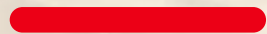


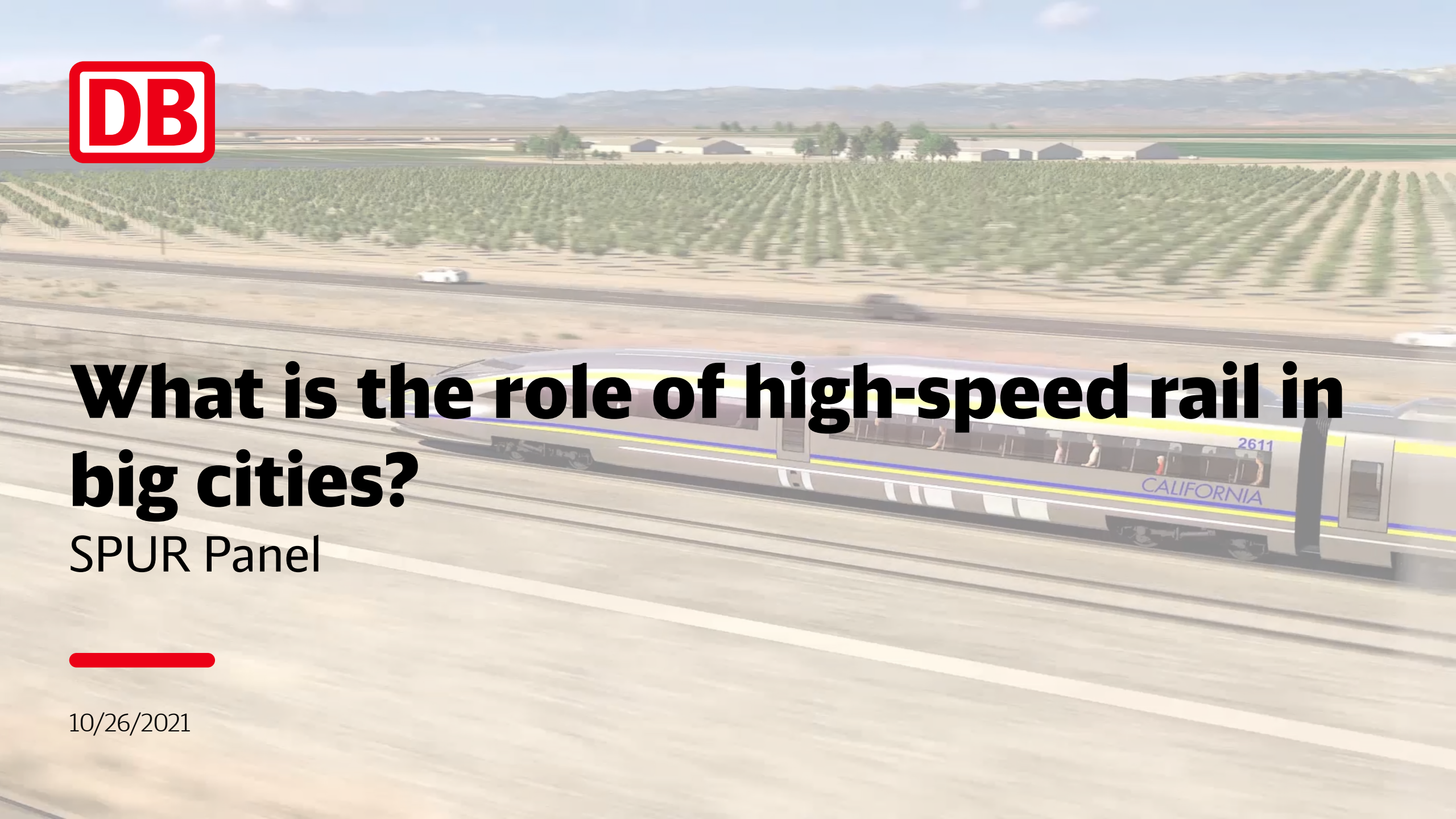


# What is the role of high-speed rail in big cities?

SPUR Panel



10/26/2021



# Speaker Presentation

## Agustin Arizti



- Principal Consultant at DB Engineering & Consultant USA Inc. with over 30 years experience as a stations architect and program manager.
- Leading the Stations Operations & Design work for the Early Train Operator at California High-Speed Rail.
- Ongoing PhD study in Rail engineering-architecture.
- Past experiences include Chief Design Manager Munich Cross Rail 2 and Senior Architect Qatar Railways.

