CROSS VALLEY CORRIDOR PLAN

Cross Valley Corridor Plan

Tulare County Association of Governments

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Draft Final Report

TCAG
Tulare County Association of Governments

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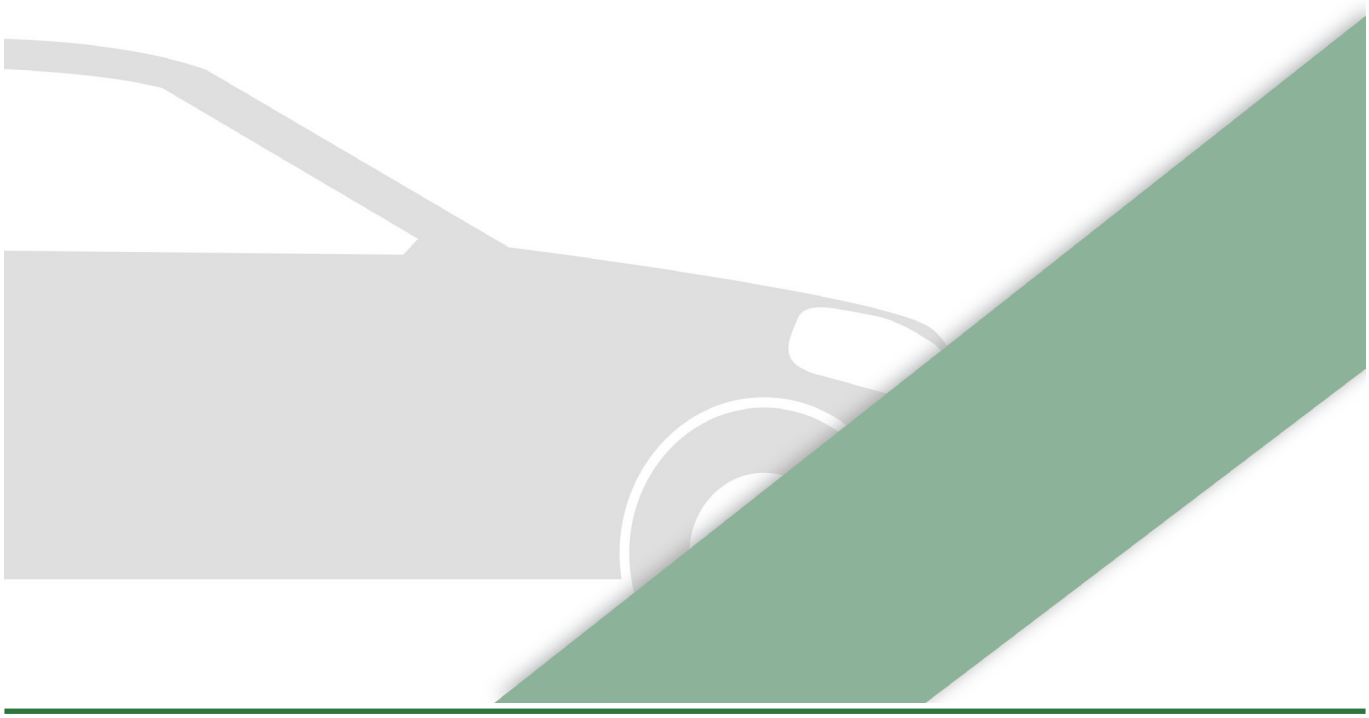

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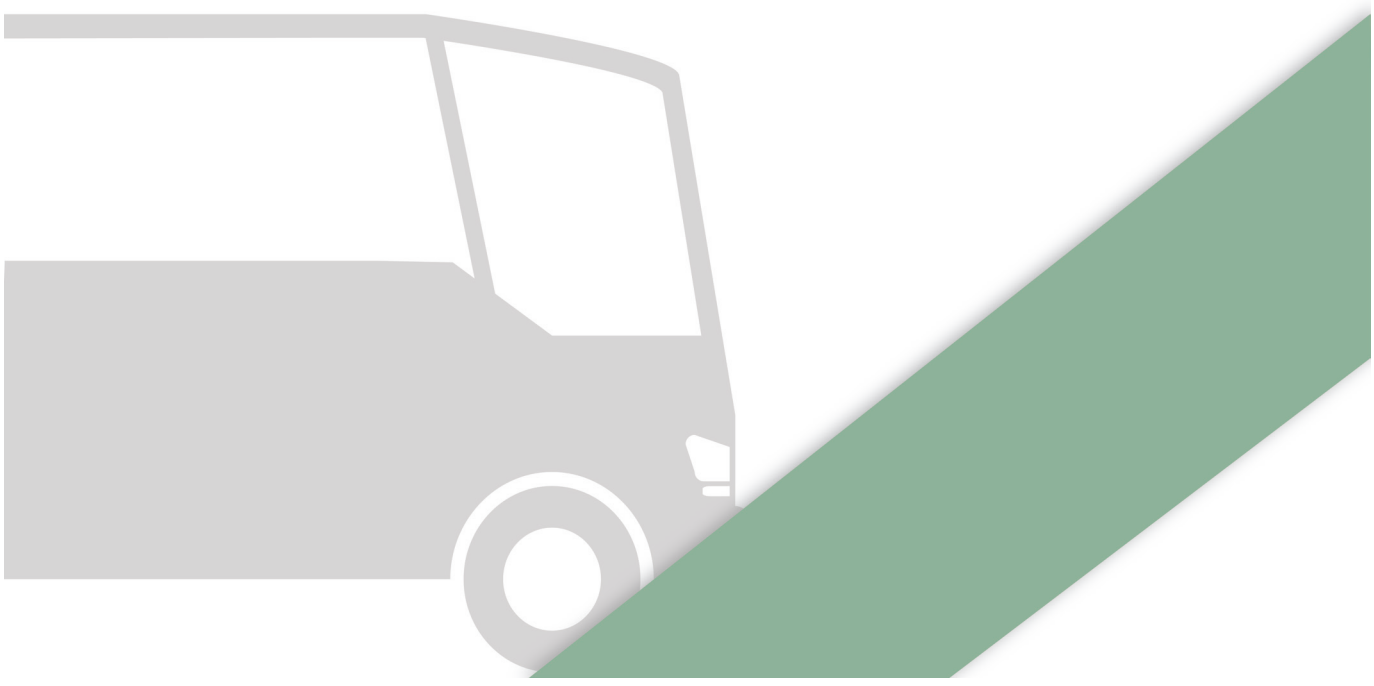


Abbreviations & Acronyms

ACE .....Altamont Corridor Express
ADA.....Americans with Disabilities Act
Authority .....California High-Speed Rail Authority
BNSF.....Burlington Northern Santa Fe
BRT.....Bus Rapid Transit
Caltrans.....California Department of Transportation
CDE .....Community Development Entity
CEP.....Community Engagement Plan
CEQA.....California Environmental Quality Act
CFD .....Community Facilities District
COG .....Council of Governments
CTP.....California Transportation Plan
CVC.....Cross Valley Corridor
CVRC JPA.....Cross Valley Rail Corridor Joint Powers Authority
DART.....Dinuba Area Regional Transit
DMU.....Diesel Multiple Unit
EIR .....Environmental Impact Report
EIFD.....Enhanced Infrastructure Financing Districts
EMU .....Electric Multiple Unit
FAST .....Fixing America's Surface Transportation
FCRTA.....Fresno County Rural Transit Authority
FRA.....Federal Railroad Administration
FTA .....Federal Transit Administration
GHG .....Greenhouse Gas Emissions
HSR .....High-Speed Rail
KART.....Kings Area Rural Transit
KCAG .....Kings County Association of Governments
KCAPTA.....Kings County Area Public Transit Agency
LOS.....Level of Service
LRT .....Light Rail Transit
Metro .....Los Angeles County Metropolitan Transportation Authority
MPO .....Metropolitan Planning Organization
MSF .....Maintenance and Storage Facility
NAS .....Naval Air Station
NEPA.....National Environmental Policy Act
O&M.....Operations and Maintenance
Plan .....Cross Valley Corridor Plan
PTC.....Positive Train Control
RTP.....Regional Transportation Plan
SB .....Senate Bill
SBCTA .....San Bernardino County Transportation Authority
SCAG .....Southern California Association of Governments
SCS .....Sustainable Communities Strategy

Abbreviations & Acronyms (cont'd)

SJVR .....San Joaquin Valley Railroad
SMART .....Sonoma-Marin Area Rail Transit
SR .....State Route
TCAG .....Tulare County Association of Governments
TCaT .....Tulare County Area Transit
TIF.....Tax Increment Financing
TIGER.....Transportation Investment Generating Economic Recovery
TIME.....Tulare InterModal Express
TTE.....Tulare Transit Express
TOD.....Transit-Oriented Development
UPRR.....Union Pacific Railroad
VMT.....Vehicle Miles Traveled
WPT.....Work Planning Team

ES. Executive Summary

ES. 1 Introduction

The Cross Valley Corridor is a vital existing east-west rail corridor between the cities of Huron and Porterville in the Central San Joaquin Valley. With a proposed California High-Speed Rail Station located in the middle of the Corridor, there is an opportunity to improve connectivity and mobility throughout the communities and cities in Tulare, Kings, and southwest Fresno Counties.

The introduction of California High-Speed Rail (HSR) will ultimately link the major cities within California by a new form of transportation that has not yet been implemented anywhere else in the United States. The fully developed HSR system will include more than 20 stations, serving Sacramento, San Francisco Bay Area, Central Valley, Los Angeles, Inland Empire, Orange County, and San Diego. The HSR station that will ultimately link the Central Valley with the HSR system is located near the City of Hanford, and will open as part of the first phase of the project from San Jose to Bakersfield.

The proposed Kings/Tulare HSR Station is unique from the other planned HSR stations in that the Kings/Tulare HSR Station will not be located in the center of the city. Other HSR stations, such as Fresno, Merced, and San Jose, will be located in the downtown cores of these cities and will function as a focal transit point that can easily connect with the surrounding multi-modal amenities and destinations. This is not the case with the Kings/Tulare HSR station. Instead, the proposed station site is to be located within a rural agricultural area just outside of the city of Hanford while station-related land use and mobility development will be planned in the downtown area. The proposed HSR station site will be adjacent to the Cross Valley Corridor (CVC), a freight railroad corridor between Huron to the west and Porterville to the east that is active in certain segments and abandoned in others. This existing corridor presents a unique opportunity to unlock transit and mobility improvements for the region.

Project Purpose

In 2016, the Tulare County Association of Governments (TCAG) initiated the Cross Valley Corridor Plan (Plan) to study connectivity and mobility improvements in the Central San Joaquin Valley. The project aims to increase transit service efficiency, enable communities and cities in the CVC to promote developments that support transit usage, encourage revitalization and economic development, and facilitate growth in support of the HSR investment. This project enabled TCAG to evaluate a range of new public transit service alternatives that would be able to accommodate future population and economic growth, while being compatible with existing land uses and future development opportunities. By planning for a CVC transit system well in advance, right-of-way and land needs can be identified and protected now, avoiding costly acquisitions or eminent domain processes later.

Vision

As developed through stakeholder and public input, the Vision for the project study is to:

"Promote a safe, affordable, and efficient system that increases transportation options while utilizing existing infrastructure, enhances the environment and livability of the region, and promotes economic development through a well-integrated corridor."

The Corridor

The Plan would follow the existing freight rail corridor from Huron to Porterville, which also roughly parallels much of State Routes 198 and 65. Figure ES-1 shows its location in central California. A connection between the proposed Kings/Tulare Regional High-Speed Rail Station and the CVC could benefit the region by potentially linking the communities to each other. These cities include Huron, Lemoore, Hanford, Visalia, Farmersville, Exeter, Lindsay, and Porterville. Unincorporated communities of Armona and Strathmore as well as Naval Air Station (NAS) Lemoore may also be served by transit stops. There is also a desire to provide easy transit connections to the Cities of Tulare, Dinuba, and Woodlake by utilizing their existing downtown transit centers.

Figure ES-1: Cross Valley Corridor

The History

After the completion of the first transcontinental railroad in 1869, the Central Pacific Railroad began building tracks south from Sacramento through the San Joaquin Valley, intending to connect to Los Angeles. In the years that followed, Goshen became one of the leading Valley stations for shipping wheat to other parts of the country. Passenger rail service was established and flourished in the Valley between Visalia and Exeter until the widespread production and use of private automobiles.

Today, the Union Pacific Railroad (UPRR) and Amtrak operate on segments of the Cross Valley Rail Corridor. In 2000, the City of Lemoore worked with the cities of Huron and Visalia to form the Cross Valley Rail Corridor Joint Powers Authority (CVRC JPA) to upgrade 45-miles of track from the City of Huron, through Lemoore and Hanford to the Visalia industrial park for approximately $15 million. The tracks between Lindsay and Porterville were abandoned in 2008 and removed in 2012, but the right-of-way was recently acquired by the City of Porterville with assistance from TCAG.

The CVC is approximately 75-miles long and could serve as the backbone for the future transit corridor. The majority of the corridor is currently occupied by single track freight railway owned and operated by the San Joaquin Valley Railroad (SJVRR). The SJVRR serves a variety of key south valley industries including building products, cattle feed, consumer products, fertilizers, and petroleum projects. Many structures, including railway, bridges, culverts, and crossings, are aging and obsolete, and existing track conditions are not yet suitable for passenger rail operations.

Tulare County

Population: 466,000 (2016)

Cities: Visalia, Tulare, Porterville, Dinuba, Exeter, Woodlake, Farmersville, Lindsay

Kings County

Population: 152,000 (2016)

Cities: Hanford, Lemoore, Naval Air Station Lemoore, Corcoran, Avenal

Huron, Fresno County

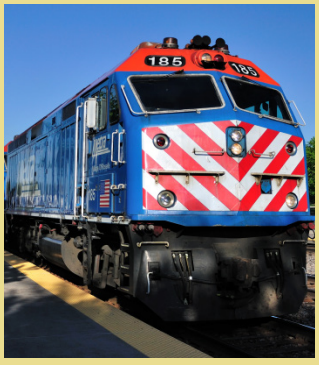
Population: 6,900 (2016)

Bus Rapid Transit (BRT)

Light Rail Transit (LRT)

Heavy Rail

Diesel/Electric Multiple Unit (DMU/EMU)



Commuter Rail

Overall, the right-of-way (ranging from 50-200 feet wide) itself would be suitable for passenger rail via a mixed use (freight and passenger rail). The long, straight geometry featuring large turning radii, virtually zero gradients, very few major geographic obstacles, grade separations of major state routes, and other features make the CVC appropriate for future passenger rail service. The alignment connects the Corridor cities' downtown areas, making it an ideal route to serve the region's major activity centers and populations. Wayside conditions, adjacent land use, and right-of-way boundaries are also key to future passenger rail service.

The Communities

Each of the communities along the Corridor was established by the Southern Pacific Railroad when it first laid tracks, with the exception of Visalia. As a result, the hearts of these communities developed around the old train depots that were established so many years ago. Several urban areas along the corridor have built modern transit centers and new infrastructure in their downtown cores.

Modes Considered

The Plan considered six mode alternatives to provide transit service in the Cross Valley Corridor. Traditionally, several of these modes use gasoline or diesel combustion engines, but the growing technology advancements have allowed for the use of electric hybrid, fully electric, natural gas and even hydrogen fuel cell engines. For most of these modes the propulsion type is not a major driver in the operational characteristics, and these engine systems will be considered for all modes unless mentioned otherwise.

- Bus Rapid Transit (BRT)
- Light Rail Transit (LRT)
- Heavy Rail
- Diesel/Electric Multiple Unit (DMU/EMU)
- Commuter Rail
- Other Modes: People movers, Microtransit, Maglev, etc.

Key Stations

The cities along the CVC that are included in the Plan are:

- Huron
- NAS Lemoore
- Lemoore
- Hanford
- Visalia
- Farmersville
- Exeter
- Lindsay
- Porterville

Off-corridor cities that are included in the Plan are:

- Tulare
- Dinuba
- Woodlake

Unincorporated communities that are located on the CVC and are included in the Plan are:

- Armona
- Goshen
- Strathmore

Figure ES-2: Cross Valley Corridor Cities

ES. 2 Existing Conditions

Transit Services

Local agency-operated bus services in the communities on the CVC include Fresno County Rural Transit Authority (FCRTA), Kings Area Rural Transit (KART), Tulare County Area Transit (TCaT), Visalia Transit, Porterville Transit, Dinuba Area Rural Transit (DART), and Tulare InterModal Express (TIME). The total annual ridership of these bus services in the communities along the CVC is over 4.1 million passengers per year. Privately-operated bus services include Greyhound and Orange Belt, along with Amtrak Bus Service, Amtrak California, and the San Joaquin Passenger Rail, which is operated in partnership between Amtrak and California Department of Transportation (Caltrans).

Figure ES-3: Tulare Transit Center

Figure ES-4: Visalia Town Trolley

Table ES-1: Annual Transit Ridership 2015

Transit Service	Annual Ridership (2015)
Fresno County Rural Transit Authority (FCRTA)	420,300
Huron Transit	73,300
Kings Area Rural Transit (KART)	765,200
Tulare County Transit (TCaT)	374,300
Visalia Transit	1,719,800
Porterville Transit	686,000
Tulare InterModal Express (TIME)	455,800
Dinuba Area Regional Transit (DART	72,000

California High-Speed Rail

The California High-Speed Rail Authority (Authority) is currently in the process of constructing a high-speed rail system that would provide passenger transportation throughout much of California. From the Authority 2016 Business Plan, the first phase will connect Silicon Valley to the Central Valley by 2025. The Kings/Tulare Station is part of this first phase and the Authority participates in the planning processes for other HSR stations proposed in the state to develop linkages and support increased economic activity around the cities.

Figure ES-5: California High-Speed Rail Map

Traffic Conditions

Like most developed and rural communities, travel by private automobile is relatively affordable, fast, and convenient, and therefore the preferred way to travel. This trend is exacerbated in rural communities around the Cross Valley Corridor due to limited transit options and long trip distances between communities. Today, transit trip journey times are at least twice as long as trips taken in private automobiles; thus transit services are currently unable to serve as a competitive mode of travel. Current travel forecasts for the tri-county area show that this trend will not change substantially. To be viable, the CVC project would need to offer a competitive means of travel to private auto use.

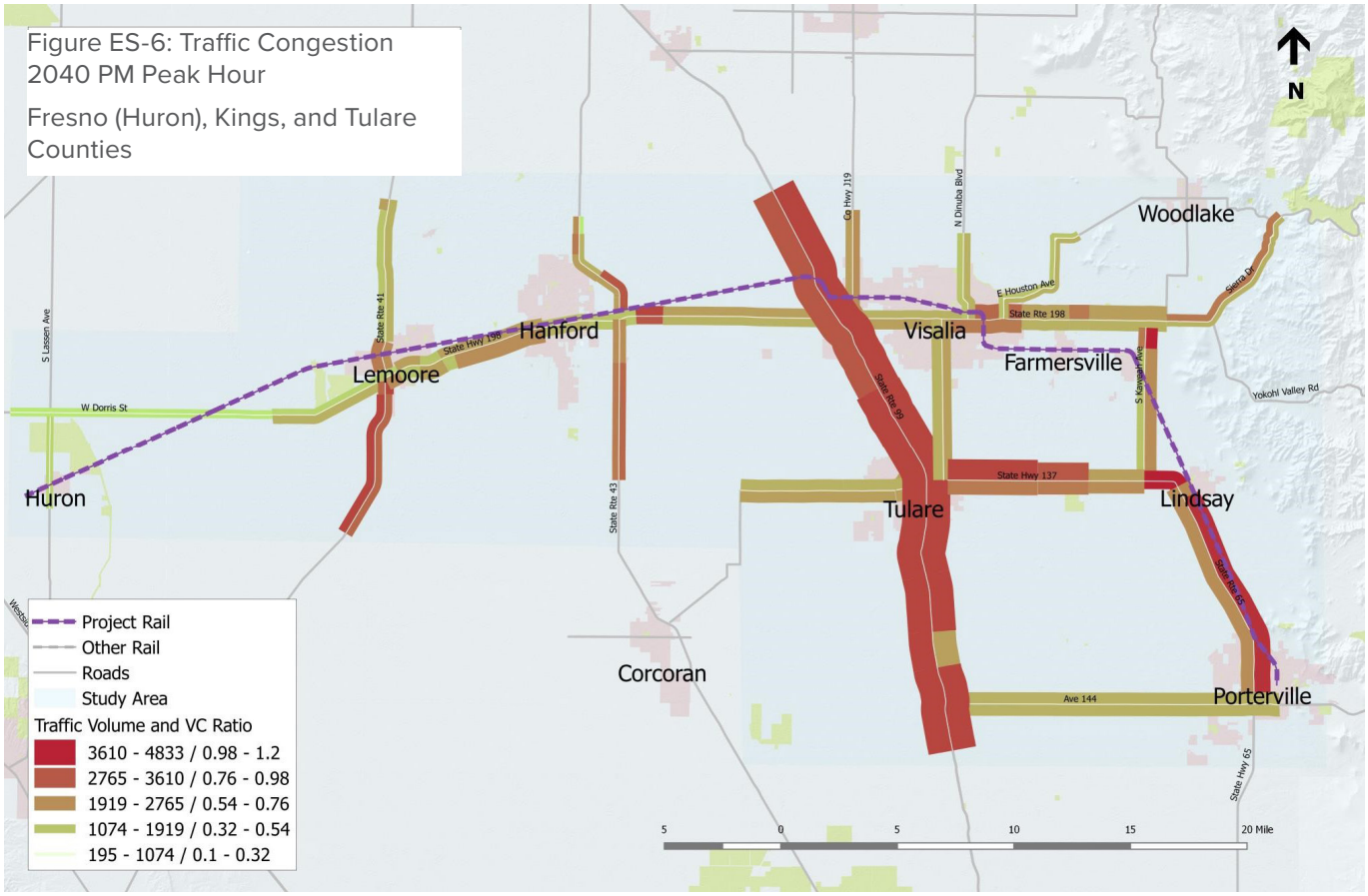
The existing railroad tracks that would be utilized for future Cross Valley passenger rail services link many of the cities in this region. Essentially, it is a "string of pearls" structure from Porterville through Strathmore, Lindsay, Exeter, Visalia, Hanford, Lemoore, and Huron. The nearby highway links that a future rail project would need to compete against include:

- SR 65 – Connecting the communities of Porterville, Strathmore, Lindsay, and Exeter
- SR 198 – Connecting the communities of Exeter, Farmersville, Visalia, Goshen, Hanford, NAS Lemoore, and Lemoore
- SR 269 – Connecting Huron to SR 198

In the future, parts of the highway network are likely to become significantly more congested as travel times for autos and transit vehicles between the cities on the CVC are likely to deteriorate from what they are today.

Figure ES-6: Traffic Congestion
2040 PM Peak Hour

Fresno (Huron), Kings, and Tulare Counties



Demographics

The communities identified as potential Cross Valley station locations represent about 67 percent of total Study Area population, up today from about 60 percent in 2000. This suggests that these communities have been growing faster than the Study Area as a whole. TCAG projections suggest that future growth patterns may reverse this trend slightly with more growth forecasted in many of the smaller or unincorporated areas than recent patterns. Of course, actual outcomes will depend on market considerations as well as local land use policies and planning.

The Study Area population is projected to add over 550,000 residents by 2035 based on the California Department of Finance data, as shown in Table ES-2,. If realized, this level of population growth represents an increase of nearly 90 percent over current levels, or an average annual growth rate of about 3.4 percent. As a point of comparison, the Study Area has exhibited average annual growth rates of approximately 1.5 percent over the last 16 years, or an increase of about 122,000 residents. Regardless of whether future population growth reflects historical patterns or TCAG projections, in the next 20 years the CVC would serve a much larger population than currently exists.

Table ES-2: Population Growth in the Cross Valley Corridor

Population Growth	2016 Population	2035 Population	% Increase
Tulare County	466,300	877,400	88%
Kings County	153,000	297,900	95%
Huron (Fresno County)	6,800	7,300	7%
Total	**626,100**	**1,182,600**	**89%**

Source: California Department of Finance, 2010-2014 American Community Survey, 2000 Census

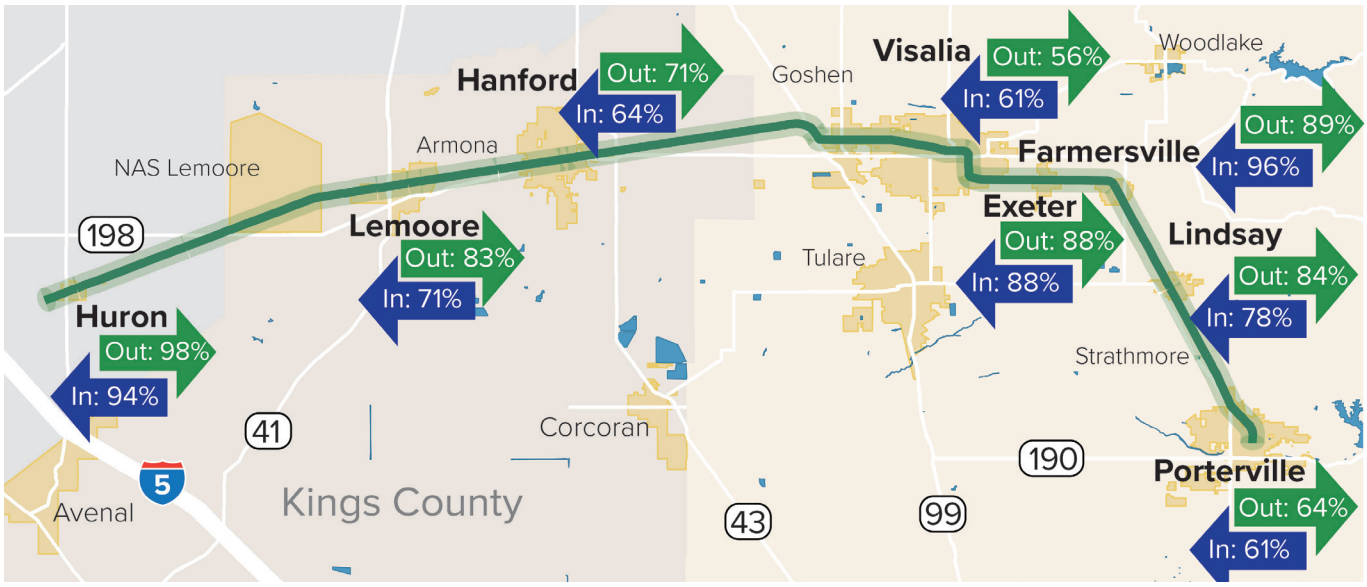
There are also noteworthy differences in the nature and composition of the housing stock in the study area. Specifically, the study area has a higher share of single family housing as compared to the statewide average (78 percent compared to 65 percent) but similar home ownership rates. These results are likely attributable to relatively low land costs in the study area that reduce the economic advantages of higher density housing. Overall, home ownership rates in the study area are comparable to state (and national) levels at about 56 percent, consistent with its role as a relatively affordable housing market.

Employment and Commute Patterns

The communities along the CVC remain dependent on agricultural sectors which account to over 20 percent of total employment. For the most part, agricultural sector jobs are poorly correlated with transit ridership, especially commuter rail, since they tend to be geographically distributed rather than concentrated. However, further analysis may determine how this general trend might apply more locally, especially as economic development continues to be on the rise with increased HSR infrastructural investments in these communities. About 16 percent of the Study Area is employed in retail and hospitality and these sectors are likely to benefit from improved transit access since these jobs are typically clustered in commercial nodes near city centers.

Work-based trips coming in and going out of the cities is shown in Figure ES-7. The commute patterns suggest that there are strong internal connections between the Cross Valley Corridor communities.

Figure ES-7: In- and Out-Commute Patterns on the Cross Valley Corridor



Commercial Real Estate

Trends in the commercial real estate sector will have implications on the TOD opportunities around the potential CVC station areas. Specifically, areas with relatively strong and healthy commercial real estate sectors are more likely to support future TOD opportunities. These locations tend to be positively correlated with the employment hubs and in-commute destinations within the study area.

The total commercial inventory of the study area is dominated by industrial space at about 48 percent of the total, followed by retail at nearly 30 percent, and office at about 9 percent. Generally, office and retail space are the most complementary with TOD activity and space, although there are some exceptions. This is because industrial sites are typically located in more peripheral areas outside of traditional central business districts and tend to be less walkable. Mixed-use districts, where office, retail, and housing co-exist in proximity tend to be more supportive of transit due to the higher concentration of complementary activity.

99% of the region's office real estate is located along the Cross Valley Corridor

96% of the region's retail real estate is located along the Cross Valley Corridor

92% of the region's industrial real estate is located along the Cross Valley Corridor

Existing Rail Conditions

A general existing conditions inspection of the railroad through the entire 75-mile corridor was conducted by physically driving, where possible, along the right-of-way, checking the line at various places, and walking parts of the track.

The Project Team performed a general existing conditions inspection of the railroad through the entire 75-mile corridor by physically driving, where possible, along the right-of-way, checking the line at various places, and walking parts of the track. A visual flyover drone survey was also conducted over the entire CVC to gather current aerial footage of the general conditions of the rails, ties, embankments, culverts, bridges, switches, crossings, roadway control devices (crossbucks, signals, lights, crossing arms, etc.), and other railroad elements within the corridor. Special attention was made to determine what/if any element was suitable for a modern passenger rail transit system, such as light rail transit (LRT), diesel or electric multiple unit (DMU/EMU), commuter rail, or other related technologies.

Overall, the corridor/right-of-way is suitable for passenger transportation. Additional land acquisitions may be required for rail service features such as passing lanes, pocket tracks, and service facilities (maintenance facility, operations centers, etc.). The railroad itself (rails, ties, plates, embankments, switches, signaling, etc.) is not suitable for passenger rail service as it would not meet current regulations (U.S. Department of Transportation (DOT), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), others) for passenger rail service. Many bridges, such as the Kings River bridge, may need to be replaced or upgraded. Many of the crossings and traffic control devices throughout each city would also likely need to be evaluated by the new service provider to maximize safety for road vehicles as well as pedestrians and bicyclists. New rail vehicles would also need to meet current regulations for passenger rail systems.

The majority of the corridor is currently occupied by single track freight railway currently operated by the San Joaquin Valley Railroad.

Many significant structures, including railway, bridges, culverts, and crossings are aging and obsolete.

Current Plans and Policies

Policies, objectives, and strategies identified in the county and city general plans, community plans, regional transportation plans, studies, and the San Joaquin Valley Blueprint Plan encourage, promote, support, improve, enhance, facilitate, or preserve alternative transportation modes such as light rail and bus service and transit-oriented land uses around station sites, stops, and corridors. None of the plans or policies identified contradict or discourage the development of a CVC rail system and, in many instances, specifically support it. Many other policies support higher density residential development around transit stations, encourage street design that promotes transit and active transportation connections, promotes funding that supports infrastructure improvements for a balanced transportation system, and support passenger rail to improve air quality in the valley. The following are a few notable policies and strategies that support Cross Valley Rail.

- Kings County General Plan -- Policy C1.2.3. "Support Cross Valley Rail Corridor planning efforts to consider long term provision of freight and passenger rail service."

- Naval Air Station Lemoore Join Land Use Study. "Should high speed rail come to the valley, the City of Lemoore's planning policies have accounted for two potential passenger rail stations along the Cross Valley Rail Corridor to connect NAS Lemoore through Lemoore to high speed rail."
- Lemoore General Plan -- C-G-6. "Support the activities of the Joint Powers Authority of the Cross Valley Rail Corridor, which include freight and passenger rail goals."
- City of Hanford General Plan Policy E6 Transportation Connectivity. "Enhance opportunities for economic development by pursuing greater regional transportation connectivity for people and goods through infrastructure improvements to railroads and highways."
- Tulare County Regional Blueprint. "Coordinate with regional transportation systems across county borders to ensure an efficient flow of people and goods along key trade and interregional commuting corridors" and "establish light rail between cities".
- Tulare County 2014 – 2000 Regional Transportation and Sustainable Communities Strategy. "Support the development, extension, and maintenance of passenger rail service, including, but not limited to, Cross Valley Rail, High Speed Rail, Amtrak, and light rail."
- City of Visalia General Plan Policy T-P-36. "Participate in the planning process for a potential Cross Valley Rail Line, which could provide east-west light rail service from Visalia to Huron and potentially connect to a future High Speed Rail system."
- Strathmore Community Plan Policy 6.1 "Consider development of an integrated transit center within Strathmore where all transit services can connect with each other as well as with private ridesharing" and "Policy TC-2.1 Rail Service -- The County shall support improvements to freight and expanding passenger rail service throughout the County."
- City of Tulare General Plan Policy TR-P4.6. "The City shall support and facilitate reasonable proposals to bring regional public transportation service (including Amtrak or other passenger rail service) to Tulare."
- City of Porterville General Plan Circulation Element Policy C-G-14. "Protect the City's rail corridor as an economic asset."
- City of Dinuba General Plan Objective Policy 2.64. "Promote a variety of public transit connections with other nearby cities and locations."

In 2015, the Kings County Association of Governments analyzed the feasibility of passenger rail along the San Joaquin Valley Railroad. The Cross Valley Rail Feasibility Study determined that the reservation and potentially early acquisition of land developed with an interim carpool parking area, preservation of the track structure and right of way, and increasing the residential population around future stations to create ridership potential may help make the Cross Valley passenger rail option possible. The study went even further in identifying proposed locations for each corridor community's station site and a land use pattern around each station. The sites identified in this document reflect the exact locations or approximate locations for a station within each of the cities along the corridor.

ES. 3 Economic Development

When fully operational, California HSR service throughout the Central Valley and to the major employment hubs throughout the State can have a transformational impact on local and regional economies. The Plan presents an opportunity to better harness HSR's statewide impacts, and enhance intra-regional connectivity and economic integration. While these benefits are by no means guaranteed; the communities served by the service must proactively and effectively plan for and direct the manner in which they unfold.

This chapter contains a set of lessons learned and best practices related to the economic development benefits of regional rail service that can serve as a toolbox for the cities along the CVC. It also considers emerging trends and practices for financing and phasing commuter rail systems and associated station area development and the implications for the CVC.

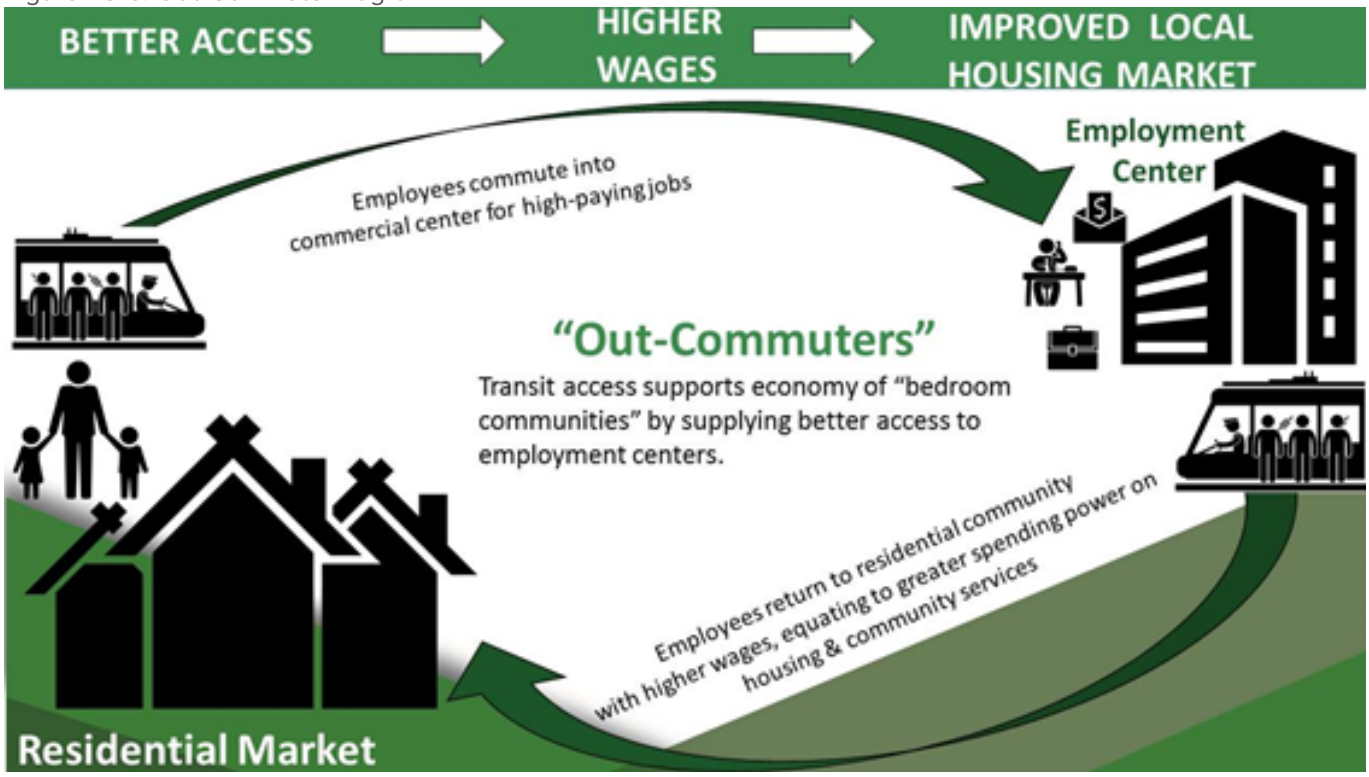
Regional Economic Impacts

At the most fundamental level, success of CVC passenger rail service will depend on its role and relationship within the broader regional economy it serves. While it is difficult to generalize about economic impacts of regional commuter rail service, two broad themes stand out, particularly in smaller and medium-sized communities: (1) the economic impacts are usually long-term, unfolding incrementally over years if not decades, and (2) the size and form of these impacts are inextricably linked to the broader economic context in which they occur.

Out-Commute Impacts:

The "out-commute" model can facilitate economic development in smaller to medium size cities, similar to those in the TCAG region, as illustrated in Figure ES-8. Efficient transit and rail connections can increase the attractiveness of housing further away from major employment centers, especially if it is associated with improved commutes (e.g. time and/or experience) and access to affordable and desirable communities. As this migration occurs, residential communities continue to grow outside of mega-cities and are fueled by the wages collected from large employment centers and reinvested in the local housing market and other resident-serving uses.

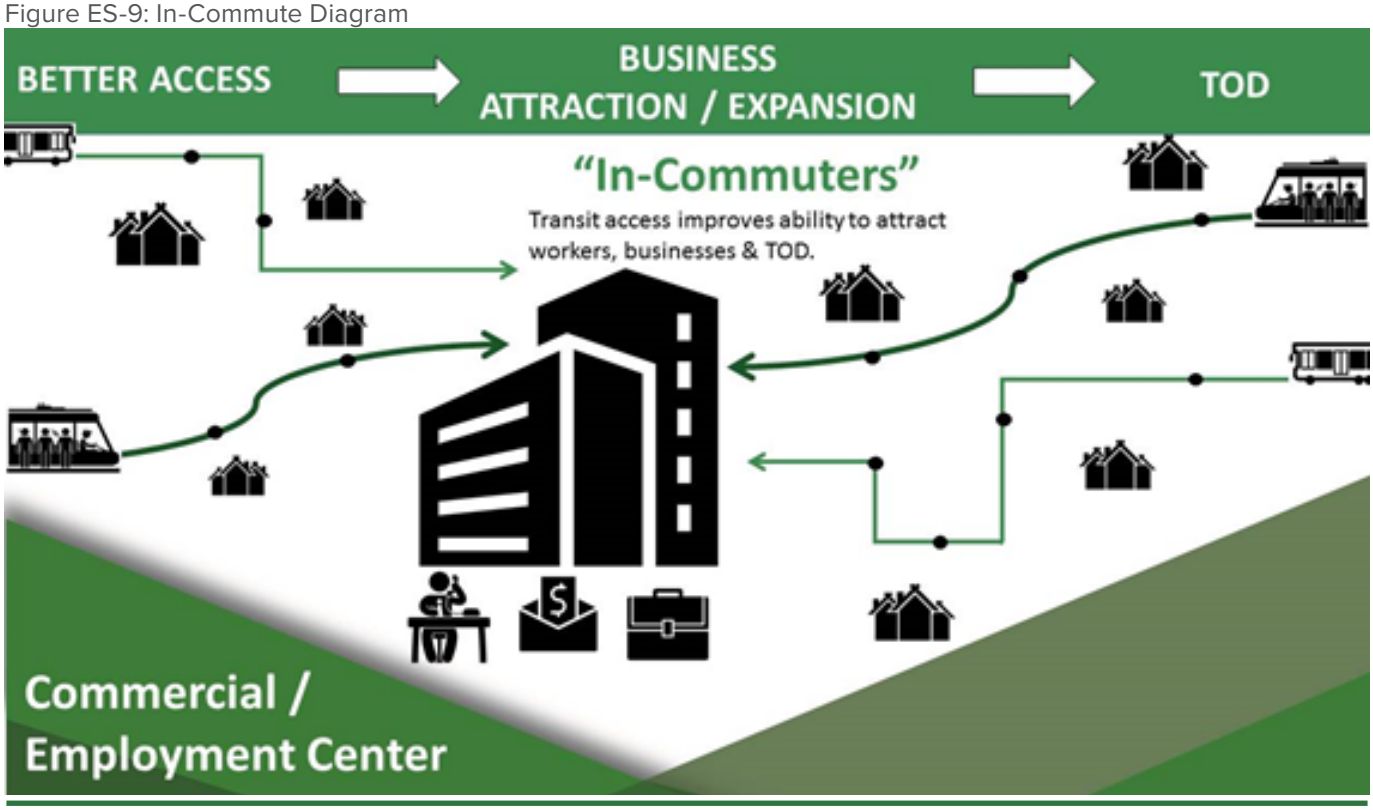
Figure ES-8: Out-Commute Diagram



In-Commute Impacts

The "in-commute" economic development model, shown in Figure ES-9, of transit and rail service represents the flip-side of the "out-commute" model (i.e. the other trip-end). The model refers to the economic benefits conferred on locations or communities with station areas that serve as destination for workers and other commercially oriented trips. By providing increased access to commercial and employment hubs, efficient transit or commuter rail service allows these locations to accommodate more jobs and commercial space in a concentrated, often walkable area. It facilitates growth in these areas by reducing auto-congestion and / or the need for costly or space intensive parking facilities.

Figure ES-9: In-Commute Diagram



The successful completion of HSR service can potentially help reverse the economic disparity between California's coastal areas and communities within San Joaquin Valley by facilitating access to higher paying job markets such as Los Angeles and San Francisco Bay Area regions. In the longer term, it may also support the reverse pattern where employers decide to locate in the Valley, where land and labor are relatively less expensive.

After completion of the HSR service, the initial economic benefits are likely to be dispersed through the CVC with potentially increased consumer spending by a growing number of residents and visitors with increasing incomes. However, the extent and timing of this outcome is harder to predict, because the creation and fostering of new industries and businesses centers often takes years, if not decades, to mature and are highly subject to larger economic trends and conditions.

Transit-Oriented Development

Transit-oriented development (TOD) generally refers to real estate investment, usually a mixture of housing, office, retail, and/or other amenities, that is integrated within walking distance (e.g. within a quarter to half-mile distance) from high-quality public transportation. While the potential economic impacts of HSR and CVC previously described relate to the regional or even mega-regional benefits of increased accessibility, TOD focuses on how these impacts are manifested at the neighborhood, station area, and/or site-specific level.

While TOD is a well-documented phenomenon in established urban markets where land values and transit ridership rates are high, it is generally more limited and slower to materialize in smaller communities located outside major metropolitan areas. In these circumstances, two factors that appear to be particularly determinant include (1) the existing and evolving land use and market context, and (2) the planning and regulatory context surrounding the station area. While current market conditions are challenging in many of the station area cities, proactive planning efforts and strategic land use designations can prepare cities to capitalize on transit access as the local economy improves and specific opportunities arise. In the interim, cities can pave the way for future development by providing catalytic infrastructure and public amenities that send a positive signal to potential investors.

Looking more closely at the neighborhoods surrounding transit stations, the facilitation of TOD projects around light rail stations is a well-tested strategy to attract investment and spur market synergies between a mix of uses in a walkable and well-connected environment. Initially, however, TOD may only be viable in some of the larger cities along the CVC, such as Hanford and Visalia, while in others, it may take years before market conditions support it. Therefore, it is important that advanced planning efforts recognize the extended time frame of development when considering station area development. In order to ensure that future development can be accommodated near transit and in-line with broader city and regional goals and standards, land adjacent to the station area should be developed in the short-term with complementary or temporary uses that will not prohibit future higher-density development. TOD planning efforts should be somewhat flexible in the type and timing of development to allow for appropriate uses, depending on the growth trajectory of each individual city, as well as the region as a whole. Land uses like parking should be treated delicately to allow for realistic development in the short term, while not inhibiting TOD in the long-term.

Financing and Phasing

The financing and phasing of commuter rail investments and service are inextricably linked since costs will generally increase as the level and type of service expands over time. Most transit services and operators rely on a variety of funding sources which differ, depending on whether the funding is used for capital (infrastructure) projects or operations. Farebox recovery generally represents the largest single revenue source for operations and maintenance (O&M), at about 33 percent nationwide, followed by state and federal sources which account for 32 percent combined, as shown in Figure ES-10. In California, funding from State and Federal sources trend slightly below the national average. For capital costs, state and federal sources account for over 40 percent of total transit investment, as shown in Figure ES-11. "Directly Generated" sources, which generally include non-fare revenue associated with transit service from advertising, land leases, and taxes imposed by transit agencies, are also important for both capital projects and operations. Because the need for O&M is constant, transit agencies often seek to diversify their funding sources to cushion the impacts of unforeseen fluctuations from any one source.

Figure ES-10: National Averages: Funding for Transit Operations and Maintenance

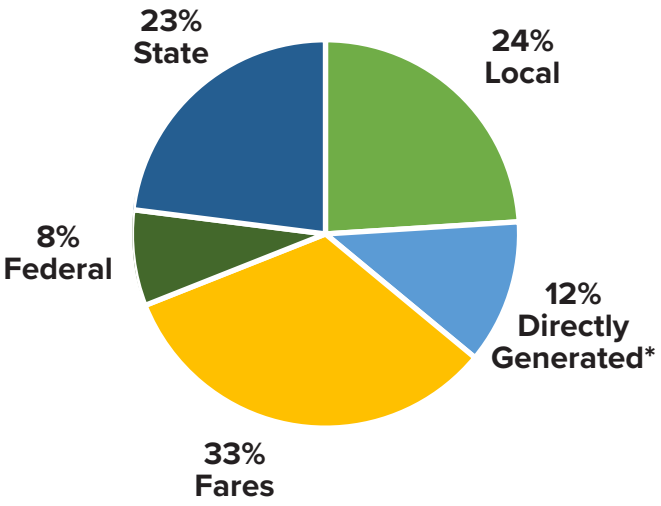
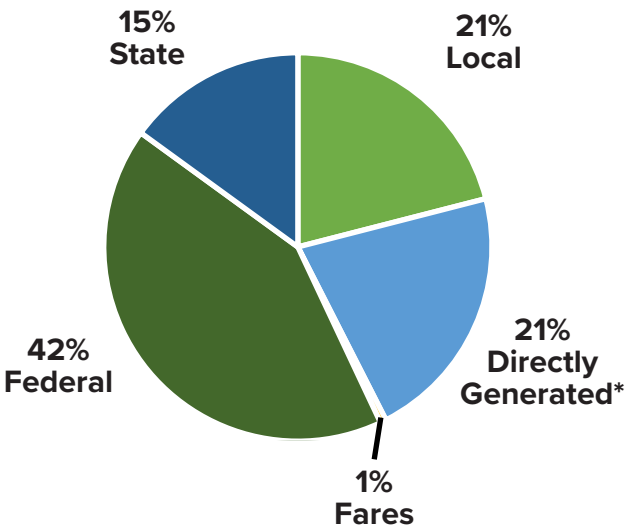


Figure ES-11: National Averages: Funding for Capital Transit Projects



Source: The National Transit Database, FTA, 2015
*Directly Generated: includes additional passenger fare revenues, advertising revenues, donations, bond proceeds, taxes imposed by the transit agency.

State and Federal Sources

The federal government collects tax revenues from fuel purchases that are deposited into the Highway Trust Fund and are then allocated to states, local governments, and transit agencies through formula allocations. The Federal Highway Administration allocates roughly $3.5 billion in annual funding to the State of California, 40 percent of which is passed on to local governments. Additionally, the Federal Transit Administration distributes roughly $1.5 billion to transit operators through various grant programs.

Meanwhile, the State of California collects gas taxes, diesel taxes, and commercial vehicle fees, which make up the state-generated funds dedicated to transportation projects. The State generally distributes funding to cities, counties, and transit agencies based on funding formulas, with other programs providing opportunities to receive grant funding (i.e. Cap-and-Trade funded transportation grants).

Federal and state grants for transit improvements have proven to be a main source of capital funding, especially for rural or underserved communities. The Transportation Investment Generating Economic Recovery (TIGER) federal grant program has been one of the main funding sources for the Redlands Passenger

Rail, Chattanooga Rail, and others from the case study list included in the Plan. This program has been particularly popular for more rural communities given a mandatory set-aside allocation within the grant application criteria. Both federal and state funding sources are subject to fluctuation due to changes in political control and business cycle considerations

Local Financing Tools and Strategies

The Plan considers the potential for various local funding tools and programs that could be pursued to help pay for CVC infrastructure and, to a lesser extent, operations. Local funding sources are defined as those that would be enabled and approved by the residents of the communities served by the CVC.

Value Capture Techniques:

Well-designed transit facilities and services can increase adjacent land values and stimulate private investment in nearby neighborhoods or districts. The term "value capture" refers to a range of public financing techniques designed to recover some or all of the value that public infrastructure generates to private landowners, usually as a basis for financing on-going improvements and O&M.

Popular value capture techniques analyzed in the Plan include:

- Project Specific Development Agreements, Incentive Zoning, and P3s: Public private partnership (often referred to as PPP, 3P or P3) represent and increasingly popular way to deliver transit services and facilities based on the benefits they provide to a variety of parties. In general, a public–private partnership is a cooperative arrangement between two or more public and private sector entities that is designed to leverage the skills, assets, and authority of each to effectively provide services or facilities for public use. The participating parties collectively benefit from reduced risk, increased resources and expertise, and more efficient delivery.
- Enhanced Infrastructure Financing District: Enhanced Infrastructure Financing Districts (EIFDs) are a form of Tax Increment Financing (TIF) currently available to local public entities in California. Cities and other local agencies may establish an EIFD for a given project or geographic area in order to capture incremental increases in property tax revenue from future development and assessed value appreciation. In the absence of the EIFD, this revenue would accrue to the city's General Fund (or another property-taxing entity's revenue fund). Unlike prior TIF/Redevelopment law in California, EIFDs do not provide access to property tax revenue beyond the share agreed to by participating jurisdictions (e.g., City and County).
- Mello-Roos Community Facilities District: The Mello-Roos Community Facilities Act of 1982 (authorized by Section 53311 et. seq. of the Government Code) enables the formation of a Community Facilities District (CFD) by local agencies, with two-thirds voter approval (or landowner approval when there are fewer than 12 registered voters in the proposed district), for the purpose of imposing special taxes on property owners. The resulting special tax revenue can be used to fund capital costs or operations and maintenance expenses directly, or they may be used to secure a bond issuance, the proceeds of which are used to fund capital costs.

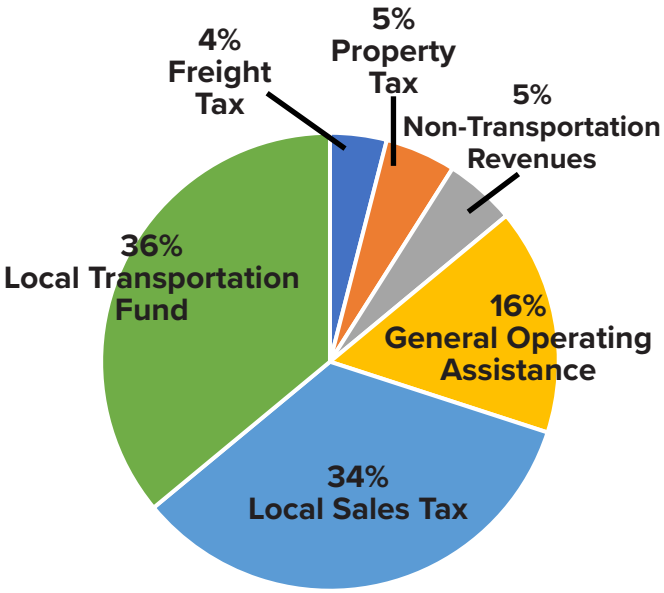
Voter Approved Taxes or Fees:

Local governments and transit operators have a rather limited range of options for raising revenue on the local scale. Voter-approved taxes is probably the most common tool. Revenue collected from these taxes can be used to directly fund operations and maintenance costs or repay municipal bonds or private investment. In most cases, a ⅔ voter approval is required for passage. As illustrated in Figure ES-12, a voter-approved sales tax represents the most common approach, accounting for about 34 percent of local funding source for transit.

However, initiatives that increase local taxes are limited by state constitutional requirements and statues that require voter approval of greater than 50 percent for "general taxes" and two-thirds approval for "special taxes" (i.e., revenues are earmarked for a particular purpose). Specifically, local ballot measures or initiatives that raise local taxes must follow one of two approaches:

- General Tax: The revenues from a General Tax are expended at the discretion of the local government's governing body on any programs or services. Approval requires a simple majority, defined as over 50 percent.
- Special Tax: The revenue from special taxes is dedicated to a specific purpose as defined in the ballot initiative. Approval requires two-thirds voter support.

Figure ES-12: Local Funding Sources for California Transit, 2015



Phasing

The strategic phasing of transit capital investments and service is a critical component of effective project implementation. The critical areas of phasing include phasing of type, of length of service, and of mode.

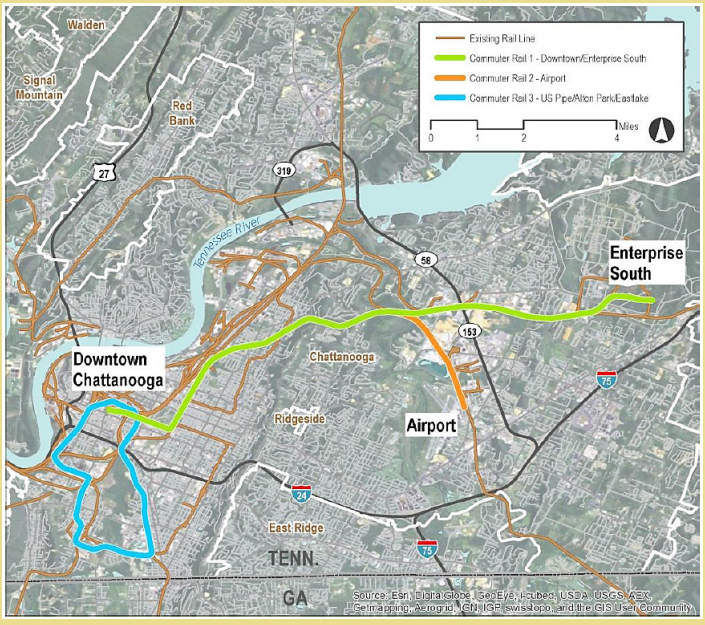
In many communities throughout the U.S., miles and miles of track have been left unused due to the discontinuation of rail service combined with the rail-owner's desire to maintain coveted right-of-way. The existing track lines often run through historic town centers or industrial hubs. Recently, there has been an effort to reestablish rail service using the existing infrastructure in an effort to reduce costs while maintaining the historic rail alignment. This process can vary in complexity depending on ownership of the tracks and right-of-way and the use of the tracks by freight services.

While much of the routing and service logistics of HSR and Cross Valley Rail will be beyond direct local control, there are many ways for local communities to incentivize transit use align local service and surrounding infrastructure in constructive ways. In the case that large developments choose to locate outside the city-center, shuttle service or feeder bus access can encourage multi-modal transportation use and deter automobile use for accessing the rail service. Additionally, the ways in which a community frames and introduces new transit services can greatly affect how service is perceived and used. Therefore, phasing of bus service and proper education and branding should be used to help gain community support and ridership in initial phases.

The City of Chattanooga recently secured federal TIGER grant funding towards the Chattanooga Rail Transit Implementation Plan, which aims to restore passenger rail service to the small city located in Hamilton County, Tennessee. The project proposes to use 21 miles of existing freight rail infrastructure to establish a 23-mile long passenger rail route through the city, as shown in Figure ES-13. The rationale for using existing freight rail infrastructure was three-fold[1]:

- Rail tracks currently divide and limit access amongst certain neighborhoods of the city. Passenger rail would provide increased connectivity, which is especially beneficial considering that many employment centers are located along the existing rail line and currently suffer from a lack of access to highways and transportation infrastructure.
- The existing tracks are currently an underutilized resource that could be repositioned into a key piece of the City's transit infrastructure.
- The use of right-of-way has been discussed with the rail owners, who have indicated they will be cooperative in planning efforts.

Figure ES-13: Chattanooga Passenger Rail Proposed Service



Source: City of Chattanooga Rail Transit Implementation Plan, TIGER VI Discretionary Grant Application

1 City of Chattanooga Rail Transit Implementation Plan, TIGER VI Discretionary Grant Application

Phasing Modes:

The process of designing and implementing a large-scale rail project can span decades and come with a hefty price tag that may be alarming to stakeholders that are unsure that the project benefits outweigh the costs. One tactic of demonstrating value in the near-term is to implement a bus or BRT service along the approximate proposed route to spark awareness among the communities along the corridor while allowing for data collection in ridership and usage trends that could be helpful in future rail planning efforts (see Figure ES-14). Additionally, the use of an interim bus route can provide service during the construction phase that will transfer into stronger initial ridership (if the service is effective in demonstrating value).

In considering the impacts of high-speed rail on the CVC communities, it is important to recognize that the transportation habits that are formed upon the opening of high-speed rail will likely continue, even if further development occurs. Interim transit service to allow cities to access HSR via transit could be the first step to creating a comprehensive and effective transit network in the region.

Feeder Transit Service

The proposed Cross Valley Rail service would operate along a corridor passing through a number of small cities with generally only one stop per city. This method is transportation planning is effective in offering quick and efficient service to a broad base of potential riders. However, in many cases, large employment and residential centers may be outside the station area and require further planning efforts to accommodate transportation to the rail station. Where land is available and near-term development is not feasible, parking lots may be an appropriate use to allow for easy transportation to the rail line. Another benefit of providing surface parking lots is that they can easily be transition into higher-density uses at a later stage of development.

The Los Angeles Metro Orange Line is a bus rapid transit (BRT) route that serves the popular and growing employment destination of the Warner Center. The success of this line has sparked plans to convert the BRT route into a light rail transit (LRT) route in the long-term.

Figure ES-14: Los Angeles Metro Orange Line Bus Rapid Transit - Dedicated Bus Lane

Source: The Transit Coalition, Opening Day Photos, October 2005

Economic Development Summary

Effective implementation and on-going operation of the Plan will likely require a range of financial sources and tools. Since available and committed funding sources from agencies such as TCAG and HSR are well below the amount needed to cover the full cost of the CVC project as currently proposed, the cities and counties involved will need to identify and establish additional funding resources and financing tools to fill the gaps. The funding potential of select mechanisms as applied to three station area cities is summarized in Table ES-3.

Funding mechanisms that rely on property tax increment may not be realistic early on, since any increase in property value due to the presence of rail in the station areas will likely take years to materialize. The establishment of value capture strategies could be a useful tool in the long-term, depending on the trajectory of station area development. As local communities continue to learn about the benefits rail access could provide and see changes occurring with the delivery of high-speed rail or other transit infrastructure improvements, a variety of local measures to fund operations may become more viable.

Table ES-3: Funding Capacity Analysis - Summary

Funding Source / Mechanism	Estimated Funding Potential	
	High	Low
Enhanced Infrastructure Financing District (EIFD) - Bond Proceeds		
Visalia	$2,477,617	$5,081,480
Porterville	$1,613,418	$3,309,048
Hanford	$1,962,248	$4,024,483
Mello-Roos Community Facilities District (CFD) - Bond Proceeds		
Visalia	$2,065,492	$6,196,475
Porterville	$1,312,145	$3,936,435
Hanford	$2,168,818	$6,506,455
Property Tax Secured Bond Measure		
Visalia	$31,000,000	$73,000,000
Porterville	$8,000,000	$19,000,000
Hanford	$11,000,000	$26,000,000
Tulare County	$96,000,000	$224,000,000
Parcel Tax		
Visalia	$40,303,324	$80,606,648
Porterville	$13,659,175	$27,318,350
Hanford	$16,745,728	$33,491,456
Add-on Sales Tax (Transaction and Use Taxes)		
Visalia	$97,675,991	$195,351,982
Porterville	$19,816,462	$39,632,925
Hanford	$32,234,098	$64,468,196
Tulare County	$235,328,771	$470,657,543
Value-Capture Potential (DAs, P3s, Incentive Zoning)		
General	$3,000,000	$8,000,000

*This table is meant to summarize funding mechanisms and analysis explored previously in the Chapter. While a variety of funding sources will likely be employed, some are mutually exclusive. It should be noted that where countywide mechanisms are included, it is unrealistic that both a citywide and countywide measure would be approved.

Source: Economic & Planning Systems, Inc.

ES. 4 Multi-Modal and Circulation

This section lays the foundation for a set of multi-modal connectivity and parking strategies for nine stations in the CVC. These strategies, which can be found in Chapter 6, incorporate input gathered from the communities throughout the Plan's outreach program. Strategies follow the best practices for multi-modal infrastructure planning and are consistent with and are supportive of the Authority's station access guidance and modal hierarchy. It addresses safe access to all stations from all directions by all modes with primary consideration of vulnerable travelers, e.g. pedestrians, bicyclists, and those using wheelchairs. The following components are described in this section:

- Complete Streets analysis, designations, and streetscape improvements in TOD and bus transit station areas;
- Identification of key future transportation needs and development of recommendations for consideration in future updates to local transportation policies. These recommendations include strategies for parking policy.

This section also includes an analysis on future rail needs and improvements developed throughout the Plan. It builds upon the findings on the existing conditions analysis and transit mode evaluation conducted after the first phase of the Plan's outreach program.

The analysis conducted on each of the station areas focuses on the quarter-mile radius around each potential station site. A quarter-mile is the distance that most travelers are willing to walk to access transit. The analysis was conducted using the Tulare-Kings combined traffic model for the near term (2020) and long term (2040) to identify potential traffic conflict points in the station areas. Overall, future traffic forecasts suggest minimal levels of traffic congestion that would not impede the ability to accommodate traffic, transit, and active transportation improvements within the station area.

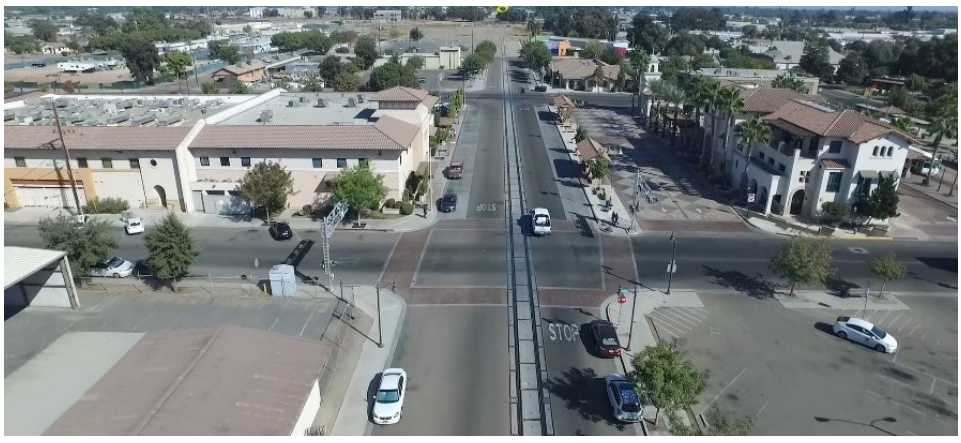


Figure ES-15: Aerial View of the Visalia Transit Center

Complete Streets Analysis

Complete Streets are defined as streets that are designed for safe and inviting travel by all modes, including pedestrians, bicyclists, motorists, and transit rides, regardless of age or ability. At the local level, complete streets policies and designs can help to support local and regional transit investments. Complete Streets policies formally direct transportation planners and engineers to design and construct balanced streets which safely accommodate all anticipated users.

Bicycles

Improving bicycle access to transit has the potential to increase catchment areas around transit stops and provide improved mobility. Improving bicycle facilities in and around transit corridors can bring new riders to the system and help solve first- and last-mile connections. This is especially useful in lower-density urban environments where feeder bus service is not feasible. Bicycle-friendly safety enhancements include bike-protected intersections near transit stops, bike stations and transit centers, bike parking at major destinations, racks for bikes on future CVC vehicles and feeder buses, and bikeshare programs.

Figure ES-16: Bicyclists in Tulare County

Pedestrians

Pedestrian friendly streets near transit stops provide a safer and more pleasant experience for existing riders who arrive on foot, and encourage choice riders to take transit. Traffic calming improves the actual and perceived safety of pedestrians by slowing or reducing automobile traffic.

As a rule, the average transit rider is willing to walk a quarter-mile to access fixed-route bus service and up to a half mile for high capacity services (such as the CVC rail service) that operate with higher frequencies and over longer distances. It is not practical nor cost-effective for transit service to be within walking distance of everyone, especially in lower density areas. However, recognizing that walking is a primary mode for accessing transit, cities and transit agencies have effectively improved accessibility for riders by making improvements to pedestrian infrastructure within the typical walking distances around transit stations. The 2017 TCAG Long Range Transportation Plan describes the following strategy subjects for creating more pedestrian friendly streets:

- Sidewalks
- Curb extensions
- Pedestrian refuges
- Well-marked crossings
- Pedestrian and traffic signal control systems
- Traffic calming
- Universal design and accessibility
- Lighting
- Wayfinding
- Land use, landscaping, and amenities

Land Use

Integrating land use decisions with complete streets investments helps to ensure the success of new land uses, as well as the success of the CVC rail service and other local and regional transit investments. As population and employment grow in cities throughout Tulare and Kings Counties, concentrating population, employment, and retail and community services around the CVC stations will both enhance regional mobility and enhance the performance of the CVC rail service. At the local level, complete streets policies and designs that provide safe and pleasant pedestrian and bicycle access to transit also help to support transit investments. Pedestrian-friendly streets provide a safer and more pleasant experience for existing and potential riders. Improving bicycle access to transit increases catchment areas around transit stops, and provides improved mobility. Improving pedestrian and bicycle facilities in and around transit corridors in Tulare, Kings, and Fresno Counties can bring new riders to the system and help solve first- and last-mile connections.

Parking Management

Many parking management and fee collection systems have been developed since the advent of the automobile and these systems are currently evolving at a rapid rate. Available and emerging technologies for parking provision, monitoring, and wayfinding were reviewed, in addition to the successes of the application of these technologies in other jurisdictions.

Parking for each CVC station city will need to be handled on a case-by-case basis based on the city's population and needs at the time of completion of each phase of the project. Each of the cities and communities in the CVC are unique and must address their parking policies in a matter that is consistent with their General Plans and downtown communities. .

Future Needs and Improvements

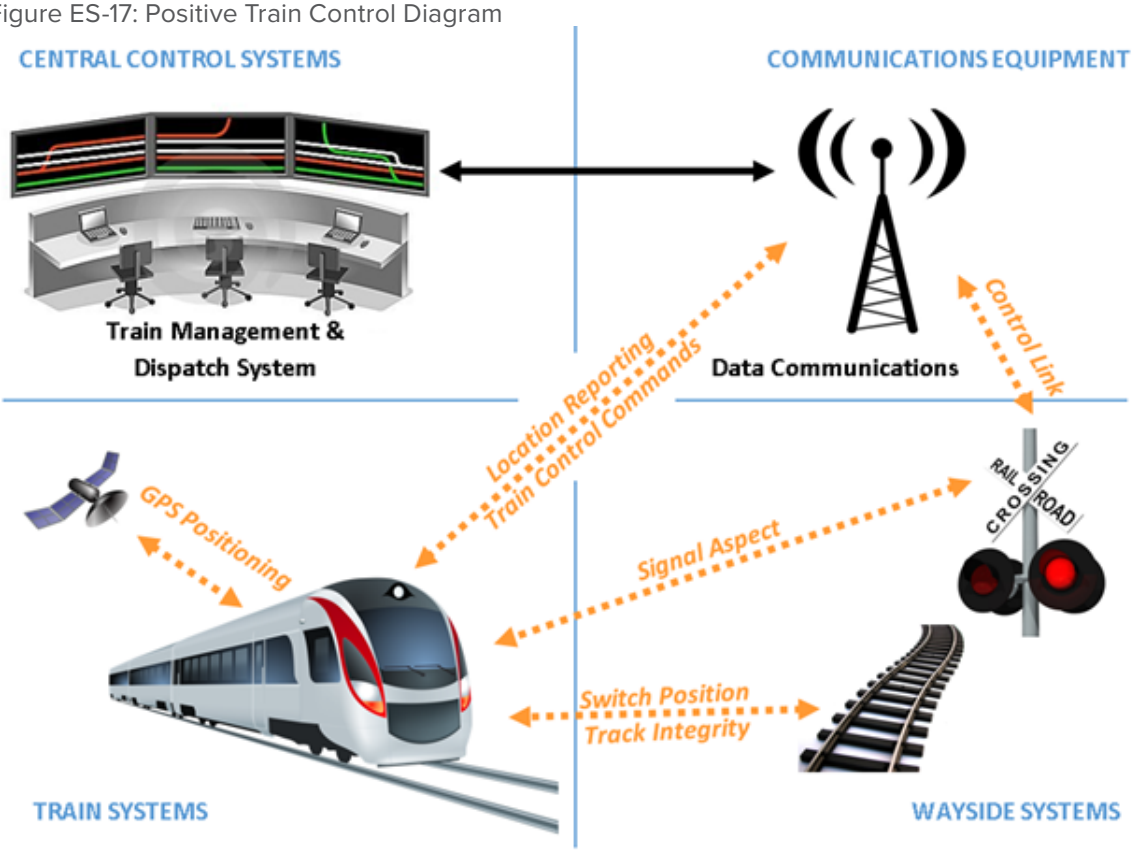
Railway

Existing conditions of the current railway vary considerably throughout the 75-mile study alignment, ranging from very good to non-existent. As noted in the existing conditions section of this report, the railway is currently built and maintained to handle low speed freight rail traffic by San Joaquin Valley Railroad, a Class III short line operation. To meet current FRA regulations specific to passenger rail operations, the alignment may require railroad improvements as the Cross Valley Rail service enters the implementation phase, up to and including complete replacement of all rails, ties, fasteners, switches, and other wayside equipment prior to commencement of revenue passenger transportation on this corridor. Most existing ballast and other rail bed base materials appear adequate for the proposed service, but will require further evaluation to determine its suitability for the new service.

Positive Train Control

Positive Train Control (PTC) is a safety system designed to monitor and control trains and eliminate collisions within its system by utilizing the latest technologies of GPS and computerized tracking systems. It is specifically designed to avoid accidents by monitoring the speed and positions of all trains and implementing accident avoidance countermeasures should it detect that an accident is imminent. The system will first warn the train operator, then 'take control' of the train itself and bring the train to a controlled stop. The general diagrammatic layout of typical PTC systems is shown in Figure ES-17.

Figure ES-17: Positive Train Control Diagram



This project will be subject to regulations as mandated by the Rail Safety Improvement Act of 2008 and will require future system designers to develop and implement a Positive Train Control system as required by 49 CFR Part 236, Subpart I – Positive Train Control Systems.

Bridges and Other Structures

Bridges throughout the corridor primarily consist of waterway crossings, including canals, ditches, and rivers. There is only one railway overpass crossing (SR 198 in Visalia). A limited visual survey was conducted of nearly all bridges within the corridor to primarily evaluate and assess each bridge's overall general condition.

Maintenance and Storage Facility

To provide proper maintenance (both light and heavy), a fully equipped Maintenance and Storage Facility (MSF) was also considered. Such a facility should be designed and constructed with the full build out capacity in mind. Due to the phasing of this project, the MSF should be located along the CVC Phase 1 alignment. Sites meeting the size and location requirements can be found throughout the corridor, but should be selected in a rather centralized location to minimize operational startup times and dead-heading distances. Also, vehicle testing and commissioning requirements should also be taken into consideration when selecting a MSF location.

Mode Alternative Considerations

Six mode alternatives were considered and evaluated to provide transit service in the CVC. These mode alternatives were evaluated on a qualitative basis based on the following criteria:

- Vision, Goals, and Objectives: Does the mode meet the vision, goals, and objectives of the Plan?
- Guideway: What type of guideway is required for the mode alternative? Is the transit mode compatible with freight corridors?
- Mode Characteristics: What are the average speeds and how will that impact travel time? How does the mode relate to safety reliability?
- Station: What is the average distance between stations?
- Investment: What are the capital and operating costs? What are the funding options?
- Capacity: How many passengers can each mode alternative carry relative to the other mode alternatives?
- Connectivity: To what degree can the new service be a "feeder" connection with the high-speed rail infrastructure (station connections etc.) as well as other transit services in the region? Improved access to jobs, shopping, services and health care through mixed use communities and transportation investment?
- Impacts: What are the potential environmental impacts and to what degree?
- Community: What are the community benefits, land use implications, and urban design? Are there economic benefits? Are there greater mobility benefits? Are there impacts to growth management of farmland?

As a result of the mode alternative screening, a DMU transit system was selected to move forward for further analysis. The CVC is a unique region with its existing rail infrastructure, freight operations, future high-speed rail connectivity opportunities, and varying communities. A DMU transit system in this corridor has the highest potential to provide an efficient and flexible transit service compared with the other mode alternatives in this study, and at moderate costs relative to the other modes considered. Other propulsion and passenger mode technologies are likely not appropriate for the characteristics of this corridor.

Figure ES-18: Capital MetroRail DMU System in Austin, Texas

Source: Capital Metro

Figure ES-19: Sprinter DMU at El Camino Real Station, Oceanside, California

Source: MidwestHSR.org

Benefits of DMU Transit Systems:

Propulsion	Diesel-powered vehicles do not require the construction of overhead electrical wires, which are costly and visually impactful, or separate locomotives which are heavy and require longer station platforms
Guideway	DMU trains offer the most flexibility for guideways and can operate in-street and on shared freight corridors such as the Cross Valley Corridor
Speed	DMU trains can operate at speeds up to 65+ miles per hour, but new models enable top speeds between 75 mph and 100 mph. Faster acceleration and braking capabilities can reduce travel times.
Stations	DMU station distances can vary greatly due to lighter vehicles with faster acceleration and braking capabilities. Stations can be as close as 2-miles apart.
Investment	Since DMU vehicles are able to operate in freight corridors, the need to acquire property or right-of-way is minimized, which is typically the most costly aspect of transit infrastructure.

ES. 5 Community Involvement

State and federal transportation laws, regulations, policies, and guidance require and encourage public involvement throughout the planning process, particularly regarding environmental justice groups and underserved communities including low-income and minority populations. Community involvement invokes a problem-solving approach, bringing together community members and planners to discuss complex issues facing communities and residents. Community involvement is most successful when the process is transparent and access is provided to all aspects of the planning process for all interested stakeholders and community members.

Three objectives for the community involvement process were identified:

- To provide the public with multiple opportunities to learn about the Plan, to review the proposed options, and to understand the implications that may result with all options
- To create and distribute public information that is user-friendly and culturally sensitive to communities that may be potentially affected
- To provide policy makers with information about the public's opinions and values regarding the Plan

Plan

Thorough and well-thought out plans simplify the engagement process by providing a systematic approach, maximizing the use of available resources, and minimizing delays by ensuring that community involvement activities are coordinated throughout the planning process. A detailed Community Engagement Plan (CEP) was prepared to identify a schedule of involvement activities with consistent guidelines to ensure people had meaningful opportunities to be involved throughout the process.

Meetings

As part of the overall work planning effort and to ensure success in the development process, a Work Planning Team (WPT) was established to manage, coordinate, and provide oversight for work planning activities and issues. The WPT consisted of staff from TCAG and the Authority as well as members of the Project Team. Early in the process, the WPT was expanded to include local agency staff of cooperating cities and other identified key elected officials to ensure that the Plan addresses multimodal connectivity between the planned Kings/Tulare HSR Station and individual cities and communities. The WPT met on a regular basis and was responsible for review and approval of all outreach materials.

