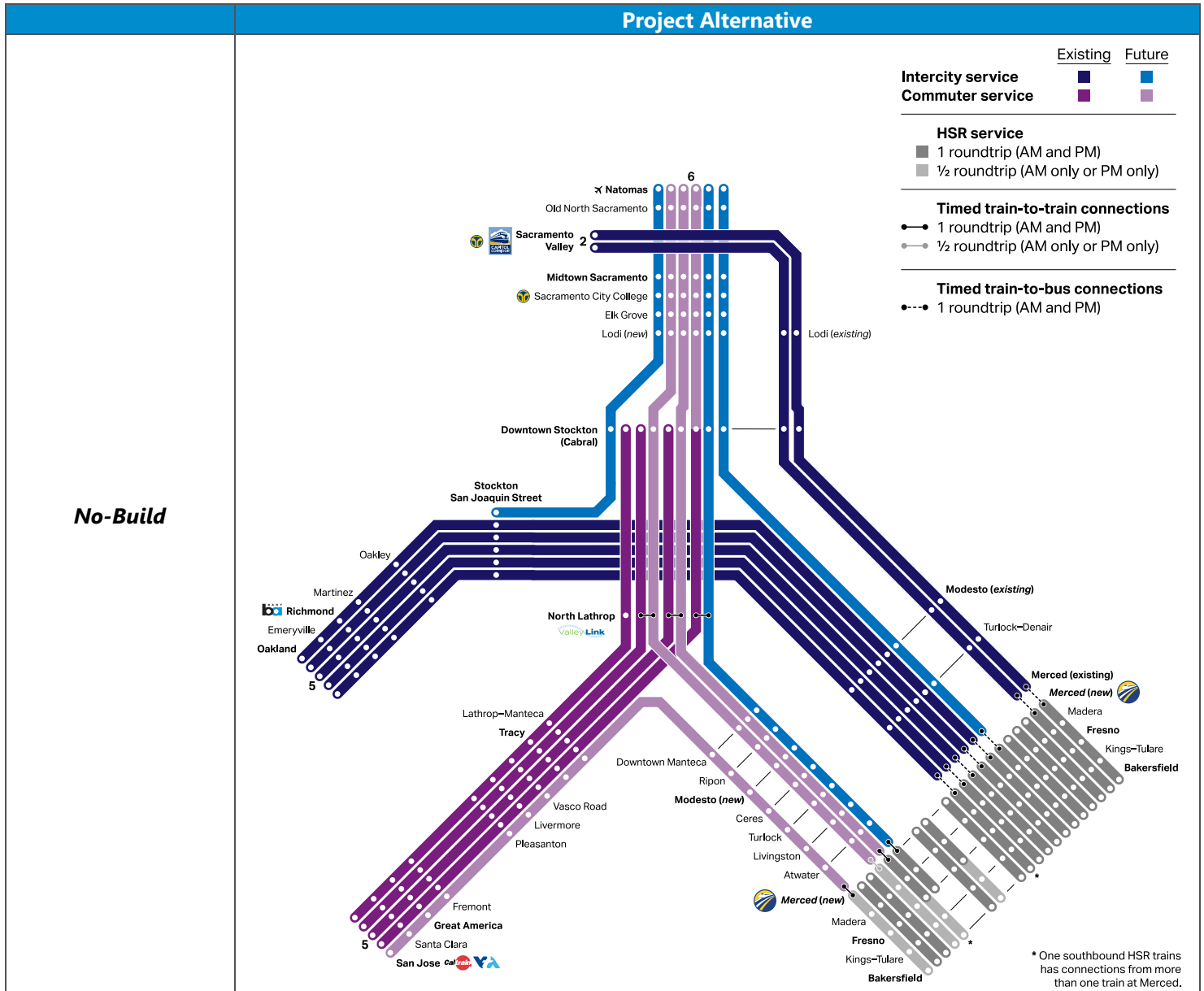
Diagrams of the San Joaquins and ACE services for both the Project alternative and Cumulative alternative (for both No-Build and Build scenarios) are shown in Table 1 and Table 2. The difference between the diagrams for the No-Build and Build scenarios for both the Project and Cumulative alternatives is the type of transfer between San Joaquins and HSR services in Merced. For each combination of a No-Build/Build scenario and Project/Cumulative alternative, service is assumed to be the same in 2030 and 2040. In total, there are eight forecasts because of the two forecast years (2030 and 2040), two service plan alternatives (Project and Cumulative), and a No-Build scenario and Build scenario.

All round trips for ACE and San Joaquins, including both commuter and intercity services, are assumed to operate daily in the future, for both the No-Build and Build scenarios. Prior to the COVID-19 pandemic, the San Joaquin Regional Rail Commission (SJRRRC) had already been operating limited event-day ACE service outside of the typical commute service to accommodate demand generated at Levi’s Stadium in Santa Clara (including for San Francisco 49ers home games, typically held on Sundays). SJRRRC also began operating a pilot Saturday

ACE service with two round trips in September 2019, although the program was eventually suspended in March 2020 due to pandemic-related effects.

The weekend/holiday timetable is conservatively assumed to be the same as the weekday timetable, with only minor adjustments to shift some ACE trains to more attractive slots for weekend and holiday travelers. Under the Cumulative alternative, the Union City trains maintain the same schedule on weekdays and weekends.

Table 1: Integrated ACE and San Joaquins Network Diagram for the Project Alternative



Project Alternative

Build

	Existing	Future
Intercity service		
Commuter service		

HSR service

- 1 roundtrip (AM and PM)
- 1/2 roundtrip (AM only or PM only)

Timed train-to-train connections

- 1 roundtrip (AM and PM)
- 1/2 roundtrip (AM only or PM only)