# California High-Speed Rail Project Overview of the Statewide System



Source: CHSRA Communications Outreach

» *California High Speed Rail will feed into a statewide network.*

” **Connecting eight of the state's ten largest cities.** “

*Rail, bus and local transit services will feed into the High-Speed Rail Network.* «



Source: CHSRA Communications Outreach



# California High-Speed Rail Project

## Key Facts: San Francisco



### San Francisco

- With a population of 0.87 Mio, San Francisco is the fourth largest city of California. Located at the very north of the Peninsula, High-Speed Rail will provide a stronger connection to the lower Bay Area and to Southern California.
- Integrating with nearby Connecting Partners are AC Transit, Amtrak, BART, Caltrain, Golden Gate Transit, Greyhound, Muni, Paratransit

### Salesforce Transit Center (STC)

- STC opened to the public in Summer 2018.
- STC is located in downtown San Francisco and will be the northern terminal of the Phase 1 alignment.
- HSR will start operations at STC in 2033\* and will operate underground.

### 4<sup>th</sup> & King

- 4<sup>th</sup> & King will be a temporary terminal until the Downtown Rail Extension (DTX) to STC and the underground intermediate 4<sup>th</sup> & Townsend station are complete.
- HSR will start operations at 4<sup>th</sup> & King in 2031.\*

\*Planning dates from the 2020 Business Plan



# High-speed rail network effects & dynamics

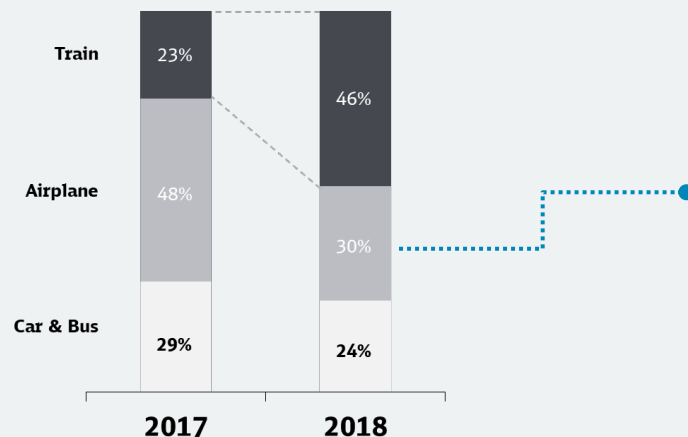


## HSR **Reference Case** end-to-end Munich – Berlin connection for San Francisco



- The high-speed rail line Munich – Berlin opened in 2017 and is similar in length to San Francisco and Los Angeles. The city size of Munich and Berlin are comparable SF& LA.
- The station in Munich is a prime example for how High-Speed rail can perfectly fit in the center of downtown and connects to various regional and local transit and bus service providers.
- The line is considered a game changer in the Germany rail system. In 2018, around 4,4 million passengers travelled between Berlin – Munich (double the number in the previous year).
- 1,2 million passengers switch from airplanes to trains; 1 million from cars.

Market share of section Berlin-Munich (in %)



# California High-Speed Rail Project Key Facts: San Jose



Source: CHSRA

## San Jose

- Located in the Southern part of the Bay area with a population of 1.4 Mio, represents a more central city on the High-Speed Rail alignment, close to the prosperous region of Silicon Valley.
- Nearby Connecting partners are Altamont Corridor Express (ACE), Amtrak, BART Extension (future), Caltrain, MegaBus, Monterey-Salinas Transit, Santa Cruz Metro, VTA.

