

Harnessing High-Speed Rail

How California and its cities can
use rail to reshape their growth



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Thank you to the dozens of city, county, regional, state and federal officials, local employers, community activists, developers and others who shared their ideas and perspectives in the development of this report. Special thank you to the local leaders in Gilroy, Merced, Fresno and Bakersfield for their planning efforts in response to the major opportunity of high-speed rail. SPUR also wishes to acknowledge the involvement of officials from the California High-Speed Rail Authority, the Strategic Growth Council and the California State Transportation Agency (CalSTA).

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Executive Summary



In the 20th century, California invested in significant forward-looking projects like the California State Water Project, the state highway system and the California Master Plan for Higher Education, which linked the University of California, California State University and California Community College systems. These investments were critical in propelling the state's economic success in the late 20th century. High-speed rail is California's first investment of this magnitude in the 21st century, and it has the potential to be equally significant. The first segment of the project, which will connect Bakersfield to San Jose, broke ground in 2015. Service from the San Joaquin Valley to the San Francisco Bay Area is expected to open in 2025 and connect into Los Angeles in 2029.

The alignment, or route, that California voters have selected for high-speed rail runs through the center of cities such as Fresno and Bakersfield that were bypassed when Interstate 5 was built along the west side of the San Joaquin Valley. High-speed rail can now connect these cities more seamlessly with each other and reconnect them to the coast, which has the potential to improve their economies. For example, instead of shifting operations to less costly states like Texas and Colorado, coastal California companies can locate branch offices in the San Joaquin Valley.

High-speed rail can also change California's growth pattern. Instead of the business-as-usual pattern of converting farmland to housing and urban development, high-speed rail can revitalize downtowns and shift some of the growth back toward urban centers. In so doing, high-speed rail can help preserve important farmland and natural landscapes. High-speed rail service will also be much faster, more reliable and more environmentally sustainable than driving or flying.

To fully realize these and other benefits, the improved accessibility that a fast train brings must be combined with targeted policies and investments to transform the economies of the cities with high-speed rail stations. Some evidence suggests that when a new high-speed rail system is built, intermediate cities along the route can lose out to the larger, more established cities if they do not plan for how to make the best use of the opportunity.

It will be necessary to grapple with other realities as well in order for station cities to get the most out of high-speed rail. Local governments cannot be expected to rely solely on the real estate market to deliver new development around their stations and in their often-struggling downtowns. Nor can they rely on their limited existing funds to pay for civic investments like new public plazas and parks, upgraded sidewalks or expanded transit and bike lanes. State and local governments must partner on developing new financial tools and investments to pay for this infrastructure, as well as to initially subsidize new commercial and residential development, as current market rents in these cities would not cover the cost of construction.

Funded in part by a \$9.95 billion state bond, high-speed rail is California's largest investment in decades and has a legal requirement to operate trains without an annual subsidy. The implementation of high-speed rail will succeed when local governments and the state work together to bring economic opportunity to each high-speed rail station city.

This report makes a case for high-speed rail as a tool for reshaping economic growth and development in intermediate station cities. It identifies the barriers to this vision, including the limitations of rail to reshape economies and land use patterns on its own. And it

proposes a series of state, regional and local policy and planning recommendations to realize economic growth, revitalize downtowns and limit sprawl in intermediate station cities.

To understand the impact of high-speed rail, this report looks at potential effects across three geographies:

- **Immediate station area** — The immediate surroundings up to half a mile from the train platform, where traveler services, transportation connections and dense, walkable, development are needed to draw ridership and help high-speed rail succeed.
- **Downtown station district** — The adjacent city center up to 1 or 2 miles from the station, where high-speed rail combined with good planning can lead to new amenities and infrastructure that attract more people and revitalize the area.
- **Metropolitan area** — The larger city or metropolitan area up to its urban edge, sometimes 10 miles or more from the station, where the immediate impact of rail is less noticeable but where compact growth is necessary in order to preserve farmland and open space.

This report includes 11 recommendations for how the intermediate cities and metropolitan areas along high-speed rail's first segment can fully capture the opportunity of this once-in-a-generation investment.

Key recommendations include:

- Establish a time-limited development corporation for each high-speed rail station with responsibility over development and land use in the immediate station area.
- Adopt a station district plan for each station based on statewide planning and development guidelines, or develop an overlay zoning district on top of an existing downtown plan.
- Create a new financing and downtown revitalization tool for high-speed rail station districts to help fund new development and infrastructure needs.
- Align state and regional funding programs to focus investment in high-speed rail station districts.
- As a precondition for receiving the new financing tool, require cities and counties to establish regional land use controls that achieve compact development and more efficient regional growth.

Implementing these recommendations will require local, regional and state governments to work together more closely in shaping land use patterns. These entities will also need to pursue additional financial support in order to capture economic development around high-speed rail.

None of these things will be easy, but they are imperative if high-speed rail is to succeed. And a successful high-speed rail system is critical for the future of California.

INTRODUCTION

Reshaping the Economic Map of California

California's growth in the 19th and early 20th centuries took place around railroads. Coastal cities like Los Angeles and Oakland, as well as valley communities like Fresno and Sacramento, grew from small walkable rail villages to larger cities with rail stations downtown.¹ In the Central Valley in particular, the Southern Pacific railroad connected each city, eventually reaching Bakersfield in the southern part of the San Joaquin Valley in 1874. The railroad continued to link these communities until the rise of the automobile and the construction of highways. In particular, when Interstate 5 was built in the decades after World War II, it bypassed the San Joaquin Valley population centers of Fresno and Bakersfield in favor of an alignment on the west side of the valley. The interstate prioritized a direct and speedy trip between north and south, not the connections among the valley cities. That decision changed the way residents saw and thought about their state: Key valley cities became more physically and economically disconnected and distinct from the rest of California.²

High-speed rail has the potential to reshape the economic map of California by relinking key cities to each other on a fast, clean electric transportation system. Its impact on the state's future could be as significant as the railroads were in the 19th century. But the scale of that impact is contingent on the decisions that are made during construction and on the planning policies put in place for the development of the stations and the communities around them.

A Brief History of High-Speed Rail

In the 1970s, California leaders envisioned a high-speed rail system to connect the northern and southern parts of the state. The vision was inspired by rail systems in Japan, France, Spain, Germany and the United Kingdom. Despite the early identification of the need for statewide high-speed rail, it was not until California voters approved Proposition 1A in 2008 that the project began to move from idea toward realization. The measure authorized the sale of \$9.95 billion in bonds to finance high-speed rail in California and make related regional rail investments. Prop. 1A proposed to "initiate the construction of a high-speed rail system that connects the San Francisco Transbay Terminal to Los Angeles Union Station and Anaheim, and links the state's major population centers."³ With the support of those bonds, plus \$3.5 billion in federal investment and additional state resources from California's Greenhouse Gas Cap-and-Trade Program, the state began construction in 2015.⁴

High-speed rail is currently under construction in the San Joaquin Valley between Merced and Bakersfield. From 2015 to 2017, the California High-Speed Rail Authority has had more than 119 miles under contract for construction at nine construction sites in the San Joaquin Valley. The Authority is also investing in several concurrent projects throughout the system to prepare regional rail services for integration with future high-speed service.



The Authority plans to start service in 2025, connecting Kern County in the south with San Jose's Diridon Station in the north. By 2029, the complete Phase I project will extend from Anaheim to San Francisco and will include service to Merced along a spur line. Phase II will extend that spur north to Sacramento and continue the southern route from Los Angeles to San Diego.

By 2030, high-speed rail is projected to provide service to a population of close to 30 million (the combined populations of the Bay Area, the San Joaquin Valley and Greater Los Angeles). According to the Authority, annual ridership in 2030 will range from about 18 million to 30 million passengers.

How High-Speed Rail Can Benefit Intermediate Station Cities

In recognition of the system's potential impact on California's growth and regional travel patterns, Prop. 1A noted two key goals:

1. "Stations shall be located in areas with good access to local mass transit and other modes of transportation," and
2. "The high-speed train system shall be planned and constructed in a manner that minimizes urban sprawl and impacts on the natural environment."

These goals signal an approach to planning high-speed rail that aims to integrate the train into existing places and communities and shape their growth in a positive way.

As a reflection of that goal, Prop. 1A identified a route that passes directly through Gilroy, Merced, Fresno, Bakersfield and other communities that were bypassed by I-5. As an indication of the concern about potential urban sprawl in the San Joaquin Valley (such as around Los Banos), the measure specifically noted that there would be no station between Gilroy and Merced. In selecting an alignment through the center of these valley communities, Prop. 1A sought not only to connect San Francisco and San Jose with Los Angeles but to make the cities in between — most notably Gilroy, Merced, Fresno and Bakersfield — more closely connected to each other, as well as to the regional economies on the coast.

These cities are the intermediate stations along the first segment of the high-speed rail system. Given high-speed rail's potential to transform their economies and help change their land use patterns, they are the focus of this report.⁵

When cities were first linked by the state and interstate highway system, the major benefit to the communities along the route was getting access to the highway through an interchange, which often led to the demise of their main streets as economic activity shifted to the off-ramp. The highways also divided many communities, as they were often built through the middle of existing neighborhoods, many of which were working-class communities of color.

Rail — and high-speed rail in particular — offers a chance to undo the mistakes of the highway era and provides a different vision for city development. Rail has a much smaller footprint than highways as it passes through communities. Because high-speed rail is space-efficient, this means it can bring many thousands more people into the core of a city without the need for more roads or significant parking facilities. Stations can and should be located in accessible areas where they can connect with existing and planned transit. Cities can then grow around their rail stations in a way that strengthens their identity and sense of place, rather than eviscerating it.

Achieving this type of development around stations is critical to ensure that California's residents receive an economic return for their investment in high-speed rail. Voters decided to route the train through downtowns and tie together California's city centers. Now there is an inherent responsibility to follow up with policies that maximize the value of the system for both the state and the station cities. This means stimulating station area development, downtown revitalization, general economic growth and the protection of critical farmland. Through deliberate policies, rail can again become a key shaper of California's economic geography and its patterns of growth.

But there are challenges to overcome in order to get the most out of the state's public investment in high-speed rail.

Many of the intermediate station cities are struggling economically. Their downtowns have had little to no new development in decades. Low educational and skill levels among the workforce, high unemployment rates and a small share of jobs in high-paying industries pose additional challenges to realizing the full benefits of high-speed rail service. There are also few existing policy tools to support downtown revitalization and station area growth. Much of the development that has occurred in the intermediate station communities has been designed for access by car. Existing transit service across station cities, which will be important as a way to bring riders to the high-speed rail system, is limited. Ongoing freeway investments continue to promote car-based transportation, and few residents have experience riding trains in California.

We know from the experiences of other regions around the world that rail investments that increase accessibility by allowing faster travel times are not enough, on their own, to transform the economies of station cities. To make the best use of this opportunity, rail investment must be combined with other policy changes and interventions specifically to benefit station cities.



The high-speed rail station area in Lyon, a French city similar in size to Fresno, was well-integrated into the existing city and has become the new center of the region's transit infrastructure. The station was located next to a former military base with opportunity for redevelopment; it is now the largest job center outside of Paris.

This report takes on these challenges and proposes specific steps to be taken by the station cities, numerous state departments and other public, private and civic actors. We explore how California can more fully integrate the cities from Bakersfield to Gilroy with the economy of the Bay Area — and eventually Southern California — and do so in a way that uses land more sustainably and concentrates economic growth in existing communities.

When we consider the potential impact of high-speed rail in California, we can imagine different outcomes. There are two outcomes in particular that the recommendations in this report seek to avoid. In the first, the train might have limited impact. Even with stations located in the downtowns of the intermediate cities, there could be little to no new development for a long time, and the regional economies in the San Joaquin Valley could remain disconnected from the coast. This would result in fewer riders getting on or off trains in the San Joaquin Valley and a future scenario in which it may not make sense for very many trains to stop in the San Joaquin Valley on their way between Los Angeles and the Bay Area.

A second negative outcome would be if high-speed train service caused the San Joaquin Valley to become a suburb for coastal workers. If a significant number of Californians chose to move to San Joaquin Valley station cities to access more affordable housing, growth could increasingly take place in car-dependent subdivisions on the edges of each city. This would result in greater sprawl and significant reductions of farmland and open space. Even if some of these commuters chose to locate in existing neighborhoods, their higher wages earned elsewhere might increase living costs and price out longstanding residents without offering much in the way of general economic growth. At the same time, the historic downtowns and station areas might not receive the public investment necessary for revitalization. They could become more like airports surrounded by massive parking lots catering to park-and-ride commuters, offering few amenities and little reason to walk anywhere.

The goal of this report is to avoid either of these outcomes.



Downtown Fresno Partnership

High-speed rail can bring additional life and energy to a downtown. The Grizzly Fest music festival at Chukchansi Park stadium in downtown Fresno shows the potential to attract more visitors in key downtown centers.

A Vision for High-Speed Rail Cities

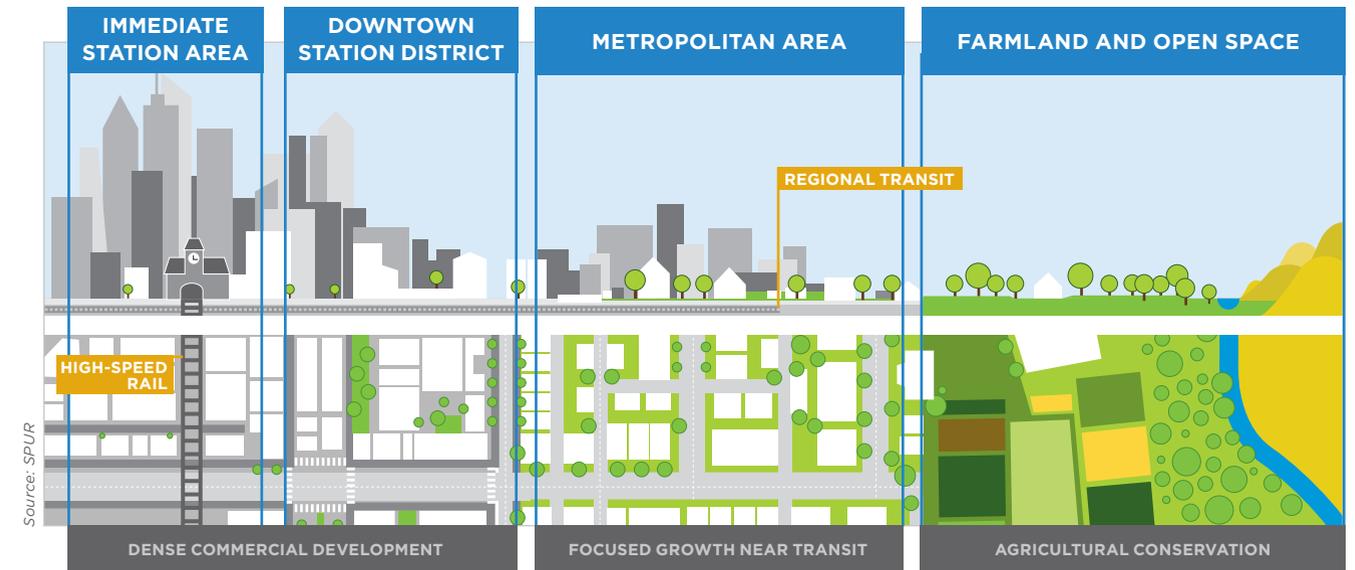
In the vision presented in this report, the state's rail investment has a significant positive impact on the station cities, as well as on the state overall. Downtowns are revitalized, the pattern of new development shifts toward existing communities, and farmland and open space are protected. High-speed rail downtown facilitates investment in light rail and other local transit systems that provide alternatives to driving. The San Joaquin Valley gains more employment opportunities, especially in knowledge industries, and household incomes go up.⁶ In this outcome, high-speed rail succeeds in connecting and integrating the economies of the coast with key cities in the San Joaquin Valley. The station cities enhance their distinct identities and historic connection to agriculture, while also diversifying their economic base and seeing new emerging industries cluster in their growing downtowns.

To support the vision, this report:

- Makes the case that high-speed rail can be a tool for reshaping economic growth and development in intermediate station cities.
- Identifies the barriers to achieving this, including the limitations of rail to reshape the economy and land use patterns on its own.
- Proposes a series of state, regional and local policy and planning recommendations to achieve economic growth, revitalize downtowns and limit sprawl in intermediate station cities.

Measuring the Success of High-Speed Rail Cities

To understand the impact of high-speed rail, this report examines each city through three geographic areas. For each geography, this report looks at how to measure the success of the state's investment in high-speed rail. The fourth geography shown here, farmland and open space, will be protected if the other three are planned well.



Immediate Station Area

Geography: The immediate surroundings up to half a mile from the train platform.

Description: This area includes the rail station building and amenities for travelers, such as connecting transportation services. In most cities, the station is in the center or at the edge of downtown. In these cases, it's critical that this area be walkable and include dense development that can support rail ridership. In a few cities (Hanford and Madera), the station is proposed in an undeveloped "greenfield" location away from the community's center. In these cases, it's less clear what the role of the station should be in stimulating growth. For example, significant urban development around the Madera station could compete with revitalization efforts in downtown Fresno.

Measure of Success: Significant new and concentrated development is located around downtown stations. There is an increase in walkability and pedestrian activity in station areas. Seamless transfers connect high-speed rail and other space-efficient modes of transportation, including local transit.

Downtown Station District

Geography: The adjacent neighborhood up to 1 or 2 miles from the station.

Description: Throughout the world, rail systems link major employment districts with dense mixed-use areas. These districts extend beyond a station area to include the surrounding downtown with its mixture of office, retail, entertainment and residential uses. Businesses, property owners and employees in this area can all benefit from the improved accessibility that high-speed rail brings.

Measure of Success: An increased share of the city's growth — particularly jobs, retail and entertainment — is located downtown and in other central parts of the city. More residents' lives connect with the downtown. There's a change in real estate market economics, and development in downtown areas becomes financially feasible without requiring subsidy.

Metropolitan Area

Geography: The larger city or metropolitan area up to its urban edge, sometimes 10 miles or more from the station.

Description: This area includes the complete urbanized footprint of the city and metropolitan area. Many trips on high-speed rail will begin or end in this larger geography, including trips to University of California, Merced; California State University, Fresno; or California State University, Bakersfield (each at least 6 miles from the nearest station). Creating seamless connections and easy transfers to these destinations is essential. While the direct economic impact of high-speed rail will be lower in this larger geography, it is nonetheless the area where a shift toward more compact land use patterns will have the greatest consequences.

Measure of Success: A large share of the city's development takes place within the existing urban footprint instead of in greenfield areas. Much of it is multifamily housing designed to promote walkability, which reduces pressure to convert farmland and open space to urban development. This development also helps create a market for local transit and supports downtown revitalization. New transit investments are well-used and lead to a reduction in daily driving.

CHAPTER 1:

The Opportunity of High-Speed Rail in California

There is nothing comparable to a high-speed rail system in California or the United States. This rail investment will transform how people travel north and south through the state by dramatically shortening travel times. As mentioned earlier, it provides an opportunity to revitalize downtowns and station areas, as well as a chance to better link the San Joaquin Valley to California's coastal economies and bring new investment and economic activity to once-struggling communities.

The following are some of the key opportunities for intermediate cities.

High-speed rail radically shortens travel time between key population centers, effectively making the San Joaquin Valley cities closer to each other and to the coast.

With high-speed rail, Fresno will be a one-hour ride from San Jose, instead of a two-and-a-half-hour drive. Fresno will also be an hour and a half by train from both San Francisco and Los Angeles, instead of more than three hours by car.⁷

By collapsing distance, high-speed rail can make a business meeting that previously required an overnight stay into a day trip. It can also change commuting patterns, as it has done in Japan. For example, the Tokyo-Osaka high-speed rail line has made it possible to commute from intermediate cities like Shizuoka to Tokyo. Travelers cover 174 kilometers, or 108 miles, in as little as one hour. Within California, high-speed rail will reach speeds of 220 miles per hour.

High-speed rail will create a more unified statewide economy and link economically thriving areas with those that are struggling.