Phase I Public Outreach

In early phases of the study, extensive community outreach activities were completed to introduce the study and Project Team, provide an overview of the planning process, and assist with the development of a vision for the CVC.

Regional workshops were planned throughout the CVC to allow for organized group discussions with the goal of exchanging and gathering information. Workshops were conducted in the cities of Hanford, Visalia, Farmersville, Porterville, and Lemoore and included Spanish translation services. A variety of topics related to the CVC were discussed at the regional workshops, common themes included the following:

- More than half of all workshop attendees were in favor of connecting the Valley cities from Huron to Porterville via a rail transit line on the existing route. Other attendees were unsure of connecting the Valley cities until they know what the costs and benefits are.
- Upon reading the first Vision Statement, the workshop attendees recommended that it should be shorter in length yet concise as possible. The revised statement was well liked by the attendees who felt that it captured everything they wanted to see in the Vision.
- More than 40% of workshop attendees noted they would drive to and park at the station in order to use the Cross Valley Rail.
- Per the Vision Exercise and Wrap-up Opinion Polling, workshop attendees were interested in land use developments such as a public plaza, multi-family housing, hotels, restaurants/retail, employment related uses, and parking.
- When the California High-Speed Rail is operational, more than 40% of workshop attendees said they would take the Cross Valley Rail to get to the planned Kings/Tulare HSR Station.

Figure ES-20: Phase I outreach event in Porterville

Phase II Public Outreach

Using the Corridor vision developed during early study activities, Phase II of the study identified a list of common and specific station area strategies developed for each recommended transit center on the Corridor. Phase II outreach activities included a media event, regional workshops, pop-up events, newsletters, and information disseminated via the study webpage. The discussions at the completed outreach activities covered a wide variety of topics related to the CVC. Comment themes identified with the use of the survey instrument included:

- More than half of the respondents lived in Tulare County.
- Less than 4% of the respondents were opposed to the proposed rail station area plan(s) and proposed implementation phasing
- 71% of the respondents liked the proposed rail station area plan(s) depicted at the event where they participated.
- 56% of the respondents liked, and would use coordinated local bus service between Huron and Porterville for Phase 1 of the proposed implementation plan while 64% liked and would use the initial passenger rail service (Visalia to Hanford), supported by local bus service for Phase 2 of the proposed implementation plan.
- 61% of the respondents liked, and would use the fully implemented passenger rail service from Huron to Porterville.

Figure ES-21: Phase II outreach event in Hanford

ES. 6 Recommendations

The Plan contains a set of strategies that are common to all the CVC cities and the three off-corridor cities (Dinuba, Tulare, and Woodlake) included in the Plan. These strategies are applicable to either the quarter-mile radius around the station or the immediate station site itself.

Right-of-Way and Site Protection

1. Identify and, if needed, acquire a future station site. Protect it from uses or development that would hinder future development of the site into a corridor station. This strategy would not apply to cities with existing developed station sites.
2. Protect the existing rail right-of-way and land directly adjacent to the CVC right-of-way from encroachment by land uses or development that would hinder or significantly increase the cost of reconstructing the existing rail right of way for both passenger and freight service.

Figure ES-22: Future intersection of CHSR and the CVC

During the development of the Plan, aerial drone footage like this example was captured over the entire CVC to provide a comprehensive and up-to-date overview of the CVC infrastructure and general conditions.

Land Use

3. Establish the transit station and surrounding area as a local, citywide, and regional destination that emphasizes access to transit, employment, cultural venues, and entertainment uses.
4. Create a seamless connection between the city's transit station and the city's downtown core by encouraging and promoting urban development that frames the public realm and generates pedestrian activity. Maintain an active ground floor environment throughout the station area.
5. Ensure a mix and intensity of uses in the greater station area that support increased transit ridership. This should include a mix of employment and residential uses within a ten-minute walk of the station, transit supportive uses (such as rental car agencies, bike rentals, etc.), and associated supportive neighborhood services and amenities.
6. Review planning principles, development regulations, and public service, transit, and infrastructure policies and programs to incorporate transit-oriented development near the station.
7. Promote the development of a variety and range of housing options within downtown and in adjacent areas, including higher densities within a quarter-mile and up to a half-mile from the transit station.
8. Discourage new auto-related sales and service uses (except car rental) within one-quarter mile radius of the station site, as they detract from the streetscape, transit-oriented uses, and the pedestrian experience.
9. Discourage development and building orientation that discourages walking, biking, and transit.
10. Support the location of key social services like child care centers, health clinics, and other essential destinations close to stations, particularly for transit-dependent populations.
11. Consider opportunities for phased development to take advantage of value enhancements that may be able to intensify over time, such as designing a surface parking lot that can later convert to a parking structure.
12. Consider opportunities at existing transit centers for on-site transit-oriented development.

Figure ES-23: Downtown Visalia

Example of Mixed-Use building with ground-floor retail and office space on upper levels in Downtown Visalia.

Multi-modal and Circulation

13. Support the planning and construction of the CVC using the existing railroad alignment, which would directly connect the population centers along the Corridor. Furthermore, include a station stop directly adjacent to the planned Kings/Tulare High-Speed Rail Station east of Hanford.
14. Coordinate common wayfinding signage, accessible transit information, real-time technology, schedule coordination, fare coordination, and connecting services.
15. Prioritize bicycle and pedestrian improvements such as sidewalks, crosswalks, bikeways, and ADA-accessible curb maps in the area within a half-mile radius of the station site.
16. Provide sufficient parking at the station for bicycles and consider inclusion of bike maintenance stations.
17. Provide for the necessary facilities and services that support new development intensities and densities near the station site.
18. Provide parking in well-designed facilities compatible with the character of downtown.
19. Integrate existing and future transit services into a joint facility with the new Cross Valley Rail station.

Figure ES-24: Bus transit center in Downtown Tulare

20. Consider ridesharing and Transportation Network Companies (TNC) to help augment transit service and provide first/last mile connections in the station area. Pick-up and drop-off facilities at each station must be able to support TNC needs.
21. The overall parking needs at station areas will be modest compared to other downtown users. Cities in the CVC should seek to accommodate transit park-and-ride vehicles in existing parking facilities that are shared with other downtown users.
22. Provide real-time data on public and private parking availability, location, and price through as many media as possible. The most cost-effective manner of doing this is to share databases with developers of web-based applications.
23. Since the corridor cities control only a fraction of downtown parking, encourage the private sector to collect and share parking utilization data on a real-time basis in a format comparable to the city's data.
24. Encourage downtown businesses to link real-time parking applications to their websites.
25. Should paid parking be implemented, strive to keep parking payment technologies as uniform and simple as possible across the public and private parking facilities. Work to facilitate as many forms of payment as possible, including pay-by-phone, contactless smart cards, and in-car pre-paid parking meters.

Figure ES-25: City of Woodlake

26. Before implementing new policy or technology, provide widespread education. Provide a period of "supplemental education and forgiveness" during initial implementation (e.g., one month). During this period, motorists will receive a courtesy notice instead of a fine, along with short and effective information on the new policy or technology.

Public Space

27. If space permits, plan and provide for highly visible, iconic civic plazas or sitting and gathering areas that would include a small urban open space area adjacent to the station, with hardscape, landscaping, seating amenities, trash receptacles, and lighting.
28. Encourage a transit plaza to act as a gateway and entrance to the station that can include active uses such as vendors, entertainers, artists, food and beverage sales, and public amenities.
29. Maintain, and where feasible, improve pedestrian scale short block street grids in the station areas, and discourage street abandonment to improve pedestrian scale development and walkability.

Urban Design

30. Provide incentives for infill and development on underutilized land or vacant land within the surrounding station area that promotes mixed use and higher residential densities.
31. Design the transit station to be one of the city's identifiable and memorable landmarks.
32. Use art as a defining and symbolic feature to create a strong sense of place for the station area, and an identifier for the city.

Figure ES-26: Proposed urban plaza planned for Huron's CVC rail station area.

Public Outreach

33. For new transit stations, involve the public in the decision-making process of designing and planning the station site.
34. Organize a citizens' advisory committee and a technical advisory committee.
35. Assist the CVC implementing agency to educate the public about plans for the Corridor and connecting cities.

Sustainability

36. Consider covered parking with solar panels at the transit center parking lots.
37. Encourage green building design, energy efficient construction, and other sustainable development measures.
38. Require "smart" irrigation controllers, low-water irrigation systems and low water use or drought tolerant vegetation.
39. Use LED lighting in parking lots and pedestrian scale lighting at the station site.
40. Promote alternative vehicle use by providing parking for bicycles, scooters, mopeds, motorcycles, alternative fuel vehicles, and vehicle charging stations.

41. Purchase an energy efficient bus fleet for the Short-Term Phase of CVC implementation.
42. Provide “triple-stream” solid waste bins throughout the station for recyclables, compostables, and landfill trash.

Economic Development and Financing

43. Seek opportunities to attract new employment uses and promote existing businesses associated with the CVC.
44. Improve the quality of life of residents through transportation projects that create jobs and enhance the environmental benefits related to air quality, energy use, noise reduction, and land use.
45. Leverage the CVC system and its ability to connect cities as an economic tool for the establishment of commercial and industrial development and promotion.
46. If a city wants to provide special land use incentives to encourage development around the station, identify and delineate a station area around the station itself that may be targeted for special consideration. Typically, a station area extends beyond the station itself and includes the immediately surrounding neighborhood or district that is within walking distance, or within a quarter-mile radius. The boundaries of up to a half-mile to a station area should be based on the unique local land use and planning context as well as related or synergistic land uses or activity nodes, natural or political boundaries, community input and other factors.
47. Aggressively seek State and Federal funding for improvements associated with the Plan.
48. Consider opportunities for regional and/or multi-jurisdictional funding commensurate with the regional benefits conveyed by the service.
49. Seek to optimize the phasing and level of investment in the Plan to ensure a financially sustainable system.
50. Consider public-private opportunities for financing improvements.

City-Specific Recommendations

Additional strategies specific to the general plan or related planning documents for each city, including the unincorporated communities of Armona, Goshen, and Strathmore, were also developed for the Plan, and are included in Section 6.13.

City-specific recommendations are accompanied by exhibits graphically displaying the strategies that each city should consider when making possible amendments to the General Plan which is likely to result in the successful implementation of the Plan. The first exhibit for each specific city depicts recommendations for the area within a quarter-mile radius of the transit station, and the second exhibit depicts a conceptual layout of the immediate station area that may include, but not be limited to, vehicular and pedestrian access, parking, transit platform, plaza, public art, and transit supportive uses or buildings.

ES. 7 Implementation

The implementation of the Cross Valley Corridor Plan could be achieved over three phases with the strategies and efforts described in this section.

Short-Term: Phase 1

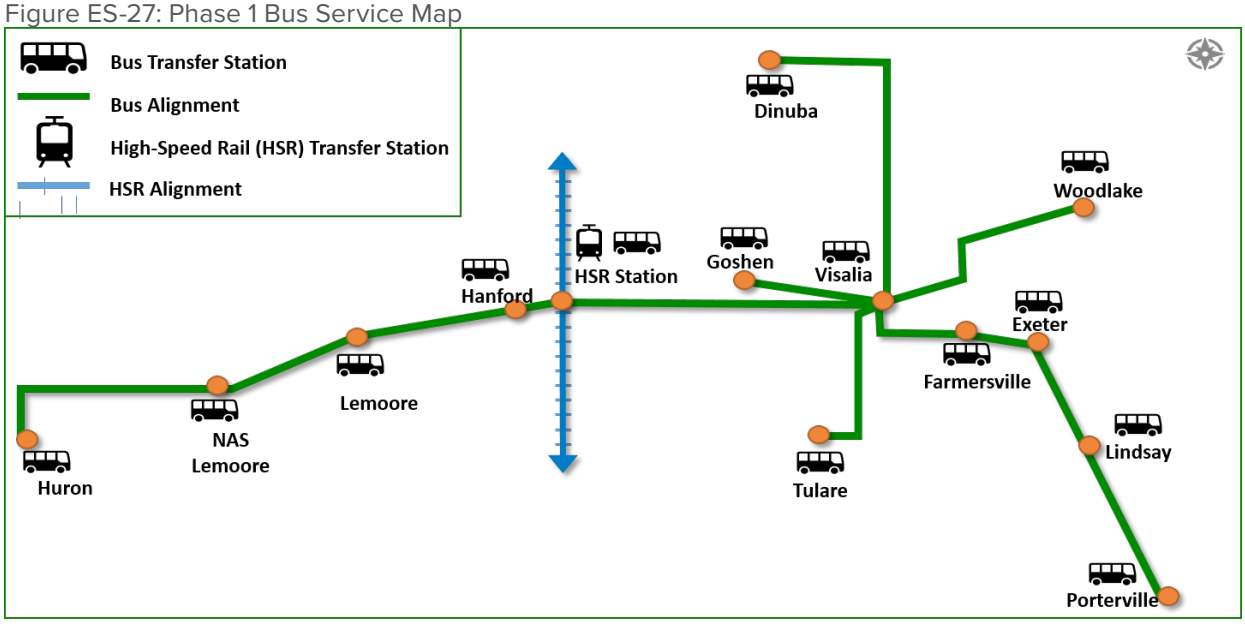
The short-term implementation phase, or Phase 1, focuses on interagency coordination of bus service between cities and to the Kings/Tulare High-Speed Rail Station. It also prepares for Phases 2 and 3 that would introduce passenger rail service to the CVC. The recommended changes for Phase 1 of CVC service implementation are summarized in Table ES-4 and illustrated in Figure ES-27..

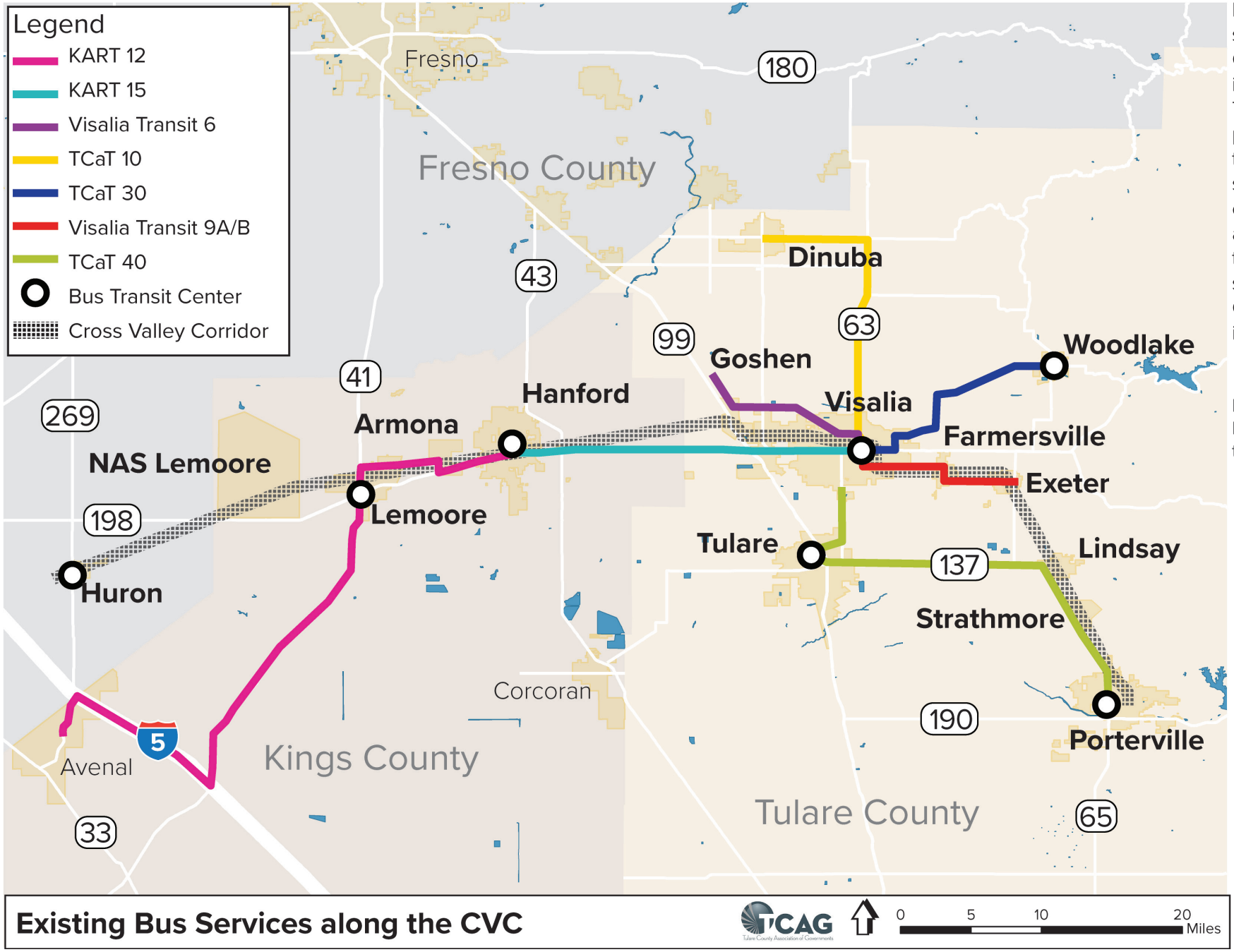
Table ES-4: Phase 1 Recommendations

Phase 1: 0-10 Years
Launch coordinated bus service that will coincide with the opening of California High-Speed Rail to connect the CVC to the Kings/Tulare High-Speed Rail Station. Existing bus routes along the CVC are shown in Figure ES-28 to show current gaps in service throughout the corridor. These routes correspond with the recommended connectivity improvements to enhance and streamline transit services throughout the CVC.
Conduct site selection for a passenger rail vehicle maintenance and service facility
Secure environmental clearance and right-of-way protection for future rail service along the CVC
Begin General Plan and zoning ordinance updates in cities and counties to incorporate the new CVC system into Circulation Element and Land Use Element changes to encourage development in each of the station areas

All cities should begin the process of updating the zoning ordinances and general plans during the short-term phase, or earlier, of the Cross Valley Corridor Plan.

Figure ES-27: Phase 1 Bus Service Map





Existing bus services along the CVC are shown in Figure ES-28. The routes shown provide connections to the CVC station cities and communities, and are described in in the Implementation section for phased CVC service implementation.

Figure ES-28: Existing Bus Services along the CVC

Mid-Term: Phase 2

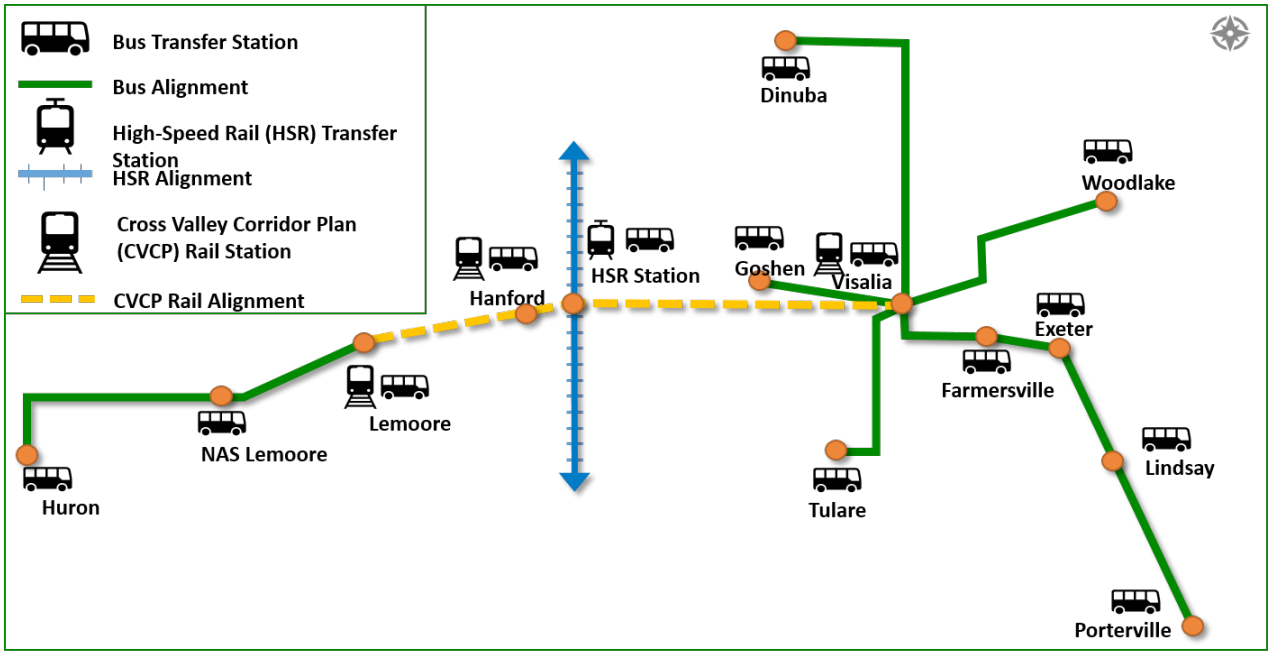
The mid-term implementation phase begins passenger rail service between Lemoore and Visalia. It continues bus service connections between the other cities. The recommended projects for Phase 2 of CVC service implementation are summarized in Table ES-5.

Table ES-5: Phase 2 Recommendations

Phase 2: 10-20 Years
Launch CVC passenger rail service between Lemoore and Visalia
Open new passenger rail stations in Lemoore, Hanford, Kings/Tulare HSR station, and Visalia for CVC passenger rail service
Launch the first phase of the passenger rail vehicle MSF between the stations in Lemoore and Visalia.
Continue feeder bus system to connect Huron and NAS Lemoore to the Lemoore CVC station, and all Tulare County cities to the Visalia CVC station

The Maintenance & Service Facility should be located in a centralized location to minimize operational startup times and dead-heading distances.

Figure ES-29: Phase 2 Bus and Rail Service Map



Long-Term: Phase 3

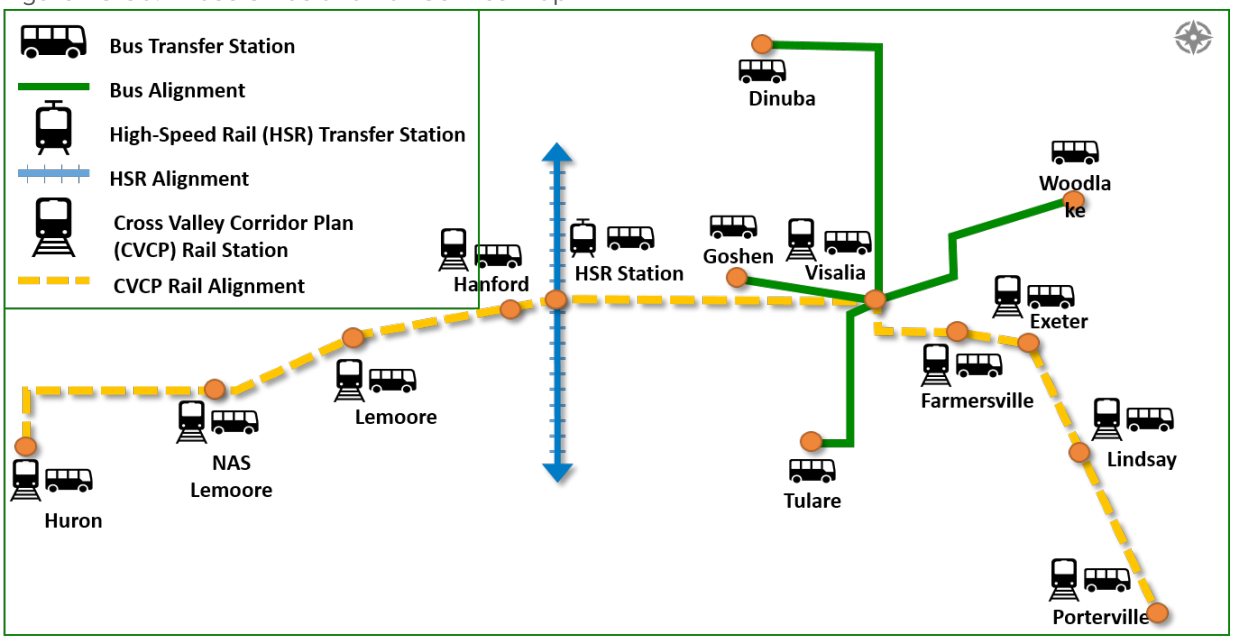
The long-term implementation phase, or Phase 3, would make full use of the 75-mile corridor with passenger rail service from Huron to Porterville. The recommended projects for Phase 3 of CVC service implementation are summarized in Table ES-6.

Table ES-6: Phase 3 Recommendations

Phase 3: 20+ Years
Complete full build-out of the CVC for passenger rail service
Open new passenger rail stations in Huron, NAS Lemoore, Farmersville, Exeter, Lindsay, and Porterville
Complete procurement of rail vehicles for full fleet
Complete full build-out of MSF to accommodate full fleet

Phase 2 assumes to provide rail service with 9 vehicles and Phase 3 provides for an additional 17 vehicles for a total fleet size of 26 passenger rail vehicles.

Figure ES-30: Phase 3 Bus and Rail Service Map



Capital Costs

A summary of the potential capital costs for Plan implementation is shown in Table ES-7. Right-of-way costs for station areas is not included as the station footprints are up to the individual station cities' plans and policies.

Based on the existing conditions analysis, most of the railway may need to be replaced (not including ballast) in order for the railroad to be brought up to modern FRA compliant passenger railroad standards. The estimated cost of this work (rails, associated hardware, and ties) is between $1.5 to $2 million per mile based on current industry price levels. For planning purposes, it is assumed that the entire length of the corridor will require new rails.

Table ES-7: Capital Cost Summary

Capital Cost Summary				
Element	Phase 1	Phase 2	Phase 3	Total
Railway Replacement	N/A	$43.5M to $72.5M	$69M to $115M	$112.5M to $187.5M
Positive Train Control	N/A	$50M to $60M	$45M to $55M	$95M to $115M
Bridge Repair	N/A	$1.8M	$0.4M	$2.2M
Maintenance & Storage Facility	N/A	$35M to $50M	-	$35M to $50M
Vehicles	$8.4M to $12M	$31.5M to $40.5M	$59.5M to $76.5M	$99.4M to $129M
Wayside (Signaling upgrades, wayside equipment, crossings, etc.)	N/A	$0.5M	$5M	$5.5M
Total	**$8M to $12M**	**$162M to $225M**	**$179M to $252M**	**$350M to $489M**

Source: Cost estimate for MSF assumes green field construction based on similarly sized railcar facilities currently planned or under construction in the U.S. such as those of Chicago CTA, Boston MBTA, and LAX APM.

Operational Costs

Operational expenses for operator wages, fuels, vehicle maintenance are all considered operational expenses and are averaged over an annual basis. Operational expenses also vary by how often the vehicles operates (i.e. headways and hours of the day) and the distance they travel. It is assumed that all service will operate:

- Monday-Sunday
- Service from 6 am to 11 pm
- 30-minute peak headways
- 60-minute off-peak headways

National Transit Database (NTD) data was used for this study on existing bus service in the project area to develop the Phase 1 estimates. Because there is no DMU passenger rail service in the study area, comparable DMU systems were used from Denton County Transportation Authority, New Jersey Transit Corporation, and North County Transit District. The cost of living is likely higher for these transit districts so operational costs may be lower for this project, but for this level of analysis it is reasonable to compare to these in-operation DMU services.

Table ES-8: Operational Cost Summary

Operational Cost Summary		
Phase	Annual Cost Per Mile	Annual Operating Cost*
Phase 1: Enhanced Express Bus from Huron to Porterville	$90,000	$5 million
Phase 2: Initial DMU Operating Segment from Lemoore to Visalia	$515,000	$16 million
Phase 3: Full DMU Build-out from Huron to Lemoore and Visalia to Porterville		$20 million
Full DMU Build-Out Total:	**N/A**	**$36 million**

* Operational cost of enhanced bus and/or discontinued bus service is included.

Implementation Summary

The implementation of the Plan relies on the coordination of efforts among stakeholders, communities, cities, and counties along the CVC. The intent of the Plan is to serve as a guide through federal, state, and local plans and policies to successfully identify funding opportunities and transit service improvements to support future passenger rail service in the Central Valley. It is ultimately up to the cities and counties to implement these strategies in a way that meets their community and regional goals.

Fare Policy Strategies

The implementation of passenger rail service across three counties would require a new fare policy to cover the service. The coordination of the region's transit operators would be required to facilitate the transfer between these services. Common challenges with implementing fare policies over multiple jurisdictions include:

- Creating obstacles to transit ridership by making services difficult to understand and navigate
- Creating transit fare products that do not meet the needs or desires of transit users
- Penalizing riders who need to use transit services from multiple operators to complete trips
- Pricing out potential users due to complex fare structures and higher transfer costs

Fare policy with the CVC must be financially sustainable to the operator and equitable for its riders. Examples of fare structures used today include:

- Flat Fare: The same fare is charged for all trips.
- Distance-Based: Higher fares are charged for longer distance trips.
- Service Quality-Based: Higher fares are charged for higher quality transit services such as express routes.
- Time-Based: Higher fares are charged for peak travel times.

The agency operating passenger rail services on the CVC must also consider the compatibility and usability of fare media in the region. Fare media technology is constantly evolving, from contactless card payments to smartphone ticket integration. Fare media examples include:

- Cash
- Tickets and tokens
- Payment cards able to hold cash value and transit passes
- Smartphones

Fare policy across the CVC system should be streamlined to attract new transit users in the region. It should consider the balance between customer understanding, administrative ease, the impacts on operations, equity, and revenue security for the operator.

ES. 8 Conclusion

The Cross Valley Corridor Plan represents an initial step in implementing passenger rail service on the Cross Valley Corridor. The recommendations and strategies outlined in this Plan serve as a road map for the region and incorporates feedback received from public agencies, community members, businesses, and other stakeholders throughout Kings, Tulare, and southwest Fresno Counties. Through further planning, stakeholder coordination, and effective policy and financial strategies, we can strive to fulfill the mobility, economic, and quality of life needs of our growing population.

1 Introduction and Project Purpose

1.1 Study Background

In 2016, the Tulare County Association of Governments (TCAG) initiated the Cross Valley Corridor Plan (Plan) to study connectivity and mobility improvements in the Central San Joaquin Valley. The Cross Valley Corridor (CVC) is a vital existing rail corridor between the cities of Huron and Porterville in the Central San Joaquin Valley. With a proposed California High-Speed Rail Station located in the middle of the Corridor, there is an opportunity to improve connectivity and mobility throughout the communities and cities in the Central Valley.

The introduction of California High-Speed Rail (HSR) will ultimately link the major cities within California by a new form of transportation that has not yet been implemented anywhere else in the United States. The fully developed HSR system will include more than 20 stations serving Sacramento, San Francisco Bay Area, Central Valley, Los Angeles, Inland Empire, Orange County, and San Diego.

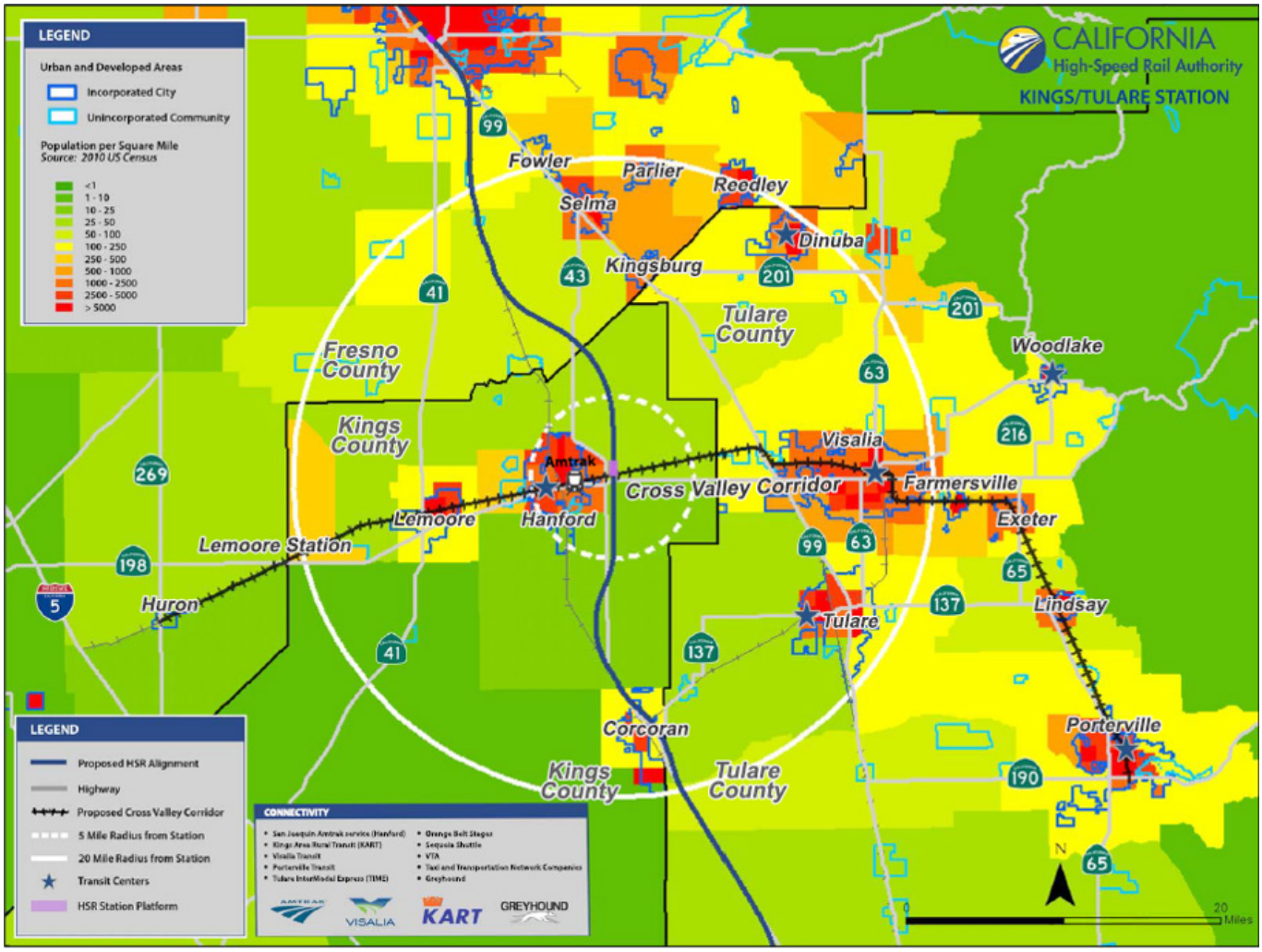
Figure 1-1: California HSR Map

The Kings/Tulare HSR Station that will ultimately link the Central Valley with the HSR system will be located near the City of Hanford, and will open as part of the first phase of the project from San Jose to Bakersfield. The proposed station in Hanford is unique from the other planned HSR stations in that the Kings/Tulare Station will not be located in a city center. Other HSR stations, such as Fresno, Merced, and San Jose, will be located in the downtown cores of these cities and will function as a focal transit point that can easily connect with the surrounding multi-modal amenities and destinations. This is not the case with the Kings/Tulare HSR station. Instead, the proposed station site is to be located within a rural agricultural area just outside of the City of Hanford while station development will be planned in downtown Hanford. The proposed station site is also adjacent to the CVC, a freight railroad corridor between Huron to the west and Porterville to the east that is active is certain segments and abandoned in

others. This existing corridor presents a unique opportunity to unlock transit and mobility improvements for the region.

The Plan represents an opportunity to completely transform public transit in Tulare, Kings, and southern Fresno Counties. The existing railroad branch line from Huron to Porterville already provides right-of-way that connects eight San Joaquin Valley cities' downtowns along the line: Huron, Lemoore and Naval Air Station (NAS) Lemoore, Hanford, Visalia, Farmersville, Exeter, Lindsay, and Porterville. A passenger rail line provides a unique opportunity to connect these cities' transit systems, not just to each other, but also to the rest of California via a transfer connection at the future Kings/Tulare HSR Station.

Figure 1-2: California High-Speed Rail Kings/Tulare Station



While the Kings/Tulare region is estimated to reach over one million residents by 2035, the southern San Joaquin Valley region does not have the urban densities typical of other California communities with commuter rail, bus rapid transit, light rail transit, or similar systems. This means that a transit system must be made as cost-effective as possible to be feasible for the region. Right-of-way and land costs are typically higher when a transit system must be retrofitted into an existing neighborhood or community. By planning ahead for a CVC transit system well in advance, right-of-way and land needs can be identified and protected now, avoiding costly acquisitions or eminent domain processes later.

1.2 The Corridor

The Plan would follow the existing freight rail corridor from Huron to Porterville, which also roughly follows State Routes 198 and 65 as shown in Figure 1-4. A connection between the proposed Kings/Tulare High-Speed Rail Station and the Cross Valley Corridor could benefit the region by potentially linking the communities to each other. These cities, include Huron, Lemoore, Hanford, Visalia, Farmersville, Exeter, Lindsay, and Porterville. Unincorporated communities of Armona, Goshen, and Strathmore, as well as NAS Lemoore may also be served by transit stops. The Plan also includes transit connections to the cities of Tulare, Dinuba, and Woodlake by utilizing their existing downtown transit centers.

Figure 1-3: Cross Valley Corridor Cities

Figure 1-4: Cross Valley Corridor Route

1.2.1 Railroad History

After the completion of the first transcontinental railroad in 1869, the Central Pacific Railroad began building tracks south from Sacramento through the San Joaquin Valley, intending to connect to Los Angeles. The tracks reached Goshen by 1872. At the time, the only existing community between Stockton and Los Angeles was Visalia, which had been founded 20 years earlier. Negotiations between the Central Pacific Railroad and Visalia leaders to connect the mainline to Visalia had failed, resulting in the Railroad establishing a new, competing community at Goshen. These tracks make up today's Fresno Subdivision of the Union Pacific Railroad, shown in Figure 1-6. In the years that followed, Goshen became one of the leading Valley stations for shipping wheat to other parts of the country.

The owners of the Central Pacific Railroad were Leland Stanford, Collis P. Huntington, Mark Hopkins, and Charles Crocker, known as the Big Four. A competing group of San Francisco investors formed the Southern Pacific Railroad and received a land grant from the U.S. government in 1866 to build a railroad line from San Francisco to Needles, crossing over the Coast Range Mountains, through the San Joaquin Valley, over the Tehachapi Mountains, and into the Mojave Desert. This new railroad line was intended to connect with the Atlantic and Pacific Railroad (later renamed the Atchison, Topeka, and Santa Fe Railroad) at Needles.

Not wanting the competition, the Big Four took control of the Southern Pacific Railroad in 1868 to obtain the land grant before revising their plans. They decided to stop the San Joaquin Valley's Central Pacific Railroad line at Goshen, and planned to connect the Southern Pacific line from San Francisco over the Coast Ranges to Goshen, then continuing over the Tehachapi Mountains to Needles. Construction occurred in three locations. Tracks were built from San Francisco through San Jose to Hollister, ending at Tres Pinos. Tracks were also built from Needles over the Tehachapi Mountains to Bakersfield, and then to Goshen. The third portion of construction started at Goshen and built west, establishing the communities of Hanford, Lemoore, Huron, and Coalinga. This section was completed in 1877. This third portion of construction is today's Hanford Subdivision of the San Joaquin Valley Railroad. The final planned section of track over the Coast Ranges connecting Coalinga to Hollister was never constructed, relegating the Hanford Subdivision to a branch line instead of part of the originally planned mainline between central California and San Francisco. Later, the town of Armona was established to be the connection point between the Hanford Subdivision and a rail line extending from Armona to Kerman in Fresno County. This line no longer exists.

Worried that they would be left behind economically because they were not connected to the new railroads, a group of Visalia citizens formed the Visalia Railroad Company and constructed a rail branch line from Visalia to Goshen in 1874. They added a rail station and yard in Visalia near the intersection of Conyer Street and School Avenue. This railroad was later extended eastward down the middle of Oak Avenue into Visalia's civic center in 1893. The Southern Pacific Railroad purchased the Visalia Railroad in 1898. They then extended the line eastward from Visalia through Farmersville to connect to their eastside line at Exeter. This branch line is now the Goshen Subdivision of today's San Joaquin Valley Railroad.

The Southern Pacific's eastside line was built to serve the communities on the east side of the Valley that were booming from the success of farms that utilized surface water irrigation systems to grow stone fruit, raisins, and citrus crops. The eastside branch was completed from Fresno to Porterville, through the cities of Reedley, Dinuba, Exeter, and Lindsay in 1888. This branch is now the Exeter Subdivision.

The Atchison, Topeka, and Santa Fe Railroad built competing lines in the Valley between 1896 and 1901, including the north/south mainline used today by Amtrak through Hanford, but they did not match the Southern Pacific's vast rail network. The Southern Pacific Railroad had established lines connecting all parts of Fresno, Tulare, and Kings Counties to the rest of the nation within just thirty years. Agricultural products could be shipped on a single railroad carrier as far north as Portland and as far east as New Orleans, with connections to other railroads that stretched throughout the United States.

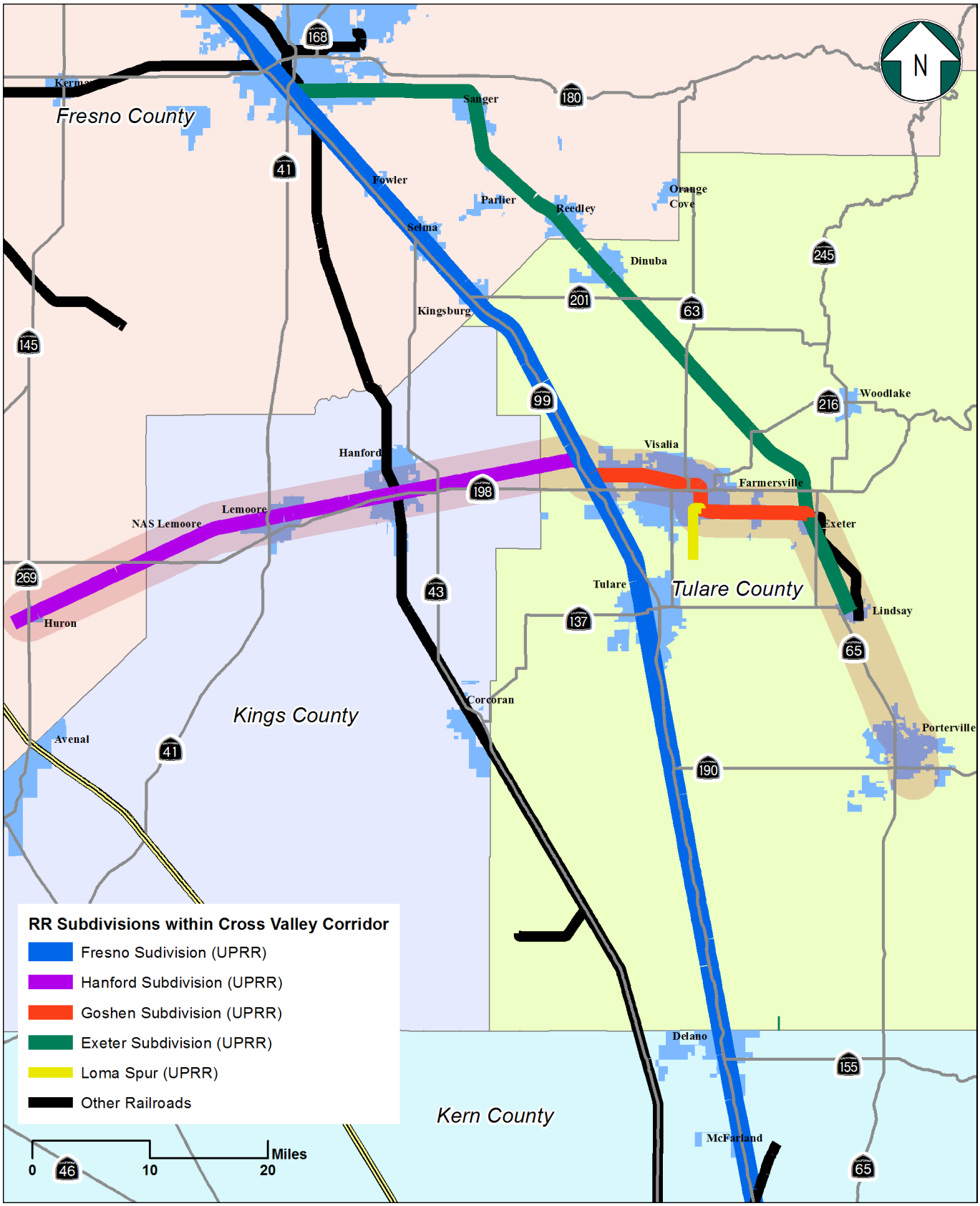
From 1906 to 1925, the tracks from Visalia to Exeter were electrified with overhead wires, allowing newly invented electric engines to operate passenger service. Rail passenger service flourished, and in 1913 there were 32 passenger trains running each day between Visalia and Exeter. Like most areas of the country, passenger ridership began declining in the 1950's. There has been no passenger service on the lines within the Study Area since Amtrak was established in 1971.

The Southern Pacific Railroad successfully operated for a little over a century until 1996, when it merged with the Union Pacific Railroad (UPRR), taking on the Union Pacific name. Today, the UPRR operates on the original mainline (Fresno Subdivision) while the San Joaquin Valley Railroad, currently owned by Genesee & Wyoming, Inc., has operated on the branch lines in the Study Area since 1992. The tracks between Lindsay and Porterville were abandoned in 2008 and tracks were removed 2012, but the right-of-way was acquired by the City of Porterville, with assistance from TCAG.

Figure 1-5: Historic Tulare Southern Pacific Railroad Depot, circa 1911

Source: Old Tulare County Pics, 2013

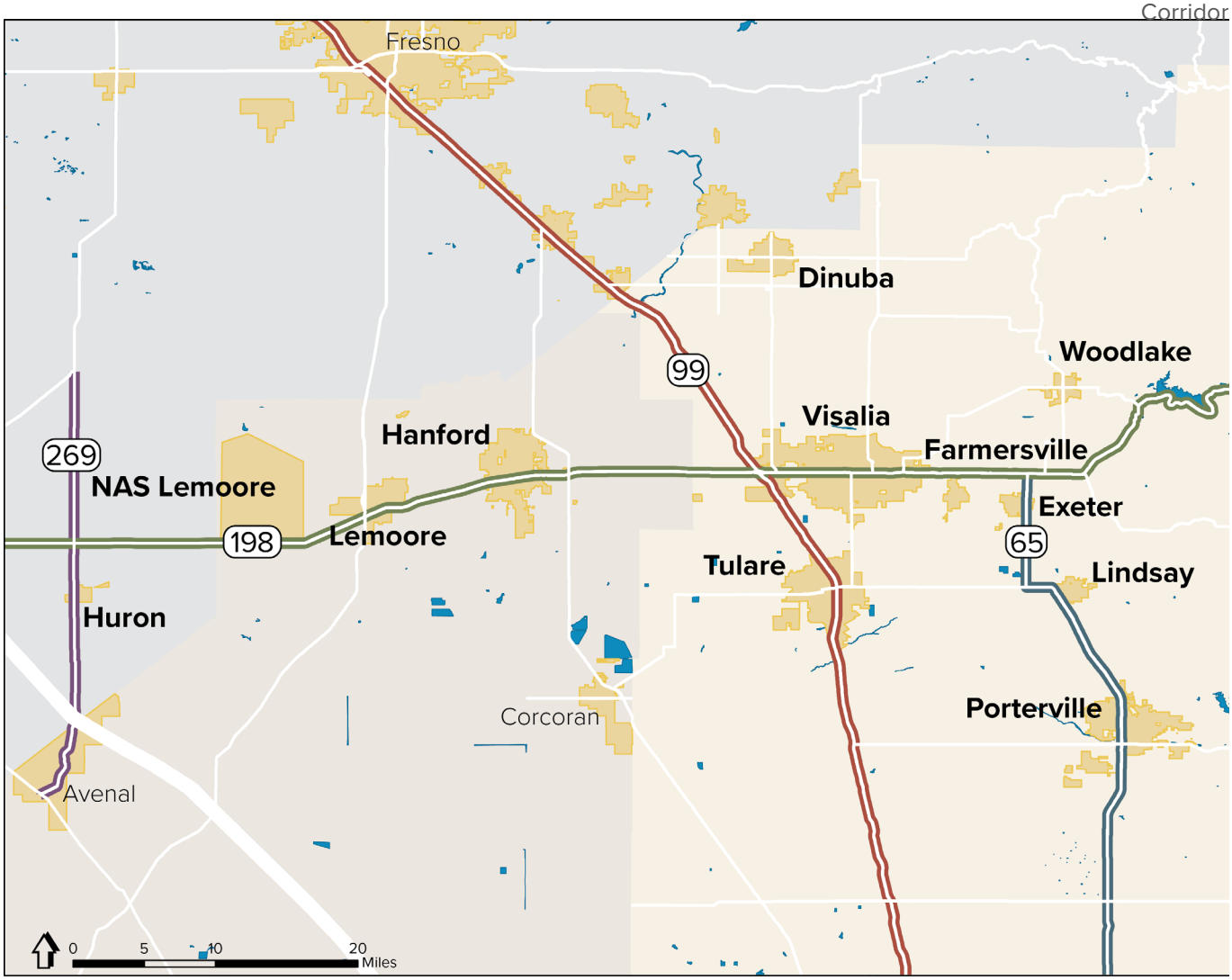
Figure 1-6: Railroad Subdivisions within the Cross Valley Corridor



1.2.2 Highway History

The “Golden State Highway”, formally known as US Route 99, was built through the San Joaquin Valley in 1909 as a two-lane, paved roadway alongside the Southern Pacific (now UPRR) railroad mainline. It was one of the original US highways commissioned in 1926, and ran north-south from the Mexican border to the Canadian border. US Route 99 was decommissioned by 1968 with the completion of Interstate 5, and became State Route (SR) 99. This highway became well known for carrying migrant farm workers of the Depression Era through the San Joaquin Valley. Also referred to as the “Main Street of California”, SR 99 was referred to in John Steinbeck’s The Grapes of Wrath as the main road used by the Joad family during their travels through California.

Figure 1-7: Major Highways along the Cross Valley Corridor



State Route 198 traverses east-west through Fresno, Kings, and Tulare Counties. Built between 1909 and 1919, SR 198 was signed from US 101 to Sequoia National Park beginning in 1934. It has been constructed to freeway standards through from NAS Lemoore to the east side of Lemoore, from the west side of Armona to the east side of Hanford, and from SR 99 to the east side of Visalia. Originally passing through the downtowns of these communities, the freeway sections now serve as a bypass near city centers. The most recent improvements include upgrades to interchanges at 19th Avenue in Lemoore, 12th Avenue in Hanford, and Plaza Drive in Visalia. The section from SR 43 in Hanford to SR 99 in Visalia was also recently upgraded to a four-lane divided highway.

State Route 269 connects Huron to both SR 198 to the north and Interstate 5 to the south. It was designated a state route in 1972.

State Route 65 was signed from Famoso to Kings Canyon National Park in 1934, passing through Exeter, Lindsay, Strathmore, and Porterville. It is constructed to freeway specifications through Porterville. The section from Lindsay to Porterville is a four-lane, divided highway.

1.2.3 The Communities

Each of the communities along the CVC was established by the Southern Pacific Railroad when it first laid tracks, with Visalia being the only exception. Because of this, the CVC railroad right-of-way passes through the heart of every community. In the late 1800's, the San Joaquin Valley was first known for its wheat, with the Goshen freight station being one the largest shippers of wheat in the State. With the construction of canals and ditches in the early 1900's, orchards and vineyards could be planted, yielding much higher value crops. Due to the specific soils and microclimates in each community, towns began to be known for specific crops. Exeter and Woodlake produced oranges and lemons, Lindsay was well known for its olives, and Visalia specialized in walnuts. Dinuba produced peaches and grapes. Cotton was by far the leading crop in Hanford and Lemoore. Both Kings and Tulare Counties approved new, large dairies in the 1980's and 1990's for dairymen who were moving out of southern California due to urbanization.

Visalia grew more quickly than the other communities in the 1960's and 1970's, becoming the largest regional commercial center between Bakersfield and Fresno.

Naval Air Station (NAS) Lemoore was commissioned in 1961, approximately eight miles west of Lemoore. It is now the only naval aviation base on the west coast, housing the Navy's entire west coast fighter and capabilities. There are now just under 7,000 active duty personnel and their families living at the Base. Railroad tracks run through the Base, but it remains to be the only community in the Study Area that has never had a rail passenger station.

Amtrak service began in Hanford in 1972. In 1985, proposed federal budget cuts were going to eliminate the service, but the citizens of Hanford organized a "Save Amtrak Day" with a musical band, Native American dancers, and sign-waving demonstrators. The train service continued and Hanford's station became one of the busiest on the line.

In 2000, the City of Lemoore worked with the cities of Huron and Visalia to form the Cross Valley Rail Corridor Joint Powers Authority (CVRC JPA) to upgrade 45 miles of track on the CVC from the City of Huron, through Lemoore and Hanford to the Visalia Industrial Park for approximately $15 million.

1.2.4 The Corridor Today

The existing Union Pacific/San Joaquin Valley Railroad branch line right-of-way is already in place and could serve as a backbone for a future CVC transit system. Rails have been removed south of Porterville at the Tulare County line to a point approximately one mile north of the center of Strathmore. While some cities will utilize existing stations as connectors for the system, others may need to develop stations and provide transit services to the potential stations. The Kings County cities of Lemoore and Hanford have public transit systems in place through Kings Area Regional Transit (KART), and the Tulare County cities of Visalia, Tulare, Porterville, and Dinuba have public transit systems. Four of these cities have existing transit centers within a block or two of the rail line, and both Visalia and Lemoore's General Plans describe their transit centers as a future light rail station.

1.3 Vision Statement

Promote a safe, affordable, and efficient system that increases transportation options while utilizing existing infrastructure, enhances the environment and livability of the region, and promotes economic development through a well-integrated corridor.

1.4 Project Objectives

The project aims to increase transit service efficiency, enable communities and cities in the Corridor to promote transit-oriented development (TOD), encourage revitalization and economic development and facilitate growth in support of the HSR investment by:

- Evaluating Existing Conditions;
- Developing Regional Station Visions;
- Conducting Economic, Real Estate, Fiscal, and Financial Analysis;
- Conducting Multi-Modal, Circulation, and Parking Analysis; and
- Developing Recommendations and Implementation Strategies.

1.5 Preliminary Definition of Alternatives

This section describes the modes and alternatives that were considered in early stages of the Plan, prior to soliciting feedback from communities and conducting an evaluation and mode selection analysis.

1.5.1 Modes Considered

The Plan considered six mode alternatives to provide transit service in the CVC. Traditionally, several of these modes use gasoline or diesel combustion engines, but the growing technology advancements have allowed for the use of electric hybrid, fully electric, natural gas and even hydrogen fuel cell engines. For most of these modes the propulsion type is not a major driver in the operational characteristics, and these engine systems will be considered for all modes unless mentioned otherwise.

1.5.1.1 Bus Rapid Transit

Bus rapid transit (BRT) is widely used throughout the state, country, and the world. BRT generally incorporates high capacity articulated buses, which operate primarily on a dedicated right-of-way with enhanced stations to provide a higher level of service than is typical of standard bus transit service. However, several cities in in the Central Valley have used 40-foot buses in BRT service. Traditionally gasoline or diesel propulsion, increasingly BRT vehicles are either powered by natural gas, electric, hybrid, or fully electric propulsion.

San Bernardino, California

1.5.1.2 Light Rail Transit

Light rail transit (LRT) systems utilize electrically-powered vehicles which can travel between suburbs or within urban centers. These vehicles cannot operate on freight railroad tracks unless approved by regulatory bodies. Although shared use arrangements involving light rail on mainline railway tracks are common throughout Europe, they would likely not be agreed to in the United States, primarily due to regulatory differences but also because freight railroads are much more conservative about allowing other operations on their right-of-way.


Los Angeles, California

1.5.1.3 Heavy Rail

Heavy rail systems generally operate in densely populated areas. These trains have large passenger capacity and are typically powered by an electrified third-rail, which requires them to be completely grade-separated. Heavy rail is commonly seen in older transit systems and subways in the United States.

San Francisco, California

1.5.1.4 Diesel/Electric Multiple Unit

Diesel multiple unit (DMU) and electric multiple unit (EMU) rail systems are run by self-propelling railcars that can operate in light rail transit corridors, in dense urban areas, and in freight corridors as long as the vehicles are compliant with Federal Railroad Administration (FRA) crash and operational safety policies. The typical configuration of DMU vehicles in the United States is that of a diesel engine generating electric power for the vehicle's traction motors (so-called diesel-electric multiple units). However, other propulsion systems have been under development, such as hydrogen fuel cells and natural gas-powered engines, which would be used in place of diesel engines to generate electric power for the vehicle's traction motors.

San Diego, California

Several European systems employ so-called dual mode propulsion configurations, the most common of which includes a combination of diesel power and electric propulsion. This configuration enables the vehicles to operate on either electric power, where an electric traction power distribution system exists, or on diesel power where no electric power is available. This model is typically deployed where electric traction power already exists. Due to the expense of necessary infrastructure, the consideration of dual-mode propulsion options is inadvisable where there is no existing electric traction power source.

EMU are similar to LRT vehicles as they both use an overhead catenary system. However, unlike LRT, EMU systems can achieve FRA crash and operation safety policies. Because they are powered by an electric overhead power system they have higher startup costs; however, they have operational benefits (in terms of cost, acceleration, etc.) as the system grows in size and scale.

Los Angeles, California


Seattle, Washington

1.5.1.5 Commuter Rail

Commuter rail systems, or intercity rail systems, are typically seen in large metropolitan areas to provide long distance peak, commuter rail service to suburban residents. They are able to share rail corridors with freight operators given that shared use is approved by regulatory agencies. Although most commuter rail systems employ diesel-electric powered locomotives that pull or push unpowered passenger railcars, some commuter rail operations are electrically powered, such as those in New York City and Denver's new line to the airport. As with DMUs, several systems in Europe employ dual-mode propulsion configurations, but the use of such technologies increases both the cost and complexity of both the vehicles and the infrastructure in such arrangements.

1.5.1.6 Other Modes

Other corridor projects have examined a variety of emerging and interesting technologies as alternatives, ranging from monorails to automated "minimetros" similar to modern airport people movers to maglev and personal rapid transit systems. However, most of these may not be suitable for this corridor, either because they are unproven in these applications or their cost and complexity are not justified by the expected ridership.

1.5.2 Key Stations

The cities and communities along the CVC that are included in the Plan are:

- Armona
- Exeter
- Farmersville
- Goshen
- Hanford
- Huron
- Lemoore
- Lindsay
- NAS Lemoore
- Porterville
- Strathmore
- Tulare
- Visalia

2 Existing Conditions

2.1 Existing Transit Services

This section summarizes the existing transit services available throughout Tulare, Kings and southern Fresno Counties. The local agency operated bus services include Fresno County Rural Transit Authority (FCRTA), Kings Area Rural Transit (KART), Tulare County Area Transit (TCaT), Visalia Transit, Porterville Transit, Dinuba Area Rural Transit (DART), and Tulare InterModal Express (TIME). The total annual ridership of these bus services along the CVC is over 4.1 million passengers per year. The privately-operated bus services are Greyhound and Orange Belt, along with Amtrak Bus Service and Amtrak California Passenger Rail, which is operated by California Department of Transportation (Caltrans). TTable 2-1 shows the annual ridership of the transit services available throughout the CVC regions.

Table 2-1: Annual Transit Ridership 2015

Transit Service	Annual Ridership (2015)
Fresno County Rural Transit Authority (FCRTA)	420,300
Huron Transit	73,300
Kings Area Rural Transit (KART)	765,200
Tulare County Transit (TCaT)	374,300
Visalia Transit	1,719,800
Porterville Transit	686,000
Tulare InterModal Express (TIME)	455,800
Dinuba Area Regional Transit (DART)	72,000

2.1.1 Fresno County Rural Transit Authority

Fresno County Rural Transit Authority (FCRTA) provides weekday service from Huron to Coalinga. In addition to the City of Huron, roundtrip service is provided by Coalinga Transit to Coalinga, Five Points, Lanare, Riverdale, Caruthers, Raisin City, Easton, and Fresno on Monday through Friday. Huron Transit provides access to Harris Ranch, West Hills College, and Coalinga on weekdays. Dial-a-Ride provides local service within the community of Huron. Limited service is also available to cities in neighboring counties including Hanford, Grangeville, and Avenal. FCRTA services are generally available Monday through Friday from 7:00 a.m. to 5:30 p.m. Currently, the FCRTA has 18 transit subsystems. The annual FCRTA ridership in 2015 totaled 420,315, and the annual ridership for Huron Transit was 73,256 passengers[1]. The number of passengers has increased from the previous year by 1.3 percent. The ridership on the intra-city bus service in the City of Huron has consistently produced the highest passenger counts per hour. The service has been provided by two

1 Fresno County of Governments Transit Productivity Evaluation FY 2015

(2) twenty-two (22) passenger buses and operates from 7:00am to 6:00pm, Monday through Friday. The City of Fresno also funds an intercity "life line" service to Coalinga.

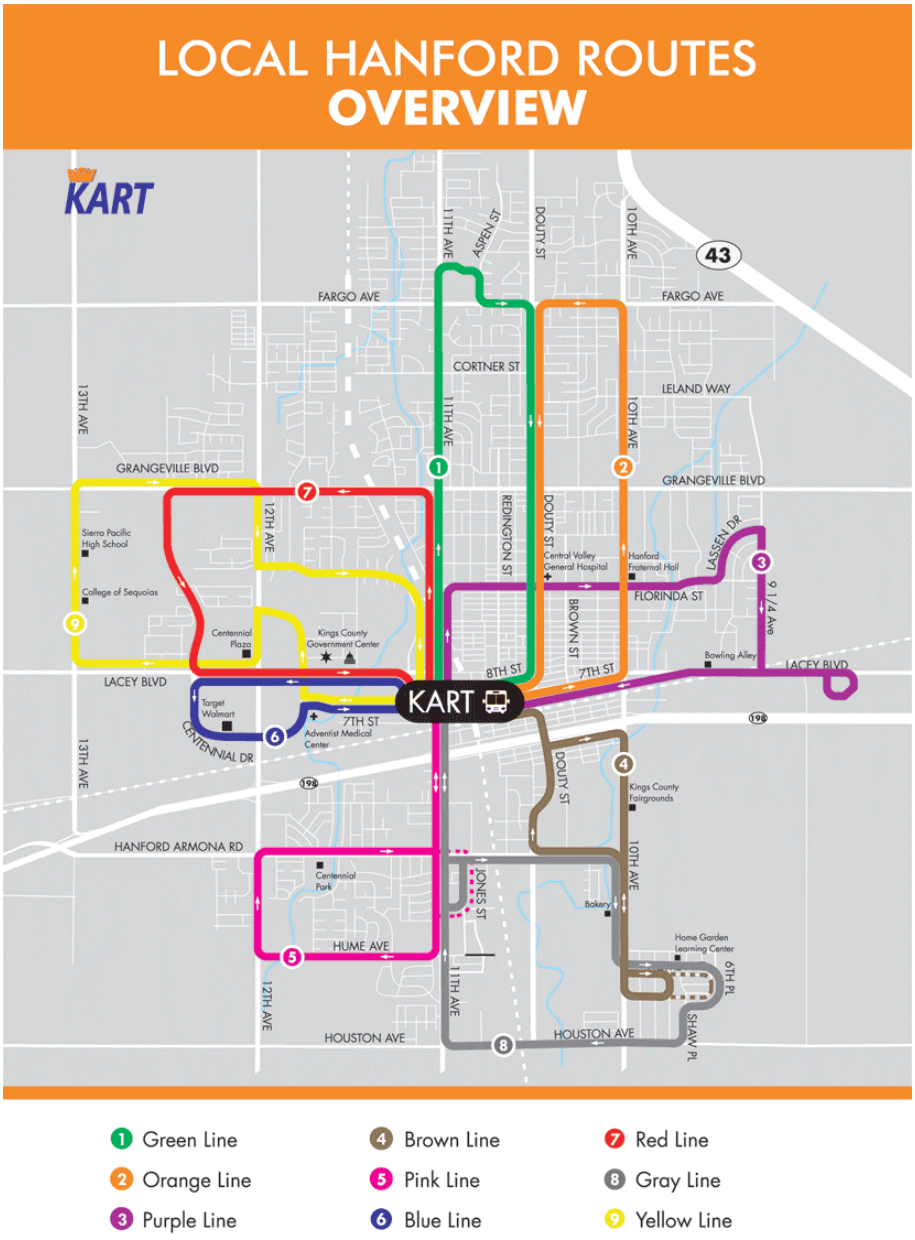
2.1.2 Kings Area Rural Transit

The largest single provider of public transportation within Kings County is operated by Kings County Area Public Transit Agency (KCAPTA), a joint powers agency comprised of the County and the cities of Hanford, Lemoore, and Avenal (the City of Corcoran does not participate in the KART system). KCAPTA oversees the operation of the Kings Area Rural Transit (KART) system. KCAPTA establishes the operating policies and defines the services to be provided by KART including service hours and days, fares, and routes.

KART is Kings County's public rural and urban transportation service provider that provides countywide bus service. The Corcoran Area Transit is another public transportation service but has limited service within the Corcoran area. KART provides the City of Hanford with six interconnected ½ hour routes, regular service to most other communities in the County and daily weekday service to Visalia. KART also provides service transportation to Fresno on Monday, Wednesday, and Friday. KART currently offers service to the Visalia College of the Sequoias Campus from the Hanford Transfer Center (Downtown Hanford) three times a day via its Hanford-Visalia route.

Dial-A-Ride (demand response) service is available for only those residents of Hanford, Lemoore, Armona and Avenal traveling more than ½ of a mile from an existing fixed bus route or for those riders certified by KART as disabled. It is the policy of KCAPTA Board that a rider who begins and ends a trip within a ½ mile of a bus route is to use the regular route service and not Dial-A-Ride. Where available, public transit bus and Dial-a-Ride services are utilized primarily by a transit-dependent population that has limited access to automobiles. Transit ridership groups often include the elderly, students, low-income residents, and the physically handicapped.

Figure 2-1: KART Hanford Transit Route Map



There is also a Hanford-Fresno fixed route with fourteen vehicles that runs every Monday, Wednesday, Friday, with limited service on Saturdays. Dial-A-Ride service operates six vehicles Monday through Saturday and provides over 29,600 passenger trips annually.

2.1.3 Tulare County Transit

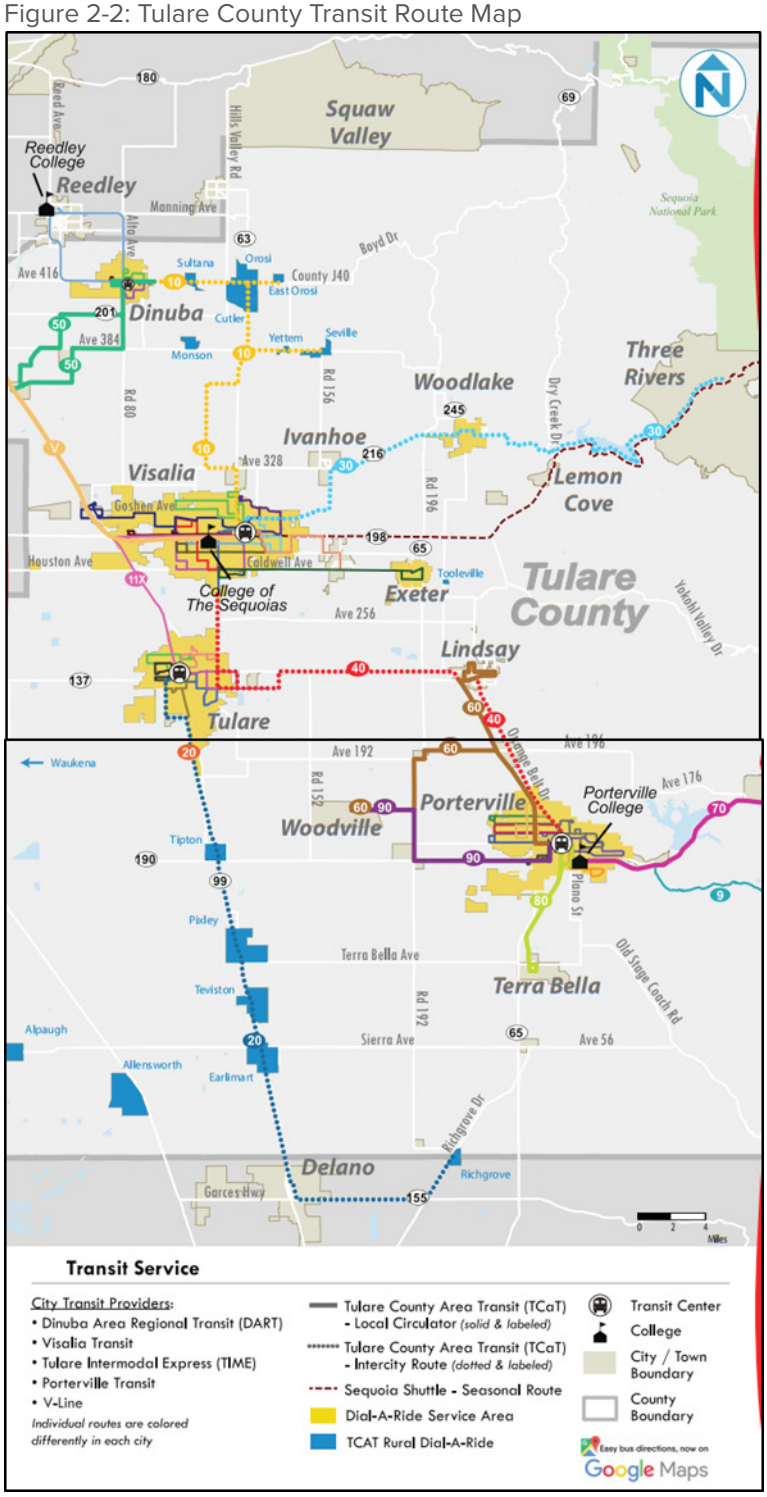
The County of Tulare began providing transit services under the name 'Tulare County Transit' in 1981. In 2006, the County adopted the service brand Tulare County Area Transit (TCaT). TCaT provides reliable and convenient public transit service between cities and in-city transit services for many small communities throughout Tulare County. TCaT provides public transit services between Visalia and smaller communities throughout the greater Visalia Area. TCaT provides access to the following cities included in the Study Area: Porterville, Strathmore, Lindsay, Tulare, Visalia, Woodlake, and Dinuba.

2.1.4 Visalia Transit

Modern transit service in Visalia dates to 1981 when the City began offering curb-to-curb demand-response service through Dial-A-Ride service. In response to increasing ridership, the City implemented fixed-route service in 1987. In 1998, Visalia purchased and began operating a small fleet of trolley-replica buses throughout the downtown area. Currently, Visalia Transit operates three services: Fixed Route, Downtown Circulation, and Dial-A-Ride/ Paratransit Service.

Visalia Transit operates 14 bus routes that serve Visalia, Farmersville, Exeter, Goshen, and Tulare. Visalia Transit connects with Tulare InterModal Express, TCaT, KART, Greyhound, Orange Belt, and Amtrak Bus. All routes originate and return to the Visalia Transit Center on 425 E. Oak Ave. The fixed route service provides transportation to local schools including the College of the Sequoias and the San Joaquin Valley College. The Visalia Transit also provides Dial-A-Ride, curb-to-curb, para-transit service on a shared-ride, demand-response basis to locations within the city limits of Visalia, Goshen, and Farmersville.

Figure 2-2: Tulare County Transit Route Map



The City's fleet of trolley-replica buses serves as the downtown circulator system. The Trolleys operate on three routes (Blue, Gold, and Red) and operate almost exclusively within the downtown area.

Amtrak has a bus stop in Visalia for commuting rail passengers with Visalia as their final destination. The nearest Amtrak stations that offer commercial rail transportation service are located in Hanford and Fresno. The Sequoia Shuttle provides an alternative form of transportation from Visalia and Three Rivers

to Sequoia National Park. The Loop, operated by Visalia Transit, is an easy, safe, and free way for all school aged kids to get to community centers and recreation centers throughout Visalia where activities for youth are held.

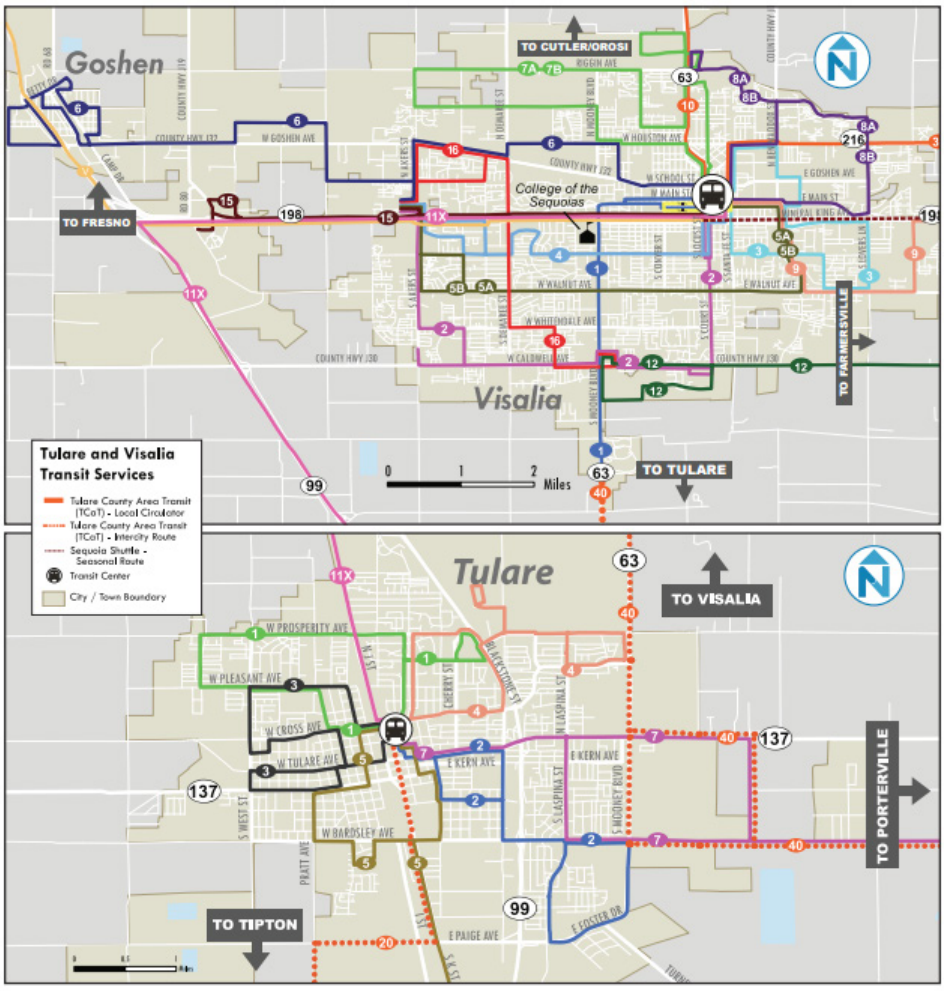
Ridership experiences a noticeable increase during the months of September, October, and November due largely in part to students attending the College of the Sequoias in Visalia

2.1.5 Tulare InterModal Express

The City of Tulare began offering transit service in 1980 with the introduction of Dial-a-Ride Tulare (DART), a curb-to-curb demand response service. In response to increasing ridership, the City implemented Tulare Transit Express (TTE), a full-time fixed route service in December 1989. TTE began as a three-route system, but quickly outgrew its initial capacity. The TTE was recently re-branded as Tulare InterModal Express (TIME), and currently provides transit services within the city limits and to designated unincorporated urban areas of the county, including both “county islands” within the city limits and areas outside, such as downtown Visalia. Fixed route service to county areas is provided under a service agreement between the City and the County. Today it operates six fixed route buses that service Tulare and one express bus that provides service to Visalia.

Each route is a one-way loop operating on a timed-transfer system. TIME fixed routes 1 through 7 operate on 30-minute headways, departing from and arriving at the downtown transit center at approximately the same time to allow for transfers between routes. Route 11x provides service between Tulare and Visalia, traveling between the Tulare Transit Center and the Visalia Transit Center, with a stop near the College of Sequoias Visalia Campus. Route 11x also operates on 30-minute headways, but is coordinated with Visalia Transit schedule to allow for transfers between systems. Tulare Transit provides a supplemental service called Dial-A-Ride; a curb-to-curb para-transit service on a shared -ride/ demand-response basis to locations within the city limits of Tulare.