## Diridon Station

- The existing San Jose Diridon station opened in 1935.
- HSR will require further station upgrades, including design and development, and will operate elevated.
- HSR will start operations at San Jose in 2031\*

\*Planning dates from the 2020 Business Plan

# High-speed rail network effects & dynamics

## TOD **Reference Case** Lille for San Jose



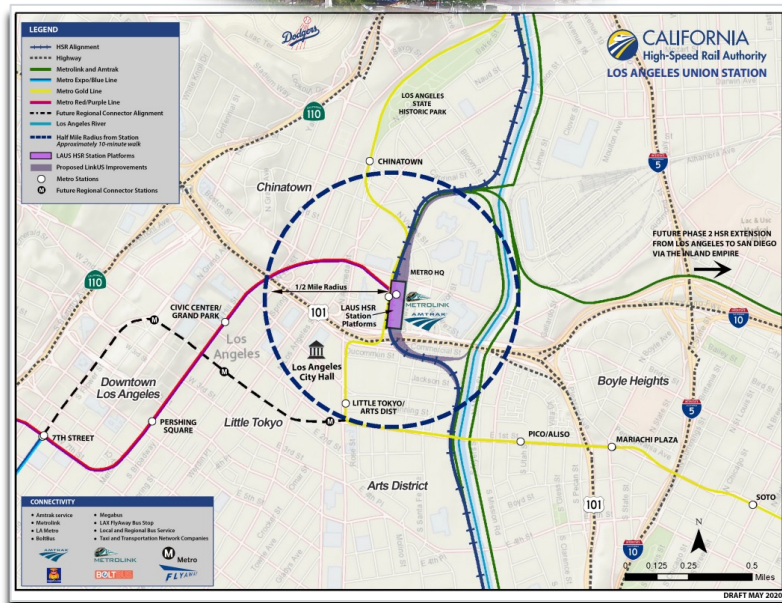
Source:

- City of Lille is connecting the UK with Europe Mainland. This case study may **inspire San Jose connecting the SF Peninsula with the State of California.**
- Due to its **strategic location** at this crossroads the city of Lille has undertaken a successful suburban development **transforming from a local destination to a regional interstate transportation hub developing an attractive spatially and operationally well integrated project** for a new Lille Metropolitan Area.
- joining efforts reorganizing both transport and urban development to **a major TOD area based on a new HST station** built in the extension of the urban core of Lille DT.



# California High-Speed Rail Project

## Key Facts: Los Angeles



Source: CHSRA

### Los Angeles

- LA metropolitan area has a population of around 4 Mio and LA County of 10 Mio, making it a megacity in the state.
- Nearby connecting partner services are Amtrak, Greyhound, LA Metro, Metrolink, LADOT local DASH, LAX Flyway, Brightline (future).

### LA Union Station

- The existing station opened to the public in 1939.
- HSR will further station upgrades, including design and development, and will operate elevated.
- HSR will start operations at LA Union Station in 2033\*.

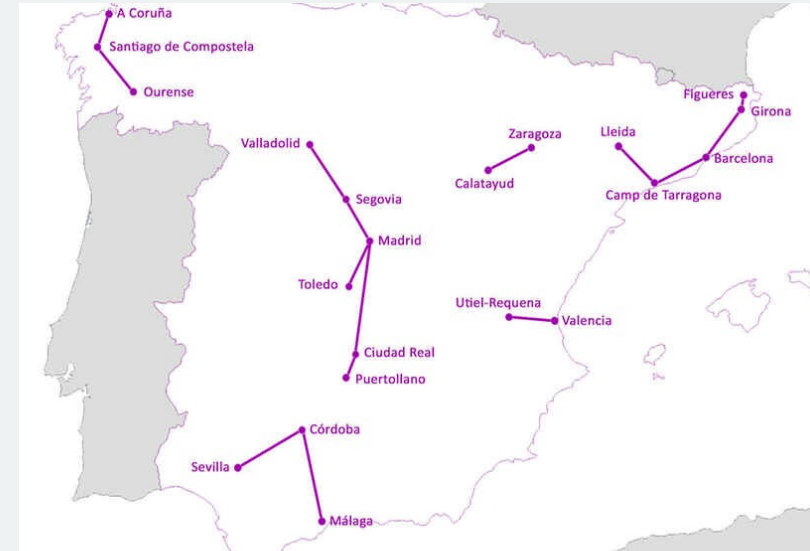
\*Planning dates from the 2020 Business Plan