A high-speed rail system has the potential to bring opportunity to metropolitan areas with weaker economies by increasing business travel and encouraging firms to relocate or expand in station cities. This means that accessibility improvements that come from high-speed rail can reduce the disparities between large, wealthy cities and medium-size intermediate cities along the rail line.⁸

The travel time improvements from high-speed rail service can also increase productivity by expanding the labor market for businesses that are looking for talent, as well as increase opportunity for workers looking for jobs. In the United Kingdom, research has shown that faster rail service helped reduce uneven regional development and encouraged the growth of local knowledge industries. As a result, unemployment rates fell in economically struggling cities like Leeds and Cardiff.⁹

On the other hand, a growing body of evidence indicates that without proper advance planning, some of the bigger economic gains from high-speed rail flow to the larger cities. Some research suggests that high-speed rail can support an increasing concentration of economic activities in cities that are already strong, which further distinguishes their economies from weaker metropolitan areas.¹⁰ In California, gains might flow to San Francisco, San Jose and Los Angeles, rather than to Fresno or Bakersfield.



FIGURE 2
High-Speed Rail Will Bring California Cities Closer Together

High-speed rail will effectively shrink California, in particular collapsing the relative distances from the San Joaquin Valley to the Bay Area and to Greater Los Angeles. Driving times in the table below are all during peak travel hours. The range in driving times shows the unpredictability of driving versus high-speed rail travel times, which do not fluctuate with traffic.

Source: Foster & Partners, California High-Speed Rail Authority



Note: The total time for driving is in the peak period. For example, Google Maps shows it as a range of 40 to 75 minutes from Gilroy to San Jose. The light blue section shows that difference.

Source: SPUR analysis of California High-Speed Rail Authority data and Google Maps traffic data.

This outcome can be avoided through coordinated state and local economic development planning, as was the case in Lille, France. (See sidebar “Lessons From International High-Speed Rail Systems” on page 19.)

In California, high-speed rail will connect the regional economies of the San Francisco Bay Area and Greater Los Angeles to the San Joaquin Valley, an area of structurally higher unemployment with an economic base more rooted in agriculture than in the knowledge industries. A key goal of this rail investment is to strengthen the economies of San Joaquin Valley cities.

Capturing the economic development opportunity of high-speed rail means pursuing one or more of the following approaches in each of the station cities:

- **Business formation** — startups locate in station cities
- **Business retention and expansion** — existing companies expand jobs in station cities
- **Business attraction** — headquarters or branch offices relocate to station cities
- **Worker commuting** — residents commute from station cities to other cities in California

The business formation approach focuses on bringing investment to startups in station cities. Fresno’s “Valley to Valley” strategy seeks to do this by making connections between investors in the Bay Area and entrepreneurs in the San Joaquin Valley, as well as by developing sources of investment capital within the San Joaquin Valley. For example, Bitwise Industries in downtown Fresno is helping create a tech ecosystem to support the success of startups. The tech incubator educates people in coding and provides office space for startups to share. So far the company has trained 3,000 people and created more than 1,000 tech jobs. Silicon Valley may have an advantage in the quantity of existing skilled workers, investors and successful entrepreneurs, but the San Joaquin Valley has advantages in lower labor and business costs, as well as in connections to other industries. For example, instead of competing directly with what is happening in the Bay Area, firms in Fresno might focus on the needs of the agricultural industry to make their city a hub for ag-tech.

The business retention and expansion approach focuses on helping existing firms find new markets for their products, improve their productivity and competitiveness, access a larger labor pool and/or attract more customers. Tourism-related businesses in particular stand to gain when their community becomes easier to access through the opening of a high-speed rail station.

The business attraction route involves companies choosing to open branch offices in station cities in order to access a lower-cost workforce. Cities like Phoenix, Austin, Denver and Dallas have long benefited from the outsourcing of functions from coastal California companies. Today, there is limited air service to Fresno, which makes it effectively farther away when compared with Phoenix, which is a one- or two-hour flight (from Los Angeles and



Egon Terplan

Startups are already locating in future high-speed rail station cities. In downtown Fresno, tech incubator Bitwise Industries has five buildings that house more than 1,000 employees working in more than 20 technology startups. The firm’s expansion into three new locations downtown is expected to create an additional 50 new businesses and 2,000 new jobs. These firms benefit from their co-location in buildings like South Stadium (pictured above). With high-speed rail, these Fresno-based firms will be able to collaborate more directly with larger firms in Silicon Valley.

San Francisco, respectively). That will change when high-speed rail allows a far shorter door-to-door trip between the coast and Fresno than flying to a low-cost city out of state. Some of the industries most likely to shift jobs to the San Joaquin Valley include professional services, utilities, information, insurance and finance. Despite the future accessibility benefits of high-speed rail, some firms will continue to shift employees or consolidate operations out of state. For example, State Farm’s decision to close its Bakersfield operations center by 2021 will shift approximately 1,300 jobs to places like Phoenix, Dallas and Atlanta.¹¹

The commuter approach would involve workers moving to station cities and taking high-speed rail to their jobs in Silicon Valley and Southern California. These new residents would invest in existing or new housing in station cities and would bring higher disposable incomes into the city’s economy. Existing residents who chose to commute to jobs outside the city would also be able to earn higher incomes. While commuting is a potential use of the high-speed rail system, it is not as likely to produce long-term economic transformation for station cities.

High-speed rail can help concentrate economic activities both around a station and in the broader downtown, transforming these places into dynamic centers of activity for the region.

While the initial benefit of high-speed rail may be faster travel and increased accessibility, over time it can encourage industries to cluster together and companies to locate in closer proximity to one another in a city’s downtown.¹² This kind of economic agglomeration can lower the costs of production, concentrate a pool of skilled workers and stimulate regional economic growth. High-speed rail has the potential to reinforce cities’ central business districts and support the growth of businesses and educational institutions.¹³

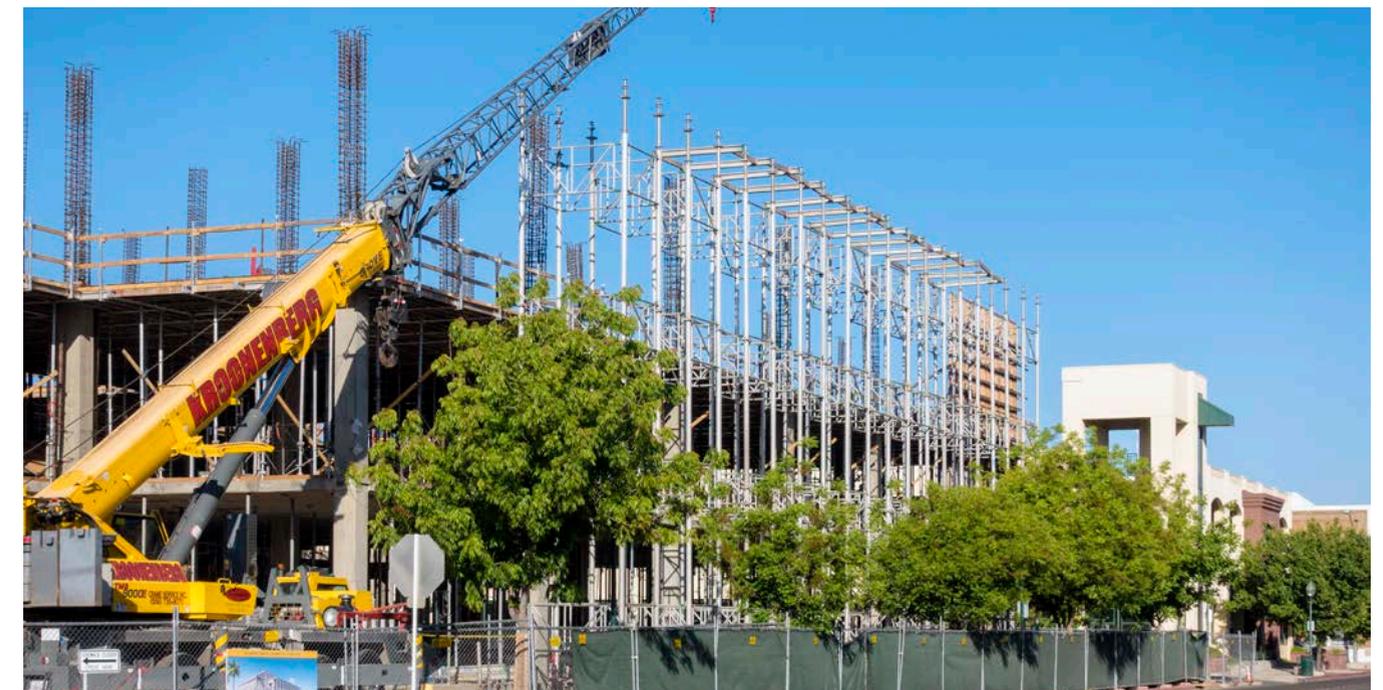
High-speed rail can also play a significant role in restructuring regional economies.¹⁴ It can encourage the relocation of workers and companies and reallocate or shift employment to areas around a rail station. To the extent that the San Joaquin Valley increases its education levels and the percent of its economy that is in knowledge industries, this type of economic restructuring is a potential outcome of high-speed rail’s arrival.

The downtowns of Gilroy, Merced, Fresno and Bakersfield have all struggled in recent decades as retail, employment and residential growth left for other parts of the city or surrounding region. Fresno

and Bakersfield in particular suffered as major regional investments in highways allowed these cities to sprawl ever outward. Given their relative size, along with significant and continued investment in highway building, traffic has yet to become the vexing problem in these cities that it is in the Bay Area or Southern California. This reinforces the auto-dominated living and working pattern that poses a competitive challenge to the downtowns.

By locating stations in or adjacent to the center of each city, high-speed rail can help bring life back to long-neglected downtowns. In the case of Fresno, the city has spent close to a decade revising planning guidelines and working to attract investment and development in its downtown. That process is starting to result in new investment and development but would benefit from additional big moves, such as a major company expansion or relocation, combined with the presence of high-speed rail. In the case of Merced, there has also been growing investment in upgrading the building stock, including the rehabilitation of an old hotel and theater.¹⁵ UC Merced is building a 70,000-square-foot administrative office building downtown, which can house nearly 400 employees and will bring additional foot traffic to support downtown businesses.¹⁶

Well-located and well-planned stations will also create opportunities for transit-oriented development immediately adjacent to the station.¹⁷ When stations are located downtown, high-speed rail can increase land values within the station area and encourage dense development.¹⁸ At a metropolitan scale, high-speed rail can help concentrate growth in those cities that have stations.



Sergio Ruiz

Downtown Merced is seeing significant new development and adaptation of historic buildings — preparations to serve a growing student body at the University of California campus a few miles away. The university is building a new office building for 400 workers (pictured) within walking distance of the future high-speed rail station.

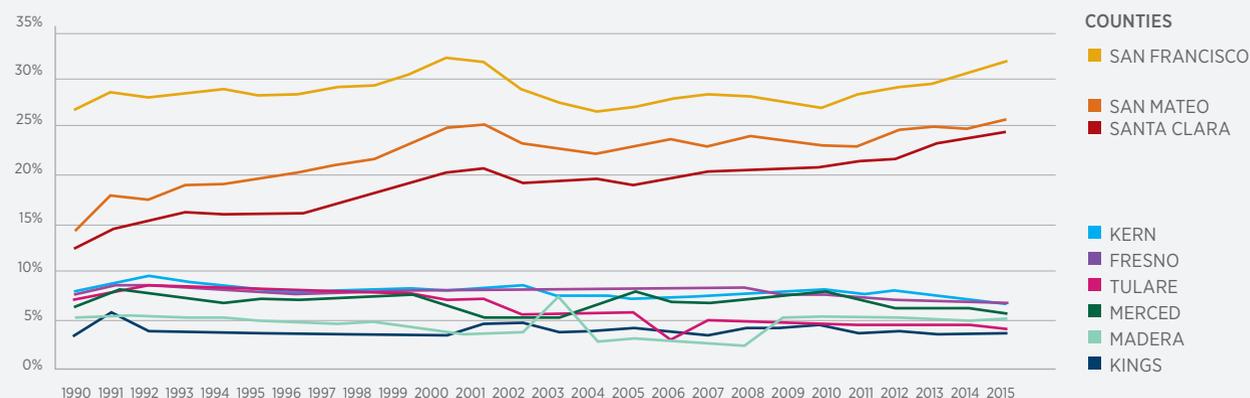
A Tale of Two States: The San Joaquin Valley and Silicon Valley

Phase I of high-speed rail service will connect the populations and economies of the San Joaquin Valley and Silicon Valley, specifically the three counties on the west side of San Francisco Bay. Silicon Valley is the world's leading innovation district, with a growing share of knowledge industry jobs, high wages, low unemployment and high housing costs. The San Joaquin Valley is the world's leading agricultural region, with a smaller share of knowledge economy jobs, lower wages, higher unemployment and lower housing costs.

Six of the eight counties in the San Joaquin Valley will be served by high-speed rail in Phase I: Kern, Tulare, Kings, Fresno, Madera and Merced.¹⁹ The three Phase I counties in Silicon Valley are Santa Clara, San Mateo and San Francisco. Today the six San Joaquin Valley counties have almost 3 million people, while the population of the three Silicon Valley counties is 3.5 million. By 2040, the population of those six San Joaquin Valley counties is projected to grow to 4.2 million and surpass the Silicon Valley counties, whose growth is slower. (For comparison, the nine-county Bay Area has 7.6 million people in 2017 and is projected to grow to 9.6 million by 2040.)²⁰



FIGURE 4
Share of Employment in Knowledge Industries, 1990–2015



Source: BLS Quarterly Census of Employment and Wages. QCEW NAICS-Based Data Files, CSVs by area, annual averages, United States Department of Labor.

In the San Joaquin Valley counties, only 17 percent of the population 25 years and older holds a bachelor's degree or higher. The share of jobs in knowledge industries is below 7 percent in all six counties and has been declining slightly since 1990. In comparison, more than half of the population of the Silicon Valley counties holds a bachelor's degree, and the percent of jobs in knowledge industries ranges between 25 and 32 percent.

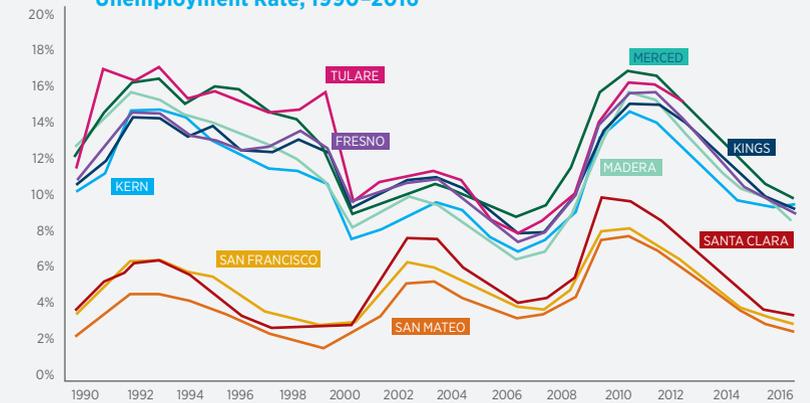
For most of the past few decades, the unemployment rate in the San Joaquin Valley counties was more than double that of the Silicon Valley counties. In the 1990s, the unemployment rate ranged from 10 percent to 18 percent, while in the counties of San Francisco, Santa Clara and San Mateo it ranged from 3 percent to 7 percent. The housing boom years from 2000 to 2007 saw San Joaquin Valley unemployment drop to between 7 and 12 percent and become closer to the levels in the Silicon Valley counties. Yet after the housing crash, and during the recent economic boom, the gap between the two areas widened again.²¹

Similarly, the median household income in the San Joaquin Valley counties is less than half that of the Silicon Valley counties: \$47,000 versus \$100,000 (in 2015 dollars).²²

Lower household incomes in the San Joaquin Valley counties also means lower housing costs. Monthly median rents in the Silicon Valley counties are three times as high as those in the San Joaquin Valley counties (\$3,500 to \$4,300 per month compared with approximately \$1,200).²³ Home values have likewise diverged: In 2017, the average home sale price for the Silicon Valley counties is more than \$1 million, while the average home in the San Joaquin Valley counties is closer to \$200,000.²⁴ In the 21 years since 1996, San Joaquin Valley home prices have slightly more than doubled, while homes in the Silicon Valley counties have increased four- to five-fold. Since 2012, the gap between home prices in the two regions has grown considerably, from less than \$500,000 to more than \$900,000.

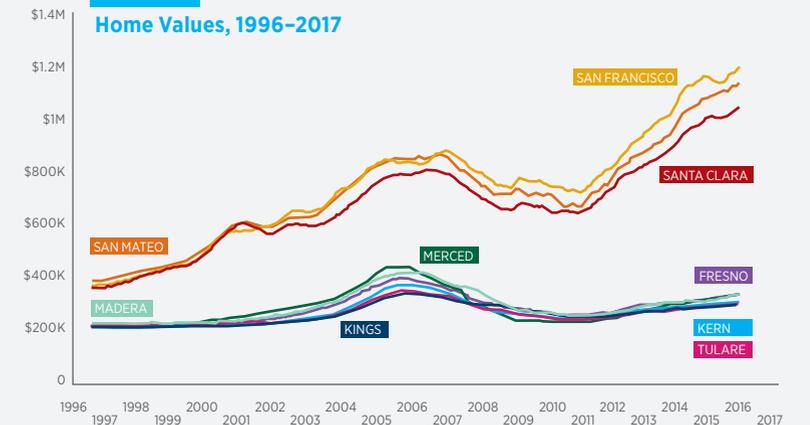
Population in the San Joaquin Valley is growing faster than in Silicon Valley. As shown in the graphs at right, total population in the Silicon Valley counties is projected to grow by around 835,000 people from 2015 to 2040, compared with over 930,000 in the San Joaquin Valley counties. In terms of demographic changes, between 2015 and 2040, the Silicon Valley counties are projected to change less, with the white population declining from about 38 to 35 percent, while the population identifying as mixed race or "other" increases slightly. In comparison, the San Joaquin Valley counties are projected to see the share that is Latino increase from 55 to 60 percent and the share that is white decline from one-third to one-quarter of the population.²⁵

FIGURE 5
Unemployment Rate, 1990–2016



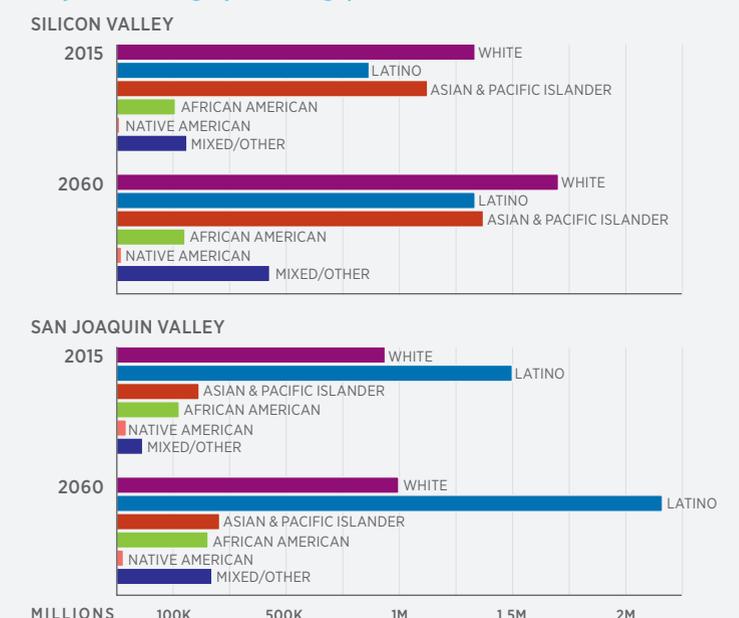
Source: Local Area Unemployment Statistics (LAUS), Annual Average: 1990–2015. Bureau of Labor Statistics, United States Department of Labor.

FIGURE 6
Home Values, 1996–2017



Source: Zillow Home Value Index, available at: <https://www.zillow.com/research/data/>

FIGURE 7
Projected Demographic Change, 2015–2060



Source: State and County Population Projections by Race/Ethnicity and Age (5-year groups), California Department of Finance

A Note About Housing Affordability and Displacement

The investment in high-speed rail station cities will lead to increasing wages and incomes. But there are other impacts on local residents as new people move into their communities. Housing costs are significantly lower in the San Joaquin Valley but may increase in some station cities if there is investment from other parts of California or if available housing starts to become scarce. Such price increases could negatively impact lower-income households and result in increased displacement pressures for those who already face significant challenges in maintaining adequate housing.