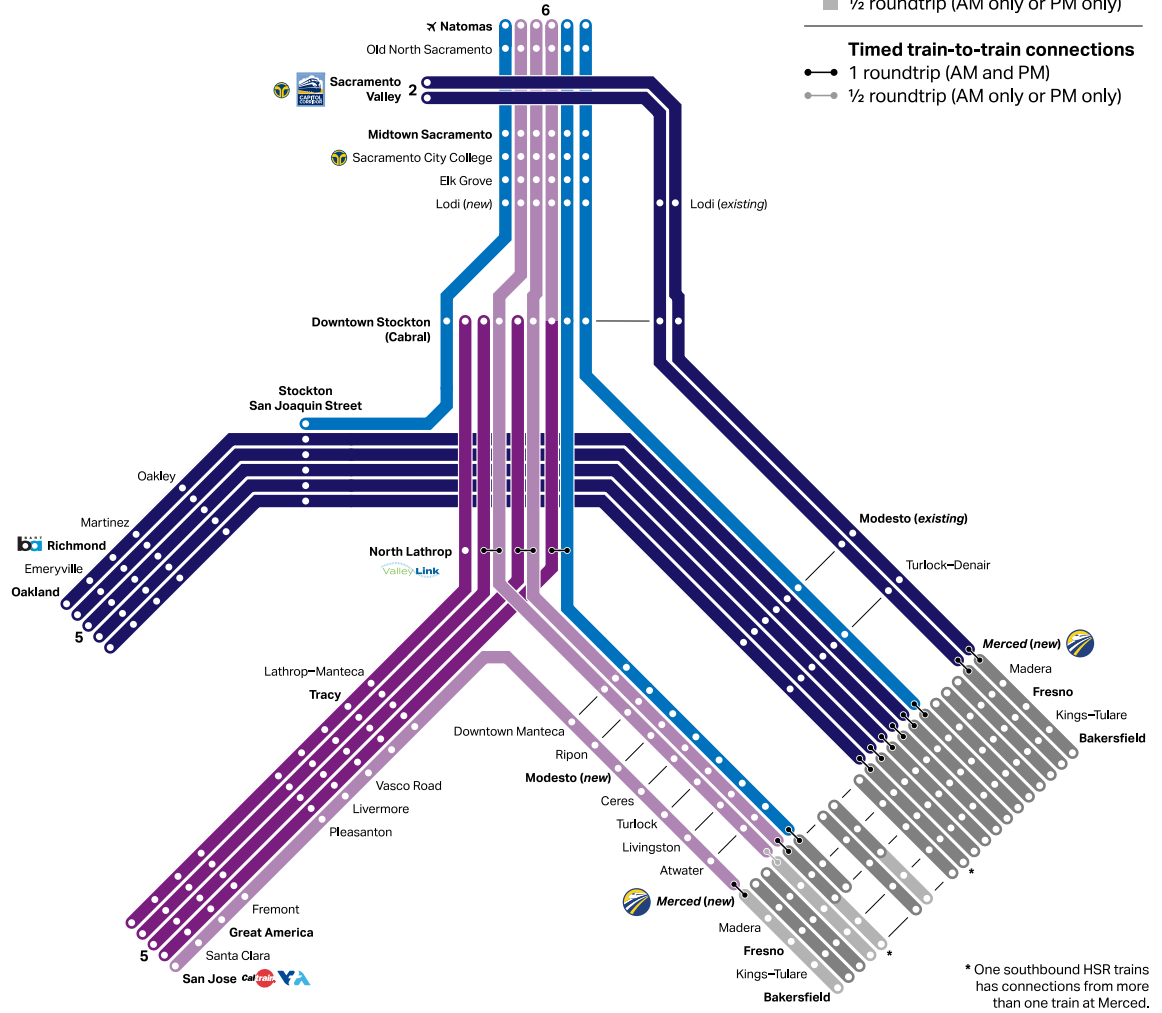
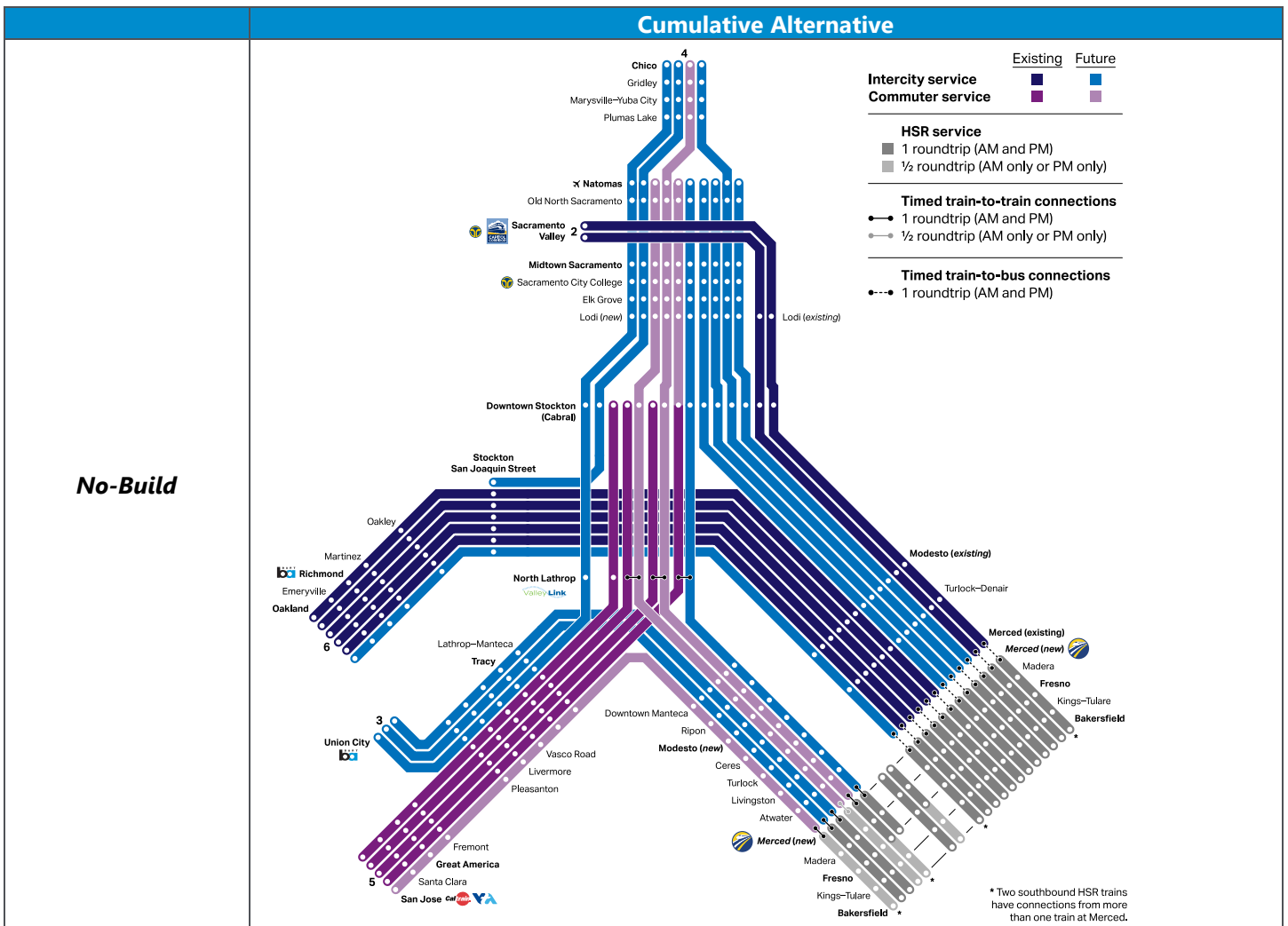
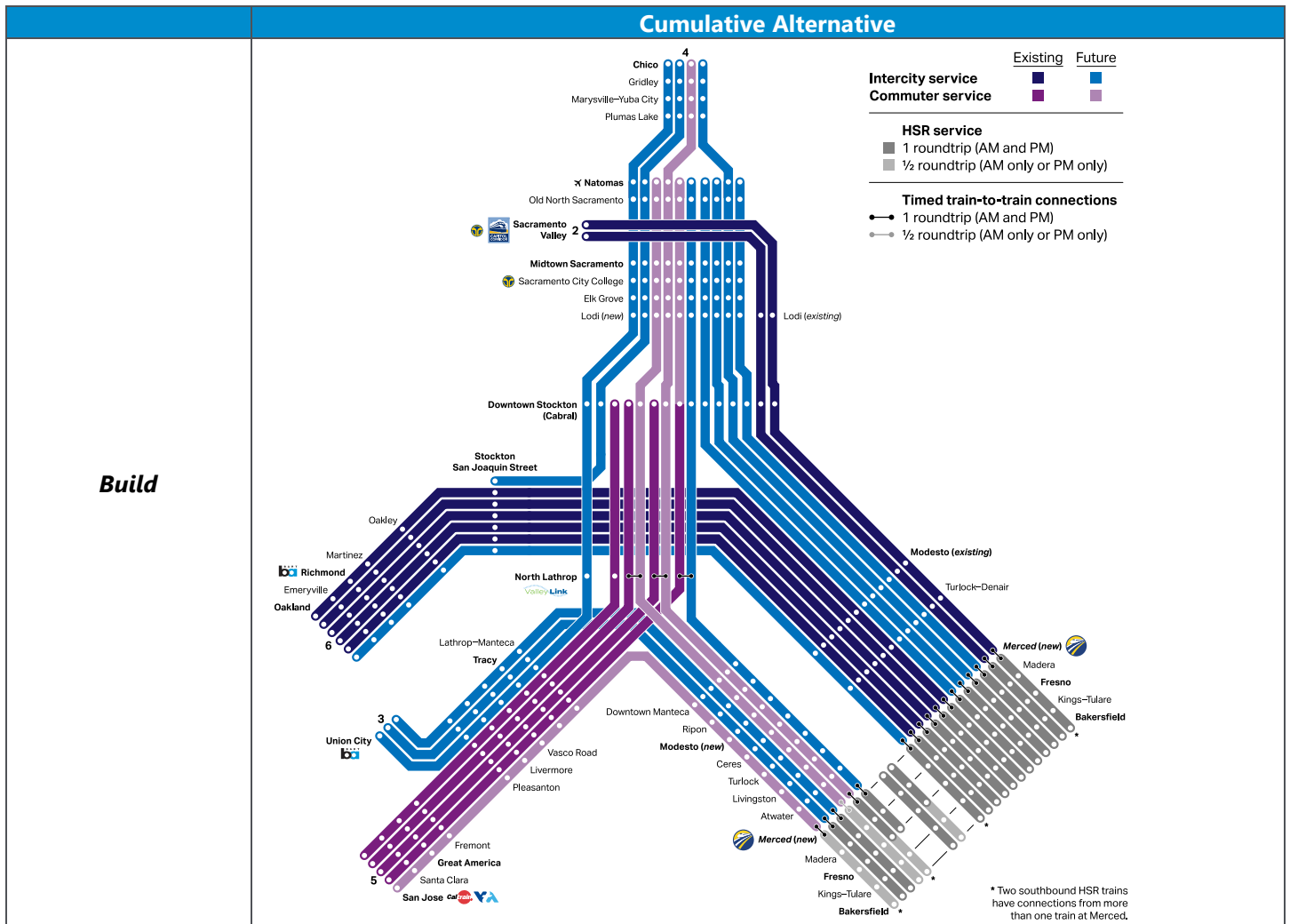


Table 2: Integrated ACE and San Joaquins Network Diagram for the Cumulative Alternative





5.2 Transfer Time Assumptions in the No-Build and Build Scenarios

In the No-Build scenario, San Joaquins trains terminate at the existing San Joaquins Merced station, which is about 1.3 miles away from the ACE/HSR Merced station. Passengers would need extra time to transfer between the two stations compared to the Build scenario in which transfers between San Joaquins and HSR services are made within the same station. To enable transfers between the San Joaquins station and the ACE/HSR station, a shuttle bus service will be provided and at least five shuttle buses that each carry about 35 passengers are expected to operate simultaneously. These buses are assumed to wait in line in a designated area of the station before passengers arrive and then load passengers until full. The buses are assumed to drop off passengers enough time to access the platform before the next train departs. According to the schedule of the existing Yosemite Area Regional Transportation System (YARTS) Highway 140 bus, which stops at Merced Transpo (which is very close to the proposed ACE/HSR Merced station) and the Amtrak Merced station, the bus travel time between the two stations is 10 minutes, and this time is assumed to include some buffer time. By adding this travel time to the required station access and egress time, bus loading and alighting time, and some additional buffer time, 30 minutes is assumed to be an appropriate length of time to enable all transferring passengers to make a transfer between San Joaquins and HSR. As mentioned in Section 5.1, a 15-minute transfer penalty was added to the total travel time of trips making the transfer

between San Joaquins and HSR to reflect the disincentive of using the shuttle bus. The transfer penalty is in addition to the actual 30 minutes required to transfer between San Joaquins and HSR.