Figure 2-3: Tulare and Visalia Transit Route Map



2.1.6 Dinuba Area Regional Transit

Dinuba Area Regional Transit (DART) provides local bus service in the City of Dinuba. It connects with Tulare County Area Transit and Fresno County Regional Transit Authority (FCRTA). DART also provides service to and from Dinuba and Reedley. The City of Dinuba has been providing public transit services since the early 1990s when the City contracted with Dinuba Transit

Inc., the then local taxi service operator, to provide fixed route and dial-a-ride services within the City. The breadth of these services has been adjusted over the years to better serve ridership demand, and they are currently being provided together as a flex route service. In May 2006, the City initiated a free circulator service to popular shopping destinations and locations throughout the city. The City purchased a trolley bus in 2008 for use with the service, which is now known as the Jolly Trolley.

The City of Dinuba operates the DART Flexroute as its combined fixed route and demand response service. The Flexroute service was initiated in January of 2007 in response to recommendations outlined in the previous City of Dinuba Transit Development Plan (June 2004). Flexroutes are comprised of a system of designated transportation services where a public transportation vehicle is operated along a prescribed route according to a fixed schedule, but can deviate from this route to accommodate door-to-door passengers in-between route stops. The Flexroute service operates within Dinuba city limits.

DART Flexroute consists of two routes serving the northern and southern portions of Dinuba respectively. The service combines fixed route stops on 30-minute headways with deviations for dial-a-ride service; however, a separate dial-a-ride bus is put into service when needed to accommodate excess passengers (usually school children). Walk-on passengers may board or depart the bus at any point along the route where the driver can safely stop. Walk-on passengers do not require a reservation, but anyone requiring a route deviation must call in advance for a pick up. Telephone requests are accommodated from 30 minutes to one day in advance.

2.1.7 Porterville Transit

Transit service in Porterville dates to 1980 when the City began offering curb-to-curb demand-response service through Dial-A-COLT (City Operated Local Transit). In response to increasing ridership the City implemented Porterville Transit, a full-time fixed route service, in early July of 1997. Porterville Transit began as a two-route system, but quickly matured to today's system. In August of 2006, Porterville's Dial-A-COLT service was changed to a seniors and Americans with Disabilities Act (ADA)-preferred service.

Porterville Transit is the municipal public transit operator and is managed by Sierra Management for the City of Porterville. The Porterville Transit Center is located on "D" Street at Oak Avenue and serves as the transfer node for each of the seven bus routes. Porterville Transit and Dial-A-COLT services are provided within the city limits and to designated unincorporated urban areas of the county, including "county islands" within the city limits. Service to county areas is provided under a service agreement between the City and the County of Tulare. Currently Porterville Transit operates eight fixed routes. Each route is a one-way loop, beginning and ending at the Porterville Transit Center.

Porterville Transit routes operate on a timed-transfer system; all routes are scheduled to arrive at and depart the Transit Center at approximately the same time. A timed-transfer system allows passengers the ability to interchange from one route or transit vehicle to another route within a specified time-period (i.e. forty minutes) to continue a trip.

2.1.8 Greyhound Bus

Greyhound has limited schedule service in both Hanford and Lemoore. The Greyhound bus stops in Hanford and Lemoore do not provide ticket, baggage or package express services or facilities at these stop locations. Greyhound also provides service to and from transit stations in downtown Tulare and downtown Porterville.

2.1.9 Orange Belt Bus

Orange Belt Stages offers daily trips to Las Vegas and to areas along the Central Coast. There are four Orange Belt stops within Kings County: Hanford at the Amtrak Station, Lemoore at the Lemoore Chamber of Commerce, Kettleman City at the Carl's Jr., and NAS Lemoore main gate.

2.1.10 Amtrak

2.1.10.1 San Joaquin

The San Joaquin Joint Powers Authority, comprised of a partnership between Amtrak and Caltrans, operates the Amtrak San Joaquin passenger rail service. Amtrak ridership has grown in recent years due largely to the increased accessibility, public awareness, and more convenient scheduling. Additional marketing by Caltrans and scheduling that now allows for one-day turn around trips to the Bay Area and Sacramento have all contributed to increased ridership. Eight trains currently operate with four northbound and four southbound trips, and the addition of a direct bus connection between Bakersfield and the Los Angeles Amtrak depot has also contributed to accessibility and increased ridership. There are two Amtrak train depots in Kings County, one in Hanford and one in Corcoran. Passenger rail service (six roundtrips daily) in the county are provided by Amtrak on its San Joaquin service, with a rail station located in Hanford. The Hanford Depot at 200 Santa Fe Avenue is an intermodal facility serving as a regional transportation hub connecting with the Orange Belt bus line, the KART bus system, taxis, bicycles, and pedestrians. The depot includes a traveler information center. Amtrak buses also connect the Hanford depot with destinations in Tulare County.

Figure 2-4: Amtrak California Routes Map

2.1.10.2 Bus

Another bus service operating within Kings County is the Amtrak Bus Service. The Amtrak Bus, however, is a limited service for Amtrak train passengers and provides connecting bus service from Paso Robles and Visalia to the Hanford Amtrak Station. This service is limited to Amtrak ticket holders only and is not intended to serve as a common carrier service.

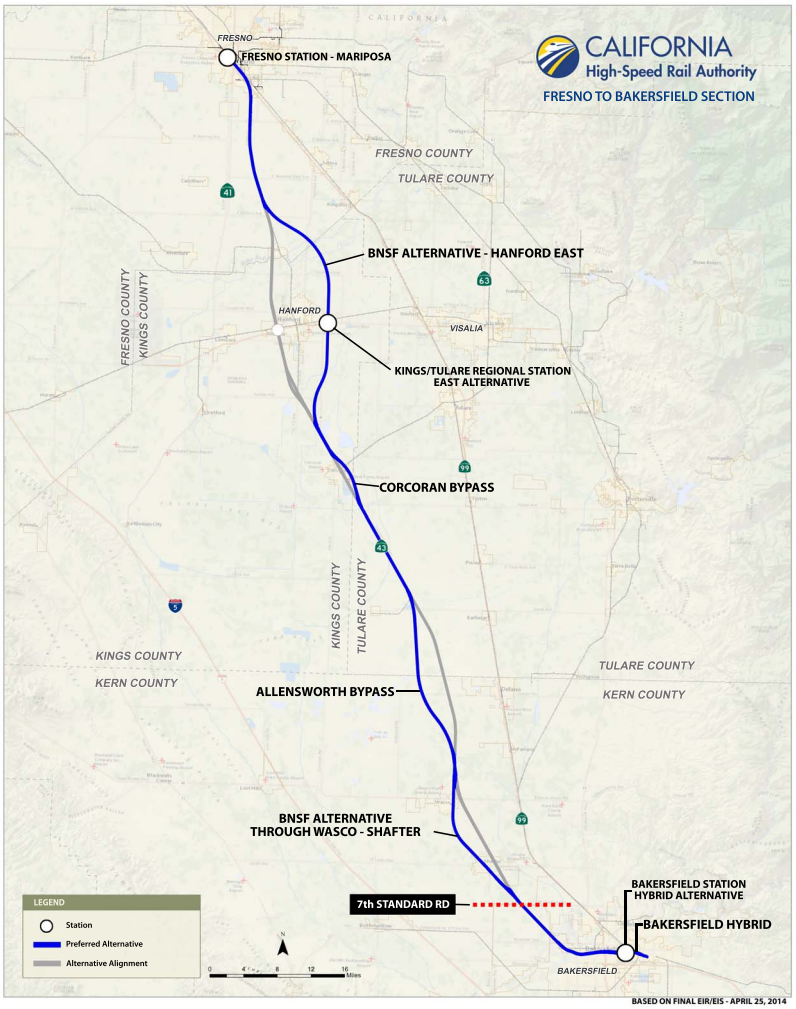
2.1.11 California High-Speed Rail

The Authority is currently in the process of constructing a high-speed rail system that would provide passenger transportation throughout much of California. According to the Authority, high-speed rail is projected to carry as many as 68 million passengers annually by 2020. Further objectives of the California High-Speed Rail system are to:

- Provide an interface with commercial airports, mass transit hubs, and the highway network
- Relieve vehicular capacity constraints on the existing transportation system as intercity travel demand in California increases.

Given that the highest growth rate in California's future is in the Central Valley, the need for improved intercity transportation is demonstrated by the insufficient capacity of the existing vehicular transportation system to meet current and expected future travel demand. The need is indicated by poor air quality, impaired travel reliability, increased travel congestion, and longer travels times. According to the Authority, in most instances high-speed rail would improve travel options available in the Central Valley and other areas of the state when compared to limited bus, rail, and air service for intercity trips that exist today.

Figure 2-5: California High-Speed Rail - Fresno to Bakersfield



2.1.12 Tulare County Light Rail Feasibility Study

In 2006, a Tulare County Light Rail Feasibility Study was conducted to determine if a sustainable system could be established between Visalia and Tulare. The study resulted in three alternatives and revealed that land use along any of the routes would potentially need to be intensified over several years in order to provide the ridership necessary to support such a system. This will take agreement, coordination, and implementation by the three agencies where the line will travel. TCAG will be working with the Cities of Visalia and Tulare and the County to select a preferred alignment and move forward with land use planning and interim strategies, specifically right-of-way preservation and implementation of BRT for potential future LRT implementation. The Regional Long Range Transit Plan will make further recommendations and reanalyze the potential for LRT.

2.2 Traffic Conditions

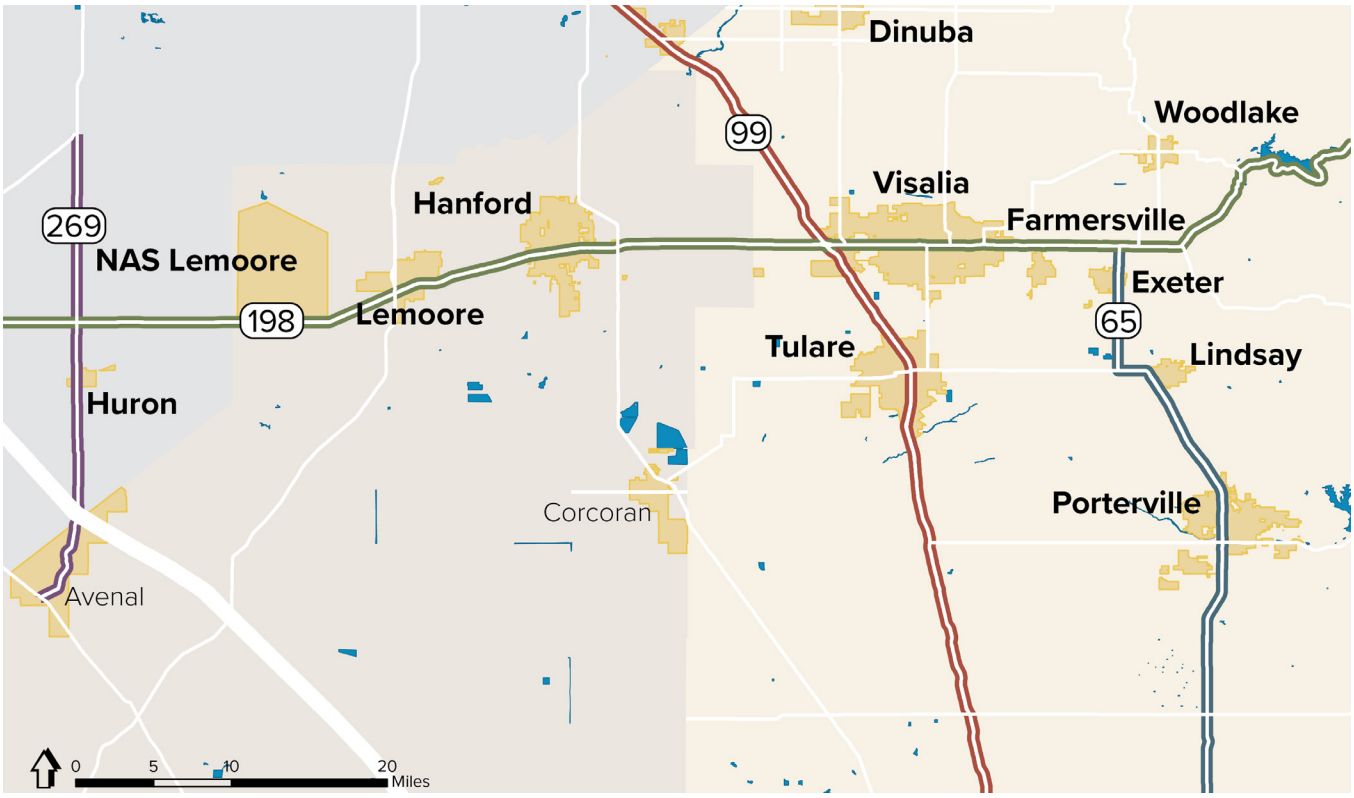
Like most developed and rural communities, travel by private automobile is relatively affordable, fast, and convenient, and therefore the preferred way to travel. This trend is exacerbated in rural communities around the CVC due to limited transit options and long trip distances between communities. Current travel forecasts for the tri-county area show that this trend will not change substantially. To be viable, the CVC project would need to offer a competitive means of travel to private auto use. This study will analyze the feasibility of potential passenger rail services in order to make that determination. For the purposes of this report, the existing conditions and future conditions (based on 2040 forecasts) will provide the baseline "no build" traffic conditions upon which to compare the performance of potential rail service.

The existing railroad tracks that would be utilized for future Cross Valley passenger rail services link many of the cities in this region. Essentially, it is a "string of pearls" structure from Porterville through Strathmore, Lindsay, Exeter, Visalia, Hanford, Lemoore, and Huron. The nearby highway links that a future rail project would need to compete against include:

- SR 65 – Connecting the communities of Porterville, Strathmore, Lindsay, and Exeter
- SR 198 – Connecting the communities of Exeter, Farmersville, Visalia, Goshen, Hanford, NAS Lemoore, and Lemoore
- SR 269 – Connecting Huron to SR 198

Although the large communities of Woodlake, Dinuba, and Tulare are not directly linked to the CVC, they play a vital role in the tri-county travel market as well as the future ridership of the California High-Speed Rail project. For these reasons, these communities were included in the traffic condition analysis. Dinuba lies north of the corridor and is connected via Road 80 to SR 198. Tulare is located south of the corridor and can be reached via SR 63 or SR 99. Woodlake is located northeast of the corridor and is linked to Visalia via SR 245 and SR 198.

Figure 2-6: Cross Valley Corridor Highways



2.2.1 Current Relative Competitive Travel Times

Average weekday travel times, derived from the "Tulare County Long Range Transit Plan – State of the System Report", are shown in the tables below for both private automobile and transit trips for city pairs along the Cross Valley Corridor.

Table 2-2: Auto Travel Time (minutes) during an Average Weekday - Tulare County

	Visalia	Porterville	Tulare	Dinuba	Exeter	Woodlake	Delano
Visalia	-	10	20	30	15	10	50
Porterville	40	-	35	60	25	35	40
Tulare	20	60	-	35	40	35	60
Dinuba	30	60	35	-	40	35	60
Exeter	15	25	25	40	-	15	50
Woodlake	20	35	35	35	15	-	60
Delano	50	40	35	60	50	60	-

Table 2-3: Transit Travel Time (minutes) during an Average Weekday - Tulare County

	Visalia	Porterville	Tulare	Dinuba	Exeter	Woodlake	Delano
Visalia	-	102	28	50	32	29	121
Porterville	102	-	82	170	115	143	175
Tulare	28	82	-	100	90	73	63
Dinuba	50	170	100	-	119	123	193
Exeter	32	115	90	119	-	92	183
Woodlake	29	143	73	123	92	-	166
Delano	121	175	63	193	183	166	-

Table 2-4: Auto Travel Time (minutes) during an Average Weekday - Kings and Fresno Counties

	Hanford	Lemoore	Huron
Hanford	-	14	27
Lemoore	15	-	16
Huron	27	16	-

Table 2-5: Transit Travel Time (minutes) during an Average Weekday - Kings and Fresno Counties

	Hanford	Lemoore	Huron
Hanford	-	27	46
Lemoore	27	-	22
Huron	45	22	-

Based on the sample of cities shown in the tables above, travel times by transit are twice what they are for automobile based trips along the CVC. Therefore, those with the ability to travel by automobile may be less likely to use existing transit services due to this discrepancy.

2.2.2 Future Potential for Ridership on the Cross Valley Corridor

Average daily high-speed rail station access and egress modal shares for Kings and Tulare Counties combined are shown in Table 2-6. The information and results in this table produced by the Authority are estimates and projections that involve the use of best professional judgment based on facts, and may differ materially from the actual future ridership and revenue. The material presented is consistent with the forecasts in the 2016 Authority Business Plan. The material presented is not intended, nor shall it be construed to constitute a guarantee, promise or representation of any particular outcome(s) or result(s). Furthermore, the material presented is provided for purposes of planning rail and transit improvements associated with or related to the California HSR Project.

Table 2-6: Kings/Tulare High-Speed Rail Station Access and Egress Mode Shares

	2029				2040			
	Mode Share		Passenger Trips		Mode Share		Passenger Trips	
	Access	Egress	Access	Egress	Access	Egress	Access	Egress
Total	100%	100%	2,490	1,180	100%	100%	5,750	2,630
Walk/Bike	0%	3%	0	40	0%	3%	0	80
Rail	4%	5%	100	60	4%	5%	230	130
Bus	4%	5%	100	60	4%	5%	230	140
Auto Subtotal	92%	87%	2,290	1,020	92%	87%	5,290	2,270
Pick Up/ TNC*	60%	73%	1,490	860	60%	73%	3,450	1,900
Parked	22%	0%	550	0	22%	0%	1,270	0
Taxi/Shuttle	8%	11%	200	120	8%	11%	460	280
Rental Car	2%	3%	50	40	2%	3%	110	90

Source: Authority, 2017
*TNC: Transportation Network Company

Approximately 87% to 92% of travelers will use private automobiles as their primary mode to access/egress high-speed rail service in 2040. Between 74% and 97% of those passengers are forecast to be picked up or dropped off by autos, as opposed to driving alone. The mode share for access/egress assumes CVC service operates as rail. If the proposed CVC service offers competitive travel times they could attract two types of travelers: passengers whose origin or destination is within one-half mile radius of any CVC station; and high-speed rail passengers who could utilize the CVC service to reach their final destinations.

2.2.3 Future Highway Conditions: General Description

The TCAG and Kings County Association of Government (KCAG) 2040 Forecast Travel Demand Models were used for the following analyses. The year 2040 is ideal for this examination as, on the current HSR implementation program, the full phase 1 service between San Francisco and Los Angeles will have been open for several years and reached a position of stability in ridership terms.

Two future time period conditions for 2040 were reviewed: the morning (AM) peak hour and the evening (PM) peak hour. The representative data are derived from averages of the 3-hour peak period..

2.2.3.1 AM Peak Hour Traffic Conditions

During the AM peak hour, traffic conditions are forecast to be congested along the major north/south routes, as shown in Figure 2-7. The color-coded representation of the forecast highway traffic conditions depict highway level-of-service (LOS). LOS D and above, which is generally accepted as uncongested traffic conditions are shown in green, and LOS E and below, generally accepted as congested to highly congested conditions, are shown in red.

The congested routes include SR 99, SR 43, and SR41. In general, the most prominent east/west route, SR 198, is shown as not congested. This means that travel between Exeter, Farmerville, Visalia, Hanford, Lemoore, NAS Lemoore, and Huron may not experience increased congestion.

Access from Porterville, Lindsay, and Exeter through Visalia and on to other cities was not as heavily congested, despit e some congestion on SR 65 around Lindsay. Access from Woodlake and Dinuba are also not subject to unreasonable congestion. Other local routes from Tulare to Visalia remain uncongested. The link from Tulare to SR 198 using SR 99 would suffer congested conditions.

Figure 2-7: 2040 AM Peak Hour Traffic Conditions

2.2.3.2 PM Peak Hour Conditions

Average PM peak hour conditions in 2040 for the study area are shown in Figure 2-8. In general, there is a greater amount of congestion compared to the AM peak hour conditions, which is fairly typical. Similar to AM conditions, the majority of north/south routes are congested including SR 99, SR 43, and SR 41.

There is considerable congestion on SR 198 through Visalia in both directions, with somewhat worse conditions eastbound. There is also intermittent congestion between Hanford and Lemoore on SR 198 in the eastbound direction. SR 65 between Porterville and Lindsay is congested, with some trouble areas just north of Exeter. State highway 137 between Lindsay and Tulare also suffers from intermittent congestion in both directions.

Figure 2-8: 2040 PM Peak Hour Traffic Conditions

2.2.3.3 Summary and Future Analyses

Currently, users of transit and public transportation in the study make up a very low percentage of overall travelers, and private automobile is overwhelmingly the preferred choice of mobility. This trend is supported by the fact that current journey times for travel between the cities in the Study Area is at least twice as long for transit users as for auto users. The implication is that most users only use public transit if they do not have a private auto available for their travel needs.

In the future, as analyzed with Study Area travel demand models, parts of the highway network may become more congested. Travel times for autos and transit vehicles between the cities on the proposed CVC are likely to deteriorate from what they are today.

The introduction of a high-capacity passenger service along the CVC may well offer travelers an attractive alternative to auto use in future years. Further analyses on the potential for mode change and indications of possible ridership for rail services will be developed as the study progresses.

2.3 Existing Land Uses and Other Site Conditions

This section covers the current land uses and other site conditions of existing and potential station stops in identified cities and communities involved in the Plan. The CVC follows the existing freight rail corridor from Huron to Porterville, connecting the proposed Kings/Tulare High-Speed Rail Station with the cities along the route. These cities include Huron, NAS Lemoore, Lemoore and West Hills College in Lemoore, Hanford, Visalia, Farmersville, Exeter, Lindsay, and Porterville. Unincorporated communities of Armona, Goshen, and Strathmore may also be served by transit stops. There is also a desire to connect to both the Tulare and Dinuba transit systems at their respective transit centers as well as the town of Woodlake, approximately 10-miles northeast of Visalia.

Site conditions discussed in this section include existing visual character and quality, key landmarks and gateways, potential land rights retained by Cross Valley Railroad Joint Powers Authority, and local destinations and connections to neighboring areas in the cities and communities. The goal is to identify and describe the existing and General Plan land uses within an approximately quarter mile radius (five-minute walking distance) of the transit stations.

2.3.1 Fresno County

2.3.1.1 Huron

The City of Huron is the only community in Fresno County that is in the Study Area. Currently, vehicular access to Huron from State Highway 269 connects the city to SR 198 to the north and Interstate 5 and Avenal to the south. The rail line bisects the city from northeast to southwest. SR 269, Lassen Avenue, is also the City's main downtown street.

The City of Huron is located at the southernmost portion of Fresno County and is somewhat isolated by distance from other urbanized areas of the county. Huron is 53 miles south of Fresno via mostly two-lane rural state roads.

With a current population of just under 7,000, the number of people living and working in Huron during harvest season increases to 15,000 due to the influx of migrant farm workers. According to the 2000 United States Census, Huron was the city with the highest proportion of Hispanic or Latino residents in the United States.

The City of Huron, eleven miles west of the proposed rail stop at Lemoore, is the stop located furthest west to be analyzed in the Plan. Agriculture and ag-related industries are the primary land uses and employers in the city. Residential development is located near elementary and middle schools. The core area of the city where most of the commercial and public facility development is located is on Lassen Avenue from Palmer to West Tornado Road. Lassen Avenue is considered the City's main north-south thoroughfare and the primary gateways to the city are at Palmer Avenue to the north and West Tornado Avenue to the south.

One site being considered for redevelopment as a rail station site is located on the east side of Lassen Avenue and north of 9th Street. Currently, the site consists of vacant buildings, canopies or shade structures, and parking. This site is within a five-minute walk to Huron's downtown.

An alternative site being considered for a potential rail station is on the west side of Lassen Avenue north of the railroad right-of-way. The triangular-shaped site is bordered by a gas station and medium-density residential units to the north. Keenan Park, medium-density residential development, and high-density residential development are located along the south side of Railroad. To the east lies Lassen Avenue, which currently has a mix of commercial and industrial facilities. A few restaurants are within walking distance of this potential station site along the west side of Lassen Avenue. This strip of commercial uses is tree-lined with wide sidewalks to help provide for a pedestrian-friendly environment.

The City of Huron General Plan Land Use Map designates the surrounding area as medium-density residential and public facility to the south, low-density residential to the north, and service commercial along Lassen Avenue.

Figure 2-9: Proposed CVC station site from Ninth Street in Huron

2.3.2 Kings County

The circulation systems within Kings County include streets and highways, public transit, rail, nonmotorized, and aviation. Of these systems, streets and highways serve as the dominant mode of transportation, with highway traffic generally composed of farm-to-market, business, and commuter trips. Local roads are utilized largely for movement of agricultural products, and to a lesser extent local travel to destinations where goods and services are provided. As urban populations continue to increase, traffic demand upon the county's major streets and highways is anticipated to increase with added commuter and business trips. State Route 198 traverses the county connecting the cities of Hanford, Armona, Lemoore, and NAS Lemoore to Goshen and Visalia.

As a county that is predominantly rural in nature, alternative modes of transportation are limited. However, some public transit options are available and there is a growing preference for Agricultural Industries Transportation System and Kings Area Rural Transit (KART).

Commuter vanpool services have spread to several adjacent counties and serve as a successful local approach to reducing the number of vehicles on the roadway and their associated emissions. Public bus transit services are provided by KART and the Corcoran Area Transit. The Kings County Area Public Transit Agency (KCAPTA), which oversees the operations of local transit providers, consists of Kings County, Avenal, Hanford, and Lemoore. Other local agency and common carrier transit services are also provided. Rail service within the county includes San Joaquin passenger rail service and freight rail service.

Public, private, and military aviation facilities exist within the County, with the Hanford Municipal Airport and Corcoran Airport serving as the public accessible sites, and the NAS Lemoore as a strategic military installation for the western United States.

2.3.2.1 Naval Air Station Lemoore

The NAS Lemoore has been a strong economic force in the county since its development in 1961. It was commissioned and constructed to be the largest and newest master jet base in the Navy. Currently NAS Lemoore hosts the U.S. Navy's largest west coast fighter/attack capability and houses approximately 175 Hornets and Super Hornets organized into 16 squadrons which comprise the Pacific Strike Fighter Wing.

The estimated daytime population at NAS Lemoore is 11,286, with 8,100 at night. The NAS Lemoore provides 13,500 full time jobs and over 23,000 part-time jobs. NAS Lemoore is the largest employer in Kings County, providing work for over 1,200 civilians and about 5,000 military personnel.

The proposed rail station site is located north of the railroad tracks and approximately 4,000 feet north of Franklin Avenue on the NAS Lemoore main campus. The future site would be accessible from Reeves Boulevard, which leads to the main NAS Lemoore campus and its residential development to the east. The section of Reeves Boulevard from the rail line to Franklin Avenue is completely undeveloped. Should a potential station be developed, there would most likely need to be a shuttle system in place to take commuters from the rail line either to the NAS Lemoore campus to the south or to the operations center to the north.

2.3.2.2 West Hills College

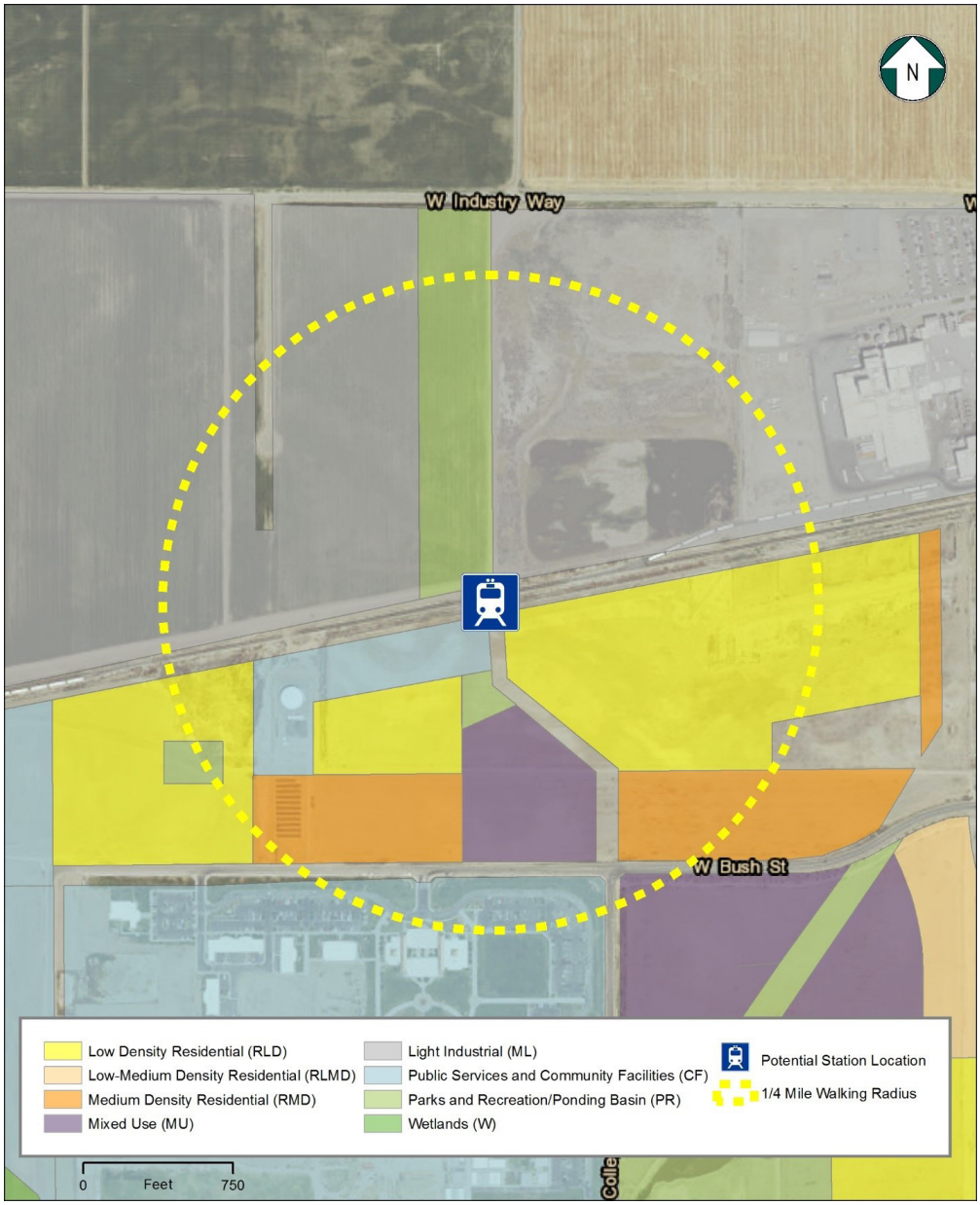
West Hills Community College District has served the educational needs of the west side of the San Joaquin Valley for more than 80 years. The Lemoore campus of West Hills College was the first new community college built in

California in this century and opened in 2002. In 2016, over 5,000 students enrolled in the college. KART has a route that connects the cities of Lemoore, Armona, and Hanford to West Hills College. Students from NAS Lemoore can access the campus via a connecting bus route from downtown Lemoore.

West Hills College is located in the far western edge of the City of Lemoore approximately two miles from its downtown. The College is accessed from Bush Street which runs east and west to downtown Lemoore. The City of Lemoore 2030 General Plan designates West Hills College for a future passenger rail stop or "train station". A train station could be accessed from the campus via either a future 1,000-foot connector roadway with sidewalks or a trail from Bush Street.

The campus is surrounded by undeveloped agricultural land and has room for expansion. The City of Lemoore 2030 General Plan land uses include low density single family and low-medium density residential north and west of the campus; mixed uses at the northeast corner of the campus along both sides of Bush Street; and, two park facilities on the eastern border and southwest corner. Regional commercial land uses are planned at approximately 1,500-feet east of the campus. Wetlands are identified along the western edge of the campus boundary.

Figure 2-10: West Hills College Zoning Map

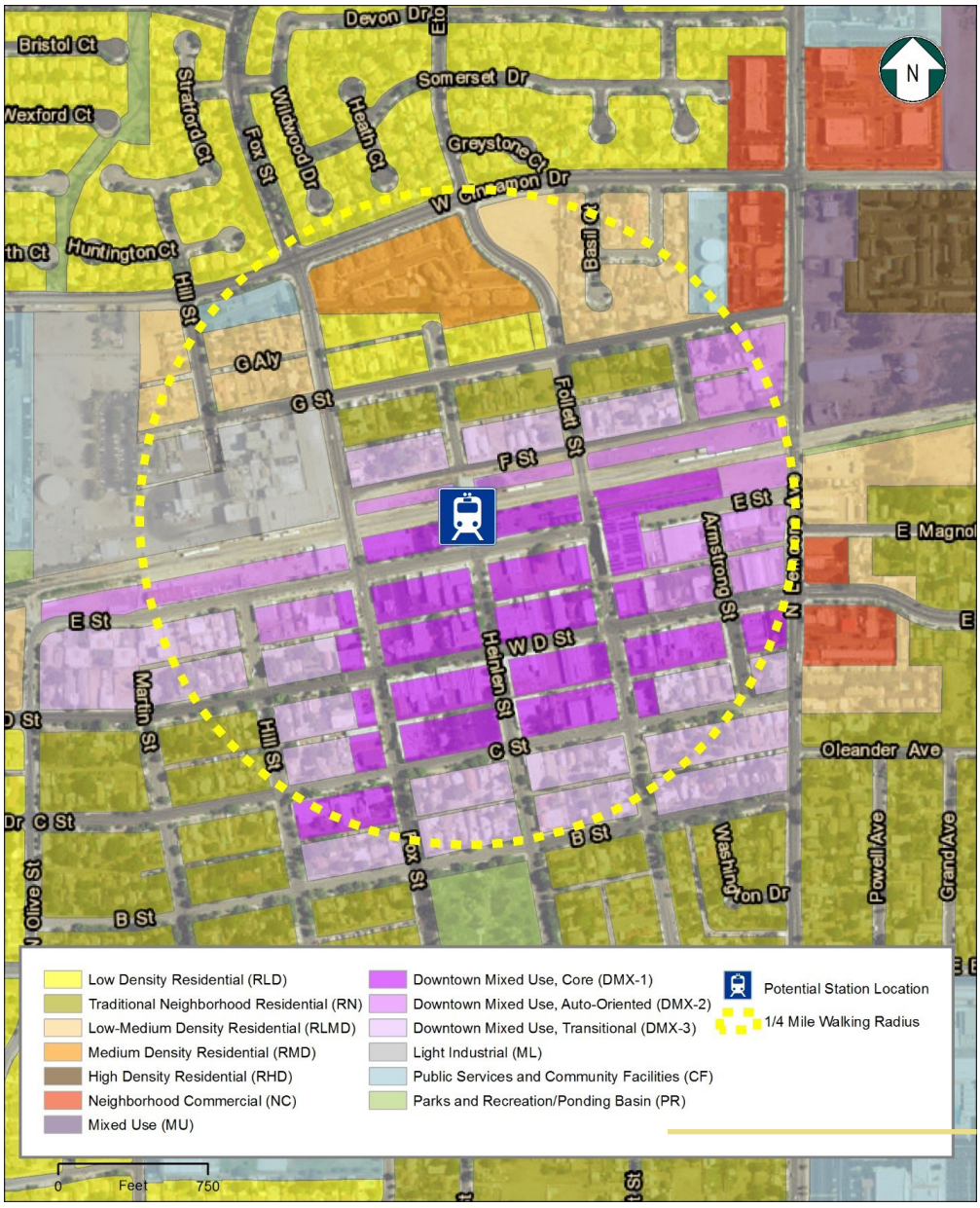


2.3.2.3 Lemoore

The proposed rail station site and surrounding area is zoned for downtown mixed use. Other properties north of the rail line and within a quarter mile radius are zoned for low to medium residential, neighborhood commercial, or light industrial uses. The station site is surrounded by retail, restaurants, and entertainment land uses including the multi-screen cinema. Several undeveloped opportunity sites are ripe for future development that compliment this area of the city. An arbor was constructed at the northeast corner of Follett and E Street that could continue to be used for farmers' markets. The immediate surrounding land uses include the railroad tracks and approximately four acres of undeveloped land to the north. The railroad station is adjacent to professional office and neighborhood commercial, and mixed residential uses to the north, mixed use to the south, light-industrial to the west, and greenway and mixed use designations to the east. The site needs pedestrian connections along Follett Street to connect the residential communities north of the railroad to downtown.

In 2003, the City relocated, reconstructed, and renovated the old Strathmore train depot on the south side of the tracks just north of E Street between Fox and Follett Streets, where Lemoore's old passenger and freight rail depot once stood. This building is the same year and type station as the previously demolished Southern Pacific rail depot. The intent of the project was to bring back a historic depot, provide a multi-modal component to the downtown area, house the Chamber of Commerce, and prepare for future passenger rail service along the line. In addition to the depot restoration, a shade structure was constructed nearby to accommodate future waiting rail passengers. The City's General Plan designates the railroad depot for future passenger rail through land use designations and policies.

Figure 2-11: Lemoore Zoning Map



Located within the downtown area, the depot is in a prime location to enhance the downtown area for future businesses, and visiting civilians and military personnel. A parking lot east of Follett Street is used by moviegoers to a multi-screen cinema. An additional one-and-two-thirds acre of vacant land are potentially available east of Follett Avenue.

2.3.2.4 Armona

Armona's connection to the SR 198 highway corridor, railroad line, and its central location between Hanford and Lemoore creates a potential for future multi-modal transportation options that could occur within the community. In the unincorporated community of Armona, several tracts of undeveloped land are located on both sides of the railroad track. The portion of undeveloped land that is being considered for the site of a future railroad station is south of the Railroad Avenue and Front Street intersection. Surrounding the potential site is sparse residential development and undeveloped land to the north and residential, undeveloped, and industrial development to the south. Located less than a mile to the west is the unincorporated community's downtown core (14th Avenue from Front Street to Highway Avenue). This central area consists of neighborhood-scale restaurants, an auto repair shop, gas stations, a barber shop, a grocery store, retail shops, and other commercial development. Churches and schools are centrally located and within a half-mile walk of the rail stop. In addition, several multifamily residential units are located along Railroad Avenue.

In Armona's Community Plan, the potential rail station site has a public open space designation to the east; multiple commercial and a medium high-density residential designation to the south; approximately 2.75-acres of downtown mixed use to the west; and, neighborhood commercial, medium-high density residential, and medium-density residential to the north. The Community Plan describes Armona's connection to the railroad line as an opportunity for the community to create future multi-modal transportation options.

An alternative site for a rail stop is located west of 14th Avenue and south of Front Street. 14th Avenue is an existing bicycle route. Sidewalks would be needed along Front Street, 14th Avenue, and Railroad Avenue so future passengers can walk safely to and from the proposed rail stop.

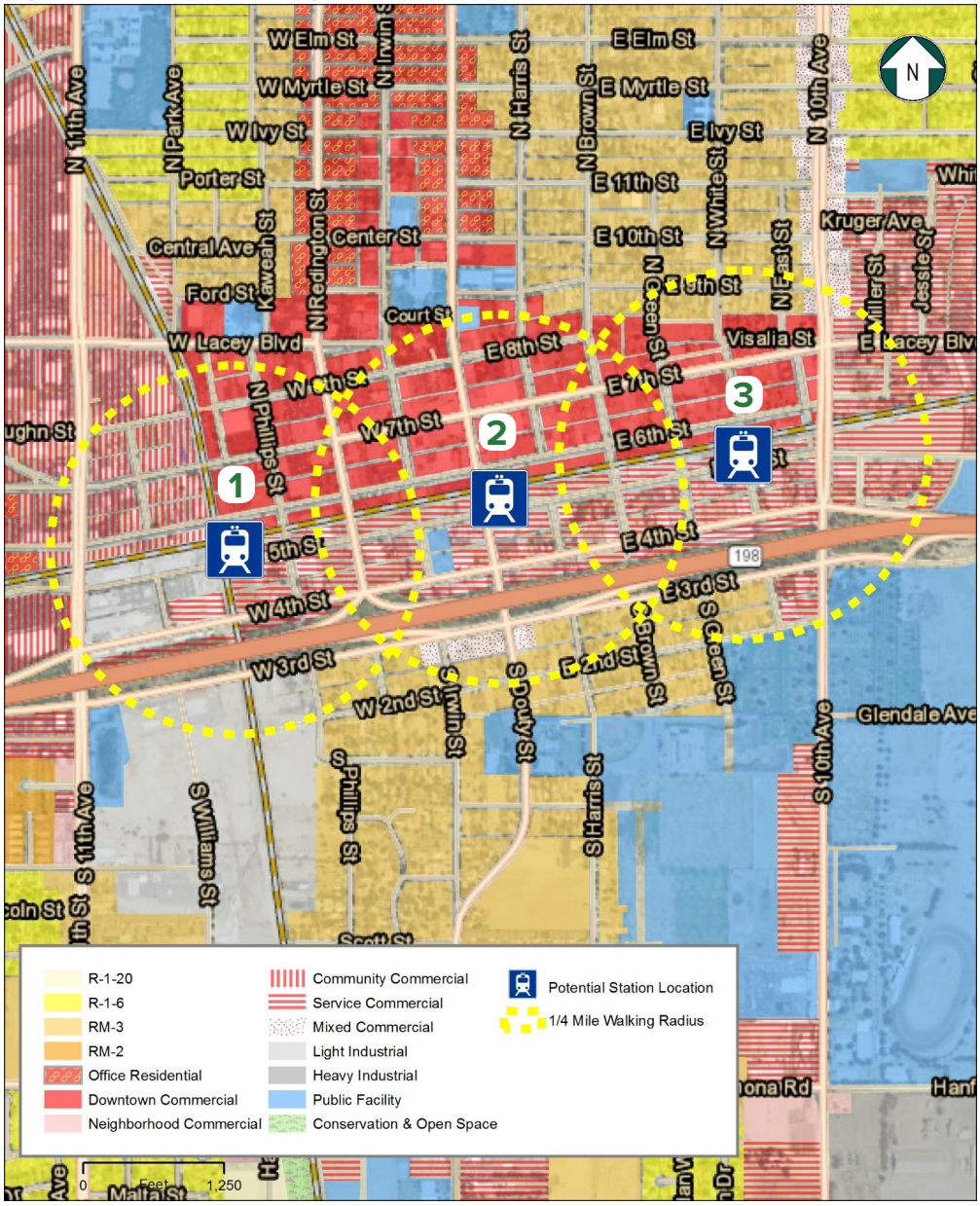
2.3.2.5 Hanford

The City of Hanford has an existing train and bus station located on the north side of West Seventh Street between Santa Fe Avenue and Williams Street in downtown Hanford. The original station built in 1897 is now the site of Amtrak. Hanford's station has been an Amtrak station since the first daily San Joaquin round-trip service began in 1974. This transit hub is the City's connector to the KART and Amtrak systems. The station is located 3.4 miles from the proposed high-speed rail station.

The 2035 General Plan designates the existing station and surrounding area as downtown mixed use. The existing station site is bordered by retail and office development south of Seventh Street, light industrial uses along both sides of Sixth Street one block to the south, shopping and office uses along the north side of Seventh Street, and more restaurants, commercial retail, and commercial service uses west of the station. Civic Center Park, City Hall, and the historic Hanford Fox Theater are located within a half mile from the station. The city's downtown is also the site of the popular Thursday Night Marketplace that runs from early May to late September and attracts local food vendors and growers and many Hanford residents and visitors to the area. Rental car agencies are located within a brief walk to the station. There are no mid- to high-density residential uses in the immediate area.

The rail line is located 600 feet south of the KART and Amtrak station. There are three possible sites for a railway platform or station and parking near the railroad line, as shown in Figure 2-12. The first is a one-third acre site adjacent to Sixth Street 600 feet south of the existing stations. An approximately two-thirds acre vacant site located at the northwest corner of Sixth Street and Phillips Street could provide space for a nearby small surface parking lot.

Figure 2-12: Hanford Zoning Map



A second site located at Douty Street between Sixth and Seventh Streets provides direct access to central downtown along Douty Street. The site has vacant land within 500-feet of the site. Civic Center Park, Civic Auditorium, City Hall, Carnegie Muse um, Kings County Library, and the Fox Theater are all within less than one-third mile from this possible stop. An undeveloped site at the northeast corner of East 7th Street and Harris Street has been identified as a potential parking structure in the Hanford Downtown East Precise Plan document. The site could serve to meet additional parking needs of the downtown uses and future station users as well as spur development east of the downtown core.

A third site is located within an area known as Downtown East at the intersection of White Street and the rail line. Vacant and underutilized parcels that represent opportunities for development are located close to this potential stop. The historic China Alley is less than a 650-foot walk from this alternative stop. This area of Hanford also includes a concentration of ethnic restaurants.

2.3.2.6 Kings/Tulare High-Speed Rail Station

The high-speed rail station is proposed to be located east of the City of Hanford approximately a half-mile east of State Route 43 and 2,000 feet north of Highway 198. Currently, this area is dominated by agricultural fields to the north and west and low density residential development southeast of the proposed site recently removed by the Authority. The proposed rail line is expected to parallel electrical power lines immediately to the east. The potential station location is located three-miles northeast of the downtown core of Hanford and could be served by the CVC system to connect high-speed rail users to the surrounding cities and communities.

The project includes two fully grade-separated tracks within a 60 to 120-foot right-of-way, associated facilities, and portions of existing surface streets that would be realigned or modified to cross the alignment. East of Hanford, the alignment would be largely at-grade, and the San Joaquin Valley Railroad, East Lacey Boulevard, and SR 198 would all be lowered.

2.3.2.7 Tulare County

Tulare County has two major regional highways, State Highway 99 and 198. State Highway 99 connects Tulare County to Fresno and Sacramento to the north and Bakersfield to the south. State Highway 198 connects from U.S. Highway 101 on the west and continues eastward to Tulare County, passing through the City of Visalia and into Sequoia National Park. The highway system in the county also includes other state highways such as SR 65 which connects Porterville to Exeter, county-maintained roads, and local streets within each of the corridor cities.

Tulare County is served by freight and passenger rail service. Union Pacific Railroad, Burlington Northern and Santa Fe (BNSF), and San Joaquin Valley Railroad (SJVR) all provide freight service to Tulare County, connecting the county with major markets within California and to other destinations north and east. Passenger rail service (six roundtrips daily) is provided by Amtrak on its San Joaquin service, with the nearest rail stations located in the cities of Corcoran and Hanford in Kings County. A bus connection to Amtrak's Hanford station originates at the Visalia Transit Center.

2.3.2.8 Goshen

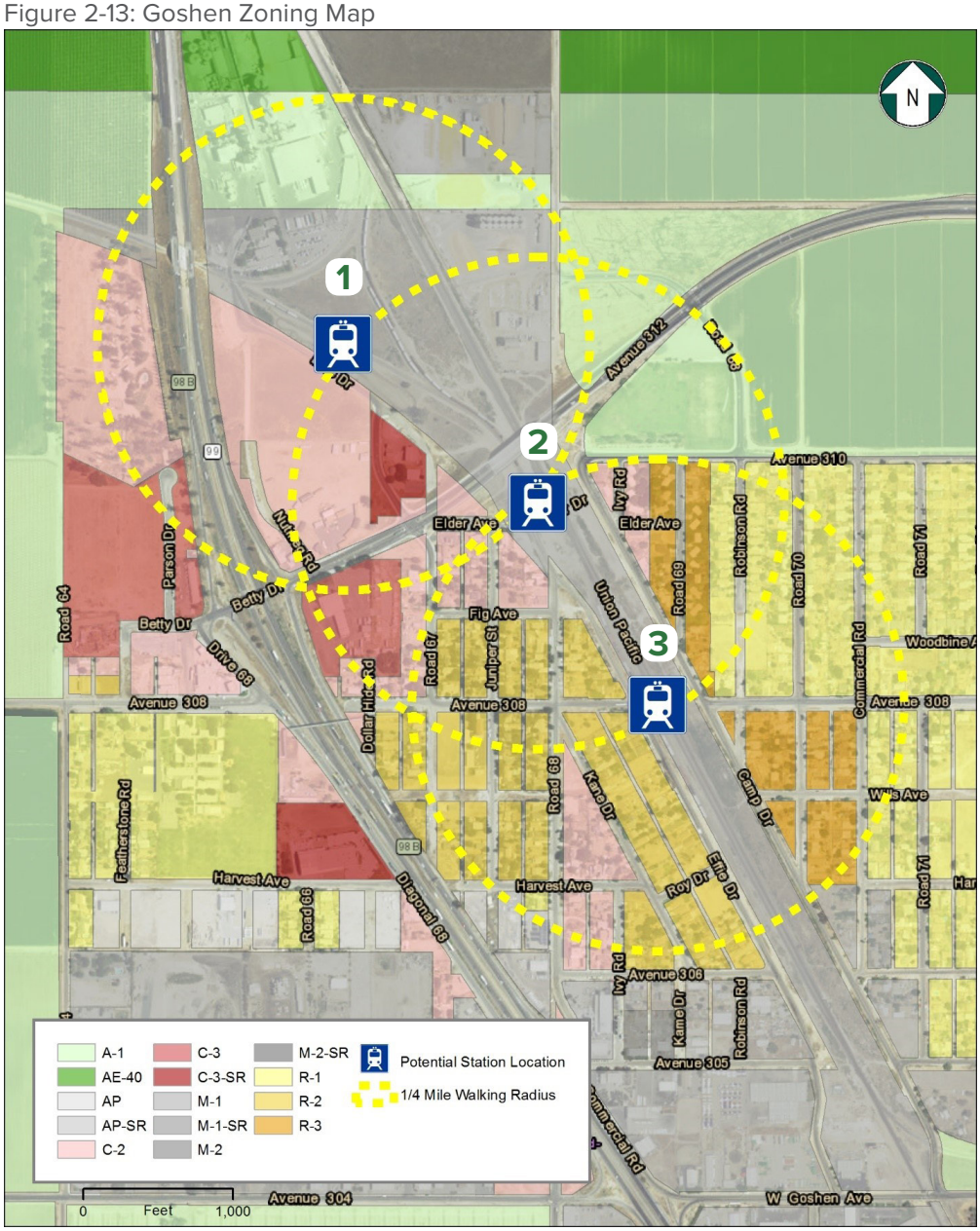
The unincorporated community of Goshen does not have an existing train or bus station that could be used as a future stop for the CVC system. Current bus service provides transit service from Goshen to the downtown Visalia bus transit center. Most of these trips originate in the residential areas of Goshen. Some bus service is provided to the businesses in Goshen west of SR 99. A specific site has yet to be identified for a future station; however, there is a large amount of undeveloped land along both sides of Betty Drive and both sides of the rail line. The 1995 Cross Valley Rail Feasibility Study identified a station site for the light rail corridor on vacant property at the corner of Avenue 308 and Camp Drive (see Option 3 on Figure 2-13). Only single-family residences are currently located in this area and the site is distant from any future planned commercial, multi-family residential or employment uses. Other alternative rail stop sites are identified in the paragraphs below.

In 1987, the Goshen Community Plan was approved but has not been updated since construction of the Betty Drive overpass at SR 99. Prior to construction

of the Betty Drive overpass, the community plan identified a community commercial area at Avenue 308 between Road 72 and Road 76. In February 2014, a Transportation and Community Plan was prepared, with considerable input from the local community, but not yet adopted. The community preferred alternative, Plan A, which identified a town center at the intersection of Riggin Avenue and Road 72. The plan also identified a highway commercial and employment center area on the west side of SR 99 and mostly north of Betty Drive. The 2014 plan reflected the new overpass. Construction of the overpass and widening of Betty Drive and Riggin Road was completed in 2015. The Betty Drive interchange is planned for reconstruction, but the new interchange configuration will not affect the rail alignment. The plan did not address the likelihood of the Cross Valley rail or a light rail transit stop.

Two potential sites were identified in addition to the site at Avenue 308 and Camp Drive (Option 3). A site at the intersection of Camp Drive and Avenue 310 (see Option 2 on Figure 2-13) is adjacent to a neighborhood park and within walking distance of future planned community commercial land uses. The Goshen Village Apartments are within a half mile of this potential rail stop. A third location (Option 1) would be on the west side of the rail line, east of Nutmeg Road/Effie Drive, and north of Betty Drive. Access would be from Nutmeg Road at Betty Drive. This location would be closer to most of the existing employment uses.

Figure 2-13: Goshen Zoning Map



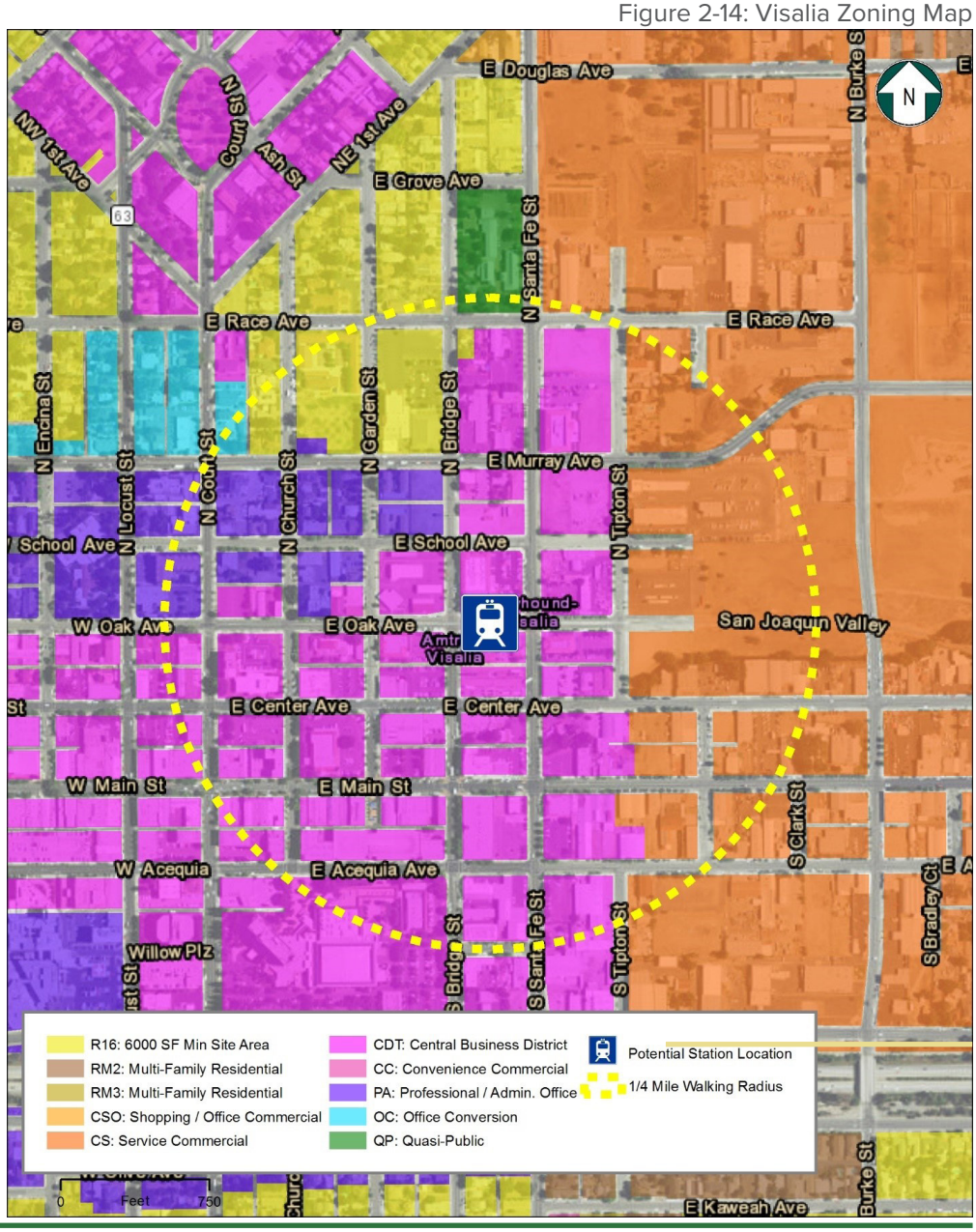
2.3.2.9 Visalia

The City of Visalia's transit center in the downtown core is bordered by East Oak Avenue to the north, North Bridge Street to the west, East Center Avenue to the south, and North Santa Fe Street to the east. The transit center, represented in Figure 2-14, is well established and has several transit user amenities including shade structures, outdoor seating, snack and beverage bar, and bicycle facilities. The surrounding area includes downtown commercial development and public facilities including the Visalia Chamber of Commerce, a family health care facility, children's museum, worship facilities, restaurants, and a multiscreen cinema which is located one block south. The convention center and hotels are located within a half mile from the transit center. Numerous vacant development opportunity sites are located within a half mile from the transit center and mostly north, northeast, and east of the station. The City's General Plan designates this transit center and the surrounding area as downtown mixed use. The city has also considered their current City Administration building across the street from the transit center as a possible future rail station.

If Visalia were to have more than one station, another location under consideration is located near the intersection of Ben Maddox Road and K Road for a future transit stop. Currently the intersection contains undeveloped land with single-family homes and a senior living establishment in the surrounding area. The rail tracks run along the north side of K Road and cross Ben Maddox Road just north of the intersection. The General Plan designates this area as low density residential. This area would create opportunities for future neighborhood commercial development and transit access to residents living further away from the downtown core area. An assisted living development and some multi-family residential facilities are located in the area. Bus service to this area is currently available should the idea of a light rail stop be viewed as unfavorable.

If Visalia were to have a location in its industrial park, a location being considered is along Goshen Road which parallels the rail line in the northwestern portion of the city. This site is not an alternative to the downtown location. This major employment area is south of Riggin Road,

Figure 2-14: Visalia Zoning Map



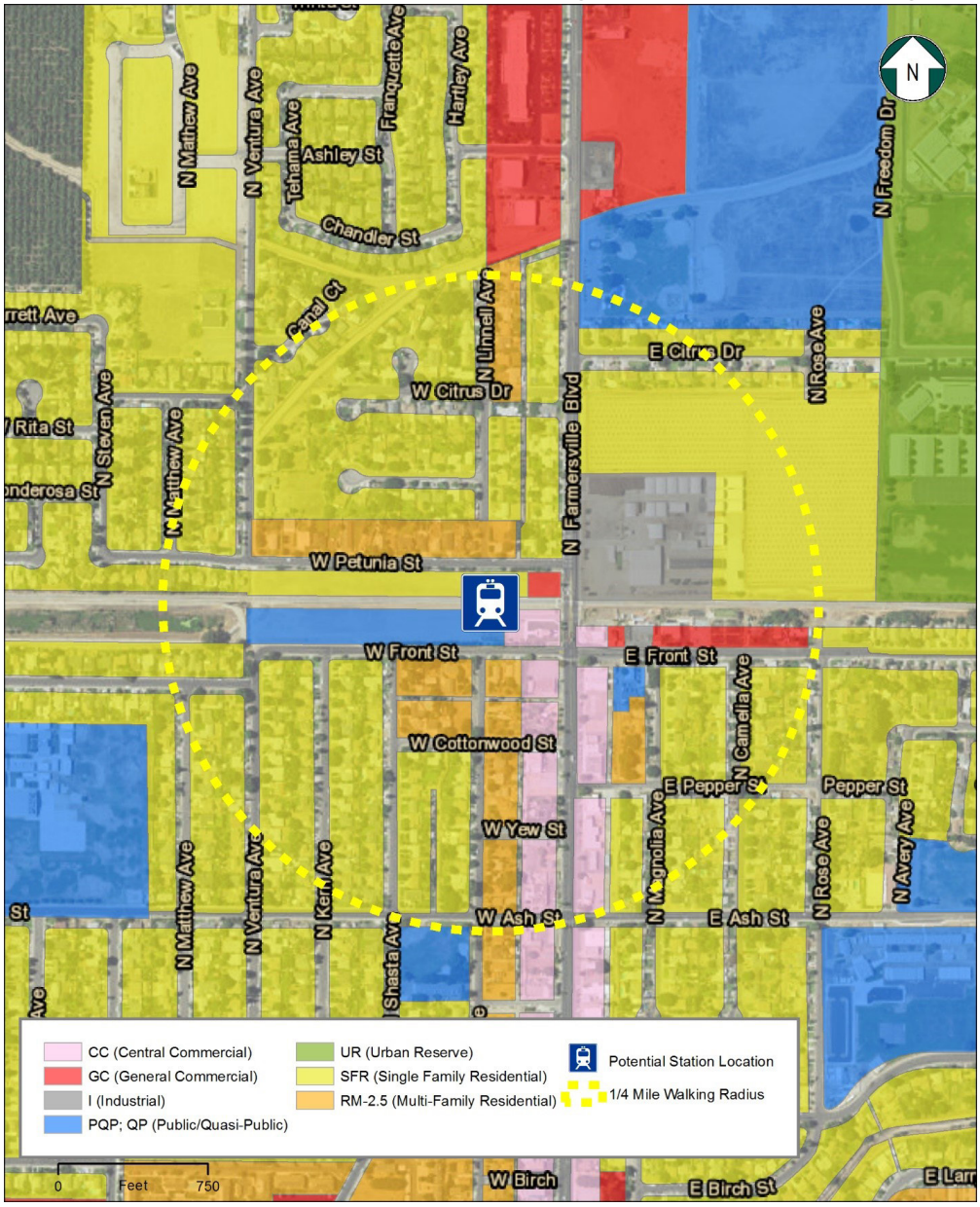
north of SR 198, and west of Shirk Road. Approximately 20,000 employees work in the industrial sector of Visalia. Visalia has a world class industrial park that houses companies such as JoAnn Stores, VF Corporation, Jostens, VWR, and California Dairies. Agriculture and related food processing and distribution remain at the heart of the local industry, while light manufacturing and industrial/ commercial distribution represent the fastest growing portion of Visalia's employer base. Visalia is home to trucking and shipping companies that provide local and long-haul services, including UPS, Golden State Overnight, OnTrac, and Mountain Valley Express. A station site in this employment center could provide alternative transportation opportunities for commuters. Several sites could be considered along the rail line between American Street and Plaza Drive. Bus service to this area is currently available should the idea of a light rail stop be viewed as unfavorable.

A potential area for a connector bus stop would be the Visalia Municipal Airport providing service from the Cross Valley system to the airport. The airport was reclassified as a general aviation airport by the Federal Aviation Administration, and commercial service ended at Visalia Airport in January 2016. A commercial service airport requires a minimum of 2,500 annual passengers per year. Visalia Municipal Airport had 1,831 passengers in 2010 and; thus, no longer were able to receive federal grants under the Airport Improvement Program.

2.3.2.10 Farmersville

Figure 2-15: Farmersville Zoning Map

Built in the 1880s, the chapel of the former Farmersville Methodist Church was rolled to Farmersville on logs, with horses pulling it, in approximately 1902. It was established on Farmersville Boulevard just south of Visalia Road, also known as the "Four Corners" around 1947. It was later moved to its current location at the intersection of West Front Street and Farmersville Road. A rail stop is being considered on a portion of the undeveloped lot west of the church museum, shown in Figure 2-15. Currently, that space is being considered for a future fire station. The site is approximately 3.7 acres so there would be adequate room, at a minimum, for a new fire station, railroad station, and parking lot. The site is surrounded by low-density residential development to the north and south, a



neighborhood commercial development to the east, and a drainage basin to the west.

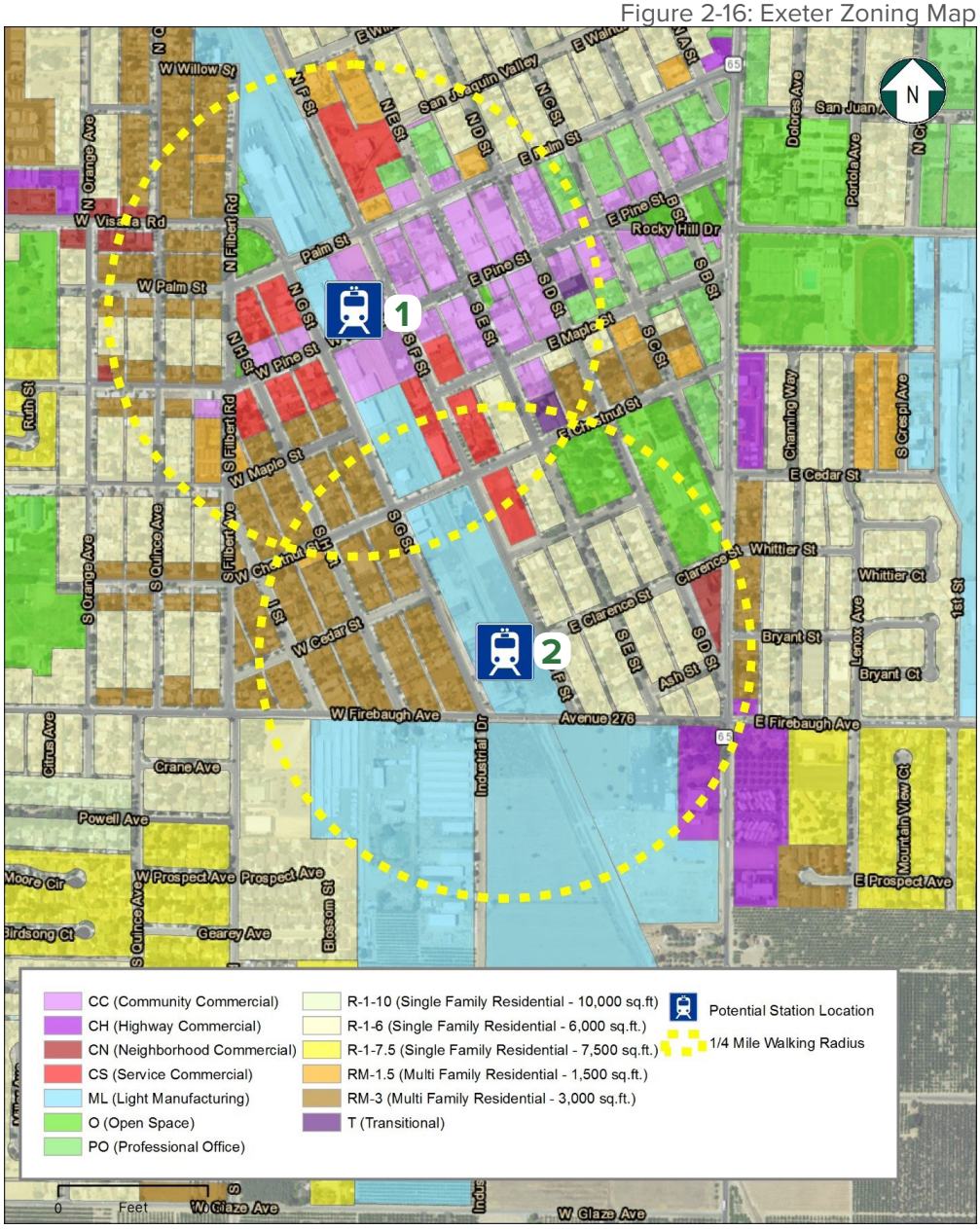
The site is zoned for Public/Quasi Public uses north of Front Street and the vacant parcels south of Petunia Street are zoned for Single Family Residential uses.

The perimeter of the block has a pedestrian system in place with sidewalks and shade trees. Additionally, bus stops are located along Farmersville Road - a short walking distance from the rail stop site. There is a landscaped median on Farmersville Road with a banner displaying upcoming City events. This area is very pedestrian friendly and has the potential to grow as a multi-modal hub for the City of Farmersville. National Raisin Company and the Farmersville Dehydrator and orchards are located on approximately 22-acres east of Farmersville Road and north of the railroad. This site has the potential for long term development opportunities. Approximately three acres of vacant land is located north of the site across the railroad line. This parcel has new sidewalks and street trees.

2.3.2.11 Exeter

The City of Exeter's downtown and older residential neighborhoods are contained within a triangular area that is formed by the Southern Pacific Railroad on the west, the Visalia Electric Railroad on the north, and State Route 65 (Kaweah Avenue) on the east. One potential rail station (Option 1 on Figure 2-16) identified for the Cross Valley System is an expansion of the City's existing Chamber of Commerce building and open space area. The Chamber of Commerce building is adjacent to recreational open space areas to the north and south. Directly across F Street from the existing building are downtown commercial development and public facilities. Beyond the open space to the northwest is an undeveloped lot that could potentially serve as a parking lot or expansion of the transit facility. Further northwest is an 18-unit multiple family complex and industrial uses at the corner of F Street and Palm Avenue. To the east of F Street lies the City of Exeter's downtown

Figure 2-16: Exeter Zoning Map



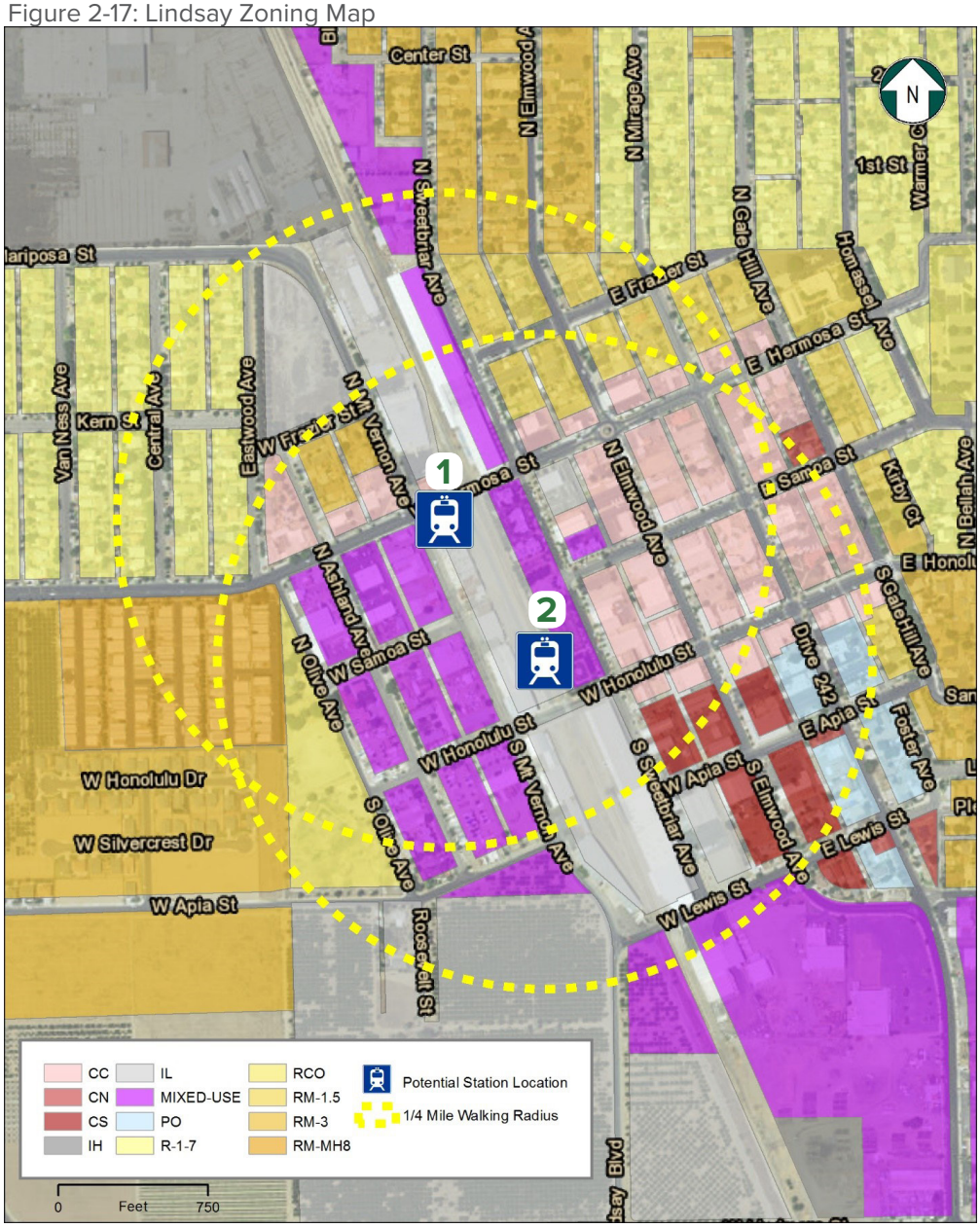
area. On the commercial buildings across F Street is a mural depicting Exeter's railroad history, which would serve to promote the symbolic nature of the future transit hub.

A second site (Option 2 on Figure 2-16) being considered is roughly 3.5 acres of vacant property located south of Chestnut Street, west of F Street, east of the railroad and north of Firebaugh Avenue. Single family residential uses are located east of the subject property. There are more than thirty acres of vacant or underutilized properties south of Firebaugh Avenue on both sides of the railroad line that could also be an area for future development. Industrial zoned property, packing houses, mini-storage, a bakery, a repair shop, and a hotel are located south of the subject property.

2.3.2.12 Lindsay

Within the City of Lindsay, two sites have been identified as potential rail station sites, as shown in Figure 2-17. The Sweetbriar Avenue and Honolulu Street location is an existing city park within the City's downtown core area. The site is a block from the McDermott Fieldhouse, a renovated packing house adapted to be the area's recreation center. To the north there is multiple-family residential development and to the east are downtown commercial, professional office, and public facility development. To the south and west is light industrial development.

Figure 2-17: Lindsay Zoning Map



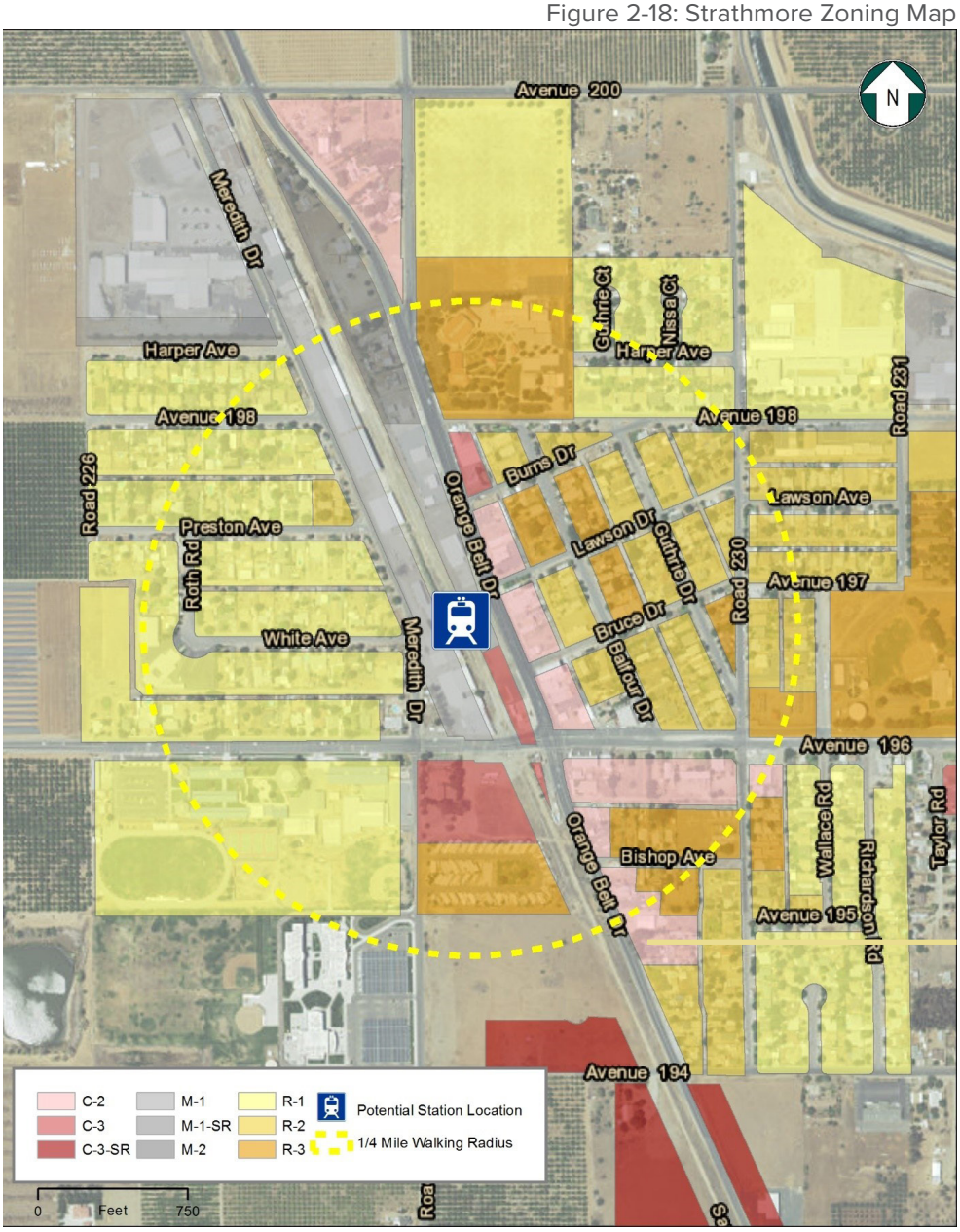
Existing packing house facilities at a nearby site east of Mt. Vernon and south of Hermosa Street could be renovated similarly to the McDermott Fieldhouse, to become the site of a transit center. The site is zoned for light industrial uses. Other zoning in the vicinity of this site includes mixed use to the west and commercial service to the northwest.