While some upward pressure on housing costs will probably occur, it is not likely that price increases in the San Joaquin Valley will be comparable to those in the Bay Area and Los Angeles. If such price increases did happen, they would be a reflection of strong demand, which would then allow for new market-rate development to become economically feasible. To the extent that valley communities remain more supportive of new housing production relative to the Bay Area, the increase in prices would likely be met with an increase in supply that would take some pressure off of continued upward prices.

Over time, as there is upward price pressure in the housing market, those with lower incomes will face greater housing challenges (although most low-income residents already face tremendous uncertainties and experience significant displacement pressures simply due to limited or unstable income, predatory lending or other factors). This suggests the need to develop a long-term vision regarding the impact of housing costs on existing and new residents. This vision should include strategies to bring down the cost of housing production, such as reducing required fees and speeding up permit processing and public and environmental review. It should also include expanded investment in affordable housing and greater protections for tenants and vulnerable communities over time.

High-speed rail helps other transit investments succeed as the station area becomes a gateway to the city and region.

The presence of a high-speed rail station can help make other transit investments more successful.²⁶ With good planning, high-speed rail stations can become major transportation centers that generate a significant number of trips for bus rapid transit, light rail or regional rail systems. For some cities, the investment in high-speed rail provides the impetus to build a local or citywide light rail network. In Lyon, France, a city with high-speed rail, local leaders recognized the important role that streetcars were playing in improving urban mobility in other cities, like Nantes and Grenoble, and decided to plan their own extensive streetcar system, which opened in 2001, with their high-speed rail station at the center. Lyon's decision to invest in streetcars reflected a realization that the city needed more space-efficient and high-capacity travel modes to help high-speed rail passengers reach final destinations throughout the city. Bordeaux, France, built several light rail lines in anticipation of high-speed rail service. In both cases, the local transit investments were either inspired by or coordinated with high-speed rail.

In California, several station cities are planning new transit investments that link with high-speed rail. Fresno adopted a bus rapid transit master plan in 2008 and is constructing a line that will connect the high-speed rail station with destinations along Blackstone Avenue to the north.²⁷ Merced is planning for a shuttle connecting to UC Merced. Bakersfield has a long-range transit vision for the entire metropolitan area, including building a light rail system.²⁸

At the regional scale and beyond, each station is planning for major investments to connect to a larger geography, including bus service to national parks from Merced and Fresno and future service on a proposed cross-valley rail system from the Kings/Tulare station adjacent to the City of Hanford.²⁹ There are also plans to extend the Capitol Corridor rail line from San Jose to Gilroy and south toward Salinas, including light rail connections to Monterey.³⁰



Egon Terplan

High-speed rail stations will help facilitate the expansion of transit within each city. For example, the Bakersfield region's long-range transit vision is built around major new rail and bus investments that will connect to the high-speed rail station downtown. Additionally, previously developed bus rapid transit corridors could be upgraded to light rail service.

Lessons From International High-Speed Rail Systems

High-speed rail has been successful in helping shape economic outcomes in numerous regions around the world, notably in Japan, South Korea, France, Spain and the United Kingdom. The following are some key lessons about what role the state should play, the impacts on intermediate cities and best practices for station area planning.

High-speed rail requires a different approach to planning than traditional transit-oriented development.

Traditional transit-oriented development (TOD) refers to concentrating a mix of uses — including housing, offices and retail stores — in a walkable area within half a mile of a transit station.³¹ In practice, “mixed use” often means multifamily housing with retail stores on the ground floor. In contrast, development around high-speed rail should prioritize destinations of regional or statewide importance, including major offices, hotels, retail stores, entertainment complexes or educational campuses.³² Another difference with high-speed rail is that the area around the station that can attract riders is much larger than half a mile. Additionally, a successful high-speed rail station is not just a major regional transportation hub but also a high-quality public space where people want to gather and spend time.

Station locations in or near downtown are most likely to spur development.

Stations that are located in or adjacent to downtowns are the ones that most frequently result in significant new development nearby. For example, Lille, France (a city north of Paris that is the transfer point between trains from London and Brussels), mandated that its high-speed rail station be built downtown, adjacent to the existing main rail station. The city then channeled investments to the area, building a shopping center that connects the two stations and a new business district of high-rise office towers,³³ as well as expanding its existing business district. Le Mans, France, also played an active role in development around its high-speed rail station, building a new business complex and planning a technology center near the existing university. Property values around the station rose, and the number of real estate deals doubled within three years after the opening of the station.³⁴

Effective station planning and development require an entity with a long-term vision and the powers to successfully carry out station area development.

Successful high-speed rail station development, particularly in intermediate cities, often includes a rail station development entity that has both a long-term perspective and the powers and duties to support new development. The long timeline for station development requires both patient capital and a consistent vision. Rail construction may finish well before the market can support new development. In such cases, an entity chartered and supported by the state can help get development going. Several successful international cases show that a strong role for the state and the creation of a development entity are necessary to manage high-speed rail station development well. In France, the Bordeaux-Euratlantique Public Development Agency is responsible for development along the high-speed rail line between Tours and Bordeaux. The agency consults with local



SPL Eurlille

Under the leadership of a visionary mayor, Lille, France, undertook a massive master planning effort in the late 1980s to take advantage of its strategic location on the new northern European high-speed rail network. The master plan is widely credited with reinvigorating Lille's struggling economy.

planning officials but is ultimately responsible for station area development. The French agency also has the power to purchase land or cede it and has the right of first refusal for all private land sales. Some research suggests that growth around a high-speed rail station is highest in cities where the public sector is most involved.³⁵

Real estate around high-speed rail stations can be an important source of revenue to pay for operations and help subsidize the system.

Capturing the increase in land value around a high-speed rail station can be an important strategy in generating development, and dense development can provide significant revenue to support rail operations.³⁶ In Japan, regulations allow private rail companies to develop revenue resources other than rail fares, which encourages these companies to invest in real estate development around rail stations. This allows them to capture revenue from property leases and use that revenue to help pay for the system's financial needs. Public-private partnership is a common model in structuring the real estate developments in station areas. In central Tokyo, office towers and shopping malls were developed around the stations by the joint forces of the national government, the privatized Central Japan Railway Company and private real estate developers.³⁷

High-speed rail must be well-integrated with other regional rail and local transit systems.

Most research on international high-speed rail systems identifies good integration with local transit as a prerequisite for success, particularly in intermediate cities.³⁸ Transit investments such as bus rapid transit lines or new light rail systems are space-efficient travel modes that can carry thousands of daily riders to a high-speed rail station without the need for major parking facilities.³⁹

High-speed rail will form the backbone of a comprehensive state rail network.

California high-speed rail is being planned and designed as the backbone of an extensive statewide rail network. This means public investment in the rail system will serve not only riders with destinations along the high-speed rail route but those taking other modes of transit. The vision set forth in California's 2018 State Rail Plan is to completely integrate all modes of transit across the state, including high-speed rail, intercity rail, intercity buses, regional rail, local transit and last-mile services such as transportation network companies (Lyft and Uber), bike sharing and other modes.⁴⁰ This will mean planning common transfer points between services and implementing synchronized timetables so that connections are seamless and easy. For example, passengers arriving on a high-speed train should expect a standardized wait time (such as 10 minutes) to connect with adjoining transit services. Fare prices and ticketing systems will be integrated so that customers can make an entire journey across different modes and operators using a single ticket.

High-speed rail will alleviate overburdened highway and air travel corridors.

High-speed rail can free up capacity on existing highways and reduce wear and tear on roadways as travelers shift from automobiles to trains.⁴¹ It can also alleviate overburdened air travel and reduce the need for airport expansion.⁴² In some regions, high-speed rail systems have successfully shifted riders from air travel to trains. In France, the TGV high-speed rail service claims 91 percent of the air and rail travel market between Paris and Lyon. For the longer rail trip from Paris to Marseille on the country's southern coast, rail claims 60 percent of the air and rail travel market. As a result of TGV's success, Air France has stopped servicing certain routes, while a combination of high gas prices and high tolls has reduced the demand for car travel.⁴³ On the East Coast of the United States, Amtrak's Acela service, which achieves high speeds on part of its Northeast Corridor route, captures 74 percent of the market share for rail and air travel trips between New York and Washington, D.C.⁴⁴

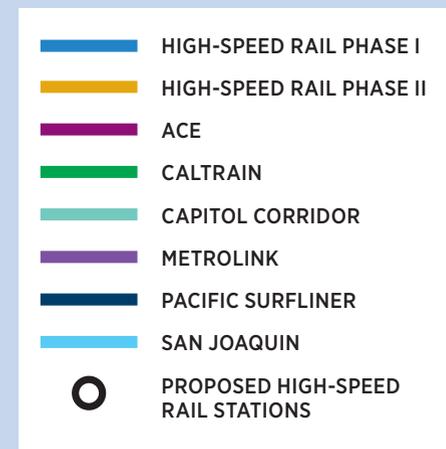
Statewide Rail Modernization

FIGURE 8

California's Integrated Rail Network Vision

High-speed rail is being planned as part of a statewide passenger rail network that includes ACE rail over the Altamont Pass and San Joaquin Amtrak service, as well as trains throughout Southern California. The future vision calls for timed transfers at key rail hubs to allow travelers quick connection between high-speed and regional rail services to destinations throughout the state.

Source: California High-Speed Rail Authority, http://www.hsr.ca.gov/docs/newsroom/maps/Statewide_Rail_Modernization_2016.pdf



High-Speed Rail and California's Policy Goals

California regularly sets policy goals designed to improve long-term outcomes for the state and its residents. These efforts include reducing climate change from greenhouse gases, supporting compact development, improving air quality and public health, and upgrading the skills of the workforce. The state has a vested interest in making sure high-speed rail succeeds, as it will be a critical part in helping meet these and other policy priorities. The following are statewide goals whose success is particularly intertwined with that of high-speed rail:

Reducing greenhouse gas emissions from transportation

The state's aggressive climate change goals call for reducing greenhouse gas emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.⁴⁵ Since the transportation sector is the largest emitter of greenhouse gases in California, shifting long-distance travel from airplanes and automobiles to clean and electrified high-speed rail is a key part of reducing greenhouse gas emissions.

Achieving more compact land use patterns through coordinated regional planning

Senate Bill 375 (2008), part of the state's climate change goals, calls for reducing per capita emissions from driving by coordinating where future growth will occur with the necessary transportation investments to serve that growth. Key to achieving reduced driving is implementing plans for more compact development. Since the passage of SB 375, several state reports have proposed related goals. The governor's *Strategy for California @ 50 Million report*⁴⁶ calls for prioritizing growth within existing urban areas, and the Strategic Growth Council's *Vibrant Communities and Landscapes report*⁴⁷ calls for integration of land use planning and conservation efforts. High-speed rail will help achieve these goals by concentrating growth around stations and providing an organizing framework for future transit investments to get people to and from stations without driving.

Preserving natural and working landscapes

California made the preservation of natural and agricultural lands one of its three top planning priorities with the passage of Assembly Bill 857 (2003). The Governor's Policy and Environmental Goals Report Update further calls for reducing the amount of land converted to development by 50 percent of today's trend by 2050,⁴⁸ while the Strategic Growth Council, California Natural Resources Agency (including Department of Conservation and the Department of Fish and Wildlife) and others have also called for the location of future development to consider and minimize impacts to important natural resources. High-speed rail station planning can direct growth toward urban centers and away from greenfield areas.

Modernizing state rail through an integrated statewide network

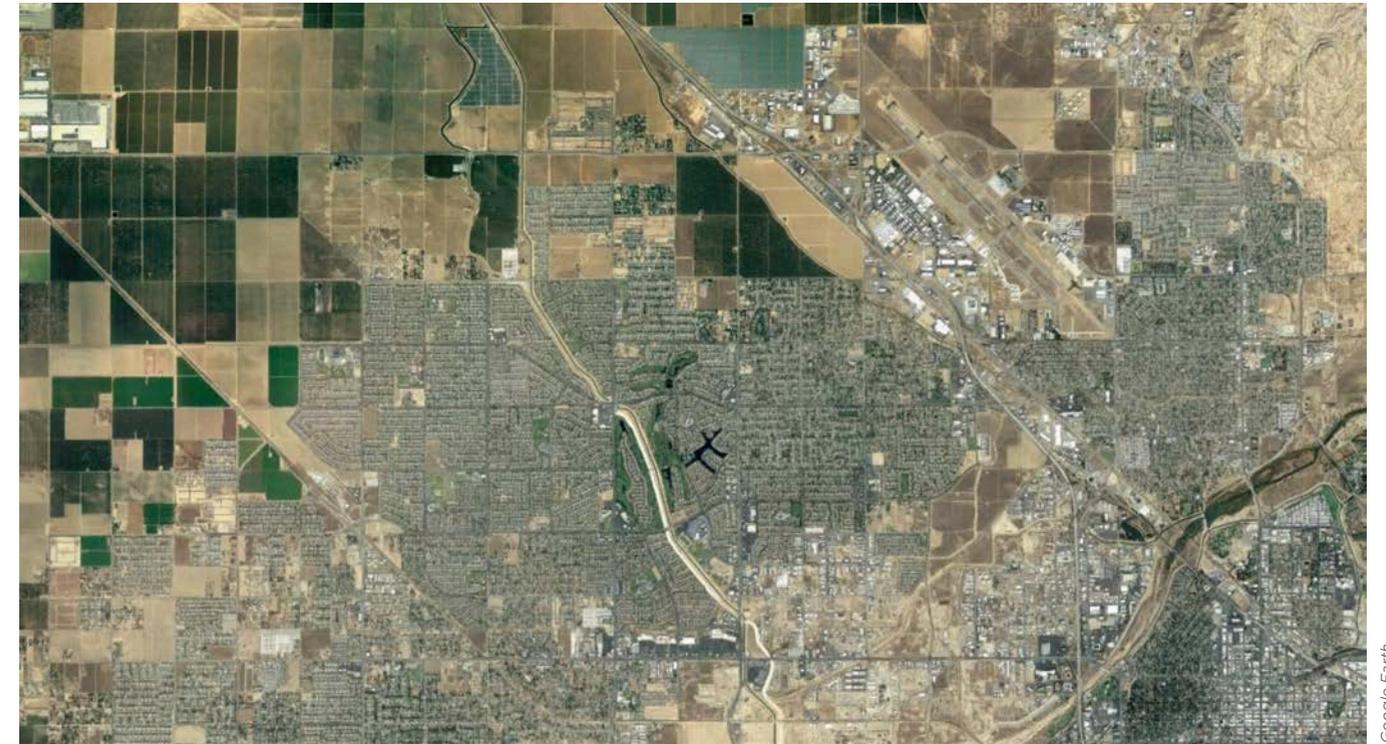
The 2018 California state rail plan focuses on modernizing the entire rail network and lays out a vision of an integrated system of passenger and freight rail throughout the state.⁴⁹ The plan emphasizes connectivity, proposing timed transfers between different systems as a way to open up rail travel to many more passengers. The success of this vision is contingent on building out high-speed rail as the trunk line for other rail systems across the state, such as Amtrak and the Altamont Corridor Express, or ACE.

Promoting environmental justice and investing in disadvantaged communities

With the passage of Senate Bill 535 (2012), the state committed itself to investing a quarter of cap-and-trade revenues in projects that benefit communities most impacted by poverty and pollution.⁵⁰ One program, Transformative Climate Communities, is targeting 50 percent of its initial resources toward investments in Fresno, particularly near the high-speed rail station.⁵¹ These targeted investments will have a bigger impact on these communities if they are planned in coordination with investments in high-speed rail.

Promoting workforce development and upward mobility

California has set goals to increase the number of residents who get an industry-recognized degree, focusing especially on unemployed, underemployed, low-skilled or low-income people, veterans, individuals with disabilities and other at-risk populations.⁵² The state aims to award a million of these "middle skill" credentials between 2017 and 2020 and to double the number of people enrolled in apprenticeship programs. California also plans to direct funding to job sectors that focus on science, technology, engineering and math. The state's strategy is explicitly regionally focused: It aims to better align workforce training with employer needs in part by encouraging partnerships at the regional scale. High-speed rail helps achieve this policy goal by connecting the major cities of the San Joaquin Valley, one of the regional districts identified in the state's workforce strategy, and expanding opportunities for business growth in these cities.



Google Earth

The San Joaquin Valley's Blueprint and Greenprint offer a vision for more compact growth that protects critical farmland and open space. This aerial image of Bakersfield shows the farmland at the city's urban edge, some of which has been converted to single-family development in recent years.

High-speed rail can help achieve a more compact pattern of urban growth in the San Joaquin Valley and preserve prime farmland and open space at the urban edge.

There are significant growth pressures throughout California, particularly in the San Joaquin Valley. Under current market conditions, it is easier to convert farmland to urban development than to build in existing neighborhoods. The presence of high-speed rail is an opportunity for each station city and its surrounding metropolitan region to shift more growth toward infill development, building on vacant or underused parcels within existing urban areas. This will allow these communities to preserve more of their farmland and open spaces.

High-speed rail provides an opportunity to build on the success of the San Joaquin Valley Blueprint and the San Joaquin Valley Greenprint, two documents that focus, respectively, on where to grow and where to protect critical habitat and agricultural areas as a way to preserve the economic history and culture of the San Joaquin Valley.⁵³

High-speed rail can support public health benefits, including a shift away from car use that will improve air quality.

The San Joaquin Valley faces some of the worst air quality in the United States, largely from pollution caused by cars, long-haul trucking and agricultural equipment. Its basinlike geography traps pollution in place — even particulate matter that is blown over from coastal cities. As such, the region stands to benefit directly from a shift away from driving and air travel toward cleaner high-speed rail. Much of the San Joaquin Valley, from Bakersfield north past Fresno, is in the top 10 percent of the state in exposure to fine particulate matter (PM 2.5). The entire valley is in the top 20 percent of the state in aggregate exposure to environmental toxins. Passenger vehicles are one of the largest sources of air pollution and largest contributors to greenhouse gas emissions in California and the United States. In contrast, high-speed rail has committed to operating on 100 percent renewable energy, a goal that will help improve air quality and reduce overall greenhouse gas emissions.⁵⁴

Another public health benefit from the shift toward rail travel is the potential for fewer accidents on highways.⁵⁵

High-Speed Rail's Intermediate Station Cities

All of the intermediate high-speed rail station cities in Phase I are engaged in some form of station area planning, whether the stations are proposed downtown, on the edge of town or in an undeveloped greenfield area, such as on former agricultural or natural land. Each city or station also has distinct attributes that reflect its potential to capture development and riders on high-speed rail. This means each will have different concerns and may face different choices as planning for high-speed rail continues.

The decision of where to locate each station and how to plan for each station area requires balancing different trade-offs. For example, the station locations might make perfect sense as part of a statewide rail network, but some might be more likely to lead to greater urban sprawl, depending on where they are located.

- Some of the most significant factors involved in station planning decisions include:**
- Land use:** What type of development is likely to take place closest to the station as a result of its location? What type of development, if any, exists today?
 - Environmental justice:** What populations live or work closest to the proposed station? What populations will have the best access to the benefits of the high-speed rail system and/or will experience its impacts?
 - Transit network:** How will the station location connect with other existing or proposed rail or bus lines?



Gilroy

Gilroy is the smallest of the station cities in this report, with just over 50,000 residents. Locally, key destinations for high-speed rail travelers include the Gilroy Gardens Family Theme Park (less than 5 miles from the station), the Gilroy Outlets shopping center and festivals like the Gilroy Garlic Festival. The station will serve as the gateway to the Monterey Bay area and may include a connection to Amtrak's Capitol Corridor train line, as well as expanded bus service to the coast. As the southernmost station within the Bay Area, it will also be an important commute market for workers with jobs in Silicon Valley.

Gilroy has two potential station locations, one within downtown and the other abutting farmland adjacent to the highway. In November 2016, Gilroy voters adopted an urban growth boundary. The boundary passes just outside the potential East Gilroy station area along the highway, which will limit potential development around the station (unless the boundary is modified through a second ballot initiative). The city has an existing downtown plan that was drafted prior to the realization that Gilroy would have a high-speed rail station. As of early 2017, the city was not planning to update its downtown plan to accommodate additional growth that could result from the arrival of high-speed rail. The downtown plan emphasizes limited growth that is contextual with the historic downtown.