The Build scenario assumes that both San Joaquins and HSR trains terminate at the same station and stop on the same level. Therefore, cross-platform transfers are available to passengers transferring between San Joaquins and HSR. Four minutes is assumed to be the necessary transfer time between the two services for inbound travel, and eight minutes is assumed to be necessary in the outbound direction. Table 3 shows the transfer type and transfer time between San Joaquins and HSR trains in each scenario.

Table 3: Transfer Type and Time between San Joaquins and HSR Services by Scenario

Transfer Type	No-Build		Build	
	Inbound	Outbound	Inbound	Outbound
Transfers between stations	30 minutes	30 minutes	-	-
Cross-platform transfers	-	-	4 minutes	8 minutes

5.3 Scenario Timetables

The tables in this section show the San Joaquins schedule for each combination of build scenario (No-Build or Build), service alternative (Project or Cumulative), and direction of service (inbound/outbound):

- Table 4 and Table 5 are for the Project alternative (8RT) and No-Build scenario for inbound and outbound trains, respectively.
- Table 6 and Table 7 are for the Project alternative (8RT) and Build scenario for inbound and outbound trains, respectively.
- Table 8 and Table 9 are for the Cumulative alternative (12RT) and No-Build scenario for inbound and outbound trains, respectively.
- Table 10 and Table 11 are for the Cumulative alternative (12RT) and Build scenario for inbound and outbound trains, respectively.

The major difference between the No-Build and Build scenarios is the transfer time between San Joaquins and HSR. The cross-platform transfer between the two services in the Build is 22 – 26 minutes shorter than the time it takes in the No-Build for a passenger to transfer between the San Joaquins station and ACE/HSR station, depending on the travel direction. Furthermore, the Build does not include the additional 15-minute transfer penalty that the No-Build scenario has (described in Section 5.1). This penalty is not reflected in the timetables in this section but is included in the ACE Model to forecast ridership. Lastly, the schedule of the one daily ACE roundtrip between Natomas and Stockton San Joaquins Street is different in the No-Build and Build scenarios to enable transfers between ACE and San Joaquins services.

Table 4: 2030/2040 Project Alternative (8RT) No-Build San Joaquins Train Timetable (Inbound Trains)

Station	Inbound (read down ↓)							
	J01	S01	J05	J07	J09	N01	J03	S03
Bakersfield (HSR station)	7:19	9:19	11:19	13:19	15:19	16:19	17:19	19:19
Kings-Tulare (HSR station)	7:53	9:53	11:53	13:53	15:53	16:53	17:53	19:53
Fresno (HSR station)	8:09	10:09	12:09	14:09	16:09	17:09	18:09	20:09
Madera (HSR station)	8:21	10:21	12:21	14:21	16:21	17:21	18:21	20:21
Merced (HSR station)	8:42	10:42	12:42	14:42	16:42	17:42	18:42	20:42
Merced (San Joaquins station)	9:12	11:12	13:12	15:12	17:12	18:12	19:12	21:12
Turlock-Denair	9:39	11:39	13:39	15:39	17:39	18:39	19:39	21:39
Modesto	9:52	11:52	13:52	15:52	17:52	18:52	19:52	21:52
Downtown Stockton (Cabral)		12:21				19:21		22:21
Stockton San Joaquin Street	10:19		14:19	16:19	18:19		20:19	
Lodi		12:37						22:37
Lodi (New)						19:35		
Elk Grove						19:59		
Sacramento City College						20:08		
Midtown Sacramento						20:14		
Sacramento Valley		13:18						23:18
North Sacramento						20:19		
Natomas						20:28		
Oakley	10:48		14:48	16:48	18:48		20:48	
Martinez	11:20		15:20	17:20	19:20		21:20	
Richmond	11:49		15:49	17:49	19:49		21:49	
Emeryville	12:00		16:00	18:00	20:00		22:00	
Oakland (Jack London Square)	12:09		16:09	18:09	20:09		22:09	

*Orange-highlighted times are HSR timestamps.

Table 5: 2030/2040 Project Alternative (8RT) No-Build San Joaquins Train Timetable (Outbound Trains)

Station	Outbound (read up ↑)							
	S02	J04	J06	N02	J08	J10	S04	J12
Bakersfield (HSR station)	10:30	12:30	14:30	15:30	16:30	18:30	20:30	22:30
Kings-Tulare (HSR station)	9:58	11:58	13:58	14:58	15:58	17:58	19:58	21:58
Fresno (HSR station)	9:41	11:41	13:41	14:41	15:41	17:41	19:41	21:41
Madera (HSR station)	9:30	11:30	13:30	14:30	15:30	17:30	19:30	21:30
Merced (HSR station)	9:08	11:08	13:08	14:08	15:08	17:08	19:08	21:08
Merced (San Joaquins station)	8:38	10:38	12:38	13:38	14:38	16:38	18:38	20:38
Turlock-Denair	8:11	10:11	12:11	13:11	14:11	16:11	18:11	20:11
Modesto	7:58	9:58	11:58	12:58	13:58	15:58	17:58	19:58
Downtown Stockton (Cabral)	7:29			12:29			17:29	
Stockton San Joaquin Street		9:26	11:26		13:26	15:26		19:26
Lodi	7:12						17:12	
Lodi (New)				12:15				
Elk Grove				11:50				
Sacramento City College				11:40				
Midtown Sacramento				11:36				
Sacramento Valley	6:33						16:33	
North Sacramento				11:30				
Natomas				11:22				
Oakley		8:59	10:59		12:59	14:59		18:59
Martinez		8:29	10:29		12:29	14:29		18:29
Richmond		7:59	9:59		11:59	13:59		17:59
Emeryville		7:48	9:48		11:48	13:48		17:48
Oakland (Jack London Square)		7:37	9:37		11:37	13:37		17:37

*Orange-highlighted times are HSR timestamps.

Table 6: 2030/2040 Project Alternative (8RT) Build San Joaquins Train Timetable (Inbound Trains)

Station	Inbound (read down ↓)							
	J01	S01	J05	J07	J09	N01	J03	S03
Bakersfield (HSR station)	7:19	9:19	11:19	13:19	15:19	16:19	17:19	19:19
Kings-Tulare (HSR station)	7:53	9:53	11:53	13:53	15:53	16:53	17:53	19:53
Fresno (HSR station)	8:09	10:09	12:09	14:09	16:09	17:09	18:09	20:09
Madera (HSR station)	8:21	10:21	12:21	14:21	16:21	17:21	18:21	20:21
Merced (HSR station)	8:42	10:42	12:42	14:42	16:42	17:42	18:42	20:42
Merced (San Joaquins station)	8:46	10:46	12:46	14:46	16:46	17:46	18:46	20:46
Turlock-Denair	9:13	11:13	13:13	15:13	17:13	18:13	19:13	21:13
Modesto	9:26	11:26	13:26	15:26	17:26	18:26	19:26	21:26
Downtown Stockton (Cabral)		11:55				18:55		21:55
Stockton San Joaquin Street	9:53		13:53	15:53	17:53		19:53	
Lodi		12:11						22:11
Lodi (New)						19:09		
Elk Grove						19:33		
Sacramento City College						19:42		
Midtown Sacramento						19:48		
Sacramento Valley		12:52						22:52
North Sacramento						19:53		
Natomas						20:02		
Oakley	10:22		14:22	16:22	18:22		20:22	
Martinez	10:54		14:54	16:54	18:54		20:54	
Richmond	11:23		15:23	17:23	19:23		21:23	
Emeryville	11:34		15:34	17:34	19:34		21:34	
Oakland (Jack London Square)	11:43		15:43	17:43	19:43		21:43	

*Orange-highlighted times are HSR timestamps.

Table 7: 2030/2040 Project Alternative (8RT) Build San Joaquins Train Timetable (Outbound Trains)

Station	Outbound (read up ↑)							
	S02	J04	J06	N02	J08	J10	S04	J12
Bakersfield (HSR station)	10:30	12:30	14:30	15:30	16:30	18:30	20:30	22:30
Kings-Tulare (HSR station)	9:58	11:58	13:58	14:58	15:58	17:58	19:58	21:58
Fresno (HSR station)	9:41	11:41	13:41	14:41	15:41	17:41	19:41	21:41
Madera (HSR station)	9:30	11:30	13:30	14:30	15:30	17:30	19:30	21:30
Merced (HSR station)	9:08	11:08	13:08	14:08	15:08	17:08	19:08	21:08
Merced (San Joaquins station)	9:00	11:00	13:00	14:00	15:00	17:00	19:00	21:00
Turlock-Denair	8:33	10:33	12:33	13:33	14:33	16:33	18:33	20:33
Modesto	8:20	10:20	12:20	13:20	14:20	16:20	18:20	20:20
Downtown Stockton (Cabral)	7:51			12:51			17:51	
Stockton San Joaquin Street		9:48	11:48		13:48	15:48		19:48
Lodi	7:34						17:34	
Lodi (New)				12:37				
Elk Grove				12:12				
Sacramento City College				12:02				
Midtown Sacramento				11:58				
Sacramento Valley	6:55						16:55	
North Sacramento				11:52				
Natomas				11:44				
Oakley		9:21	11:21		13:21	15:21		19:21
Martinez		8:51	10:51		12:51	14:51		18:51
Richmond		8:21	10:21		12:21	14:21		18:21
Emeryville		8:10	10:10		12:10	14:10		18:10
Oakland (Jack London Square)		7:59	9:59		11:59	13:59		17:59

*Orange-highlighted times are HSR timestamps.