Several vacant sites are located along the rail line including a triangular-shaped parcel zoned for light industrial uses approximately 600-feet northwest of downtown. The site has roadways along all three sides. Approximately 1,800-feet southwest of City Hall and adjacent to the railroad are other vacant sites currently zoned for mixed use and heavy industrial uses.

2.3.2.13 Strathmore

Strathmore once had a rail station that included a passenger waiting room, freight room, office, and baggage room. The station was purchased by the City of Lemoore and moved in 2003, and the line was abandoned. Strathmore no longer has a bus or rail station; however, there is a vacant lot north of Avenue 196 (Frazier Highway) and west of Orange Belt Drive. The surrounding area, shown in Figure 2-18, includes a variety of service commercial development and residential uses. Two bus stops are located on Orange Belt Drive near the proposed rail station site. Large areas of undeveloped lots are located throughout the community which presents opportunities to develop the site and the surrounding area into a multi-modal transit-oriented hub. The Strathmore Community Plan designates the proposed site as neighborhood commercial land use and the surrounding area as public facility, neighborhood commercial, and general commercial uses. The Community Plan also includes a policy for high-density residential development (greater than 14 dwelling units per gross acre) along transit routes.

Figure 2-18: Strathmore Zoning Map



2.3.2.14 Porterville

Porterville was historically connected to Fresno and Bakersfield via two railway lines which primarily transported lumber and agricultural produce and goods. Since trucking became more economical, usage diminished, and the railroad discontinued operations to Porterville. The Southern Pacific right-of-way was abandoned and the City considered converting it to a trail. In 2008, the Surface Transportation Board approved the abandonment of the section of track between Strathmore and Porterville. Tulare County ended negotiations with San Joaquin Valley Railroad (SJVR) to purchase this section of track to preserve it for future use and possible reactivation. However, beginning in September 2010, the tracks were removed by the SJVR and the entire line was pulled up by November. The SJVR, a subsidiary of RailAmerica, owns the service rights to the Union Pacific right-of-way. It is the City's goal to maintain the remaining railroad right-of-way. The right-of-way may allow opportunities to transition the rail to passenger-carrying operations as a part of a regional light rail system.

Figure 2-19: Porterville Zoning Map

The existing bus station, shown in Figure 2-19, is located on the southeast corner of North D Street and West Oak Avenue in downtown Porterville. Located two blocks west of Main Street, this area serves as the City's downtown core. To the north along D Street and less than a quarter mile from the bus station, older historic and architecturally notable residences have been converted to office use. Some homes in the area could be converted to office use within a walking distance to the transit center. Public facilities, commercial development including Smiths Town Square Shopping Center to the south, and high-density residential complexes surround the bus station. The shopping center has a vacant mid-box store looking for, or in need of a tenant. Proximity to a rail station could benefit this property.

Vacant and underutilized buildings are located in the downtown area. These buildings are aging and in need of rehabilitation, adaptive reuse, or replacement. Directly across North D Street, east of the existing bus station and adjacent to the abandoned rail line, is a vacant commercial building that could potentially be converted to a rail station facility.

The existing bus station and nearby vacant building are designated as downtown retail land uses and are surrounded by other downtown retail and mixed use designations in the City's Community Plan. Across the rail right-of-way is light-industrial designated use.

2.3.2.15 Dinuba

The existing Dinuba Transit Center would serve as a bus connector stop for the CVC system. Dinuba Area Regional Transit (DART) provides local bus service in the City of Dinuba. It connects with Tulare County Area Transit and FCRTA. DART provides service to and from Dinuba and Reedley. DART also offers free service on the Jolly Trolley which provides access to popular shopping destinations in the city. The City of Dinuba's transit center was recently constructed in April 2014 and offers a lobby, conference room, space for a future dispatch center, and transit staff offices. The center is located at the northeast corner of the West Merced Street and North M Street intersection. For the CVC system, the Dinuba transit center would serve as a bus connector to Visalia.

The surrounding area includes light-industrial uses along M Street adjacent to the railroad, residential development, public facilities, commercial uses, and professional offices. New multifamily housing is across Merced Street northwest of the station. A three-quarter acre park and parking lot are located north across the alley from the station. A used automobile sales lot is two blocks east of the station. Most of the land north of the existing railroad right-of-way and near the station is developed. Most of the vacant properties are south of the railroad. The railroad is 400-feet from the station and connects the City of Reedley to the City of Exeter. The City's central downtown core is several blocks to the east and northeast of the Dinuba transit station.

2.3.2.16 Tulare

The existing Tulare bus station would serve as a bus connector stop for the CVC system. A Tulare Transit Center and a Greyhound station are located along K Street and L Street, south and adjacent to the Tulare Santa Fe Trail, and north of East San Joaquin Avenue. This station is located in the downtown core with a variety of commercial development and public facilities within walking distance. The Tulare Public Library, Tulare County Government Offices, Tulare Adult School, dental and medical offices, insurance and property management offices, credit unions, restaurants, and personal services are within 1,000-feet of the transit center. Vacant properties are located 2 blocks west of the station along both sides of the railroad. Some of this area is used for storm water basins.

The Santa Fe Trail is a five-mile, lighted trail from Prosperity Avenue (east) to Inyo Avenue (west). The Santa Fe Trail in Tulare is planned to connect through Tulare County to the Santa Fe Trail in Visalia which begins at Avenue 272 and ends at Tulare Avenue.

2.3.2.17 Woodlake

The City of Woodlake transit center could serve as a bus connector stop for the Cross Valley system. The station is located at the southwest corner of Magnolia Street and Lakeview Avenue. The station is surrounded by diverse commercial development and public facilities. The station is located within 200-feet of a shopping center, 200-feet of the U.S. Post Office, and across the street from multifamily housing. There are numerous vacant or underutilized parcels ranging in size from one-tenth acre to one-acre within a quarter mile of the bus station.

2.4 Demographics and Economic Trends

This section provides an overview of the existing demographic and economic landscape of the CVC Study Area (defined as Kings County, Tulare County, and the City of Huron). In addition to the Study Area, the section includes focused data and analysis on the communities that have been considered as potential CVC station locations (referred to as Potential Station Area Communities).

2.4.1 Demographics

Historical and projected population growth in the study area and proposed CVC station cities and communities is summarized in Table 2-7. Overall, the counties and communities that compose the study area have slightly over 620,000 residents, which is less than 2 percent of the State population. However, the region has been growing faster than the State as a whole over the last 16 years, with 24 percent total growth in the region since 2000 compared to 16 percent State-wide total growth. This is partly attributable to a lower baseline population count and more abundant development opportunities due to land availability.

The Study Area population is projected to add over 550,000 residents by 2035 based on TCAG data (note this projection is subject to change based on more recent Department of Finance data). If realized, this level of population growth represents an increase of nearly 90 percent over current levels, or an average annual growth rate of about 3.4 percent. As a point of comparison, the Study Area has exhibited average annual growth rates of approximately 1.5 percent over the last 16 years, or an increase of about 122,000 residents. Regardless of whether future population growth reflects historical patterns or TCAG projections, in the next 20 years the CVC would serve a much larger population than currently exists.

The communities identified as potential Cross Valley station locations represent about 67 percent of total Study Area population, up from about 60 percent in 2000. This suggests that these communities have been growing faster than the Study Area as a whole. TCAG projections suggest that future growth patterns may reverse this trend slightly with more growth forecasted in many of the smaller and/or unincorporated areas than recent patterns. Of course, actual outcomes will depend on market considerations as well as local land use policies and planning.

There are also noteworthy differences in the nature and composition of the housing stock in the Study Area, as shown in Table 2-8. Specifically, the Study Area has a higher share of single family housing as compared to the State-wide average (78 percent compared to 65 percent) but similar home ownership rates. These results are likely attributable to relatively low land costs in the Study Area that reduce the economic advantages of higher density housing. Overall, home ownership rates in the Study Area are comparable to State (and national) levels

Table 2-7: Study Area Historical and Projected Population Growth

Location	Population			Growth Trends					
				2000-2016			2016-2035		
	2000	2016	2035	#	% Δ	Rate	#	% Δ	Rate
Huron	6,306	6,754	7,254	448	7%	0.4%	500	7%	0.4%
Kings County	**129,461**	**152,982**	**297,933**	**23,521**	**18%**	**1.0%**	**144,951**	**95%**	**3.6%**
Lemoore	19,712	26,199	48,111	6,487	33%	1.8%	21,912	84%	3.3%
Armona	3,239	4,156	6,440	917	28%	1.6%	2,284	55%	2.3%
Hanford	41,687	55,840	90,000	14,153	34%	1.8%	34,160	61%	2.5%
Sub-Total / Avg. Potential Station Area Communities	**64,638**	**127,195**	**144,551**	**62,557**	**97%**	**4.3%**	**17,356**	**14%**	**0.7%**
Comparison to County / Share of County	50%	83%	49%	266%	533%	412%	12%	14%	19%
Tulare County	**368,021**	**466,339**	**877,424**	**98,318**	**27%**	**1.5%**	**411,085**	**88%**	**3.4%**
Goshen	2,394	3,006	8,797	612	26%	1.4%	5,791	193%	5.8%
Tulare	43,994	63,515	97,000	19,521	44%	2.3%	33,485	53%	2.3%
Dinuba	16,844	24,657	45,939	7,813	46%	2.4%	21,282	86%	3.3%
Visalia	91,891	130,231	250,864	38,340	42%	2.2%	120,633	93%	3.5%
Farmersville	8,737	11,161	13,513	2,424	28%	1.5%	2,352	21%	1.0%
Exeter	9,168	11,047	14,648	1,879	20%	1.2%	3,601	33%	1.5%
Woodlake	6,653	7,648	14,095	995	15%	0.9%	6,447	84%	3.3%
Lindsay	10,297	12,960	14,811	2,663	26%	1.4%	1,851	14%	0.7%
Strathmore	2584	2819	3,666	235	9%	0.5%	847	30%	1.4%
Porterville	39,615	60,070	76,523	20,455	52%	2.6%	16,453	27%	1.3%
Sub-Total / Avg. Potential Station Area Communities	**232,177**	**327,114**	**539,856**	**94,937**	**41%**	**2.2%**	**212,742**	**65%**	**2.7%**
Comparison to County / Share of County	63%	70%	62%	97%	153%	145%	52%	74%	79%
California Total	**33,871,648**	**39,255,883**	**NA**	**5,384,235**	**16%**	**0.9%**	**NA**	**NA**	**NA**
Study Area Total[1]	**503,788**	**626,075**	**1,182,611**	**122,287**	**24%**	**1.4%**	**556,536**	**89%**	**3.4%**
Study Area Total as Share of State / Comparison	1.5%	1.6%	NA	2%	153%	148%	NA	NA	NA
Total Potential Station Area Communities[2]	**303,121**	**420,063**	**691,662**	**116,942**	**39%**	**2.1%**	**271,599**	**65%**	**2.7%**
Potential Station Area Communities as Share of Total / Comparison	60%	67%	58%	96%	159%	151%	49%	73%	78%

[1]Sum of County Totals and Huron

[2]Sum of individual jurisdictions, less County

Source: CA DOF, 2010-2014 American Community Survey, 2000 Census, Zillow Home Value Data, Economic & Planning Systems, Inc.

at about 56 percent, consistent with its role as a relatively affordable housing market.

The average home values in the CVC are well below statewide average home values. Specifically, the Study Area median home value (based on sales data) of about $180,000 is relatively lower compared to the State median of about $480,000. However, it is worth noting that median home values for Proposed Station Area Communities are higher than the Study Area as a whole. The cities of Visalia, Lemoore, and Exeter are particularly high performers.

The potential for increased higher density housing going forward will depend on the interplay between regional economic growth (e.g. population and employment), land availability, and home values. All things equal, a successful CVC will likely improve the competitive attributes of TOD, which tends to support higher density environments. However, substantial residential TOD will also likely require real appreciation in home values and rents to catch up with statewide averages.

Table 2-8: Study Area Housing Inventory

Location	Housing Units		Share Owner-occupied	Median Home Value
	Total	% Single Family		
Huron	1,789	50%	31%	$135,700
Kings County	**45,276**	**78%**	**52%**	**$177,200**
Lemoore	9,123	74%	53%	$205,200
Armona	1,027	89%	51%	$135,200
Hanford	19,298	77%	57%	$184,800
Sub-Total / Avg. Potential Station Area Communities	**29,448**	**77%**	**56%**	**$188,609**
Comparison to County / Share of County	65%	99%	107%	106%
Tulare County	**146,949**	**78%**	**57%**	**$179,700**
Goshen	922	92%	52%	$107,500
Tulare	19,751	81%	58%	$175,300
Dinuba	6,549	76%	53%	$178,400
Visalia	46,253	79%	60%	$206,600
Farmersville	2,781	84%	61%	$141,400
Exeter	3,646	83%	60%	$195,200
Woodlake	2,167	74%	59%	$156,000
Lindsay	3,431	72%	48%	$160,400
Strathmore	825	67%	35%	$146,100
Porterville	17,934	74%	57%	$168,100
Sub-Total / Avg. Potential Station Area Communities	**104,259**	**78%**	**58%**	**$184,272**
Comparison to County / Share of County	71%	100%	101%	103%
California Total	**13,981,826**	**65%**	**56%**	**$479,600**
Study Area Total[1]	**193,147**	**78%**	**56%**	**$178,620**
Study Area Total as Share of State / Comparison	1.4%	120%	100%	37%
Total Potential Station Area Communities[2]	**134,629**	**77%**	**57%**	**$184,381**
Potential Station Area Communities as Share of Total / Comparison	70%	99%	102%	103%

[1]Sum of County Totals and Huron

[2]Sum of individual jurisdictions, less County Totals

Source: CA DOF, 2010-2014 American Community Survey, 2000 Census, Zillow Home Value Data, Economic & Planning Systems, Inc.

As illustrated in Table 2-9, households within the CVC tend to be larger but less affluent than the State as a whole. Specifically, median household incomes are estimated at $43,800, which is 70 percent of the statewide median of $61,500. Additionally, household size is nearly 15 percent higher in the Study Area with an average of 3.4 persons per household as compared to the statewide average of 3 persons per household. Meanwhile, most of the CVC communities are slightly smaller and more affluent than the average for the Study Area as a whole.

2.4.2 Employment and Commute Patterns

The level and composition of employment within the study area will have implications on potential future ridership for the CVC. For one, employment growth can influence commute patterns which in turn will have important implications on the potential for various Cross Valley rail stations to support ridership. In addition, certain economic sectors may be likely to benefit from improved transit connectivity than others.

Table 2-9: Median Income and Household Size

Location	Median Hsld. Mean	Median	Avg. Person / Hsld.
Huron	$37,080	$28,896	4.26
Kings County	**$63,381**	**$47,341**	**3.17**
Lemoore	$68,397	$52,701	2.99
Armona	$41,605	$38,622	3.68
Hanford	$67,076	$53,543	3.03
Sub-Total / Avg. Potential Station Area Communities	**$66,249**	**$52,568**	**3.05**
Comparison to County / Share of County	105%	111%	96%
Tulare County	**$58,798**	**$42,863**	**3.43**
Goshen	$44,672	$38,162	4.26
Tulare	$59,421	$46,387	3.40
Dinuba	$47,151	$38,509	3.89
Visalia	$68,047	$52,262	3.04
Farmersville	$44,269	$32,455	4.17
Exeter	$59,570	$41,341	3.11
Woodlake	$44,396	$35,509	3.78
Lindsay	$39,889	$30,198	3.96
Strathmore	$40,588	$26,250	3.72
Porterville	$56,537	$41,267	3.46
Sub-Total / Avg. Potential Station Area Communities	**$59,466**	**$45,401**	**3.37**
Comparison to County / Share of County	101%	106%	98%
California Total	**$86,704**	**$61,489**	**3.0**
Study Area Total[1]	**$59,684**	**$43,807**	**3.4**
Study Area Total as Share of State / Comparison	69%	71%	114%
Total Potential Station Area Communities[2]	**$60,498**	**$46,606**	**3.3**
Potential Station Area Communities as Share of Total / Comparison	101%	106%	98%

[1]Sum of County Totals and Huron

[2]Sum of individual jurisdictions, less County Totals

Source: CA DOF, 2010-2014 American Community Survey, 2000 Census, Zillow Home Value Data,

As summarized in Table 2-10, the study srea has slightly more employed residents (184,000) than it does jobs (about 172,000), suggesting that it serves as a bedroom community for some and employment destination for others. Only one community, Visalia, currently serves as a major employment hub with more jobs than employed residents. Overall, the proposed CVC communities have relatively high employment concentrations, combining to total nearly 70 percent of the study area's jobs. These concentrations suggest that some of the proposed CVC stations could support local commute patterns.

Table 2-11 provides more detailed data on the existing origin and destination of work-based trips in the atudy area. As shown, roughly 36 percent of the atudy area's employed residents commute outside of the area (Kings County, Tulare County, and Huron) for work. Additionally, about 32 percent of jobs in the study area are filled by commuters that live outside the study area . Top Work destinations include Fresno County (12 percent of Study Area residents), Kern County (6 percent of study area residents), and Los Angeles County (4 percent of study area residents). These longer commutes suggest that improved connectivity amongst the Counties, as would be facilitated by California High-Speed Rail, could aide commutes for many residents and employees in Kings and Tulare Counties.

Table 2-10: Jobs and Employed Residents

Location	Total Jobs	Employed Residents	Net Outflow (Inflow)[1]
Huron	480	1,391	911
Kings County	**35,854**	**42,239**	**6,385**
Lemoore	4,635	7,744	3,109
Armona	478	1,218	740
Hanford	14,237	17,810	3,573
Sub-Total / Avg. of Potential Station Area Communities	**19,350**	**26,772**	**7,422**
Comparison to County / Share of County	54%	63%	116%
Tulare County	**136,082**	**140,134**	**4,052**
Goshen	1,105	446	(659)
Tulare	14,610	19,077	4,467
Dinuba	6,044	7,475	1,431
Visalia	48,700	43,149	(5,551)
Farmersville	1,227	3,119	1,892
Exeter	3,621	3,823	202
Woodlake	1,034	2,306	1,272
Lindsay	2,755	3,749	994
Strathmore	499	1,074	575
Porterville	16,010	17,492	1,482
Sub-Total / Avg. of Potential Station Area Communities	**95,605**	**101,710**	**6,105**
Comparison to County / Share of County	70%	73%	151%
Study Area Total[2]	**172,416**	**183,764**	**11,348**
Potential Station Area Communities[3]	115,435	129,873	14,438
Comparison to Total / Potential Station Area Communities as Share	67%	71%	127%

[1]Net outflow is a measure of Emplyed Residents, less Total Jobs. Negative numbers reflect net inflows (when Total Jobs > Employed Residents)

[2]Sum of County Totals and Huron

[3]Sum of individual jurisdictions, less County totals

Source: LEHD, 2010-2014 ACS, Economic & Planning Systems

Looking more closely at internal commute patterns, the communities being considered for CVC stations capture about 28 percent of all worker based inter-regional travel. This suggests that there are strong internal commute connections between these communities that could potentially be complimented by improved cross valley transit connections. In terms of commute mode, the study area is relatively comparable to the state average with 75 percent of workers driving alone. Over 12,000 households in the study area, or roughly 8 percent, do not own any cars, as seen in Table 2-15.

In terms of job composition, the study area remains heavily dependent on agricultural sectors which combine for slightly over 20 percent of total employment. Indeed, available data suggest that the study area accounts for about 10 percent of the total agricultural sectors in California, highlighting the economic significance of this sector both regionally and in the state. For the most part, agricultural-sector jobs are poorly correlated with transit ridership, especially commuter rail, since they tend to be geographically distributed rather than concentrated. However, further analysis is needed to determine how this general trend might apply more locally. Meanwhile, about 16 percent of the study area employed in Retail, accommodations, and food services would likely benefit by improved transit access since those jobs are most often clustered in commercial nodes near the city-center.

Table 2-11: Commute Patterns

Location	In-Commute[1]		Out-commute[2]		Internal Commute		Study-Area Captured Out-Commute[3]		Commute Destinations			
	#	%	#	%	#	%	#	% of out-commuters	Out-commutes from Study Area #	Out-commutes from Study Area %	In-Commute from Outside Study Area #	In-Commute from Outside Study Area %
Huron	452	94%	1,363	98%	28	6%	158	12%	1,032	74%	370	77%
Kings County	**16,132**	**45%**	**22,517**	**53%**	**19,722**	**55%**	**NA**	**NA**	**17,593**	**42%**	**10,737**	**30%**
Lemoore	3,302	71%	6,411	83%	1,333	29%	1,625	25%				
Armona	451	94%	1,191	98%	27	6%	368	31%				
Hanford	9,110	64%	12,683	71%	5,127	36%	2,738	22%				
Sub-Total / Avg. of Potential Station Area Communities	**12,863**	**66%**	**20,285**	**76%**	**6,487**	**34%**	**4,731**	**23%**				
Comparison to County / Share of County	NA	148%	NA	142%	NA	61%	NA	NA				
Tulare County	**48,797**	**36%**	**52,849**	**38%**	**87,285**	**64%**	**NA**	**NA**	**47,565**	**34%**	**43,735**	**32%**
Goshen	1,088	98%	429	96%	17	2%	291	68%				
Tulare	9,713	66%	14,180	74%	4,897	34%	5,202	37%				
Dinuba	4,652	77%	6,083	81%	1,392	23%	1,181	19%				
Visalia	29,574	61%	24,023	56%	19,126	39%	6,454	27%				
Farmersville	1,091	89%	2,983	96%	136	11%	1,307	44%				
Exeter	3,176	88%	3,378	88%	445	12%	1,577	47%				
Woodlake	765	74%	2,037	88%	269	26%	738	36%				
Lindsay	2,141	78%	3,135	84%	614	22%	1,103	35%				
Strathmore	475	95%	1,050	98%	24	5%	323	31%				
Porterville	9,791	61%	11,273	64%	6,219	39%	2,733	24%				
Sub-Total / Avg. of Potential Station Area Communities	**62,466**	**65%**	**68,571**	**67%**	**33,139**	**35%**	**20,909**	**30%**				
Comparison to County / Share of County	NA	182%	NA	179%	NA	54%	NA	NA				
Study Area Total[4]	**65,381**	**38%**	**76,729**	**42%**	**107,035**	**62%**	**NA**	**NA**	**66,190**	**36%**	**54,842**	**32%**
Potential Station Area Communities[5]	75,781	66%	90,219	69%	39,654	34%	25,798	28%				
Comparison to Total / Potential Station Area Communities as Share	NA	173%	NA	166%	NA	55%	NA	NA				

[1]The number of employees that commute into a place to work, but are not residents of that same place. The sum of "in-commute" and "internal commute" is the total number of jobs in that place.

[2]The number of residents that commute outside of their place of residence for work. The sum of "out-commute" and "internal commute" is the total number of employed residents in that place.

[3]Out-commuters working in other Cities in Study Area

[4]Sum of County Totals and Huron

[5]Sum of individual jurisdictions, less County totals

Source: LEHD, 2010-2014 ACS, Economic & Planning Systems

Table 2-12: Job Composition - Study Area versus California

Industry / Item	Study Area Totals					State Total	
	All Potential Station Area Communities[1]	% of Total	**Study Area Total[2]**	% of Total	Potential Station Area Communities as % of Study Area[2]	CA # Jobs	Study AreaTotal[2] as Share of State
Agriculture, Forestry, Fishing and Hunting	7,834	7%	**37,141**	22%	21%	322,555	11.5%
Mining, Quarrying, and Oil and Gas Extraction	2	0%	**52**	0%	4%	27,471	0.2%
Utilities	693	1%	**1,039**	1%	67%	104,183	1.0%
Construction	3,484	3%	**5,159**	3%	68%	635,135	0.8%
Manufacturing	11,255	10%	**16,319**	9%	69%	1,216,089	1.3%
Wholesale Trade	3,340	3%	**4,802**	3%	70%	678,329	0.7%
Retail Trade	14,269	12%	**15,875**	9%	90%	1,451,550	1.1%
Transportation and Warehousing	4,372	4%	**6,080**	4%	72%	461,392	1.3%
Information	845	1%	**922**	1%	92%	461,591	0.2%
Finance and Insurance	2,724	2%	**2,932**	2%	93%	502,538	0.6%
Real Estate and Rental and Leasing	1,294	1%	**1,576**	1%	82%	245,913	0.6%
Professional, Scientific, and Technical Services	2,534	2%	**3,055**	2%	83%	1,127,958	0.3%
Management of Companies and Enterprises	944	1%	**966**	1%	98%	234,704	0.4%
Administration & Support, Waste Management and Remediation	5,751	5%	**6,716**	4%	86%	884,150	0.8%
Educational Services	13,850	12%	**18,253**	11%	76%	1,267,755	1.4%
Health Care and Social Assistance	19,296	17%	**21,180**	12%	91%	1,848,945	1.1%
Arts, Entertainment, and Recreation	1,254	1%	**3,274**	2%	38%	285,989	1.1%
Accommodation and Food Services	9,741	8%	**10,861**	6%	90%	1,244,912	0.9%
Other Services (excluding Public Administration)	2,570	2%	**3,290**	2%	78%	455,682	0.7%
Public Administration	9,383	8%	**12,924**	7%	73%	725,885	1.8%
Total, All Jobs	115,435	100%	**172,416**	100%	67%	14,182,726	1%

[1]Sum of individual jurisdictions, less County totals

[2]Sum of County Totals and Huron

Source: LEHD on theMap, Economic & Planning Systems

TTable 2-12 through Table 2-14 provide information on the job composition within the Study Area and for the cities potentially served by Cross Valley Rail stations. The study area, made up of Kings County, Tulare County, and the City of Huron, exhibits 22 percent employment in the agricultural sector, which amounts to nearly 12 percent of California's total employment in the agriculture industry. When comparing agriculture industries in the counties, 24 percent of jobs in Tulare County are in agriculture as opposed to just 13 percent in Kings County. Overall, job composition of the individual cities and communities is more concentrated in manufacturing, retail, education, and health services, which together make up over 50 percent of jobs within the cities and communities along the CVC.

Table 2-13: Job Composition - Kings County and Huron

Industry / Item	**Huron** (Fresno County)	**Kings County**									
		Kings County Total		**Lemoore**		**Armona**		**Hanford**		**Sub-Total Potential Station Area Communities**	Potential Station Area Communities as Share of County
	# Jobs	**# Jobs**	% of Total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total		
Agriculture, Forestry, Fishing and Hunting	255	**4,815**	13.4%	234	5.0%	18	3.8%	261	1.8%	**513**	10.7%
Mining, Quarrying, and Oil and Gas Extraction	0	**0**	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	0.0%
Utilities	0	**185**	0.5%	4	0.1%	5	1.0%	78	0.5%	**87**	47.0%
Construction	4	**806**	2.2%	51	1.1%	80	16.7%	218	1.5%	**349**	43.3%
Manufacturing	5	**4,404**	12.3%	1,878	40.5%	20	4.2%	604	4.2%	**2,502**	56.8%
Wholesale Trade	0	**586**	1.6%	36	0.8%	29	6.1%	199	1.4%	**264**	45.1%
Retail Trade	34	**3,075**	8.6%	346	7.5%	31	6.5%	2,209	15.5%	**2,586**	84.1%
Transportation and Warehousing	0	**663**	1.8%	52	1.1%	17	3.6%	168	1.2%	**237**	35.7%
Information	0	**150**	0.4%	19	0.4%	0	0.0%	117	0.8%	**136**	90.7%
Finance and Insurance	4	**563**	1.6%	45	1.0%	0	0.0%	444	3.1%	**489**	86.9%
Real Estate and Rental and Leasing	5	**344**	1.0%	27	0.6%	1	0.2%	146	1.0%	**174**	50.6%
Professional, Scientific, and Technical Services	21	**750**	2.1%	250	5.4%	1	0.2%	316	2.2%	**567**	75.6%
Management of Companies and Enterprises	0	**169**	0.5%	1	0.0%	0	0.0%	155	1.1%	**156**	92.3%
Administration & Support, Waste Management & Remediation	0	**540**	1.5%	56	1.2%	80	16.7%	245	1.7%	**381**	70.6%
Educational Services	58	**3,859**	10.8%	724	15.6%	99	20.7%	1,396	9.8%	**2,219**	57.5%
Health Care and Social Assistance	49	**4,795**	13.4%	230	5.0%	28	5.9%	3,878	27.2%	**4,136**	86.3%
Arts, Entertainment, and Recreation	0	**1,993**	5.6%	46	1.0%	22	4.6%	65	0.5%	**133**	6.7%
Accommodation and Food Services	14	**2,438**	6.8%	433	9.3%	21	4.4%	1,515	10.6%	**1,969**	80.8%
Other Services (excluding Public Administration)	6	**594**	1.7%	77	1.7%	26	5.4%	297	2.1%	**400**	67.3%
Public Administration	25	**5,125**	14.3%	126	2.7%	0	0.0%	1,926	13.5%	**2,052**	40.0%
Total, All Jobs	**480**	**35,854**	100%	**4,635**	100%	**478**	100%	**14,237**	100%	**19,350**	54.0%

[1]Sum of individual jurisdictions, less County totals

[2]Sum of County Totals and Huron

Source: LEHD on theMap, Economic & Planning Systems

Table 2-14: Job Composition - Tulare County

Industry / Item	Tulare County																						
	Tulare County Total		Goshen		Tulare		Dinuba		Visalia		Farmersville		Exeter		Woodlake		Lindsay		Strathmore		Porterville		Sub-Total Potential Station Area Communities	Potential Station Area Communities as Share of County
	# Jobs	% of Total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total	# Jobs	% of total		
Agriculture, Forestry, Fishing and Hunting	**32,071**	23.6%	14	1.3%	1,529	10%	523	8.7%	1,404	3%	41	3.3%	564	15.6%	379	36.7%	744	27.0%	187	37%	1,681	10%	**7,066**	22.0%
Mining, Quarrying, and Oil and Gas Extraction	**52**	0.0%	0	0.0%	2	0%	0	0.0%	0	0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0%	0	0%	**2**	3.8%
Utilities	**854**	0.6%	5	0.5%	219	1%	41	0.7%	228	0%	32	2.6%	10	0.3%	5	0.5%	40	1.5%	0	0%	26	0%	**606**	71.0%
Construction	**4,349**	3.2%	128	11.6%	572	4%	94	1.6%	1,779	4%	93	7.6%	58	1.6%	22	2.1%	89	3.2%	20	4%	276	2%	**3,131**	72.0%
Manufacturing	**11,910**	8.8%	489	44.3%	2,017	14%	2,043	33.8%	2,436	5%	27	2.2%	152	4.2%	89	8.6%	556	20.2%	32	6%	907	6%	**8,748**	73.5%
Wholesale Trade	**4,216**	3.1%	98	8.9%	520	4%	195	3.2%	1,894	4%	8	0.7%	65	1.8%	3	0.3%	79	2.9%	0	0%	214	1%	**3,076**	73.0%
Retail Trade	**12,766**	9.4%	52	4.7%	2,229	15%	734	12.1%	6,148	13%	86	7.0%	183	5.1%	80	7.7%	160	5.8%	41	8%	1,936	12%	**11,649**	91.3%
Transportation and Warehousing	**5,417**	4.0%	131	11.9%	592	4%	302	5.0%	1,650	3%	0	0.0%	25	0.7%	9	0.9%	8	0.3%	7	1%	1,411	9%	**4,135**	76.3%
Information	**772**	0.6%	0	0.0%	103	1%	19	0.3%	458	1%	0	0.0%	20	0.6%	0	0.0%	1	0.0%	0	0%	108	1%	**709**	91.8%
Finance and Insurance	**2,365**	1.7%	0	0.0%	265	2%	49	0.8%	1,529	3%	18	1.5%	82	2.3%	8	0.8%	21	0.8%	0	0%	259	2%	**2,231**	94.3%
Real Estate and Rental and Leasing	**1,227**	0.9%	22	2.0%	101	1%	49	0.8%	781	2%	12	1.0%	23	0.6%	10	1.0%	33	1.2%	0	0%	84	1%	**1,115**	90.9%
Professional, Scientific, and Technical Services	**2,284**	1.7%	0	0.0%	249	2%	21	0.3%	1,390	3%	7	0.6%	36	1.0%	1	0.1%	11	0.4%	7	1%	224	1%	**1,946**	85.2%
Management of Companies and Enterprises	**797**	0.6%	0	0.0%	88	1%	1	0.0%	490	1%	0	0.0%	5	0.1%	0	0.0%	24	0.9%	0	0%	180	1%	**788**	98.9%
Administration & Support, Waste Management & Remediation	**6,176**	4.5%	19	1.7%	279	2%	233	3.9%	2,930	6%	204	16.6%	1,549	42.8%	9	0.9%	8	0.3%	1	0%	138	1%	**5,370**	86.9%
Educational Services	**14,336**	10.5%	41	3.7%	1,593	11%	722	11.9%	5,823	12%	369	30.1%	270	7.5%	248	24.0%	434	15.8%	151	30%	1,922	12%	**11,573**	80.7%
Health Care and Social Assistance	**16,336**	12.0%	67	6.1%	1,907	13%	383	6.3%	8,332	17%	123	10.0%	217	6.0%	118	11.4%	210	7.6%	4	1%	3,750	23%	**15,111**	92.5%
Arts, Entertainment, and Recreation	**1,281**	0.9%	14	1.3%	23	0%	10	0.2%	424	1%	0	0.0%	2	0.1%	0	0.0%	3	0.1%	0	0%	645	4%	**1,121**	87.5%
Accommodation and Food Services	**8,409**	6.2%	0	0.0%	1,478	10%	510	8.4%	3,953	8%	136	11.1%	221	6.1%	38	3.7%	199	7.2%	0	0%	1,223	8%	**7,758**	92.3%
Other Services (excluding Public Administration)	**2,690**	2.0%	25	2.3%	396	3%	109	1.8%	1,258	3%	16	1.3%	81	2.2%	7	0.7%	20	0.7%	1	0%	251	2%	**2,164**	80.4%
Public Administration	**7,774**	5.7%	0	0.0%	448	3%	6	0.1%	5,793	12%	55	4.5%	58	1.6%	8	0.8%	115	4.2%	48	10%	775	5%	**7,306**	94.0%
Total, All Jobs	**136,082**	100%	**1,105**	100%	**14,610**	100%	**6,044**	100%	**48,700**	100%	**1,227**	100%	**3,621**	100%	**1,034**	100%	**2,755**	100%	**499**	100%	**16,010**	100%	**95,605**	**70%**

[1]Sum of individual jurisdictions, less County totals

[2]Sum of County Totals and Huron

Source: LEHD on theMap, Economic & Planning Systems

Table 2-15: Commute Modes

Location	Car Ownership (per Household)			Commute Mode				
	0	1	2+	Drive Alone	Carpool	Transit	Walk / Other	Worked at home
Huron	17%	33%	50%	63%	23%	5%	6%	4%
Kings County	**7%**	**32%**	**62%**	**76%**	**15%**	**1%**	**4%**	**3%**
Hanford	8%	31%	61%	81%	14%	1%	3%	2%
Armona	9%	38%	53%	83%	13%	0%	2%	2%
Lemoore	6%	33%	61%	82%	12%	1%	3%	1%
Sub-Total / Avg. of Potential Station Area Communities	**7%**	**32%**	**61%**	**81%**	**13%**	**1%**	**3%**	**2%**
Comparison to County / Share of County	103%	102%	99%	107%	89%	42%	63%	59%
Tulare County	**7%**	**31%**	**62%**	**75%**	**16%**	**1%**	**4%**	**3%**
Goshen	4%	28%	68%	72%	14%	1%	12%	2%
Tulare	7%	32%	61%	84%	10%	1%	0%	2%
Dinuba	9%	29%	62%	72%	19%	0%	7%	1%
Visalia	9%	31%	60%	77%	13%	1%	4%	4%
Farmersville	8%	25%	66%	79%	14%	2%	3%	3%
Exeter	6%	31%	63%	84%	10%	0%	3%	3%
Woodlake	6%	31%	63%	80%	15%	1%	4%	1%
Lindsay	9%	34%	56%	72%	22%	0%	4%	2%
Strathmore	1%	35%	64%	62%	38%	0%	0%	0%
Porterville	6%	33%	61%	78%	18%	1%	2%	2%
Sub-Total / Avg. of Potential Station Area Communities	**8%**	**32%**	**61%**	**78%**	**14%**	**1%**	**3%**	**3%**
Comparison to County / Share of County	110%	103%	97%	104%	88%	112%	72%	88%
Study Area Total[1]	**7%**	**31%**	**62%**	**75%**	**16%**	**1%**	**4%**	**3%**
Potential Station Area Communities[2]	8%	32%	61%	79%	14%	1%	3%	3%
Comparison to Total / Potential Station Area Communities as Share	108%	103%	98%	104%	89%	87%	70%	83%
California Average	**8%**	**32%**	**60%**	**73%**	**11%**	**5%**	**5%**	**5%**

[1]Sum of County Totals and Huron

[2]Sum of individual jurisdictions, less County totals

Source: LEHD, 2010-2014 ACS, Economic & Planning Systems

Table 2-15 summarizes mode preference and car ownership data for communities within the Study Area and how they compare to the Study Area Total and State of California as a whole. The region exhibits relatively standard commute mode preferences with high rates of car ownership, with roughly 75% of workers driving alone to work.

2.4.3 Commercial Real Estate

Trends in the commercial real estate sector will have implications on the transit oriented development opportunities around the proposed CVC stations. Specifically, areas with relatively strong and healthy commercial real estate sectors are more likely to support future TOD opportunities. These locations are generally positively correlated with the employment hubs and in-commute destinations.

As summarized in Table 2-16, the total commercial inventory of the Study Area is dominated by industrial space at about 48 percent of the total, followed by retail at nearly 30 percent, and office at about 9 percent. Generally, office and retail space are the most complementary with TOD oriented activity and space, although there are some exceptions. This is because industrial sites are typically located in more peripheral areas outside of traditional central business districts and tend to be less walkable. Mixed-use districts, where office, retail, and housing co-exist in proximity tend to be more supportive of transit due to the higher concentration of complementary activity.

Table 2-16: Commercial Real Estate Inventory

Jurisdiction / Item	Retail	Office	Industrial / Flex	Other	Total Commercial Sq.Ft
Huron	31,571	0	24,100	16,986	72,657
Kings County	**6,007,319**	**1,395,745**	**8,177,121**	**2,441,132**	**18,021,317**
Lemoore	1,032,548	159,686	1,128,655	396,621	2,717,510
Armona	23,575	0	59,229	0	82,804
Hanford	4,642,366	1,222,369	6,495,070	1,758,722	14,118,527
Potential Station Area Communities					
Sub-Total	**5,698,489**	**1,382,055**	**7,682,954**	**2,155,343**	**16,918,841**
% of County Total	95%	99%	94%	88%	94%
% of Total Sq. Ft.	34%	8%	45%	13%	100%
Tulare County	**19,239,263**	**6,475,432**	**33,977,619**	**10,041,650**	**69,733,964**
Goshen	63,657	0	325,323	8,425	397,405
Tulare	3,608,696	837,931	5,631,418	2,167,948	12,245,993
Dinuba	1,602,756	260,564	2,430,579	386,805	4,680,704
Visalia	8,610,108	4,127,982	15,843,879	4,861,844	33,443,813
Farmersville	150,423	3,266	45,451	58,055	257,195
Exeter	567,756	119,415	2,081,759	331,005	3,099,935
Woodlake	253,072	30,090	321,859	37,999	643,020
Lindsay	282,689	14,687	650,096	21,067	968,539
Strathmore	14,302	5,600	189,156	3,000	212,058
Porterville	3,418,019	1,002,368	3,408,807	1,531,309	9,360,503
Sub-Total Potential Station Area Communities					
Sub-Total	**18,571,478**	**6,401,903**	**30,928,327**	**9,407,457**	**65,309,165**
% of County Total	97%	99%	91%	94%	94%
% of Total Sq.Ft.	28%	10%	47%	14%	100%
Total Study Area[1]	**25,278,153**	**7,871,177**	**42,178,840**	**12,499,768**	**87,827,938**
% of Total Sq.Ft.	29%	9%	48%	14%	100%
Potential Station Area Communities Total[2]	**24,301,538**	**7,783,958**	**38,635,381**	**11,579,786**	**82,300,663**
% of Study Area Total	96%	99%	92%	93%	94%
% of Total Sq.Ft.	30%	9%	47%	14%	100%

[1]Sum of County Totals and Huron

[2]Sum of Individual Jurisdictions, less County Totals

Source: CoStar Group, Economic & Planning Systems, Inc.

Meanwhile, 94 percent, of the Study Area's total commercial space is located in the communities being considered for Cross Valley rail station areas. Specifically, the potential station area communities account for 96 percent of the retail space, 99 percent of the office space, and 92 percent of the industrial space. This would suggest that these communities are relatively well positioned to support future commercial TOD opportunities.

In terms of market performance, average lease rates within the potential station area communities are slightly lower than the Study Area but vacancy rates are generally on par, as seen in Table 2-17. The slightly lower lease rates exhibited in the potential station area communities are likely in part attributable older inventory (e.g. these communities have a higher proportion of historic buildings). Overall, vacancy rates are relatively low throughout both the Study Area and potential station area communities. The industrial market exhibits the lowest lease rates but highest occupancy, as seen in Table 2-17. Lower lease rates are

Table 2-17: Commercial Real Estate Performance

Jurisdiction / Item	Retail			Office			Industrial / Flex			Total Inventory Δ 2010-2016
	2010 -16 Growth	Avg. Lease	Avg. Vacancy	2010 -16 Growth	Avg. Lease	Avg. Vacancy	2010 -16 Growth	Avg. Lease	Avg. Vacancy	
Huron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kings County	**285,095**	**$13.13**	**12%**	**13,131**	**$12.53**	**1%**	**118,527**	**$2.81**	**1%**	**416,753**
Lemoore	0	$11.84	7%	0	$11.40	0%	33,600	N/A	0%	33,600
Armona	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
Hanford	275,095	$13.85	14%	13,131	$12.85	1%	0	$2.81	2%	288,226
Sub-Total Potential Station Area Communities	**275,095**	**NA**	**NA**	**13,131**	**NA**	**NA**	**33,600**	**NA**	**NA**	**321,826**
% of County Total	96%	NA	NA	100%	NA	NA	28%	NA	NA	77%
Tulare County	**176,533**	**$12.59**	**5%**	**146,031**	**$14.38**	**5%**	**-40,803**	**$4.77**	**3%**	**281,761**
Goshen	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
Tulare	32,539	$13.73	4%	9,946	$11.87	4%	-3,575	$2.64	3%	38,910
Dinuba	12,313	$9.14	11%	0	$12.55	2%	0	N/A	5%	12,313
Visalia	78,781	$14.38	6%	131,385	$14.81	6%	-39,314	$4.71	3%	170,852
Farmersville	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
Exeter	10,000	$6.24	7%	0	$11.31	4%	0	N/A	0%	10,000
Woodlake	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
Lindsay	-22,500	$9.08	9%	NA	NA	NA	NA	NA	NA	0
Strathmore	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
Porterville	-17,947	$13.96	3%	4,700	$11.61	3%	21,360	N/A	7%	8,113
Sub-Total Potential Station Area Communities	**93,186**	**NA**	**NA**	**146,031**	**NA**	**NA**	**-21,529**	**NA**	**NA**	**240,188**
% of County Total	53%	NA	NA	100%	NA	NA	53%	NA	NA	85%
Total Study Area[1]	**461,628**	**$12.86**	**9%**	**159,162**	**$13.46**	**3%**	**77,724**	**$3.79**	**2%**	**698,514**
Potential Station Area Communities[2]	368,281	$11.53	7%	159,162	$12.34	3%	12,071	$3.39	3%	539,514
Potential Station Area Communities as % of Study Area	80%	90%	84%	100%	92%	97%	16%	89%	126%	77%

[1]Sum of County Totals and Huron

[2]Sum of Individual Jurisdictions, less County Totals

Source: CoStar Group, Economic & Planning Systems, Inc.

typical for industrial uses given their more space intensive nature and typical lease terms (i.e. industrial space lease is lower because they don't include various operating and maintenance costs).

Overall, the total commercial inventory grew by nearly 700,000 square feet over the last five years, or less than one percent. New commercial space delivered since 2010 has been concentrated in the communities being considered for Cross Valley station areas, except for new industrial space. Just 16 percent of industrial deliveries since 2010 are in the study area cities and places, indicating that other parts of Tulare and Kings Counties are experiencing increased industrial and manufacturing activity, relative to the individual study area cities and communities.

2.5 Existing Rail Conditions

2.5.1 Current Operations and Subdivisions

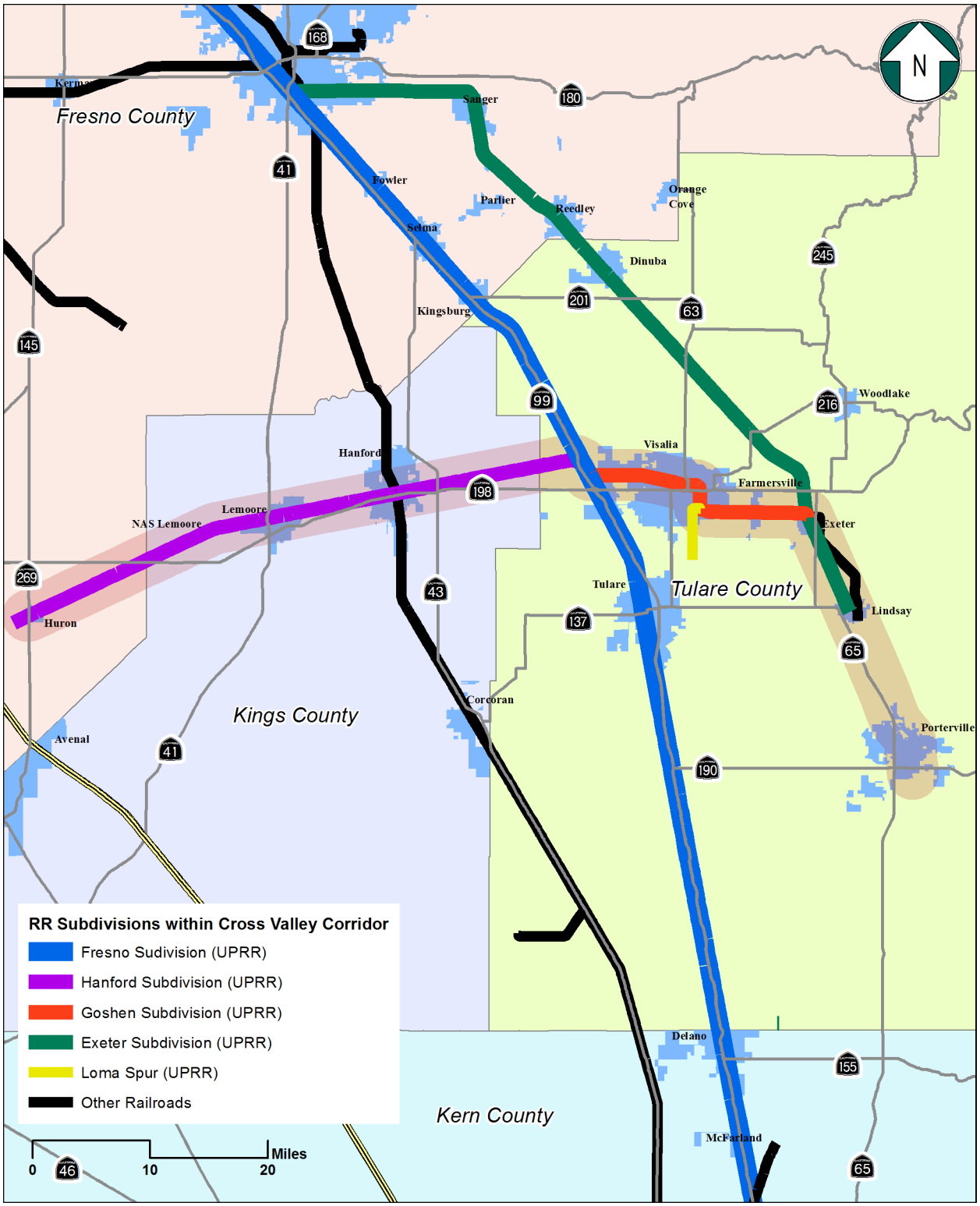
There are three primary railroad companies that provide freight service within Tulare County. There are two long-haul railroads, Union Pacific Railroad and Burlington Northern & Santa Fe, and one short-haul railroad, the San Joaquin Valley Railroad. The railroads connect the county to all major west coast markets and destinations. In addition, rail service spurs and freight terminals provide access throughout the county to serve specific industries.

The CVC consists of portions of four existing railroad subdivisions owned by the Union Pacific Railroad: the Hanford Subdivision, a small portion of the Fresno Subdivision, the Goshen Subdivision, and a portion of the Exeter Subdivision. The Union Pacific Railroad operates on the Fresno Subdivision, while the San Joaquin Valley Railroad operates on the Hanford, Goshen, and Exeter Subdivisions. The subdivisions in the CVC area are illustrated in Figure 2-20.

The Fresno Subdivision is the Union Pacific Railroad's mainline from Sacramento to Bakersfield, running north/south and connecting northern, central, and southern California. The short one-mile portion from Goshen Junction to South Goshen, within the unincorporated community of Goshen, is the only portion of the Fresno Subdivision that is in the CVC, and is completely within Tulare County. When moving from the Hanford Subdivision to the Goshen Subdivision or vice versa, San Joaquin Valley Railroad trains typically keep off the mainline, using a siding from Goshen Junction to South Goshen and then crossing the mainline at South Goshen, which is just north of the intersection of Goshen Avenue (Avenue 304) and Camp Drive. Top speed on the mainline is 70 miles per hour.

The Hanford Subdivision consists of 43.4 miles of east/west branch line single track from a tomato processing plant located 3.8 miles west of Huron to its connection to the Fresno Subdivision at Goshen Junction. It passes through Huron, NAS Lemoore, Lemoore, Armona, Hanford, and the location of the future Kings/Tulare High-Speed Rail Station. The Hanford Subdivision is within the counties of Fresno, Kings, and Tulare. The 39.6-mile portion from Huron to Goshen Junction is within the CVC. It crosses the mainline of the BNSF Railroad at BNSF Crossing 0.5 miles west of Hanford. The BNSF mainline is used by Amtrak San Joaquin passenger trains, which stop at the BNSF Hanford station 0.2 miles north of BNSF Crossing. The track between Westhaven (located 6.6 miles east of Huron) and Goshen Junction was recently upgraded, allowing trains to run up to 40 mph. The Hanford Subdivision connects to the Fresno Subdivision just east of the SR 99 freeway overcrossing.

Figure 2-20: Study Area Subdivision Map



The Goshen Subdivision consists of 16.7 miles of east/west branch line single track running from its connection to the Fresno Subdivision in South Goshen to its connection to the Exeter Subdivision in Exeter. It passes through Visalia's industrial park, the City of Visalia, the City of Farmersville, and the City of Exeter. The Goshen Subdivision falls entirely within the Plan area in Tulare County. The Loma Spur branches off from the line at Billy Goat Junction. (formerly Ambler) 2.1 miles east of Visalia. This is near the intersection of Ben Maddox Way and K Road. The Goshen Subdivision connects to the Exeter Subdivision in the City of Exeter near the intersection of F Street and Willow Street.

The Exeter Subdivision is a north/south branch line that runs from Fresno to Porterville, passing through the cities of Fresno, Sanger, Reedley, Dinuba, Exeter, Lindsay, and Porterville. The 17.4-mile section from Exeter to Porterville is within the Plan area. In 2009 the tracks were removed from Lindsay to Porterville, but the City of Porterville, with assistance from the TCAG, has acquired the untracked right-of-way. The tracks terminate in the City of Lindsay near the intersection of Orange Belt Drive and Avenue 196. The portion of the line within the Study Area passes through the cities of Exeter, Lindsay, Strathmore, and Porterville. The end of the Study Area is along the TCAG right-of-way just north of Olive Avenue in the City of Porterville. In March of 2015, SJVRR applied to the Federal Surface Transportation Board to abandon the rails from Exeter (just north of SR 65) through Lindsey (8 miles of railway). Future disposition of this length of right-of-way is not known.

2.5.1.1 San Joaquin Valley Railroad Summary

The San Joaquin Valley Railroad is a Class III railroad operating several disconnected segments throughout Kern, Tulare, and Fresno counties. These segments connect the local shippers to the greater rail system through interchanges with BNSF Railway and UPRR, which run parallel for the most part between Fresno and Bakersfield. SJVRR has trackage rights over the UP main line to reach its many segments and interchange with UPRR. These trackage rights allow SJVR to move its own equipment on the UPRR track to each of its segments, but not to move any freight traffic over UPRR's line. Any freight traffic from SJVR's branch lines must be interchanged to UPRR to move on that line. Traffic includes lumber and forest products, consumer products, fresh and frozen fruits and vegetables, packaged foods, canned foods, frozen meats, poultry, cheese, carbonated beverages, and petroleum/chemical products.

2.5.1.2 Railroad Existing Conditions Assessment

The Project Team performed a general existing conditions inspection of the railroad through the entire 75-mile corridor by physically driving, where possible, along the right-of-way, checking the line at various places, and walking parts of the track. A visual flyover drone survey was also conducted to gather current aerial footage of the track infrastructure and conditions.

Figure 2-21: CVC in Farmersville Captured by Project Drone

The track inspection of the Corridor was conducted west to east from Huron to Porterville on September 26, 2016 (Huron to SR 99), October 13, 2016 (SR 99/Goshen Junction to Visalia Transit Center), October 17, 2016 (Visalia Transit Center to Lindsey) and October 20, 2016 (Lindsay to Porterville). The inspection included documentation (photographs, field notes) of the general conditions of the rails, ties, embankments, culverts, bridges, switches, crossings, roadway control devices (crossbucks, signals, lights, crossing arms, etc.), and other railroad elements within the corridor.

Special attention was made to determine what/if any element was suitable for a modern passenger rail transit system, such as LRT, DMU, commuter rail, or other related technologies. Table 2-18 shows the overall number of railroad elements identified throughout the Plan and is broken down by county.

Table 2-18: Inventory of Significant Corridor Elements

Element	Fresno County	Kings County	Tulare County	Total Corridor
Length (miles)	8.9	27.9	38.2	75.0
Crossings	11	48	81	140
Signalized Crossings	2	20	31	53
Bridges	2	10	13	25
Culverts	0	1	1	2
Overpasses	0	1	2	3

Activities were not exhaustive and were performed under the goal of ascertaining the suitability of existing conditions within the corridor for future passenger rail service. The findings are broken down by major Corridor elements, including right-of-way, rail, bridges, and road crossings as identified and documented by the project team, and are provided along with conclusions based on the existing conditions analysis.

Overall, the corridor/right-of-way is suitable for passenger transportation. Additional land acquisitions may be required for rail service features such as passing lanes, pocket tracks, and service facilities (maintenance facility, operations centers, etc.).

The railroad itself (rails, ties, plates, embankments, switches, signaling, etc.) is not suitable for passenger rail service as it would not meet current regulations (U.S. DOT, FRA, FTA, others) for passenger rail service. Many bridges, such as the Kings River bridge, may need to be replaced or upgraded.

Many of the crossings and traffic control devices throughout each city would also likely need to be evaluated by the new service providers to maximize safety for

Figure 2-22: Union Pacific and San Joaquin Valley Railroad shared track

Figure 2-23: Typical railroad composition

road vehicles and the new rail vehicles to meet current regulations for passenger rail systems..

Figure 2-24: Typical railroad composition

2.5.1.3 Right-of-Way

Overall, the right-of-way (ranging from 50-200 feet wide) would be ideally suited for passenger rail via a mixed use freight and passenger rail. The long, straight geometry featuring large turning radii, virtually zero gradients, very few major geographic obstacles, and grade separations from major state routes make the Corridor ideal for future passenger rail service. The alignment connects the Corridor cities' downtown areas, making it an ideal route which may serve the region's major activity centers and populations. Wayside conditions, adjacent land use, and right-of-way boundaries are also key to future passenger rail service.

A potential obstacle that may require further consideration is the small length of track (approx. 500 feet) on the main UP line shared by both the CVC and the main UPRR line. Either coordination or possible separation will need to be considered noting the potential service impacts an extremely long UP train on the main line would have on future passenger rail operations.

2.5.1.4 Rail

Overall the current rail conditions are fair to poor. The tracks between Lindsay and Porterville were abandoned in 2008 and removed 2012, but the right-of-way was acquired by the City of Porterville. In some locations, the wood ties remain, while in others they have been removed. Composition of the standard gauge railroad throughout most of the corridor is standard light to heavy weight (75-136 lb./yd.) rails fixed to wooden ties with steel spikes and plates on top of granite (or other rocky) ballast. The rail (non-welded) gauge and vertical layout of the rails are poor in many locations showing warping and other issues.

Kings River Wildlife Preserve Bridge

This rail line has an 18” average spacing of railroad ties. Most of the ties are in fair condition but there are sections (primarily rural areas in Kings County) where the ties are in poor condition. Evidence of tie wear observed include tie plate cutting into the tie and spikes, spikes lifting out of the ties, wood rot, cracking, and others.

The rocky ballast on the rail line ranges from average to poor condition. About 65% of the line has good to fair ballast.

2.5.1.5 Bridges

A brief visual review of each bridge was performed where possible. Most of the longer bridges (greater than 20’ in length) are of wooden trestle construction and conditions varied from good to very poor. On of particular note was the 150’ steel trestle bridge within the wildlife preserve which crosses over the Kings River between NAS Lemoore and the City of Lemoore. Although the bridge structure shows signs of past upgrades/repair (the original wooden pilings still protrude from the riverbed), the ‘newer’ steel footings are showing signs of failure due to severe corrosion damage.

2.5.1.6 Road Crossings

Crossings over highways and within cities utilize concrete rail crossings and various traffic control devices, including crossing arms, audible chimes, and signal lights. Rural road crossings ranged from concrete rail crossings to asphalt-buried rails, to dirt covered tracks, depending on the roadway’s level of service.

Many of the crossings and traffic control devices throughout each city would also likely need to be evaluated by the new service providers to maximize safety for road vehicles and the new rail vehicles to meet current regulations for passenger rail systems.

Figure 2-25: Signalized Crossings on the Cross Valley Corridor

Figure 2-26: Rural Road Crossings on the Cross Valley Corridor

2.6 Current Plans and Policies

The following policies, goals, objectives, and strategies identified in the County and City general plans, community plans, regional transportation plans, and the Blueprint Plan encourage, promote, support, improve, enhance, facilitate, or preserve alternative transportation modes such as light rail and bus service and transit oriented land uses around station sites, stops, and corridors. None of the plans or policies identified here contradict or discourage development of a CVC transit system and, in many instances, specifically support it.

2.6.1 Fresno County

2.6.1.1 Huron General Plan

Air Quality Element

- Objective E. Encourage alternative modes of transportation including pedestrian, bicycle, and public transit usage.
- Policy 4.3. Develop strategies to minimize the number and length of vehicle trips, which may include:
  - Promoting commercial/industrial project proponent sponsorship of van pools or club buses;
  - Encouraging commercial/industrial project day care and employee services at the employment site;
  - Encouraging the provision of transit, especially for employment-intensive uses of 200 or more employees;
  - Providing incentives for the use of transportation alternatives;
  - Providing expansion and improvement of public transportation services and facilities.

Circulation Element

- Policy 5.4 Transit. Ensure choices among modes of travel and give priority to each mode when and where it is most appropriate.

2.6.2 Kings County

2.6.2.1 County of Kings General Plan

Circulation Element - Regional Transportation System

- Goal C1. Integrate through the County's regional transportation system, an efficient and coordinated goods and people moving network of Highways, Railroads, Public Transit, and Non-Motorized options that reduce overall fuel consumption and associated air emissions.
- Objective C1.2. Ensure the continued operational effectiveness of rail lines

throughout the County, and ensure the preservation of rail right-of-way for future transportation alternative use.

- Policy C1.2.1. Support continued operations of Amtrak, the San Joaquin Valley Railroad, and Burlington Northern Santa Fe Railroad.
- Policy C1.2.2. Preserve the east/west railroad corridor of the San Joaquin Valley Railroad for possible future use in alternative transportation options.
- Policy C1.2.3. Support CVC planning efforts to consider long term provision of freight and passenger rail service.
- Policy C1.2.4. Coordinate with the California High-Speed Rail Authority and Caltrans if a high-speed rail corridor is to be established within the County, and plan for the establishment of transportation linkages to the nearest HSR Station.

Naval Air Station Lemoore Joint Land Use Study

The Naval Air Station Lemoore Joint Land Use Study was prepared in August 2011. The Joint Land Use Study "encourages cooperative land use planning between military installations and the adjacent communities so future growth and development are compatible with the training and operational mission of the installation."

No specific policies are identified concerning the CVC, a stop or station in or near the base, land uses surrounding it, or access to it from the main base facilities and residential areas of NAS Lemoore, but it does recognize the following:

"The expansion of…rail may present a secondary problem by encouraging incompatible development in an area that would be considered encroaching on NAS Lemoore's mission…Care must be taken to identify the secondary effects of expanding infrastructure so subsequent developments do not encroach on NAS Lemoore activities."

"Should high-speed rail come to the valley, the City of Lemoore's planning policies have accounted for two potential passenger rail stations along the CVC to connect NAS Lemoore through Lemoore to high-speed rail."

2.6.2.2 Lemoore General Plan

Circulation Element

- C-G-5. Support the San Joaquin Valley Railroad operations.
- C-G-6. Support the activities of the Joint Powers Authority of the Cross Valley Rail Corridor, which include freight and passenger rail goals.
- C-I-5. Work with Amtrak California and the San Joaquin Valley Railroad in the planning for freight service, train schedules, proposed stations, railroad crossings, and other issues of interest to the City in line with the General Plan discussion.
- The City will support the activities of the Cross Valley Rail Corridor Joint Powers Authority, which include freight and passenger rail goals outlined in the 2004 Passenger Rail Feasibility Study.

2.6.2.3 Armona Community Plan

- ACP Goal 6A. The Armona circulation system enhances community connectivity and multi-modal transportation options that accommodate pedestrians, bicycling, public transit, and motor vehicles, while establishing safe non-motorized access to job centers, school sites and community services.
- Traffic and pedestrian circulation within the community is of critical concern to residents, and the community faces substantial circulation challenges. Visitors and residents traveling through Armona would substantially benefit from circulation improvements throughout the community.

- A carefully designed circulation system can also improve air quality, noise, and community health issues. Opportunities exist for Armona to capitalize on non-motorized transportation enhancements that could include a multi-modal transportation facility at the old train depot site, regionally connected pedestrian/bicycle pathways, and Highway interchange.
- ACP Policy 3A.2.3. Encourage and facilitate efforts to re-establish the historically significant Armona Depot site as a community facility and dedication park to enhance Community connectivity.
- The historic Armona Depot site once served as a central railroad hub. Now vacant, the Armona Community can build upon this historic site's significance and reclaim it as a central hub to re-connect residents and visitors to the past while also serving as a possible future multi-modal transportation facility. The site could potentially serve as a senior center, museum, library, bicycle/pedestrian destination point, and KART bus stop. Given the potential significance this site may hold for multiple Community benefits, efforts should be directed to work with the Railroad and other stakeholders to make this vision a reality.
- Policy SL-4.3 Railroads and Rail Transit. The County shall encourage rail infrastructure for freight and passenger service to be planned and designed to limit visual impacts on scenic landscapes by:
- Concentrating infrastructure in existing railroad rights-of-ways,
- Avoiding additional grade separated crossings in viewshed locations, and
- Using new transit stations supporting rail transit as design features in existing and future core community areas improvements.

2.6.2.4 City of Hanford General Plan

- Policy E6 Transportation Connectivity. Enhance opportunities for economic development by pursuing greater regional transportation connectivity for people and goods through infrastructure improvements to railroads and highways.
- Policy L105 Location of Area of Interest Land Use Designation. Locate an Area of Interest land use designation on the square mile bounded by Grangeville Boulevard, Lacey Boulevard, 7th Avenue, and 8th Avenue to reserve the area for future, but currently unknown land uses that may be associated with a high-speed rail station.
- Goal T1. A comprehensive, multi-modal motorized and non-motorized transportation system that improves the quality of life and facilitates the efficient movement of people and goods.
- Goal T2. Increased use of shared and non-motorized transportation alternatives resulting in a per capita reduction in vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions.
- Goal T11. Passenger rail service that is integrated with other modes of travel.
- Policy T80 Station Area Study. If High-Speed Rail becomes a reality in Kings County, consider a station area planning study that considers locating most of High-Speed Rail support services (parking, hotels, transportation links, etc.) west of 10th Avenue to support Downtown Hanford.
- Policy T81 Link to Transit with High-Speed Rail. If High-Speed Rail becomes a reality in Kings County, ensure that effective transit linkages are in place between the High-Speed Rail station and the City's downtown and employment centers.
- Policy L128 Downtown Transit Oriented Development. Encourage transit-oriented development, including mixed use, high density housing, and commercial and office uses, in the Downtown.
- Policy T59 Transit Parking Lots. Work with the various government agencies to provide secure parking at park-and-ride lots and transit stations.
- Policy T92 Amenities that Support Alternative Modes of Transportation.

Encourage new developments to include on-site amenities that support alternative modes of transportation. Emphasize pedestrian and bicycle-friendly design, accessibility to transit, preferred rideshare parking, showers and lockers, on-site food service, and child care, where appropriate.

2.6.3 Tulare County

2.6.3.1 Tulare County General Plan

Land Use Element

- Policy LU-3.3 High-Density Residential Locations. The County shall encourage high-density residential development (greater than 14 dwelling units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment.

Economic Development Element

- Policy ED-3.5 High-Speed Rail. The County shall support development of high-speed rail through the Central Valley with service to Tulare County.
- Policy ED-6.5 Intermodal Hubs for Community and Hamlet Core Areas. The County shall work with communities and transit providers to develop intermodal hubs that focus on both local and regional bus service.

Scenic Landscape Element

- Policy SL-4.3 Railroads and Rail Transit. The County shall encourage rail infrastructure for freight and passenger service to be planned and designed to limit visual impacts on scenic landscapes by:
- Concentrating infrastructure in existing railroad rights-of-ways,
- Avoiding additional grade separated crossings in viewshed locations, and
- Using new transit stations supporting rail transit as design features in existing and future core community areas.

Transportation and Circulation Element

- Policy TC-1.18 Balanced System. The County shall strive to meet transportation needs and maintain LOS standards through a balanced Multi-modal Transportation Network that provides alternatives to the automobile.
- Policy TC-1.19 Balanced Funding. The County shall promote a balanced approach to the allocation of transportation funds to optimize the overall County transportation system.
- Policy TC-1.6 Intermodal Connectivity. The County shall ensure that, whenever possible, roadway, highway, and public transit systems will interconnect with other modes of transportation. Specifically, the County shall encourage the interaction of truck, rail, and air-freight/passenger movements.
- Policy TC-2 Rail Service. To improve and enhance current rail services that stimulate economic growth and meet the needs of freight and human transportation.
- Policy TC-2.1 Rail Service. The County shall support improvements to freight and expanding passenger rail service throughout the County.
- Policy TC-2.2 Rail Improvements. The County shall work with cities to support improvement, development, and expansion of passenger rail service in Tulare County.
- Policy TC-2.3 Amtrak Service. The County shall encourage Amtrak to add passenger service to the Union Pacific corridor in the County.
- Policy TC-2.4 High-Speed Rail (HSR). The County shall coordinate with

TCAG and the California High-Speed Rail Authority in efforts to locate the HSR corridor with a passenger stop and maintenance facility in Tulare County.

- Policy TC-2.6 Rail Abandonment. The County shall coordinate with the Public Utilities Commission and TCAG to evaluate possible impacts of rail line abandonment proposals and consider alternatives uses for abandoned facilities, such as light rail, bike trails, utility corridors, or transit facilities.
- Objective TC-4. Public Transportation. To support the development of a public transportation system that provides an alternative to the private automobile and meets the needs of those considered "transit dependent".
- Policy TC-4.2 Determine Transit Needs. The County will continue to work with TCAG, cities, and communities in the County to evaluate and respond to public transportation needs.
- Policy TC-4.3 Support Tulare County Area Transit. The County shall request the support of TCAG for development of transit services outlined in the County's Transit Development Plan. Efforts to expand Tulare County Area Transit should be directed towards:
- Encouraging new and improving existing transportation services for the elderly and disabled, and
- Providing intercommunity services between unincorporated communities and cities.
- Policy TC-4.4 Nodal Land Use Patterns that Support Public Transit. The County shall encourage land uses that generate higher ridership including; high density residential, employment centers, schools, personal services, administrative and professional offices, and social/recreational centers, to be clustered within a convenient walking distance of one another.
- Policy TC-4.5 Transit Coordination. The County shall encourage regional coordination to facilitate improved connectivity between County and city operated transit systems and other transportation modes.
- Policy TC-4.6 San Joaquin Valley Intelligent Transportation System Strategic Deployment Plan. The County shall utilize the San Joaquin Valley Intelligent Transportation System Strategic Deployment Plan to facilitate public transportation services.
- Policy TC-4.7 Transit Ready Development. The County shall promote the reservation of transit stops in conjunction with development projects in likely or potential locations for future transit facilities.
- Infrastructure Components. Principle 3: Community Circulation. Anticipate and provide transit, traffic, and roadway connections that support the interconnectivity of all communities.

Air quality Element

- Policy AQ-2.3 Transportation and Air Quality. When developing the regional transportation system, the County shall work with TCAG to comprehensively study methods of transportation which may contribute to a reduction in air pollution in Tulare County. Some possible alternatives that should be studied are:
  - Commuter trains (Light Rail, Amtrak, or High-Speed Rail) connecting with Sacramento, Los Angeles, and San Francisco, with attractive services scheduled up and down the Valley,
  - Public transportation such as buses and light rail, to serve between communities of the Valley, publicly subsidized if feasible,
  - Intermodal public transit such as buses provided with bicycle racks, bicycle parking at bus stations, bus service to train stations and airports, and park and ride facilities, and
  - Community transportation systems supportive of alternative transportation modes, such as cycling or walking trails, with particular

attention to high-density areas.

2.6.3.2 2014 – 2040 Regional Transportation Plan and Sustainable Communities Strategy

- Goal. Provide an efficient, integrated multi-modal transportation system for the movement of people and goods that enhances the physical, economic, and social environment in the Tulare County region.
- Objective. Develop and maintain a connected and multi-modal regional circulation network that is convenient, safe, and efficient.
- Policy. Promote transit and active transportation usage and develop support facilities to accommodate and encourage increases in use of these modes.
- Transit Goal. Provide a safe, secure, coordinated, efficient, and equitable public transit system that can reasonably meet the needs of residents.
- Objective. Encourage and support the development of a safe, efficient, effective, equitable and economical public transit system through the update and implementation of short and long range local Transit Development Plans, the Tulare County Coordinated Transportation Plan, and other transit improvements.
- Policy. Encourage development of a transit system that interconnects and coordinates with other modes of transportation (e.g. passenger rail, intercity bus, multijurisdictional transit, bicycle facilities, pedestrian walkways, etc.).
- Policy. Encourage the cities of Visalia and Tulare to plan for and implement transit-oriented land use along planned light rail and/or bus rapid transit corridor(s).
- Rail Goal. Promote safe, economical, convenient rail systems and schedules that meet the needs of passenger and freight services in the region.
- Objective. Support the growth of passenger rail systems that serve residents of Tulare County.
- Policies:
  - Support the development, extension, and maintenance of passenger rail service, including, but not limited to, CVC, High-Speed Rail, Amtrak, and light rail.
  - Ensure that the high-speed rail system, if implemented, supports Tulare County in achieving its economic, environmental, land use, and mobility goals.
  - Determine light rail alignments and undergo feasibility analysis.
  - Implement Bus Rapid Transit along future light rail corridors.

2.6.3.3 Tulare County Regional Blueprint

- Goal. Improve goods movement within the region to increase economic vitality, meet the growing needs of freight and passenger services, and improve traffic safety, air quality, and overall mobility.
- Objectives.
  - Ensure that the high-speed rail system, if implemented, supports Tulare County in achieving its economic, environmental, land use, and mobility goals.
  - Coordinate with regional transportation systems across county borders to ensure an efficient flow of people and goods along key trade and interregional commuting corridors.
- Objective. Facilitate redevelopment and infill development and place high priority on public facility investments that support compact, mixed-use, accessible, walkable neighborhoods that are conveniently located next to transit.

- Preferred Growth Scenario Principles.
  - Establish light rail between cities.
  - Expand transit throughout the county.

2.6.3.4 City of Visalia General Plan

Circulation Element

- Policy T-O-6. Work with other agencies and jurisdictions that provide regional public transportation to provide connectivity between Visalia and adjacent jurisdictions.
- Policy T-O-7. Develop and maintain a coordinated mass transportation system that will encourage increased transit use through convenient, safe, efficient, and cost-effective services.
- Policy T-P-31. Seek cooperation with Tulare County Association of Governments and Visalia City Coach to attain a balance of public transportation opportunities.
- These efforts may include the establishment of criteria to implement transit improvements, development of short and long range transit service plans, evaluation and identification of needed corridor improvements, transit centers, and park-and-ride lots with amenities for bicyclists.
- Policy T-P-36. Participate in the planning process for a potential Cross Valley Rail Line, which could provide east-west light rail service from Visalia to Huron and potentially connect to a future High-Speed Rail system.
- Policy T-P-37 and T-P-68. Evaluate the feasibility of a future local light rail system or bus rapid transit (BRT) system in Visalia, which could connect to Tulare to the south and points east and west.
- The City should preserve right-of-way to support the preliminary light rail corridor or BRT system along Goshen Avenue, K Street, Santa Fe Avenue, and other roadways, if either system is judged financially feasible.
- Policy T-P-38 and T-P-69. Support regional high-speed inter-city rail development and service. Should California High-Speed Rail develop a station in Hanford (or elsewhere in Kings or Tulare County), work with the California High-Speed Rail Authority to develop local connections coordinated with the train schedule.
- Policy T-O-15. Develop and maintain a coordinated mass transportation system that will encourage increased transit and rail use through convenient, safe, efficient, and cost-effective services.

Land Use Element

- Policy LU-p-53. Integrate multi-family development with commercial, office, and public uses in neighborhood nodes, Downtown, and with Commercial Mixed Use areas in East Downtown, along the Mooney corridor and elsewhere.
- Multi-family housing should be accessible on foot to public parks and gathering places, commercial areas, and transit.
- Policy LU-p-82. Promote new public-private investment in the eastern and southern portions of East Downtown, building on the success of the Transit Center in the western portion of the Planning Area as a catalyst for private development.
- East Downtown can serve as a catalyst for long-term redevelopment of adjacent areas such as the stockyards.
- A rail corridor extends through East Downtown, creating an opportunity for future transit-oriented development.
- Policy LU-p-83. Group new employment and retail uses in the East Downtown area to provide clear identities and economic synergies.
- Policy LU-p-84. Plan for new neighborhoods in East Downtown to provide

high-quality living environments in a variety of settings, as follows:

- Santa Fe is to become a mixed-use address providing an opportunity to expand downtown's commercial activities, with residential use complementing offices in mixed-use projects.
- East Main has a large number of existing buildings that can be adaptively reused for commercial and residential uses…On blocks contiguous to East Main Street are sites that can accommodate a mix of commercial and residential uses. South of Acequia are larger sites that can become a townhouse neighborhood.
- Policy LU-p-86. Support revitalization of East Downtown by the extension of the city block pattern found in Downtown, and the creation of five distinct street types, with different roles and identities:
- Transit Corridor. Oak Street should support potential future light rail transit as well as on-street parking and pedestrian amenities, and function as a civic space.
- The General Plan identifies potential transit corridors along Goshen Avenue and Mooney Boulevard, with Downtown segments along Murray Avenue and Main Street. These corridors may support high capacity transit in the form of LRT or BRT, and provide a framework for transit oriented development in Visalia.