Gilroy has two proposed station locations. Option 1 is downtown, at the site of the existing Caltrain station. Within a 1-mile radius there are more than 18,000 residents and about 3,400 jobs. Option 2 is at the northern edge of the city, where there are approximately 3,200 residents and 3,400 jobs within a 1-mile radius.

Aerial image from Google Earth.⁵⁶ Inset photo by Sergio Ruiz.



Merced

Merced will be the northern terminus of the San Joaquin Valley segment of high-speed rail during Phase I. The 84,000-person city is the home of a fast-growing University of California campus (7 miles away) and one of the key gateways to Yosemite National Park (80 miles and less than two hours away by car).⁵⁷ UC Merced has 6,800 students and plans to grow to accommodate 10,000 total students in the next few years. Its 2020 vision includes an additional 1.2 million square feet of development, including 13 buildings that will house new science labs and 1,700 residential beds.⁵⁸ The combination of a research university and high-speed rail is a unique opportunity for growing high-quality talent for knowledge-industry jobs in the San Joaquin Valley. UC Merced is also building a 70,000-square-foot office downtown for 400 workers, part of a series of investments that are transforming downtown Merced. A number of old theaters and other buildings are being bought and rehabilitated in anticipation of increased wealth coming to the community associated with the university and related economic spinoffs, such as at the former Castle Air Force Base, where Google has a small facility to test autonomous vehicles.

The downtown is small and has significant opportunity for new development. The city owns 80 acres of vacant land but is being patient about its investments and is planning to hold the land until the market is ready for higher and better uses.

The proposed Merced station is adjacent to downtown. Within a 1-mile radius of the station, there are almost 15,000 residents and about 8,400 jobs.

Aerial image from Google Earth.⁵⁶ Inset photo by Sergio Ruiz.

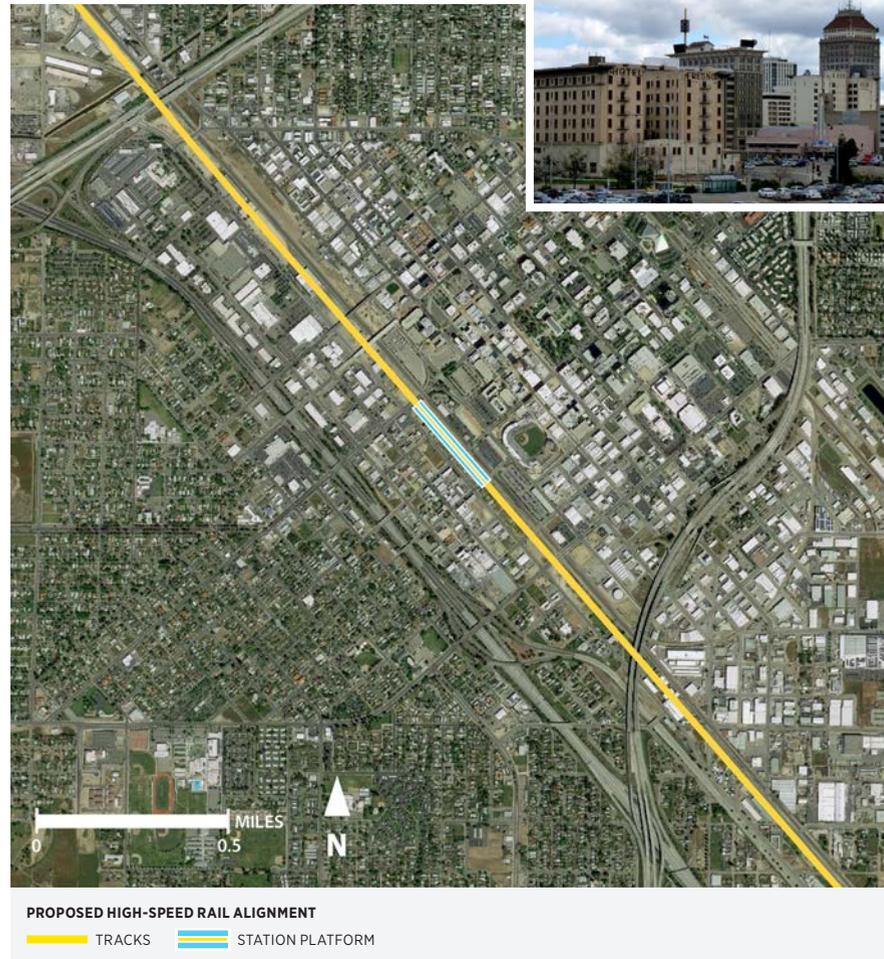


Fresno

With a population of more than 520,000, Fresno is the largest city in the San Joaquin Valley and the fifth largest in the state (behind Los Angeles, San Diego, San Jose and San Francisco). The city's high-speed rail station will be adjacent to its existing downtown, which has about 35,000 jobs. The surrounding area to the southwest, the city's Chinatown, has a number of vacant parcels and major development opportunities. Fresno's downtown plan includes a major focus on residential development and sets a five-story minimum height for new buildings on the downtown side of the station and a three-story minimum on the Chinatown side. The existing Amtrak station is a half-mile from the high-speed rail station, near city hall.

Fresno is the major urban center of the San Joaquin Valley, with the largest concentration of jobs of any city between San Jose and Los Angeles. Its key hospitals and medical centers and Fresno State University are all 6 to 9 miles away from the station site. With the arrival of high-speed rail, it seeks to enhance its role and also position itself as a gateway to Yosemite, Sequoia and Kings Canyon national parks.

Since 2008, Fresno has sought to reorient its growing city back to its downtown. From 2014 to 2016, downtown Fresno attracted more than \$100 million in private investment.⁵⁹ The city's downtown strategy consisted of four components. First, it enhanced attractions downtown, improving the Grizzlies minor league baseball stadium, attracting several breweries and restaurants, and building more than 550 new housing units. Second, it wrote a station area plan and a downtown plan. Key design considerations included allowing no surface parking within a five-minute walk of the station, prioritizing pedestrian access in this quarter-mile area, ensuring that the station has entrances on both sides and sharing parking between high-speed rail and other uses. Third, Fresno made key transportation moves such as securing funding for two bus



The proposed Fresno station is adjacent to downtown, just southwest of the existing city center. Within a 1-mile radius of the station, there are about 23,400 residents and 25,600 jobs.

Aerial image from Google Earth.⁵⁶ Inset photo by flickr user 1Flatworld.

rapid transit lines heading to downtown,⁶⁰ as well as rebuilding Fulton Street mall to open it to automobiles. Some planners might ask why opening a pedestrian mall to cars is a key transportation move. In the case of Fresno, bringing more life to the Fulton corridor is critical to the success of retail and other activities in the area. In its fourth and final move, the City of Fresno is leveraging significant funding from the state's Transformative Climate Communities Program, which directs some proceeds from cap-and-trade funding to census tracts deemed "disadvantaged" based on exposure to toxins or on social and economic factors that compound the impact of health risks.⁶¹ The city has secured \$70 million (half of the total funding from the state's Transformative Climate Communities Program) to support projects that meet three statewide goals: significantly reduce greenhouse gas emissions, improve public health and environmental benefits, and expand economic opportunity and shared prosperity.⁶² The funded projects could include financing for compact development, urban greening, land preservation, workforce development and/or new transit.

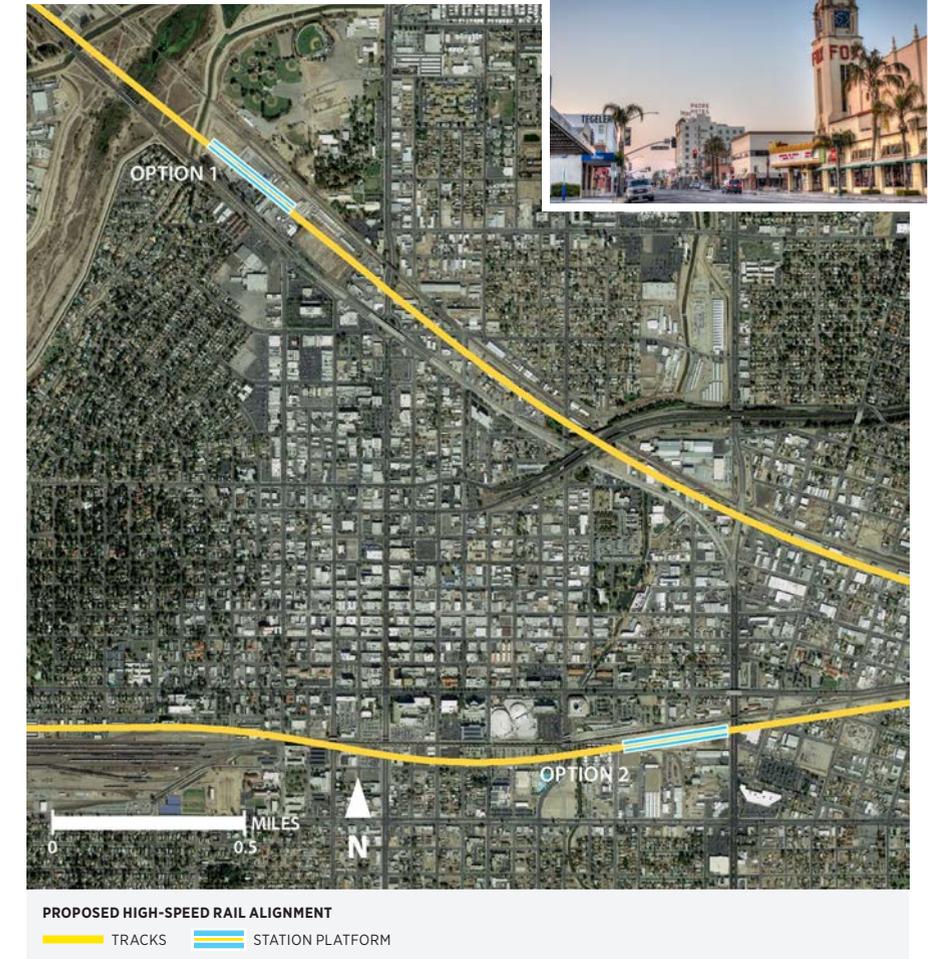
Bakersfield

With more than 380,000 residents, Bakersfield is California's ninth largest city. Its population has increased by more than 140,000 people since 2000. The metropolitan area is largely suburban with an average population density of about 2,000 people per square mile. Bakersfield is the urban center of Kern County, which has a diverse economic base that includes significant employment in transportation, logistics and advanced manufacturing; energy and natural resources; value-added agriculture; healthcare services; and aerospace and defense. Kern County itself has over 875,000 residents and is projected to grow to more than 1.6 million by 2050.

High-speed rail service will connect Bakersfield to Union Station in downtown Los Angeles in just over an hour, pulling the city more directly into the economic orbit of Southern California.

In preparation for high-speed rail, the city is writing a new downtown plan focused on making its central area a destination.⁶³ The planning process involves extensive analysis of international best practices, a market study of potential development and a long-term vision of what a fully built-out downtown will look like over many years.

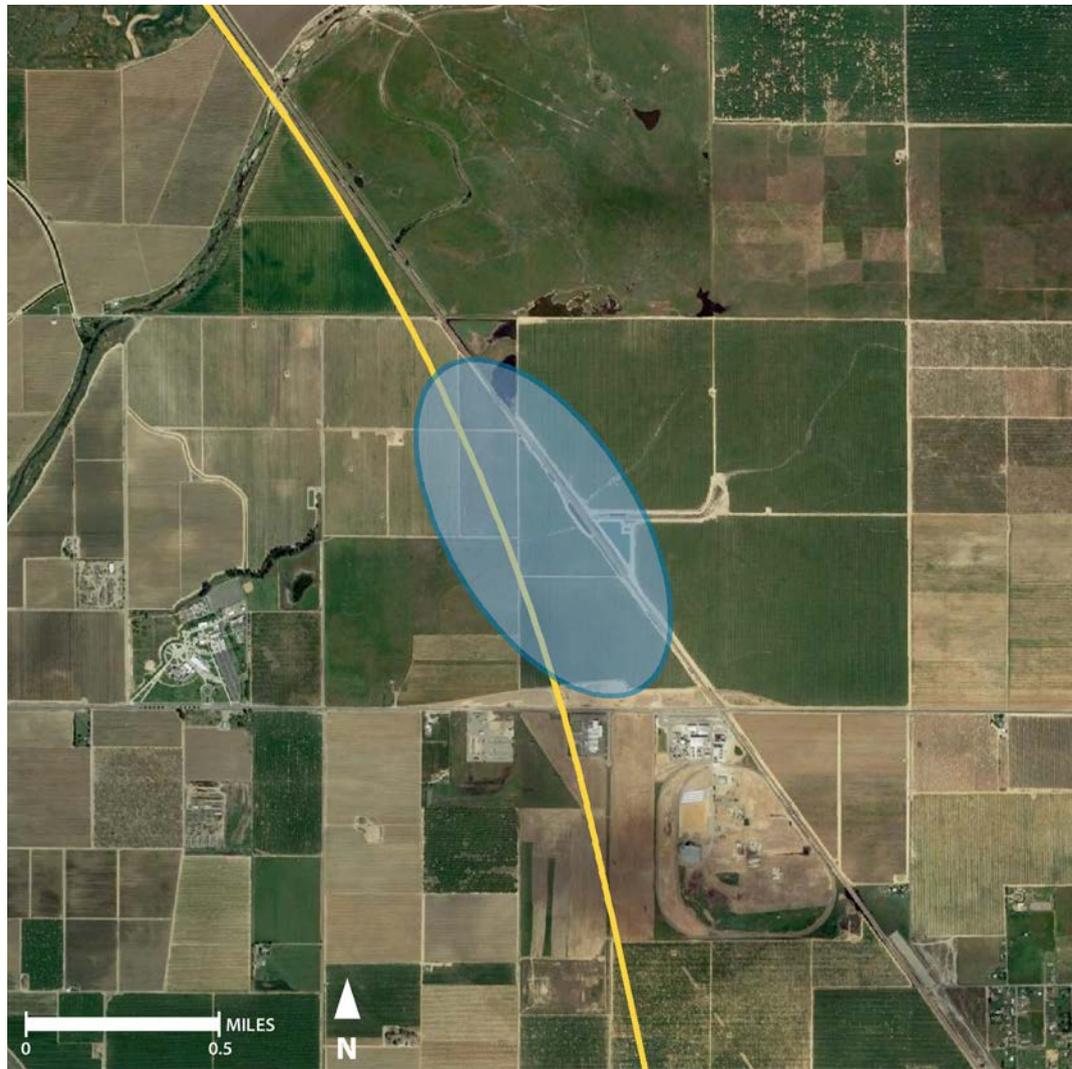
There are two proposed station locations in Bakersfield, one at the northern edge and the other at the southeastern edge of the existing downtown. The northern location is adjacent to a highway and is a longer distance from many destinations, but it has significant opportunity for new development. The southern location is adjacent to the Amtrak station and the city's convention center. It is closer to existing amenities and could be a shorter trip on a future bus-rapid transit line to key office districts outside of downtown. Whichever location is ultimately selected, there must be safe and comfortable access for travelers using all modes of transportation, especially those arriving on foot.



Bakersfield has two proposed station locations. Option 1, the locally preferred alternative, is at the north edge of downtown and has more than 11,000 residents and about 10,000 jobs within a 1-mile radius. Option 2 is at the south part of downtown, where the existing Amtrak station is located. Here there are about 11,500 existing residents and 15,000 jobs within a 1-mile radius.

Aerial image from Google Earth.⁵⁶ Inset photo by flickr user David Seibold.

Expanding roads or highways in areas immediately adjacent to a potential station site could negatively impact walkability, as well as economic development in the station area. It will also be essential to provide strong transportation connections from either station location to other destinations beyond downtown. For example, the city's Class A office district is located about three miles southwest of downtown, along California Avenue, while California State University, Bakersfield is located an additional three miles west.



The proposed Madera stop is south and east of the city in an undeveloped area adjacent to the Amtrak San Joaquin line. Within a 1-mile radius of the potential stop location, there are fewer than 100 residents and about 150 jobs. The development in the lower left corner of this image is the Madera Community College campus.

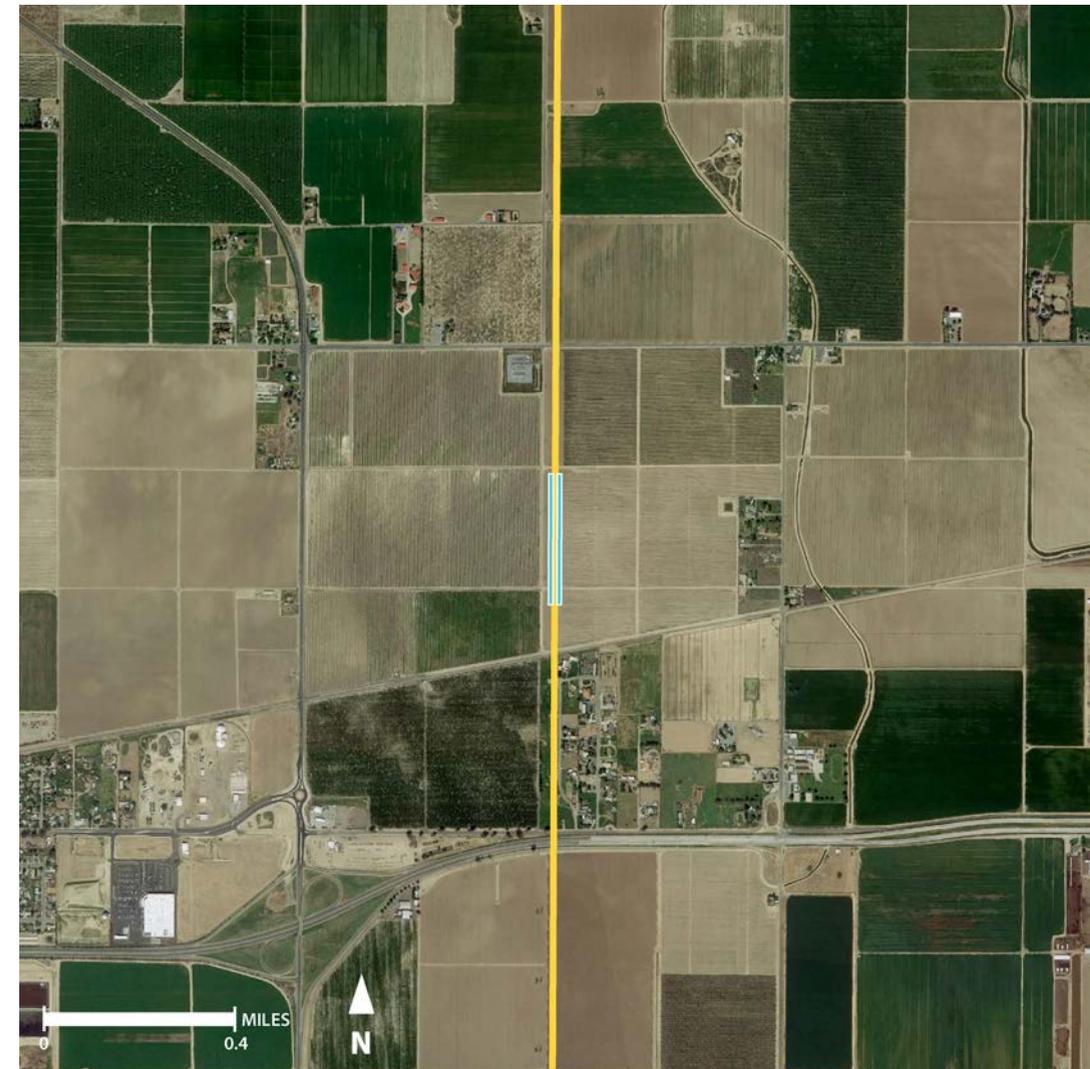
Aerial image from Google Earth.⁵⁶

PROPOSED HIGH-SPEED RAIL ALIGNMENT
 TRACKS POTENTIAL MADERA STOP AREA

Madera

The City of Madera (located northwest of the proposed station area shown above) has a population of 60,000. (Madera County's total population is a little more than 155,000.) The California High-Speed Rail Authority's 2016 business plan identified a potential stop in Madera as a transfer point for travelers wanting to switch between the Gilroy-Fresno and Merced-Fresno tracks. This suggests that there will be little investment in a station or surrounding infrastructure. To the extent that land ownership remains in private hands and there is no explicit vision for development around the stop, future growth will be more subject to the whims of market forces. This could result in significant sprawl and farmland conversion. Madera County has tens of thousands of housing

units that have been entitled but not yet built. For some residents in North Fresno, a high-speed rail stop in Madera will be more convenient than a downtown Fresno station, suggesting that it may become more of a commuter park-and-ride location than a future hub of activity. Unless additional land use restrictions are put in place, the Madera station could also become a suburban office park for institutions and companies that are interested in development adjacent to high-speed rail but do not want to deal with the hurdles of building in an urban center such as downtown Fresno. Without planning regulations in place, development around a Madera station could compete with — and ultimately hamper — downtown Fresno's revitalization efforts.