Table 8: 2030/2040 Cumulative Alternative (12RT) No-Build San Joaquins Train Timetable (Inbound Trains)

Station	Inbound (read down ↓)											
	S01	J01	J03	N01	J05	N03	J07	N05	J09	S03	N07	J11
Bakersfield (HSR station)	6:19	7:19	9:19	10:19	11:19	12:19	13:19	14:19	15:19	16:19	18:19	19:19
Kings-Tulare (HSR station)	6:53	7:53	9:53	10:53	11:53	12:53	13:53	14:53	15:53	16:53	18:53	19:53
Fresno (HSR station)	7:09	8:09	10:09	11:09	12:09	13:09	14:09	15:09	16:09	17:09	19:09	20:09
Madera (HSR station)	7:21	8:21	10:21	11:21	12:21	13:21	14:21	15:21	16:21	17:21	19:21	20:21
Merced (HSR station)	7:42	8:42	10:42	11:42	12:42	13:42	14:42	15:42	16:42	17:42	19:42	20:42
Merced (San Joaquins station)	8:12	9:12	11:12	12:12	13:12	14:12	15:12	16:12	17:12	18:12	20:12	21:12
Turlock-Denair	8:39	9:39	11:39	12:39	13:39	14:39	15:39	16:39	17:39	18:39	20:35	21:39
Modesto	8:52	9:52	11:52	12:52	13:52	14:52	15:52	16:52	17:52	18:52	20:48	21:52
Downtown Stockton (Cabral)	9:21			13:21		15:21		17:21		19:21	21:17	
Stockton San Joaquin Street		10:19	12:19		14:19		16:19		18:19			22:19
Lodi	9:37									19:37		
Lodi (New)				13:35		15:35		17:35			21:31	
Elk Grove				13:59		15:59		17:59			21:55	
Sacramento City College				14:08		16:08		18:08			22:04	
Midtown Sacramento				14:14		16:14		18:14			22:10	
Sacramento Valley	10:18									20:18		
North Sacramento				14:19		16:19		18:19			22:15	
Natomas				14:28		16:28		18:28			22:24	
Plumas Lake				14:50								
Marysville-Yuba City				15:00								
Gridley				15:17								
Chico				15:41								
Oakley		10:48	12:48		14:48		16:48		18:48			22:48
Martinez		11:20	13:20		15:20		17:20		19:20			23:20
Richmond		11:49	13:49		15:49		17:49		19:49			23:49
Emeryville		12:00	14:00		16:00		18:00		20:00			0:00
Oakland (Jack London Square)		12:09	14:09		16:09		18:09		20:09			0:09

*Orange-highlighted times are HSR timestamps.

Table 9: 2030/2040 Cumulative Alternative (12RT) No-Build San Joaquins Train Timetable (Outbound Trains)

Station	Outbound (read up ↑)											
	N02	J02	S02	J04	N04	J06	N06	J08	N08	J10	S04	J12
Bakersfield (HSR station)	8:30	9:30	10:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30	20:30	22:30
Kings-Tulare (HSR station)	7:58	8:58	9:58	11:58	12:58	13:58	14:58	15:58	16:58	17:58	19:58	21:58
Fresno (HSR station)	7:41	8:41	9:41	11:41	12:41	13:41	14:41	15:41	16:41	17:41	19:41	21:41
Madera (HSR station)	7:30	8:30	9:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	19:30	21:30
Merced (HSR station)	7:08	8:08	9:08	11:08	12:08	13:08	14:08	15:08	16:08	17:08	19:08	21:08
Merced (San Joaquins station)	6:38	7:38	8:38	10:38	11:38	12:38	13:38	14:38	15:38	16:38	18:38	20:38
Turlock-Denair	6:15	7:11	8:11	10:11	11:11	12:11	13:11	14:11	15:11	16:11	18:11	20:11
Modesto	6:02	6:58	7:58	9:58	10:58	11:58	12:58	13:58	14:58	15:58	17:58	19:58
Downtown Stockton (Cabral)	5:33		7:29		10:29		12:29		14:29		17:29	
Stockton San Joaquin Street		6:26		9:26		11:26		13:26		15:26		19:26
Lodi			7:12								17:12	
Lodi (New)	5:19				10:15		12:15		14:15			
Elk Grove	4:54				9:50		11:50		13:50			
Sacramento City College	4:44				9:40		11:40		13:40			
Midtown Sacramento	4:40				9:36		11:36		13:36			
Sacramento Valley			6:33								16:33	
North Sacramento	4:34				9:30		11:30		13:30			
Natomas	4:26				9:22		11:22		13:22			
Plumas Lake							10:59					
Marysville-Yuba City							10:49					
Gridley							10:32					
Chico							10:08					
Oakley		5:59		8:59		10:59		12:59		14:59		18:59
Martinez		5:29		8:29		10:29		12:29		14:29		18:29
Richmond		4:59		7:59		9:59		11:59		13:59		17:59
Emeryville		4:48		7:48		9:48		11:48		13:48		17:48
Oakland (Jack London Square)		4:37		7:37		9:37		11:37		13:37		17:37

*Orange-highlighted times are HSR timestamps.

Table 10: 2030/2040 Cumulative Alternative (12RT) Build San Joaquins Train Timetable (Inbound Trains)

Station	Inbound (read down ↓)											
	S01	J01	J03	N01	J05	N03	J07	N05	J09	S03	N07	J11
Bakersfield (HSR station)	6:19	7:19	9:19	10:19	11:19	12:19	13:19	14:19	15:19	16:19	18:19	19:19
Kings-Tulare (HSR station)	6:53	7:53	9:53	10:53	11:53	12:53	13:53	14:53	15:53	16:53	18:53	19:53
Fresno (HSR station)	7:09	8:09	10:09	11:09	12:09	13:09	14:09	15:09	16:09	17:09	19:09	20:09
Madera (HSR station)	7:21	8:21	10:21	11:21	12:21	13:21	14:21	15:21	16:21	17:21	19:21	20:21
Merced (HSR station)	7:42	8:42	10:42	11:42	12:42	13:42	14:42	15:42	16:42	17:42	19:42	20:42
Merced (San Joaquins station)	7:46	8:46	10:46	11:46	12:46	13:46	14:46	15:46	16:46	17:46	19:50	20:46
Turlock-Denair	8:13	9:13	11:13	12:13	13:13	14:13	15:13	16:13	17:13	18:13	20:13	21:13
Modesto	8:26	9:26	11:26	12:26	13:26	14:26	15:26	16:26	17:26	18:26	20:26	21:26
Downtown Stockton (Cabral)	8:55			12:55		14:55		16:55		18:55	20:55	
Stockton San Joaquin Street		9:53	11:53		13:53		15:53		17:53			21:53
Lodi	9:11									19:11		
Lodi (New)				13:09		15:09		17:09			21:09	
Elk Grove				13:33		15:33		17:33			21:33	
Sacramento City College				13:42		15:42		17:42			21:42	
Midtown Sacramento				13:48		15:48		17:48			21:48	
Sacramento Valley	9:52									19:52		
North Sacramento				13:53		15:53		17:53			21:53	
Natomas				14:02		16:02		18:02			22:02	
Plumas Lake				14:24								
Marysville-Yuba City				14:34								
Gridley				14:51								
Chico				15:15								
Oakley		10:22	12:22		14:22		16:22		18:22			22:22
Martinez		10:54	12:54		14:54		16:54		18:54			22:54
Richmond		11:23	13:23		15:23		17:23		19:23			23:23
Emeryville		11:34	13:34		15:34		17:34		19:34			23:34
Oakland (Jack London Square)		11:43	13:43		15:43		17:43		19:43			23:43

*Orange-highlighted times are HSR timestamps.