2.6.3.5 City of Farmersville General Plan

Land Use Element

- Objective. Consider future relocation of the Civic Center to a more centralized location in the city's downtown area.
- Policy. Explore the possibility of building a new civic center in the downtown area. One possible site is the land adjacent to the railroad track, west of Farmersville Boulevard. This site could function as a multi-use facility and include the proposed Museum of the Farmworker. Given its location, an historic railroad architectural theme would be appropriate for this structure.

Circulation Element

- Goal. Promote opportunities for residents to increase mobility within Farmersville.
- Policy. Coordinate with neighboring communities that do operate transit service.

Human Environment Element

- Policy. Encourage the development of higher density housing and employment centers near existing and planned transit routes.

2.6.3.6 City of Exeter General Plan

Transit Policy

- Promote alternative modes of transportation, including bicycles, buses, trains, and walking.
- Facilitate the provision of convenient, frequent, dependable, and efficient scheduled transit for Exeter residents.
- New developments adjacent to arterial or collector streets shall include bus loading zones.
- All arterial streets shall be designed to accommodate buses and bus loading zones.
- Improve transit line coverage and frequency throughout Exeter and to adjacent cities, with particular emphasis on service to the downtown, employment centers, and social services.

- Encourage the development of the railroad corridor along F Street to retail and office uses, and certain service commercial uses.

2.6.3.7 City of Lindsay General Plan

Housing Goals

The City will support the expansion of housing opportunities for the elderly, handicapped, minority and other low income groups through the following:

- The promotion of housing sites for the elderly and handicapped which are within reasonable proximity to transportation services, medical facilities, recreation areas and convenience shopping facilities, and where reasonable security by police and fire protection services can be assured.

2.6.3.8 Strathmore Community Plan

The intent of the Strathmore Community Circulation Element is to establish a comprehensive multi-modal transportation system that is efficient, environmentally and financially sound, and coordinated with the Land Use Element.

- Goal 1. Design and implement a multi-modal transportation system that will serve projected future travel demand, minimize congestion, and address future growth in Strathmore.
- Policy 1.1. Utilize existing infrastructure and utilities to the maximum extent practical and provide for the logical, timely, and economically efficient extension of infrastructure and services.
- Policy 1.15. Cooperate with local, regional, State and federal agencies to plan for, establish and maintain good connectivity to an efficient multi-modal regional transportation system.
- Goal 5. Provide a transportation system that is integrated with the region.
- Policy 5.2. Incorporate the Regional Transportation Plan, and the Tulare County Short- and Long-Range Transit Plans into the Community Plan Circulation Element, and encourage the active participation of Caltrans in the design of highway capital improvement projects.
- Goal 6. Encourage the use of public transit services to reduce reliance on the automobile.
- Policy 6.1. Encourage transit alternatives to meet the basic transportation needs of the young, the elderly, the handicapped, and people without access to an automobile.
- Consider development of an integrated transit center within Strathmore where all transit services can connect with each other as well as with private ridesharing.
- Policy 6.2. Planning and development of arterial and collector streets shall include design features which can be used as future public transit stops.
- Policy 6.3. Support the expansion and improvement of transit systems and ride sharing programs to reduce the production of automobile emissions.
- Policy 6.6. Support all operator efforts to maximize revenue sources for short and long range transit needs that utilize all funding mechanisms available including federal grants, state enabling legislation, and farebox revenue. This can be accomplished through TCAG and the Tulare County Transit Agency through the development of the Short and Long Range Transit Plans.
- Policy 6.8. Incorporate the potential for public transit service in the design of developments identified as major trip attractions (i.e. community centers and employment centers).
- Policy 6.9. Explore potential development of a park-n-ride lot in Strathmore.
- Policy LU-3.3 High-Density Residential Locations. The County shall encourage high-density residential development (greater than 14 dwelling

units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment.

- Policy Q-3.3 Street Design. The County shall promote street design that provides an environment which encourages transit use, biking, and pedestrian movements.
- Policy SL-4.3 Railroads and Rail Transit. The County shall encourage rail infrastructure for freight and passenger service to be planned and designed to limit visual impacts on scenic landscapes by:
- Concentrating infrastructure in existing railroad rights-of-ways,
- Avoiding additional grade separated crossings in viewshed locations, and
- Using new transit stations supporting rail transit as design features in existing and future core community areas improvements.
- Policy TC-1.6 Intermodal Connectivity. The County shall ensure that, whenever possible, roadway, highway, and public transit systems will interconnect with other modes of transportation. Specifically, the County shall encourage the interaction of truck, rail, and air-freight/passenger movements.
- Policy TC-2.1 Rail Service. The County shall support improvements to freight and expanding passenger rail service throughout the County.
- Policy TC-2.2 Rail Improvements. The County shall work with cities to support improvement, development, and expansion of passenger rail service in Tulare County.
- Policy TC-2.5 Railroad Corridor Preservation. The County shall work with other agencies to plan railroad corridors to facilitate the preservation of important railroad rights-of–way for future rail expansion or other appropriate transportation facilities.
- Policy TC-4.7 Transit Ready Development. The County shall promote the reservation of transit stops in conjunction with development projects in likely or potential locations for future transit facilities.
- Policy LU-3.3 High-Density Residential Locations. The County shall encourage high-density residential development (greater than 14 dwelling units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment.
- Policy AQ-2.3 Transportation and Air Quality. When developing the regional transportation system, the County shall work with TCAG to comprehensively study methods of transportation which may contribute to a reduction in air pollution in Tulare County. Some possible alternatives that should be studied are:
- Commuter trains (Light Rail, Amtrak, or High-Speed Rail) connecting with Sacramento, Los Angeles, and San Francisco, with attractive services scheduled up and down the Valley,
- Public transportation such as buses and light rail, to serve between communities of the Valley, publicly subsidized if feasible,
- Intermodal public transit such as buses provided with bicycle racks, bicycle parking at bus stations, bus service to train stations and airports, and park and ride facilities, and
- Community transportation systems supportive of alternative transportation modes, such as cycling or walking trails, with particular attention to high-density areas.
- Policy TC-4.3 Support Tulare County Area Transit. The County shall request the support of TCAG for development of transit services outlined in the County's Transit Development Plan. Efforts to expand Tulare County Area Transit should be directed towards:
  - Encouraging new and improving existing transportation services for the

elderly and disabled, and

- Providing intercommunity services between unincorporated communities and cities.

» Policy TC-4.4 Nodal Land Use Patterns that Support Public Transit. The County shall encourage land uses that generate higher ridership including; high density residential, employment centers, schools, personal services, administrative and professional offices, and social/recreational centers, to be clustered within a convenient walking distance of one another.

2.6.3.9 City of Porterville General Plan

Circulation Element

» Policy C-G-2. Provide a wide variety of transportation alternatives and modes to service all residents and businesses to enhance the quality of life.

» Policy C-G-3. Make efficient use of existing transportation facilities and, through coordinated land use planning, strive to improve accessibility to shops, schools, parks, and employment centers and reduce total vehicle miles traveled per household to minimize vehicle emissions and save energy.

» Policy C-G-14. Protect the City's rail corridor as an economic asset.

2.6.3.10 City of Tulare General Plan

Transportation and Circulation Element

» Goal TR-1. To develop an integrated transportation system that provides for the safe and efficient movement of people and goods.

» Policy TR-P1.1 Integrated Transportation System. The City shall continue to work cooperatively with the various local, state, and federal transportation agencies (i.e., Caltrans, TCAG, Tulare County, and regional transit providers) to maintain a multi-modal transportation system that is well-integrated and interconnected in terms of service, scheduling, and capacity, and that effectively accommodates planned land uses and related transportation needs, and that promotes the safe movement of people and goods and the efficient use of limited public resources.

» Goal TR-4. To maintain and develop an adequate transit system that provides for the local and regional transit needs of Tulare residents.

» Policy TR-P4.5 Transit Links to Other Communities. The City shall encourage the provision of adequate public transportation links with other communities in Tulare County and adjacent counties.

» Policy TR-P4.6 Regional Public Transportation Service. The City shall support and facilitate reasonable proposals to bring regional public transportation service (including Amtrak or other passenger rail service) to Tulare.

» Policy TR-P4.7 Railroad Right-of-Way Conversion. The City shall work to preserve the right-of-way of abandoned railroads for future transit routes.

» Policy TR-P4.8 Transit Compatible Land Use. The City shall encourage the clustering of land uses that generate high trip volumes and other transit-oriented designs to foster the demand needed to support transit activity. Transit-oriented designs should include:

- Provision of sheltered bus stops with new development;
- Location of medium and high-density development near transit services;
- Linking of residential uses to transit stops via continuous sidewalks or pedestrian paths; and
- Incorporation of park-and-ride lots to accommodate not only motorists, but also other users of public transit and van or carpooling.

Conservation and Open Space Element

» Policy COS-P7.16 Transportation and Air Quality. When developing

the regional transportation system, the City shall work with TCAG to comprehensively study methods of transportation which may contribute to a reduction in air pollution in the City of Tulare. Some possible alternatives that should be studied are:

- Public transportation such as buses and light rail, to serve between communities of the valley, publicly subsidized if feasible.

Air Quality Element

- Policy AQ-P2.3 Transportation and Air Quality. When developing the regional transportation system, the City shall work with TCAG to comprehensively study methods of transportation which may contribute to a reduction in air pollution in the City of Tulare. Some possible alternatives that should be studied are:
- Public transportation such as buses and light rail, to serve between communities of the valley, publicly subsidized if feasible.

Land Use Element

- Goal LU-8 Transit-Oriented Development. To encourage a mix of housing types, businesses, and public uses at medium to high densities near transit to create more bikeable and pedestrian-friendly neighborhoods.
- The City shall use the TOD concept as the primary basis for planning development near transit areas, as designated on the Land Use Diagram. Key features of each TOD neighborhood will include mix of housing types (such as apartments, townhomes, and single-family homes), businesses (including retail, restaurants, and offices), and public uses (such as parks, libraries, and schools) at medium to high densities.
- Policy LU-P8.1 Transit-Oriented Development. Development within the COS North, Downtown, or West Side TOD areas shall be consistent with the 2013 Transit-Oriented Development Plan.

2.6.3.11 City of Dinuba General Plan

Transit Policies and Standards

- Objective. Promote the use of alternative modes of transportation.
- Policy 2.57. Coordinate transit services with surrounding cities, the County of Tulare, Tulare County Association of Governments, and the Transportation Planning Agency.
- Policy 2.58. Cooperate with the TCAG in providing transit service and planning to meet the social and economic needs of all segments of the community.
- Policy 2.59. Provide reasonable accommodations for comfort and convenience for riders at major transit destinations so people can utilize the transit system safely and comfortably. The City shall determine such need based on site plan review procedure and other planning implementation methods.
- Policy 2.60. Major arterials, arterials, and collectors will be designed to allow transit vehicles to pull out of traffic. This policy may be implemented with either a continuous parking lane with bus stops, or with special bus pull out lanes.
- Policy 2.61. Transit centers/stops shall be established to encourage the interface between commercial centers, alternate transportation modes, high density residential uses and the transit system.
- Policy 2.62. Encourage transit alternatives to meet the basic transportation needs of the young, the elderly, the handicapped, and individuals without access to an automobile.
- Policy 2.63. Maintain opportunities for a transit center within the City where alternative transit modes would connect.

- Policy 2.64. Encourage and provide for ride sharing, park and ride, and other similar commuter energy savings programs.
- Objectives.
  - Encourage the development of strategies for maximizing the efficiency of the existing street system.
  - Promote a variety of public transit connections with other nearby cities and locations.
  - Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.
- Policy. Locate public facilities (libraries, parks, schools, community centers, etc.) with consideration of transit and other transportation opportunities.
- City of Woodlake General Plan

The Woodlake General Plan was last updated in 2008. The plan does not address the transit station that opened in 2013 or land uses surrounding it. Current policies address office, retail, and service commercial development in the Valencia Blvd and Naranjo Blvd area and employment uses near the Woodlake Airport.

Circulation Element

- Policy. Promote alternative modes of transportation, including bicycles, buses, and walking.
- Policy. Reduce automobile use by improving transit service and encouraging transit use.
- Policy. Facilitate the provision of convenient, frequent, dependable, and efficient scheduled transit for Woodlake residents.

2.6.3.12 Cross Valley Rail Feasibility Study Working Paper No. 1, Feasibility of Service (1995)

An extensive passenger rail feasibility study by Kings County Association of Governments in 1995, Cross Valley Rail Feasibility Study, examined the entire local rail system run by the San Joaquin Valley Railroad. In 2004, the CVRC JPA study further analyzed the feasibility of passenger rail from the Naval Air Station Lemoore, through Lemoore and Hanford to the City of Visalia. Both studies indicated that passenger rail was not viable until populations increase and necessary upgrades are made to the railroad's signal system. The study also found that a flyover needed to be constructed at Goshen junction in Tulare County to eliminate stoppages at the Union Pacific's north-south rail line. When the CVRC JPA upgraded the railroad, their contract with the San Joaquin Valley Railroad stated that the railroad might consider passenger rail services in the future. Additionally, if the freight service went out of business, the CVRC JPA would have the first right to purchase the track structure to retain future passenger rail feasibility.

The reservation and possibly early acquisition of land developed with an interim carpool parking area, preservation of the track structure and right-of-way, and increasing the residential population around future stations to create ridership potential may help keep the passenger rail option possible.

The following provides a brief commentary on the Cross Valley Rail Feasibility Study's proposed location of each community's station site and land use pattern around each station.

Porterville

The proposed station site at Putnam Avenue provides good east-west and north-south connections within the community. The primary benefit will be regional employment connections from platforms and other connections on

the system. There is a limited amount of residential property in the vicinity of the station, indicating its usage may be primarily work/shopping destination oriented. Location of the station farther north (Morton Avenue) or farther south (Oak Avenue) of the line would ostensibly provide a better balance of land uses to support the system, but these benefits would be outweighed by the disadvantage of having the station located away from the core area of the downtown.

» Recommended Site: Putnam Avenue at Railroad.

Strathmore

The Strathmore station site is located on the primary east-west, north-south crossroads of the community. Residential densities in the community are relatively low, however, with a large portion of the service area in low intensity public uses, agriculture and rural residential land uses. The proposed site is the preferred location and can be enhanced by additional or higher intensity residential land uses in the immediate vicinity of the proposed station site.

» Recommended Site: Avenue 196 at Railroad.

Lindsay

The Honolulu Street site provides a good mix of land uses, but has limited residential development potential. The site provides ideal cross town connections to areas outside of the 1/4 mile service area. The City is also currently considering a transit oriented development (market place, apartments) next to the proposed site.

» Recommended Site: Honolulu Street at Sweetbriar Avenue.

Exeter

Exeter has a mix of land uses similar to Farmersville, described below. There are some limited opportunities for “upzoning” to higher density residential uses.

» Recommended Site: Southwest corner of Pine Street at F Street or in conjunction with Chamber of Commerce building.

Farmersville

Farmersville provides a relatively good mix of uses. However, there is a shortage of higher density residential uses and some older single family residential areas, and vacant residential properties can be converted for these uses.

» Recommended Site: Front Street at Farmersville Road.

Visalia

Visalia is the largest community along the proposed route and serves as a focal point for communities in the surrounding area. It has a well-developed vehicular circulation network which provides adequate vehicular access. The proposed site at Garden and Oak Street is surrounded by office and commercial land uses. Major employers and transit connections including the Kaweah Delta District Hospital, medical center, County government offices, school district facilities, and shopping areas also provide a strong draw to the area. Opportunities may exist for the conversion of nearby vacant commercial and industrial properties to higher density residential uses, for infill development and for the addition of residential units to existing developed properties.

» Recommended Site: Garden Street at Oak Avenue.

Goshen

The two Goshen sites have different attributes. The Avenue 308 Station in the residential area has a good mix of residential uses, but very little commercial

development. The Camp Drive station site is closer to industrial land uses but has incompatible development to the south and to the west ("Goshen Ocean" and vacant railroad right-of-way). Visalia Transit currently provides special transit service from Goshen to the Downtown Visalia bus transfer station. According to the ridership data for the Visalia Transit System, most of these trips originate in the residential areas.

» Recommended Site: Avenue 308 site on the west side of Camp Drive.

Hanford

Like the Visalia station site, the Hanford site is virtually surrounded by industrial and commercial land uses. The proposed station site is also adjacent to the existing Amtrak station to provide the greatest opportunity for the transfer of passengers. There is limited opportunity to change the land use mix around this proposed site. Discussions with the Community Development Director in 1995 have indicated that additional or alternative sites nearer the downtown area at Redington and/or Douty may improve the land use profile around the proposed stations.

» Recommended Site: Major station at Amtrak connection (Fifth Street) with minor station in commercial core area.

Armona

The proposed site service area has a relatively good mix of land uses. However, additional higher density residential development would be beneficial to the station. Existing subdivision patterns indicate that there are limited opportunities for additional multi-family development. The proposed site is ideally located in terms of north-south and east-west street connections.

» Recommended Site: 14th Avenue at 6th Street.

Lemoore

Two station sites were evaluated in the City of Lemoore, one at Fox and F Street and the other at Lemoore and E Street. The City has planned a major redevelopment project in the corridor between these two sites and a single station would most effectively serve the area. The station may also be located at Follett and E Streets. The station site would benefit from increased residential densities south of G Street and north of the proposed station sites.

» Recommended Site: Lemoore Avenue at F Street. The site at Lemoore Avenue provides the best vehicular connections and is closest to existing multi-family development.

NAS Lemoore

The proposed station near NAS Lemoore is primarily impacted by security needs, railway location and location of the primary access road on the base. Base housing is located nearby and the proposed site also provides a good rail-to-roadway connection.

» Recommended Site: 850 feet east of Reeves Road at Railroad.

Huron

The proposed Huron station site is surrounded by a mix of industrial, public, and institutional land uses. Agricultural land uses make up a large portion of the area with limited high-density residential uses within the service radius. The proposed site has good vehicular access; however, and is centrally located in the community. A location east of the proposed location may take greater advantage of the existing residential development in the community and remain close to industrial uses.

» Recommended Site: West side of Lassen Avenue and north of Railroad.

3 Economic Development

This chapter considers opportunities and options for advancing the economic development potential of HSR in the Study Area through implementation of the Plan. The discussion builds on the existing conditions analysis (see Chapter 2) and provides additional analysis based on case studies of other commuter rail systems and planning efforts in comparable locations. The information is used to inform Project Alternatives, Recommendations, and Implementation Strategies provided in subsequent chapters, including transit center area development.

3.1 Study Framework and Context

For the purposes of the Plan, the term economic development is used rather broadly to refer to the potential role of both HSR and the Cross Valley Corridor in supporting both station area and regional growth in population, employment, income, real estate investment and other economic activity. In theory, commuter rail and related transit investments can enhance the competitive position of a neighborhood, community, or broader region by increasing economic connectivity and integration. Transportation infrastructure can also send a positive market signal about the long-term comparative advantage and public-sector commitment to a particular location. In practice, however, the economic benefits of commuter rail service can vary depending on the nature of the service, the existing or evolving socio-economic context, and local efforts to plan for and effectively harness opportunities that may arise.

As described in Section 2.4, the Study Area, spanning from the cities of Huron to Porterville along the existing freight rail train tracks, has seen limited growth in recent years. Most CVC cities saw their economic peak with the rise of agricultural industries and accompanying logistics operations that were able to capitalize on the area's inexpensive land and labor and connectivity via freight rail and highway. However, the 2008 recession, along with other changes in the region's industry-orientation, have led to nearly a decade of very slow economic growth for the cities and communities along the proposed Cross Valley Corridor line.

The Plan presents an opportunity to both harness HSR's statewide impacts and enhance intra-regional connectivity and economic integration. However, these benefits are by no means guaranteed, and the communities served by the system must proactively and effectively plan for the benefits brought about by future HSR service.

3.1.1 Approach and Methodology

This chapter seeks to compile a set of lessons learned and best practices related to the economic development benefits of regional commuter rail service that can serve as a toolbox for the cities along the CVC. The analysis is based on case studies of existing or proposed commuter rail systems serving small- to medium-sized cities supplemented with related research and the professional experience of the Project Team.

While high-speed rail service does not yet exist in the United States and the growing trend towards urbanization suggests the worsening of congestion in many cities in California and across the country, various types of commuter rail have seen a revival as a low-carbon, time- and cost-efficient commute option. The planning efforts associated with providing this type of service, and the actual experience and performance once fully operational can provide useful guidance for potential CVC implementation.

Table 3-1 and Table 3-2 provide an overview of the primary case studies relied upon in this study to derive and illustrate lessons learned and best practices applicable to the CVC further detail is provided in Appendix 8.1.1). The case studies have been divided into existing and planned rail service given the different type of information provided by each. The discussion distinguishes between the regional economic impacts of transit and its potential to spur station area development (i.e. transit oriented development or TOD), recognizing that these two outcomes are inter-related. The following are the steps undertaken to identify best practices and lessons learned that are heavily informed by case study analysis and previous work in economic development.

- Identify existing and planned rail serving small- and medium-sized cities: The CVC is unique in its positioning as a commuter rail service that would feed into a high-speed rail service that has not yet been delivered. Therefore, the Plan includes a range of rail services that could provide examples of similar feeder service. Because high-speed rail systems do not yet exist in the United States and planning and funding practices vary state-to-state, examples have been limited to the United States with a focus on rural access and rail access to small- and medium-sized cities.
- Gather basic data on history, operations, and performance: Basic data on rail metrics and history that can provide some metrics for comparison with the future HSR system.
- Identify themes and elements applicable to the CVC: No one case study rail line was able to perfectly emulate the existing conditions present in the CVC or present a reasonable and well-executed road map for implementation. Therefore, after careful analysis, the Plan identifies common themes and “best practices” informed by the experiences of the full set of case studies.

Table 3-1: Case Studies of Existing Service

Rail Line	1st Year of Service	# of Stations	Length (miles)	Approx MPH	Rail Type	Ridership (Annual)	Origin / Destination
Metra Rail (Union Pacific Northwest)	1875	22	73	50	Commuter Rail	11 million	Chicago to Harvard (IL)
Amtrak (Downeaster Line)	2001	12	145	40	Heavy Rail	560,000	Brunswick (ME) to Boston (MA)
RTA (Music City Star)	2006	6	30	40	Heavy Rail	277,000	Nashville to Lebanon (TN)
ACE	1998	10	80	40	Commuter Rail	1.3 million	Stockton to San Jose (CA)
LA Metro (Gold Line)	2003	17	31	40	LRT	16.5 million	East Los Angeles to Azusa (CA)
NCTD (Sprinter)	2008	15	22	25	DMU	2.5 million	Escondido to Oceanside (CA)
Amtrak (San Joaquins)	1974	13	315	50	Commuter Rail	1.2 million	Bay Area to Bakersfield (CA)
SMART (Sonoma & Marin Counties)	2017	16	70	Unknown	DMU	5,000 daily (estimate)	Cloverdale to Larkspur (CA)

Table 3-2: Case Studies of Proposed Service

Rail Line / Project	# of Stations	Length (miles)	Rail Type	Estimated Ridership	Origin / Destination
WALLY (North-South Commuter Rail)	7	27	Commuter Rail	2,600	Ann Arbor to Howell (MI)
DART (Cotton Belt Corridor)	11	26	LRT or Commuter Rail	5,600 - 14,600	Plano to Dallas Airport (TX)
ACEforward	6	57	TBD	1 - 4 million	Lathrop to Merced (CA)
LA Metro (Redlands Passenger Rail)	5	9	DMU	1,600 -1,800 daily	San Bernardino to Redlands (CA)
Chattanooga Passenger Rail	5	23	TBD	TBD	Chattanooga (TN)
Pawtucket Commuter Rail	15	63	Commuter Rail	90 additional passengers/ day	Wickford (RI) to Boston (MA)
Lackawanna Cut-Off Passenger Rail Restoration	8	133	DMU	3,350 daily	Scranton to Hoboken (PA)

3.2 Regional Economic Impacts

At the most fundamental level, success of the CVC will depend on its role and relationship within the broader regional economy it serves. While it is difficult to generalize about economic impacts of regional commuter rail service, two broad themes stand out, particularly in smaller and medium-sized communities: (1) the regional economic impacts are usually long-term, unfolding incrementally over years if not decades, and (2) the size and form of these impacts are inextricably linked to the pre-existing (and evolving) economic context in which they occur.

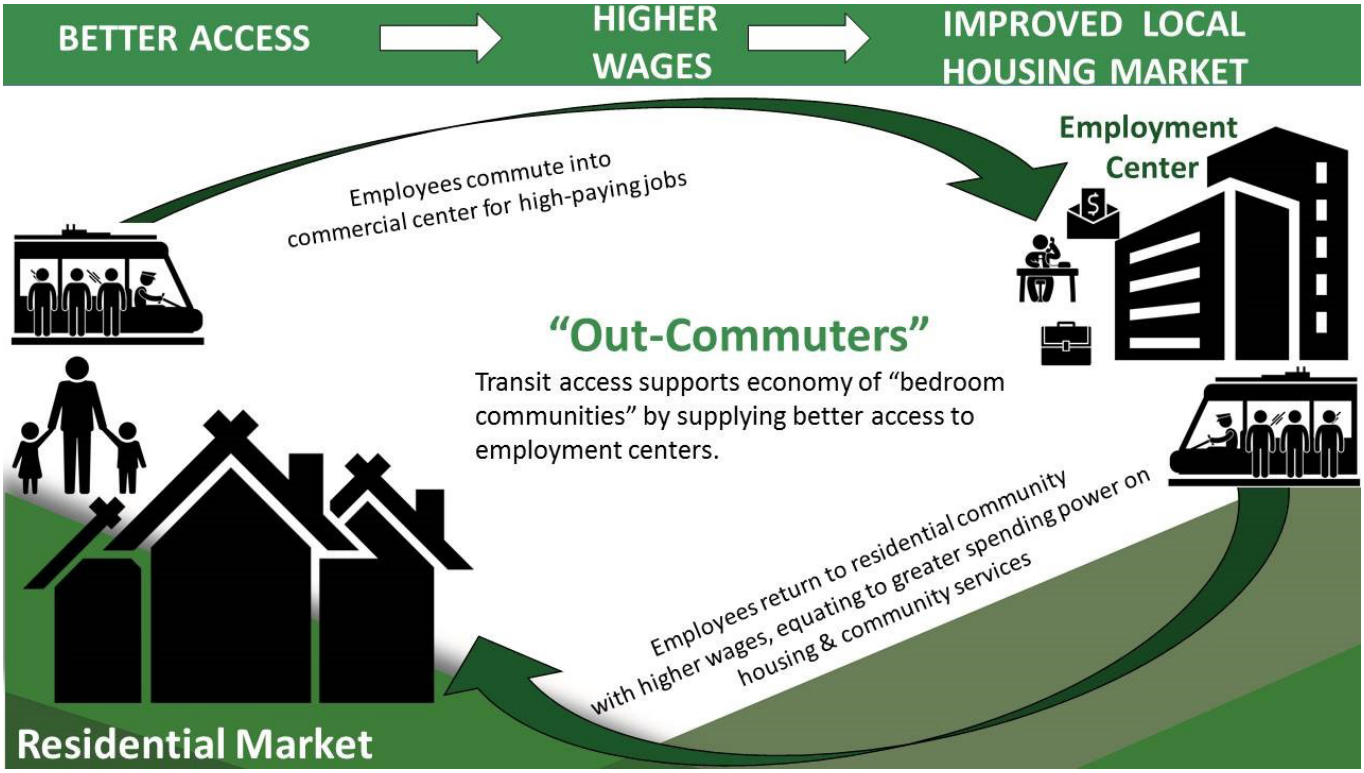
These broad themes are further illustrated for two prototype models of economic development commonly associated with commuter rail service. Specifically, the economic impacts of commuter rail can be differentiated by whether the station areas and host communities primarily serve as an in-commute or an out-commute location. While not mutually exclusive or static, these distinct roles have different implications for the local economies in which they occur.

3.2.1 “Out-Commute” Impacts

Commuter rail that serves residents commuting out to employment destinations, typically in the morning, has historically been the most prevalent model for small to medium size communities. This model has its roots in the “street-car suburb” which facilitated the early growth in many American cities. Subsequent suburban growth was more attributable to the rise of the automobile, as well as consumer demand for new housing often in lower density locations available away from cities. Increasing traffic congestion, especially in and near major metropolitan areas, combined with faster and more efficient commuter rail service, has led to a resurgence in the transit-facilitated out-commute growth model in many larger and expanding mega-regions such as Los Angeles and the San Francisco Bay Area.

Figure 3-1 illustrates how the "out-commute" model can facilitate economic development in smaller to medium size cities, similar to those in the Study Area. Efficient transit and rail connections can increase the attractiveness of housing further away from major employment centers, especially if it is associated with improved commutes (e.g. time and/or experience) and access to lower cost and/or more desirable communities. As this migration occurs, residential communities continue to grow outside of mega-cities and are fueled by the wages collected from large employment centers and reinvested in the local housing market and other resident-serving uses.

Figure 3-1: Flow of Economic Development in Residential Markets



Case Study: ACE Rail

The Altamont Corridor Express (ACE) service that currently runs from Stockton to San Jose provides access to the Bay Area and allows employees to live in modestly priced suburban communities and commute into high-paying employment centers. In considering a service expansion from Lathrop to Merced (ACEforward), ACE has documented a broad array of economic impacts associated with providing extended commuter rail access[1]. Population and employment forecasts indicate that employment growth will well outstrip population growth in the Silicon Valley and San Francisco. However, the reverse trend is projected for the San Joaquin Valley, where population growth is expected to grow disproportionately to employment growth. Additionally, wages in the west are well above those in the San Joaquin Valley.

These trends, along with observed commute patterns, suggest that many Bay Area workers may seek to move to the San Joaquin Valley in search of lower costs of living while still holding their higher-paying jobs in the Bay Area. While these bedroom communities may not experience the same economic benefits associated with business headquarters or large daytime populations, one study estimated that local jurisdictions in the San Joaquin Valley would likely experience $6.74 million in output, $4.55 million in income, and $360,000 in tax revenue attributable to every 100 new residents commuting west to the Bay Area.

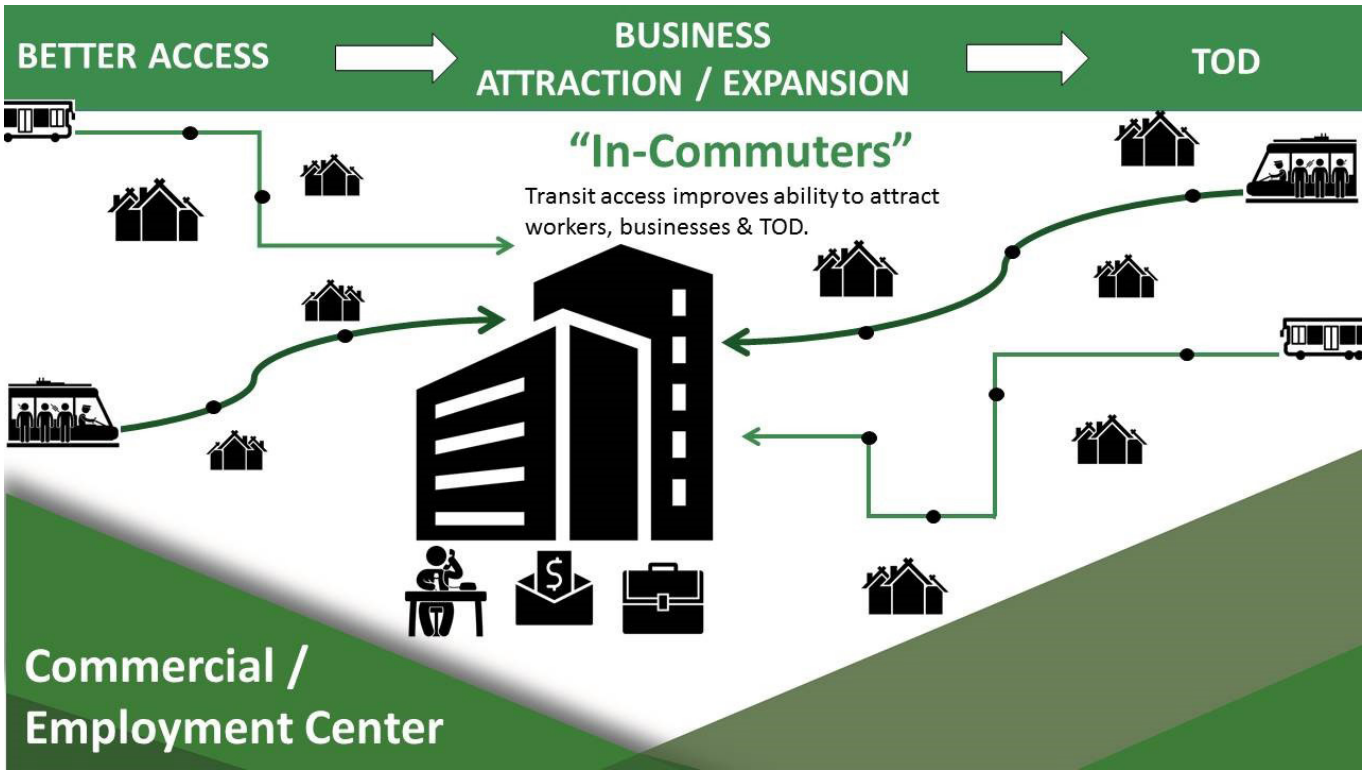
1 Regional Economic Impact of ACE Rail System Expansion, October 2014

3.2.2 In-Commute Impacts

The “in-commute” economic development model of transit and rail service represents the flip-side of the “out-commute” model (i.e. the other trip-end). This model refers to the economic benefits conferred on locations or communities with station areas that serve as destinations for workers and other commercially-oriented trips. As illustrated in Figure 3-2, by providing increased access to commercial and employment hubs, efficient transit or commuter rail service allows these locations to accommodate more jobs and commercial space in a concentrated, often walkable area. It facilitates growth in these areas by reducing auto-congestion and / or the need for costly or space-intensive parking facilities.

Additionally, better transit access and high connectivity within the employment node and among other employment centers in the region can lead to “conglomeration economies”, a well-documented economic phenomenon in which industries in similar or related sectors seek to locate in close proximity to one another. Increased demand and attractive amenities in an “in-commute” hub can support an economically virtuous circle of higher property values and increased development activity. This can further attract increasingly successful businesses, leading to greater economic impacts for the station area, city, or region.

Figure 3-2: Flow of Economic Development in Commercial / Employment Centers



While the “in-commute” model has historically been associated with well-developed businesses and commercial districts in large urban centers, this characterization is evolving. Specifically, there are numerous station areas and host communities that have gradually evolved from primarily bedroom communities to successful commercial and job centers in their own right. Noteworthy examples in the San Francisco Bay Area include Palo Alto, Redwood City, and Mountain View served by Caltrain and Pleasanton and Walnut Creek, served by BART. Similar examples exist in the Los Angeles region associated with the Los Angeles County Metropolitan Transportation Authority (Metro) and Metrolink, and the Sacramento region associated with both the Sacramento Regional Transit District light rail system and the Amtrak Capitol

Corridor. Of course, the nature of the transit service and whether it is primarily designed as short- versus long-haul or inter- versus intra-urban locations influences the prospects of an "in-commute" versus "out-commute" orientation.

Case Study: Metro Gold Line

The Metro Gold Line, connecting downtown Los Angeles to Pasadena in 2003, was able to spur TOD in the station areas to create a high density mixed-use downtown district in Pasadena. Pasadena has been a commuter suburb since 1895 when "Red Car" rail service first connected the City with Los Angeles. With the end of Red Car service in 1961, the City lost much of its downtown vitality with commercial development and economic activity dispersing around the City. However, the 2003 opening of Gold Line LRT service, which operates on the existing alignment through Old Town Pasadena, spurred economic activity and the onslaught of commercial and mixed-use developments near the station area

3.3 Transit-Oriented Development

Transit-oriented development generally refers to real estate investment, usually a mixture of housing, office, retail, and/or other amenities, that is integrated within walking distance (e.g. within a quarter to half-mile distance) from high-quality public transportation. While the potential economic impacts of HSR and CVC previously described relate to the regional or even mega-regional benefits of increased accessibility, TOD focuses on how these impacts are manifested at the neighborhood, station area, and/or site-specific level.

While TOD is a well-documented phenomenon in established urban markets where land values and transit ridership rates are high, it is generally more limited and slower to materialize in smaller communities located outside major metropolitan areas. In these circumstances, two factors that appear to be particularly determinant include (1) the existing and evolving land use and market context, and (2) the planning and regulatory context surrounding the station area. While current market conditions are challenging in many of the station area cities, proactive planning efforts and strategic land use designations can prepare cities to capitalize on transit access as the local economy improves and specific opportunities arise. In the interim, cities can pave the way for future development by providing catalytic infrastructure and public amenities that send a positive signal to potential investors. The following discussion and case studies further elaborate on strategies cities may employ to encourage market activity in the station area as the market matures.

Factors that impact TOD and strategies for development are further described below with reference to the case studies examined herein.

3.3.1 Station Area Land Use and Market Context

While a well-served transit station can enhance the marketability of nearby properties, it is not by itself sufficient to spur development. Pre-existing and independent factors such as regional market demand and supply trends, nearby land uses and property ownership issues, and the overall investment climate, to name a few, will play a critical role in the type and amount of TOD that occurs.

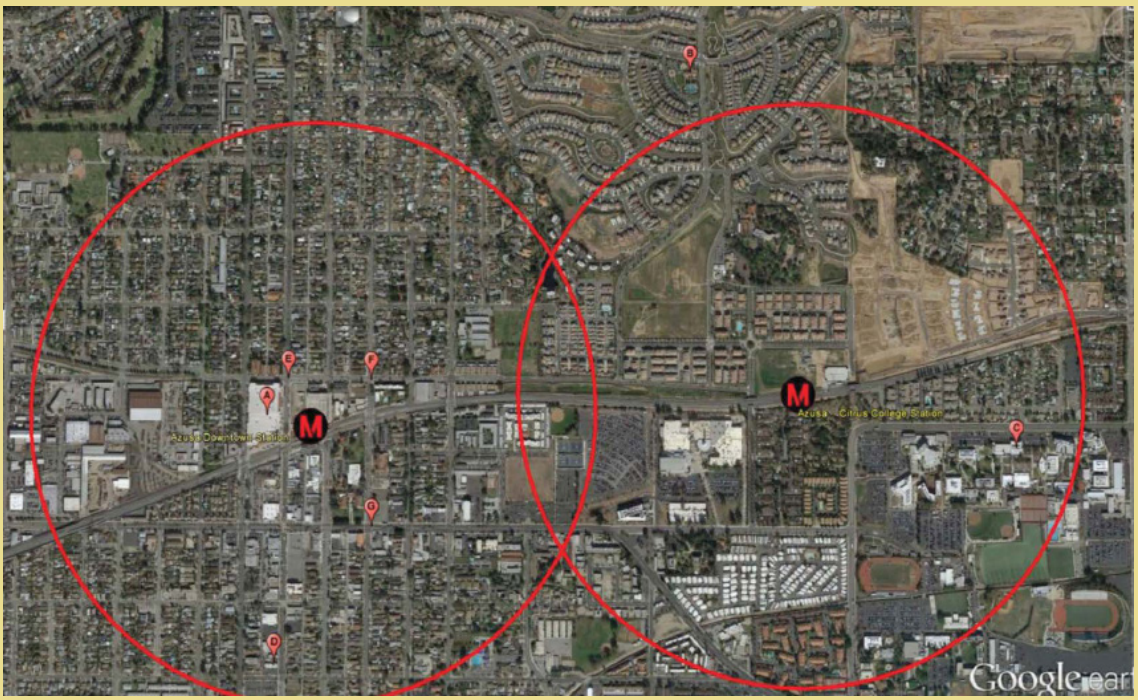
The case study analyses presented herein look at a range of TOD outcomes across various station-area types in small- to medium-sized communities. Typically, TOD in smaller communities appears to be the exception rather than the rule. For example, seven out of seventeen existing Metro Gold Line stations in the San Gabriel Valley have experienced moderate levels of TOD[2]. Likewise, of the six Ace Train station areas outside the inner Bay Area (e.g. excluding those in Santa Clara County) there has been relatively moderate TOD activity in just one location (Livermore).

For those rail stations that do experience TOD activity, several common themes related to market and place-type characteristics generally apply. Chief among these include (1) the station areas are located in existing or emerging mixed-use districts and (2) the surrounding land uses include some well-located development opportunity sites. Of course, the planning context is also a factor, as discussed in the subsequent section.

Case Study: Metro Gold Line TOD

In looking at TOD occurring around Metro Gold Line stations, it becomes evident that not all station areas are created equal. For example, the City of Azusa added 206,000 square feet of commercial space and 1,250 residential units within ½-mile of their two Metro stations in anticipation of Metro Gold Line service in 2016 with an additional 74,000 square feet of commercial and 74 residential units in the development pipeline for the station area. In contrast, the Irwindale station, located just a stop away from Azusa, saw no TOD before Metro Gold Line service initiation. While some of this difference can be attributed to local policy and planning differences amongst cities, the local market and land use context appears to be the predominant differentiator.

Figure 3-3: TOD Development within ½ mile of Metro Gold Line Stations in Azusa



Source: Foothill Gold Line Transit Oriented Development Update, October 2016, Maxima Group LLC

2 Maxima Group, Foothill Gold Line TOD

Case Study: Arlington Heights TOD

The Village of Arlington Heights, a commuter suburb about 30 miles outside of Chicago (population 76,000), successfully reinvented their declining downtown through public investment and public-private partnerships that focused on creating a mixed-use district surrounding the existing Metra Rail station. One of the catalyzing public investments was the redesign of the train station into a multi-modal hub that was able to provide greater connectivity in the downtown while encouraging pedestrian activity through enhanced "active transportation" infrastructure and attractive architectural elements. Additionally, the village was able to appropriately phase TOD by purchasing key properties downtown that were used as commuter parking facilities until there was sufficient market activity to attract developers for high-density mixed-use projects.

Figure 3-4: Arlington Heights TOD in Town Center: Before and After

Source: City of Laguna Niguel Gateway Specific Plan, TOD Case Studies, November 2007

Today there are over 1,500 residential units and 520,000 square feet of commercial space in the station area, as illustrated in Table 3-3. However, it is worth noting that this community was already relatively affluent and was a strong "in-commute" location with current household incomes nearly 50 percent above the county's median.

Table 3-3: Arlington Heights: Value Creation / Capture through TOD & TIF

	Before	After
Assessed Value	$10,900,000	$106,200,000
Property Taxes	$997,000	$8,391,000
Population	350 residents	1,587 residents
Housing Units	150 units	1,115 units
Commercial Space	300,000 square feet	522,000 square feet

Source: Village of Arlington Heights, Economic & Planning Systems, Inc.

3.3.2 Station Area Planning and Regulatory Context

The planning and regulatory context surrounding a transit or commuter rail station is another critical factor in the success of TOD. Of course, policies, practices, and strategies must be tailored to the community they serve and be phased appropriately in order to have the highest impact. While there are no "one size fits all" set of policies that can advance TOD, the case studies examined herein suggest a number of inter-related themes that appear particularly relevant to small- to medium-sized communities where commuter rail is being introduced for the first time.

3.3.2.1 Supportive Local Planning Designations

The creation and approval of locally-based planning designations and authority that provides a framework and vision for station area land uses can be a critical step to incentivizing TOD. Such designations can take many forms, including an approved specific plan, precise plan, master plan, strategic plan, or a vision document that is specifically designed to cover the station area. These plans play a critical role in providing some level of certainty related to permissible uses and activities as well as the policy goals of local officials. These can send a positive signal to local developers, property owners, businesses, and others. Moreover, the creation of these planning documents usually involves substantial input from local stakeholders which itself can lead to a level of consensus on the types of land uses desired.

Case Study: Petaluma

Petaluma has done an exemplary job of developing a Station Area Master Plan that outlines goals and opportunities for development around the future Sonoma Marin Area Rail Transit (SMART) downtown station. As part of this Master Planning effort, the City identified "catalyst sites" and "priority opportunity sites" that are located in the immediate vicinity of the station area and are currently underutilized and/or not already planned for. The resulting Master Plan document focused on the phased development of these sites and clearly outlined the steps necessary for achieving specific goals. The master planning document differentiates between development phases, with the goals in the initial phase centering on creating a sense of place and accommodating transit riders. The goals in the second phase focus on mixed-use development and increasing density in the station area. Additionally, advanced planning efforts have allowed the City to gain broad community and stakeholder support and secure funding from a range of sources and interested parties.

Since the Master Plan document was released, Petaluma has experienced a great influx of investment in the downtown with a number of mixed-use developments locating in designated "catalyst sites" and the revitalization of the City's theater district with entertainment-oriented, mixed-use development[3]. While this development cannot be directly attributed to the SMART train or the City's master planning efforts, it is likely that comprehensive advanced planning efforts offered developers and property owners increased certainty while reducing costs associated with the approval process.

Figure 3-5: Petaluma Station Area Master Plan Catalyst Sites

Source: City of Petaluma Station Area Master Plan

3 New Mixed Use Area - Theatre District in Petaluma, ABAG, April 2013

While ultimately the local jurisdiction with land use authority over the applicable station area should approve the relevant planning designations and supporting documents, regional agencies or authorities, such as Metropolitan Planning Organizations (MPOs), can provide the impetus. For example, both the Metropolitan Transportation Commission, serving the nine counties of the San Francisco Bay Area, and the Southern California Association of Governments provide planning grants to local jurisdictions for the creation of station area plans. While both of these MPOs set the criteria for eligibility and provide some level of oversight, local entities generally lead the planning process and have final approval over the content. These grants have served as effective incentives for local jurisdictions to update and modify local land use policies to better accommodate TOD opportunities.

3.3.2.2 Long-Term Planning and Development Phasing

Another strategy in effective long-term planning is the use of zoning, ownership, or other tools to ensure that land adjacent to rail is not developed in the near-term with low-density or single-use projects that could hinder future station area vibrancy and TOD opportunities. This may be especially relevant to those cities that have very little station-oriented development or uses and need time to allow for the commercial market to mature.

In instances where public agencies do not have ownership over key properties, land use controls or incentives that promote interim uses while also allowing for a gradual evolution to higher density development over time can support longer-term TOD opportunities. For example, many of the suburban areas served by the Dallas Area Rail Transit prepared for the positive development potential of light rail service by up-zoning their station areas to ensure long-term development goals were not overshadowed by short-term projects[4]. Petaluma addressed this issue in their Station Area Master Plan by recommending that developers of “catalyst sites” include surface parking if necessary, which can be viewed as banking the land for a higher value use that would only be feasible once the market develops.

If a city or rail operator has, or can gain, control of land in the station area, leasing can provide revenues in the short-term while leaving options open for long-term development. SMART currently owns land in Santa Rosa’s station area and recently entered into a joint development agreement with the City to occupy the site with appropriate uses. The lease terms stipulate that short-term uses will aim to decrease blight while long-term uses have the goal of activating and adding to the station area amenities. The SMART operator has incorporated joint-development projects and the leasing of excess land into their projected budgeting documents as a source of nearly $8.1 million in revenue[5].

Long term planning and development phasing efforts are valuable tools CVC cities may employ to better leverage the economic benefits conferred by rail access while the market continues to mature. A benefit to long-term land use planning, as opposed to the creation of financing mechanisms such as an Enhanced Infrastructure Financing District (EIFD) or assessment district, is that in most cases, these efforts do not require voter approval. Of course, to the degree that public financing tools can be developed and coordinated as part of the land use planning efforts, catalytic infrastructure investment can be expediated.

5 SMART’s Financial Plan, White Paper No. 18, July 2008

3.3.2.3 TOD Financial Incentives

Local planning efforts can also incorporate financial and policy tools that improve the development economics associated with TOD. While the subsequent section provides a more detailed discussion of financing tools and resources for transit and station area improvements, TOD tools or incentives are generally focused on supporting private sector investment. These tools can include preferential zoning or tax policies for development or businesses in the station area, fee waivers and stream-lined approval policies, specialty access to transit for a business's headquarters, and assistance with land assembly, among others (see Table 3-4).

Table 3-4: Examples of Tools for Incentivizing TOD

Tools	Description
Land Assembly	Land assembly, particularly in downtown settings, is frequently one of the biggest challenges for TOD. Cities can assist with this effort with strategic land acquisition and / or dedication for projects that provide a clear public benefit.
Fee Reductions / Waivers	Local jurisdictions may reduce or waive fees for certain types of development or on a project-specific basis.
Stream-lined Approval Processes	Local jurisdictions may expedite their permitting and approval processes or create other efficiencies that can effectively shorten the approval process and reduce costs for TOD.
Tax Abatement / Rebate	Cities can encourage certain types of TOD by offering to share in the tax revenue increase generated by the project. This is most common for projects that generate significant local taxes such as retail or hotels.
Density Bonus	In addition to the State Density Bonus program, cities can encourage TOD by allowing for densities or building heights that exceed current zoning. While State law focuses on affordable housing, other cities have used density bonuses to encourage ground-floor retail in specific districts.
Special Transit Access	A City may allow for special transit access or facilities (which may be partially publicly-funded) for TOD projects. A common use of this incentive is in the subsidization of transit fares for TOD workers.

Beyond direct financial incentives, a jurisdiction's authority over land use and entitlement, its ability to create a conducive zoning and regulatory environment, as well as public investment in infrastructure and community amenities, can greatly improve the feasibility of TOD. Moreover, zoning and related policies can often be implemented without the more complex and challenging approval processes associated with the creation of an EIFD or special tax, particularly in locations with numerous property owners such as historic downtowns.

Of course, direct public sector financial support for market rate development can pose a number of legal and regulatory issues. For example, there are a number of State laws that limit the ability of jurisdictions and other public agencies to directly subsidize private development, including a clear statement of the public purpose. Additionally, public subsidies generally trigger Davis Bacon prevailing wage requirements , which can often offset the financial benefits offered by the subsidy.

While local jurisdictions face some limitations in how they can subsidize private investment, there are a variety of state and federal programs designed to incentivize private investments in economically distressed areas, including some that target rural areas. The more prominent types of incentives that may be applicable to TOD projects in CVC cities include, but are not limited to, the following:

- The New Markets Tax Credit Program: The Program assists low-income communities by providing private investors with federal tax credits that are used as an incentive for providing equity in local businesses. In order to participate in this program, a Community Development Entity (CDE) must be formed, which has the authority to offer tax credits to investors in return for equity in the CDE.
- Enterprise Zones: The California Enterprise Zone Program provides economic incentives to invest in economically blighted areas in California. If designated as a California Enterprise Zone, that community is eligible for a number of local- and state-funded programs. Incentives may include: subsidization of the cost of development, funds for infrastructure, job training to local businesses, and the establishment of a more streamlined permitting process, among others.
- EB-5 Program: Under EB-5, an entrepreneur (and family) is eligible to apply for a green card if they make an investment of at least $1 million into a new commercial enterprise (or $500,000 if that enterprise is within a Targeted Employment Area) and plan to create or preserve at least ten permanent full-time jobs. A targeted employment area is a rural area with unemployment of at least 150 percent of the national average. In order to participate in this program, a public or private entity involved in promoting economic growth must apply for designation as a Regional Center by the U.S. Citizenship and Immigration Services, which then is able to pool investment in defined zones. While this program has been used extensively for real estate projects, these types of investments are coming under increased scrutiny by U.S. Citizenship and Immigration Services.
- Affordable Housing Tax Credits: The federal Low Income Housing Tax Credits program is by far the most important resource in supply affordable housing nationwide. The Low Income Housing Tax Credits program can support housing investment in locations where market-rate development is not financially feasible, supporting increased density and "priming the pump" for subsequent private sector investment. While qualification for tax credits can be highly competitive, centrally located sites near transit generally score well.

Case Study: Plano, Texas

In Texas, the City of Plano partnered with a private developer, Amicus Partners, to develop a "transit village" located adjacent to a future Dallas Area Rapid Transit station. The City assembled and cleared the site, then negotiated a 70-year lease with the developer, which featured discounted rental rates for years one and two, and City responsibility for the construction of off-site infrastructure serving the project. The development program consisted of over 200 residential units, 15,000 square feet of commercial space, and roughly 400 parking spaces on 3.6 acres in downtown Plano[6]. A second phase of development, taking place across the street, was enabled by the City deeding 1.1 acres of land to the developer, Amicus, in exchange for 100 parking spaces. This phase featured another 200 residential units and 25,000 square feet of commercial space . In providing financial incentives to the developer, the City of Plano was able to achieve TOD goals and spur desired development without having to wait for the market conditions to be such that a developer would be willing to take on the risk alone.

Figure 3-6: Eastside Village TOD, Plano, Texas

Source: Reconnecting America, 2006

6 Eastside Village Project Profile, City of Plano

3.3.3 Implications for CVC

While California's coastal economies have experienced a strong resurgence out of the so-called "Great Recession" in 2008, the San Joaquin Valley has not shared in the same success. While this is partly attributable to severe drought and technological and competitive dynamics affecting the region's agricultural industries, lack of access and economic integration with California's more economically robust areas has undoubtedly limited economic prospects. The successful completion of HSR service can potentially help reverse the economic disparity between California's coastal areas and communities within San Joaquin Valley by facilitating access to higher paying job markets such as Los Angeles and San Francisco Bay Area regions. In the longer term, it may also support the reverse pattern where employers decide to locate in the Valley, where land and labor are relatively less expensive.

How these impacts may play out in the CVC and be enhanced by future CVC rail service could depend on a variety of factors, and may differ by location. Considering the residentially-focused nature of many of the communities along the CVC, an initial impact of HSR service would likely be to provide residents easier access to higher-paying employment centers while also attracting residents seeking affordable housing with access to employment. This would suggest that after completion of the HSR service, the initial economic benefits are likely to be dispersed throughout the TCAG region based on the multiplier effects of increased consumer spending associated with increased population and incomes.

In the long term, the reverse trend could also be a possibility with businesses choosing to locate where both land and labor are relatively cheaper, while HSR could still allow for regional connections to corporate headquarters and other businesses. The extent and timing of this outcome is harder to predict since the creation and fostering of new industry and business centers often takes years, if not decades, to mature and are highly subject to larger economic trends and conditions.

Another consideration relates to the ridership of the potential CVC rail service itself and whether it will function as more of a regional connector or as a feeder to the HSR station in Hanford. To the degree that CVC ridership is heavily linked to HSR and focused on "out-commute" service, the economic impacts will again be more diffuse and residentially based. Conversely, if the CVC evolves into a strong regional connector, some of the cities along the corridor will likely emerge as "in-commute" destinations with the corresponding economic impacts as described above. Of course, it is likely that the ridership of both the CVC and HSR will evolve over time in response to both economic factors and the nature of the service itself.

Many of the communities with proposed CVC stations were developed around historic rail lines that were the impetus for initial settlement. This historic transit orientation is conducive to continued TOD with historic community places and structures already located near to the station area in central locations. Petaluma is a fitting example of how the reactivation of an abandoned rail line was able to spur development of surrounding historic places and thereby preserve the town's character while accommodating new TOD projects.

Looking more closely at the neighborhoods surrounding transit stations, the facilitation of TOD projects around light rail stations is a well-tested strategy to attract investment and spur market synergies between a mix of uses in a walkable and well-connected environment. Initially, however, TOD may only be viable in some of the larger cities along the CVC, such as Hanford and Visalia, while in others, it may take years before market conditions support it. Therefore, it is important that advanced planning efforts recognize the extended time frame

of development when considering station area development. In order to ensure that future development can be accommodated near transit and in-line with broader city and regional goals and standards, land adjacent to the station area should be developed in the short-term with complementary or temporary uses that will not prohibit future higher-density development. TOD planning efforts should be somewhat flexible in the type and timing of development to allow for appropriate uses, depending on the growth trajectory of each individual city, as well as the region as a whole. Land uses like parking should be treated delicately to allow for realistic development in the short term, while not inhibiting TOD in the long-term.

Cities in the CVC may incentivize and prepare for TOD through proactive long-term planning, strategic land acquisition, mixed-use zoning, and interim land uses in the station area. These have been identified as valuable tools that come as an alternative to more concrete funding and financing mechanisms that will be explored in the subsequent section. While these tools are highly place-specific and call for high levels of city involvement, they do not require public approval in the same ways that EIFD creation and special tax impositions do, and thus are able to reduce costs associated with plan implementation and approval processes.

3.4 Financing and Phasing Best Practices

This section considers emerging trends and practices for financing and phasing rail systems and their implications for the CVC. The financing and phasing of commuter rail investments and service are inextricably linked since costs will generally increase as the level and type of service expands over time. While these two issues are discussed separately, they will need to be closely coordinated as the CVC is planned and implemented over time.

3.4.1 Financing for Capital and Operations

Most transit services and operators rely on a variety of funding sources which differ depending on whether they are used for capital or operational expenses. As illustrated in Figure 3-7, farebox recovery generally represents the largest single revenue source for operations and maintenance (O&M) expenses, at about 33 percent, followed by state and federal sources which account for about 32 percent, based on nationwide averages. In California, funding from state and federal sources trend slightly below the national average. On the capital side, state and federal sources generally account for over 40 percent of the total transit investment, as shown in Figure 3-8. “Directly Generated” sources, which generally include non-fare revenue associated with transit service, from advertising, land leases, and taxes imposed by transit agencies, are also important for both capital and operations.

While capital and ongoing funding sources overlap, there are many differences that make securing capital funding somewhat less challenging. Federal and state grants can provide a substantial amount of capital funding, provided that the applicant can secure matching funds. Public-private partnerships and private funding can also be good sources of capital funding, although this source is highly case-specific.

Figure 3-7: Funding for Transit Operations and Maintenance - National Averages

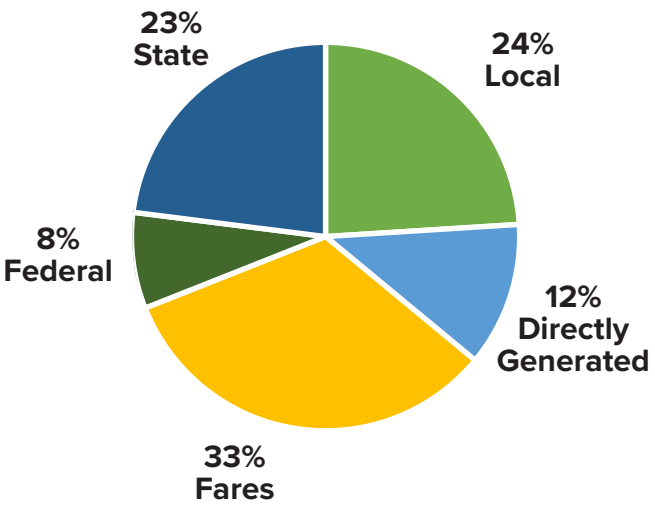
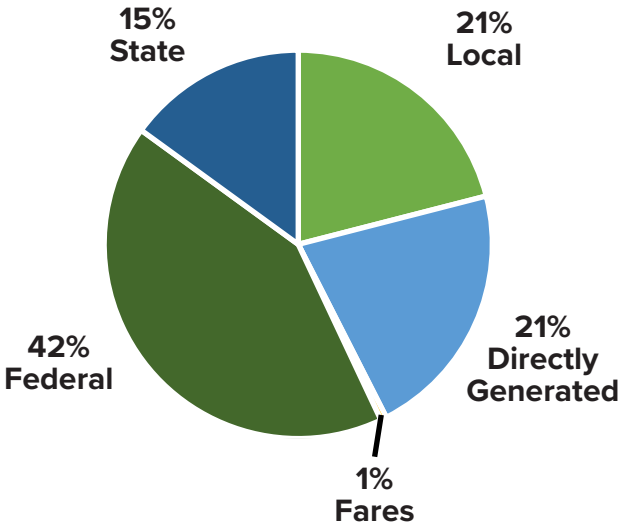


Figure 3-8: Funding for Capital Transit Project - National Averages



*Directly Generated: includes additional passenger fare revenues, advertising revenues, donations, bond proceeds, taxes imposed by the transit agency.
Source: The National Transit Database, FTA, 2015

Because the need for O&M is constant, transit agencies often seek to diversify their funding sources to cushion the impacts of unforeseen fluctuations from any one source. For example, SMART plans to cover O&M costs through a multitude of sources including a one-fourth-cent sales tax, federal, state, and regional funding, passenger fares, the leasing of unused property along the rail lines, and the collection of user fees from freight operations[7].

Case Study: ACE Rail

ACE is another example of a transit service with a diverse and innovative funding approach involving multiple agencies and jurisdictions. As shown in Table 3-5, this service relies on about 32 percent of its funding from two regionally approved sales tax measures: San Joaquin County Local Measure K and Alameda County Transportation Commission Measure B. This service also operates based on a joint use agreement with Union Pacific Railroad which utilizes the track for freight movement during off-peak hours.

Table 3-5: Operating Budget for ACE Service

Funding Source	2016 / 2017 ACE Service Operating Revenues	
	Amount	% of Total
San Joaquin County Local Measure K	$2,231,841	10%
Local Transportation Funds (LTF)	$3,000,000	14%
Federal Section 5307 Funds	$0	0%
Fare Revenues	$8,500,000	39%
ACTC Measure B Local	$3,002,697	14%
Santa Clara VTA Local	$3,224,089	15%
Transportaion for Clean Air (TFCA)	$100,000	0%
SJCOG - State Transit Assistance (STA) Funds	$602,908	3%
MTC - STA Funds	$206,925	1%
ACTC Measyre B Local (Admin fee)	$30,000	0%
Employer Shuttle Contributions	$4,800	0%
Amtrak Thruway Service	$75,000	0%
Special Trains	$317,970	1%
Sponsorship Contributions	$0	0%
High Speed Rail	$150,000	1%
FEMA Security	$147,000	1%
Total ACE Operating Revenues	**$21,593,230**	**100%**

Source: San Joaquin Regional Rail Commission FY 2016 / 2017 Work Program and Budget, Economic & Planning Systems, Inc.

7 SMART's Financial Plan, White Paper No. 18, July 2008

The following sections focus on trends and opportunities associated with the following sources based on the case studies analyses conducted as part of this analysis (see Table 3-6).

- State and Federal Sources
- Value Capture Techniques
- Public Private Partnership
- Voter approved taxes or fees

Table 3-6: Summary of Case Study Funding and Financing Tools

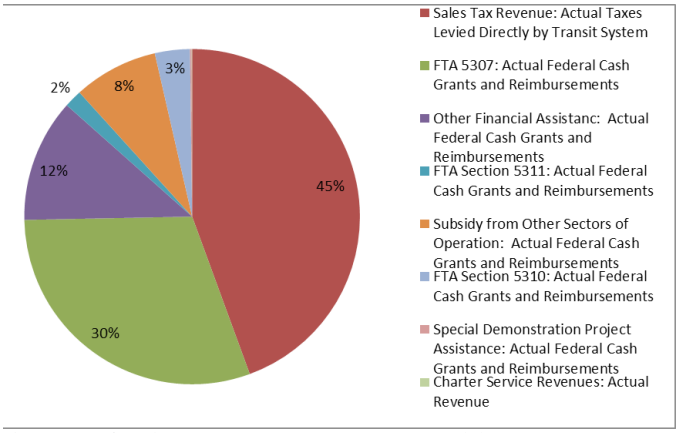
Funding Options	Applicable Case Studies
TIGER Grant / Federal Funding	Chatanooga, Pawtucket, Redlands
Tax Increment Financing (TIF) District / Special District	Arlington Heights, Saco
Local Sales Tax (Local Measure)	SMART, AceTrain
Public Private Partnership	Redlands, Lebanon
Voter-approved bond / fee	DART
Leasing of Owned Property	SMART, DART
Strong Farebox Recovery Ratio	Music City Star
Fees for Shared Use of Track	SMART, WALLY

3.4.2 State and Federal Sources

The makeup of federal and state funding sources for California transit agencies are shown in Figure 3-9 and Figure 3-10. The federal government collects tax revenues from fuel purchases that are deposited into the Highway Trust Fund and allocated to states, local governments, and transit agencies through formula allocations, in most cases. The Federal Highway Administration allocates roughly $3.5 billion in annual funding to the State of California, 40 percent of which is passed on to local governments. Additionally, the Federal Transit Administration distributes roughly $1.5 billion to transit operators through various grant programs[8].

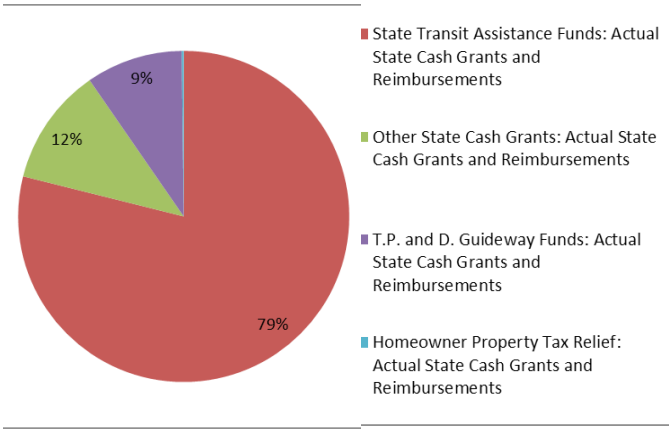
Meanwhile, the State of California collects gas taxes, diesel taxes, and commercial vehicle fees, which make up the state-generated funds dedicated to transportation projects. The State generally distributes funding to cities, counties, and transit agencies based on funding formulas, with other programs providing opportunities to receive grant funding (i.e. Cap-and Trade funded transportation grants).

Figure 3-9: California Federal Revenue Sources for Transit, 2015



Source: California Transit Association, 2015

Figure 3-10: California State Revenue Sources for Transit, 2015



Source: California Transit Association, 2015

8 Transportation Funding in California, California Transportation Commission, March 2017

Federal and state grants for transit improvements have proven to be a main source of capital funding, especially for rural or underserved communities. The Transportation Investment Generating Economic Recovery (TIGER) federal grant program has been one of the main funding sources for the Redlands Passenger Rail, Chattanooga Rail, and others from the case study list included in the Plan. This program has been particularly popular for more rural communities given a mandatory set-aside allocation within the grant application criteria. Both federal and state funding sources are subject to fluctuation due to changes in political control and business cycle considerations.

There are a variety of competitive state and federal grants and/or low-cost loan programs that are potentially applicable to CVC improvements. The more notable of these are summarized in Table 3-7 with an emphasis on key factors such as competitiveness, type and amount of funding, and application process.

Table 3-7: State and Federal Programs

Program Name	Description	Eligible Projects	Type of Funding	Past funds issued	Application Proces Requirements
State Sources					
State Infrastructure Bank (IBank)	The Infrastructure State Revolving Fund (ISRF) program provides low interest-rate loans to municipal governments. IBank has the authority to issue tax-exempt and taxable revenue bonds. provide financing to public agencies. provide credit enhancements. acquire or lease facilities. and leverage State and Federal funds.	Public infrastructure that promotes a healthy climate for jobs. contributes to a strong economy. and improves the quality of life in CA communities.	Tax-exempt bonds. low-interest rate loans. financing. credit. etc.	Financed over $32 billion in CA & ISRF provides loans up to $25 million per applicant.	Loans require stable a reliable source of repayment (can be General Fund revenue special tax).
Statewide Community Infrastructure Program (SCIP)	SCIP. created by the California Statewide Communities Development Authority (CSCDA). pools debt obligations to gain a comparatively lower interest rate and issuance cost - these benefits are passed on the local agencies through low-cost long-term financing.	Public infrastructure including roads. lights. storm drains. parks. etc.	Non-recourse low cost financing	Funded $150.2 million in financing for impact fees since 2003	Must be a member of CSCDA. member of th CA League of Cities. a adopt the "SCIP Resolution"
State Road Repair and Accountability Act (SB 1)	CA SB 1 (The Road Repair and Accountability Act of 2017) will invest $5.4 billion annually over the next decade to repair CA's transportation system. The state-maintained transportation infrastructure will receive about half of total funds with the other half going to local roads. transit agencies. etc.	All types of transportation and transit infrastructure. including planning grants. local matching funds. and trade corridor enhancement programs.	Allocated through grants.	$5.4 billion annually with $700 million reserved for transit capital & operations	Dependent on specific grant program.
Federal Sources					
Transportation Investment Generating Economic Recovery (TIGER) Grant	This program funds projects that support economic recovery. especially in rural communities. and leverages money from stakeholder partners with a 20 percent match requirement.	Broad range of transportation projects that promote economic growth and recovery.	Allocated through highly competitive grants.	$500 million (2017) funds	Grant application with percent local match. Priority given to rural projects.
Infrastructure for Rebuilding America Grants (INFRA)	This U.S. DOT grant program assists projects that rebuild aging infrastructure through direct funding and partnerships. 10 percent of INFRA funds go to small projects ($5 - $25 million).	Rebuild aging infrastructure. including: reconstruction. rehabilitation. property acquisition. mitigation. and operational improvements.	Allocated through grants.	Unavailable	Priority given to project with motivated stakeholders that are r for project initiation.
Transportation Infrastructure Finance and Innovation Act (TIFIA)	The U.S. DOT TIFIA program. provides direct loans. loan guarantees. and standby lines of credit. Both public and privately sponsored projects are eligible for funding. TIFIA loan amounts have generally been 30 percent. or less. of eligible costs.	Projects of regional significance. especially large-scale surface transportation projects.	Provides loans. loan guarantees. and standby lines of credit.	Annual average allocation of credit assistance: $287 million	Requires 25 percent match. Must identify dedicated funding sour for repayment. Must be over $25 million for rur infrastructure projects.
Railroad Rehabilitation and Improvement Financing (RRIF) Program	The RRIF. established by the Transportation Equity Act for the 21st Century. supplies federal loans to assist in refinancing debt incurred from railroad projects. Loans may cover up to 100 percent of project costs.	Projects that rehabilitate or acquire rail infrastructure. Priority given to projects that increase safety and encourage economic development.	Refinances debt. provides loans.	RRIF has issued 12 loans totaling $1.95 billion since 2009.	Requires a credit risk premium. which offsets of loan default. Repayr of loan within 35 years

3.4.3 Local Financing Tools and Strategies

This section considers the potential for various local funding tools and programs that could be pursued to help pay for CVC infrastructure and, to a lesser extent, operations. Local funding sources are defined as those that would be enabled and approved by the residents of the communities served by the CVC. A summary of the sources and mechanisms identified and the approval process and authority needed for implementation is shown in Table 3-8. This chapter distinguishes between (1) “Value Capture” tools or measures that generally apply to property and development within a defined project area (e.g., on and surrounding the rail alignment), and (2) “Voter-Approved” strategies that require a vote of affected residents (or property owners). The analysis is supplemented with case studies as well as high-level estimates of the funding potential from selected tools within three cities with proposed CVC stations.

Table 3-8: Summary of Funding Sources and Mechanisms

Funding Source / Mechanism	Description	Approval Process / Authority
Value Capture Sources		
Development Agreements, incentive zoning, and/or Public Private Partnerships (P3)	A Development Agreements (DA) is a voluntary and legally binding agreement between a local government and developer authorized by State statute. DAs are discretionary on the part of local government and must be individually adopted by local ordinance. A P3 is similar to a DA but often includes more specificity. collaboration. and risk sharing among public and private participants.	Requires City Council approval.
Enhanced Infrastructure Financing District (EIFD) - TI Bond Proceeds	A defined district formed to that can issue bonds to by diverting property tax increment revenues for 20 years to finance public infrastructure.	Requires City Council approval. Bond issuance requires voter approval
Mello-Roos Community Facilities District (CFD) - Net Bond Proceeds	A special tax levied on properties within a defined district to pay debt service on bonds sold to fund construction and/or acquisition of public capital facilities.	2/3rds voter approval (or landowner approval when there are fewer than 12 registered voters in the proposed district)
Local Sources Requiring City-Wide Voter Approval		
Property Tax Secured Bond Measure	Voters may approve a special or general property tax increase revenue in the general fund or for specific purposes. Local property taxes may not exceed 2%. The generated money may then be used to secure a GO bond.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax and GO Bond (revenues used for specific purposes)
Parcel Tax	Excise tax on real property that is based on either a flat per-parcel rate or a rate that varies depending on use. size. and/or number of units on each parcel. Parcel taxes may be imposed for any municipal purpose. Proposition 218 requires that parcel taxes be enacted as a special tax. The generated money may then be used to secure a GO bond.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax (revenues used for specific purposes)
Add-on Sales Taxes (Transaction and Use Taxes)	Transaction and Use Taxes generally apply to merchandise delivered in the jurisdiction imposing the tax. Cities and counties may seek voter approval of local transactions and use tax. Two conditions hold: (1) The tax increase must be a multiple of 0.25% and (2) The maximum combined rate of transactions and use taxes in any location may not exceed 2%.The generated money may then be used to secure a GO bond.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax (revenues used for specific purposes)
Transient Occupancy Tax (TOT or Hotel Bed Tax)	Tax on hotels. motels. and other short term accommodations. Cities may set their own TOT rates. Lodging provider collects tax and remits funds to City.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax (revenues used for specific purposes)
Documentary Transfer Tax / Property Transfer Tax	Tax imposed on the transfer of interests in real estate. Counties may tax at rate of 55 cents per $500 of the property value. Cities may tax at rate of 55 cents per $1.000 of the property value. Charter Cities may set own rate.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax (revenues used for specific purposes)
Utility Users Tax	Tax on the users of utility services such as gas. electric. water. cable TV and/or telecommunications services. City may set their own UUT rate. UUT collected by utility companies as part of regular billing procedures and remitted to the City.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax (revenues used for specific purposes)
Business License Tax	A tax on businesses in the City. usually measured by gross receipts. May also be based on quantity of goods produced. number of employees. number of vehicles. square footage of space occupied. or combination.	• Majority if General Tax (revenues used for unrestricted purposes). • 2/3 Supermajority if Special Tax (revenues used for specific purposes)

Source: Economic & Planning Systems. Inc.

3.4.3.1 Value Capture Techniques

Well-designed transit facilities and services can increase adjacent land values and stimulate private investment in nearby neighborhoods or districts. The term “value capture” refers to a range of public financing techniques designed to recover some or all of the value that public infrastructure generates to private landowners, usually as a basis for financing ongoing improvements and O&M.

Project Specific Development Agreements, Incentive Zoning, and P3s

With local authority over land use, California cities have a variety of tools at their disposal to exact financial contributions from property owners and developers in exchange for project or site-specific entitlements. Cities may seek to leverage the economic benefits associated with CVC access by supporting increased development opportunities at particular locations that exceed what is allowed under baseline zoning. Regardless of property ownership, cities can play a critical role in enabling development and could require a portion of any surplus value created to be used for station area improvements. One or a combination of the following inter-related tools is frequently utilized to accomplish this:

- Development Agreements: A Development Agreement is a voluntary and legally binding agreement between a local government and developer authorized by State statute (Government Code Section 65864 et seq.). These contractual agreements allow developers to secure entitlements for a particular project that would not be obtainable through the normal conditions or zoning, in exchange for special contributions, generally including infrastructure improvements, amenities, or other community benefits. Development Agreements are entirely discretionary on the part of the applicant and local government (there is no nexus requirement) and must be individually adopted by local ordinance.
- Community Benefit Incentive Zoning: Community Benefit Incentive Zoning programs can provide a more systematic and policy based approach to "value capture". Specifically, under these programs cities configure their land use regulations in a manner that can provide incentives for additional private investments in local infrastructure and community benefits in exchange for entitlements beyond what would otherwise be obtainable.
- Public-Private Partnerships (P3): Public private partnerships (often referred to as PPP, 3P or P3) represent an increasingly popular way to deliver transit services and facilities based on the benefits they provide to a variety of parties. A public private partnerships is similar to a Development Agreement but often includes more specificity, collaboration, and risk sharing among public and private participants. For many of the jurisdictions with proposed CVC stations, a public private partnership may prove to be an effective way to formalize the role of stakeholder parties, which may include private companies, federal entities, or motivated developers. In particular, the Department of Defense may be a unique funding partner for the CVC due to the inclusion of the Lemoore NAS station along the proposed CVC route.

Case Study: Redlands Passenger Rail Project

The Redlands Passenger Rail Project, also known as Arrow Commuter Rail, has successfully partnered with public and private institutions to secure funding for station construction and service. Through advanced planning efforts and stakeholder involvement, the project was able to secure funding from Esri, a business with headquarters in Redlands, for the construction and operation of a station adjacent to the Esri Campus. This partnership showcases the value that businesses see in having multi-modal accessibility options for their employees. Esri reached out to the San Bernardino County Transportation Authority (SBCTA), the project sponsor, to fund the addition of a station with a net zero fiscal impact to SBCTA[9]. While this type of partnership and involvement is not always readily available, early planning and efforts to inform and involve local stakeholders can result in mutually beneficial arrangements.