The Kings/Tulare station is east of the City of Hanford, near the intersection of highways 98 and 43. Within a 1-mile radius of the proposed station, there are about 2,000 residents and 600 jobs.

Aerial image from Google Earth.⁵⁶

PROPOSED HIGH-SPEED RAIL ALIGNMENT
 TRACKS STATION PLATFORM

Kings/Tulare (Hanford)

The planned station on the outskirts east of the City of Hanford in Kings County would serve the more than 600,000 combined residents of Kings and Tulare counties. The primary cities in Kings County are Hanford (population 55,000), Lemoore (25,000) and Corcoran (23,000). The primary cities in neighboring Tulare County are Visalia (130,000), Tulare (62,000) and Porterville (55,000). This station could also provide connection to a proposed new cross-valley rail system from Huron (7,000) in Fresno County east through Lemoore, Hanford and Visalia to Porterville.⁶⁴ The station might also position itself as another gateway to Sequoia and Kings Canyon national parks.

Due to its location in a greenfield area adjacent to a small city, the Kings/Tulare station will need a strong vision for its future growth and development. Without effective planning, it is likely that the station area will become mostly devoted to park-and-ride facilities as opposed to a new hub for development and transportation connections to the city and surrounding metropolitan area. It could also become a new economic hub for the community, pulling investment and activity away from the existing downtowns. At the opposite end of the spectrum, if the station does not generate high ridership, trains may not end up stopping there very frequently.

Barriers to Achieving the Vision for High-Speed Rail

The challenges to realizing the opportunity of high-speed rail are best understood at this report's three scales of analysis: the immediate station area, the downtown station district and the metropolitan area. Overcoming these challenges and realizing the full potential of high-speed rail will require strong partnerships between local, regional and state actors, as well as active involvement from all three levels in planning and policy.

Immediate Station Area

There are few tools to finance revitalization around stations and their adjacent downtowns, and the key existing tools access only a limited amount of potential funding.

In California, a key tool for revitalizing cities is tax increment financing. This approach projects the increase in local tax revenue that redevelopment will stimulate and then issues bonds backed by that future revenue growth. It was used extensively by California's redevelopment agencies before they closed in 2012. Today the most promising form of tax increment financing is called an enhanced infrastructure financing district or EIFD, an entity formed by a city or county to finance or build infrastructure. EIFDs have the ability to capture tax increment from a variety of revenue sources within a defined district or area. Unlike the tax increment used by redevelopment agencies, today's EIFDs are limited in the amount of tax increment they are able to capture, because all contributions beyond the local government's are voluntary. In other words, an EIFD within a city is only guaranteed to capture the city portion of the increase in taxes (the "increment") unless there is an agreement with the county or special districts to share their tax increment with the city. (School districts are excluded from sharing their portion of the local property tax increment with an EIFD.)⁶⁵ In the case of an EIFD that uses the property tax, the total amount of increment available to the EIFD district is limited, since cities keep roughly 15 percent of the

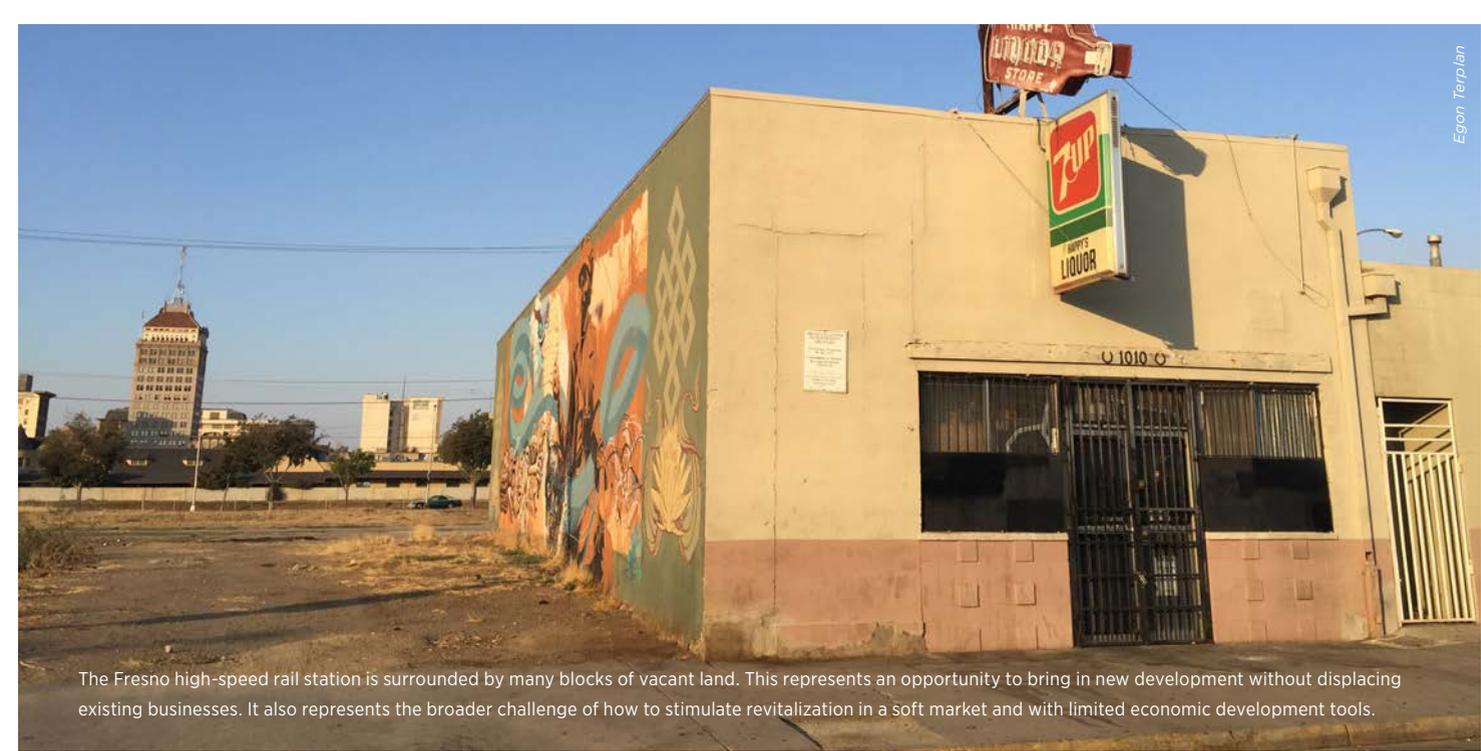
total property tax receipts. This means that without an agreement to capture the tax increment from other taxing entities, the city's portion of tax increment is an insufficient amount to bond against to pay for needed infrastructure and economic development.⁶⁶

There are no existing governance institutions with the experience or appropriate tools to manage large-scale station area development.

California does not have development entities with the experience to do high-speed rail station area development, nor do we have a tradition of rail operators managing major development around stations.

Private land speculation around stations could stifle future development.

While some of the land near high-speed rail stations is held by public agencies, there has been speculation by private owners around future station areas such as downtown Fresno. In such cases, property owners may simply buy vacant or underutilized land at depressed prices and hold it until the market is strong enough to support new development. Given California's property tax structure (where property taxes are set by the purchase price and only increase 2 percent annually thereafter), this eliminates the financial risk of major tax increases. Ironically, maintaining vacant or significantly underutilized parcels in the immediate areas around the stations could actually delay viable development, as it deters other investors who may not want to hold and are more willing to develop property when the future market conditions remain unclear. This problem is confounded by the absence of a governmental agency that is able to purchase and hold land. Even land held by the successor agencies to California's former redevelopment agencies must be sold to the highest bidder, not necessarily to meet a specific land use or economic development vision.



The Fresno high-speed rail station is surrounded by many blocks of vacant land. This represents an opportunity to bring in new development without displacing existing businesses. It also represents the broader challenge of how to stimulate revitalization in a soft market and with limited economic development tools.

Some of the stations are located in greenfield areas or at the edges of downtown cores, and it will be harder to attract focused growth around them.

Greenfield high-speed rail stations, particularly in places like France, are often car-oriented and struggle to attract development.⁶⁷ Some of them remain surrounded by a sea of parking lots for decades, with little to no new development after the rail service is running. Stations located at the far edges of downtown can also struggle; the existing urban fabric does not promote walkability, and as a result the station area has weak market conditions that do not sufficiently change with the arrival of high-speed rail service.

Planning guidelines for station development are not binding.

While the California High-Speed Rail Authority is committed to pursuing compact growth around station areas and to encouraging denser, transit-oriented development, it must work in conjunction with local planning agencies, which may not be supportive of the same policies. For example, the Authority might prioritize station locations in downtown areas, pursue a mix of high-density land uses around the stations, eliminate free parking in the station area and limit overall parking in new developments.⁶⁸ But local communities are not obligated to follow these guidelines when they are approving new development. Meanwhile, the separate planning and entitlement processes in each city mean there is no system in place for individual station cities to learn from each other.

The California High-Speed Rail Authority's ability to do joint development in the station areas is untested.

Under current laws, the Authority is able to enter into a joint-development agreement with a developer on Authority-owned land. If a landowner is unwilling to sell, the Authority is able to use eminent domain to force a sale, as long as it's for a state purpose. Land purchases along the high-speed rail right-of-way are an example of a state purpose. Although untested in California, it would also be a state purpose to use eminent domain to acquire parcels that might be needed for station area joint development, such as offices, hotels or retail. This use of eminent domain for joint development would support the requirement that eminent domain have a public purpose, since such development produces revenue, provides riders and would help meet the Prop. 1A constraint that high-speed rail receive no operating subsidy. In addition, the Authority is not subject to local land use regulations. While also untested, current law (per the California Public Utilities Commission Code) demonstrates that the Authority must check the consistency of its proposed development with local land use law but is not limited by it.

The infrastructure for a station itself is large and will have to be well-integrated into the fabric of existing communities.

While a high-speed rail station's overall footprint is far smaller than that of other facilities that accommodate a similar number of people (most notably airports and highways), attention still must be paid to make sure the station and immediate area are designed in such a way that passengers can comfortably walk or bike to or around them. Designing the station to encourage travel on space-efficient and sustainable modes of transportation maximizes the amount of development capacity in the station area.

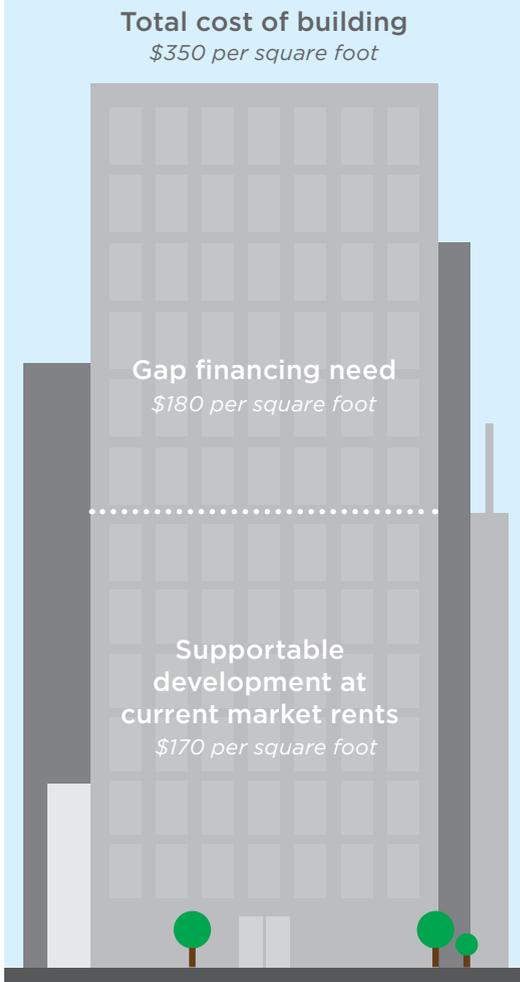


FIGURE 9
Why Downtown Station Districts Need Gap Financing

New development in many San Joaquin Valley cities is not possible under current market conditions.⁷⁰ For example, average annual net operating income for an office building in downtown Fresno today is \$14 per square foot (based on a \$24-per-square-foot annual rent, a 10 percent vacancy rate and \$8 per square foot in annual operating expenses⁷¹). Under these assumptions, a hypothetical steel frame high-rise office building in downtown Fresno would only generate enough income to support a building that costs \$170 per square foot to build — well below today's \$350-per-square-foot development cost. Securing gap financing for the remaining \$180 per square foot is necessary for high-rise development to occur.

Downtown Station District

High-speed rail's improved accessibility on its own is unlikely to change the economic trajectory for a station district or downtown.

High-speed rail improves accessibility and the connections between cities, which is a necessary but not sufficient ingredient for the economic transformation of a city's downtown.⁶⁹ The rail line can be a catalyst for economic growth only as part of a larger economic vision and strategy.

In most of the San Joaquin Valley cities, the current real estate market does not support new higher-density development downtown.

All new development comes with significant costs — from planning and buying property to the design and entitlement process to construction. In most of the station area downtowns, market rents and sales prices for multistory commercial and residential development are not high enough to cover these costs. The difference between the costs and the return on investment creates a gap that can only be filled through some form of subsidy, either public or private. Understanding the market means looking at the economics of the station as well as the broader market trends in the city or subregion. For example, there has been virtually no new unsubsidized market-rate office development (other than adaptive reuse and rehabilitation) in the downtowns of Gilroy, Merced, Fresno or Bakersfield in decades. Existing job centers are often outside of downtowns. For example, the major office district in Bakersfield is more than 3 miles from downtown and the proposed station location.

Existing state economic development programs are not geographically targeted to reinforce high-speed rail communities.

California has numerous economic development programs such as income-tax credits to qualifying businesses or bonds to public agencies, nonprofits and manufacturing companies.⁷² These programs often focus on a type of business (e.g., manufacturing) or worker (e.g., veterans) or income level (e.g., high poverty or high unemployment areas). But such programs are not focused on specific geographic areas, such as the San Joaquin Valley. This limits the potential to use California's economic development programs as a tool to benefit high-speed rail station cities. There is also no overarching economic strategy or vision for California that prioritizes keeping firms that are considering relocating to lower-cost states and might — with sufficient support — relocate instead to the San Joaquin Valley.

Metropolitan Area

The valley's sprawling land use pattern could be reinforced if additional high-speed rail stations are added near the urban edge to capture riders from spread-out areas.

Investments in highway building over the last few decades have allowed California communities to grow in a sprawling pattern away from their cores. Even after high-speed rail opens, some residents in these outlying areas may continue using a car for trips between cities if they view rail's door-to-door travel savings as not substantial enough. This will be particularly true for trips whose origin and destination are far from a high-speed rail station. The solution is to reorient communities toward their downtowns. But it will also be important to resist the temptation to add new stations near outlying communities along the route as a way to capture riders. Such stations will invariably become car-dependent and will only further facilitate outward sprawl. This suggests that an integrated transportation network with feeder transit service and other forms of access are critical in order to connect people easily and seamlessly to high-speed rail stations. Over time, California's highway infrastructure will likely get more congested, making high-speed rail a better alternative to driving, even for residents of outlying communities who must travel downtown to get the train.

Some benefits of high-speed rail may flow to larger station cities with strong existing business districts, not to the intermediate station cities.

High-speed rail can benefit major cities more than smaller and intermediate cities, as the major city gains access to an expanded labor market to bring workers and travelers into its already-dynamic core. While there is some evidence that intermediate stations can benefit when travel times to a major city decrease to within two hours, those benefits can be outweighed by making it easier to leave the smaller city for the larger one. High-speed rail can therefore reinforce the primacy of the existing centers, sometimes at the expense of smaller ones. In Japan, some of the intermediate stations along the Shinkansen high-speed line between Tokyo and Osaka have seen office values decline.⁷⁴

Faster rail service can reduce the length of visits and reduce tourism spending.

High-speed rail may cause contradictory impacts on travel patterns. This is especially visible in tourism. While new travel packages may attract new visitors, the number of overnight stays in intermediate cities with tourism attractions can decrease.⁷⁵ The faster train trip allows some travelers to make their visit a day trip rather than an overnight stay, which means less money spent in the community.



Sprawl and car-oriented development have been the primary form of growth in most of California since World War II. Sprawl happens because land costs are cheaper at the urban edge while urban infill development faces regulatory, market and political barriers. Yet in the long run, sprawl patterns are more costly to communities and the state overall.⁷³ In addition to the cost of extending infrastructure (roads, water, sewer, electricity), sprawl also consumes valuable agricultural land.

This was the experience in Canterbury with the advent of faster rail service to London: More travelers would take day trips from London to see the Canterbury Cathedral and then head back the same day.⁷⁶ Because fewer people spent the night, there was less investment in upgrading hotels. And because there were not as many good hotels, some travelers did not bother trying to spend the night.

California does not have a strong tradition of rail use.

While California communities were initially built around rail, most urban development in the 20th century took place without any relationship to rail. As a result, most Californians have limited experience riding trains. Places without a strong tradition of rail usage have a greater burden in doing good planning to make sure that high-speed rail is well-used and that there is economic activity and development around stations. By contrast, many countries that have built high-speed rail systems primarily introduced the services onto existing rail lines that were reaching capacity. In these communities, residents were accustomed to taking the train and welcomed the improved service. Similarly, investments made in Amtrak's Northeast Corridor to introduce the Acela line appealed to a population with a large number of experienced Amtrak customers.

Land use decisions and policies in many cities do not support concentrated growth, and greenfield development remains cheaper and easier than infill development.

There are few limits to urban development at the edge of cities. While many cities in the Bay Area, including Gilroy, have urban growth boundaries, none exist around the San Joaquin Valley cities. Even when there are county-level urban growth boundaries, cities often attempt to annex adjacent open space and farmland, cases that get decided by the county's local agency formation commission.⁷⁷ These pressures to expand city boundaries will likely continue, particularly in southern Santa Clara County and northern San Benito County, with the advent of high-speed rail. Further, there are thousands of housing units in approved tract maps on the edges of cities, including 40,000 in Kern County alone. This means edge development will happen when financing is available, thus reducing the competitiveness of infill development, which faces greater funding and regulatory hurdles. Some communities, like Kern County, have approved policies like higher fees for development on the edge of town and lower fees in the core. But these have not been sufficient to shift the overall market toward infill development.

The economic structure of the San Joaquin Valley is currently less conducive to high-speed rail.

Much of the business travel associated with high-speed rail is for workers in the knowledge sector. There is a much smaller proportion of the San Joaquin Valley workforce in this sector compared with the Bay Area or Los Angeles. Since 1990, San Francisco, San Mateo and Santa Clara counties have all increased the share of their economy that is in knowledge-sector jobs (to as

high as 32 percent of all jobs in San Francisco). Less than 10 percent of San Joaquin Valley jobs are in the knowledge sector, and the share has slightly declined since 1990.⁷⁸ The San Joaquin Valley also relies heavily on direct agriculture employment, a sector that makes up 16 percent of its jobs.⁷⁹ This share increases when related sectors in processing, trucking, repair and more are included. Yet as the agriculture sector continues to adopt less labor-intensive technologies, the San Joaquin Valley will expect a decline in agricultural jobs relative to total production.⁸⁰ With looming impacts from automation, this suggests the need to invest in education to prepare many workers for different career opportunities.⁸¹

Corporate expansions into the San Joaquin Valley might be limited by the area's educational attainment, as well as by California's regulatory environment.