Table 11: 2030/2040 Cumulative Alternative (12RT) Build San Joaquins Train Timetable (Outbound Trains)

Station	Outbound (read up ↑)											
	N02	J02	S02	J04	N04	J06	N06	J08	N08	J10	S04	J12
Bakersfield (HSR station)	8:30	9:30	10:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30	20:30	22:30
Kings-Tulare (HSR station)	7:58	8:58	9:58	11:58	12:58	13:58	14:58	15:58	16:58	17:58	19:58	21:58
Fresno (HSR station)	7:41	8:41	9:41	11:41	12:41	13:41	14:41	15:41	16:41	17:41	19:41	21:41
Madera (HSR station)	7:30	8:30	9:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	19:30	21:30
Merced (HSR station)	7:08	8:08	9:08	11:08	12:08	13:08	14:08	15:08	16:08	17:08	19:08	21:08
Merced (San Joaquins station)	6:56	8:00	9:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	21:00
Turlock-Denair	6:33	7:33	8:33	10:33	11:33	12:33	13:33	14:33	15:33	16:33	17:33	20:33
Modesto	6:20	7:20	8:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	17:20	20:20
Downtown Stockton (Cabral)	5:51		7:51		10:51		12:51		14:51		16:51	
Stockton San Joaquin Street		6:48		9:48		11:48		13:48		15:48		19:48
Lodi			7:34								16:34	
Lodi (New)	5:37				10:37		12:37		14:37			
Elk Grove	5:12				10:12		12:12		14:12			
Sacramento City College	5:02				10:02		12:02		14:02			
Midtown Sacramento	4:58				9:58		11:58		13:58			
Sacramento Valley			6:55								15:55	
North Sacramento	4:52				9:52		11:52		13:52			
Natomas	4:44				9:44		11:44		13:44			
Plumas Lake							11:21					
Marysville-Yuba City							11:11					
Gridley							10:54					
Chico							10:30					
Oakley		6:21		9:21		11:21		13:21		15:21		19:21
Martinez		5:51		8:51		10:51		12:51		14:51		18:51
Richmond		5:21		8:21		10:21		12:21		14:21		18:21
Emeryville		5:10		8:10		10:10		12:10		14:10		18:10
Oakland (Jack London Square)		4:59		7:59		9:59		11:59		13:59		17:59

*Orange-highlighted times are HSR timestamps.

6. Ridership Forecasts

The following subsections present the ridership forecasts for San Joaquins and ACE services, including a high-level summary, a detailed station-level summary, and a San Joaquins market flow summary. All results reflect the application of the post-pandemic long-term ridership recovery factors described in Section 3.

6.1 High-Level Summary

Table 12 and Table 13 show the 2030 and 2040 annual ridership forecasts for ACE and San Joaquins services for the No-Build and Build scenarios. Table 12 shows forecasted ridership for the Project alternative (8RT), and Table 13 shows forecasted ridership for the Cumulative alternative (12RT). The differences between the No-Build and Build scenarios for each year and alternative are represented in the “Difference” columns in each table. Annual passenger miles traveled (PMT) and annual total automobile VMT avoided are also presented for each alternative. For reference, actual pre-pandemic annual ridership was approximately 1,506,200 for ACE in 2019 and 1,059,000 for San Joaquins in FY 2019.⁷

Based on a comparison of the Build results to the No-Build results, the MITC project is forecasted to have the following impacts for each alternative:

- Project Alternative (8 RT): An additional 232,000 trips in 2030 and an additional 253,200 trips in 2040
- Cumulative Alternative (12 RT): An additional 282,700 trips in 2030 and an additional 308,400 trips in 2040

Table 14 summarizes the percentage difference in ridership in the Build scenario relative to the No-Build scenario for a given forecast year and alternative. Relative to the No-Build, ridership in the Build is forecasted to be:

- About 18 – 21 percent higher for total San Joaquins ridership, driven by transfers between San Joaquins and HSR trains. About 86 – 88 percent of the ridership difference between No-Build and Build (across both forecast years and both alternatives) is attributable to the transfers between San Joaquins and HSR trains.
- About 30 – 31 percent higher for total transfers between San Joaquins and HSR.

Connections between San Joaquins and ACE services are available at the Stockton San Joaquin Street Station. Due to the additional transfer time between HSR and San Joaquins trains and adjusted San Joaquins timetable in the No-Build scenario, the ACE D-train⁸ timeslots had to be shifted to facilitate transfers between the ACE D-trains and two San Joaquins trains traveling in different directions. These shifts resulted in less favorable timeslots for the ACE D-trains in the No-Build compared to the Build, so there are more forecasted transfers between ACE and San Joaquins services at Stockton San Joaquin Street Station in

⁷ ACE ridership cited here is for 2019 and from the Federal Transit Administration’s National Transit Database. San Joaquins ridership cited here is from the latest (2022) business plan published by the San Joaquin Joint Powers Authority and represents FY 2019 data (the fiscal year is based on Amtrak’s fiscal year, which runs from October through September).

⁸ D01 and D02 are ACE trains that operate between Natomas/Chico and Stockton San Joaquins Street. Transfers are available between D-trains and San Joaquins trains.

the Build than in the No-Build (see the line item “ACE–San Joaquins Transfers” in the ACE section of Table 12 and Table 13). Additionally, in the Build scenario, because of the lower transfer times between San Joaquins and HSR services at Merced, there are more forecasted trips with a leg on ACE, San Joaquins, *and* HSR than in the No-Build (see the line item “ACE–HSR Transfers” in the ACE section of Table 12 and Table 13); these trips involve an ACE-San Joaquins transfer at Stockton San Joaquin Street Station and a San Joaquins-HSR transfer at Merced. Total ACE ridership in the Build scenario is less than 1.4 percent higher than in the No-Build, regardless of the alternative (i.e., Project [8RT] or Cumulative [12RT]).

Table 12: Forecasted Ridership and Automobile VMT Avoided for the Project Alternative (8RT)

	2030 8RT Scenario			2040 8RT Scenario		
	No-Build	Build	Difference	No-Build	Build	Difference
Combined System (ACE + San Joaquins)						
Annual Ridership	4,042,000	4,274,000	232,000	4,435,200	4,688,400	253,200
<i>Train only (non-transfers)</i>	3,014,300	3,027,500	13,200	3,315,600	3,330,500	14,900
<i>ACE/San Joaquins–HSR Transfers</i>	875,200	1,073,000	197,800	952,200	1,167,600	215,400
<i>ACE–San Joaquins Transfers</i>	45,000	64,900	19,900	49,500	71,300	21,800
<i>ACE/San Joaquins–Thruway Bus Transfers</i>	107,500	108,600	1,100	117,900	119,000	1,100
Average Daily Ridership (total)	11,100	11,700	600	12,200	12,800	600
Annual PMT	394,132,200	444,446,000	50,313,800	429,793,000	484,400,200	54,607,200
Annual Total Auto VMT Avoided	286,643,200	323,234,800	36,591,600	312,575,700	352,291,500	39,715,800
ACE						
Annual Ridership	3,090,400	3,134,400	44,000	3,399,500	3,447,800	48,300
<i>Train only (non-transfers)</i>	2,759,600	2,765,600	6,000	3,034,900	3,041,500	6,600
<i>ACE–HSR Transfers</i>	283,600	301,700	18,100	312,600	332,500	19,900
<i>ACE–San Joaquins Transfers</i>	45,000	64,900	19,900	49,500	71,300	21,800
<i>ACE–Thruway Bus Transfers</i>	2,200	2,200	-	2,500	2,500	-
Average Daily Ridership (total)	8,500	8,600	100	9,300	9,400	100
Annual PMT	204,644,200	210,394,000	5,749,800	225,516,000	231,864,200	6,348,200
Annual Total Auto VMT Avoided	148,832,200	153,013,800	4,181,600	164,011,700	168,628,500	4,616,800
San Joaquins						
Annual Ridership	996,600	1,204,500	207,900	1,085,200	1,311,900	226,700
<i>Train only (non-transfers)</i>	254,700	261,900	7,200	280,700	289,000	8,300
<i>San Joaquins–HSR Transfers</i>	591,600	771,300	179,700	639,600	835,100	195,500
<i>San Joaquins–ACE Transfers</i>	45,000	64,900	19,900	49,500	71,300	21,800
<i>San Joaquins–Thruway Bus Transfers</i>	105,300	106,400	1,100	115,400	116,500	1,100
Average Daily Ridership (total)	2,700	3,300	600	3,000	3,600	600
Annual PMT	189,488,000	234,052,000	44,564,000	204,277,000	252,536,000	48,259,000
Annual Total Auto VMT Avoided	137,811,000	170,221,000	32,410,000	148,564,000	183,663,000	35,099,000

Table 13: Forecasted Ridership and Automobile VMT Avoided for the Cumulative Alternative (12RT)

	2030 12RT Scenario			2040 12RT Scenario		
	No-Build	Build	Difference	No-Build	Build	Difference
Combined System (ACE + San Joaquins)						
Annual Ridership	5,529,900	5,812,600	282,700	6,065,200	6,373,600	308,400
<i>Train only (non-transfers)</i>	4,195,900	4,220,100	24,200	4,613,800	4,640,800	27,000
<i>ACE/San Joaquins–HSR Transfers</i>	1,138,800	1,375,200	236,400	1,237,900	1,495,600	257,700
<i>ACE–San Joaquins Transfers</i>	47,100	69,000	21,900	51,600	75,500	23,900
<i>ACE/San Joaquins–Thruway Bus Transfers</i>	148,100	148,300	200	161,900	161,700	-200
Average Daily Ridership (total)	15,200	15,900	700	16,600	17,500	900
Annual PMT	544,090,100	605,507,500	61,417,400	592,882,300	659,494,300	66,612,000
Annual Total Auto VMT Avoided	395,701,800	440,368,600	44,666,800	431,188,100	479,631,800	48,443,700
ACE						
Annual Ridership	4,158,400	4,207,900	49,500	4,569,400	4,623,700	54,300
<i>Train only (non-transfers)</i>	3,655,400	3,673,600	18,200	4,018,500	4,038,600	20,100
<i>ACE–HSR Transfers</i>	408,600	419,800	11,200	447,900	460,300	12,400
<i>ACE–San Joaquins Transfers</i>	47,100	69,000	21,900	51,600	75,500	23,900
<i>ACE–Thruway Bus Transfers</i>	47,300	45,500	-1,800	51,400	49,300	-2,100
Average Daily Ridership (total)	11,400	11,500	100	12,500	12,700	200
Annual PMT	301,676,100	307,020,500	5,344,400	331,258,300	337,111,300	5,853,000
Annual Total Auto VMT Avoided	219,400,800	223,287,600	3,886,800	240,915,100	245,171,800	4,256,700
San Joaquins						
Annual Ridership	1,418,600	1,673,700	255,100	1,547,400	1,825,400	278,000
<i>Train only (non-transfers)</i>	540,500	546,500	6,000	595,300	602,200	6,900
<i>San Joaquins–HSR Transfers</i>	730,200	955,400	225,200	790,000	1,035,300	245,300
<i>San Joaquins–ACE Transfers</i>	47,100	69,000	21,900	51,600	75,500	23,900
<i>San Joaquins–Thruway Bus Transfers</i>	100,800	102,800	2,000	110,500	112,400	1,900
Average Daily Ridership (total)	3,900	4,600	700	4,200	5,000	800
Annual PMT	242,414,000	298,487,000	56,073,000	261,624,000	322,383,000	60,759,000
Annual Total Auto VMT Avoided	176,301,000	217,081,000	40,780,000	190,273,000	234,460,000	44,187,000