9 Cooperative Agreement with Esri for the Redlands Passenger Rail Project – New York Street Station, San Bernardino Associated Governments, 4/6/2016

Case Study: Hamilton Springs

Hamilton Springs is a subdivided community built across 220 acres with 396 finished apartment units and plans for an additional 262 age-restricted units, as well as a commercial component to be completed in 2017/2018. The developers donated the land for the station and the Regional Transportation Authority of Middle Tennessee was awarded $1.6 million in federal grant money to fund the design and construction of the Hamilton Springs Station[10]. The subdivision accentuates alternative transportation modes by incorporating bike and pedestrian infrastructure throughout the development and limiting vehicle access, as shown in Figure 3-11.

Figure 3-11: Hamilton Springs Master Plan and Rail Stop

Source: Lose & Associates for Horn Springs Group, LLC

Application to Selected CVC Jurisdictions

The specific amount of "value capture" funding achieved using any of the mechanisms described above is difficult to quantify given the wide range of variables involved, including the level of development enabled and the role and financial participation of various parties. For illustrative purposes, Table 3-9 solves for the surplus land value that might be achieved under various scenarios related to the amount of additional development that would be controlled and enabled through a public-private partnership on or near the station area improvements. While the results are most directly applicable to publicly owned land, other circumstance might apply that could facilitate value capture. The calculations assume that surplus land value will represent about ten percent of finished market value (i.e. the price completed project would receive in the market).

As shown, the value capture funding potential increases with the amount of new development that is assumed to be directly attributable to CVC access and related improvements. For example, assuming 100 new residential units and 50,000 square feet of new commercial space (e.g., office and retail) is developed, approximately $3 million might be available for infrastructure. Under a more aggressive scenario, 300 new residential units and 100,000 in new commercial square feet might generate about $8 million of value capture funding.

It is important to note that the timing and predictability of future revenue streams is often a critical challenge to effectively using most value capture tools. The level of development illustrated in all the scenarios could take many years to materialize and be subject to market fluctuations, challenging entitlement and land assembly issues, and other uncertainties. Indeed, a substantial portion of the development is premised on prior completion of the CVC, presenting a phasing and financing dilemma.

10 Board Meeting of the Regional Transportation Authority of Middle Tennessee, 2/15/17

Table 3-9: Hypothetical Value Capture Scenarios

Scenario	Development Program[1]	Finished Market Value[2] Per Unit or Sqft.	Finished Market Value[2] Total	Value Capture as a % of Finished Market Value[3]	Total Value Capture Funding Potentail[4]
New Development Scenario 1					
Residential (units)	100	$200,000	$20,000,000		
Commercial (Sqft.)	50,000	$200	$10,000,000		
Total			$30,000,000	10%	**$3,000,000**
New Development Scenario 2					
Residential (units)	200	$200,000	$40,000,000		
Commercial (Sqft.)	75,000	$200	$15,000,000		
Total			$55,000,000	10%	**$5,500,000**
New Development Scenario 3					
Residential (units)	300	$200,000	$60,000,000		
Commercial (Sqft.)	100,000	$200	$20,000,000		
Total			$80,000,000	10%	**$8,000,000**

[1] Scenarios to reflect development that could be achieveable in around a small station area of one of the proposed CVC station cities. Assumptions represented in this analysis are not specific to any one city or station area, but rather, are meant to serve as an example of the funding potential of city-controlled value-capture strategies (Development Agreements, P3s, Incentive Zoning).

[2] Based on observed lease rates and home values in the studied jurisdictions. Adjusted to reflect new property in the station area.

[3] Represents the proportion of total project value that may be available after accounting for total development cost and return, but excluding land. Industry standard suggest that this amount typically ranges from 10% - 20% of market value. The low end of this range is used given the high level of uncertainty in this case.

[4] Represents the total surplus value of new development that may be avialable to support grade CVC improvements.

Source: Zillow, CoStar, EPS

In addition to critical phasing financing challenges, the net value capture amount available for station area improvements would ultimately need to deduct or account for a number of factors, including without limitation, the following:

- The specific terms of a development agreement and/or P3 arrangement involving the City, CVC, private developers, and others;
- Current zoning and/or allowable uses for affected properties (e.g., those on or adjacent to the corridor). To the extent that a portion of the new development would be allowed "by right" under existing zoning, the amount of "value capture" funding might be reduced; and
- The ownership and motivation of affected properties. To the extent that strategically located properties are owned by entities who expect to benefit from CVC access (such as the City or CVC or private parties seeking access improvements), value capture efforts will be more successful.

Enhanced Infrastructure Financing District

Since the collapse of the redevelopment fund program in California in 2011, cities and other public agencies have struggled to find sustainable funding sources for infrastructure projects that can provide large amounts of funding without burdensome approval processes. EIFDs are a form of Tax Increment Financing (TIF) currently available to local public entities in California. Cities and other local agencies may establish an EIFD for a given project or geographic area in order to capture incremental increases in property tax revenue from future development and assessed value appreciation. In the absence of the EIFD, this revenue would accrue to the city's general fund (or another property-taxing entity's revenue fund). Unlike prior TIF/Redevelopment law in California, EIFDs do not provide access to property tax revenue beyond the share agreed to by participating jurisdictions (e.g., city and county).

EIFDs are a relatively new tool with little track record of success, with a few exceptions. For example, in October of 2017 the City of La Verne approved an EIFD in connection with the future LA Metro Gold Line light rail station and surrounding TOD allowed by the Old Town La Verne Specific Plan previously adopted by City Council. About 15 specific infrastructure projects were included in the EIFD with estimated cost of $33 million, including enhancement of connectivity (parking, pedestrian, bikes, rideshare), beautification, and expansion of utilities.

The establishment of an EIFD requires approval by every local taxing entity that will contribute its property tax increment. EIFDs can be formed and applied across jurisdictional boundaries and only require a vote when debt issuance is sought. In addition, they can gain access to unlevered (debt free) revenue without a vote. The incidence or financial burden of an EIFD rests on the local taxing jurisdiction(s) that forego property tax revenue and dedicate these funds to infrastructure or other eligible investments. In other words, dedicating these tax revenues to infrastructure limits funding for new public services associated with development.

Limitations of Tax Increment Financing

While EIFDs are highly flexible in the types of infrastructure projects they can fund and require no public vote to establish, a 55 percent vote is required to issue bonds, which stands as its major impediment to implementation. An additional challenge is that, unlike the former redevelopment agencies, all jurisdictions that receive property tax revenue (e.g. county, city, special districts) must individually approve any relinquishment of their allocation, which can be a politically challenging requirement. Consequently, the amount of tax increment that would become available can be relatively small unless all affecting jurisdictions agree to participate.

Application to Selected CVC Jurisdictions

For illustrative purposes, Table 3-10 summarizes the EIFD tax revenue and net bond proceeds that might be achievable assuming district boundaries are formed to cover a quarter-mile radius around the proposed station areas of Porterville, Visalia, and Hanford. Detailed calculations are provided in Appendix 8.1.2. As shown, within about twenty years after formation, an EIFD could potentially generate enough tax increment to secure two to five million in net bond proceeds. The actual amount would depend on annual increases in assessed value, the precise project area boundaries, bond issuance terms, among and other locally-specific factors (e.g. timing, and participation of affecting jurisdictions).

Table 3-10: Estimate of EIFD Bond Proceeds – 3 Cities

Item	Assumption	Amount	
		Low	High
Existing Assessed Value (EIFD Area) (1)			
Visalia	$106,234,827		
Porterville	$69,179,878		
Hanford	$84,136,951		
Assumed Annual Growth in Assessed Value		3%	5%
Tax Increment to City & County (cumulative, after 20 years) (2)			
Visalia		$255,676	$524,381
Porterville		$166,496	$341,476
Hanford		$202,493	$415,304
Net Bond Proceeds (3)			
Visalia		$2,477,617	$5,081,480
Porterville		$1,613,418	$3,309,048
Hanford		$1,962,248	$4,024,483

*Detailed calculations provided in Appendix B

(1) Existing assessed value for parcels within 1/4 mile radius of the proposed station area.
(2) Share of 1 percent property tax allocated to the city and county based on TRA of each station area.
(4) Assumes a bond is issued after 20 years with an interest rate of 6% and a 30-year term. Assumes issuance cost and reserve requirement equal to 12% of gross debt and 1.25 debt coverage.

Mello-Roos Community Facilities District

The Mello-Roos Community Facilities Act of 1982 (authorized by Section 53311 et. seq. of the Government Code) enables the formation of a Community Facilities District (CFD) by local agencies, with two-thirds voter approval (or landowner approval when there are fewer than 12 registered voters in the proposed district), for the purpose of imposing special taxes on property owners. The resulting special tax revenue can be used to fund capital costs or operations and maintenance expenses directly, or they may be used to secure a bond issuance, the proceeds of which are used to fund capital costs. Because the levy is a tax rather than an assessment, the standard for demonstrating the benefit received is lower, thus creating more flexibility. In addition, the boundaries of a Mello Roos CFD need not be contiguous, which allows for flexibility in creating a project area likely to receive sufficient votes.

Since their establishment in the early 1980s, CFDs have become the most common form of land-secured financing in California. A Mello Roos CFD in particular provides a well-established method of securing relatively low-cost tax exempt, long-term, fixed rate, fully-assumable debt financing. The owners or users of real estate pay assessments or special taxes that are recorded on the property. By adding to the cost of ownership, the assessment or tax may affect the price a buyer is willing to pay for a home or commercial property, in which case the cost incidence is shared with the builder, land developer, or landowner. However, experience suggests that less than 100 percent of the financing burden is recognized by buyers.

However, there can be challenges associated with establishing measurable and specific benefits to particular properties. In addition, land-secured financing adds financing costs (e.g., cost of issuance and program administration). Further, while land-secured financing has been widely used in greenfield development where landowner approval is the norm, achieving a two-thirds voter approval in infill areas with numerous property owners is typically a barrier to use of the tool.

Case Study: Los Angeles Streetcar

The planned Los Angeles Streetcar project has utilized a variety of funding and financing sources to fund capital costs, estimated at a total of $282 million. In 2012, a CFD was approved by 73 percent of voters within the district and will provide up to $85 million for rail construction. CFD funding for capital costs would need to be supplemented by a Federal Transit Administration (FTA) Small Starts Grant, funds from Metro's Measure M, and strategic Public-Private Partnerships.

Figure 3-12: Rendering of LA Streetcar

Source: Los Angeles Streetcar, Inc, 2016

Application to Selected CVC Jurisdictions

With the above caveats in mind, Table 3-11 provides an illustrative summary of potential net bond proceeds of from the formation of a Mello-Roos CFD applicable to the three identified station areas. As shown, the net bond proceeds vary primarily based on the tax rate and the number of properties included in the district (more detail is provided in Appendix 8.1.2). Thus, if such a mechanism could be implemented, the bond proceeds would be slightly higher than those from an EIFD and also realized more immediately, primarily because the tax would apply to both existing and new development. Of course, garnering two-thirds voter approval for a new CFD among registered voters in the given Study Area could be challenging.

Table 3-11: Analysis of CFD Bond Proceeds – 3 Cities

Item	Estimated Amount (1) Low	High
Potential CFD Tax Rate (Per Unit of 1K Sqft.)	$200	$600
Potential New Tax Revenue (Annual) (2)		
Visalia	$213,147	$639,442
Porterville	$135,406	$406,218
Hanford	$223,810	$671,430
Estimated Net Bond Proceeds (3)		
Visalia	$2,065,492	$6,196,475
Porterville	$1,312,145	$3,936,435
Hanford	$2,168,818	$6,506,455

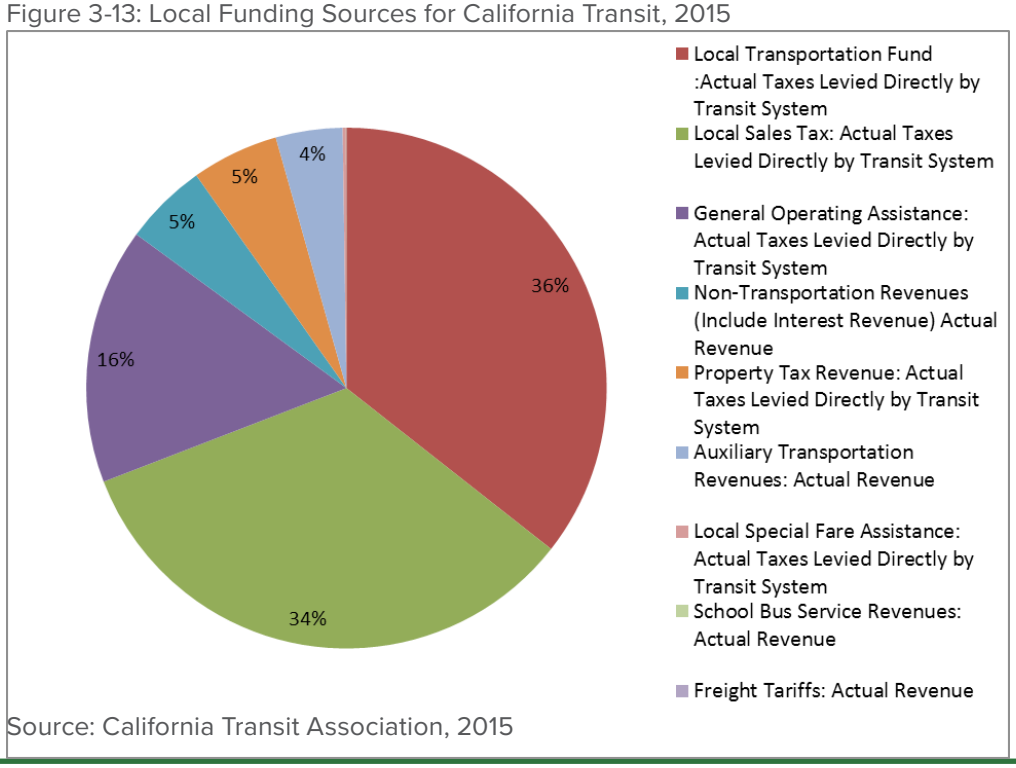
*Detailed calculations provided in Appendix B

(1) Low and high estimates are reflective of multiple scenarios of CFD rates.
(2) CFDs levy taxes only on properties in the district. The number and size of residential units and commercial square feet existing in the 1/4 mile station area were estimated using CoStar and LEHD.
(3) Bond proceeds estimated based on the revenue accumulated over 30 year term with 6 percent interest rate, 1.25 debt coverage factor, and issuance cost equal to 12 percent of gross bond proceeds.

3.4.3.2 Voter Approved Taxes and Debt

Local governments and transit operators have a limited range of options for raising revenue on the local scale. Voter approved taxes are probably the most common tool, with the revenue collected from these taxes able to directly fund operations and maintenance costs or repay municipal bonds or private investment. As illustrated in Figure 3-13, a voter-approved sales tax represents the most common approach, accounting for about 34 percent of local funding sources for transit in California.

Figure 3-13: Local Funding Sources for California Transit, 2015



Source: California Transit Association, 2015

However, initiatives that increase local taxes are limited by State constitutional requirements and statutes that require voter approval of greater than 50 percent for "general taxes" and two-thirds approval for "special taxes" (i.e., revenues are earmarked for a particular purpose). Specifically, local ballot measures or initiatives that raise local taxes must follow one of two approaches:

- General Tax: The revenues from a General Tax are expended at the discretion of the local government's governing body on any programs or services. Approval requires a simple majority, defined as over 50 percent.
- Special Tax: The revenue from special taxes is dedicated to a specific purpose as defined in the ballot initiative. Approval requires two-thirds voter support.

Because the designation of revenues for specific purposes tends to result in more "yes" votes (though often insufficient to garner a two-thirds supermajority), some jurisdictions have attempted to improve the success rate of general purpose measures by adopting a so-called "A/B Strategy." Under this approach, general purpose tax measures are accompanied by an advisory measure indicating the recommended use for the funds. This allows the measure to avoid the two-thirds supermajority threshold[11]. Another important consideration relates to the amount of revenue generated from each source and how it will be used to fund the desired projects. For example, while property tax increases may be sufficient to underwrite debt, sources with a lessor or volatile revenue potential may be not.

The following sections discuss the pros and cons of various local tax increases as a source of funding for station area improvements, including issues related to implementation, revenue potential, and incidence (i.e., what activity or population[s] would be subject to the tax burden).

Property Tax and General Obligation Bond

The voters of Tulare and Kings County and the cities with proposed CVC stations could approve a bond measure secured by a special or general property tax increase to fund CVC and station area improvements. Assuming such a measure was restricted to a specified set of improvements and/or was part of a general obligation bond issue, it would need to secure two-thirds voter approval, as noted above.

The incidence of burden of a restricted or general obligation bonds secured by a property tax increase rests on all property owners in the issuing jurisdiction in proportion to the assessed value of their property (i.e., it is an ad valorem percent tax). This very broad base of funding provides excellent security for special purpose or general obligation bonds, thus typically garnering the lowest interest rate of any municipal debt instrument. Credit rating agencies often consider a general obligation pledge to have very strong credit quality and frequently assign them investment grade ratings.

One factor that may play a role in the feasibility and scale of a bond measure funded property tax revenue is the City's or County's existing tax rate. It is often more difficult for both political and financial reasons for municipalities to additional property tax secured debt if the property tax rates is already well above the baseline 1 percent of assessed value.

11 A review of local revenue measures since 2001 conducted by California City Finance, suggests this approach has had limited success. Implementation of the A/B Strategy did improve the success rate of utility user tax measures but did not have a significant impact on the success rate of add-on sales tax measures (see, California City Finance, An Overview of Local Revenue Measures Since 2001, May 1, 2013).

Application to Selected CVC Jurisdictions

An estimate of the tax revenue and bond capacity under various assumptions related to a voter approved property tax increase is shown in Table 3-12 (note, most GO bond measure specify the bond issuance amount rather than property tax rate). For example, an increase in the existing property tax rate by 0.03 percent of assessed value would generate about $8 million in net bond proceeds in Porterville versus roughly $96 million if imposed on the whole of Tulare County. It is important to note that is calculation is based on the cities' and county's Fiscal Year 2016-2017 assessed value and while this amount will increase over time, so will the project cost of various station area improvements.

Table 3-12: Analysis of Bond Proceeds associated with Property Tax Rate increase - 3 Cities & County

Item	Assumption	Amount Low	High
Total Existing Assessed Value (1)			
Visalia	$10,798,616,567		
Porterville	$2,734,187,164		
Hanford	$3,883,993,297		
Tulare County (2)	$33,093,933,814		
Additional Property Tax Rate Increase (3)		*0.03%*	*0.07%*
Potential New Annual Tax Revenue			
Visalia		$3,239,585	$7,559,032
Porterville		$820,256	$1,913,931
Hanford		$1,165,198	$2,718,795
Tulare County		$9,928,180	$23,165,754
Estimated Net GO Bond Proceeds (4)			
Visalia		$31,000,000	$73,000,000
Porterville		$8,000,000	$19,000,000
Hanford		$11,000,000	$26,000,000
Tulare County (2)		$96,000,000	$224,000,000

*Detailed calculations provided in Appendix B

(1) Citywide total Assessed Value
(2) Summaries provided above are not cumulative. It is unlikely that a bond would be approved at the city and county level.
(3) Voter-approved bond measures will have a dollar figure that is used to determine the rate of tax increase. This analysis provides a range of tax increase amounts that are assumed to be correlated with a set of bond-funded infrastructure improvements.
(4) Bond proceeds estimated based on the additional property tax (above the existing rate) that would be generated in each rate increase scenario. The calculation assumes 6 percent interest, 30 year term, 1.25 debt coverage factor, and issuance cost equal to 12 percent of gross bond proceeds.

Parcel Tax

A parcel tax is a flat annual charge applied to properties within a jurisdiction, sometimes with use-related variation and exemptions. The key distinction from a property tax is that a parcel tax cannot be not levied on an "ad valorem" basis (i.e., not based on the assessed value of property). Parcel taxes, if used for general purposes including infrastructure investments, can be imposed with a simple majority voter approval. If used for special purposes, parcel taxes will require two-thirds voter approval. They may be used for funding ongoing services or pledged to debt service.

Parcel taxes can be structured to vary based on key property characteristics, such as number of separate dwelling units on a parcel (i.e. so that an apartment complex doesn't pay the same rate as a single-family unit) or total commercial square feet. But typically, parcel taxes include relatively strict allocation rules to ensure simplicity and parity among property owners. They also are commonly subject to a "sunset" date, and must be re-authorized periodically to maintain funding.

In practice, parcel taxes are typically used to provide a broad-based source of funding for specified and highly-desirable city-wide public services and improvements (i.e. not general purpose) and are based on relatively modest levies. They also tend to generate a relatively constant amount of revenue over time which doesn't fluctuate based on market appreciation or property enhancements. Consequently, the revenue generating potential of a parcel tax, though stable, is generally much lower than for property tax.

Application to Selected CVC Jurisdictions

An estimate of the annual tax revenue under typical parcel tax rates for residential and commercial uses is included in Table 3-13. For example, an annual parcel tax of $50 per dwelling unit or per 1,000 square feet of commercial space would generate $13 to $40 million over ten years, depending on the City.

Table 3-13: Analysis of Revenue associated with Parcel Tax – 3 Cities

Item	Assumption		Amount	
	Housing Units	Commercial SqFt	Low	High
Citywide Existing Development (1)				
Visalia	46,812	33,794,648		
Porterville	17,939	9,379,350		
Hanford	19,298	14,193,456		
Parcel Tax Amount (Annual)			$50	$100
Potential New Annual Parcel Tax Revenue (2)				
Visalia			$4,030,332	$8,060,665
Porterville			$1,365,918	$2,731,835
Hanford			$1,674,573	$3,349,146
Estimated 10-year Total				
Visalia			$40,303,324	$80,606,648
Porterville			$13,659,175	$27,318,350
Hanford			$16,745,728	$33,491,456

*Detailed calculations provided in Appendix B

(1) Existing development estimated based on California DOF and CoStar.
(2) Assumes parcel tax will be levied citywide with the rate even across all residential unit types and non-residential land use types (per 1,000 SF).

Sales Tax

Similar to property tax, residents could approve a measure to increase the sales tax rate to fund CVC improvements. While such a measure would also require two-thirds voter approval if dedicated to a specific purpose, one potential advantage of a sales tax measure is that the incidence of burden is more broadly based rather than restricted to property owners per se. However, this revenue source tends to be less stable and subject to fluctuations in business cycle, competition, and other factors affecting the local retail sector (e.g., impact of internet sales).

Case Study: LA Metro Measure M

Measure M, passed in November 2016 and sponsored by LA County Metro, is a ½ cent sales tax measure expected to generate $860 million in annual revenues. Measure M revenues are allocated to bus and rail operations ($29.9 billion), local street improvements ($22.5 billion), state of good repair ($2.4 billion), programs for students, seniors and the disabled ($2.4 billion), bike and pedestrian connections to transit ($2.4 billion), regional rail ($1.9 billion) and a number of identified highway and transit projects in the region. This additional tax measure has no sunset date and comes in addition to the existing ½ cent traffic relief tax collected by Metro.

The TCAG region currently has a ½ cent sales tax initiated by Measure R in 2006 with a 30-year timeframe. Measure R funds are reserved for transportation improvements with over $1 billion worth of improvements leveraged and funded in the region so far.

Additionally, some cities have additional tax measures that are imposed atop the existing TCAG collection. The City of Visalia approved Measure N in 2017 to fund essential city services through a ½ cent sales tax. These existing tax measures may be barriers to approval of additional citywide or countywide taxes that could be politically unfavorable in certain jurisdictions that do not wish to further increase their tax rate relative to their neighbors.

Application to Selected CVC Jurisdictions

Estimates of sales tax revenue associated with a 0.25% and a 0.5% general use tax increase on the city and county level are shown in Table 3-14. This assumes there is no effect on the existing tax rate (increase is additive) and that total taxable sales are not negatively affected by tax rate increases. If a 0.25% sales tax increase were passed in Tulare County, the County could expect to generate over $15 million annually in revenue.

Table 3-14: Estimated Revenue Associated with a Citywide Sales Tax Measure

Item	Existing Taxable Sales	Amount Low	High
Citywide Existing Taxable Sales (1)			
Visalia	$2,604,693,099		
Porterville	$528,438,994		
Hanford	$859,575,952		
Tulare County (2)	$6,275,433,900		
Sales Tax Increase (above existing rate)		0.25%	0.50%
Potential New Annual Sales Tax Revenue (3)			
Visalia		$6,511,733	$13,023,465
Porterville		$1,321,097	$2,642,195
Hanford		$2,148,940	$4,297,880
Tulare County		$15,688,585	$31,377,170
Cumulative Total after 15-years			
Visalia		$97,675,991	$195,351,982
Porterville		$19,816,462	$39,632,925
Hanford		$32,234,098	$64,468,196
Tulare County (2)		$235,328,771	$470,657,543

*Detailed calculations provided in Appendix B

(1) CA Board of Equalization, 2015 total
(2) Summaries provided above are not cumulative. It is unlikely that a bond would be approved at the city and county level.
(3) Conservatively assumes no growth in taxable sales.

Other Potential Voter Approved Tax Measures

While property, parcel, and sales tax increases represent the most common forms of locally approved tax increases dedicated to special purposes and to secure municipal debt, there are a number of other City taxes that may be appropriate for CVC and related improvements. While these revenue sources normally accrue to the General Fund and could be increased with a 50 percent voter approval, specific dedication to CVC improvements would trigger a two-thirds voter threshold. In addition, the smaller and less stable revenue stream associated with the taxes described below make them less appropriate for debt financing.

- Dedicated Transient Occupancy Tax: Some cities have approved measures that allocate all or a portion of their transient occupancy or "hotel tax" (TOT) revenues to specific public services or infrastructure. While a number of California cities have also dedicated TOT revenues to specific purposes, such action requires two-thirds voter approval.
- Property Transfer Tax: Most California cities impose a one-time tax when a property changes ownership.
- Utility Users Tax: Most California cities impose a tax on utility bills (e.g., PG&E, water, cable, etc.).
- Business License Tax: Many cities impose a tax on business activity. The manner in which this fee is levied varies significantly by jurisdiction with some basing it on number of employees and others on gross receipts.

3.4.4 Phasing of Infrastructure and Service

As noted, strategic phasing of transit capital investments and service is a critical component of effective project implementation. and will need to be closely linked to the financing strategy. The critical areas of phasing include type and length of service and mode.

3.4.4.1 Use of Existing Tracks & Right-of-Way

In many communities throughout the Unites States, miles and miles of track have been left abandoned because of the discontinuation of rail service combined with the rail-owner's desire to maintain railroad right-of-way. The existing track lines often run through historic town centers or industrial hubs. Recently, there has been an effort to reestablish rail service using the existing infrastructure in an effort to reduce costs while maintaining the historic rail alignment. This process can vary in complexity depending on the ownership of the tracks, the right-of-way, and the use of the tracks by freight operators.

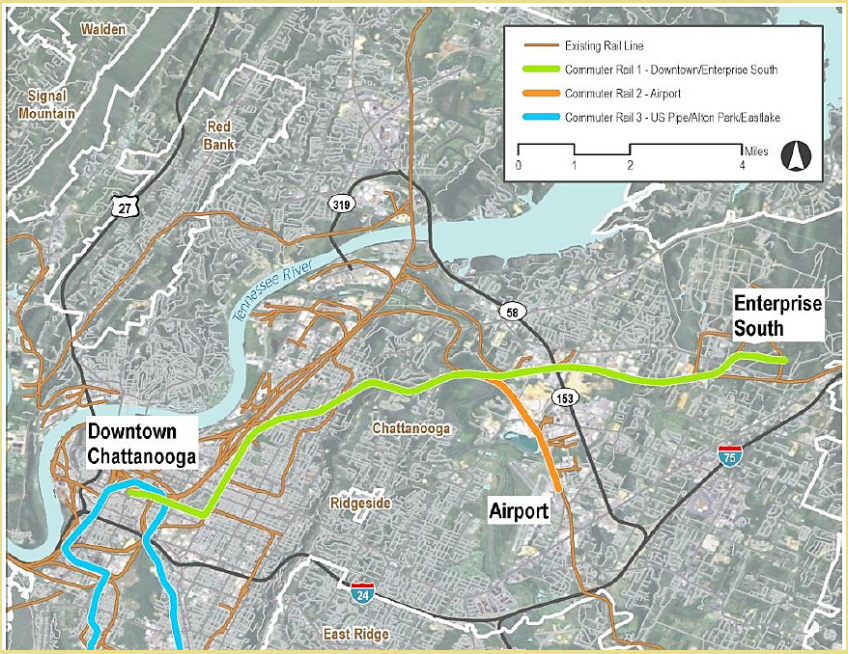
Right-of-way has proven to be a significant barrier to many rail proposals. While the CVC will likely need to construct new tracks to accommodate rail service, the ability to use existing right-of-way is a crucial factor to allowing new rail service.

Case Study: Chattanooga Passenger Rail

The City of Chattanooga recently secured federal TIGER grant funding towards the Chattanooga Rail Transit Implementation Plan. This plan aims to restore passenger rail service to this small city located in Hamilton County, Tennessee. The project proposes to use 21 miles of existing freight rail infrastructure to establish a 23-mile long passenger rail route through the city, as seen in Figure 3-14. The rationale for using existing freight rail infrastructure was three-fold[12]:

- (1) Rail tracks currently divide and limit access amongst certain neighborhoods of the city. Passenger rail would provide increased connectivity, which is beneficial considering that many employment centers are located along the existing rail line and currently suffer from a lack of access to highways and transportation infrastructure.
- (2) The existing tracks are currently an underutilized resource that could be repositioned into a useful piece of the City's transit infrastructure.
- (3) The use of right-of-way has been discussed with the rail owners, who have indicated they would be cooperative of the plan.

Figure 3-14: Chattanooga Passenger Rail



The Chattanooga passenger rail project shares many similarities with the Plan in the surrounding demographics and geographic proximity to major cities. The Chattanooga project focuses on the opportunity to connect the small city with major metropolitan areas via passenger rail access. Chattanooga's attention to the impacts of rail development, varying by land use and demographics, is a key factor in planning for future rail.

3.4.4.2 Phasing of Transit Modes

The process of designing and implementing a large-scale rail project can span decades and come with a hefty price tag that may be alarming to stakeholders that are unsure that the project benefits outweigh the costs. One way of demonstrating value in the near-term is to implement a bus or BRT service along the approximate proposed route to spark awareness among the communities along the corridor while allowing for data collection in ridership and usage trends that could be helpful in future rail planning efforts. Additionally, the use of an interim bus route can provide service during the construction phase that will transfer into stronger initial ridership (if the service is effective in demonstrating value).

The CVC rail project plans to phase service to accommodate construction and financing constraints while also allowing for interim service that will feed into HSR while CVC construction is underway. CVC phasing is currently proposed as follows:

- Phase 1: Improve existing bus network to provide more regional connections that will facilitate use of the Kings/Tulare HSR station
- Phase 2: Construction and Activation of CVC Rail: Lemoore to Visalia
- Phase 3: Full implementation of CVC Rail proposed route: Porterville to Huron

12 City of Chattanooga Rail Transit Implementation Plan, TIGER VI Discretionary Grant Application

Subsequent case studies are meant to serve as a "best practices" look at how other jurisdictions and transit service providers have phased service to accommodate constraints and adjust to changing market and demographic factors.

Case Study: The Warner Center

The Warner Center, located in the San Fernando Valley in Los Angeles, recently revised their Specific Plan to encompass TOD principles in an effort to reposition the employment center as a vibrant mixed-use district. One of the key factors spurring TOD planning efforts is the success of the Metro Orange Line, which connects North Hollywood to Chatsworth. The Metro Orange Line is a BRT route that serves the popular and growing employment destination of the Warner Center. With ridership to and from the Warner Center exceeding projections, there has been talk of conversion to light rail, as well as the proposal of a shuttle service that would connect the Warner Center stop with the rest of the district[13].

Case Study: LA Metro Orange Line

The LA Metro Orange Line is a Bus Rapid Transit (BRT) route that serves the popular and growing employment destination of the Warner Center. The observed performance metrics have sparked Metro to include plans to convert the orange line into light rail service as a long-term project. While bus and light rail are often associated with ridership and usage differences that may not allow for simple comparisons or rider-conversions, the use of alternative transit modes to precede rail service can assist the community in becoming more comfortable with new transit options.

Case Study: Ottawa BRT

Bus Rapid Transit has seen great success in Canada with numerous established BRT services and even more proposed. The existing Ottawa Transitway BRT service, operational since 1983, has recently seen portions of the BRT route converted to light rail after years of observed success and increasing ridership. The remaining BRT portions will continue to operate and now serve as feeder transit service to the new light rail.

Rapidbus, a proposed BRT route to service 10 stations in Ottawa, plans to operate along existing rail right-of-way. The proposed 12 km Rapidbus service is dependent upon maintaining freight operations along the rail corridor and has incorporated measures and mechanisms to share the right-of-way with freight operations.

The case studies profiled above demonstrate the flexibility afforded by BRT service as both a feeder to rail and an interim transportation option. In considering the impacts of high speed rail on the Cross-Valley Study Area communities, it is important to recognize that the transportation habits that are formed upon the opening of high speed rail will likely continue, even if further development occurs. That being said, interim transit service to allow cities to access HSR via transit could be the first step to creating a comprehensive and effective transit network in the region.

3.4.4.3 Feeder Transit Service

The proposed CVC service would operate along a corridor passing through a number of small cities with generally only one stop per city. This method of transportation planning is effective in offering quick and efficient service to a broad base of potential riders. However, in many cases, large employment and residential centers may be outside the station area and require further planning efforts to accommodate transportation to the rail station. Where land is available and near-term development is not feasible, parking lots may be an appropriate use to allow for easy transportation to the rail line. A benefit of providing surface parking lots is that they can easily be transitioned into higher-density uses at a later stage of development.

13 Changes in the Works for the Orange Line, Steve Hymon (The Source), 1/23/2017

Alternatively, many cities have developed shuttle services in conjunction with rail service that allow for access to large employment and residential centers while encouraging transit use. Shuttle services can effectively provide transit service to a much greater population by bridging the gap for those deterred by station areas that are outside comfortable walking distance.

While the existing CVC rail phasing proposal does not incorporate the use of shuttle service as an interim or supporting transit amenity, cities with CVC stations may see value in providing first and last mile transportation options and other amenities that can support light rail use. In many cases, public and private employers may provide shuttle service or other feeder improvements to encourage light rail usage and effectively subsidize employee commutes.

Case Study: WALLY Light Rail

The proposed WALLY light rail service, that would extend from Ann Arbor to Howell, Michigan, includes plans for a shuttle service that would service key Ann Arbor destinations and require no additional fee if a light rail ticket has already been purchased. This shuttle service has been designated as a key aspect of the WALLY proposal in that it could reduce city congestion while effectively serving a much greater number of city residents[14].

3.4.5 Implications for CVC

Effective implementation and on-going operation of the CVC project will likely require a range of financial sources and tools. Since available and committed funding sources from agencies such as TCAG and HSR are well below the amount needed to cover the full cost of the CVC project as currently proposed, the Cities and Counties involved will need to identify and establish additional funding resources and financing tools to fill the gaps. Table 3-15 summarizes the funding potential of select mechanisms as applied to three station area cities.

The success of numerous voter-approved local measures to fund transit in the Bay Area and Southern California suggests that this option could be gaining traction as a manageable and dependable way to support local transit services. At a local level, a general obligation bond funded by a property tax or sales tax is by far the most substantial funding opportunity, but would require two-thirds voter approval. Other local tax increases, such as transient occupancy or business license taxes may also be appropriate, and would also require two-thirds voter approval if dedicated to CVC capital improvements. However, these sources generate less income, are generally more volatile, and are less suitable for securing municipal debt.

Project based funding and associated “value-capture” tools could provide significant funding assuming major development opportunities can be facilitated and linked to the implementation of CVC. Many station area cities currently exhibit relatively low assessed value in the proposed station area, which would hamper the implementation and effectiveness of these mechanisms in the immediate term. However, over time as the prospects of CVC become clearer, additional investment and property turn-over could change this dynamic. Therefore, value capture strategies could be a useful tool in the long-term, depending on the progress of station area development, especially if the underlying districts and associated tools are established in advance. However, value capture tools face significant challenges related to the predictability and timing of funding.

14 Washtenaw Livingston Rail Line (Wally) Technical Review, Final Report and Revised Draft Business Plan, R.L. Banks & Associates, Inc.

Table 3-15: Funding Capacity Analysis - Summary

Funding Source / Mechanism	Estimated Funding Potential	
	High	Low
Enhanced Infrastructure Financing District (EIFD) - Bond Proceeds		
Visalia	$2,477,617	$5,081,480
Porterville	$1,613,418	$3,309,048
Hanford	$1,962,248	$4,024,483
Mello-Roos Community Facilities District (CFD) - Bond Proceeds		
Visalia	$2,065,492	$6,196,475
Porterville	$1,312,145	$3,936,435
Hanford	$2,168,818	$6,506,455
Property Tax Secured Bond Measure		
Visalia	$31,000,000	$73,000,000
Porterville	$8,000,000	$19,000,000
Hanford	$11,000,000	$26,000,000
Tulare County	$96,000,000	$224,000,000
Parcel Tax		
Visalia	$40,303,324	$80,606,648
Porterville	$13,659,175	$27,318,350
Hanford	$16,745,728	$33,491,456
Add-on Sales Tax (Transaction and Use Taxes)		
Visalia	$97,675,991	$195,351,982
Porterville	$19,816,462	$39,632,925
Hanford	$32,234,098	$64,468,196
Tulare County	$235,328,771	$470,657,543
Value-Capture Potential (DAs, P3s, Incentive Zoning)		
General	$3,000,000	$8,000,000

*This table is meant to summarize funding mechanisms and analysis explored previously in the Chapter. While a variety of funding sources will likely be employed, some are mutually exclusive. It should be noted that where countywide mechanisms are included, it is unrealistic that both a citywide and countywide measure would be approved.

Source: Economic & Planning Systems, Inc.

Both voter approved and value capture strategies might be difficult to garner sufficient support in the immediate term without significant public education related to long-term benefits of the CVC. Consequently, funding for initial phases may require some infusion of state and federal funding sources in conjunction with local planning and development-readiness efforts. While a variety of state and federal funding sources are applicable to CVC construction and related improvements, and should be pursued, their competitive nature makes the amount and timing of such funds difficult to predict. Some state or federal loan programs may provide bridge financing until local sources materialize.

As local communities continue to learn about the fiscal and related economic benefits that rail access could provide and see changes occurring with the delivery of high speed rail or other transit infrastructure improvements, a variety of local measures to fund operations may become more viable. To this end, the fiscal benefits of TOD and other positive economic outcomes should be documented and quantified over time. For example, once a station area plan has been approved, it will be important to establish the baseline conditions related to the level, type, and value of development and related economic activity. This information can be tracked over time and potentially used to support various financing mechanisms

4 Multi-Modal and Circulation

This section lays the foundation for a set of multi-modal connectivity and parking strategies for nine stations in the CVC. These strategies, which can be found in Chapter 6, incorporate input gathered from the communities throughout the Plan's outreach program. Strategies follow the best practices for multi-modal infrastructure planning and are consistent with and are supportive of the Authority's station access guidance and modal hierarchy. It addresses safe access to all stations from all directions by all modes with primary consideration of vulnerable travelers, e.g. pedestrians, bicyclists, and those using wheelchairs. The following components are described in this section:

- Complete Streets analysis, designations, and streetscape improvements in TOD and bus transit station areas; and
- Identification of key future transportation needs and development of recommendations for consideration in future updates to local transportation policies. These recommendations include parking policy.

This section also includes an analysis on future rail needs and improvements developed throughout the Plan. It builds upon the findings of the existing conditions analysis and transit mode evaluation (see Chapter 2) conducted after the first phase of the Plan's outreach program.

4.1 Key Transit Centers

This section builds upon the analysis of the existing interrelationship between active transportation access, transit access, and automobile access to determine a balance of movement and access between transit hubs for the nine station areas below:

- Huron Station Area
- Lemoore Station Area
- NAS Lemoore Station Area
- Hanford Station Area
- Visalia Station Area
- Exeter Station Area
- Farmersville Station Area
- Lindsay Station Area
- Porterville Station Area

While additional regional transit centers in Tulare, Dinuba and Woodlake are not adjacent to the CVC, station-specific strategies for these cities are explored in further detail in Section 6.12.

4.2 Circulation Analysis

The circulation analysis began with using forecasts from the individual county models maintained by TCAG, KCAG, and Fresno Council of Governments (COG). The models used have been developed and validated for each County's latest (2014) Regional Transportation Plan (RTP) to conduct traffic analysis by station. The 2014 RTP for each county provide forecasted growth information on population, households, and employment through 2040.

The focus of the circulation and access analysis was on the quarter-mile radius surrounding each station site. A quarter-mile is the distance that most travelers are willing to walk to access transit.

For both the near term (2020) and long term (2040), AM and PM traffic volumes and LOS forecasts were plotted to identify potential traffic level of service (LOS) deficiencies or traffic conflict points in the quarter-mile surrounding each of the nine stations along the CVC. The model forecasts account for existing and programmed infrastructure for both near-term and long-term scenarios. A total of 36 traffic forecasts were developed and analyzed – two peak hours in two horizon years for each of the nine locations.

Circulation Analysis Findings

Figures depicting vehicular traffic forecasts are included in Appendix 8.1.3. In each of the figures, circles indicate the 1/4-mile station radius, with oblong shapes indicating the radii for stations that might be relocated. Based on this analysis, there appears to be only one instance of a street with an LOS worse than D, (the General Plan standard for most cities). That instance is Main Street in Porterville in the AM peak hour, which models a relatively conservative LOS method. The peak directional volume (841 vehicles southbound) is not inordinately high given that parallel streets show much lower volumes. The natural tendency of motorists to seek out less-trafficked routes means that LOS F conditions may not occur, though the City of Porterville should encourage through traffic to use routes other than Main street.

Overall, future traffic forecast results suggest minimal levels traffic congestion that would impede the ability to accommodate traffic, transit, and active transportation improvements within the station areas.

4.2.1 Complete Streets Analysis

Complete Streets are designed for safe and inviting travel by all modes, including pedestrians, bicyclists, motorists, and transit riders, regardless of age or ability. On Complete Streets, it is easy to cross the street, walk to shops, push a stroller, bike to work, and access reliable transit. At the local level, complete streets policies and designs can help to support local and regional pedestrian, bicycle, and transit investments. Complete Streets policies formally direct transportation planners and engineers to design and construct balanced streets which safely accommodate all anticipated users.

Most of the incorporated cities have also adopted complete streets policies in some form, as was described in Section 2.6 and shown in Table 4-1. Complete Streets policies should be included in all general plan updates going forward. In unincorporated Tulare County, the communities of Goshen, Pixley, and Traver have adopted Complete Streets plans. Additionally, Complete Streets plans are in progress for the communities of Cutler, Ducor, Earlimart, Orosi, Strathmore, and Tipton.

Table 4-1: Existing Policies Supportive of Complete Streets

Jurisdiction	Plan and Policy
Huron	Huron General Plan: Circulation Element: Transit. Ensure choices among modes of travel and give priority to each mode when and where it is most appropriate.
Kings County	County of Kings General Plan: Regional Transportation System: Goal C1. Integrate through the County's regional transportation system, an efficient and coordinated goods and people moving network of highways, railroads, public transit, and non-motorized options that reduce overall fuel consumption and associated air emissions.
Armona	Armona Community Plan: ACP Goal 6A. The Armona circulation system enhances community connectivity and multi-modal transportation options that accommodate pedestrians, bicycling, public transit, and motor vehicles, while establishing safe non-motorized access to job centers, school sites, and community services. A carefully designed circulation system can also improve air quality, noise, and community health issues. Opportunities exist for Armona to capitalize on non-motorized transportation enhancements that could include a multi-modal transportation facility at the old train depot site, regionally connected pedestrian/bicycle pathways, and highway interchange.
Hanford	City of Hanford General Plan: Goal T1. A comprehensive, multi-modal motorized and non-motorized transportation system that improves the quality of life and facilitates the efficient movement of people and goods. Goal T2. Increased use of shared and non-motorized transportation alternatives resulting in a per capita reduction in vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions. Policy T92 Amenities that Support Alternative Modes of Transportation. Encourage new developments to include on-site amenities that support alternative modes of transportation. Emphasize pedestrian and bicycle-friendly design, accessibility to transit, preferred rideshare parking, showers and lockers, on-site food service, and child care, where appropriate.
Tulare County	Tulare County General Plan: Transportation and Circulation Element: Policy TC-1.18 Balanced System. The County shall strive to meet transportation needs and maintain LOS standards through a balanced Multi-modal Transportation Network that provides alternatives to the automobile.
Tulare County	2014-2040 Regional Transportation Plan and Sustainable Communities Strategy: Encourage development of a transit system that interconnects and coordinates with other modes of transportation (e.g. passenger rail, intercity bus, multijurisdictional transit, bicycle facilities, pedestrian walkways, etc.).
Visalia	City of Visalia General Plan: Transit Corridor. Oak Street should support potential future light rail transit as well as on-street parking and pedestrian amenities, and function as a civic space. Guiding Principle: Visalia's Circulation Element relies upon three principles. One of these seeks to ensure that state of the art transportation engineering is used, applying a Complete Streets framework, to bring planned improvements to reality considering the multi-modal, increased travel capacity and safety needs of the community.
Exeter	City of Exeter General Plan: Transit Policy. Promote alternative modes of transportation, including bicycles, buses, trains, and walking.
Strathmore	Strathmore Community Plan: Policy Q-3.3. Street Design. The County shall promote street design that provides an environment which encourages transit use, biking, and pedestrian movements.
Porterville	City of Porterville General Plan: Circulation Element. Policy C-I-3. Provide for greater street connectivity by: » Incorporating in subdivision regulations requirements for a minimum number of access points to existing local or collector streets for each development; » Encouraging roundabouts over signals, where feasible and appropriate; » Requiring the bicycle and pedestrian connections from cul-de-sacs to nearby public areas and main streets; and » Requiring new residential communities on undeveloped land planned for urban uses to provide stubs for future connections to the edge of the property line. Where stubs exist on adjacent properties, new streets within the development should connect to these stubs. Policy C-I-5. Install traffic calming devices, such as signage and bulbs, as needed and appropriate in existing neighborhoods

As described in the City of Visalia General Plan Circulation Element, the goal of Complete Streets is to encourage cities to rethink policies that emphasize automobile circulation and prioritize motor vehicle improvements, and come up with creative solutions that emphasize all modes of transportation. Complete Streets design has many advantages. When there are more viable transportation options available, there are potentially fewer traffic jams and the overall capacity of the transportation network increases. Complete Streets design attends to the needs of people who do not travel by automobile, who have often been overlooked. Additionally, increased transit ridership, walking, and biking can reduce air pollution, energy consumption, and greenhouse gas emissions, while improving the overall travel experience for road users.

Complete Streets vary in design by location and available modes, but in downtown areas with transit centers, a Complete Street typically entails: bicycle facilities, crosswalks, crossing islands in appropriate midblock locations, improved bus stop areas and transit priority treatments, audible pedestrian signals, sidewalk bulb-outs, center medians, street trees, planter strips, and ground cover. Landscape and street aspects of Complete Streets can help create a sense of place and enhance social interaction.

4.2.1.1 Bicycle Access to Stations and Transit

Improving bicycle access to transit stops has the potential to increase catchment areas around transit stops and provide improved mobility. Improving bicycle facilities in and around transit corridors can bring new riders to the system and help solve first- and last-mile connections. This is especially useful in lower-density urban environments where feeder bus service is not feasible. Bicycle-friendly safety enhancements include bike-protected intersections near transit stops, bike stations and transit centers, bike parking at major destinations, and racks for bikes on CVC vehicles and feeder buses.

Access to transit centers and stops is improved by providing bike lanes, paths, and improvements to the roadway to make it safer to ride to transit. Improvements to bicycle infrastructure can include on-board bicycle parking, bicycle lockers and shelters, and bikeshare programs.

Transit vehicles in both Tulare and Kings Counties currently accommodate bicycles via racks on the front of the bus. This enables transit riders with origins and destinations beyond walking distance from the nearest transit stop can still use transit for longer trips. The CVC transit service should also accommodate bicycle parking on board vehicles. One way to achieve this is by reserving one end of the transit vehicle for bicycle storage.

For cyclists whose destination is near a transit station or stop, but whose origin is beyond an easy walk, station-area bicycle parking is important. Simple U-shaped bike racks are often sufficient for short-term riders. Bike lockers, enclosed locking boxes, further reduce risk of theft and appeal to commuters and overnight trip-makers. Ideally, all bicycle storage should be in a lighted area close to a bus stop or other area with high pedestrian activity. Such activity makes for more “eyes on the street” (and on the bikes), which helps deter bicycle theft.

Bicycle shelters located at transit centers can provide added storage capacity, shelter from the elements, and still greater security. Bicycle shelters can include amenities such as air pumps, tools for basic repairs, vending machines, and route/schedule information. Often a local bike shop can be found to staff the bike stations, because it would give them access to customers on a daily basis.

Bikeshare is a rapidly emerging means of accommodating cyclists who do not own or choose not to use their personal bicycle for commuting or other daily travel. Bikeshare systems allow users to rent bicycles for short time

periods. Users rent bicycles directly from a docking station and then return the bike to another station near their destination. Most bikeshare systems have membership plans, as well as daily and weekly pass options, allowing users to use the service as frequently as they need. There is currently much innovation in bikeshare systems and technology, including "dockless" shared bikes that can be located via GPS-enabled apps and paid for via smart cards, e.g. debit cards or electronic transit fare cards. Installing bikeshare docks and CVC stations and near bus stops on lines serving CVC stations could markedly extend the area and range of destinations that riders can easily access.

4.2.1.2 Pedestrian Street Design

Pedestrian friendly streets near transit stops provide a safer and more pleasant experience for existing riders who arrive on foot, and encourage choice riders to take transit. Traffic calming improves the actual and perceived safety of pedestrians by slowing or reducing automobile traffic.

A rule of thumb is that most transit riders are willing to walk up to a quarter-mile to access fixed-route bus service and up to half-mile for higher quality services (such as CVC service) that operate with higher frequencies and over longer distances. Providing safe, direct, and attractive pedestrian access attracts more riders within the ¼ - and ½- mile distance and make walking beyond these distances more attractive for potential riders. It is not practical nor cost-effective for transit service to be within walking distance of everyone, especially in lower density areas. However, recognizing that walking is a primary mode for accessing transit, cities and transit agencies have effectively improved accessibility for riders by making improvements to pedestrian infrastructure within the typical walking distances around transit stations. The KCAG is currently in the process of developing a Regional Active Transportation Plan for Kings County. The 2017 TCAG Long Range Transportation Plan describes the following strategies for creating more pedestrian friendly streets:

- Sidewalks: Continuous sidewalks should be at least four feet wide and seamlessly connected to the sidewalk network in the area. A wide and accessible sidewalk network should be complete within a half mile of every transit stop and station.
- Curb Extensions: Streets that have on-street parking typically have a required set-back from an intersection to increase visibility. This dead space at the intersection can be rededicated to expand the pedestrian realm and reduce crossing distance. Curb extensions also improve pedestrian and motorist sightlines at intersections and help manage vehicle turn speeds.
- Pedestrian Refuges: Where there is higher volume automobile traffic or higher speeds present, pedestrian refuge islands, center medians, bollard or planter protection, on-demand push button pedestrian crossing lights, and curb extensions and bulb-outs should serve as traffic calming devices.
- Well-Marked Crossings: Transitions and street crossings should be well marked and preferably include raised crossings that prioritize pedestrians. Raised crossings are better for people walking and rolling and serve as a traffic calming measure.
- Signals: All signals should have a pedestrian countdown and, if necessary, a push-button to allow a pedestrian to request a crossing. Pedestrian-only crossing phases at very busy locations—such as downtown—allow pedestrians to cross an intersection in any direction. Leading pedestrian intervals give pedestrians a few seconds of head start to claim the crosswalk ahead of turning traffic.
- Traffic Calming: Vertical and horizontal traffic calming can greatly improve the quality of the pedestrian environment. These features include speed limits, road diets, speed bumps, speed tables, raised intersections, diagonal diverters, chicanes, traffic circles, and shared streets.

- Universal Design and Accessibility: Intersections should provide facilities that can safely move people of all ages and abilities across the street. Design elements like curb ramps, level landings and gutter seams, visible and audile signals, smooth surfaces, accessible push-buttons (or default walk phases), and signage that may help pedestrians navigate intersections should be integrated into intersection design.
- Lighting: Well-lit crosswalks and sidewalks provide increased safety and security. In areas with many pedestrians, lighting at the pedestrian scale should be considered to better light sidewalks and walkways.
- Wayfinding: Street signs, maps, and unique area treatments—such as historical displays and public art—help pedestrians orient themselves and create interest and comfort. Streetscapes that are inherently easy to navigate invite travel by foot and make driver and pedestrian behavior more predictable and safer.
- Land Use, Landscaping, and Amenities: The environment beyond the street is also important to provide a comfortable and inviting pedestrian environment. Street trees and landscaping are another element of a walkable environment. Especially in warmer climates, such as California's Central Valley, adding trees reduces the urban heat island effect and makes walking to transit stops and waiting for transit far more pleasant. Amenities include benches and drinking fountains, street-fronting doorways and windows, and buildings designed with pedestrians in mind, including spaces for street-level retail, varied façades, and interesting architectural features.

Not every transit stop in a station area needs all the listed improvements to be deemed accessible, however, all transit stations should be able to provide safe pedestrian access via sidewalks, paths, and crossings. Station-specific recommendations for pedestrian and complete streets improvements are illustrated and described in Chapter 6.

4.2.1.3 Integration with Land Use

Integrating land use decisions with Complete Streets investments helps to ensure the success of new land uses, as well as the success of the CVC interurban service and other local and regional transit investments. As the cities in Kings and Tulare Counties experience both population and employment growth, the concentration of this growth around CVC stations will enhance regional mobility and the performance of the Cross Valley line. The concentration of population and employment centers around CVC stations can also help bolster the use of active transportation facilities, such as bike lanes and pedestrian pathways.

At the local level, Complete Streets policies and designs that provide safe and pleasant pedestrian and bicycle access to transit also help to support transit investments. Pedestrian friendly streets provide a safer and more pleasant experience for existing and potential riders. Improving bicycle access to transit increases catchment areas around transit stops, and provides improved mobility. Improving pedestrian and bicycle facilities in and around transit corridors in Kings and Tulare Counties can bring new riders to the system and help solve first- and last-mile connections.

Coordinating land use and transit will help achieve the CVC to connect the cities in the corridor with each other and to other regions in California via HSR. Complete Streets policies and planning for pedestrian and bicycle access to will help ensure that the CVC will be attractive for travelers of all ages and abilities in the Corridor.

4.2.1.4 Complete Streets Policy Recommendations

Based on a review of current Complete Streets policies and the input and feedback from CVC cities and counties, government organizations, and the Authority Board, the Complete Streets strategies recommended by this Plan include:

- Prioritize bicycle and pedestrian improvements such as sidewalks, crosswalks, bikeways, ADA-accessible curb maps in the area within a half-mile radius of the station site.
- Provide necessary facilities and services that support new development intensities and densities near CVC station sites.
- Promote alternative vehicle use by providing parking for scooters, mopeds, motorcycles, alternative fuel vehicles, and charging stations.

Station-specific Complete Streets policy recommendations are described in further detail in Chapter 6.

4.2.2 Parking Management in CVC Station Areas

Many parking management and fee collection systems have been developed since the advent of the automobile and these systems are currently evolving at a rapid rate. Available and emerging technologies for parking provision, monitoring, and wayfinding were reviewed for this analysis, in addition to the successes of the application of these technologies in other jurisdictions. This analysis identifies beneficial technologies for us in the CVC station areas within city centers.

4.2.2.1 Wayfinding and Parking Technology

Signage indicating the location of parking facilities is fundamental, and most cities with public parking have such signage. This may be enhanced at large lots and parking garages with real-time data on the number of spaces available.

The widespread adoption of smartphones and other internet accessible mobile devices has seen a parallel growth in the development of applications that aim to optimize wayfinding and parking guidance. Popular web-based applications such as ParkMe, Parker, and Parkopedia aggregate multiple data sources to identify parking space locations, availability, and fees, if any. Some apps include recommendations on the best place to park based on a motorist's location or destination and the estimated duration of the stay. These applications include data for both public and private parking.

The most successful examples of parking guidance technology are obtained when the third-party application developers partner with the local jurisdiction and private parking operators to ensure that data is kept current. For example, ParkMe has successfully partnered with the cities of Los Angeles, Santa Monica, and Washington D.C. along with private parking operators to provide standardized parking information and customized parking guidance. Work is currently underway to partner with private parking operators and ParkMe to develop a parking guidance app for all private and public parking spaces in the City of Walnut Creek.

Hands-free voice driving direction guidance is becoming increasingly common, enabling drivers to receive real-time guidance without undue distraction. Parking guidance is beginning to become integrated with in-car navigation system. In 2013 ParkMe announced a partnership with Audi that will see their services integrated into the Audi navigation system and uploaded to existing vehicles with the capacity to run the program.

The integration of public and private parking via third party applications into standardized navigation systems by auto manufacturers may be a step toward convergence of systems that will enable all motorists to easily access data about parking options. Cities in the Corridor should work with parking applications developers to ensure that the data being used for parking guidance as is standardized as possible for integration with future systems.

4.2.2.2 Parking Policy Recommendations

Parking for each city will need to be handled on a case-by-case basis based on the city's population and needs at the time of completion of each phase of the project. Each of the cities in the CVC are unique and must address their parking policies in a matter that is consistent with their General Plans and downtown communities. Parking strategies are described in further detail in Chapter 6. Approximately 15 to 40 parking spaces may need to be added at or near each of the CVC station sites for CVC parking. However, other factors will influence the number of parking spaces that may be needed to support CVC users. Those factors include nearby mixed-use opportunities, existing city-owned parking lots, on-street parking, bus service to the CVC site, bicycle access, and others. If the City does not currently have a parking program, cities should identify a Downtown Business Improvement District or parking strategy where new development and expansion will pay an annual assessment that will be used for new parking lots and parking lot improvements (i.e., signage and wayfinding, landscaping, maintenance and repair, etc.). Other improvements such as façade grants may be added to the program as each city sees fit.

Where there are existing and operational transit centers at CVC stations, parking is typically free, available, and easily accessible. In cases like Lemoore and Huron where there currently is a modest amount of parking available at or near the existing transit station, this parking may be maintained and expanded on site and/or off site to accommodate CVC transit riders. Other cities like Hanford and Farmersville with no existing transit centers immediately adjacent to the CVC may need to be more creative in how they implement parking management strategies, depending on future parking demands. For example, the Hanford Cross Valley Station presents unique opportunities in shared parking strategies. The existing KART transit station in Hanford is slated for future relocation and expansion from its current location near the Amtrak station. In the future, CVC parking in Hanford should accommodate transit users from CVC, KART, and HSR. The sharing of parking facilities reduces the need to construct an oversupply of parking, freeing up space in downtown Hanford for complementary uses such as public plazas and mixed-use developments. Additionally, station access by mode has been studied for the Kings/Tulare HSR Station as previously described in Section 2.2.1. Future ridership forecasts show approximately 22 percent of transit users accessing the HSR station will park and ride, with the majority of users utilizing taxis and transportation network companies. Future automobile trends will play a role in parking demands at the different stations. In Farmersville, the Cross Valley Station could likely be located in a predominantly residential area, and parking facilities should be constructed in a way that would not harm the character of the surrounding communities. The Plan identified potential opportunity sites for mixed-use development to avoid the displacement of communities and small businesses as a result of new parking facilities.

Table 4-2 represents the availability of existing and potential for future parking opportunities at or near each CVC station site. Ideally, parking should be located within less than a quarter-mile or five-minute walk to the station site. On-site parking is preferred, but may not always be available or possible.

Table 4-2: CVC Station Parking Conditions

Cross Valley Corridor Station	Existing Transit Station Parking Availability	Future Parking Opportunities
Exeter	No	At the proposed station site.
Farmersville	No	At the proposed station site; nearby potential mixed-use opportunities.
Hanford	Yes (Existing bus transit station is off-corridor and will be relocated)	Several opportunity sites for shared parking between KART transit riders and HSR station users; nearby mixed-use opportunities likely. No specific site selected.
Huron	Yes (Existing bus transit station is off-corridor)	At the proposed station site; nearby mixed-use opportunities.
Lemoore	Yes	At the proposed station site; nearby potential mixed-use opportunities.
Lindsay	No	At the proposed station site; nearby potential mixed-use opportunities.
NAS Lemoore	No	At the proposed station site.
Porterville	Yes (Existing bus transit station is off-corridor)	At the proposed station site; nearby potential mixed-use opportunities. No specific site selected.
Visalia	Yes	Nearby potential mixed-use opportunities. No specific site selected.

4.2.3 Circulation Conclusion

There are many opportunities to enhance and improve streetscapes and develop complete streets in cities and communities along the CVC. Coordinating land use and transit will help enable the CVC to connect the cities in the corridor with each other and to other regions in California via HSR. Complete streets policies and planning for pedestrian and bicycle access to will help ensure that the CVC will be attractive for travelers of all ages and abilities in the Corridor. Coupled with strategic parking management, we can support a balanced and multi-modal transportation system throughout the region. Additionally, the introduction of CVC service would require the regional coordination of fares and schedules to make travel by transit easier across the three counties. Transferring between transit services should be seamless and attractive to new users. The greatest benefits to these strategies can be realized through advanced planning, to ensure that the infrastructure and policies are in place to support future CVC transit service, California High-Speed Rail, and the communities in which they serve.

4.2.3.1 Future CVC Needs and Improvements

As part of the development of the Plan's regional vision for the CVC, the corridor infrastructure was studied to determine existing conditions and identify future needs and improvements needed to bring passenger rail service to the corridor.

4.2.3.2 Railway

Existing conditions of the current railway vary considerably throughout the 75-mile study alignment, ranging from very good to non-existent. As noted in the existing conditions section of this report, the railway is currently built and maintained to handle low speed freight rail traffic by San Joaquin Valley Railroad, a Class III short line operation. To meet current FRA regulations specific to passenger rail operations, the alignment may require railroad improvements as the Cross Valley Rail service enters the implementation phase, up to and including complete replacement of all rails, ties, fasteners, switches, and other wayside equipment prior to commencement of revenue passenger transportation on this corridor. Most existing ballast and other rail bed base materials appear adequate for the proposed service but will require further evaluation to determine its suitability for the new service.

Additionally, railway alignment features that currently do not exist (such as double tracking, station bypasses, pocket tracks, storage yards, other) may require further consideration by future railway system planners and designers to operate the new passenger rail systemAdditionally, railway alignment features that currently do not exist (such as double tracking, station bypasses, pocket tracks, storage yards, other) may require further consideration by future railway system planners and designers to operate the new passenger rail system.

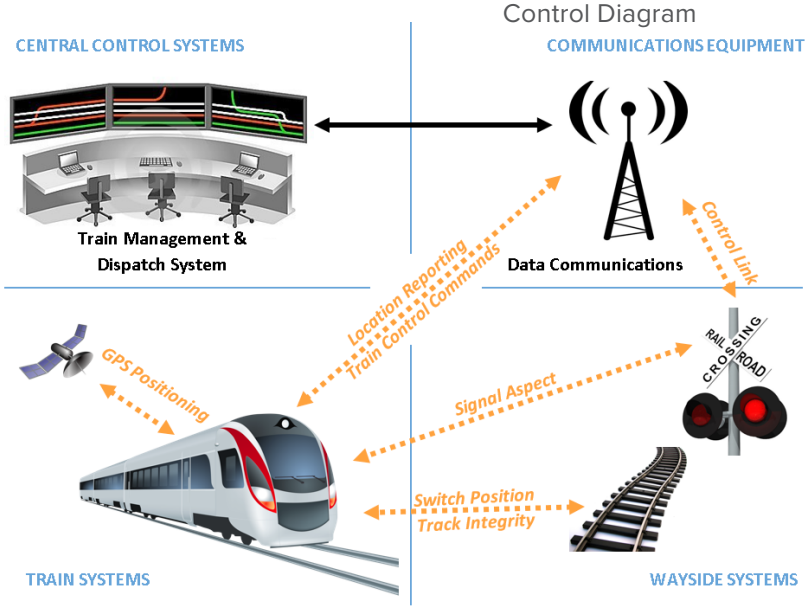
4.2.3.3 Positive Train Control

This project will be subject to regulations as mandated by the Rail Safety Improvement Act of 2008 and will require future system designers to develop and implement a Positive Train Control system as required by 49 CFR Part 236, Subpart I – Positive Train Control (PTC) Systems.

Positive Train Control is a safety system designed to monitor and control trains, and eliminate collisions within its system by utilizing the latest technologies of GPS and computerized tracking systems. It is specifically designed to avoid accidents by monitoring the speed and positions of all trains and implementing accident avoidance countermeasures should it detect that an accident is imminent. Should it detect that an accident is imminent (derailment, vehicle-to-vehicle collision, other), it will first warn the train operator, then 'take control' of the train itself and bring the train to a controlled stop. Figure 4-1 shows the general diagrammatic layout of typical PTC systems.

PTC equipment is installed on all trains as well as at base stations and wayside locations along the system alignment. PTC is limited only to systems under its control and is not designed to prevent collisions of train with other vehicles, persons, obstacles, animals, or other items not within its control.

Figure 4-1: Positive Train Control Diagram



As current federal regulations regarding PTC implementation are still being rolled out, they may be subject to further modifications and updates. Further, there are a variety of PTC technologies available, including Advanced Civil Speed Enforcement System, Communications Based Train Control, Electronic Train Management System (ETMS I and II), Interoperable ETMS, and Incremental Train Control System.

4.2.3.4 Bridges and Other Structures

Bridges throughout the corridor primarily consist of waterway crossings, including canals, ditches, and rivers. There is only one railway overpass crossing (SR 198 in Visalia). A limited visual survey was conducted of nearly all bridges within the corridor to primarily evaluate and assess each bridge's overall general condition. Table 4-3 lists all the railroad bridges from west to east along the corridor and the phase of implementation in which they have been apportioned to.

Table 4-3: CVC Bridge Conditions

#	Phase	Location	Nearest City/ Locale	Length (Ft.)
1	Phase 3	East of CA Aqueduct	Huron	185
2	Phase 3	California Aqueduct	Huron	185
3	Phase 3	Nature Preserve*	Naval Air Station	150
4	Phase 2	Between Lemoore Ave and 17th Ave	Lemoore	58
5	Phase 2	Near Hanford Armona Road	Hanford	25
6	Phase 2	Near 13th Ave	Hanford	30
7	Phase 2	W of 6th	Hanford	20
8	Phase 2	W of Grangeville*	Hanford	75
9	Phase 2	W of Grangeville*	Hanford	85
10	Phase 2	E of Grangeville	Hanford	90
11	Phase 2	E of Grangeville *	Hanford	285
12	Phase 2	E of Grangeville	Hanford	210
13	Phase 3	E of Burke	Visalia	75
14	Phase 3	SR 198 Overcrossing	Visalia	170
15	Phase 3	S of Tulare Ave*	Visalia	16
16	Phase 3	N of Walnut Ave	Visalia	75
17	Phase 3	E of Lovers Lane Ave	Visalia	45
18	Phase 3	E of Lovers Lane Ave	Visalia	30
19	Phase 3	W of Rd 156*	Farmersville	10
20	Phase 3	Deep Creek	Farmersville	45
21	Phase 3	Outside Creek	Farmersville	45
22	Phase 3	E of Rd 180	Exeter	90
23	Phase 3	E of Rd 180	Exeter	15
24	Phase 3	W of Spruce	Lindsay	35
25	Phase 3	Friant Kern Canal	Porterville	210

*These bridges may require repair/replacement prior to passenger rail service.

4.2.3.5 Maintenance and Storage Facility

To provide proper maintenance (both light and heavy), a fully equipped Maintenance and Storage Facility (MSF) was also considered. Such a facility should be designed and constructed with the full buildout capacity in mind. This includes provisions to store and maintain a fleet of 9 DMU vehicles for Phase 2 and 17 vehicles for Phase 3. A modern facility to maintain and store a Phase 3 fleet size will require approximately 100,000 square feet of maintenance facility area, and approximately 4-5 acres minimum of land.

Due to the phasing of this project, the MSF must be located along the Phase 2 alignment which includes the cities of Lemoore and Visalia and spaces in between. Sites meeting the size and location requirements can be found throughout the Phase 2 corridor but should be selected in a rather centralized location to minimize operational startup times and dead-heading distances. Also, vehicle testing and commissioning requirements should also be take into consideration when selecting a MSF location.

4.3 Mode Alternative Considerations

Six mode alternatives were considered and evaluated to provide transit service in the CVC:

- Bus Rapid Transit
- Light Rail Transit
- Heavy Rail
- Diesel/Electric Multiple Unit
- Commuter Rail
- Other (Streetcars, people movers, etc.)

This section will describe the methodology and considerations for selecting a mode alternative for the purposes of this study and forthcoming analysis

4.3.1 Methodology

The mode alternative selection process is necessary to select a modal alternative that would allow the Project Team to analyze foreseeable impacts, constraints, and benefits to potential transit service in the CVC. The type of mode selected for this study will help determine service frequency and ridership forecasting analysis as part of the Plan, as well as assist in the development of multi-modal station area strategies for the nine cities that are being considered in the Plan. While each of the modes could service additional stations, the below stations are being analyzed:

- Huron
- Naval Air Station Lemoore
- Lemoore
- Hanford
- Visalia
- Farmersville
- Exeter
- Lindsay
- Porterville

Additional regional transit centers in Tulare, Dinuba and Woodlake are not in close proximity to the CVC but are still being considered for this study. Their regional significance is still vital for the study, as they would be a major feeder system into the regional and statewide system, but station-specific strategies are not being explored.

The Plan considered six mode alternatives to provide transit service in the CVC. Traditionally, several of these modes use gasoline or diesel combustion engines, but the growing technology advancements have allowed for the use of electric hybrid, fully electric, natural gas and even hydrogen fuel cell engines. For most of these modes the propulsion type is not a major driver in the operational characteristics, and these engine systems will be considered for all modes unless mentioned otherwise. These modes are described in Section 1.5.1.

These mode alternatives were evaluated on a qualitative basis based on the following criteria:

- Vision, Goals, and Objectives: Does the mode meet the vision, goals and objectives of the Plan?
- Guideway: What type of guideway is required for the mode alternative? Is the transit mode compatible with freight corridors?
- Mode Characteristics: What are the average speeds and how will that impact travel time? How does the modes relate to safety reliability?
- Station: What is the average distance between stations?
- Investment: What are the capital and operating costs? What are the funding options?
- Capacity: How many passengers can each mode alternative carry relative to the other mode alternatives?
- Connectivity: To what degree can the new service be a “feeder” connection with the high-speed rail infrastructure (station connections etc.) as well as other transit services in the region? Improved access to jobs, shopping, services and health care through mixed use communities and transportation investment?
- Impacts: What are the potential environmental impacts and to what degree?
- Community: What are the community benefits, land use implications, and urban design? Are there economic benefits? Are there greater mobility benefits? Are there impacts to growth management of farmland?

A summary of the scoring evaluation is detailed in Table 4-4.

Table 4-4: Mode Alternative Evaluation Summary

	Bus Rapid Transit	Light Rail Transit	Heavy Rail	Diesel/Electric Multiple Unit	Commuter Rail	Other Modes
Propulsion	Gas or Electric	Overhead Electric (Catenary)	Electrified Third Rail	Diesel or Electric-Powered Passenger Vehicle	Separate Locomotive	People Movers, Streetcars, etc.
Vision, Goals, and Objectives	Unable to utilize existing Cross Valley railroad corridor	Unable to share Corridor with freight trains	Heavy rail is more appropriate in dense, urban areas	Able to share Corridor with freight trains and provide service appropriate to both urban and rural areas	Able to share Corridor with freight trains, but are more appropriate for peak-hour commuter type service	These modes are more appropriate in short route lengths
Guideway 1. Dedicated Guideway 2. Street/Shoulder Running 3. Freight Rail Compatible	1. Yes 2. Yes 3. No	1. Yes 2. Yes; short distances 3. Yes; in rare cases	1. Yes 2. No 3. No	1. Yes 2. Yes; short distances 3. Yes	1. Yes 2. No 3. Yes	1. Yes 2. No 3. No
Mode Characteristics 1. Speed 2. Safety	Up to 65 mph	Up to 65 mph	30 mph to 65 mph; Up to 80 mph in some cases	Up to 65 mph; Up to 100 mph in some cases	30 mph to 100 mph	20 mph to 40 mph
Stations	1/2-mile to 2 miles apart	1/2-mile to 2 miles apart	Urban areas: Less than 1 mile apart; Periphery: 1 to 5 miles apart	2 to 8 miles apart	5 to 15 miles apart	1/2-mile to 2 miles apart
Investment	$150K (shoulder running) to $50M per mile (dedicated lane)	$50M to $100M per mile	$50M to $250M per mile	$3M to $15M per mile	$3M to $25M per mile	$80M to $235M per mile
Capacity	1,500-6,000 passengers per hour per direction	2,500-7,000 passengers per hour per direction	15,000-60,000 passengers per hour per direction	2,500-7,000 passengers per hour per direction	2,000-21,000 passengers per hour per direction	100-2,000 passengers per hour per direction
Connectivity	Provides flexibility in service frequency and routes without needing to be on a fixed-route	Can function within or outside of built-up areas to provide low to high frequent service	The need to be completely grade-separated presents challenges for connectivity	Can function within or outside of built-up areas to provide low to high frequent service	Suitable as a feeder service to HSR but at low to medium frequency	Suitable for high frequency transit service but impractical for long distances
Impacts	Minimal visual and potentially low air quality impacts due to new fuel technologies	Moderate impacts due to new railroad infrastructure and overhead catenary lines	Greater visual and physical impacts due to new grade-separated infrastructure	Minimal impacts due to new railroad infrastructure	Moderate impacts due to minimal new railroad infrastructure and diesel-powered locomotives	Greater visual and physical impacts due to new grade-separated infrastructure
Community	Economic benefits are slightly less due to lower capacity potential	Frequent, fixed-route service can help spur economic growth	Provides frequent, fixed-route service but with more intense infrastructure suited for very urban areas	Frequent, fixed-route service can help spur economic growth	If frequent, the fixed-route service can help spur economic growth	Provides frequent, fixed-route service but with more intense infrastructure suited for very urban areas

4.3.2 Representative Mode Alternative

As a result of the mode alternative screening, a DMU/EMU transit system was selected to move forward for further analysis. Each mode alternative was evaluated under the equally weighted criteria, and was given a score of either Low, Medium, or High, with High being the most favorable. The scoring results of each criteria for each mode evaluated is detailed in Table 4-5 below.

Table 4-5: Mode Alternative Scoring Results

	BRT	LRT	Heavy Rail	DMU/EMU	Commuter Rail	Other Modes
Guideway	Medium (2)	Medium (2)	Low (1)	High (3)	Medium (2)	Low (1)
Speed	Low (1)	Medium (2)	Medium (2)	High (3)	High (3)	Low (1)
Stations	Medium (2)	Medium (2)	Low (1)	High (3)	Medium (2)	Medium (2)
Investment	High (3)	Low (1)	Low (1)	Medium (2)	Medium (2)	Low (1)
Capacity	Low (1)	Medium (2)	High (3)	Medium (2)	Medium (2)	Low (1)
Connectivity	Medium (2)	Medium (2)	Low (1)	Medium (2)	Medium (2)	Low (1)
Impacts	High (3)	Medium (2)	Low (1)	High (3)	Medium (2)	Low (1)
Community	Medium (2)	High (3)	Low (1)	High (3)	High (3)	Low (1)
Total	16	16	11	21	18	9
Ranking	✗	✗	✗	✓	✗	✗

The DMU transit system scored highest in propulsion, guideway, speed, and stations criteria. However, capital costs could be comparable or even higher in comparison to the Commuter Rail and BRT options.

The CVC is a unique region with its existing rail infrastructure, future high-speed rail connectivity opportunities, and varying communities. A DMU transit system in this corridor has the highest potential to provide an efficient and flexible transit service compared with the other mode alternatives in this study, and at moderate costs relative to the other modes considered. Other propulsion and passenger mode technologies are likely not appropriate for the characteristics of this corridor. The DMU's ability to operate through both freight corridors and city centers makes it a desirable option to traverse the CVC and its communities, with flexibility in station distances and connectivity opportunities.