Some companies that relocate functions out of coastal California, such as AT&T and Charles Schwab, move their employees out of state.⁸² Often these firms are looking not just for a lower-cost labor force but to avoid California's regulatory environment. Despite cost advantages, the San Joaquin Valley has virtually the same regulatory constraints as the coast. In addition, its educational attainment is far less than comparable lower-cost regions nationally. In the San Joaquin Valley, 17 percent of adults have a bachelor's degree.⁸³ In contrast, nearly 44 percent of adults in Metro Denver and 43 percent in Greater Austin have a bachelor's degree or higher.⁸⁴

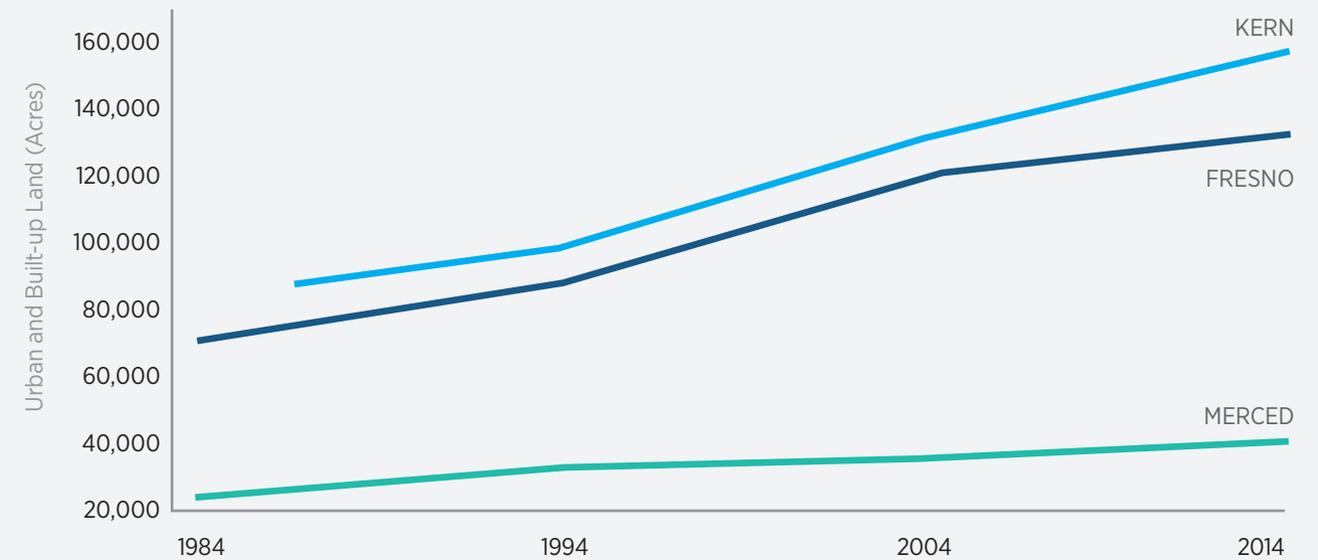
Some state policies do not reinforce a compact growth pattern.

While California mandates that regions produce Sustainable Communities Strategies to achieve more compact growth and reduce per capita greenhouse gas emissions from driving, there are few specific state tools to achieve such growth patterns. One particular tool, the California Environmental Quality Act, inadvertently makes compact development more difficult by providing more ways for litigants to stop or stall infill or higher-density development projects based on impacts such as air, noise or traffic.⁸⁵

California's tax structure does not allow local governments to adjust their property tax and limits property tax growth to 2 percent annually unless a property is sold or improved. This encourages jurisdictions to provide too much zoned capacity for sales-tax-producing uses like retail, which often locate at the edges of communities and further reinforce outward growth.

There are also some misaligned goals across departments, such as a need to identify sufficient land to house everyone (which could result in encouraging auto-oriented sprawl housing) versus the need to achieve climate goals (which results in encouraging compact growth and infill housing). One solution would be for the state to allow jurisdictions, including cities and counties, to trade housing targets among themselves. This would allow a county to avoid planning housing in its rural unincorporated areas and instead plan for those same units in a compact format within an existing city.

FIGURE 10
Acres of Urban and Built-up Land in Merced, Fresno, and Kern Counties



The total amount of developed land in Merced, Fresno and Kern counties grew by 75 percent over the past 30 years, expanding from about 180,000 acres to 315,000 acres. The new urbanized growth is almost equivalent in area to the cities of San Jose and San Francisco combined.

Note: Kern's increase in urban and built-up land is from 1988 to 2014.

Source: California Department of Conservation, Farmland Mapping and Monitoring Program, http://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx

There are few tools to encourage the construction of housing, and even fewer dedicated funds for affordable housing.

Since state redevelopment agencies were shuttered in 2012, California no longer has a dedicated source of funds to invest in affordable housing on an ongoing basis. Additionally, the current tool to encourage local communities to plan for housing — the Regional Housing Needs Allocation (RHNA) process — lacks enforcement to compel jurisdictions to plan or adopt new housing. As a result, California added fewer than 80,000 new homes per year from about 2007 to 2017, despite a projected need of 180,000 new homes per year. Homeownership rates are the lowest they've been since the 1940s, while more than a third of California renters spend more than 50 percent of their income on housing.⁸⁶ The state's Department of Housing and Community Development calls for more housing in areas of opportunity throughout the state, near jobs, services, high-performing schools and transit, but the department acknowledges that a lack of enforcement of housing laws limits the effectiveness of planning tools to facilitate housing development.

The geography of metropolitan planning organizations (MPOs) does not match the commute and development patterns of the San Joaquin Valley.

A metropolitan planning organization is a federally designated governmental agency whose role is to conduct regional transportation planning as a condition of receiving federal transportation funding.⁸⁷ The Bay Area's MPO is the Metropolitan Transportation Commission, which covers nine counties. In contrast, there are eight separate MPOs in the San Joaquin Valley, one for each county.⁸⁸ In these counties, transportation planning usually stops at the county boundary, even though actual metropolitan regions and commute patterns cut across county boundaries. This means the San Joaquin Valley lacks a regional structure to properly analyze and allocate transportation resources and growth targets. While MPOs in California do not have land use authority, they do convene the various cities within their boundaries to engage in shared land use planning. The misalignment between the MPO boundaries and the actual regions limits the ability for regional action in the San Joaquin Valley. Even combining several valley counties into a single MPO that better reflects commute patterns would significantly improve the approach to regional planning.

Recommendations

flickr user Shuichi Aizawa



The high-speed rail station in Nagoya, Japan, demonstrates key attributes of successful station area development, particularly for an intermediate city. Over the past few decades, public-private revitalization efforts have resulted in rising land values within 3 miles of the station, while the station building itself includes a major office and hotel complex.

High-speed rail is unlike any infrastructure investment or transportation system ever implemented in California. It is large and complex and will take a long time to complete. But it is also potentially transformative — not only to how people travel but to how communities will grow and develop for generations. If implemented well, it can help leverage the billions in public investment that have already been committed to achieving important state goals like combating climate change and preserving farmland.

But California's current tools and approaches to transportation and land use integration are not sufficient for the opportunity of high-speed rail. To fully realize the benefits of the state's rail investment, it is important to articulate that high-speed rail is a project of statewide significance and therefore requires a new and different form of partnership between state, local and regional decision-makers in developing the communities and cities with stations. There must also be a unified vision among the state, local and regional agencies involved in planning stations and developing new financial tools that capture the economic growth potential of a high-speed train. For example, cities and the state could create an entity such as a development corporation, run by a board made

up of state and local members, that has land use control over the station and the immediate area up to about half a mile from the train platform. In the larger downtown districts that extend several miles from the station, the state should focus new investment and incentives to help these areas add employment and population. Targeted investment should be used to fund new infrastructure and provide gap financing for new development. At the larger metropolitan scale, the state should work with local communities and their respective regions to adopt additional forms of growth control in order to limit the urbanization of farmland and open space and capture more development within existing urbanized areas.

This approach will result in better land use and improved economies, which will translate to more riders and more daily rail service. Only with a clear and committed partnership between state, local and regional stakeholders will California be able to realize the full benefits of high-speed rail.

The following recommendations describe how high-speed rail cities — particularly the intermediate station cities — can capture these opportunities.⁸⁹ Some ideas can take place today, under current rules, and some will require new legislation to implement.

Immediate Station Area Recommendations

The immediate station area extends about half a mile from the train platform. It includes the station and connecting transit facilities, as well as destination uses such as offices, hotels, convention centers and retail stores. It may also have some parking facilities, though the advent of autonomous vehicles will limit the need for this use in the future.

Goals: This area should become the gateway to the city, where travelers connect seamlessly to other forms of transportation to get to their final destinations. It is an important place to build high-density development that will support ridership on the rail system and contribute operating revenue. In this area, there should be a single entity, such as a development corporation, that owns property, controls land use decisions and is able to leverage new revenue sources for development.

1 Develop a station area plan and implementation program that balances the city's vision for its future with statewide planning needs.

Actors: Station cities, local transportation providers, California High-Speed Rail Authority, Strategic Growth Council⁹⁰

The local communities and the state should jointly develop a plan for the station and surrounding area. This plan should combine the local city's vision (such as a distinct economic and cultural identity and a mix of land uses) with the needs of the statewide rail system, including generating high ridership and revenue. The plan should be translated into zoning with clear rules, including urban design guidelines and minimum densities to ensure that any new private development is of a sufficient scale to match the station area's long-term potential. The station area should emphasize destination land uses such as office, retail or educational facilities. Residential development should be limited around the station, and in no case should there be single-family zoning in a station area.

The high-speed rail station itself should be a dynamic and lively place with design features that reflect the community's distinct identity.⁹¹ The station facility should also include major uses such as offices, retail or a hotel above or immediately adjacent to the station. The station should be considered an important amenity for its community, and efforts should be made to ensure that there are sufficient amenities and activities within the station, or adjacent to it, to draw visitors and residents.⁹²

Cities should resist the temptation to view a thriving station facility as a threat to their downtown's revitalization. There is a symbiotic relationship between the two. Creating a station that is itself a destination will help attract new visitors to the city.

Further, the station facility must be well-planned to ensure that it is integrated into the urban fabric and in no way becomes a barrier or a deterrent to good pedestrian-oriented development in the surrounding area.⁹³

The station area should adhere to principles of good urban design with active public spaces, including new plazas and parks. New development should have active ground floors, with restrictions on blank walls or oversize entrances to parking garages. Auto-oriented developments, such as a traditional office buildings surrounded by surface parking lots, should not be allowed. The station facility should have entrances on all sides. The immediate station area should prioritize access by walking, and there should be clear and safe bicycle paths through the station area that connect to adjacent neighborhoods. The plan should focus special attention on the immediate two to three blocks around the station. This area is the first experience riders will have with either the high-speed rail system or the city they are visiting.

Implementation guidelines for station area plans should identify phasing of development, describe the process for allowing interim uses and include the timing for infrastructure investment. The implementation guidelines should be particularly clear about the entitlement process and set minimum standards for development that occurs before rail service begins. From a phasing perspective, it is important to focus on building or rebuilding the urban fabric by completing entire blocks (on both sides) or groups of blocks, as opposed to individual buildings on unfinished blocks.⁹⁴

Interim uses that activate the area should be encouraged. These can include pop-up food and shopping areas constructed out of former shipping containers,⁹⁵ parking areas with designated spaces for food trucks⁹⁶ or low-cost concrete tilt-up buildings. Before these uses proceed, however, the city and any development entity (see

Recommendation 2) should have clear agreements in place to enable more permanent development to go forward when ready.⁹⁷ In some cases, the interim use (e.g., coffee stands, food trucks) could become incorporated into the new development. The phasing plan could also include discussion of when and how public agencies should lease land to private developers, as opposed to selling the parcels.

Finally, given the long-term nature of the rail project and the varying levels of planning and development experience across station cities, the California High-Speed Rail Authority should institute ongoing peer-to-peer learning for city staff members in station cities. These exchanges could also include bringing international experts to share their experience and knowledge of best practices regarding high-speed rail station area development.

2 Establish a rail station area development corporation for each high-speed rail station with responsibility for development and land use in the immediate station area.

Actors: California High-Speed Rail Authority, Strategic Growth Council, station cities and counties, proposed station development corporation, state legislature, governor's office

Under the current business-as-usual approach to rail station area development in the United States, each entity — such as the state, city and private sector — operates separately and often in competition. The specific powers and duties of each governmental entity (for example, eminent domain or land use approvals) remain discrete and are not combined in the service of an overall vision for station development. High-speed rail should have a more coherent system for station area development.

The goal of this recommendation is to establish an entity, such as a development corporation or development authority, that is able to manage long-term development and implementation of the station area plan, including station area transportation planning. To achieve this, the entity would need to be able to acquire and dispose of land for development (including having the power of eminent domain), as well as finance and construct new buildings to ensure that the vision in the station area plan is realized, potentially through land use decision-making authority over the station area. This entity could be time-limited, turning over its powers and duties to the city in 10 years. It could also be responsible for programming the revenue from the tax increment financing system described in Recommendation 6, even though that revenue will be gathered from a larger geography.

There are two main models for a development corporation entity around stations. The first is to establish a single statewide development corporation that is brought in to cities to help with planning, financing and development. In this case, the local government would maintain full land use control over the station area, including the station itself, and the statewide development corporation would help deliver that vision. The advantage to this approach is having a single office across the state with specialized expertise to carry out all aspects of planning and development.

The main disadvantage is that the development corporation would have less specific knowledge about each station city, though it could overcome this by hiring local experts as implementation staff.

The second approach would be to give each station city the option to establish an individual development corporation for its station area. By opting in to the creation of the development corporation, the local government would assent to empowering the development corporation to deliver the station area plan. In this model, the corporation would be a true state-local partnership. Its board would include key high-level representatives from the city, region, state and the Authority. For example, the board could include the local mayor, the chair or CEO of the Authority, one or more appointees of the governor, and the executive director or board chair of the local metropolitan planning organization or council of governments. Although the board would include state and local leaders, it would be important for a slight majority of the board to represent the state and/or the Authority to ensure that the statewide vision for high-speed rail is fully realized at the local level. The main advantage to this approach is a true state-local partnership that can deliver a combined statewide and local vision for the station. The main disadvantage is that each individual development corporation would have to hire its own in-house expertise.

The station cities and the Authority should work collaboratively to allow the development corporation to have particular powers and duties. Some of them include the following:

- Ability to carry out land purchase, land banking and land assembly strategies around stations. The development corporation should be able to hold key parcels as future joint-development opportunities and should be encouraged to work with existing public landowners to ensure that they also hold onto key properties until the market is strong enough to support development.⁹⁸ It is hard to predict the market needs in 2030 and there will be significant pressure in the intervening years to approve developments that fit current market realities, not the market that will exist once the train system is up and running. The development corporation should have a long-term view and the ability to say “no” to specific developments.
- Power of eminent domain or a first right of refusal for all land sales within the station area.⁹⁹ The ability to purchase and control land sales is particularly important given the large amount of land around high-speed rail stations that is owned by the successor agencies of former redevelopment agencies. Under current rules, successor agencies typically sell to the highest bidder, which precludes the public sector's ability to control key parcels and shape a coherent vision for development across the station area.
- Assurance that the Authority, a subsidiary or the development corporation is able to sell and transfer the development rights on any parcel within the designated station area to a private developer for the purposes of private or joint development. Development could include building and operating hotels, conference facilities, offices, housing or commercial space above or adjacent to the station. This would also apply to an agreement

with a master developer who might be brought in to deliver a significant number of properties in and around the station.

- Assurance that the Authority and/or the development corporation is able to use proceeds from land sales and joint development to help finance ongoing train system operations. While the initial goal of the development corporation is to help generate development in the station area (or broader downtown if necessary), over time this entity may generate profit that could go back into supporting the operating costs of the entire rail system.¹⁰⁰ This reinvestment would be subject to the needs of the Authority and could include using revenues from one station area to cross-subsidize development in another station area. Nonetheless, this assurance should include a requirement that a minimum amount of funding from sales and development will go into infrastructure improvements in the immediate area. The ongoing value of the real estate asset will be contingent on maintaining investment in the station area.
- Authority to manage land use entitlement on public and private land within the immediate station area.
- Authority over station area transportation planning, including street design and allocation of roadway space, plus the integration of various transportation providers. This authority is important to making sure high-speed rail succeeds, which will require prioritizing access for feeder transit services. It is also important to normalize implementation of high-quality bike infrastructure and pedestrian experiences and to help avoid an auto-dominated station area. Much of the vision for a successful station area could be undone by business-as-usual transportation planning and street design.

3 Streamline development approvals and entitlement processes for high-speed rail station areas.

Actors: California High-Speed Rail Authority, proposed development corporation, station cities

Once the station plan is complete and agreed upon by both the Authority and the local station city, new development and related transportation projects within the station area that adhere to the design criteria and support the overall vision for the station should be allowed to proceed “by right,” meaning they would not be subject to case-by-case local approvals.

Ground-up development and transportation projects in the station areas, such as bike lanes and bus rapid transit lines, should also be exempt from the California Environmental Quality Act (CEQA) so long as the projects fit within the adopted station area plan or station vision plan. This includes making sure the development achieves certain performance standards (such as urban design criteria or parking maximums) as mandated by the Authority. California Senate Bill 743 is a recent attempt to streamline infill and low-vehicle-miles-traveled projects by changing the way transportation impacts are analyzed under CEQA.¹⁰¹ This recommendation goes a step further and exempts these projects from CEQA entirely if they match the station plan and vision.

Land use authority and approvals within the station area should be under the power of the California High-Speed Rail Authority and/or the proposed development corporation (or joint powers agency, as discussed above). This would apply to both land that the state has purchased and privately held land within roughly a half-mile from the station platform. The precise geography of the land use powers would vary from station to station and would be determined in dialogue with local communities.

4 Plan for each station to be a transportation hub that supports sustainable modes of travel and has the flexibility to adapt to changes in travel modes and patterns over time.

Actors: California High-Speed Rail Authority, station cities, local transit providers, Caltrans



High-speed rail stations should provide well-designed connections to local modes of transit. In Erfurt, Germany, a city of about 200,000 people, the streetcar passes right below the intercity rail line. Timed transfers enables passengers to connect seamlessly between the different services.

The Authority and local partners should plan for each station to be an intermodal transportation hub that connects high-speed rail users to many other transportation options. This requires a strong vision for transit planning, parking and management of the surrounding streets and roads, as well as signage and organization within the station itself.

This vision should:

- Use National Association of City Transportation Officials guidelines for station area transportation planning.¹⁰²
- Ensure consistent signage and seamless connections between the various transit operators, both public and private. These standards should be consistent across all high-speed rail stations.

- Limit bus bays and overall bus parking to what is needed by making use of curb space for bus stops. System-wide service planning can identify optimized routes so that transit and intercity buses serve the station on schedules that are timed with train arrivals. The buses should not lay over at stations and instead should arrive when there are passengers to pick up.
- Dedicate curb space adjacent to the station to buses, taxis, transportation network companies (TNCs), driverless cars and additional uses other than private vehicle parking. This is important to do prior to significant development, because once the streets around the station are more crowded, it becomes harder to capture curb space for non-parking uses.
- Require all parking in the station area to be priced after taking inventory of existing parking availability, both public and private. Implement dynamic parking guidance systems to direct drivers to all available parking spaces, ensuring that all existing parking is well-used before more is built.

For example, do not build any additional parking in the immediate area unless parking spots in the surrounding half-mile area are used frequently, such as more than 85 percent of the time. Make use of all available surface parking options first before exploring structured parking.

- Postpone as long as possible any car-oriented investments in and around the station, including parking structures, off-ramps, wider roads, etc. As new technologies such as driverless cars are introduced, the use of private automobiles may shift considerably by the time the station is operational.
- Plan for and invest in high-quality bike infrastructure (such as protected bike lanes and intersections) and bike parking facilities, as well as bike-share systems, to encourage travel to, from and around the station on bicycle.
- Develop networks of high-quality pedestrian routes between the station and destinations in the downtown station district.

Downtown Station District Recommendations

Depending on the city, the downtown station district extends about 1 to 2 miles from the station platform and includes the greater downtown. In many cases, it is the economic and cultural center of the city and region, including the majority of government office buildings, cultural and entertainment facilities and other major employers. It is an area that should be walkable, although many short trips from the station will take place on other modes of transportation.