Table 14: Percentage Difference in Forecasted Annual Ridership in the Build vs. the No-Build

Annual Ridership Category	Project Alternative (8RT)		Cumulative Alternative (12RT)	
	2030	2040	2030	2040
Total Combined ACE and San Joaquins	5.7%	5.7%	5.1%	5.1%
Total San Joaquins	20.9%	20.9%	18.0%	18.0%
Total Transfers between San Joaquins and HSR	30.4%	30.6%	30.8%	31.1%

Forecasted ridership in the Cumulative alternative (12RT) is significantly higher than in the Project alternative (8RT) due to the expansion of both ACE and San Joaquins services. Relative to the Project alternative (8RT) and across both forecast years and both No-Build and Build scenarios, ridership in the Cumulative alternative (12RT) is:

- More than 35 percent higher for total annual combined San Joaquins and ACE ridership.
- More than 38 percent higher for San Joaquins.
- More than 34 percent higher for ACE.

Combined San Joaquins and ACE ridership is forecasted to be about 10 percent higher in 2040 relative to in 2030, which is consistent with demographic growth in the overall study area.

The forecasted revenue (in 2020 dollars) of each alternative is summarized separately in Table 15.

Table 15: Forecasted Revenue Summary (in January 2020 US Dollars)

Annual Ridership Category	Project Alternative (8RT)				Cumulative Alternative (12RT)			
	2030		2040		2030		2040	
	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build
Total Combined ACE and San Joaquins	\$43,890,500	\$47,866,600	\$48,105,800	\$52,441,800	\$61,835,800	\$66,827,200	\$67,746,100	\$73,189,900
Total ACE	\$26,230,100	\$26,547,900	\$28,889,600	\$29,240,300	\$36,992,100	\$37,345,300	\$40,672,400	\$41,059,100
Total San Joaquins	\$17,660,400	\$21,318,700	\$19,216,200	\$23,201,500	\$24,843,700	\$29,481,800	\$27,073,800	\$32,130,800

Note: Revenue in this table reflects the revenue associated with ACE and San Joaquins trips, including bus trips that connect to ACE and San Joaquins services. These figures do not include revenue associated with the HSR portion of ACE or San Joaquins trips that include a transfer to/from HSR.

6.2 Station-Level Ridership

This section summarizes combined annual station boardings and alightings for both San Joaquins and ACE. Forecasted impacts of the MITC project on transfers and ridership are highlighted in Table 16, and more detailed station-level forecasts for the Project alternative for 2030 and 2040 are in

Table 17 and Table 18, respectively. Detailed station-level forecasts for the Cumulative alternative for 2030 and 2040 are in Table 19 and Table 20, respectively.

San Joaquins stations are forecasted to have higher numbers of boardings and alightings due to reduced transfer times between San Joaquins and HSR services in Merced. Table 16 highlights significant percent differences in San Joaquins transfers and boardings/alightings in 2030 in the Build scenario relative to the No-Build scenario for both the Project (8RT) and Cumulative (12RT) alternatives. The percent differences in boardings and alightings between Build and No-Build for each alternative in 2040 are very similar to those shown for 2030 in Table 16. The number of San Joaquins – HSR transfers is roughly 31 percent higher in the Build than in the No-Build for both the Project and Cumulative alternatives in both 2030 and 2040.

Table 16: Percent Difference in Transfers and Boardings/Alightings in 2030 in the Build Scenario relative to the No-Build Scenario for the Project (8RT) and Cumulative (12RT) Alternatives

Ridership	Project Alternative (8RT)	Cumulative Alternative (12RT)
Transfers		
<i>San Joaquins - HSR transfers at Merced</i>	30% higher	31% higher
<i>San Joaquins - ACE transfers at Stockton San Joaquins Street Station</i>	44% higher	46% higher
San Joaquins Boardings and Alightings		
<i>Stations from Sacramento City College to Natomas</i>	20 - 22% higher	11 - 24% higher
<i>Stations from Oakley to Emeryville</i>	17 - 21% higher	17 - 21% higher
<i>Turlock-Denair Station</i>	20% higher	17% higher
<i>Modesto Station</i>	18% higher	16% higher

Relative to the No-Build scenario and for both 2030 and 2040, ACE boardings and alightings in the Build scenario for the Project (8RT) and Cumulative (12RT) alternatives are forecasted to be about 6 percent and 4 percent higher, respectively, for Sacramento stations. Stations along the Chico extension in the Cumulative alternative (12RT) are forecasted to have about 1 – 7 percent more ACE boardings and alightings in the Build scenario relative to the No-Build. The Sacramento stations and Chico extension stations served by ACE benefit from lower transfer times in the Build scenario at Merced (i.e., for trips that involve both a San Joaquins – HSR transfer and a San Joaquins – ACE transfer) and at Stockton San Joaquins Street Station, as noted in Section 6.1.

Other ridership observations include the following:

- **Impacts of demographic growth.** Overall and San Joaquins station-level ridership is forecasted to typically increase about 10 percent for a given station from 2030 to 2040 in both the Project (8RT) and Cumulative (12RT) alternatives, which is generally consistent with demographic growth in the study area.

- **Impacts of service expansion: Cumulative (12RT) vs. Project (8RT) alternatives.** Expanded service in the Cumulative alternative (12RT) is forecasted to result in notably higher 2040 ridership compared to the Project alternative (8RT):
 - **Merced.** 26 percent higher San Joaquins ridership and 30 percent higher total ridership.
 - **Turlock-Denair and Modesto.** Roughly 20 percent higher San Joaquins ridership and total ridership.
 - **Lodi.** More than twice as much San Joaquins ridership and 24 percent or more total ridership.
 - **Sacramento stations.** More than twice as much San Joaquins ridership and total ridership.

Table 17: 2030 Annual Station Boardings and Alightings for the Project Alternative (8RT)

Station	2030 No-Build			2030 Build		
	ACE	San Joaquins	Total	ACE	San Joaquins	Total
Merced (new)	339,600	704,400	1,044,000	357,700	885,900	1,243,600
<i>Non-transfers</i>	56,000	112,800	168,800	56,000	114,600	170,600
<i>HSR Transfers</i>	283,600	591,600	875,200	301,700	771,300	1,073,000
Atwater	10,700	—	10,700	10,700	—	10,700
Livingston	7,700	—	7,700	7,700	—	7,700
Turlock	18,700	—	18,700	18,700	—	18,700
Ceres	25,400	—	25,400	25,400	—	25,400
Modesto (new)	133,600	—	133,600	133,600	—	133,600
Ripon	57,700	—	57,700	57,700	—	57,700
Downtown Manteca	81,000	—	81,000	81,000	—	81,000
Chico	—	4,800	4,800	—	4,800	4,800
Oroville*	—	2,000	2,000	—	2,000	2,000
Gridley	—	—	—	—	—	—
Marysville–Yuba City	—	600	600	—	600	600
Plumas Lake	—	—	—	—	—	—
Natomas	102,700	32,300	135,000	108,900	38,700	147,600
Old North Sacramento	81,300	25,500	106,800	86,200	30,600	116,800
Midtown Sacramento	158,300	49,800	208,100	168,000	59,600	227,600
Sacramento City College	85,600	26,900	112,500	90,700	32,200	122,900
Elk Grove	176,900	32,500	209,400	193,800	36,700	230,500
Lodi (new)	136,500	10,500	147,000	138,600	12,400	151,000
Downtown Stockton	263,000	17,800	280,800	267,300	23,800	291,100
Stockton San Joaquin St.	57,900	238,300	251,200	77,600	283,500	296,200
<i>Non-transfers</i>	12,900	193,300	206,200	12,700	218,600	231,300
<i>ACE–San Joaquins Transfers*</i>	45,000	45,000	45,000	64,900	64,900	64,900
North Lathrop	209,800	—	209,800	209,800	—	209,800
Lathrop–Manteca	166,800	—	166,800	166,800	—	166,800
Tracy	546,800	—	546,800	546,800	—	546,800
Vasco Road	204,600	—	204,600	204,600	—	204,600
Livermore	247,100	—	247,100	247,100	—	247,100
Pleasanton	704,400	—	704,400	704,400	—	704,400
Union City	—	—	—	—	—	—
Fremont	438,900	—	438,900	438,900	—	438,900
Great America	1,294,400	—	1,294,400	1,294,400	—	1,294,400
Santa Clara	267,700	—	267,700	267,700	—	267,700
San Jose	366,700	—	366,700	366,700	—	366,700
Turlock–Denair	—	53,000	53,000	—	63,500	63,500
Modesto (existing)	—	179,400	179,400	—	211,000	211,000
Lodi (existing)	—	15,300	15,300	—	17,700	17,700
Sacramento Valley	—	75,800	75,800	—	92,800	92,800
Oakley	—	46,400	46,400	—	56,200	56,200
Martinez	—	187,600	187,600	—	219,200	219,200
Richmond	—	65,500	65,500	—	78,300	78,300
Emeryville	—	67,300	67,300	—	79,600	79,600
Oakland	—	115,600	115,600	—	135,300	135,300
Total	6,183,800	1,951,300	8,090,100	6,270,800	2,364,400	8,570,300

*ACE-San Joaquins transfer trips should be counted only once in the total ridership.