Figure 4-1: A Capital MetroRail DMU Train in Austin, Texas

Benefits of DMU Transit Systems:

Propulsion	Diesel-powered vehicles do not require the construction of overhead electrical wires, which are costly and visually impactful, or separate locomotives which are heavy and require longer station platforms
Guideway	DMU trains offer the most flexibility for guideways and can operate in-street and on shared freight corridors such as the Cross Valley Corridor
Speed	DMU trains can operate at speeds up to 65+ miles per hour, but new models enable top speeds between 75 mph and 100 mph. Faster acceleration and braking capabilities can reduce travel times.
Stations	DMU station distances can vary greatly due to lighter vehicles with faster acceleration and braking capabilities. Stations can be as close as 2-miles apart.
Investment	Since DMU vehicles are able to operate in freight corridors, the need to acquire property or right-of-way is minimized, which is typically the most costly aspect of transit infrastructure.

5 Community Involvement

State and federal transportation laws, regulations, policies, and guidance require and encourage public involvement throughout the planning process, particularly regarding environmental justice groups, and underserved communities including low-income and minority populations. Community involvement invokes a problem-solving approach, bringing together community members and planners to discuss complex issues facing communities and residents. Community involvement is most successful when the process is transparent and access is provided to all aspects of the planning process for all interested stakeholders and community members.

Three objectives for the community involvement process were identified:

- To provide the public multiple opportunities to learn about the Plan, to review the proposed options, and to understand the implications that may result with all options
- To create and distribute public information that is user-friendly and culturally sensitive to communities that may be potentially affected
- To provide policy makers with information about the public's opinions and values regarding the Plan

The following section discusses the various community involvement activities that were completed throughout the course of the development of the Plan.

5.1 Community Engagement Plan

Thorough and well-thought out plans simplify the engagement process by providing a systematic approach, maximizing the use of available resources, and minimizing delays by ensuring that community involvement activities are coordinated throughout the planning process. A detailed Community Engagement Plan (CEP) was prepared to identify a schedule of involvement activities with consistent guidelines to ensure people had meaningful opportunities to be involved throughout the process. The CEP included tasks to identify and educate affected stakeholders and residents while also providing opportunities for participation and feedback. The CEP provided the framework for achieving overall consensus and communicating the decision-making process and included the following objectives:

- Create and implement a meaningful community involvement process and evaluate the process on a regular basis
- Conduct an open and transparent process, provide opportunities for comment, and identify critical issues
- Provide clear, concise, and easy-to-understand information enabling participants to make informed decisions
- Seek opportunities to involve a broad range of community members, including non-traditional groups ensuring that all potential issues and impacts are identified
- Produce materials in English and Spanish to address social equity and environmental justice issues

A copy of the complete CEP can be found in Appendix 8.1.4.

5.2 Work Planning Team and Stakeholder Meetings

As part of the overall work planning effort and to ensure success in the development process, a Work Planning Team (WPT) was established to manage, coordinate, and provide oversight for work planning activities and issues. The WPT consisted of staff from TCAG and the Authority as well as members of the Project Team preparing the Plan. Early in the process, the WPT was expanded to include local agency staff of cooperating cities and other identified key elected officials to ensure that the Plan addresses multi-modal connectivity with the planned Kings/ Tulare HSR Station while also providing benefits to individual cities and communities. The WPT met on a regular basis and was responsible for review and approval of all outreach materials. A listing of WPT members can be found in the CEP in Appendix 8.1.4.

Project Team members attended meetings and presentations with key stakeholders which were conducted early in the Plan development process to introduce the study, identify key issues and potential solutions, and gather support. Meetings are summarized in Table 5-1.

Table 5-1: Stakeholder Meetings

Meeting Type	Attendees
Site Tour	» Rey Leon, Environmental Justice, City of Huron Mayor Elect » Randy Groom, City of Exeter, City Administrator » Causo Hy, City of Huron » Pamela Kimball, City of Lindsay, City Council » Bill Zigler, City of Lindsay, City Manager » Dan Kassik, County of Kings, Planner » Terri King, KCAG, Executive Director » Darrel Pyle, City of Hanford, City Manager » Melody Haigh, City of Hanford, Senior Planner » Marlana Brown, Naval Air Station Lemoore » Jenny MacMurdo, Lemoore Chamber of Commerce, CEO » Dr. Caris McManus, Family Health Care Network » John Lollis, City of Porterville, City Manager » Mayor Rey Leon, City of Huron » James Doughty, Building Official, City of Huron
Meeting	ACEC of Kings and Tulare Counties
Presentation	City Mangers for the Cities in Tulare County (Monthly Gathering)
	American Council of Engineering Companies of California (ACEC) - Sequoia Chapter » Mike Lane, BIA of Tulare and Kings County » Pat Teeter, Lane Engineers, Inc. » Aaron Oliver, Lane Engineers, Inc. » Jim Winton, Winton & Associates » DeWitt Senter, Microdesk » Jason Paul, Blackburn Consulting
One-on-One (In Person)	Terri King, KCAG, Executive Director
	Jay Slayer, Kings County Economic Development Corporation, Economic Development Manager
	Mike Olmos, City of Visalia, City Manager
	» Kevin McAlister, Kings County, Director of Public Works
	» Supervisor Doug Verboon, Kings County District 3
	» Bill Zigler, City of Lindsay, City Manager
	Judy Holwell, City of Lemoore, Development Services Director
	Randy Groom, City of Exeter, City Administrator
One-on-One (Telephone and In Person)	Aaron Fukuda, Citizens for California High-Speed Rail Accountability
	Greg Gatzka, County of Kings, Community Development Director
One-on-One (Telephone)	Josh McDonnell, City of Visalia, City Planner

5.3 Phase I Outreach – Regional Workshops

In early phases of the study, extensive community outreach activities were completed to introduce the study and Project Team, provide an overview of the planning process, and assist with the development of a vision for the CVC. Items of interest included:

- Review of existing transit services and potential increases in ridership
- Potential land use and transportation improvements to areas surrounding current transit centers
- Potential for additional housing, businesses, and services with proximity to the planned Kings/Tulare HSR Station and services.

Regional workshops were planned throughout the CVC to allow for organized group discussions with the goal of exchanging and gathering information. Workshops were conducted in the cities of Hanford, Visalia, Farmersville, Porterville, and Lemoore and included Spanish translation services. An open house format was followed and included:

- Information display boards (see Appendix 8.1.4)
- A rolling Study Area Video providing an aerial view of the CVC
- An introductory PowerPoint presentation
- A break-out charrette/visioning exercise which allowed participants to provide feedback concerning environmental considerations, land use developments, and transportation improvements using provided sticker icons
- A wrap-up opinion polling PowerPoint

Figure 5-1: Phase I Plan Workshop in Lemoore

A wide variety of topics related to the CVC were discussed at the regional workshops, common themes included the following:

- More than half of all workshop attendees were in favor of connecting the Valley cities from Huron to Porterville via a rail transit line. Other attendees were unsure of connecting the Valley cities until they know what the costs and benefits are
- The Vision Statement was well liked by workshop attendees, who felt that the statement captured everything that they wanted to see. The recommendation from all workshops was to make the Vision Statement shorter in length, to ensure that it was a concise as possible
- More than 40% of workshop attendees noted they would drive to and park at the station in order to use the Cross Valley Rail
- Per the Vision Exercise and Wrap-up Opinion Polling, workshop attendees were interested in land use developments such as a public plaza, multi-family housing, hotels, restaurants/retail, employment related uses, and parking
- If the California High-Speed Rail becomes a reality, more than 40% of workshop attendees would take the Cross Valley Rail to get to the planned Kings/Tulare HSR Station

Regional workshop materials and a detailed synopsis report including workshop locations, noticing, individual workshop summaries, and photos, are provided in Appendix 8.1.4: Outreach Materials.

5.4 Newsletters

Prior to conducting outreach activities for Phase I and Phase II, a 2-page newsletter was created to help educated the public and stakeholders about the Plan and the development process. Newsletters were developed in English and Spanish and sent to the Plan Stakeholder Database via E-blast. The Phase I Newsletter served as an introduction to the study and included a study area map, study phasing timeline, upcoming workshop information, as well as information for the study webpage, how to receive additional information, and contact information. The newsletter created for Phase II activities included an update of study activities completed to-date, a listing of upcoming workshop and pop-up events, and ways to provide input and questions. Phase I and II newsletters can be found in Appendix 8.1.4: Outreach Materials.

5.5 Work Sessions, Updates, and Briefings

Members of the Project Team attended Board and Council briefings for TCAG, KCAG, Visalia City Council, and Fresno Council of Governments in the summer of 2017. Briefings included an introductory PowerPoint presentation as well as a question and answer session. TCAG feedback included a request to see more creative efforts to invite the public to outreach activities as well as a question as to why the current rail line will need to be replaced. At the KCAG meeting, it was confirmed that the current planning recommendations are consistent with the recently adopted Hanford General Plan. There was also a request about extending the rail to Coalinga or Avenal. Current planning recommendations are based on the existing rail right-of-way. The Visalia City Council was very interested in the Plan, emphasized their support of the planned King/Tulare HSR Station and recognized how the Plan will support the planned station as well as cities on the CVC. There was no feedback received at the time of the Fresno COG presentation.

5.6 Phase II Outreach – County Workshops and Pop-Up Events

Using the CVC vision developed during early study activities, Phase II of the study identified a list of common and specific station area strategies developed for each recommended transit center on the CVC. Recommendations encourage both local and regional multi-modal (car, transit, bicycle, and walking) activity. Land use and economic development strategies identified look to attract growth to existing city centers and promote development of other communities within the Plan area. In addition to planning for active transportation, the regional strategies provide recommendations for access to the planned Kings/Tulare HSR station for regional transit and transportation facilities and services. Items of interest at Phase II outreach events included:

- Review of Plan station area recommendations including potential improvement options
- Review of mode alternatives analyzed and a summary of findings
- Recommendations for Phased Implementation of Corridor services

As noted in the CEP, a second set of five regional workshops was scheduled during Phase II of the Plan. After WPT discussions, the approach was updated to included additional activities other than just regional workshops. Phase II outreach activities included a media event, regional workshops, pop-up events, newsletters, and information disseminated via the study webpage. Regional workshops offered a method of presenting recommendations that allowed city and county residents, business owners, and other key stakeholders to express their thoughts and feedback so that the Plan reflects their experience. Pop-up events, as a subset of the regional workshops, call for short, but meaningful interactions with the public at already established events. Newsletters were offered to educate the public and stakeholders about the study while the study webpage provided user-friendly, easy access to information regarding the planning process as well as an opportunity to provide input through a comment section.

Figure 5-2: Phase II Pop-Up Event in Hanford

Figure 5-3: Plan Workshop in Visalia

The discussions at the completed outreach activities covered a wide variety of topics related to the Cross Valley Corridor. Several common questions were identified including:

- Will the Cross Valley Corridor help with air pollution?
- How is the Plan being funded?
- How much will it cost be become fully implemented?
- When will it become fully implemented?
- Will my taxes go to pay for it?
- How is the Cross Valley Corridor different from the High-Speed Rail?
- How is this Plan different from Amtrak?

Comment themes identified with the use of the survey instrument included:

- More than half of the respondents lived in Tulare County
- Less than 4% of respondents were opposed to the proposed rail station area plan(s) and proposed implementation phasing
- 71% of respondents liked the proposed rail station area plan(s) depicted at the event where they participated
- 56% of respondents liked, and would use coordinated local bus service between Huron and Porterville for Phase 1 of the proposed implementation plan while 64% liked and would use the initial passenger rail service (Visalia to Hanford), supported by local bus service for Phase 2 of the proposed implementation plan
- 61% of respondents liked, and would use the fully implemented passenger rail service from Huron to Porterville

Regional workshop and pop-up event materials as well as a detailed synopsis report including event location information, noticing, individual workshop and pop-up event summaries, and photos, are provided in Appendix 8.1.4: Outreach Materials.

6 Recommendations

6.1 Station Area Planning Strategies

The first set of strategies are recommendations that are common to all the corridor cities and the three cities that are connected to the corridor by a bus route and existing transit center. These cities also include additional recommendations that may be specific to the general plan or related planning documents (e.g. a Specific Plan) of each city, and those can be found in the sections that follow.

Following the set of common strategies are station area strategies specifically prepared are each station. The recommendations for each of these cities are displayed on two site plans:

- Recommendations within a Quarter Mile Radius around the Station; and
- Recommendations for the Immediate Station Site.

Finally, there are strategies for improvements around the transit stations in Tulare, Woodlake, and Dinuba that will provide bus connections to the CVC. There are also strategies for three potential future stations in the unincorporated communities of Armona, Goshen, and Strathmore.

6.2 Common Station Area Planning Strategies

6.2.1 Right-of-Way and Site Protection

1. Identify and, if needed, acquire a future station site, and protect it from uses or development that would hinder developing the site into a corridor station. This strategy would not apply to cities with existing developed station sites.
2. Protect the existing rail right-of-way and land directly adjacent to the CVC right-of-way from encroachment by land uses or development that would hinder or increase the cost of reconstructing the existing rail right-of-way for both passenger and freight service.

Figure 6-1: The CVC where it will be crossed by California High-Speed Rail, looking east

6.2.2 Land Use

3. Establish the transit station and surrounding area as a local, citywide, and regional destination that emphasizes access to transit, employment, cultural venues, and entertainment uses.
4. Create a seamless connection between the city's transit station and the city's downtown core by encouraging and promoting urban development that frames the public realm and generates pedestrian activity. Maintain an active ground floor environment throughout the station area.

5. Ensure a mix and intensity of uses in the greater station area that support increased transit ridership. This should include a mix of employment and residential uses within a ten-minute walk of the station, transit supportive uses (such as rental car agencies, bike rentals, etc.), and associated supportive neighborhood services and amenities.

Figure 6-2: Mixed-use building in Downtown Visalia

6. Review planning principles, development regulations, and public service, transit, and infrastructure policies and programs to incorporate transit-oriented development near the station.
7. Promote the development of a variety and range of housing options within downtown and in adjacent areas, including higher densities within a quarter-mile and up to a half-mile from the transit station.
8. Discourage new auto-related sales and service uses (except car rental) within one-quarter mile radius of the station site, as they detract from the streetscape, transit-oriented uses, and the pedestrian experience.
9. Discourage development and building orientation that discourages walking, biking, and transit.
10. Support the location of key social services like child care centers, health clinics, and other essential destinations close to stations, particularly for transit-dependent populations.

11. Consider opportunities for phased development to take advantage of value enhancements that may be able to intensify over time, such as designing a surface parking lot that can later convert to a parking structure.
12. Consider opportunities at existing transit centers for on-site transit oriented development.

Figure 6-3: Multi-family housing near the Cross Valley Corridor in Porterville

6.2.3 Multi-Modal and Circulation

These recommendations incorporate input and feedback from affected cities and counties, other interested government organizations and the Authority Board.

13. Support the planning and construction of the Cross Valley Corridor using the existing railroad alignment, which would directly connect the population centers along the Corridor. Further, include a station stop directly adjacent to the planned Kings/Tulare High-Speed Rail Station east of Hanford.
14. Plan CVC Stations to include way-finding signage; accessible transit information; real-time technology; schedule coordination; fare coordination; and, connecting services.
15. Prioritize bicycle and pedestrian improvements such as sidewalks, crosswalks, bikeways, and ADA-accessible curb maps in the area within a half-mile radius of the station site.
16. Provide sufficient parking at the station for bicycles and consider inclusion of bike maintenance stations and provision of bikeshare systems.
17. Provide necessary facilities and services that support new development intensities and densities near CVC station sites.
18. Promote alternative vehicle use by providing parking for scooters, mopeds, motorcycles, alternative fuel vehicles, and charging stations.

19. Provide parking in well-designed facilities compatible with the character of downtown.
20. Consider covered parking with solar panels.
21. Integrate existing and future transit services into a joint facility with the new Cross Valley Rail station.
22. Consider ridesharing and Transportation Network Companies to help augment transit service and provide first/last mile connections in the station area.
23. Maintain, and where feasible, improve pedestrian scale short block street grids in the station areas, and discourage street abandonment to improve pedestrian scale development and walkability.

6.2.3.1 Parking Policy Recommendations

Based on a review of current and emerging parking technology (including how such technology has worked elsewhere), following parking implementation strategies are recommended:

24. The overall parking needs at station areas will be modest compared to other downtown users. Cities in the CVC corridor should seek to accommodate transit park and ride vehicles in existing parking facilities that are shared with other downtown users.
25. Provide real time data on public and private parking availability, location, and price through as many media as possible. The most cost-effective manner of doing this is to share databases with developers of web-based applications.
26. Since the corridor cities control only a fraction of downtown parking, encourage the private sector to collect and share parking utilization data on a real time basis in a format comparable to each city's data.
27. Encourage downtown businesses to link real-time parking applications to their websites.
28. Should paid parking be implemented, strive to keep parking payment technologies as uniform and simple as possible across the public and private parking facilities Work to facilitate as many forms of payment as possible, including pay-by-phone, contactless smart cards, and in-car pre-paid parking meters.
29. When implementing new policy or technology, provide widespread education first. Provide a period of "supplemental education and forgiveness" during initial implementation (e.g., one month). During this period, motorists will receive a courtesy notice instead of a fine, along with short and effective information on the new policy or technology.

6.2.4 Public Space

30. If space permits, plan and provide for highly visible, iconic civic plazas sitting areas and gathering areas that would include a small urban open space area adjacent to the station, with hardscape, landscaping, seating amenities, trash receptacles, and lighting.

31. Encourage a transit plaza to act as a gateway and entrance for the station that can include active uses such as vendors, entertainers, artists, food and beverage sales, and public amenities.
32. Maintain, and where feasible, improve pedestrian scale short block street grids in the station areas, and discourage street abandonment to improve pedestrian scale development and walkability.

Figure 6-4: A transit plaza in Petaluma, California

6.2.5 Urban Design

33. Provide incentives for infill and development on underutilized land or vacant land within the surrounding station area that promotes mixed use and higher residential densities.
34. Design the transit station to be one of the city's identifiable and memorable landmarks.
35. Use art as a defining and symbolic feature to create a strong sense of place for the station area, and an identifier for the city.

6.2.6 Public Outreach

36. For new transit stations, involve the public in the decision-making process of designing and planning the station site.
37. Organize a citizens' advisory committee and a technical advisory committee.
38. Assist the Cross Valley Corridor implementing agency to educate the public about plans for the Corridor and connecting cities.

6.2.7 Economic Development

39. Seek opportunities to attract new employment uses and promote existing businesses associated with the Cross Valley Corridor.

40. Improve the quality of life of residents through transportation projects that create jobs and enhance the environmental benefits related to air quality, energy use, noise reduction, and land use.
41. Leverage the Cross Valley Corridor system and its ability to connect the corridor cities as an economic tool for the establishment of commercial and industrial development and promotion.
42. If a city wants to provide special land use incentives to encourage development around the station, identify and delineate a station area around the station itself that may be targeted for special consideration. Typically, a station area extends beyond the station itself and includes the immediately surrounding neighborhood or district that is within walking distance or a ¼-mile walk. Boundaries of up to a half mile around a station area should be based on the unique local land use and planning context as well as related or synergistic land uses or activity nodes, natural or political boundaries, community input and other factors.
43. Aggressively seek State and Federal funding for improvements associated with the Cross Valley Corridor Plan.
44. Consider opportunities for regional and/or multi-jurisdictional funding commensurate with the regional benefits conveyed by the service.
45. Seek to optimize the phasing and level of investment in the Cross Valley Corridor Plan to ensure a financially sustainable system.
46. Consider public-private opportunities for financing improvements.

6.2.8 Sustainability

47. Consider covered parking with solar panels at the transit center parking lots.
48. Encourage green building design, energy efficient construction, and other sustainable development measures.
49. Require “smart” irrigation controllers, low-water irrigation systems and low water use or drought tolerant vegetation.
50. Use LED lighting in parking lots and pedestrian scale lighting at the station site.
51. Promote alternative vehicle use by providing parking for bicycles, scooters, mopeds, motorcycles, alternative fuel vehicles, and charging stations.
52. Purchase an energy efficient bus fleet for the Short-Term Phase of Cross Valley Corridor implementation.
53. Provide “triple-stream” solid waste bins throughout the station for recyclables, compostables, and landfill trash.

Figure 6-5: Electric vehicle charging station

6.3 Huron Station Strategies

The City of Huron 2025 General Plan states that once adopted, the General Plan does not remain static. Over time it may be necessary to re-evaluate the policies and modify them do to changes in the environment, regional consideration, and economy.

Figure 6-6: Huron CVC station area, looking east

6.3.1 Land Use

1. Consider the area between Lassen Avenue, 9th Street, 10th Street, and M Street as potential sites for mixed use, senior housing, multifamily residential, community center, and local museum. To the extent possible, utilize southwest corner of Huron Avenue and Central Avenue as the site for rail station parking.

6.3.2 Transportation, Circulation, Parking and Multi-modal

2. Establish and promote the redevelopment of the area east of Lassen Avenue and south of the railroad as the site for a station.
3. Consider improving connectivity south of the railroad and to the station by completing Siskiyou Avenue at the railroad crossing in the eastern section of the city for vehicles, pedestrians, and bicycles. To improve safe access to the station area, improvements could also include routing trucks along Siskiyou Avenue northward from the industrial area to prevent industrial traffic from traveling through the existing neighborhoods.

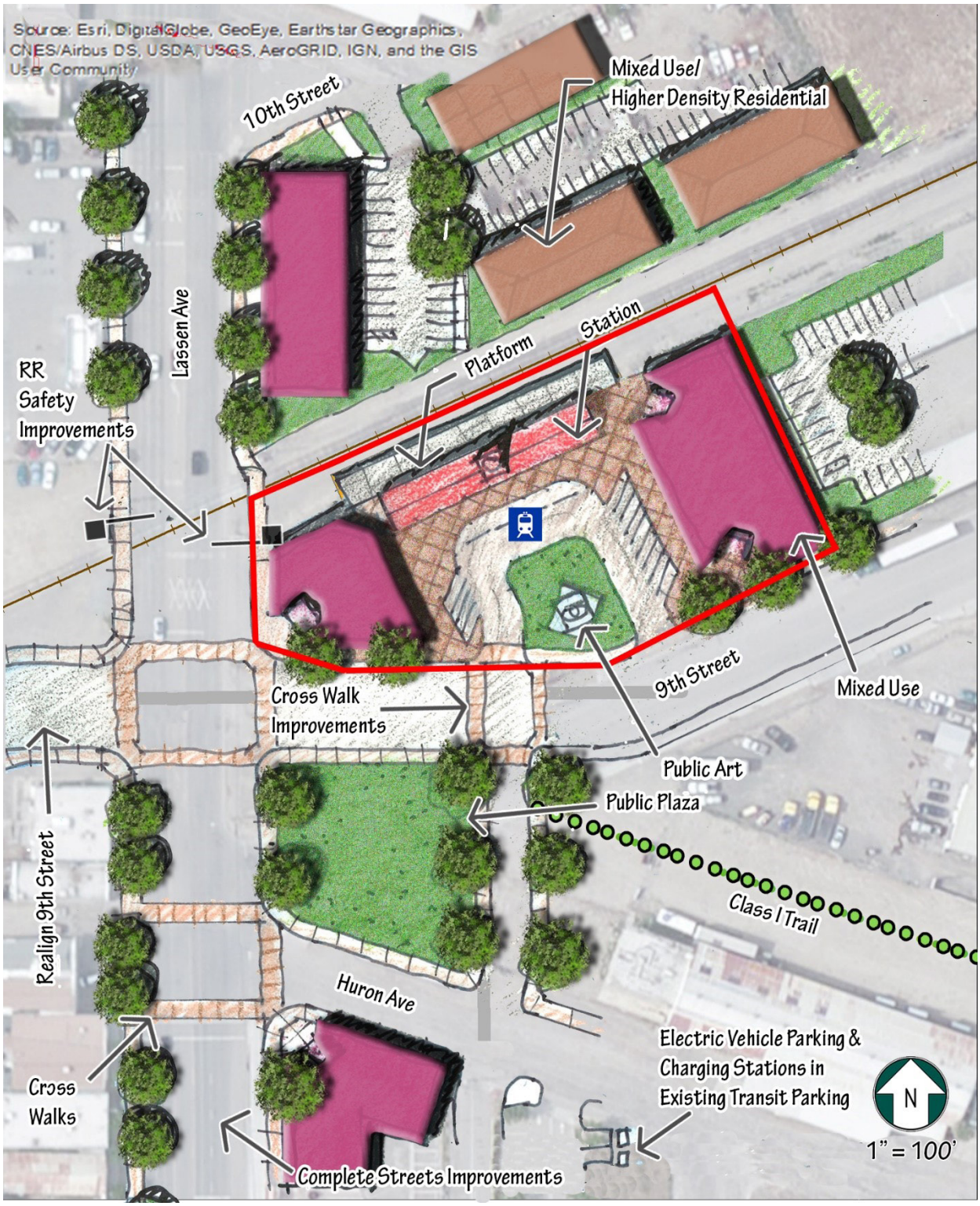
Figure 6-7: Planned urban plaza for Huron's CVC station area

4. To improve access to the station, close the connectivity gaps in the city's street network, particularly at Huron Avenue, Tornado Avenue, L Street, and Thirteenth Street.
5. Continue to pursue an active transportation plan that improves pedestrian and bicycle access throughout the community with linkages to the transit site and transit area, connecting the northern neighborhoods to Huron Middle School and the southern neighborhoods to Huron Elementary School. Include a Class 1 bikeway within the abandoned railroad right-of-way approximately 100-feet north of Huron Avenue, 200-feet south of 7th Street, and connecting to Siskiyou Avenue at 9th Street.
6. Pursue intersection improvements at Lassen Avenue, 9th Street, Railroad Avenue, and Huron Avenue to improve pedestrian safety in conjunction with the Huron Community Plaza.
7. Pursue a roundabout at Lassen Avenue and 4th Street to improve pedestrian, bicycle, and vehicular safety.
8. Improve existing, and install new sidewalks, curb ramps, and bike lanes and stamped concrete (or similar surface) crosswalks at key intersections along Lassen Avenue from Palmer Avenue to Huron Avenue. Improve safety at these key intersections by incorporating traffic control devices such as Rectangular Rapid Flash Beacons.
9. Consider lane reductions with center turn lane and increased on-street parking and/or parklets along Lassen Avenue in the downtown area.
10. Improve railroad crossing at Lassen Avenue by installing safety features such as arms and signage as well as safe pedestrian crossings.

6.3.3 Public Space

11. Continue to pursue the Huron Community Plaza across from the proposed rail station as the site for special events, local festivities, concerts, and cultural activities with improved pedestrian connections along Railroad Avenue, Huron Avenue, 9th Street, and Lassen Avenue.

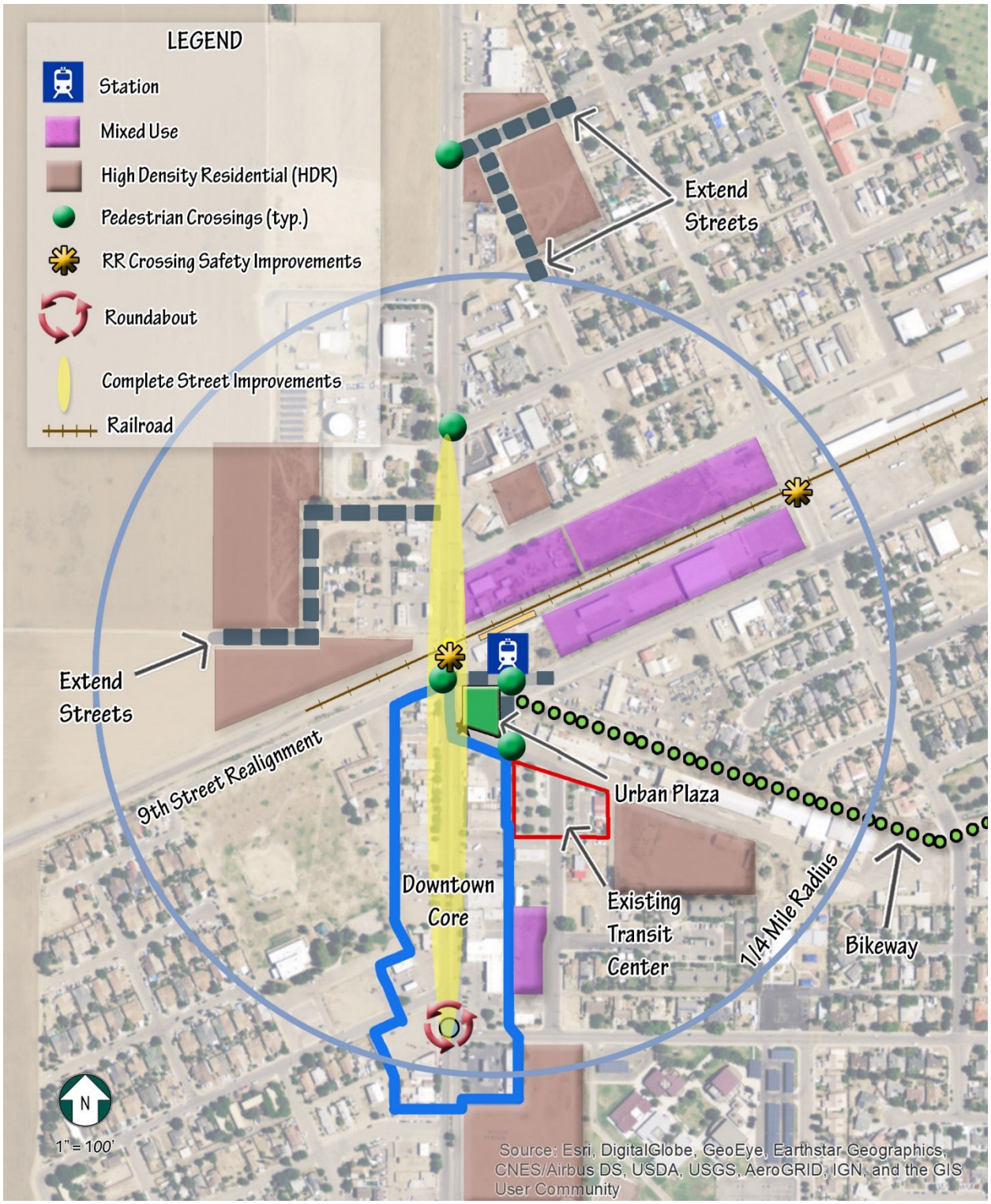
Figure 6-8: Huron Station Area Conceptual Layout



6.3.4 Public Outreach

12. Feedback received during Phase II outreach activities was general in nature and didn't directly affect recommendations related to the specific station area planning strategies for the CVCP. Detailed information for Phase II outreach activities can be found in Appendix 8.1.4: Outreach Materials.

Figure 6-9: Huron Station Area Plan



6.4 Lemoore Station Strategies

The City of Lemoore General Plan states that the document "is intended to be a dynamic document. As such, it may be subject to more site-specific and comprehensive amendments over time, amendments that may be needed to conform to state or federal law passed after adoption."

6.4.1 Land Use

1. Consider the conversion of existing industrial uses south of the railroad, north of E Street, and west of Fox Street to downtown mixed use (DMX-1).

Figure 6-10: The Historic Depot in Lemoore

The Depot is a good example of symbolic architecture that can serve as one of the City's more identifiable and memorable landmarks for a Cross Valley Corridor station

6.4.2 Multi-Modal and Circulation

2. Support the Lemoore Chamber of Commerce building, the Arbor Plaza, and adjacent parking as the location for a station
3. Improve rail crossings at Follett Street and Fox Street for pedestrians, bicycles, and vehicles.
4. Complete and improve sidewalks and ADA compliant curb ramps along E Street/Olive Street between D Street and Fox Street.
5. Improve pedestrian connectivity between downtown and the station site and the neighborhoods north of the railroad by completing and improving sidewalks and ADA compliant curb ramps along Follett Street north of the railroad from E Street to G Street.
6. Consider mid-block crossings on C, D, and E Streets between Fox Street and Follett Street to increase pedestrian access near the station.
7. Install corner bulb-outs at the intersections of E Street at Heinlein Street, Follett Street, and Fox Street to improve pedestrian safety.

6.4.3 Urban Design

8. Consider an entry statement or gateway at Heinlein Street and E Street for the benefit of visitors exiting the rail station.

6.4.4 Economic Development

9. The two blocks between Fox Street and Follett Street just south of the station site represent an opportunity to promote a mixed-use development with existing retail, restaurant, and entertainment uses. The City should encourage local businesses and investors to pursue opportunities at this location as one of the early phases of downtown economic development in relationship to the proposed rail station.

Figure 6-11: Lemoore station area, looking east

Figure 6-12: Lemoore Station Area Plan

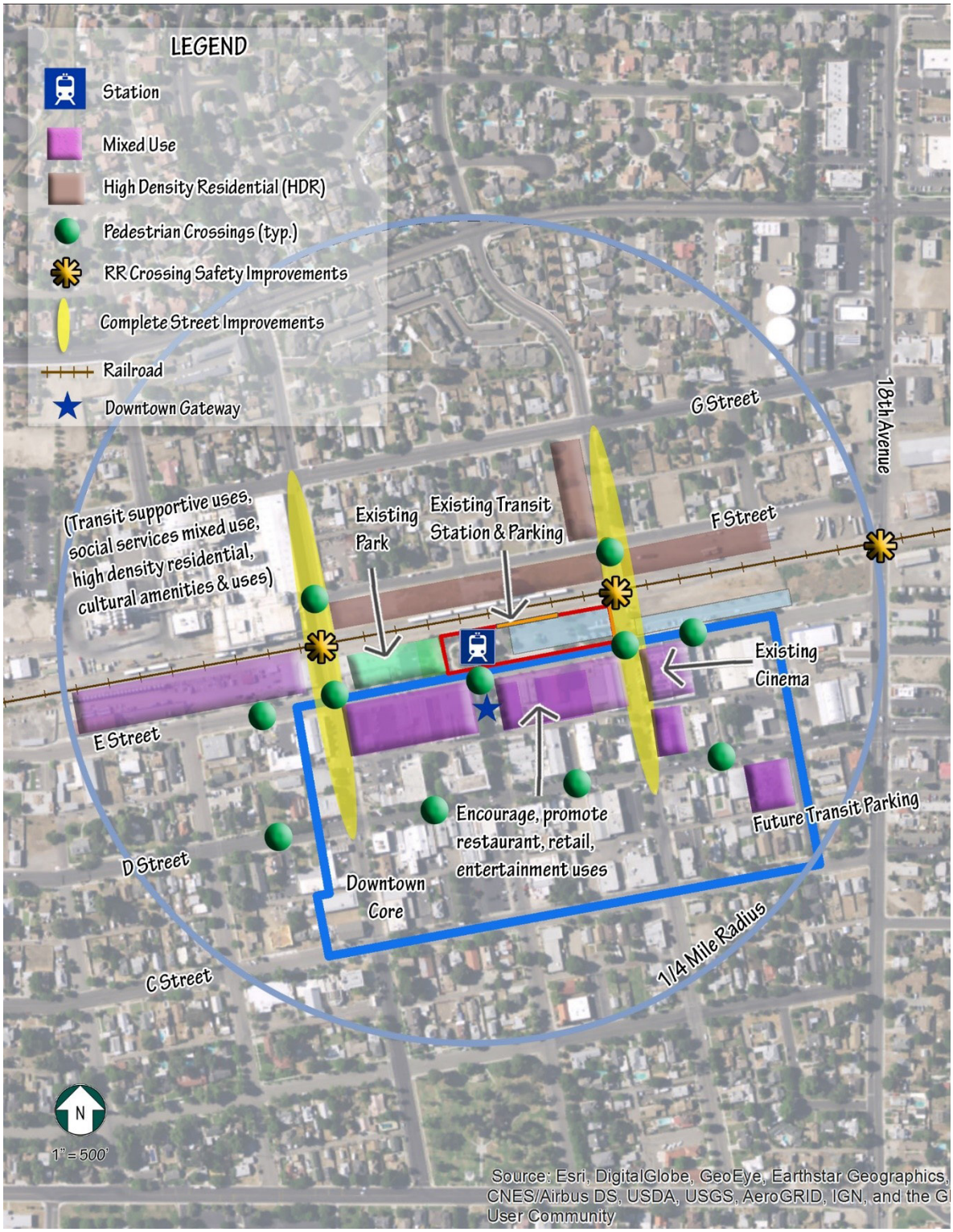


Figure 6-13: Lemoore Station Area Conceptual Layout

6.5 Naval Air Station Lemoore Station Strategies

The Naval Air Station Lemoore desires to include a transit platform along the corridor. The station site was first identified by the Kings County Association of Governments in October 1995 as the site located at the northeast corner of Reeves Boulevard and the railroad. It is also included to the Base Master Plan, prepared by the U.S. Military. The station site would be approximately 1.3 miles from the center of the base and nearly 2.5 miles to the residential areas. Access would be provided by local base transit service.

Figure 6-14: NAS Lemoore CVC station area, looking east

6.5.1 Multi-Modal and Circulation

1. Support the location of a station at the northeast corner of Reeves Boulevard and the railroad.
2. Consider construction of an underpass of Reeves Boulevard at the railroad.
3. Provide intra-Base access to the station via KART services and/or Base shuttles.
4. Provide a drop-off area and adequate parking at the station site.
5. Provide an off-street Class I bikeway trail from the residential sector of the Base to the station. Sufficient bicycle parking should also be provided.

Figure 6-15: NAS Lemoore Station Area Plan

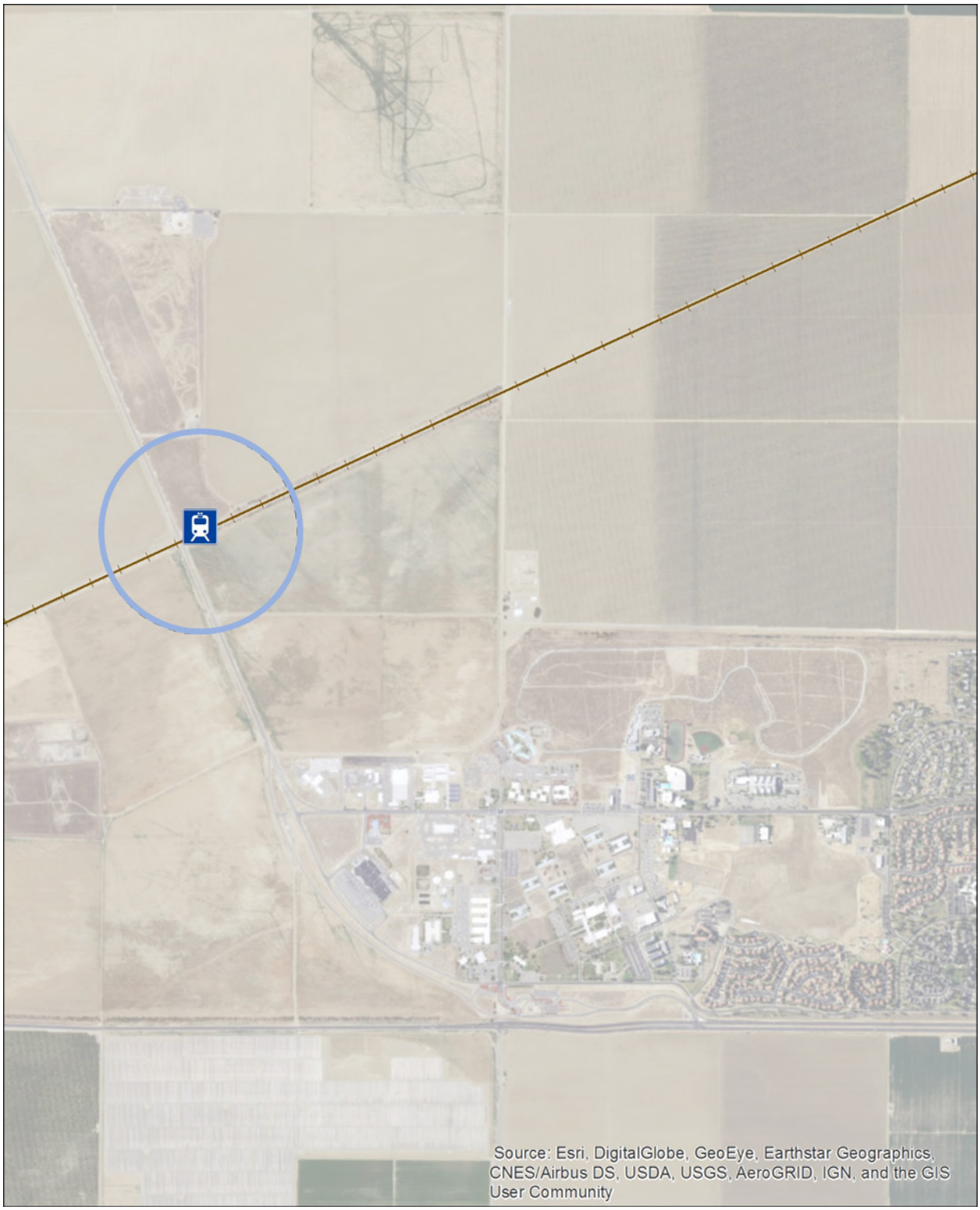
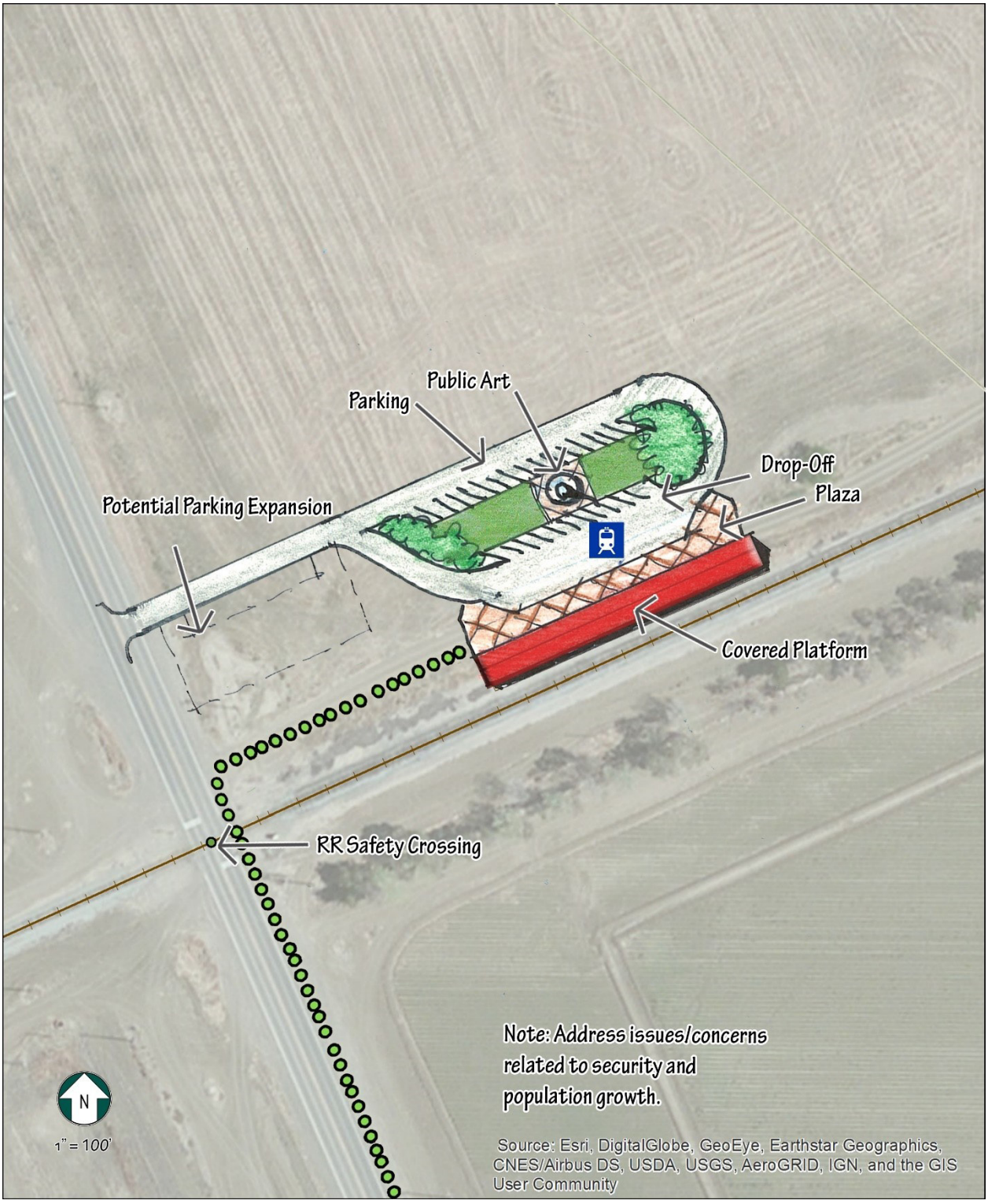


Figure 6-16: NAS Lemoore Station Area Conceptual Layout



6.6 Hanford Station Strategies

The following strategies are the recommendation for the City of Hanford to consider when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

Figure 6-17: Hanford at the BNSF railroad crossing, looking east

6.6.1 Land Use

1. Consider opportunities for new development and improvements identified in the Downtown East Precise Plan.
2. Implement General Plan policies that locate High-Speed Rail support services in Downtown Hanford, west of 10th Avenue.

6.6.2 Multi-Modal and Circulation

3. Support the location of a station sited along the south side of Sixth Street between Green Street and the BNSF Railroad.
4. Coordinate with KART to locate the new rail station site with KART's proposed bus transit center.
5. Design transportation systems and infrastructure that promote both the Amtrak and KART terminals and the future Cross Valley Rail site as the activity hubs for multi-modal transportation in Hanford.

6. Encourage and support the use of the Cross Valley Rail as a connection to the Kings/Tulare High-Speed Rail Station east of Hanford with emphasis along Seventh Street and East Lacey Boulevard including sidewalks, ADA compliant curb ramps, bike lanes, curb and gutter, and street trees. Consider undergrounding overhead utilities along East Lacey Boulevard.
7. Improve pedestrian access south of SR 198 along Phillips Street and Douty Street with underpass lighting for Phillips Street, sidewalk and bikeway improvements, new ADA compliant curb ramps, and other improvements. Crosswalks at the Third Street and Fourth Street intersections should be considered.
8. Improve east-west bicycle and pedestrian access through the city to the rail station site by completing the Sixth Street bike lanes. Improve Sixth Street near the station with sidewalks, curb and gutter, shade trees, and bike lanes. Crosswalks and midblock crossings should be added where appropriate.
9. Install street trees and ADA compliant curb ramps from the station to downtown along Douty Street.

6.6.3 Urban Design

10. Consider an entry statement/gateway at Douty Street and Sixth Street.

Figure 6-18: Hanford at Douty Street, looking east

Figure 6-19: Hanford Station Area Plan

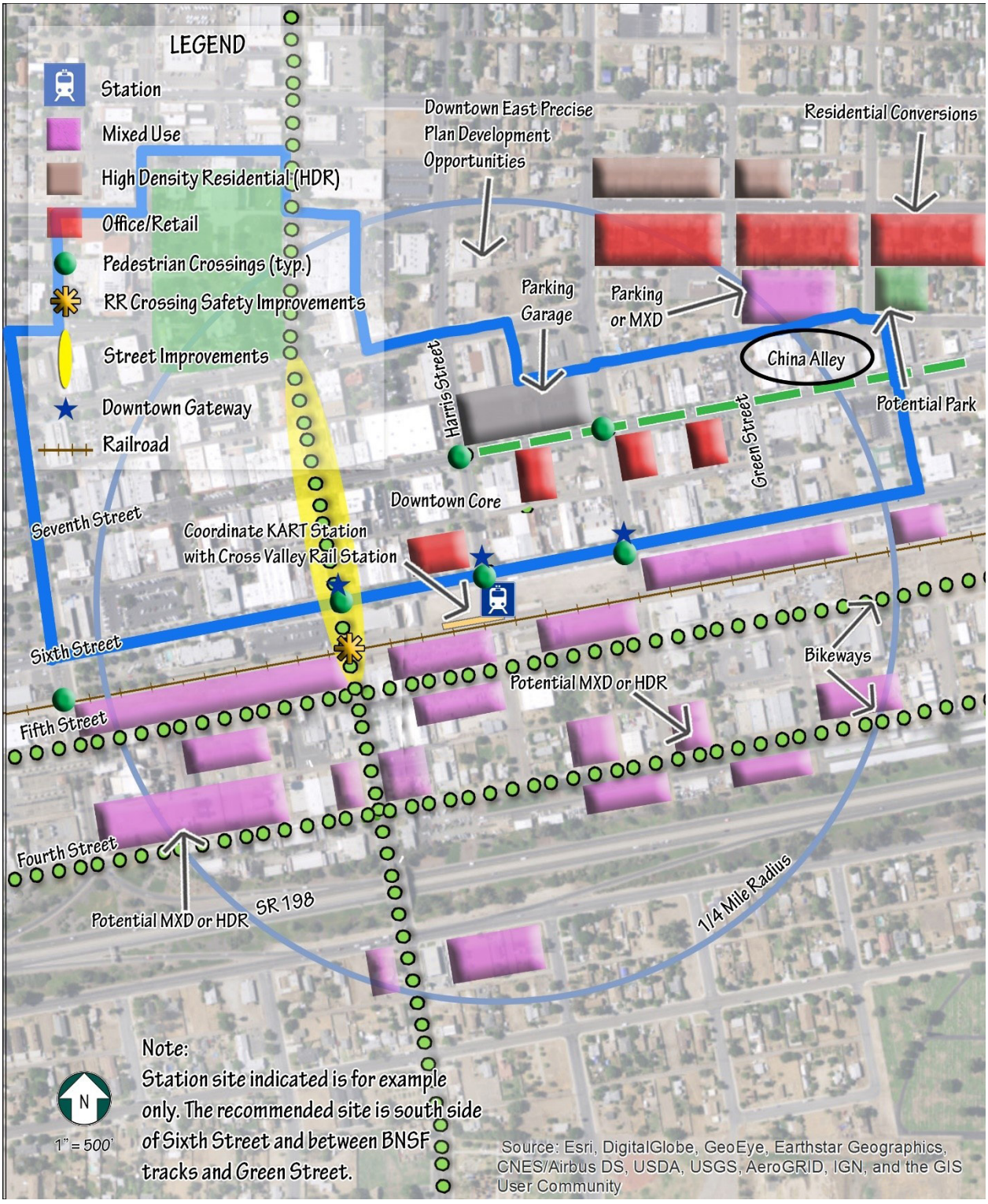
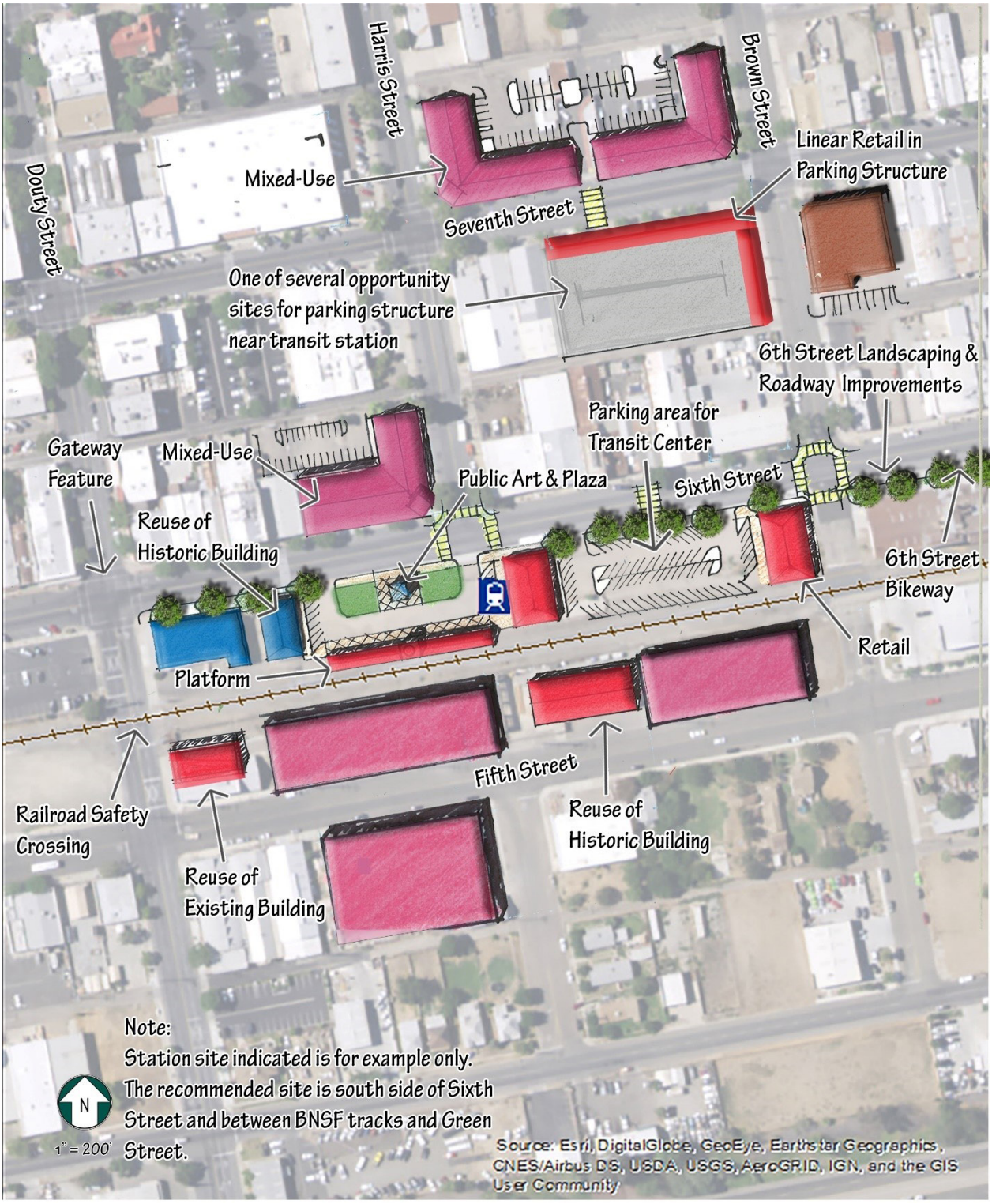


Figure 6-20: Hanford Station Area Conceptual Layout



6.7 Visalia Station Strategies

The following strategies are the recommendations for the City of Visalia to consider that may result from the implementation of the Cross Valley Corridor Plan.

6.7.1 Land Use

1. Implement the incentive program for residential infill development of existing vacant lots and underutilized sites within a half-mile from the station as a strategy to help to meet the future growth needs of the community and housing near the transit center, and promote the adaptive reuse and restoration of existing buildings in Downtown, East Downtown, and within a walking distance to the rail station. Sites that should be strongly considered for the incentive program include those vacant and underutilized sites north of School Avenue, east of Garden Street, west of Tipton Street, and south of Douglas Avenue.
2. Promote Santa Fe Avenue as a mixed-use address, particularly within one-quarter mile from the station, providing an opportunity to expand downtown's commercial activities, with ground floor retail and residential use complementing offices in mixed-use projects.
3. Support the continuing growth of the burgeoning arts district within a quarter-mile of the rail station.

Figure 6-21: The Visalia Transit Center, looking east

6.7.2 Multi-Modal and Circulation

4. Support a location of the station on either side of Goshen between Burke.
5. Implement the Visalia Active Transportation Plan with emphasis on bicycle and pedestrian access to the transit center and future station, such as, but not limited to, the Class 1 Mill Creek Trail.
6. Consider mid-block crossings at Oak Avenue, Center Avenue, and Bridge Street within the vicinity of the Visalia Transit Center and then expand the construction of mid-block crossings throughout other areas of downtown where ever they do not currently exist and may be needed.
7. Provide bike and pedestrian improvements from the station to the future civic center campus and park along Oak Avenue between Tipton Street and Burke Street.
8. Encourage streetscape improvements from the station to the convention center, proposed civic center site, and Children's Museum.

Figure 6-22: The Visalia Transit Center

6.7.3 Public Space

9. Consider a downtown entry statement or gateway near the station for the benefit of visitors entering downtown from the station.

Figure 6-23: Visalia Station Area Plan

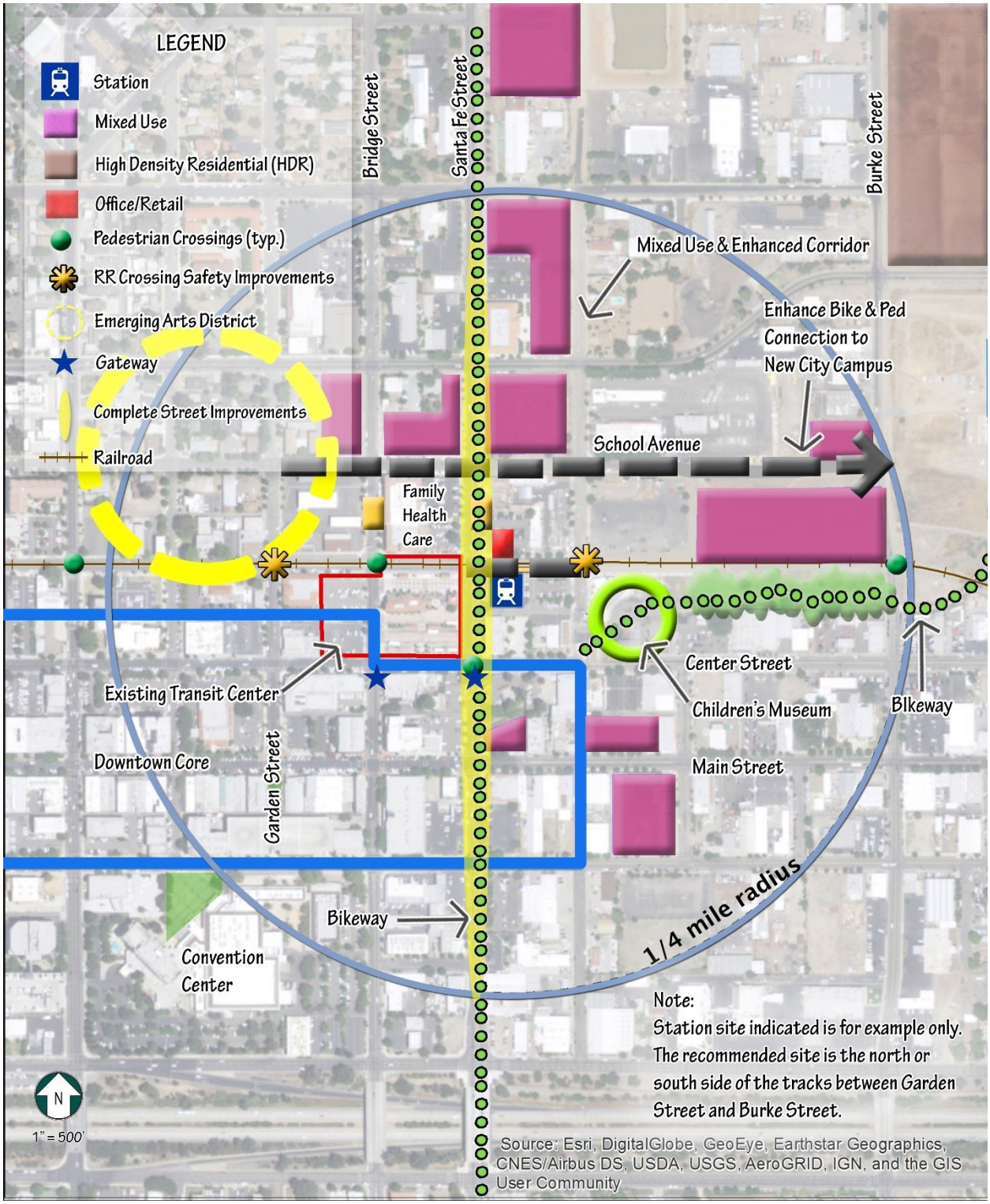
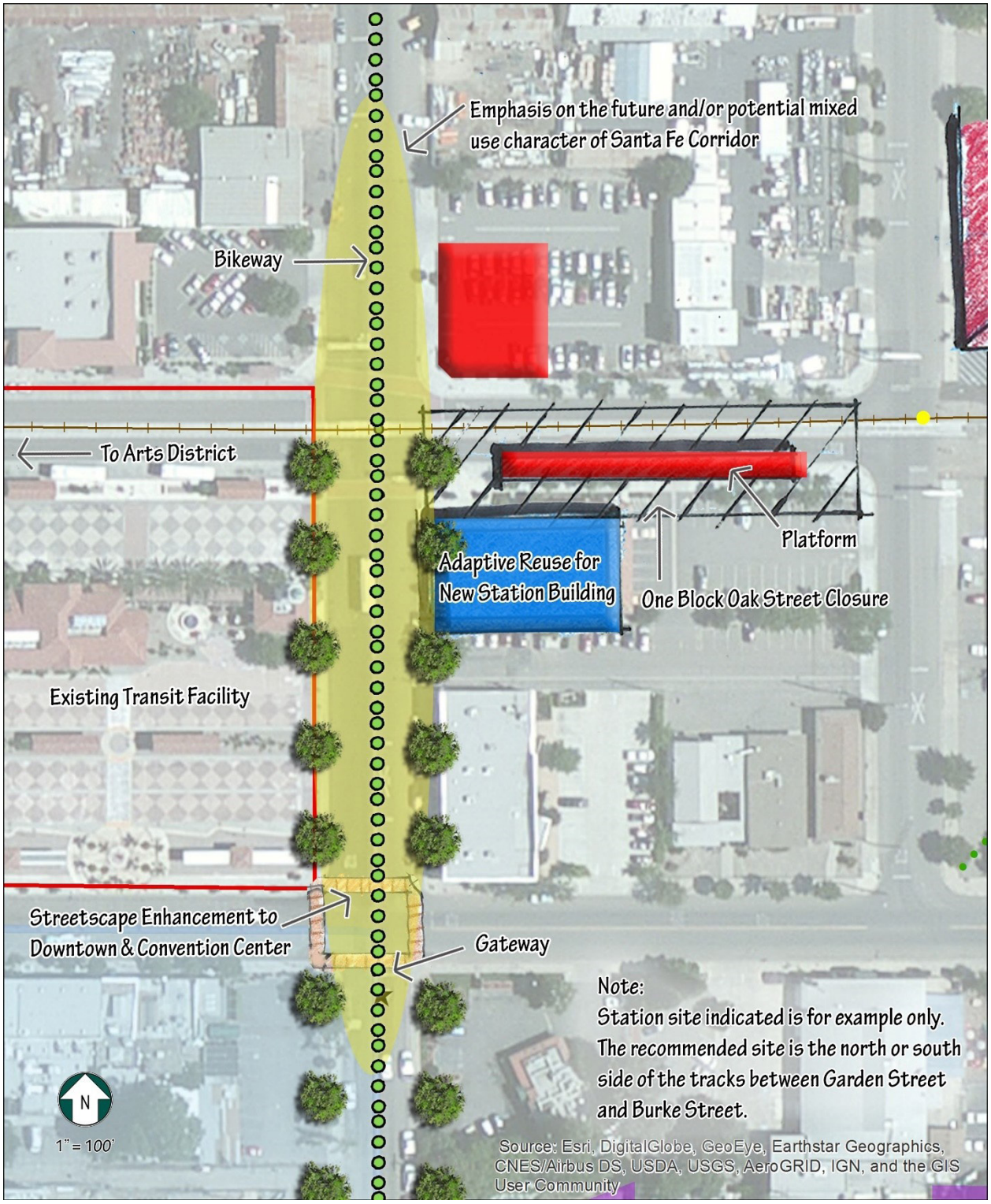


Figure 6-24: Visalia Station Area Conceptual Layout



6.8 Exeter Station Strategies

The City of Exeter's 2020 General Plan states that "from time to time the City may be requested to amend portions of the General Plan. This occurs most frequently when a property owner or developer wishes to change the zoning of their property" or when the city finds a need to revise and update the General Plan. Such amendments must be reviewed and approved by the Planning Commission and the City Council. The following strategies are the recommendation for the City of Exeter to consider when making amendments to the General Plan that may result from the implementation of the Plan.

Figure 6-25: Exeter CVC station area, looking south

6.8.1 Land Use

1. New retail commercial and office uses will generally be housed in one-story buildings although multi-story buildings no higher than three stories are encouraged in the downtown and near the station site.
2. Consider opportunities for office residential, bed and breakfast, and small retail shops for the single-family residences within a half-mile radius of the rail station and adjacent to or within the downtown. This will allow the city to retain the historic character of nearby residences and provide for uses that would promote jobs and tourism in the area.

6.8.2 Multi-Modal and Circulation

3. Recognize the historic station at Pine Street and F Street as the preferred location with other acceptable sites on the west side of F Street between Pine Street and Firebaugh Avenue.
4. Consider bikeways and on-street parking where feasible. The City's current policy calls for such streets to be considered for tree lined medians, but with current state water conservation regulations on landscaped medians and the increased efforts towards alternative transportation modes, the City should consider other opportunities, particularly on streets where on street parking could support new development and where multi-modal access to the station site is important.
5. Improve the safety of rail crossings for pedestrian, bicycles, and vehicular traffic at Pine Street, Palm Street, and Chestnut Street.
6. As the Southwest Exeter Specific Plan is developed, the City should promote multi-modal accessibility from the specific plan site to the station site.

6.8.3 Urban Design

7. Install street trees, sidewalks, ADA compliant curb ramps, and decorative lighting along F Street and G Street from Palm Street to Firebaugh Avenue.

Figure 6-26: Mural depicting Exeter's rail history, near station area

6.8.4 Economic Development

8. Promote jobs, housing, lodging, and other economic development on the vacant and underutilized land south of Firebaugh Avenue between American City Highway and Industrial Drive along both sides of the railroad.

Figure 6-27: Exeter Station Area Plan

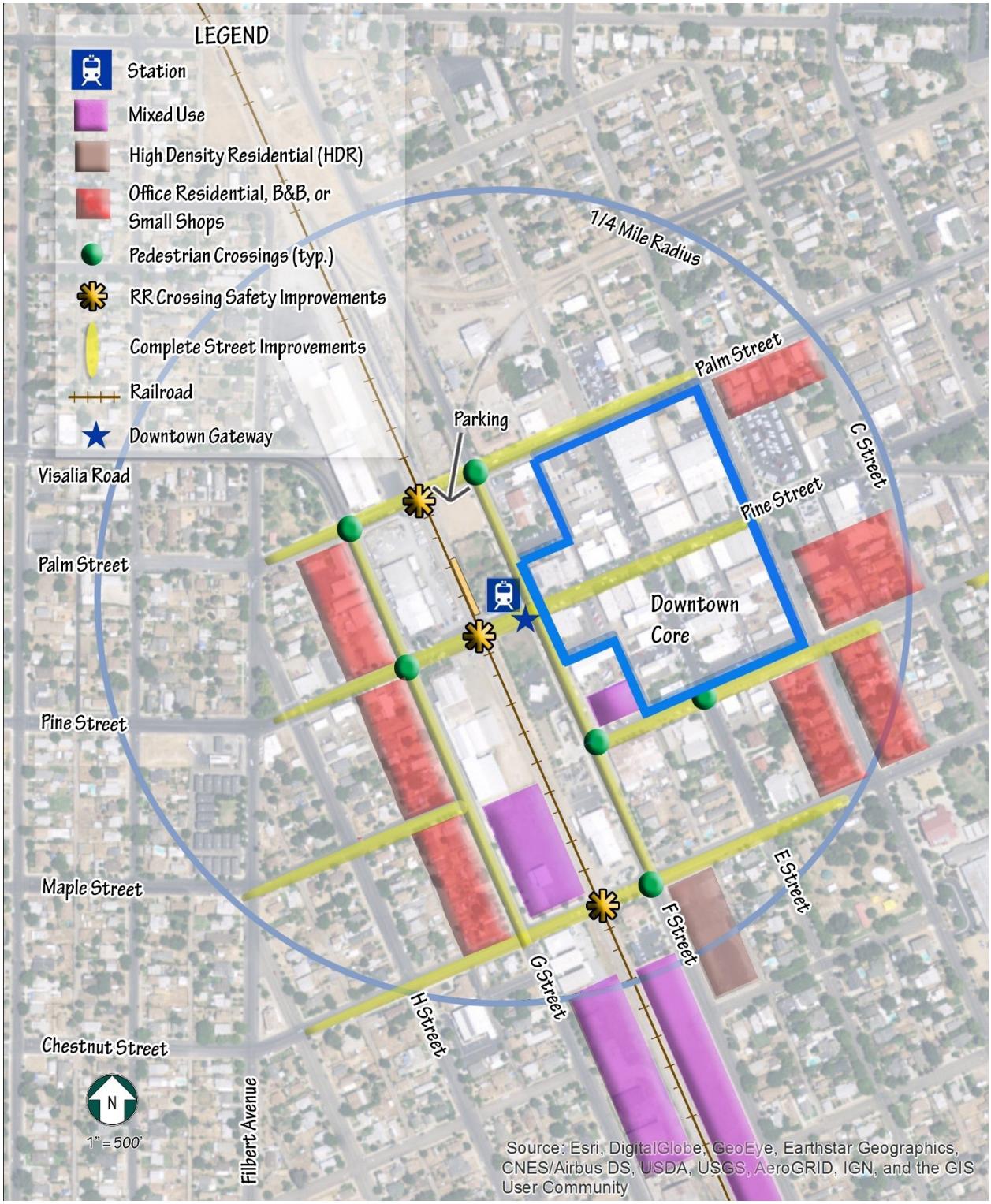
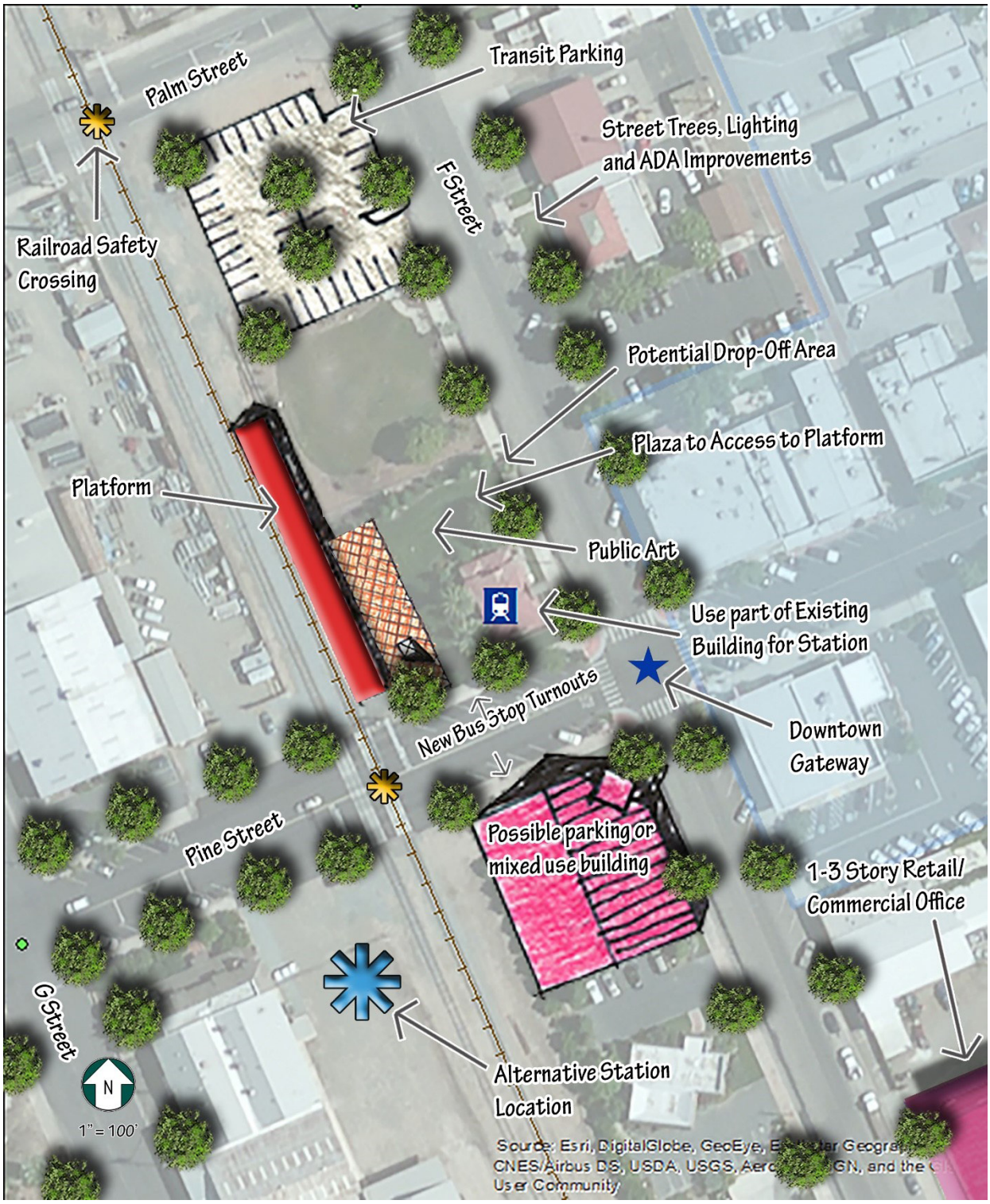


Figure 6-28: Exeter Station Area Conceptual Layout



6.9 Farmersville Station Strategies

One of the goals of Farmersville's 2002-2025 General Plan is to "recognize the changing conditions and trends in the planning area and market place and make appropriate amendments to the General Plan." The Cross Valley Corridor Plan allows the city to realize the opportunity of a station site and its surrounding area and; thus, make the following suggested recommendations to the General Plan. The following strategies include recommendation for the City of Farmersville to consider when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

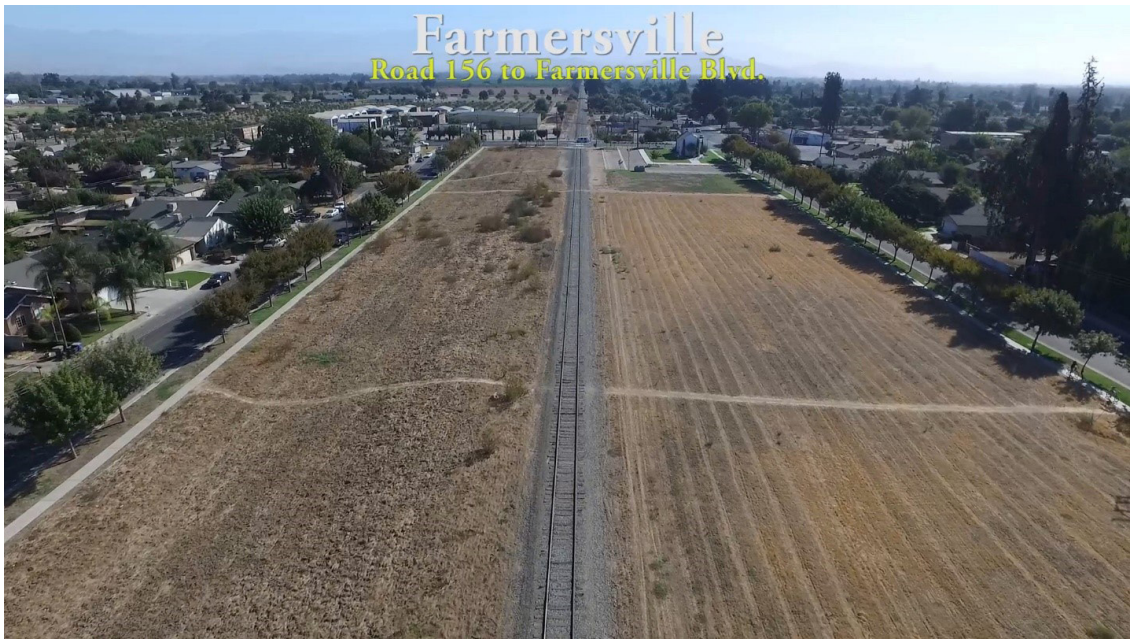


Figure 6-29: Farmersville station area, looking east

6.9.1 Land Use

1. Plan for a combination of a transit center and civic uses such as a police station and fire station on the site south of the railroad and west of Farmersville Boulevard.
2. The City's General Plan policies state that it should promote mixed-use development where appropriate. A mixed-use overlay on the sites west of Farmersville Road, east of Ventura Avenue, north of the railroad, and south of Petunia Street represent an opportunity for a transit-oriented development. The City should also explore opportunities for requiring new residential development in this area to be consistent with medium high residential density of no less than one unit per 2,500 square feet, or 17.4 dwelling units per acre.

3. Because of its proximity to Farmersville High School, the rail station, and downtown, consider the site north of the railroad between Farmersville Boulevard and Freedom Elementary School as an opportunity for mixed use and higher density residential development.