Goals: The station district and the central part of the city should capture a large share of the city's future growth, particularly new offices, major retail and entertainment. To make this happen, this larger downtown district, including the station area, should get access to new investment and financial incentives from the state. These incentives and tools should be provided to local communities in exchange for adopting plans and entitling new projects that meet state and high-speed rail system performance criteria.

5

Adopt a station district plan based on statewide planning and development guidelines, or develop an overlay zoning district on top of an existing downtown plan.

Actors: California High-Speed Rail Authority, Strategic Growth Council, station cities, local transit providers

To fully capture the benefits of high-speed rail, each station city must think big about what is possible in the broader downtown district, up to roughly a mile from the station. These plans should include a long-term vision for the district and should account for statewide needs for major growth in the city's center. This recommendation dovetails with Recommendation 1: Just as each station area should have an updated plan focused on the long-term vision, so should each station district.

The district plan should be developed by the local city in partnership with the California High-Speed Rail Authority. The following are a few key steps and actions:

- Provide state funding and support for drafting a station district plan.¹⁰³
- If there is a recently adopted downtown plan that was drafted in preparation for high-speed rail, such as in Fresno, review the plan to ensure that its vision matches the needs of the statewide rail system. If not, establish an overlay zone that identifies additional zoning changes for targeted buildings or areas.¹⁰⁴
- Ensure that the district plan allows for development that is flexible over time, such as buildings that can shift between office and residential use, or parking structures that can be repurposed into housing or offices, as parking storage needs may diminish with the advent of autonomous vehicles.

- As part of the station district planning work, include studies of the barriers to infill development. For example, in cities with limited resources, uncertainty about the existing sewer capacity is perceived as an impediment to development in infill areas.
- Set clear statewide criteria for both the station and the local station area plans. Make sure local plans adhere to state criteria. Statewide criteria should include:
 - Minimum residential or commercial densities
 - Urban design standards (such as active uses on the ground floor)
 - A mix of destination uses (i.e., jobs) and origin uses (i.e., housing) in different parts of the district
 - Provisions for interim uses
 - Zoning that allows for flexibility over time
 - Limits on parking
 - Streets and roads designed for all modes of transportation
 - Provisions for new public open space
- Eliminate or reduce physical barriers between the station and the rest of the city (i.e., the need to cross a freeway).
- Establish a district parking strategy following the parking criteria outlined in Recommendation 4.
- Adopt an adaptive reuse ordinance at the local level to make it easier to modify existing buildings. For example, do not require any additional parking for conversion of or reinvestment in an existing vacant building. Downtown Los Angeles made this part of its strategy to attract significant residential investment in older commercial properties.
- Plan for, but do not yet implement, a value capture system that increases the cost of development (such as setting impact fees, special assessments or establishing a community facilities district or Mello-Roos district).¹⁰⁵ Any system of value capture that increases development costs should not be implemented until development is able to move forward without gap financing. For the foreseeable future, it will be necessary to subsidize new ground-up development in the intermediate station cities, not tax it further. In addition to tax or assessment districts, it would be appropriate to consider how best to capture community benefits from new development. For example, if a developer wishes to build at densities greater than the city permits, the city should have a mechanism to grant the developer permission in exchange for an increase in community benefits. Such a density bonus program should apply to both commercial and residential projects. Community benefits for a commercial project could include either financial support for housing or subsidized rents for specific types of tenant types, such as small businesses or nonprofit organizations.

6

Create a new financing and downtown revitalization tool for high-speed rail station districts to help fund new development and infrastructure needs.

Actors: California High-Speed Rail Authority, state legislature, station cities, governor's office, Strategic Growth Council

The 1-mile areas around high-speed rail stations deserve specific attention to ensure they receive new development and upgraded infrastructure. Given their statewide importance, each of these areas should receive a special state designation as a high-speed rail station district hub. Each of these hubs would get access to a new financing and revitalization tool, as well as targeted state and regional investment to support economic growth. These revenues are needed to finance development and fund the construction of infrastructure such as transit, streets, sidewalks, and water, sewer and power systems.

The revitalization tool most appropriate for the intermediate high-speed rail station communities is tax increment financing. As explained in Chapter 2, tax increment financing dedicates increases in local tax revenues (typically the property tax) for use in revitalization projects in a specific area. Often, the local government creates a special revitalization agency to issue bonds that are backed by the anticipated future tax revenues. In this way, tax increment financing can bring funds into a district to help pay for revitalization even before it has experienced much new growth.¹⁰⁶ Since the closing of redevelopment agencies in California, the two primary tools for tax increment financing are enhanced infrastructure financing districts (EIFDs) and community revitalization and investment authorities (CRIAs).¹⁰⁷

Given its broader applicability, the EIFD is the most appropriate tool for intermediate station cities. Yet as noted in Chapter 2, the EIFD requires voluntary contributions from all taxing entities. EIFDs also do not allow revenue to be used to support private development. Without modification, the amount of tax increment from an EIFD is insufficient to finance needed revitalization efforts such as gap financing for new development, rehabilitation of existing buildings and other local infrastructure investments.

The following recommendations suggest how to modify the EIFD and establish an improved system of tax increment financing for high-speed rail stations:

- Combine the city and county portions of tax increment to capture roughly 35 percent of the tax increment. Explore other opportunities to capture the increment from other taxing entities, such as special districts or even public education through an equitable tax swap. For example, the state could credit a portion of the Education Revenue Augmentation Fund, an education transfer from local governments to the state, and allow local governments to keep that revenue instead.¹⁰⁸ The state would then backfill any lost revenue from schools.

- Allow the EIFD to leverage additional sources of money (e.g., transfer tax, sales tax, transit occupancy/hotel tax) as part of the tax increment. For example, the state could allow the EIFD to take a portion of the growth of the local government's 1 percent share of the sales tax (the Bradley-Burns tax).
- Require the governing board of the EIFD to include local, regional and state actors, including the California High-Speed Rail Authority. (Currently, the governing board for an EIFD must have three members from the legislative body and two public members.)
- Establish a new process to approve bonding on an EIFD without a vote of the residents for projects up to \$300 million. For bond sales greater than this amount, approve with a simple majority vote (as opposed to the current 55 percent majority).
- Establish a state program that guarantees the debt on \$100 million for the early projects in high-speed rail station area EIFDs. Bond purchasers will be unfamiliar with this new tool and thus less comfortable purchasing such bonds. State guarantees could help.
- Provide a mechanism to bring capital funds in earlier. Identify state capital that would come in up front to kick-start the EIFD, such as an early investment from cap-and-trade funds. These funds would be used for roadway, sewer, water and other infrastructure improvements.
- Do not begin the 45-year time limit for the EIFD until the entity has collected at least \$200,000 annually in increment. This is similar to what was included in policies for military base reuse (where the limit was \$100,000).

The precise boundaries of each hub would be established jointly between the city, the Authority and other state and regional actors (such as metropolitan planning organizations and the Strategic Growth Council). For example, it might be relevant in some communities to establish a noncontiguous district that includes the downtown area as well as some surrounding farmland and open spaces that need protection from development. Such a district might then be able to leverage investment in the city center to help fund investment in protecting agricultural or rural areas (e.g., an agricultural preservation district). This approach could allow counties to access some of the financial upside of high-speed rail zoning and investment.

Each hub should be governed by a board of representatives from the station city, station county, local transit agencies and local metropolitan planning organization, plus representatives from state agencies such as the California High-Speed Rail Authority, the governor's office and the Strategic Growth Council.

Once established, each hub would also be required to develop and adopt an infrastructure financing plan that is consistent with the station area and station district plans described in Recommendations 1 and 5. These plans would govern how each hub spends the resources gained through tax increment financing and other sources, such as specialized state investments from cap and trade. Each hub's board would also be able to establish a gap financing grant fund for new development in station districts.

7

Align state and regional funding programs to focus investment in high-speed rail station districts.

Actors: State legislature, Strategic Growth Council, GoBiz (the state's economic development office), metropolitan planning organizations (MPOs), station cities and counties, State Department of Conservation

The goal of this recommendation is to align existing state and regional resources toward investment in high-speed rail station cities and districts. This additional funding and investment should be contingent on local communities adopting and implementing land use plans that reflect the potential of high-speed rail. Targeting existing state and regional programmatic investments toward station districts maximizes the billions the public has already invested in high-speed rail and helps achieve larger economic development gains for the state.

One prerequisite for the targeted funding is to establish a clear statewide priority to strengthen the economy of the cities with high-speed rail stations and change their pattern of growth. In particular, this priority should include a vision for improving the economy and land use patterns in the San Joaquin Valley by supporting revitalized urban centers and more compact growth.

The model should be to encourage local plans (such as station district plans, agricultural conservation plans, or updates to general plans or specific plans) to meet statewide criteria in exchange for state funding to strengthen rail station cities and their downtowns.

The state should leverage existing investment programs and focus them in ways that reinforce each other. For example, the state's Infrastructure Bank should target some of its investment toward high-speed rail station cities and their downtowns. Funds from the sale of pollution permits under the state's cap-and-trade program are meant to help achieve greenhouse gas emissions goals. Using such funds to focus on needs in high-speed rail station cities — as has been done with the Transformative Climate Communities Program from the Strategic Growth Council — is critical.¹⁰⁹

One way to further achieve this alignment of funding is to create a partnership across state agencies focused on leveraging existing investments and policies to reinforce compact development, economic growth and open space or agricultural preservation in cities with high-speed rail stations. This partnership would function like a mini Strategic Growth Council for each high-speed rail city.

The state should also create more alignment and prioritization of existing funds and programs to achieve multiple benefits, such as groundwater sustainability, reduced greenhouse gas emissions and vehicle miles traveled, improved air quality, economic diversity, farmland preservation, more compact development and sufficient housing production.

The regional metropolitan planning organizations could direct resources to create a grant program modeled on the Bay Area's One Bay Area Grant Program, which targets regional resources to a select number of places that meet certain performance criteria, such as housing production. This fund would be used for investment in high-speed rail station districts, such as sewer or water projects. It could also be a way to pre-fund projects that otherwise would be funded by the EIFD.

In addition to public funding, the state, local and regional partners should work with pension funds, private sector funders and philanthropy to focus investment in high-speed rail station cities and districts. Private funding could be used to establish early-stage and angel funds to support start-up growth in cities with high-speed rail stations.

The state should also explore new tax incentives for companies that locate in defined hub areas. While tax incentives for economic development are notorious for being poorly targeted, there is some

evidence that programs can be more successful by focusing on specific geographies.¹¹⁰

Finally, the State of California should adopt a historic tax credit, similar to what exists at the federal level and in more than 35 other states. The tax credit could provide a 20 to 25 percent credit to investors and developers based on the amount they spend to preserve, rehabilitate or renovate structures listed on either the California Register of Historical Resources or the National Register of Historic Places. One requirement should be to ensure that any project receiving the tax credit demonstrate that it will produce as much tax revenue once restored as it receives from the tax credit.¹¹¹ Such a tool would support adaptive reuse of older properties in the downtown centers of high-speed rail station cities. In conjunction with the tax credit, state organizations should provide technical assistance to local investors and partners in how to use this tax credit.

Metropolitan Area Recommendations

The larger city or metropolitan area can extend 10 miles or more from the station to the urban edge, where development ends and farmland and natural areas begin. The broader city includes many key destinations for high-speed rail users, such as universities, tourist attractions and other job centers. It also includes many existing neighborhoods that can benefit from growth.

Goals: Planning for the city's growth in infill areas instead of as sprawl — and maintaining an edge between urban and rural — is necessary both to reinforce the primacy of the station district and to meet broader state goals regarding climate change and compact development. This means the state should influence development by adopting policies that support infill, such as encouraging some form of growth management to control outward urban development. The economic development goal at the citywide scale is to improve the overall economy, including higher wages, job creation rates and productivity, and lower unemployment rates.

8

Prioritize state and regional transportation funds that reinforce compact development in existing communities and encourage travelers in high-speed rail station cities to move away from driving.

Actors: MPOs, local transit providers, California State Transportation Agency, Caltrans, station cities and counties

All metropolitan regions in California are required to adopt a joint Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) that projects a future growth pattern and a set of transportation investments designed to reduce per capita greenhouse gas emissions from driving. Since regional agencies do not have direct control over land use decisions (which reside with

local governments), the main power that regions currently have to shape land use patterns is through investment in transportation projects that shift travel from cars to transit, walking and biking and that serve compact development.

To optimize the benefits of public investment in high-speed rail, the RTP/SCSs in California, particularly in the San Joaquin Valley, should shift more funding away from new roadway expansions and toward maintenance and transit. The Bay Area's RTP/SCS (called Plan Bay Area) proposes spending just 3 percent of its funding on highway and road expansion. Merced and Fresno counties, by comparison, project spending 31 and 24 percent of transportation funds on highway and road expansion, respectively. Over the prior decades, investments in highways, particularly around Fresno and Bakersfield, facilitated the flow of businesses, retailers and residents away from the city center, helped to convert farmland to urban



Sergio Ruiz

The University of California, Merced, campus is 7 miles from downtown and the future rail station. At 7,300 students and growing, it will be a key destination for high-speed rail travelers.

areas and resulted in an economic decline in the downtowns. High-speed rail will only succeed in reversing this decline to the extent that future investments reinforce a shift back toward urban centers.

The regional transportation plans, plus additional state transportation investments, should also focus on building up the market for transit across each city by making sure high-speed rail trains are well-coordinated with other transit services. For example, when people arrive at a high-speed rail station, buses or other transit to key destinations should be waiting for them. One way to fund local transit would be to incorporate a transit day pass or a local trip fare into the ticket price for high-speed rail. This would also grow the market and ensure future ridership.

MPOs and transit operators should prioritize expanding rail or bus service to link key destinations in the city and better connect people to and from the high-speed rail station. For example, the Kern Council of Governments should prioritize funding that supports the implementation of the Metropolitan Bakersfield Transit System Long-Range Plan from 2012, which includes a reconfigured fixed-route bus network, intercity express bus service and commuter rail once high-speed rail service is running.¹¹²

MPOs and local cities should also invest in developing networks of protected bicycle infrastructure between the station area, station district and broader city. This could be modeled on the Dutch Snelfietsroutes, or “bicycle fast routes,” which are designed to help cyclists cover longer distances and connect with train stations.¹¹³ These routes can even connect two neighboring communities that are as far as 5 to 15 miles apart through bike routes that have minimal crossings of roadways.

9 Use the revitalization tool described in Recommendation 6 as an incentive to encourage cities to preserve farmland and shift toward more compact development.

Actors: Strategic Growth Council, State Department of Conservation, station cities and counties, Local Agency Formation Commissions (LAFCOs), MPOs, state legislature, governor’s office

Most decisions that shape land use and growth rest at the local level, primarily with cities and counties. Given the preponderance of privately owned land and the lack of land use controls at the urban edge, it is likely that each city in the San Joaquin Valley will continue to grow outward unless new policies and incentives are adopted. To ensure that high-speed rail helps shape California growth in a more compact way, the state should require all cities and counties that want to use the revitalization tool to establish some form of planning incentives or land use controls that channel growth into existing urbanized areas and limit the incursion of growth into farmland and open space.

There are many potential tools to achieve this goal. The strongest and clearest is to establish an urban growth boundary around the city or county to define the allowable extent of urban development and to protect adjacent farmland and open space. Such growth boundaries can be reviewed and revised over time, as they are in Portland, Oregon,¹¹⁴ but the burden to change an urban growth boundary should be much greater than a simple amendment to a general plan.

In addition to urban growth boundaries, there are a range of best practices, incentives and tools that seek to achieve more compact development and reduce the cost of infill relative to greenfield

development. Many communities in California already have some form of growth control or incentive to shape development patterns. The state should identify a set of tools and mandate that cities demonstrate that they have such tools in place in order to take advantage of the revitalization tool. The state could also offer technical assistance and financial incentives to cities to implement one or more policy tools.

The following are some of the specific tools or approaches that should be made available to all communities with high-speed rail stations:

- Adopt agricultural land conservation and/or species- and habitat-focused plans such as an agriculture conservation plan, countywide habitat conservation plan, natural communities conservation plan or regional conservation investment strategy. The implementation of such plans should consider not only where to stop development but also how to streamline development in areas where the county or city supports it. Funding for the plans could come from the State Department of Conservation, which has \$2 million per year to support such plans and could fund two counties per year.
- Require all greenfield development outside of existing city service areas to pay for the full lifecycle cost of their infrastructure. For example, while residential developments in edge areas often pay fees to cover initial road, sewer and other infrastructure costs, these fees do not cover replacement costs several decades in the future. As many communities saw during the fiscal crisis after the housing crash, the costs of sprawl are substantial, and they grow over time.
- Make major new development subject to a water supply reliability study before it is approved. This should include new residential, commercial and farmland uses. A related tool is to establish water performance levels or targets for areas that are shifting from farmland to urban development and restrict water to areas that exceed an average household target. This is a way to hold communities accountable for urban development that is more water-intensive (i.e., homes on large lots with lawns and pools).
- Charge higher impact fees for development at the edge of cities and lower or no impact fees for certain development in the urban center. This approach is used in Kern County, where houses on the periphery have a traffic impact fee of \$12,000 while the fee for infill development is half that. Consider requiring fringe development to include affordable housing through inclusionary zoning requirements. This would offset some of the potential price increases that would result from enacting an urban growth boundary and increase costs for development at the edge relative to the core.
- Make it harder to subdivide large lots on the edge of the city (since the ease of subdividing them is one reason they get developed). For example, require new development on parcels less than 6 acres to be hooked up to the city sewer system rather than a septic system. This policy has been implemented in Kern County and has effectively prevented the creation of low-density large-lot exurban development.

- Eliminate automatic state legislative extensions for tentative tract maps. In order to subdivide a parcel of land into five or more units (including condominiums), a developer has to form a subdivision and produce a tract map that shows the new parcels. During the housing boom of the early 2000s, tens of thousands of housing units were approved on tract maps throughout the San Joaquin Valley. Since the housing crash, the state legislature has been extending these approved tract maps for an additional two years, as the market has not been strong enough for many developers to move forward on the subdivisions. They include approximately 40,000 potential low-density greenfield housing units in Kern County alone. All developers should be required to reapply for their tract maps on any housing developments outside of existing urbanized areas.
- Require cities, MPOs and councils of government to develop greenprints to manage growth. In that process, they should identify high-quality farmland and ecologically rich areas that provide critical habitat or water resources (such as groundwater recharge). These areas should be designated as priority conservation areas. In the San Joaquin Valley, it will be important to analyze how these priority conservation areas overlap with the locations identified in the San Joaquin Valley Blueprint/Greenprint. The concept behind the greenprint is to plan the green areas first, then leave the rest of the areas for urban development. For the areas around Gilroy, analysis from Plan Bay Area and county plans can be used to determine priority conservation areas. Funding for these greenprints, or related documents such as regional conservation investment strategies, could come from the State Department of Fish and Wildlife.¹¹⁵
- Modify policies at the county’s local agency formation commission (LAFCO) to better address mitigation and overall growth management.¹¹⁶ For example, when farmland converts to urban development, LAFCOs can require a developer to mitigate the loss of farmland by permanently protecting farmland elsewhere at a specific ratio (such as 1 acre protected for 1 acre developed).¹¹⁷ There should be an increase in the amount protected and adoption of a baseline mitigation policy of two-to-one or three-to-one for farmland mitigation. The modifications should include an option for graduated requirements. For example, if a community is rezoning for densities higher than the target in the general plan, it would be required to do less mitigation, and if it is rezoning for lower densities than in the general plan, it would be required to do more mitigation.¹¹⁸
- LAFCOs should require any in-lieu fees to match the market-rate price for farmland.¹¹⁹ Some LAFCOs allow developers to pay a fee instead of protecting land on their own. However, such fees are often too low relative to the market cost of buying farmland to protect.
- Finally, LAFCOs should require cities to produce inventories of both underutilized land and prime agricultural lands to protect within their jurisdictions. A specific suggestion is for LAFCOs to prevent cities from expanding their boundaries until they have completed an assessment of existing vacant and



Incentives to attract growth in urban centers should work hand in hand with policies that protect working lands and improve their economic viability.

underutilized land within the city that could meet the future needs of projected population growth (instead of expanding city boundaries to meet the needs).¹²⁰ Another suggestion is for LAFCOs to require an inventory of places within their jurisdictions that should avoid development because it would impact prime agricultural land, open spaces and places with multiple land-based values — such as biodiversity, recreation, groundwater and carbon sequestration.