Note: Reported ridership represents unconstrained values.

Table 18: 2040 Annual Station Boardings and Alightings for the Project Alternative (8RT)

Station	2040 No-Build			2040 Build		
	ACE	San Joaquins	Total	ACE	San Joaquins	Total
Merced (new)	375,000	764,300	1,139,300	394,900	961,900	1,356,800
<i>Non-transfers</i>	62,400	124,700	187,100	62,400	126,800	189,200
<i>HSR Transfers</i>	312,600	639,600	952,200	332,500	835,100	1,167,600
Atwater	11,900	—	11,900	11,900	—	11,900
Livingston	8,400	—	8,400	8,400	—	8,400
Turlock	20,700	—	20,700	20,700	—	20,700
Ceres	28,100	—	28,100	28,100	—	28,100
Modesto (new)	147,700	—	147,700	147,700	—	147,700
Ripon	63,800	—	63,800	63,800	—	63,800
Downtown Manteca	89,800	—	89,800	89,800	—	89,800
Chico	—	5,100	5,100	—	5,200	5,200
Oroville*	—	2,100	2,100	—	2,100	2,100
Gridley	—	—	—	—	—	—
Marysville–Yuba City	—	800	800	—	800	800
Plumas Lake	—	—	—	—	—	—
Natomas	113,600	35,600	149,200	120,600	42,600	163,200
Old North Sacramento	90,000	28,200	118,200	95,500	33,700	129,200
Midtown Sacramento	175,100	54,900	230,000	186,000	65,700	251,700
Sacramento City College	94,700	29,700	124,400	100,600	35,500	136,100
Elk Grove	196,100	35,800	231,900	214,700	40,600	255,300
Lodi (new)	151,300	11,800	163,100	153,700	13,800	167,500
Downtown Stockton	291,200	19,900	311,100	296,000	26,300	322,300
Stockton San Joaquin St.	63,800	261,700	276,000	85,500	311,200	325,400
<i>Non-transfers</i>	14,300	212,200	226,500	14,200	239,900	254,100
<i>ACE–San Joaquins Transfers*</i>	49,500	49,500	49,500	71,300	71,300	71,300
North Lathrop	232,300	—	232,300	232,300	—	232,300
Lathrop–Manteca	184,700	—	184,700	184,700	—	184,700
Tracy	604,400	—	604,400	604,400	—	604,400
Vasco Road	223,000	—	223,000	223,000	—	223,000
Livermore	269,100	—	269,100	269,100	—	269,100
Pleasanton	768,100	—	768,100	768,100	—	768,100
Union City	—	—	—	—	—	—
Fremont	477,200	—	477,200	477,200	—	477,200
Great America	1,422,100	—	1,422,100	1,422,100	—	1,422,100
Santa Clara	295,000	—	295,000	295,000	—	295,000
San Jose	404,300	—	404,300	404,300	—	404,300
Turlock–Denair	—	58,100	58,100	—	69,100	69,100
Modesto (existing)	—	196,100	196,100	—	230,300	230,300
Lodi (existing)	—	16,800	16,800	—	19,500	19,500
Sacramento Valley	—	83,100	83,100	—	101,200	101,200
Oakley	—	50,200	50,200	—	61,000	61,000
Martinez	—	202,800	202,800	—	236,500	236,500
Richmond	—	70,400	70,400	—	84,000	84,000
Emeryville	—	73,200	73,200	—	86,700	86,700
Oakland	—	125,700	125,700	—	147,200	147,200
Total	6,801,400	2,126,300	8,878,200	6,898,100	2,574,900	9,401,700

* ACE-San Joaquins transfer trips should be counted only once in the total ridership.

Note: Reported ridership represents unconstrained values.

Table 19: 2030 Annual Station Boardings and Alightings for the Cumulative Alternative (12RT)

Station	2030 No-Build			2030 Build		
	ACE	San Joaquins	Total	ACE	San Joaquins	Total
Merced (new)	486,300	872,000	1,358,300	497,500	1,099,800	1,597,300
<i>Non-transfers</i>	77,700	141,800	219,500	77,700	144,400	222,100
<i>HSR Transfers</i>	408,600	730,200	1,138,800	419,800	955,400	1,375,200
Atwater	15,900	—	15,900	15,900	—	15,900
Livingston	11,100	—	11,100	11,100	—	11,100
Turlock	26,800	—	26,800	26,800	—	26,800
Ceres	36,000	—	36,000	36,000	—	36,000
Modesto (new)	170,100	—	170,100	170,100	—	170,100
Ripon	72,000	—	72,000	72,000	—	72,000
Downtown Manteca	91,300	—	91,300	91,300	—	91,300
Chico	110,600	51,300	161,900	113,500	53,400	166,900
Oroville*	13,000	7,600	20,600	13,000	7,700	20,700
Gridley	26,100	12,400	38,500	27,900	12,800	40,700
Marysville–Yuba City	106,100	50,500	156,600	114,000	52,000	166,000
Plumas Lake	53,400	26,800	80,200	56,000	27,800	83,800
Natomas	183,400	107,300	290,700	189,900	118,800	308,700
Old North Sacramento	145,200	85,000	230,200	150,300	94,000	244,300
Midtown Sacramento	282,800	165,500	448,300	292,800	183,100	475,900
Sacramento City College	152,900	89,400	242,300	158,200	98,900	257,100
Elk Grove	268,900	109,600	378,500	286,000	116,800	402,800
Lodi (new)	150,300	31,400	181,700	152,600	34,900	187,500
Downtown Stockton	306,700	34,800	341,500	311,200	41,900	353,100
Stockton San Joaquin St.	64,000	254,600	271,500	85,900	304,900	321,800
<i>Non-transfers</i>	16,900	207,500	224,400	16,900	235,900	252,800
<i>ACE–San Joaquins Transfers*</i>	47,100	47,100	47,100	69,000	69,000	69,000
North Lathrop	235,800	—	235,800	235,800	—	235,800
Lathrop–Manteca	205,400	—	205,400	205,400	—	205,400
Tracy	668,800	—	668,800	668,800	—	668,800
Vasco Road	250,800	—	250,800	250,800	—	250,800
Livermore	299,000	—	299,000	299,000	—	299,000
Pleasanton	851,700	—	851,700	851,700	—	851,700
Union City	661,100	—	661,100	661,100	—	661,100
Fremont	440,000	—	440,000	440,000	—	440,000
Great America	1,296,500	—	1,296,500	1,296,500	—	1,296,500
Santa Clara	268,700	—	268,700	268,700	—	268,700
San Jose	369,300	—	369,300	369,300	—	369,300
Turlock–Denair	—	63,500	63,500	—	74,600	74,600
Modesto (existing)	—	213,200	213,200	—	246,600	246,600
Lodi (existing)	—	16,300	16,300	—	18,900	18,900
Sacramento Valley	—	82,400	82,400	—	102,500	102,500
Oakley	—	50,000	50,000	—	60,700	60,700
Martinez	—	203,200	203,200	—	238,100	238,100
Richmond	—	70,400	70,400	—	84,700	84,700
Emeryville	—	72,300	72,300	—	86,300	86,300
Oakland	—	124,100	124,100	—	145,400	145,400
Total	8,320,000	2,793,600	11,066,500	8,419,100	3,304,600	11,654,700

* ACE-San Joaquins transfer trips should be counted only once in the total ridership.

Note: Reported ridership represents unconstrained values.