Figure 6-30: Farmersville CVC station area

6.9.2 Multi-Modal and Circulation

4. Pursue an Active Transportation Plan that improves pedestrian and bicycle access throughout the community with linkages to the rail station site and adjacent planning area that includes bikeways, along Front Street, Petunia Street, Ventura Avenue, and Farmersville Road, at a minimum.
5. Relocate the current Visalia Transit bus stop in Farmersville to the station site.
6. Study the potential to increase transit mobility in Farmersville by increasing local transit service.

6.9.3 Urban Design

7. Development and character of the station site should convey a “sense of place” with architecture that reflects local history and traditions.
8. Continue street tree plantings and sidewalks along north side of Front Street between Ventura Avenue and Shasta Avenue.

Figure 6-31: Farmersville Station Area Plan

Figure 6-32: Farmersville Station Area Conceptual Layout

6.10 Lindsay Station Strategies

The City of Lindsay 1989 General Plan states that policies “will require periodic reevaluation to determine needed adjustments brought on by economic, social, and technological change”. The following strategies are recommendations for the City of Lindsay to consider when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

Figure 6-33: Lindsay station area, looking south

6.10.1 Land Use

1. Lindsay’s General Plan policy currently states that a specialized mixed use Hispanic commercial/cultural center be located in an area bounded generally by Frazier, Apia, Mt. Vernon and Olive Avenue. Consider including the proposed facilities as a component of the proposed station site.

6.10.2 Multi-Modal and Circulation

2. Recognize the site on the west side of the railroad tracks, south of Hermosa Street, and east of <r Vernon Avenue as the preferred site for the station.
3. Improve the safety of rail crossings for pedestrian, bicycles, and vehicular traffic at Hermosa Street, Lewis Street, and Honolulu Street.

4. If a Regional Commercial “Factory Outlet” shopping center becomes a reality as an alternative to light industrial land use at the northeast comer of Highway 65 and Lindmore Street, the City should consider pursuing pedestrian, bicycle, and transit access, in addition to improved vehicular access, from the station site to the outlet center along such streets as Lindmore Street and Lindsay Boulevard.
5. Consider mid-block crossings on Sweetbriar Avenue, Elmwood Avenue, Mirage Avenue, Mt. Vernon Avenue, Ashland Avenue, and Olive Avenue between Hermosa Street and Apia to break up the walking distances where possible particularly near the transit station.

6.10.3 Public Space

6. As new multifamily residential development occurs west of the railroad, the City should consider improvements to Olive Bowl Park to meet the growing recreational demands of the increased population in that area.

6.10.4 Urban Design

7. Develop Mount Vernon Avenue and Sweetbriar Avenue near the station site as a landscaped corridor with 45-degree angle parking, mid-block crosswalks, pedestrian treatments, lighting, street furnishings, ADA compliant curb ramps.
8. Improve Honolulu Street from Sweetbriar Avenue to Olive Bowl Park in a similar way to the improvements made east of Sweetbriar Avenue.

Figure 6-34: Lindsay Station Area Plan

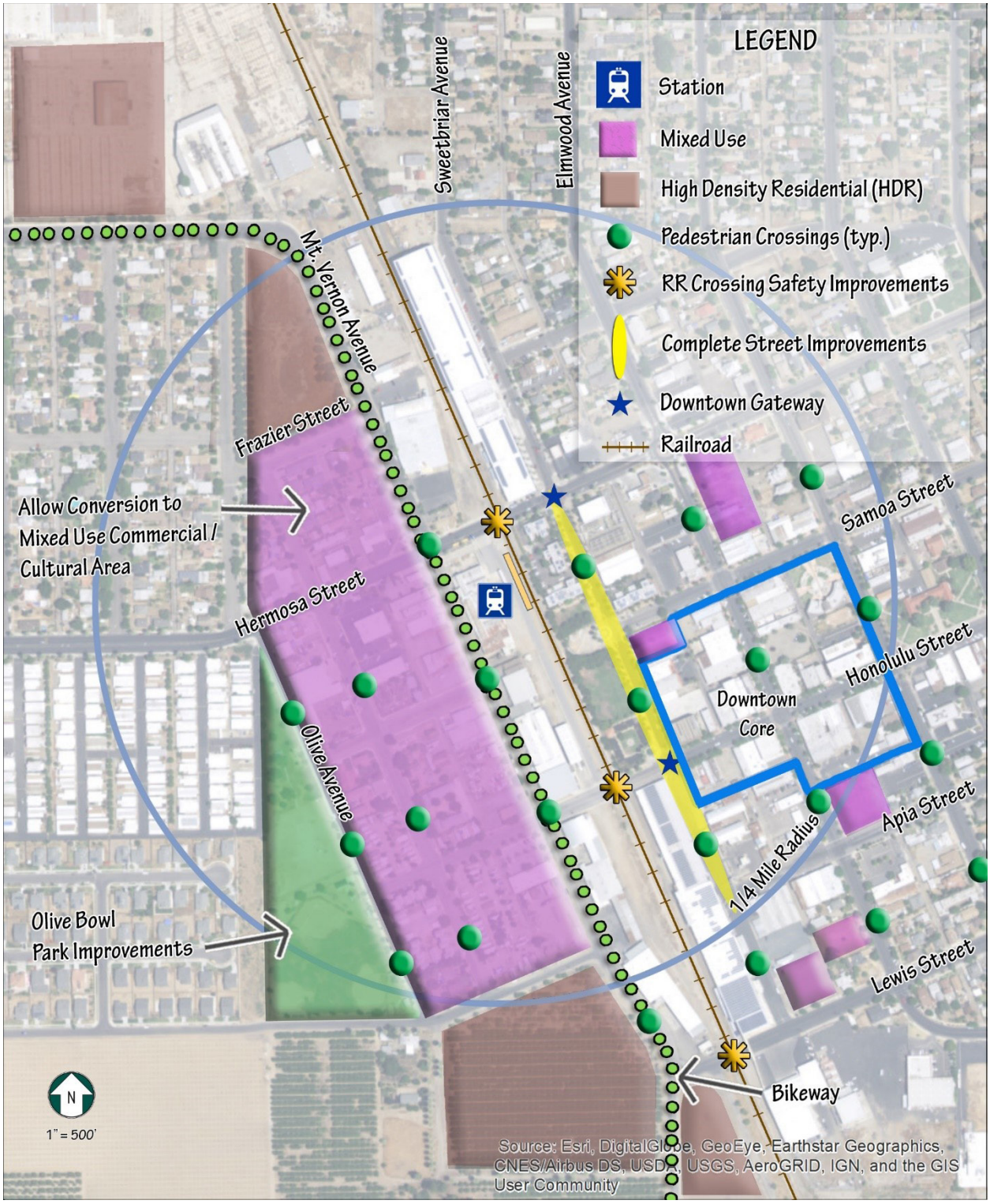
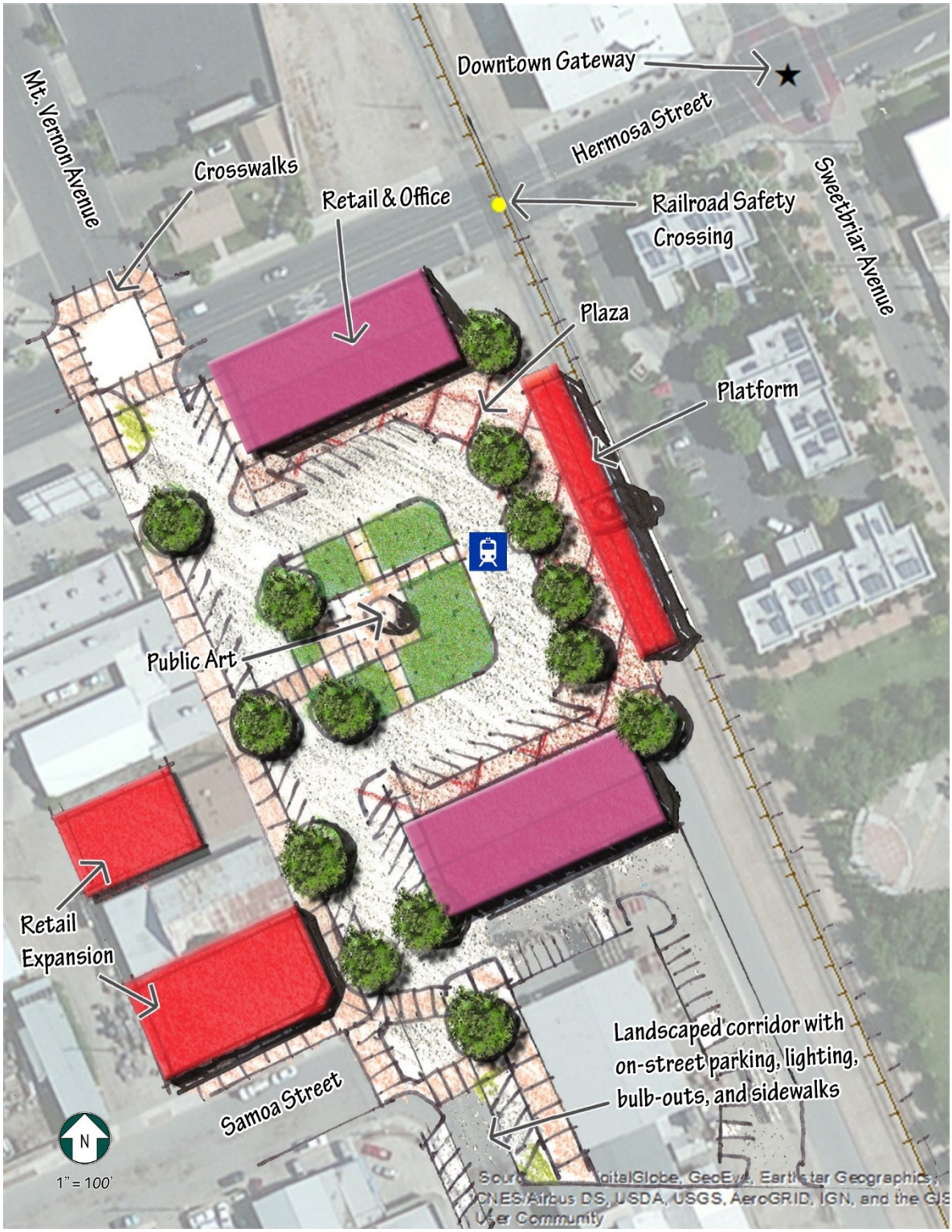


Figure 6-35: Lindsay Station Area Conceptual Layout



6.11 Porterville Station Strategies

The following strategies are recommended for the City of Porterville to consider when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

6.11.1 Land Use

1. Identify the station site somewhere on the east side of the railroad tracks, between Putnam Avenue and Olive Avenue.
2. Pursue adaptive reuse of existing underutilized or vacant sites and buildings for a rail station site and surrounding development to the extent feasible.
3. Support the conversion of single family residences as opportunities for adaptive reuse to office facilities along D Street, E Street, Hockett Street, and Division Street from the station site to Morton Avenue.
4. Consider vacant and underutilized sites south of Olive Avenue and north of Date Avenue along both sides of railroad as opportunities for mixed use or high density residential similar to Villa Siena on E Street.

Figure 6-36: Porterville CVC station area, looking south

Figure 6-38: CVC right-of-way owned by the City of Porterville

6.11.2 Multi-Modal and Circulation

5. Improve crossings at Putnam Avenue and Olive Avenue.
6. Consider construction of a Class 1 trail within the railroad right-of-way south of the station where the Cross Valley Rail will not be extended.
7. Install marked crosswalks and pedestrian safety control devices at D Street and Oak Avenue.

6.11.3 Urban Design

8. Continue to improve the appearance of D Street with traffic calming measures, tree planting, attractive landscaping, and street furnishings, etc., that will contribute to the creation of a distinctive image for Porterville's Downtown around the future transit center.

Figure 6-37: Porterville Residences

Homes with historic architectural significance in and near Downtown Porterville could serve as Office-Residential units

Figure 6-39: Porterville Station Area Plan

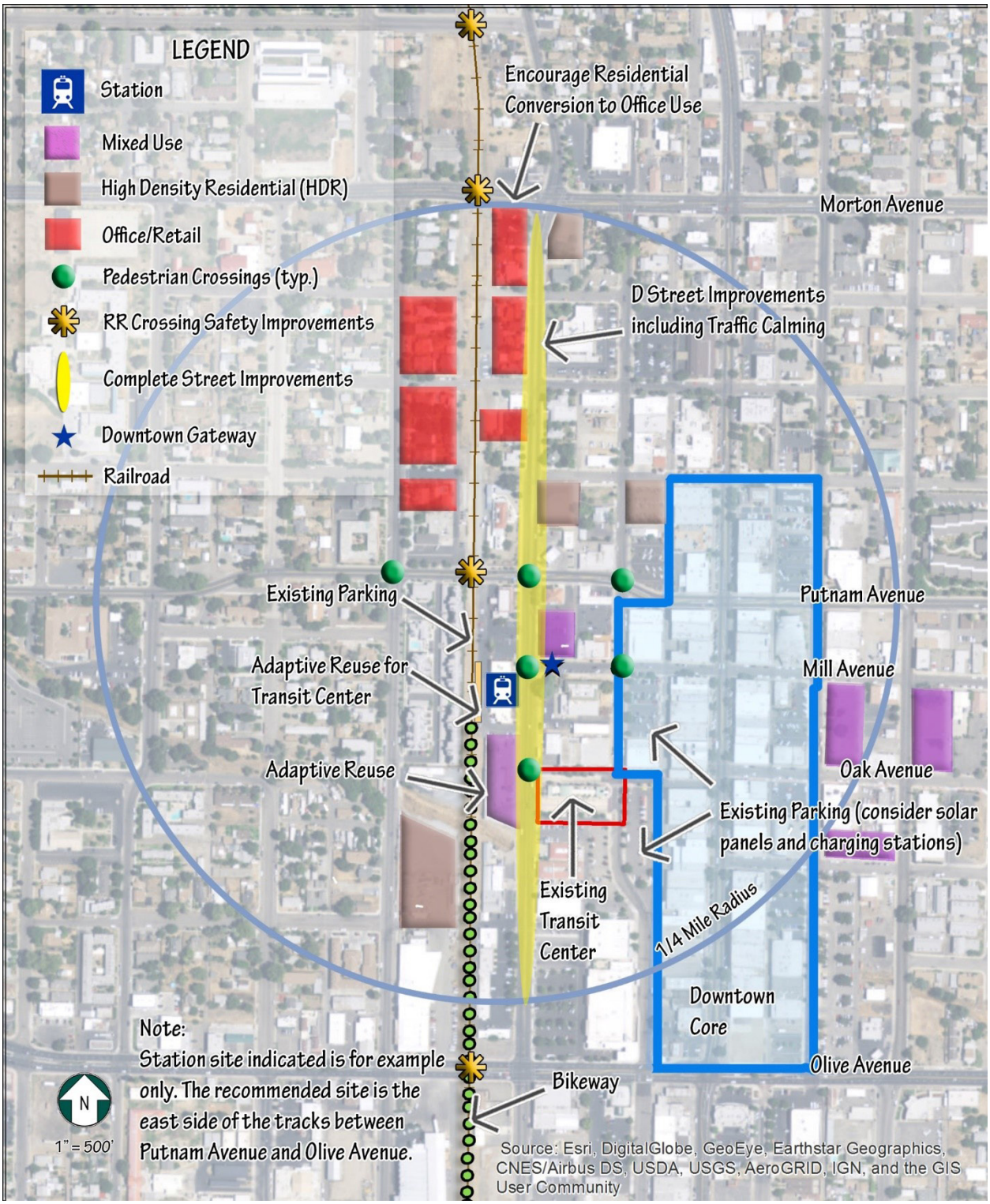


Figure 6-40: Porterville Station Area Conceptual Layout

6.12 Off-Corridor Transit Center Planning Strategies

The three cities that have bus transit connections and an existing transit center are Tulare, Dinuba, and Woodlake. The following strategies are recommended for the ¼-mile radius around the transit centers.

6.12.1 Dinuba Station Strategies

The following strategies are the recommended for the City of Dinuba to consider when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan. Note that M Street currently has the greatest opportunity for development because of the many vacant and underutilized properties.

Figure 6-41: The bus transit center in Downtown Dinuba

6.12.1.1 Land Use

1. Consider expanding mixed use and/or higher density land uses along M Street from Mariposa Street to Ventura Street.
2. Consider expanding higher density land uses along M Street from Ventura Street to Inyo Street.
3. Consider existing residential buildings (single family homes) as a good opportunity for office conversions within 1,000-feet of the transit center.

6.12.1.2 Multi-Modal and Circulation

4. Consider midblock crossings and marked crosswalks at street intersections along K Street, L Street, and M Street within a quarter mile of the transit center.
5. Install railroad safety crossings at Mariposa Street and Mono Street.
6. Continue streetscape and sidewalk improvements, landscaping, lighting, and ADA curb ramps along M Street west of Ventura Street.

6.12.1.3 Urban Design

7. Install signage and wayfinding from the transit center to amenities in the downtown area, parks, and other points of interest.

6.12.2 Woodlake Station Strategies

The City of Woodlake's bus transit center is located at the southwest corner of Lakeview Avenue and Magnolia Street. Surrounding land uses include an approximately 4.4-acre shopping center, a family health care clinic, and limited high density residential uses north of Lakeview Avenue and east of Magnolia Street. Numerous parcels have already been zoned for high density residential uses within less than 1,000-feet of the transit center. A community park, new public event space, and the downtown are also located within less than 1,000-feet of the transit center. So far, the City has pursued many of the strategies that have been identified in the "Common Station Area Strategies" of the CVCP. Additional specific strategies were identified that the City could consider.

Figure 6-42: The bus transit center in Downtown Woodlake

6.12.2.1 Land Use

1. Encourage more mixed-use development in the station area.

6.12.2.2 Multi-Modal and Circulation

2. To encourage walking to the transit center from sites zoned for high density residential uses, the city should consider streetscape improvements, landscaping, and ADA curb ramps along Lakeview Avenue and Antelope Avenue to Pomegranate Street similar to the areas near the transit center and the east side of Magnolia south of Antelope Avenue.
3. Midblock crossings should be considered along streets with block lengths greater than 400-feet within 1,000-feet of the transit center.

6.12.2.3 Urban Design

4. Develop signage and wayfinding from the transit center to other amenities in the City along Magnolia Street.

6.12.3 Tulare Station Strategies

The following strategies are recommended for the City of Tulare to consider when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

6.12.3.1 Land Use

1. Consider allowing mixed use development within a quarter-mile of the transit center.
2. Encourage more office uses within a quarter-mile of the transit center.
3. Consider the opportunities of residential conversion to office use of single family homes located within a quarter mile of the transit center and south of Cross Avenue.

Figure 6-43: The bus transit center in Downtown Tulare

6.12.3.2 Multi-Modal and Circulation

4. Consider installing a midblock crossing and a pedestrian overpass linking the transit station with the trail on the west side of the railroad.
5. Look for opportunities to improve or add marked crosswalks at intersections within a quarter-mile of the transit station, such as L Street at Cross Avenue, K Street at San Joaquin Avenue.

6.12.3.3 Urban Design

6. Install signage and wayfinding from the transit center to amenities in the downtown area, parks, and other points of interest.

6.13 Possible Future Station Area Planning Strategies

There are three unincorporated communities along the Cross Valley Corridor that may be able to support a station in the future. They are Armona in Kings County, between Lemoore and Hanford; Goshen - in Tulare County, between State Highway 99 and Visalia; and Strathmore in Tulare County, between Lindsay and Porterville. If these stations are added in the future, the following strategies could be used to support the station and the station area.

6.13.1 Armona Station Strategies

The following strategies are the recommendation for Kings County to consider for the unincorporated community of Armona when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

6.13.1.1 Land Use

1. Integrate multifamily and senior housing into surrounding commercial, public facility, and park space.

6.13.1.2 Transportation and Circulation

2. Study the area near Railroad Avenue and Front Street and east of 14th Avenue as the approximate site for a station.
3. Consider the development of pedestrian and bicycle pathways with new development south of Front Street that links residential neighborhoods to downtown Armona, the transit station, and canals. Canals should be considered as opportunities for future pathways.
4. Install marked or specialty paving crosswalks at intersections along Front Street and 6th Street with all new development.
5. Wherever gaps in the pedestrian network exist, plan for complete connectivity of sidewalks along 14th Avenue and Front Street as well as street lighting.
6. Coordinate with KART to pursue bus service along 14th Avenue which should include bus shelters and other related amenities.

Figure 6-44: The historic railroad depot in Armona

The Depot was located south of Front Street near Railroad Avenue

6.13.1.3 Urban Design

» Promote the architectural design of the transit station around Armona's historical railroad and packinghouse themes.

» Promote development of a plaza, courtyard or pocket park around the historic Armona Oak Tree located east of 14th Avenue and 230-feet north of Front Street.

» Coordinate with the Community Services District to designate the Armona Water Tower located south of the railroad and west of 14th Avenue as gateway signage.

6.13.2 Goshen Station Strategies

The following strategies are the recommendation for Tulare County to consider for the unincorporated community of Goshen when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

6.13.2.1 Land Use

» Promote multifamily residential development east of the neighborhood park at Robinson Avenue and Avenue.

6.13.2.2 Transportation and Circulation

» Study opportunities for one of three potential station locations near Camp Drive and Avenue 308, Camp Drive and Avenue 310, or Effie Drive north of Betty Drive.

» Support the construction of an overcrossing or undercrossing at Avenue 308 and the Railroad.

» Support traffic calming opportunities along Camp Drive.

» Support bikeways and sidewalk improvements along Avenue 310, Avenue 308, and Camp Drive.

» Encourage construction of pedestrian ramps and staircase from Avenue 310 and Camp Drive to the Betty Drive overpass.

Figure 6-45: Potential CVC station site near Betty Drive and Effie Drive in Goshen

6.13.3 Strathmore Station Strategies

The following strategies are recommended for the Tulare County to consider for the unincorporated community of Strathmore when making amendments to the General Plan that may result from the implementation of the Cross Valley Corridor Plan.

6.13.3.1 Land Use

» In addition to a transit station, consider the area east of Orange Belt Drive, west of the railroad, north of Avenue 196, and south of Burns Drive as the potential site for mixed use, neighborhood and general commercial uses, and residential uses greater than 14 dwelling units per acre.

6.13.3.2 Transportation and Circulation

» Study the possibility of a station somewhere west of Orange Belt Drive, east of the railroad right-of-way, north of Avenue 196, and south of Burns Drive as the site for a station.

» Install marked crosswalks at the Orange Belt Drive intersections with Bruce Drive, Lawson Drive, and Burns Drive.

» Promote streetscape improvements along Orange Belt Drive that include sidewalks, curb and gutter, landscaping, and lighting.

6.13.3.3 Urban Design

» Consider the Meredith Drive water tower as a potential site for an iconic feature to announce the Cross Valley rail passengers to the town of Strathmore.

» Consider renovation and adaptive reuse of the iconic architecture of the only two-story building in Strathmore at the corner of Orange Belt Drive and Bruce Drive.

7 Implementation

This section provides an overview of the strategies and efforts recommended to successfully deliver the Cross Valley Corridor Plan. These are divided into Phases 1, 2, and 3 in the subsequent sections.

7.1 Short-Term: Phase 1

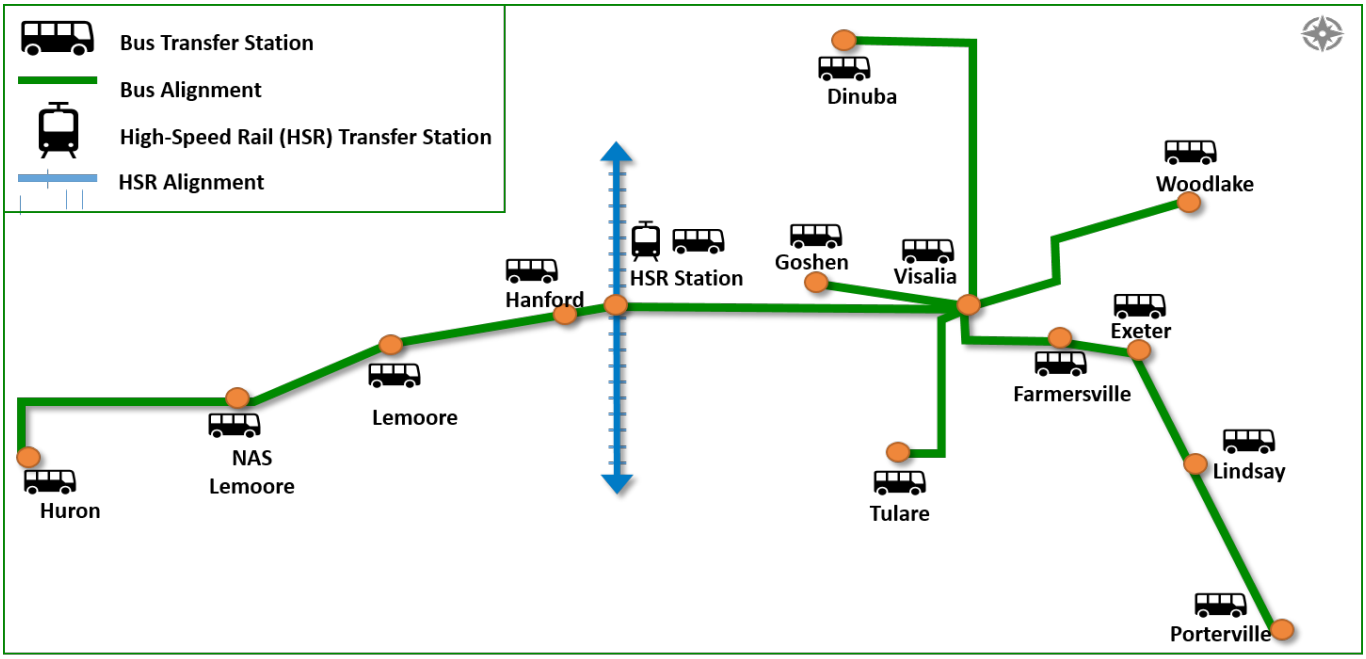
The short-term implementation phase, or Phase 1, focuses on interagency coordination of bus service between CVC cities and to the Kings/Tulare High-Speed Rail Station for the first 10 years of project implementation, as illustrated in Figure 7-1. It also prepares for Phases 2 and 3 that would introduce passenger rail service to the CVC. The recommended projects for Phase 1 of CVC service implementation are summarized in Table 7-1.

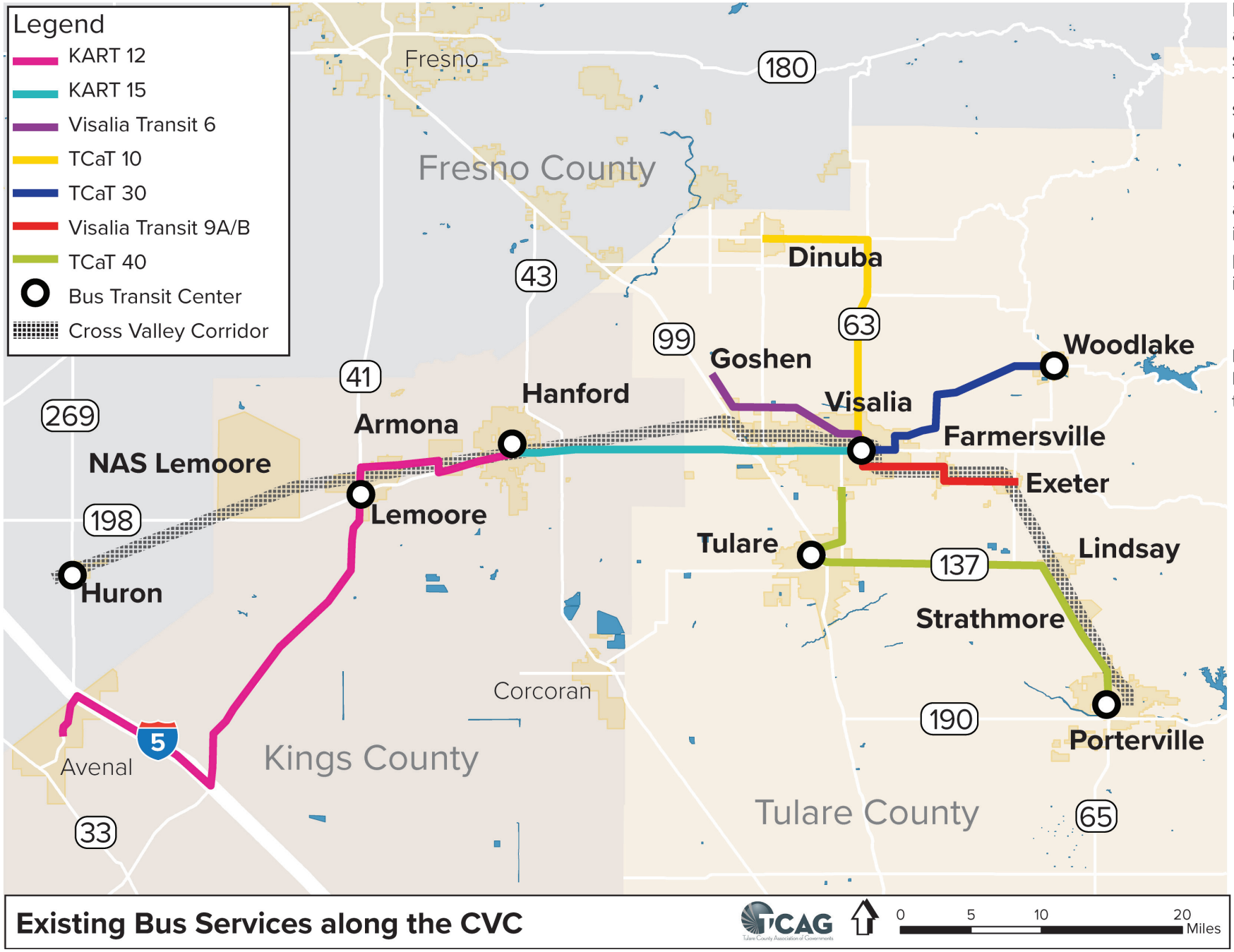
Table 7-1: Phase 1 Recommendations

Phase 1: 0-10 Years
Launch coordinated bus service that will coincide with the opening of California High-Speed Rail to connect the CVC to the Kings/Tulare High-Speed Rail Station. Existing bus routes along the CVC are shown in Figure 7-2 to show current gaps in service throughout the corridor. These routes correspond with the recommended connectivity improvements to enhance and streamline transit services throughout the CVC.
Conduct site selection for a passenger rail vehicle maintenance and service facility
Secure environmental clearance and right-of-way protection for future rail service along the CVC
Begin General Plan and zoning ordinance updates in cities and counties to incorporate the new CVC system into Circulation Element and Land Use Element changes to encourage development in each of the station areas

All cities should begin the process of updating the zoning ordinances and general plans during the short-term phase, or earlier, of the Cross Valley Corridor Plan.

Figure 7-1: Phase 1 Implementation Map





Existing bus services along the CVC are shown in Figure 7-2. The routes shown provide connections to the CVC station cities and communities, and are described in this Chapter for phased CVC service implementation.

Figure 7-2: Existing Bus Services along the CVC

7.1.1 Connectivity Strategies

The following changes to bus service routes should be considered and incorporated into the implementation of the short-term enhanced bus service in Phase 1. The recommended changes are organized by transit agency.

7.1.1.1 Fresno County Rural Transit Agency

- Enhanced bus connection to Huron would include the new enhanced express bus service. There is currently no service running between Fresno, Kings, or Tulare County, so no changes to the existing service is needed. This express service would include continuous service to Kings and Tulare Counties, as mentioned above.
- Continue existing bus service between Fresno and Coalinga.

7.1.1.2 Kings Area Rural Transit

- Discontinue existing bus service between the Hanford Transit Center, Lemoore Depot, and NAS Lemoore (KART routes 15, 20, and 21). Existing service would be replaced with the enhanced bus service. This express service would include continuous service to cities in Fresno and Tulare Counties, as mentioned above.
- Add service to the high-speed rail station on existing local KART Hanford routes to improve local circulation. The KART route 3 provides hourly service through downtown Hanford and along Lacey Boulevard, and could potentially be extended to serve the future Kings/Tulare HSR Station.
- Continue existing local Hanford bus service and regional bus service to Fresno, Stratford, Kettleman City, Avenal, and Corcoran.

7.1.1.3 Tulare County Area Transit (TCaT)

- Discontinue existing bus service between the Dinuba Transit Center and the Visalia Transit Center (TCaT route 40). Existing service would be replaced with the enhanced bus service. This service would include continuous service to cities in Fresno and Kings Counties, as mentioned above.
- Continue existing bus service to Woodlake Transit Center.
- Continue existing bus service between Lindsay and the Porterville Transit Center via Strathmore.
- Add bus service between the Visalia Transit Center and Lindsay via Farmersville and Exeter (currently there is no fixed route service between Lindsay and Exeter; service between Visalia and Porterville currently commences at the Government Plaza). This service was recommended as an additional recommendation for future consideration in the County of Tulare 2015-2020 Transit Development Plan. The service should only stop at designated station sites while in Farmersville and Exeter to avoid duplicating existing Visalia Transit service.

7.1.1.4 Visalia Transit

- Discontinue existing bus service between the Visalia Transit Center and Exeter (Visalia route 9). Existing service would be replaced with the enhanced bus service. This service would include continuous service to cities in Fresno and Kings Counties, as mentioned above.
- Continue existing bus service to Goshen, Farmersville, Exeter, and Tulare Transit Center.

7.1.1.5 Tulare InterModal Express

- Continue existing express bus service between the Tulare Transit Center and the Visalia Transit Center, in cooperation with Visalia Transit.

» Add interim express bus service between the Tulare Transit Center and the High-Speed Rail station. This would require a service agreement between TIME and KART. Alternately, this service could be provided by TCaT.

7.1.2 Zoning and General Plan Updates

Several different planning tools and actions can be used to help achieve the vision for each of the station areas. Amendments to the Zoning Ordinances and General Plans are just two of the various planning tools that can achieve the CVC vision. All cities should begin the process of updating the zoning ordinances and general plans during the short-term phase of the Plan, or earlier.

7.1.2.1 General Plans

The cities of Porterville, Hanford, and Visalia have recently updated their general plans. The cities of Lindsay, Exeter, Lemoore, Huron, and Farmersville have not. These cities have updated and certified their housing elements according to the California Department of Housing and Community Development. The counties of Kings and Tulare have not updated their general plans since 2010 and 2012, respectively. The housing elements for these counties have been updated and certified in 2016 (Kings County) and 2015 (Tulare County). These county plans pertain to the unincorporated communities of Armona, Goshen, and Strathmore. Smaller communities that have not yet completed updates to their general plans should pursue funding sources that will assist to updating their General Plans. Revising the Circulation Element to include the Cross Valley stations would be a key addition to the General Plans, as would increasing the allowed densities around the station areas.

7.1.2.2 Zoning Ordinances

Possible zoning amendments that should be considered include the following:

» Update the zoning ordinance to facilitate the implementation of intensity corridors. These zoning ordinance amendments should address mixed uses, expedited administrative zoning procedures, shared parking, underground and multi-story parking structures, liner buildings, transit facilities, open space, and aesthetic considerations.

» Revise zoning to allow for a passenger station with associated amenities in the downtown area of each corridor city.

» Include a section in the parking ordinance that allows for reduced or no required parking for new developments in transit intense areas. Opportunities for shared parking should be pursued to reduce the underutilization of spaces.

7.1.3 Next Steps

7.1.3.1 Long Range Transportation Plans

TCAG is an association of local governments for coordination of transportation and other regional/countywide issues within Tulare County. KCAG and Fresno COG are similar associations that perform regional coordination in their respective counties. These agencies act as both the Regional Transportation Planning Agency and Metropolitan Planning Organization (MPO) for their counties. One of the principal activities of MPOs is preparation of the Regional Transportation Plan.

The RTP is a comprehensive assessment of all forms of transportation available in a region and of needs for travel and goods movement projected into the future. Federal and state legislation mandates that long-range transportation planning be done every four years for a period of at least 20 years into the future. Therefore, updated editions of the RTP are required every four years and

"Encourage development of a transit system that interconnects and coordinates with other modes of transportation (e.g., passenger rail, intercity bus, multi-jurisdictional transit, bicycle facilities, pedestrian walkways, etc.)."
-TCAG Regional Transportation Plan and Sustainable Communities Strategy 2014

are refinements of the original and subsequent plans. For the counties along the CVC, the RTP is a continuous a process of intergovernmental cooperation, coordination and long- range planning which involves the counties of Fresno, Kings, and Tulare, the cities within these counties, transit agencies and other related local public agencies, the Valley Air District, Caltrans and other state agencies, federal agencies, and the public. In Fresno, Kings, and Tulare Counties, work on their respective 2018 RTPs are underway.

The RTP is used to guide the development of the Regional and Federal Transportation Improvement Programs as well as other transportation programming documents and plans. The RTP outlines the region's goals and policies for meeting current and future mobility needs, providing a foundation for transportation decisions by local, regional, and State officials that are ultimately aimed at achieving a coordinated and balanced transportation system. The RTP identifies the region's transportation needs and issues, sets forth actions, programs, and a plan of projects to address the needs consistent with adopted policies and goals, and documents the financial resources needed to implement the plan. The RTP summarizes policies, actions, financial, conformity, public outreach efforts and results, the environmental and regional context, as well as the Sustainable Communities Strategy (SCS) element. Additional elements may also be included, as directed by the MPO Policy Board.

The Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375) enhances California's ability to reach the state's AB 32 goals by promoting good planning with the goal of more sustainable communities. Senate Bill (SB) 375 mandates regional greenhouse gas emission reduction targets for passenger vehicles. Pursuant to SB 375, the California Air Resources Board established targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations. California Air Resources Board is currently working on target updates with TCAG, KCAG and Fresno COG, as the regional MPOs, must prepare a SCS that demonstrates how the region will meet its greenhouse gas reduction target through integrated land use, housing, and transportation planning. The SCS is now an integral part of the RTP.

The transportation systems for the three counties consists of state and local highways, local arterials and roadways, bicycle and pedestrian facilities, public transit, airports, and passenger and freight rail. Working within the existing transportation system and continuing with the development of an integrated, multimodal regional system is the goal of the RTP/SCS.

The RTP/SCS must be analyzed in an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA). The RTP/SCS addresses all modes of transportation including motor vehicles, transit (commuter and local), rail (commuter and inter- regional), goods movement (rail freight and trucking), bicycle and pedestrian facilities, aviation and systems management. In accordance with state and federal guidelines, the RTP/SCS is updated every four (4) years. Typically, the RTP/SCS is analyzed in a program EIR at a level of detail necessary to evaluate potential environmental effects of the plan and to identify strategies to avoid or mitigate environmental effects.

The RTP/SCS identifies the regional transportation network and corridors, and projects to enhance the transportation systems, including the integration of transportation modes and creating new mobility opportunities. The RTP/SCS EIR must provide analysis sufficient to meet all CEQA requirements, typically including (but not limited to):

- Aesthetics
- Air Quality
- Agricultural and Forest Resources
- Biological resources
- Cultural Resources

- Energy
- Environmental Justice
- Geology / Soils
- Green House Gas Emissions (GHG)
- Hazards and Hazardous Materials
- Hydrology / Water Quality
- Land Use / Planning
- Mandatory Findings of Significance
- Mineral Resources
- Noise
- Population / Housing
- Public Health & Services
- Recreation
- Transportation / Traffic
- Utilities / Service Systems
- Visual Resources

According to the Federal Highway Administration, Long Range Transportation Plans serve as the defining vision for a region's transportation system and services, and include all the transportation improvements scheduled for funding over the life of the plan. Long range transit planning at the regional level takes place through the development of the RTP/SCS by Metropolitan Planning Organizations (MPOs). The RTP is a state and federally mandated planning document that identifies and prioritizes transportation needs within a metropolitan area, and outlines policies to meet those needs. The SCS is a state requirement of MPOs and is intended to link transportation and land use planning. The development of the RTP/SCS requires coordination between cities, counties, transit operators and MPOs, particularly through the preparation of Short Range Transit Plans by the operators to identify and plan for changes in service.

TCAG's 2014 RTP/SCS is a 26-year planning document that includes transit policies that support regional transit connections and the development of transit services that serve a multi-modal system, such as:

"Encourage development of a transit system that interconnects and coordinates with other modes of transportation (e.g., passenger rail, intercity bus, multi-jurisdictional transit, bicycle facilities, pedestrian walkways, etc.)."

The 2014 TCAG RTP/SCS also identifies transit service improvements to other counties and other major transportation systems as a regional priority.

KCAG's 2014 RTP/SCS is a 26-year planning document that includes transit objectives aimed at supporting the regional policy of "providing public transit services for those needs defined as Unmet Transit Needs which are Reasonable to Meet." Objectives include promoting the coordination of transit with other services.

Both the TCAG and KCAG RTP/SCS documents are updated every four years. TCAG and KCAG should both include transit policies in their 2018 RTP/SCS updates that continue to encourage and support the enhancement of transit services that promote a regional multi-modal transportation system. Specifically, the policies should encourage service agreements between providers to improve service across county borders, encourage the consolidation of duplicate services to conserve funding and resources, and require all transit plans to include an evaluation of transit coordination with other modes of travel to ensure programming of transit services needed to support the CVC.

7.1.3.2 State Transportation Plans

The California Transportation Plan (CTP) 2040 is 25-year long-range statewide transportation plan with a set of supporting goals, policies and recommendations designed to meet the State's future mobility needs and reduce greenhouse gas emissions. The CTP ties together the State's separate modal plans, including the Statewide Transit Strategic Plan, and builds upon regional (RTP/SCS) and local (transit plans) planning documents. One of the goals of the California Transportation Plan 2040 is to "Improve Multi-modal Mobility and Accessibility for All People" through efforts such as establishing a robust and flexible transportation system, of which commuter rail and bus service are a part. The CTP envisions the High-Speed Rail system as the backbone of an integrated transit system, linking all transit operators.

The Statewide Transit Strategic Plan is a long-range public transportation plan prepared by the Caltrans Division of Rail and Mass Transportation. A 2017 Statewide Transit Strategic Plan is currently being developed as a 5-year update to the 2012 Statewide Transit Strategic Plan, to allow the state to prepare for the integration of urban and regional transit systems with the California High-Speed Rail project. The Final Statewide Transit Strategic Plan with recommendations for Caltrans, the California State Transportation Agency, and the Legislature, is due out by Spring 2018.

The 2018 California State Rail Plan (CSRP) establishes a framework for planning and implementing California's rail network for the future to provide comprehensive and coordinated service to passengers through frequent services and convenient transfers between transit systems. As part of the 2022 short-term plan of the CSRP, goals relevant to the CVC call for the study of potential regional rail opportunities and the need to feed the Kings/Tulare HSR Station.

TCAG and KCAG should work closely with Caltrans to develop local transit services that comply with and support the State's vision of a multi-modal transit system, through development of their RTP/SCS process.

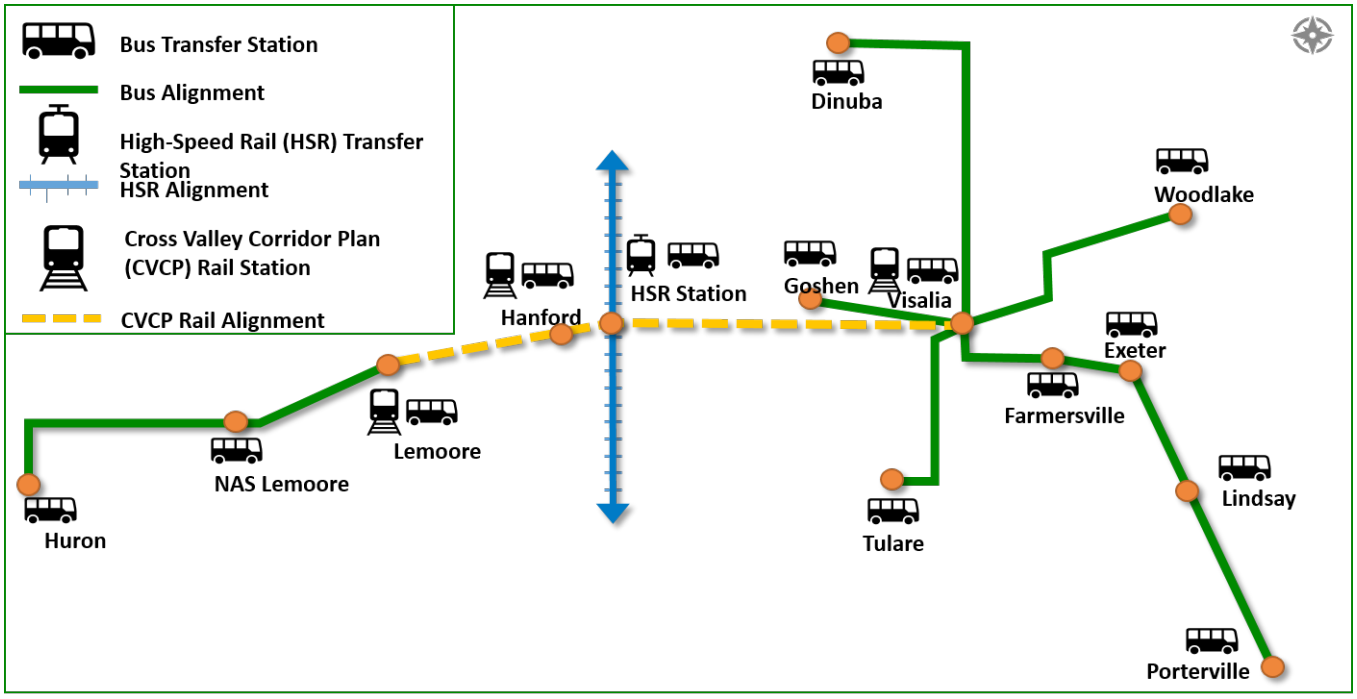
7.2 Mid-Term: Phase 2

The mid-term implementation phase, or Phase 2, initiates passenger rail service between the cities of Lemoore and Visalia between 10 and 20 years of project implementation, as illustrated in Figure 7-3. This phase maintains bus service connections between the other cities that will not be served by passenger rail service in this phase. The recommended projects for Phase 2 of CVC service implementation are summarized in Table 7-2.

Table 7-2: Phase 2 Recommendations

Phase 2: 10-20 Years
Launch CVC passenger rail service between Lemoore and Visalia
Open new passenger rail stations in Lemoore, Hanford, Kings/Tulare HSR station, and Visalia for CVC passenger rail service
Launch the first phase of the passenger rail vehicle MSF between the stations in Lemoore and Visalia.
Continue feeder bus system to connect Huron and NAS Lemoore to the Lemoore CVC station, and all Tulare County cities to the Visalia CVC station

Figure 7-3: Phase 2 Implementation Map



7.2.1 Connectivity Strategies

The following changes to bus service routes should be considered and incorporated into the implementation of the Mid-term initial rail service phase between Visalia and Lemoore. This assumes the enhanced express bus service discussed in Phase 1 will be maintained to the corridor cities in Phase 2 that are not serviced by the new rail service. The strategies, organized by transit agency, are listed below. Each transit agency should determine the appropriate time to implement these changes. Some changes could happen concurrently with the mid-term initial rail service implementation, while some may occur as a response to the full rail service after ridership numbers have been evaluated.

7.2.1.1 Fresno County Rural Transit Agency

- Maintain improvements/changes listed in Phase 1

7.2.1.2 Kings Area Rural Transit

- Maintain improvements/changes listed in Phase 1
- Incorporate stops at all rail station locations to facilitate local connections.

7.2.1.3 Tulare County Area Transit (TCaT)

- Maintain improvements/changes listed in Phase 1
- Incorporate stops at all rail station locations to facilitate local connections.

7.2.1.4 Visalia Transit

- Maintain improvements/changes listed in Phase 1
- Incorporate stops at all rail station locations to facilitate local connections.

7.2.2 Next Steps

7.2.2.1 Long Range Transportation Plans

TCAG and KCAG should continue to include transit policies within their RTP/SCS updates that encourage and support the enhancement of transit services that promote a regional multi-modal transportation system.

7.2.2.2 State Transportation Plans

TCAG and KCAG should continue to work closely with Caltrans to develop local transit services that comply with and support the State's vision of a multi-modal transit system, through development of their RTP/SCS process.

Mid-term regional goals for 2027 in the CSRP include the implementation of integrated express bus connections between the HSR Station and CVC cities, as well as the planning and development of future regional rail service throughout the Central Valley

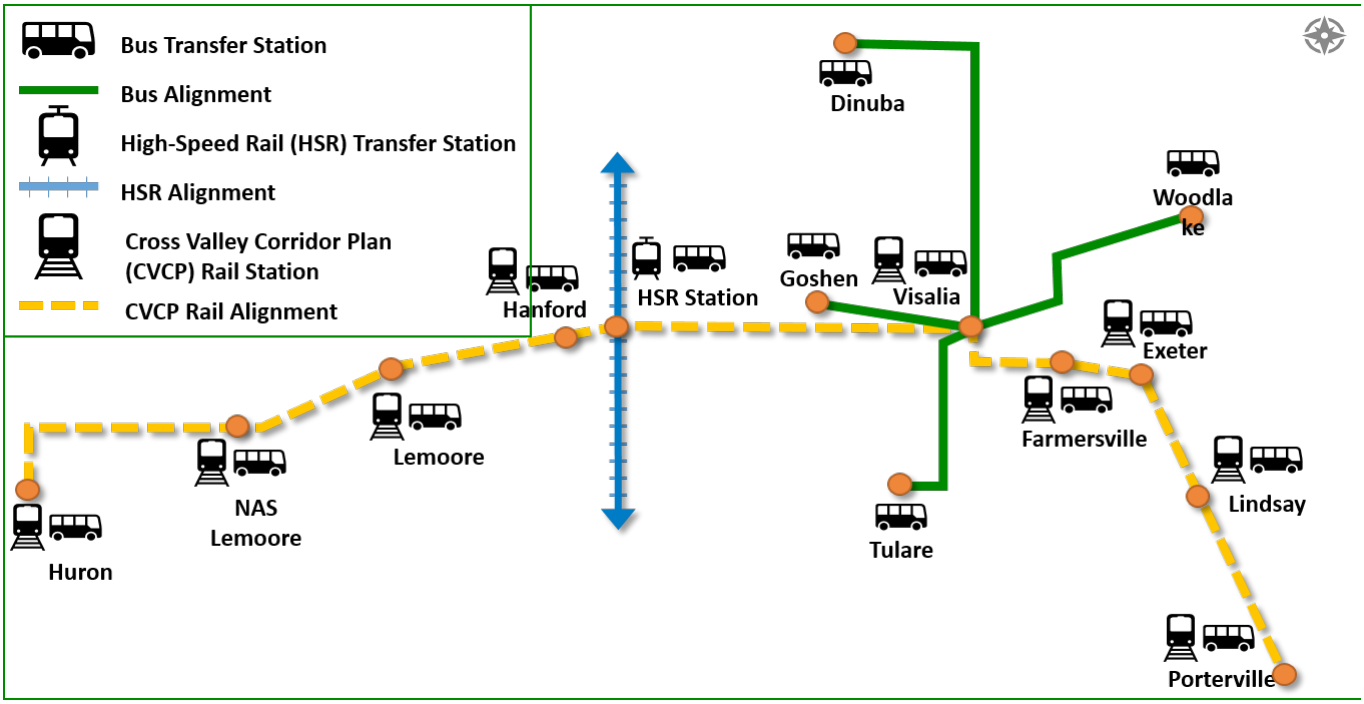
7.3 Long-Term: Phase 3

The long-term implementation phase, or Phase 3, would make full use of the 75-mile corridor with passenger rail service from Huron to Porterville 20 or more years from project implementation, as illustrated in Figure 7-4. The recommended projects for Phase 3 of CVC service implementation are summarized in Table 7-3.

Table 7-3: Phase 3 Recommendations

Phase 3: 20+ Years
Complete full build-out of the CVC for passenger rail service
Open new passenger rail stations in Huron, NAS Lemoore, Farmersville, Exeter, Lindsay, and Porterville
Complete procurement of rail vehicles for full fleet
Complete full build-out of MSF to accommodate full fleet

Figure 7-4: Phase 3 Implementation Map



7.3.1 Connectivity Strategies

The following changes to bus service routes should be considered and incorporated into the implementation of Phase 3. Each transit agency should determine the appropriate time to implement these changes. Some changes could happen concurrently with the long-term full rail service implementation, while some may occur as a response to the full rail service after ridership numbers have been evaluated.

7.3.1.1 Fresno County Rural Transit Agency

- Maintain improvements/changes listed in Phase 1 and 2.
- Incorporate a bus stop at the Huron rail station to facilitate connections.

7.3.1.2 Kings Area Rural Transit

- Maintain improvements/changes listed in Phase 1 and 2.
- Incorporate station stop into existing shuttle service at NAS Lemoore.

7.3.1.3 Tulare County Area Transit

- Maintain improvements/changes listed in Phase 1 and 2.
- Incorporate a bus stop at the Lindsay rail station to facilitate connections.

7.3.1.4 Visalia Transit

- Maintain improvements/changes listed in Phase 1 and 2.
- Incorporate bus stops at Farmersville and Exeter stations to facilitate connections.

7.3.2 Next Steps

7.3.2.1 State Transportation Plans

CSRP 2040 long-term regional goals include hourly regional rail service connecting Lemoore, Hanford, Kings/Tulare HSR Station, Visalia, and Porterville in the Central Valley. As the CVC project is developed and has a clear pathway to implementation, it should be included in the CSRP and the California Transportation Plan.

7.4 Project Development

The Plan represents an initial step in implementing passenger rail service on the CVC. The FTA project development process and California Transportation Commission processes will need to be addressed as the project progresses from this study through project completion. This process summarized here reflects current federal and state processes and a traditional design-bid-build project delivery; changes to federal and state processes and/or an alternate delivery method may merge or change some of the steps in the process.

The Transit Capital Project Development Process of the FTA Project and Construction Management Guidelines (Chapter 2, March 2016 Update) provides details for implementing a plan such as the Plan. Taking a transit capital project from the planning stages into the implementation stages is often a lengthy and rigorous process and includes the following activities:

- Analysis of the existing transportation system and determining the need for improvements
- Evaluation of alternatives to ensure compliance with the National Environmental Policy Act (NEPA)
- Financial planning to identify costs, funding requirements, and sources both non-Federal and Federal
- Reaching agreements with third parties and regulatory agencies, i.e. shared railroad operating agreements with railroad owners and operators
- Determining project delivery approach
- Preliminary hazard analysis and threat and vulnerability analysis
- Safety and Security Management
- Design process based on environmental and financial constraints
- Right-of-way acquisition
- Construction, testing and start-up, and continual operations monitoring

It is anticipated that as a major capital project, the Plan would fall into one of two categories: A New Starts Project or several Small Starts Projects. A New Starts Project is a new fixed guideway system, or an extension of an existing guideway system with FTA funding provided through the Section 5309 grant program. A Small Starts Project has project costs of less than $300 million and Capital Investment Grant funding of less than $100 million. Details for these types of projects can be found in the FTA's Final Interim Policy Guidance for the Capital investment Grant Program (August 2015).

Under the current omnibus federal transportation law, the Fixing America's Surface Transportation (FAST) Act, both New Starts and Small Starts require FTA

approval at initiation as well as FTA evaluation, rating, and approval during the development process. For the Design-Bid-Build delivery method, the process is summarized in Table 7-4.

Once a preferred alternative is selected, the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) require review of

Table 7-4: Design-Bid-Build Delivery Method Process

New Starts Process	Small Starts Process
Project Development » Begins with FTA approval » Complete environmental review process, including developing and reviewing alternatives and selecting a locally prepared alternative » Adoption into the fiscally constrained long-range transportation plan	**Project Development** » Begins with FTA approval » Complete environmental review process including developing and reviewing alternatives and selecting a locally prepared alternative » Gain commitments of all non-5309 funding » Complete sufficient engineering and design
Engineering » Gain commitments of all non-New Starts funding » Complete sufficient engineering and design	**Expedited Grant Agreement** » Construction
Full Funding Grant Agreement » Construction	

environmental impacts caused by project which would likely trigger the need to prepare an Environmental Impact Statement and Environmental Impact Report, respectively. The environmentally preferred alternative would be identified in a Record of Decision published in the Federal Register.

Following the project approval and selection of a preferred alternative, the project would enter Final Design (preparation of plans, specifications, and estimates (PS&E). Design details, plans, quantity calculations and contract specifications would be developed. Reevaluation should be conducted to ensure the project remains within the framework of the project approval document. The acquisition of required right-of-way and obtaining approvals, agreements, and permits would be concurrent with final design.

Once the design work is complete, the final project documents and bid package would be assembled so the project can be advertised. After bids have been submitted, they would be reviewed, a contractor would be selected, and the construction contract would be awarded. Finally, construction could commence.

7.4.1 The California Environmental Quality Act (CEQA)

Like all projects requiring local or state government approval, the CVC project will be subject to environmental review under CEQA. The basic purposes of CEQA are to:

- Inform governmental decision makers and the public about the potential environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or mitigated.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

A change to the CEQA approach began in 2013 with the passage of SB 743. Among other provisions, SB 743 creates a process to change analysis of transportation impacts under CEQA. Currently, environmental review of transportation impacts focuses on the delay that vehicles experience at intersections and on roadway segments. That delay is measured using a metric known as "level of service," or LOS. Mitigation for increased delay often involves increasing capacity (i.e. the width of a roadway or size of an intersection), which may increase auto use and emissions and discourage alternative forms of transportation. Under SB 743, the focus of transportation analysis will shift from driver delay to reduction of greenhouse gas emissions, creation of multi-modal networks and promotion of a mix of land uses.

Specifically, SB 743 requires the Governor's Office of Planning and Research to amend the CEQA Guidelines (Title 14 of the California Code of Regulations sections and following) to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multi-modal transportation networks, and a diversity of land uses". Measurements of transportation impacts going forward will focus on "vehicle miles traveled" or VMT. Office of Planning and Research has developed guidelines and criteria for analysis of VMT; final guidelines and amendment to CEQA procedures are currently expected in 2018. There will likely be an "opt in" period for local governments to adopt VMT methods and approaches.

Legislation regarding the State of California's efforts to reduce VMT and greenhouse gas emissions is evolving and will continue to have a direct impact on many elements of MPO activities, including the Regional Transportation Plans and the individual transportation projects it prioritizes.

7.4.2 The National Environmental Protection Act (NEPA)

The NEPA was the first major environmental law in the United States and was signed into law in 1970. It requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. The CEQA provides equivalent environmental protection as the NEPA, though NEPA analysis considers a few environmental impacts that are not covered by CEQA. NEPA applies to federal agency decisions on proposals for legislation and other major federal actions, while CEQA applies to state and local agency decisions to carry out or approve discretionary projects such as the future passenger rail service on the CVC. Both the NEPA and CEQA are there to ensure that decision makers are informed while avoiding duplication among multiple governmental layers of review.

7.4.3 Other Legislative Requirements

7.4.3.1 Title VI, Civil Rights Act of 1964

Title VI will come into play when TCAG, KCAG or Fresno COG, as federal Metropolitan Planning Organizations (MPOs receives funding from the FTA or FRA) or Authority, since it receives federal funds. As a recipient of federal funding, an MPO is required to comply with various civil rights statutes, executive orders, and regulations that are intended to ensure that traditionally underserved populations are included in the planning process and have access to MPO activities.

Title VI states that, "No person…shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI establishes the need for transportation agencies to disclose

to the public the benefits and burdens of proposed projects on minority populations. Title VI was further amended in 1987 to extend non-discrimination requirements for recipients of federal aid to all their programs and activities, not just those funded with federal funds.

A 1994 Presidential Order (Executive Order 12898) directed every federal agency to make environmental justice part of its mission by identifying and addressing the effects of all programs, policies, and activities on underrepresented groups and low-income populations. Reinforcing Title VI, this Presidential Order ensures that every federally funded project nationwide considers the human environment when undertaking the planning and decision-making process. The Presidential memorandum accompanying E.O. 12898 identified Title VI as one of several federal laws that should be applied "to prevent minority communities and low-income communities from being subject to disproportionately high and adverse environmental effects." Title VI not only bars intentional discrimination, but also unjustified disparate impact discrimination. Disparate impacts result from policies and practices that are neutral on their face (i.e., there is no evidence of intentional discrimination), but have the effect of discrimination on protected groups.

7.4.3.2 Environmental Justice

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies22. Specifically, environmental justice is the concept that environmental laws, policies, and impacts should be applied such that projects do not result in the disproportionate infliction of environmental impacts on populations comprising ethnic minorities and/or underprivileged groups. The inclusion of environmental justice in land use planning was made a requirement by SB 1000. The environmental justice element should identify objectives and policies to reduce the health risks in these disadvantaged communities, and to promote civil engagement in the public decision-making process. Civil engagement, or meaningful involvement, means:

- People have an opportunity to participate in decisions about activities that may affect their environment and/or health
- The regulatory agency's decision can be influenced by the public's contributions
- The decision-making process will consider community concerns
- Decision makers will seek out and facilitate the involvement of those potentially affected

Cities and counties would have to begin including the environmental justice element starting in 2018, during the next revision of their housing element.

In addition, an analysis of environmental justice is a required element of environmental review under NEPA (see United States Code, title 42, §§ 4331(a), 4342, 4344). Under CEQA, a lead agency has an obligation to analyze impacts on the physical environment, not social or economic impacts.

7.4.3.3 Americans with Disabilities Act

The Americans with Disabilities Act of 1990 (ADA) prohibits discrimination and ensures equal opportunity and access for persons with disabilities. Today, nearly all transit buses and rail vehicles are ADA accessible, as well as two-thirds of

rail transit stations.23 Title II of the ADA prohibits disability discrimination by public entities and applies to public transportation through regulations by the U.S. Department of Transportation. The ADA sets forth standards for accessible design to ensure equal access to users of all abilities.

7.5 Capital and Operational Costs

This section details the potential capital costs and operational costs of implementing the Plan. Capital costs are one-time costs and occur at the beginning and during construction. This may include vehicles, rails, and maintenance facilities, to name a few. Operational costs are costs that last throughout the project's operation. This may include driver wages, maintenance, and fuel, to name a few. This analysis builds upon the financial and funding source strategies described in Chapter 3. Cost estimates do not include any station-related infrastructure or right-of-way costs for the station areas.

The following cost estimates do not include any station-related civil infrastructure or right-of-way costs outside of the immediate station platforms. Station adjacent improvements will be dependent on future city plans and programs. As discussed in the existing conditions section, the corridor right-of-way is either already owned by local cities or by the railroad. It is assumed that railroad rights-of-way will not change ownership, but instead upgrades and maintenance of the corridor will be funded by the CVC project. This assumption will need to be negotiated with the railroads and cities as the project progresses into future phases

7.5.1 Capital Costs

Based on the existing conditions analysis, most of the railway may need to be replaced (not including ballast) in order for the railroad to be brought up to modern FRA compliant passenger railroad standards. The estimated cost of this work (rails, associated hardware, and ties) is between $1.5 to $2 million per mile based on current industry price levels. For planning purposes, it is assumed that the entire length of the corridor will require new rails. Table 7-5 lists the costs estimates based on the initial operating segment and full system buildout.

Table 7-5: Railway Replacement Budgetary Cost Estimate

Phase	Length	Estimated Cost Per Mile	Estimated Cost
Phase 2: Initial Operating Segment: Lemoore to Visalia	29 miles	$1.5M to $2.5M	$43.5M to $72.5M
Phase 3: Huron to Lemoore, Visalia to Porterville	46 miles		$69M to $115M
Total	**75 miles**		**$112.5M to $187.5M**

Source: Range based on similar California-based project costs (Santa Clara VTA LRT, Sonoma SMART, others).

To implement an FRA-compliant Positive Train Control system, system planners can budget between $50-$60 million for the initial operating segment included in Phase 2. For Phase 3, many of the same elements and major equipment should be designed with expansion in mind (central control equipment, data rooms, etc.), limiting the capital cost for the Phase 3 expansion. However, noting that both the fleet size and number of track miles are about 150% larger than Phase 2, this will require far more on-board, communications, and wayside equipment to be installed throughout the system. Estimated PTC costs of the expansion into Phase 3 is between $45-$55 million to expand this initial PTC system over the full 75-mile alignment, as shown in Table 7-6.

Table 7-6: Positive Train Control Budgetary Cost Estimate

Phase	Estimated Cost
Phase 2: Initial Operating Segment: Lemoore to Visalia	$50M to $60M
Phase 3: Huron to Lemoore, Visalia to Porterville	$45M to $55 M
Total	**$95M to $115M**

Source: PTC cost estimate based on cost of most recent PTC installation in California (Sonoma SMART) and other similar on-going PTC projects nationwide.

Costs to repair and replace deficient bridges will vary greatly according to site conditions, structural needs, engineering and design, length, permitting requirements, and other conditions. Of the four Phase 2 bridges listed above rated Poor, one is relatively short at 30 feet long, two are about the same size (75 and 85 feet), and one is 285 feet long. For preliminary budgeting purposes, current industry rules of thumb cost estimates for open deck, single track railroad bridges are around $4,000 per linear foot (LF). Closed deck bridges are roughly 50% more, or $6,000 per LF. Table 7-7 contains the cost estimates of each bridge using the open deck cost estimate as all the bridges marked as potentially needing repair or replacement (see Table 4-3) are of the open deck design.

Table 7-7: Bridge Repair and Replacement Cost Estimate

Phase	Bridge #	Location	Length (feet)	Estimated Cost
2	8	West of Grangeville	75	$300,000
2	9	West of Grangeville	85	$340,000
2	11	East of Grangeville	285	$1.14M
	Total Phase 2 Bridge Repair/Replacement Estimate			$1.78M
3	3	Nature Preserve	150	$300,000
3	15	South of Tulare Avenue	16	$64,000
3	19	West of Road 156	10	$40,000
	Total Phase 3 Bridge Repair/Replacement Estimate			$404,000
	Total Bridge Repair/Replacement Estimate			**$2.2M**

Source: Cost estimate based on industry rule of thumb cost estimating number of $4,000 per linear foot for open deck, single track railroad bridge.

Costs associated with the maintenance and storage facility (MSF) will mostly fall into Phase 2 as land acquisition, site conditions, and environmental clearances may only occur in this phase. A budgetary amount of $35-$50 million should be allocated toward the design and construction of the MSF. Environmental clearances specific to the MSF are not included in this as new rail service environmental impact planning includes the MSF along with the entire system.

While Phase 1 will repurpose existing bus facilities, a new branded enhanced express bus service may require new commuter coach buses. Commuter coaches, powered by compressed natural gas (CNG) traditionally cost around $700,000-1 million each.

Phase 2 and 3 will continue to utilize the new buses but will also require the purchased of new DMU vehicles. Recent DMU Vehicle contracts in North America place the cost of each DMU vehicle around $3.5-4.5 million each. We used these values for the fleet cost estimates.These values were used for the fleet cost estimates shown in Table 7-8.

Table 7-8: DMU Vehicle Costs

Phase	Cost Per Vehicle	Estimated Cost
Phase 1: 12 Vehicles	$700K to $1M	$8.4M to $12M
Phase 2: 9 Vehicles	$3.5M to $4.5M	$31.5M to $40.5M
Phase 3: 17 Vehicles		$59.5M to $76.5M
Total Fleet Cost Estimate		**$99.4M to $129M**

Source: Based on recent North America DMU vehicle procurements including those for Sonoma SMART system, Toronto UP Express Service and other. Only includes rolling stock prices – no operations or maintenance included in this estimate.

Signals, roadway crossings, switches, and other wayside equipment upgrades will vary greatly based on city conditions. For Phase 2, most equipment is already in place and updated through Visalia and Hanford, requiring very little upgrades. A contingency budget of $500,000 was allocated for these items. For Phase 3, equipment and work will be required south of Exeter as most of the tracks and signals are either removed or scheduled for removal in the near future. As such, $5.5 million has been allocated for this work, as summarized in Table 7-9.

Table 7-9: Wayside Equipment Contingency Budget

Phase	Estimated Cost
Phase 1	N/A
Phase 2	$500,000
Phase 3	$5M
Full DMU Build-Out Total	**$5.5M**

Source: Budgetary contingency in line with similar projects

7.5.2 Capital Cost Summary

A summary of the potential total costs for CVCP implementation is shown in Table 7-10.

Table 7-10: Cost Summary

Element	Phase 1	Phase 2	Phase 3	Total
Railway Replacement	N/A	$43.5M to $72.5M	$69M to $115M	$112.5M to $187.5M
Positive Train Control	N/A	$50M to $60M	$45M to $55M	$95M to $115M
Bridge Repair	N/A	$1.8M	$0.4M	$2.2M
Maintenance & Storage Facility	N/A	$35M to $50M	-	$35M to $50M
Vehicles	$8.4M to $12M	$31.5M to $40.5M	$59.5M to $76.5M	$99.4M to $129M
Wayside (Signaling upgrades, wayside equipment, crossings, etc.)	N/A	$0.5M	$5M	$5.5M
Total	**$8M to $12M**	**$162M to $225M**	**$179M to $252M**	**$350M to $489M**

Source: Cost estimate for M&SF assumes green field construction based on similar sized railcar facilities currently planned or under construction in the U.S. such as those of Chicago CTA, Boston MBTA, LAX APM.

7.5.3 Operational Costs

Operational expenses for operator wages, fuels, vehicle maintenance are all considered operational expenses and are averaged over an annual basis. Operational expenses also vary by how often the vehicles operates (i.e. headways and hours of the day) and the distance they travel. It is assumed that all service will operate:

- Monday-Sunday
- Service from 6 am to 11 pm
- 30-minute peak headways
- 60-minute off-peak headways

National Transit Database (NTD) data was used for this study on existing bus service in the project area to develop the Phase 1 estimates. Because there is no DMU passenger rail service in the study area, comparable DMU systems were used from Denton County Transportation Authority, New Jersey Transit Corporation, and North County Transit District. The cost of living is likely higher for these transit districts so operational costs may be lower for this project, but for this level of analysis it is reasonable to compare to these in-operation DMU services.

Table 7-11: Operational Cost Summary

Operational Cost Summary		
Phase	Annual Cost Per Mile	Annual Operating Cost*
Phase 1: Enhanced Express Bus from Huron to Porterville	$90,000	$5 million
Phase 2: Initial DMU Operating Segment from Lemoore to Visalia	$515,000	$16 million
Phase 3: Full DMU Build-out from Huron to Lemoore and Visalia to Porterville		$20 million
Full DMU Build-Out Total:	**N/A**	**$36 million**

* Operational cost of enhanced bus and/or discontinued bus service is included.

7.6 Implementation Summary

The implementation of the Plan relies on the coordination of efforts among stakeholders, communities, cities, and counties along the CVC. The intent of the Plan is to serve as a guide through federal, state, and local plans and policies to successfully identify funding opportunities and transit service improvements to support future passenger rail service in the Central Valley. It is ultimately up to the cities and counties to implement these strategies in a way that meets their community and regional goals.

7.6.1 Fare Policy Strategies

The implementation of passenger rail service across three counties would require a new fare policy to cover the service. The coordination of the region's transit operators would be required to facilitate the transfer between these services. Common challenges with implementing fare policies over multiple jurisdictions include:

- Creating obstacles to transit ridership by making services difficult to understand and navigate
- Creating transit fare products that do not meet the needs or desires of transit users
- Penalizing riders who need to use transit services from multiple operators to complete trips
- Pricing out potential users due to complex fare structures and higher transfer costs

Fare policy with the CVC must be financially sustainable to the operator and equitable for its riders. Examples of fare structures used today include:

- Flat Fare: The same fare is charged for all trips.
- Distance-Based: Higher fares are charged for longer distance trips.
- Service Quality-Based: Higher fares are charged for higher quality transit services such as express routes.
- Time-Based: Higher fares are charged for peak travel times.

The agency operating passenger rail services on the CVC must also consider the compatibility and usability of fare media in the region. Fare media technology is constantly evolving, from contactless card payments to smartphone ticket integration. Fare media examples include:

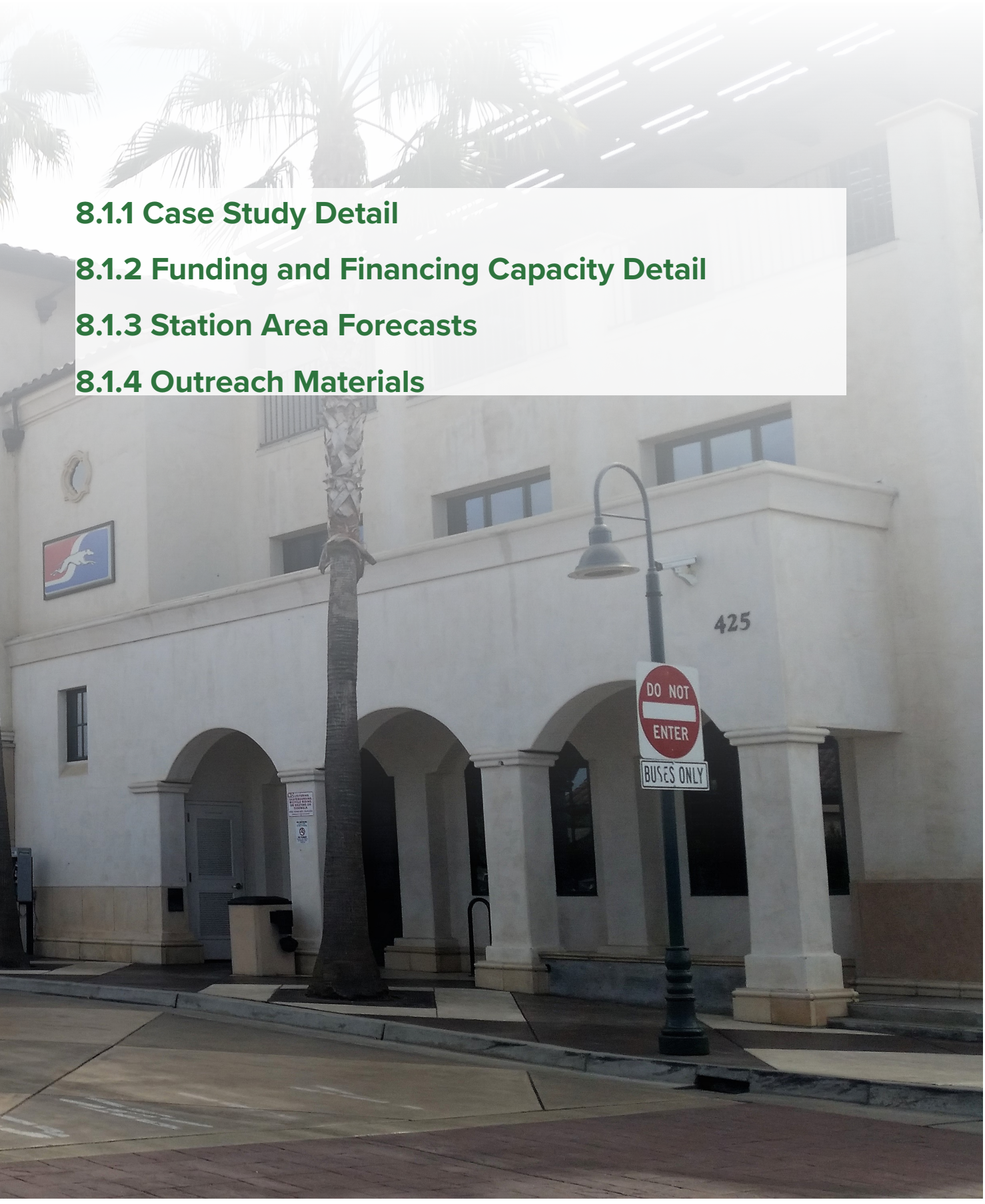
- Cash
- Tickets and tokens
- Payment cards able to hold cash value and transit passes
- Smartphones

Fare policy across the CVC system should be streamlined to attract new transit users in the region. It should consider the balance between customer understanding, administrative ease, the impacts on operations, equity, and revenue security for the operator.

8 Conclusion

The Cross Valley Corridor Plan represents an initial step in implementing passenger rail service on the Cross Valley Corridor. The recommendations and strategies outlined in this Plan serve as a road map for the region and incorporates feedback received from public agencies, community members, businesses, and other stakeholders throughout Kings and Tulare Counties. Through further planning, stakeholder coordination, and effective policy and financial strategies, we can strive to fulfill the mobility, economic, and quality of life needs of our growing population.

8.1 Appendices



8.1.1 Case Study Detail

8.1.2 Funding and Financing Capacity Detail

8.1.3 Station Area Forecasts

8.1.4 Outreach Materials