10 Improve the economic viability of farmland and open space.

Actors: California Department of Conservation, county farm bureaus, Strategic Growth Council

The loss of farmland and open space to development is in large part a result of economics: Subdividing and selling property on the edges of urban areas is very often the most economically viable option for the landowner. Addressing the underlying economics of land conversion by strengthening the economics of rural lands is key to maintaining these areas in natural and working states.

The following are some specific actions to take:

- Ensure the availability of water for agriculture in key areas where the lack of certainty regarding water use is an impediment to the ongoing viability of farming.
- Provide more funding to resource conservation districts to help support erosion, flood control, fish and wildlife, and water conservation projects.¹²¹ The districts currently receive limited annual taxpayer funding and rely on grants and fundraising. Funds can also be used to create easements that conserve and protect agricultural land.
- Expand funding for agricultural conservation easement buyouts, which provide funding for farms in exchange for maintaining the land in agricultural production. One source of funding is the Sustainable Agricultural Lands Conservation Program of the Strategic Growth Council, which should be expanded.¹²² This source of funding is also used in the development of agricultural land strategy plans, which help identify where farms should locate within a region and can be used to establish a clearer urban-rural edge.
- Expand the use of California's Land Conservation Act (aka Williamson Act) funding as a tax policy incentive for maintaining farmland.¹²³ The Williamson Act allows local

governments to enter into contracts with landowners to lower property taxes if the owners agree to restrict development and continue farming on their land or maintain the land as open space.

- Expand on programs like the Sacramento region's Rural-Urban Connections Strategy (managed by the Sacramento Area Council of Governments, the region's metropolitan planning organization). Develop similar programs in rural regions along the high-speed rail route.¹²⁴

11 Establish economic development partnerships across the public, private, education and philanthropic sectors to strengthen the economy of the San Joaquin Valley.

Actors: GoBiz, University of California, California State University, philanthropic organizations, economic development organizations, state legislature, governor's office

Economic development in station cities will require strong partnerships between the various regions of the state as well as between the private sector, universities, philanthropy and economic development organizations. As discussed in Recommendation 7, the state (specifically GoBiz) should target some of its economic development programs to specific geographies around station cities. This public investment should be leveraged with private and philanthropic investment to result in a big push to transform the economies of San Joaquin Valley cities and in particular to establish an economic ecosystem that encourages the formation of startups with the potential for success. For example, there are existing efforts to secure local investment capital for San Joaquin Valley startups at the pre-seed, seed and series A rounds of financing. There should also be an overt strategy to increase connections between firms in San Joaquin Valley and Silicon Valley, particularly through encouraging coastal firms to expand operations into the San Joaquin Valley.¹²⁵

The following are some of the specific actions:

- Economic development organizations and firms in the Bay Area and Southern California should partner with groups in the San Joaquin Valley to identify and work with companies that are looking to expand outside of the coastal areas but that would consider remaining in California.
- Regional economic development corporations in the San Joaquin Valley should partner with local and Silicon Valley investors to identify high-growth-potential firms in the San Joaquin Valley as well as to move existing San Joaquin Valley industries further up the value chain in their respective industries (e.g., toward ag-tech or advanced manufacturing).
- GoBiz should lead a statewide economic development strategy process that includes an explicit goal to strengthen the economy of the San Joaquin Valley and better connect it to the coasts.
- State of California employee pension funds (such as CalPERS) could provide funding to support early-stage or seed investments in startups in the San Joaquin Valley.
- Philanthropic institutions should expand their investments toward the San Joaquin Valley generally, particularly through establishing partnerships with organizations in other regions as well as by investing in new local civic organizations. Philanthropy is in a position to help launch needed civic groups who are able to push a long-term transformative agenda that persists beyond individual elected officials.
- The universities should further strengthen their partnerships with each other and with other statewide institutions to capture potential spinoffs from their research. Key research institutions include Fresno State, UC Merced and CSU Bakersfield. UC Merced should consider reserving land for a future tech park, modeled after the success of the Stanford Research Park. All three universities should expand their engineering programs as well as programs associated with planning and economic development.

Plan of Action

		Station cities	California High-Speed Rail Authority	Strategic Growth Council	Regional agencies / metropolitan planning organizations	Station counties / other local government partners	Station development corporation	Local or regional transit / other transportation providers	California State Transportation Agency / Caltrans	State Legislature	Governor's Office	GoBiz	State Department of Conservation	County farm bureaus	Higher education (University of California, California State University)	Philanthropic organizations	Economic development organizations	Local agency formation commissions
Immediate Station Area (up to half a mile from the platform)	Recommendation 1: Develop a station area plan and implementation program that balances the city's vision for its future with statewide planning needs.	●	●	●				●										
	Recommendation 2: Establish a rail station area development corporation for each high-speed rail station with responsibility for development and land use in the immediate station area.	●	●	●		●	●			●	●							
	Recommendation 3: Streamline development approvals and entitlement processes for high-speed rail station areas.	●	●						●									
	Recommendation 4: Plan for each station to be a transportation hub that supports sustainable modes of travel and has the flexibility to adapt to changes in travel modes and patterns over time.	●	●						●	●								
Downtown Station District (up to one or two miles from the station)	Recommendation 5: Adopt a station district plan based on statewide planning and development guidelines, or develop an overlay zoning district on top of an existing downtown plan.	●	●	●				●										
	Recommendation 6: Create a new financing and downtown revitalization tool for high-speed rail station districts to help fund new development and infrastructure needs.	●	●	●						●	●							
	Recommendation 7: Align state and regional funding programs to focus investment in high-speed rail station districts.	●		●	●	●				●		●	●					
Metropolitan Area (up to the urban edge)	Recommendation 8: Prioritize state and regional transportation funds that reinforce compact development in existing communities and encourage travelers in high-speed rail station cities to move away from driving.	●			●	●		●	●									
	Recommendation 9: Use the revitalization tool described in Recommendation 6 as an incentive to encourage cities to preserve farmland and shift toward more compact development.	●		●	●	●				●	●		●					●
	Recommendation 10: Improve the economic viability of farmland and open space.			●									●	●				
	Recommendation 11: Establish economic development partnerships across the public, private, education and philanthropic sectors to strengthen the economy of the San Joaquin Valley.									●	●	●			●	●	●	

Methods and Assumptions

To research this report, the SPUR team used the following methods:

- Reviewed California High-Speed Rail Authority business plans, general planning documents and guidelines.
- Reviewed station city planning documents, including station area and downtown plans, where appropriate.
- Conducted approximately 50 interviews with policy makers in station cities and counties (City of Gilroy and Santa Clara County, City of Merced and Merced County, Madera County, City of Fresno and Fresno County, City of Bakersfield and Kern County). The team also spoke with staff at the California High-Speed Rail Authority, the Strategic Growth Council, the California State Transportation Agency and the California Department of Conservation and consulted with numerous international experts in high-speed rail planning both within the United States and overseas.
- Prepared analysis of demographic and other data about California counties.
- Organized a day-long convening with station city and state policy makers on high-speed rail, economic development and land use.

The following are some of the assumptions or caveats that informed the scope of this report:

- That the initial operating segment of high-speed rail will connect Bakersfield with Gilroy and San Jose's Diridon Station by 2025 on a one-seat ride.
- That the full Phase I of high-speed rail will be built and operational, connecting trains on a one-seat ride from San Francisco to Anaheim, by around 2029. This report does not explore the barriers related to financing the entire system nor the overall project delivery and construction process.
- That high-speed rail will stop in or adjacent to the downtowns of Gilroy, Merced, Fresno and Bakersfield. This report also assumes a greenfield station will be built at the edge of Hanford (Kings/Tulare station) and another in Madera County.
- That precise station locations are outside the scope of this report, but this report makes suggestions about how to minimize barriers between a station and the rest of the city, as well as providing comment on the impact of greenfield stations generally.
- That fare policies will be determined in part by a future operator/investor. This report discusses fare policies generally and the extent to which they will have an impact on who uses high-speed rail and how high-speed rail affects development and the economy in California.

Key Conclusions and Recommendations From SPUR's *Beyond the Tracks*

This report is a follow-up to a SPUR report from 2011 called *Beyond the Tracks*²⁶, which looked at how California cities can use smart land use planning around future high-speed rail stations to reshape growth.

Some of the key conclusions from the 2011 report include:

- High-speed rail should be an armature for the state's population growth and economic development. Station areas should focus on jobs.
- Weak market conditions may not result in sufficient development near stations.
- Most destinations will be beyond station areas, so transportation connections to a 5-mile radius will be key.
- Few tools exist to limit sprawl at the edges of regions and urbanized areas.

Some key recommendations include:

- Draft statewide station area planning and development guidelines to inform the local plans.
- Provide local governments with financial support to develop plans that meet guidelines.
- Establish oversight and certification of local station area plans to ensure they meet planning and development criteria.
- Establish local development corporations to facilitate station area development.
- Carry out land banking strategies around high-speed rail stations to support future development and ease land assembly of suitable development sites.

Since *Beyond the Tracks* was published, some of these recommendations have been implemented. The California High-Speed Rail Authority is funding station area plans and working closely with cities that are updating their downtown plans and thinking through station area implementation. The Authority has also been working on station access policies.

There are also different challenges and opportunities today than there were in 2011. California dissolved its redevelopment agencies in 2012, so station area investment and value capture is much more difficult to achieve today.

On the opportunity side, high-speed rail is now under construction, so residents are beginning to see the vision become manifest. Additionally, California's cap-and-trade program has been implemented as a source of funding for high-speed rail and related projects.

Endnotes

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78. Bureau of Labor Statistics, "Quarterly Census of Employment and Wages," United States Department of Labor, August 2016, <http://www.bls.gov/cew/datatoc.htm>
79. Tony Oliveira and Parsons Brinckerhoff, "California High-Speed Rail and the Central Valley Economy," High-speed Rail Authority, January 2015, pp. 4-47, https://www.hsr.ca.gov/docs/Newsroom/reports/2015/FINAL_FULL_CENTRAL_VALLEY_ECONOMIC_STUDY_REPORT_020515.pdf
80. Oliveira and Brinckerhoff, 2015, pp. 4-46.
81. Michael Chui, James Manyika, and Mehdi Miremadi, "Where machines could replace humans—and where they can't (yet)," McKinsey Institute, <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/where-machines-could-replace-humans-and-where-they-cant-yet>
82. See: <http://www.mercurynews.com/2013/10/22/att-will-sell-its-regional-headquarters-in-san-ramon/> and <http://www.bizjournals.com/sanfrancisco/stories/2007/12/17/story1.html?page=all> and <http://www.bizjournals.com/sanfrancisco/blog/2014/02/charles-schwab-jobs-out-of-san-francisco.html>
83. United States Census Bureau, "S1501: Educational Attainment," *2015 American Community Survey 1-Year Estimates*, U.S. Census Bureau's American Community Survey Office, November 25, 2016, <https://www.census.gov>. In the Bay Area counties with future high-speed rail service (San Francisco, San Mateo and Santa Clara), 51 percent of the population 25 years or older hold a bachelor's degree or higher.
84. See: <http://www.metrodenver.org/do-business/demographics/educational-attainment/> and <https://www.austinchamber.com/economic-development/austin-profile/population#EducationalAttainment>
85. The analysis of traffic impacts under CEQA is changing since the passage of SB 743 by switching from the traffic-focused level of service to a metric measuring total driving such as vehicle miles traveled. See: https://www.opr.ca.gov/s_sb743.php For more general background on the impacts of CEQA, see also: https://www.spur.org/sites/default/files/publications_pdfs/SPUR_FixingCEQA.pdf
86. See California's Department of Housing and Community Development, *Statewide Housing Assessment*, <http://www.hcd.ca.gov/policy-research/plans-reports/#sha>
87. See: <https://www.planning.dot.gov/mpo.asp>
88. See: http://www.dot.ca.gov/hq/tpp/offices/orip/index_files/Updated%20Files/MPO-RTPA_1-10.pdf
89. While these recommendations were written to address some of the planning and market challenges facing Gilroy, Merced, Fresno and Bakersfield, as well as greenfield stations outside Hanford and Madera, they can also apply to other cities on the high-speed rail system. For example, some of the concepts regarding a station development corporation or a downtown revitalization district would apply well to San Jose.
90. The Strategic Growth Council (SGC) coordinates the activities of state agencies and partners with stakeholders to promote sustainability, economic prosperity and quality of life. The agencies within the SGC include Business, Consumer Services, Housing, Transportation, Natural Resources, Health and Human Services, Food and Agriculture, Environmental Protection, and the Governor's Office of Planning and Research. See: <http://sgc.ca.gov/>
91. To the extent possible, the station design could incorporate local heritage and history. This helps distinguish the various stations from each other, makes them memorable and connects each station to the community's distinct history, which should be celebrated. For example, Bakersfield's long history with music could become incorporated into a distinctive design feature in the station and immediate area. In this way, the station itself should be treated as an important destination, with amenities that draw not only travelers but also local residents.
92. Some communities have expressed concerns that a lively station will draw potential traffic away from their existing downtown. This is not a concern as travelers on the high-speed rail system travel for the purpose of visiting the community, not the station. The station itself can be an amenity that enhances the community. Visitors and residents all benefit from the presence of a well-designed station that incorporates high-quality food and shopping within.
93. Too many high-speed rail stations, even in places like Spain, are like an airport facility that is not effectively integrated into the urban fabric. These kinds of stations have not fully captured development in their surrounding area.
94. Some downtown revitalization efforts missed this ingredient and focused more on producing individual buildings without enough attention to the completion of projects along an entire block. This left a "gap tooth" phenomenon, such as in downtown San Jose, with individual buildings on blocks that still had vacant lots, often for many years. One way to avoid this is to maintain and upgrade historic buildings in the station area and focus new development onto those blocks with existing structures.
95. See: Steelcraft in Long Beach (<https://www.steelcraftlb.com/>), The Yard in San Francisco (<http://www.theyardsf.com/>), Downtown Container Park in Las Vegas (<https://downtowncontainerpark.com/>) and Boypark in London (<https://www.boypark.co.uk/>).
96. See: The Picnic in Austin, Texas (<https://www.thepicnic.austin.com/>).
97. This model of temporary activation followed by more permanent development has been successful in San Francisco's Hayes Valley, on land freed up after the removal of an elevated freeway. See: http://www.envelopead.com/files/envelopeAD_ON_SITE_IN_THE_CITY.pdf
98. This may require changing redevelopment successor agency rules to restrict forced sales on property that could be used for station development. All land owned by successor agencies was identified for one of three types of use: government use, future development or for sale. If more property was shifted from the for-sale category to the future development category, the successor agency would have greater ability to hold onto properties until the market is ready for higher-density development. Without such a change, many parcels will be forced to sell to the highest bidder instead.
99. Having the power of a first right of refusal would allow the Authority to acquire land without having to go through eminent domain.
100. This is comparable to the model in Japan where private rail operators are also real estate corporations that use the proceeds from real estate to help maintain rail service.
101. Governor's Office of Planning and Research, "Updating the Analysis of Transportation Impacts Under CEQA: Draft CEQA Guidelines and Technical Advisory," https://www.opr.ca.gov/s_sb743.php
102. National Association of City Transportation Officials, <https://nacto.org/publications/design-guides/>
103. Fresno's Fulton Corridor Implementation Plan is an example of such a downtown plan. See: <https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/The-Fulton-Corridor-Specific-Plan.pdf>
104. American Plan Association, "Property Topics and Concepts," <https://www.planning.org/divisions/planningandlaw/propertytopics.htm#Overlay>
105. Impact fees or developer fees are fees assessed at the point of development that help pay for the impact of the development on city services. These fees can help pay for sewer, police, transit, affordable housing, child care or even public art. Special assessments are where property owners or businesses pay an additional fee or tax to support investments in the district. One example of a special assessment tool is the community facilities district or Mello-Roos district. A Mello-Roos district enables the collection of special taxes from select property owners to help finance specific needs, typically infrastructure. See: <https://www.orricks.com/Insights/2015/09/An-Introduction-to-California-Mello-Roos-Community-Facilities-Districts>. These forms of value capture are distinct from the modified enhanced infrastructure financing district described in Recommendation 6.
106. For an overview of tax increment financing, see: <http://www.lincolnst.edu/publications/articles/tax-increment-financing>
107. To see a comparison of the powers and duties of these entities relative to California's former system of redevelopment, go to: <http://www.caled.org/tif-technical-committee/tif-tools-chart/>. For more background on tax increment financing generally, see: <http://www.lincolnst.edu/publications/articles/tax-increment-financing>
108. For more background on California's Education Revenue Augmentation Fund (ERAF), see <http://www.californiacityfinance.com/ERAFfacts.pdf>
109. See: <http://sgc.ca.gov/Grant-Programs/Transformative-Climate-Communities-Program.html>
110. For example, the New Jersey Urban Transit Hub Tax Credit existed for four years and targeted state tax incentives to companies that located or invested in areas around the state's transit infrastructure. The program faced some critiques due to the size of the credit (100 percent of eligible investments), as well as the narrow number of cities (nine) and the lack of focus on struggling real estate markets. See: <http://www.njfuture.org/2012/06/28/urban-transit-hub-tax-credit/> and <http://www.njeda.com/about/Public-Information/Inactive-EDA-Programs/Urban-Transit-Hub-Tax-Credit-Program>
111. See: AB 1999, Tony Atkins, http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1999
112. Nelson Nygaard, "Metropolitan Bakersfield Transit System Long-Range Plan: Final Report," Golden Empire Transit District and Kern Council of Governments, April 2012, https://www.kerncog.org/images/docs/pubtrans/Bakersfield_Transit_LRP.pdf
113. "Cycling in the Arnhem Nijmegen City Region," <http://www.snelfietsroutesgelderland.nl/>
114. Portland's Metro Council reviews its urban growth boundary every six years to ensure that there is sufficient capacity within the boundary to accommodate the next 20 years of housing and employment growth. See: <http://www.oregonmetro.gov/urban-growth-report>
115. See AB 2087: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB2087
116. Local agency formation commissions are county agencies that are the key entity governing how cities expand their boundaries. They resolve disputes between neighboring jurisdictions that both want to expand into the same unincorporated areas, and they set mitigation policies based on new development's impact on farmland.
117. See: <http://www.conservation.ca.gov/dlrp/cfcp/mitigation>
118. Yolo County has explored policy options for graduated mitigation ratios. See: <http://www.yolocounty.org/home/showdocument?id=27310>
119. For example, in 2007, the Santa Clara County LAFCO adopted a policy outlining its expectation that any city seeking to annex additional land should institute agricultural mitigation policies before seeking approval.
120. These suggestions would require state legislative changes to the Cortese-Knox-Hertzberg Act, Section 56668.

121. California Association of Resource Conservation Districts, <http://www.carcd.org/home0.aspx>
122. California Department of Conservation, Sustainable Agricultural Lands Conservation Program, <http://www.conservation.ca.gov/dlrp/SALCP>
123. California Department of Conservation, "The Land Conservation Act" of 1965, which is more commonly referred to as "The Williamson Act," <http://www.conservation.ca.gov/dlrp/lca>
124. The Sacramento Area Council of Governments developed a Rural Urban Connections Strategy (see: <http://www.sacog.org/rural-urban-connections-strategy>) that brought a deep analysis of the economic development needs of rural areas into their regional planning process. For a region that is 85 percent rural, this constituted both analytic work around land uses, including specific crops, and development of a strategy report. The strategy included five areas: land use policies and plans that shape rural areas, infrastructure and ways to overcome challenges to the production process, economic opportunities and new ways to grow revenue, forest management and navigating federal and state environmental regulations. To review the report, go to: https://www.sacog.org/sites/main/files/file-attachments/rucs_booklet_0.pdf
125. See: San Joaquin Capital, a seed, early-stage and growth equity firm that invests the Central San Joaquin Valley, <https://www.sanjoaquincap.com>, and "Fresno Business Leaders Team Up to Start Venture Capital Firm Specializing in Technology Companies Based in California's Central Valley," *Street Insider*, <https://www.streetinsider.com/Press+Releases/Fresno+Business+Leaders+Team+Up+to+Start+Venture+Capital+Firm+Specializing+in+Technology+Companies+Based+in+Californias+Central+Valley/11291739.html>
126. See: <https://www.spur.org/publications/spur-report/2011-01-03/beyond-tracks>



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