Table 20: 2040 Annual Station Boardings and Alightings for the Cumulative Alternative (12RT)

Station	2040 No-Build			2040 Build		
	ACE	San Joaquins	Total	ACE	San Joaquins	Total
Merced (new)	534,300	947,100	1,481,400	546,700	1,195,200	1,741,900
<i>Non-transfers</i>	86,400	157,100	243,500	86,400	159,900	246,300
<i>HSR Transfers</i>	447,900	790,000	1,237,900	460,300	1,035,300	1,495,600
Atwater	17,700	—	17,700	17,700	—	17,700
Livingston	12,300	—	12,300	12,300	—	12,300
Turlock	29,400	—	29,400	29,400	—	29,400
Ceres	39,700	—	39,700	39,700	—	39,700
Modesto (new)	187,500	—	187,500	187,500	—	187,500
Ripon	79,700	—	79,700	79,700	—	79,700
Downtown Manteca	101,000	—	101,000	101,000	—	101,000
Chico	118,300	54,600	172,900	121,300	56,900	178,200
Oroville*	13,900	8,200	22,100	13,900	8,300	22,200
Gridley	28,200	13,300	41,500	30,200	13,700	43,900
Marysville–Yuba City	116,100	55,200	171,300	124,800	56,900	181,700
Plumas Lake	59,300	29,800	89,100	62,100	30,800	92,900
Natomas	201,900	118,100	320,000	209,000	130,700	339,700
Old North Sacramento	159,800	93,500	253,300	165,500	103,400	268,900
Midtown Sacramento	311,200	182,100	493,300	322,300	201,400	523,700
Sacramento City College	168,200	98,400	266,600	174,200	108,900	283,100
Elk Grove	297,400	121,100	418,500	316,200	129,400	445,600
Lodi (new)	166,500	34,700	201,200	169,100	38,700	207,800
Downtown Stockton	339,600	38,500	378,100	344,400	46,300	390,700
Stockton San Joaquin St.	70,400	279,400	298,200	94,200	334,400	353,100
<i>Non-transfers</i>	18,800	227,800	246,600	18,700	258,900	277,600
<i>ACE–San Joaquins Transfers*</i>	51,600	51,600	51,600	75,500	75,500	75,500
North Lathrop	261,200	—	261,200	261,200	—	261,200
Lathrop–Manteca	227,100	—	227,100	227,100	—	227,100
Tracy	739,700	—	739,700	739,700	—	739,700
Vasco Road	273,500	—	273,500	273,500	—	273,500
Livermore	325,600	—	325,600	325,600	—	325,600
Pleasanton	928,800	—	928,800	928,800	—	928,800
Union City	727,000	—	727,000	727,000	—	727,000
Fremont	478,400	—	478,400	478,400	—	478,400
Great America	1,424,400	—	1,424,400	1,424,400	—	1,424,400
Santa Clara	296,000	—	296,000	296,000	—	296,000
San Jose	407,200	—	407,200	407,200	—	407,200
Turlock–Denair	—	69,400	69,400	—	81,400	81,400
Modesto (existing)	—	233,100	233,100	—	269,800	269,800
Lodi (existing)	—	17,800	17,800	—	20,900	20,900
Sacramento Valley	—	90,100	90,100	—	112,200	112,200
Oakley	—	54,100	54,100	—	65,900	65,900
Martinez	—	219,600	219,600	—	257,000	257,000
Richmond	—	75,700	75,700	—	90,900	90,900
Emeryville	—	78,700	78,700	—	93,900	93,900
Oakland	—	134,900	134,900	—	158,000	158,000
Total	9,141,300	3,047,400	12,137,100	9,250,100	3,605,000	12,779,600

* ACE-San Joaquins transfer trips should be counted only once in the total ridership.

Note: Reported ridership represents unconstrained values.

6.3 San Joaquins Market Analysis

AECOM analyzed trip flows between markets most likely to be impacted by the MITC project, specifically markets that would require a transfer between San Joaquins and HSR services to make a rail trip in 2030 and 2040. Table 21 and Table 22 show the combined ACE and San Joaquins total trips between markets south of Merced and north of Merced in 2030 and 2040, respectively. Table 23 defines which stations are in each market.

Table 21 and Table 22 indicate that the MITC project has the greatest impact on travel between the Central Valley (stretching from Bakersfield to Madera) and the following markets in both the Project and Cumulative alternatives:

- SJV-East, which includes Turlock-Denair and Modesto Stations
- SJV-West, which includes Stockton (Cabral), Lodi, and Stockton San Joaquins Street Stations
- Northern/Eastern Contra Costa County and Inner Bay Area markets, which include stations from Oakley to Oakland
- Sacramento

Because the Build scenario involves a reduction in the San Joaquins – HSR transfer time and not the ACE – HSR transfer time, there is no material change in trips between the No-Build and Build for markets served by HSR and ACE and not served by San Joaquins, such as trips between the Central Valley and Tri-Valley, Fremont, Union City, and San Jose.

Table 21: Summary of Forecasted Trips between Markets in 2030

Markets		Project Alternative (8RT)			Cumulative Alternative (12RT)		
South of Merced	North/West of Merced	No-Build	Build	Build vs. No-Build	No-Build	Build	Build vs. No-Build
Central Valley North of Bakersfield	SJV-East	66,700	91,300	37%	82,300	108,500	32%
	SJV-West	73,600	95,100	29%	87,700	112,000	28%
	Tri-Valley	15,500	15,500	0%	24,100	24,100	0%
	Union City	-	-	0%	54,700	54,700	0%
	Fremont	29,100	29,100	0%	29,100	29,100	0%
	Silicon Valley	46,600	46,600	0%	46,600	46,600	0%
	Northern/Eastern Contra Costa County	64,100	87,200	36%	68,500	93,600	37%
	Inner Bay Area	72,400	95,500	32%	76,900	102,000	33%
	San Francisco	43,000	55,000	28%	45,600	58,700	29%
	Sacramento	180,300	223,000	24%	216,400	274,200	27%
	North Valley	-	-	0%	26,900	32,000	19%
Los Angeles	SJV-East	76,600	91,000	19%	93,200	108,600	17%
	SJV-West	44,900	53,200	18%	52,300	62,100	19%
	Tri-Valley	1,200	1,200	0%	3,800	3,800	0%
	Union City	-	-	0%	28,200	28,200	0%
	Fremont	1,000	1,000	0%	1,000	1,000	0%
	Silicon Valley	6,600	6,600	0%	6,600	6,600	0%
	Northern/Eastern Contra Costa County	63,100	74,400	18%	68,900	81,800	19%
	Inner Bay Area	37,000	43,300	17%	40,000	47,300	18%
	San Francisco	12,100	14,300	18%	13,000	15,400	18%
	Sacramento	42,600	49,300	16%	66,500	77,800	17%
	North Valley	-	-	0%	6,100	6,700	10%
Total		876,400	1,072,600	22%	1,138,400	1,374,800	21%

Table 22: Summary of Forecasted Trips between Markets in 2040

Markets		Project Alternative (8RT)			Cumulative Alternative (12RT)		
South of Merced	North/West of Merced	No-Build	Build	Build vs. No-Build	No-Build	Build	Build vs. No-Build
Central Valley North of Bakersfield	SJV-East	74,200	101,600	37%	91,700	120,800	32%
	SJV-West	82,000	106,200	30%	97,700	125,000	28%
	Tri-Valley	16,900	16,900	0%	26,500	26,500	0%
	Union City	-	-	0%	60,400	60,400	0%
	Fremont	31,800	31,800	0%	31,800	31,800	0%
	Silicon Valley	51,600	51,600	0%	51,600	51,600	0%
	Northern/Eastern Contra Costa County	70,100	95,600	36%	75,100	102,500	36%
	Inner Bay Area	78,900	104,100	32%	83,800	111,200	33%
	San Francisco	46,900	60,100	28%	49,800	64,000	29%
	Sacramento	199,700	247,100	24%	239,900	303,900	27%
	North Valley	-	-	0%	29,000	34,200	18%
Los Angeles	SJV-East	81,200	96,500	19%	98,900	115,200	16%
	SJV-West	47,700	56,700	19%	55,800	66,400	19%
	Tri-Valley	1,300	1,300	0%	4,100	4,100	0%
	Union City	-	-	0%	29,800	29,800	0%
	Fremont	1,000	1,000	0%	1,000	1,000	0%
	Silicon Valley	7,000	7,000	0%	7,000	7,000	0%
	Northern/Eastern Contra Costa County	66,000	77,900	18%	72,200	85,500	18%
	Inner Bay Area	38,700	45,200	17%	41,800	49,200	18%
	San Francisco	12,600	14,900	18%	13,500	16,100	19%
	Sacramento	45,100	52,200	16%	70,300	82,300	17%
	North Valley	-	-	0%	6,200	7,000	13%
Total		952,700	1,167,700	23%	1,237,900	1,495,500	21%

Table 23: Stations within each Market

Markets	Stations
LA	Los Angeles metro area
Central Valley North of Bakersfield	Bakersfield, Kings-Tulare, Fresno, Madera
SJV-East	Merced, Atwater, Livingston, Ceres, Turlock, Downtown Manteca, Modesto, Ripon
SJV-West	Tracy, Lathrop/Manteca, North Lathrop, Downtown Stockton, Stockton San Joaquins Street, Lodi
Sacramento Area	Elk Grove, Sacramento City College, Midtown Sacramento, Old North Sacramento, Natomas, Sacramento Valley
North Valley	Plumas Lake, Marysville, Gridley, Oroville, Chico
Tri-Valley	Vasco, Livermore, Pleasanton
Union City	Union City
Fremont	Fremont
San Francisco	San Francisco
Silicon Valley	Great America, Santa Clara, San Jose
Northern to Eastern Contra Costa County	Oakley, Martinez
Inner Bay Area	Richmond, Emeryville, Oakland

7. Ridership and Revenue Forecasting Disclaimer

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