# High-speed rail network effects & dynamics

## Reference Case Spain HSR Cities Shuttle services for Los Angeles



Long distance high-speed rail network in Spain

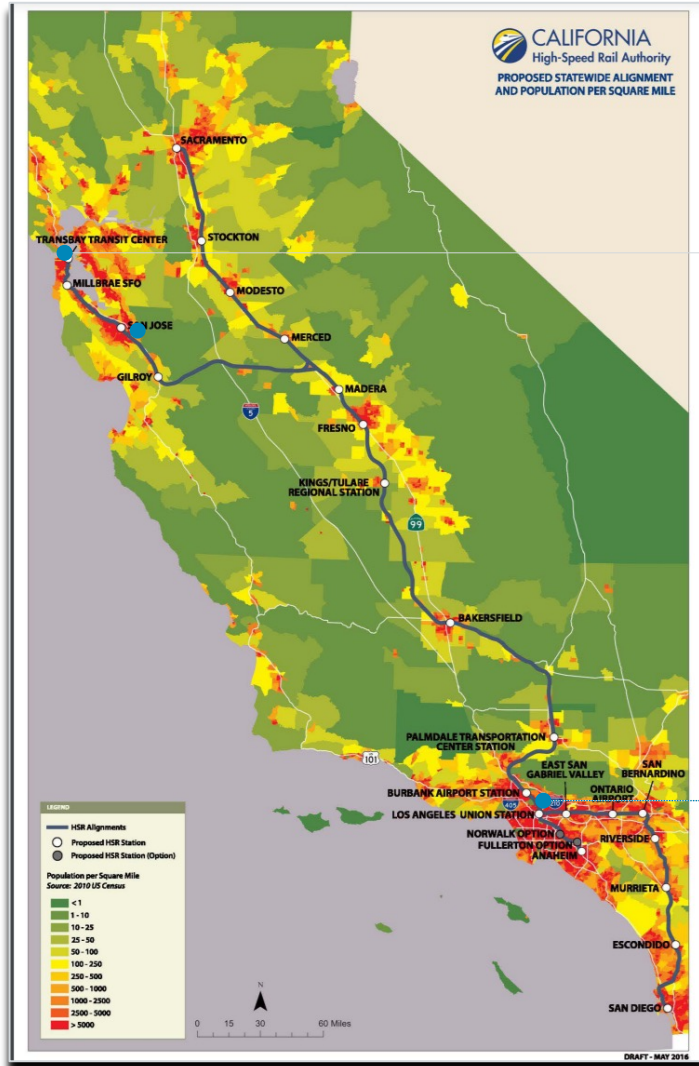


Regional rail HSR feeder services to satellite cities or between medium sized cities

- Besides the connection between the North and South, California high-speed rail will allow to intensify **a more robust relationship to the already existing services to Orange County Anaheim and San Diego by reducing congestion and constraints** on the coastal rail lines and roads similar to connecting services at Spain's major cities to close-by cities.
- Renfe Spanish main rail operator by implanting the Avant HSR Service (**right purple trackroads**) additionally to LD main corridors (**left red**) across the country, HSR offers the so call "lanzaderas" cities shuttle connections up to 120 miles distance range from major cities to medium satellite cities to increase the connectivity and mobility services at counties.

# California High-Speed Rail Project

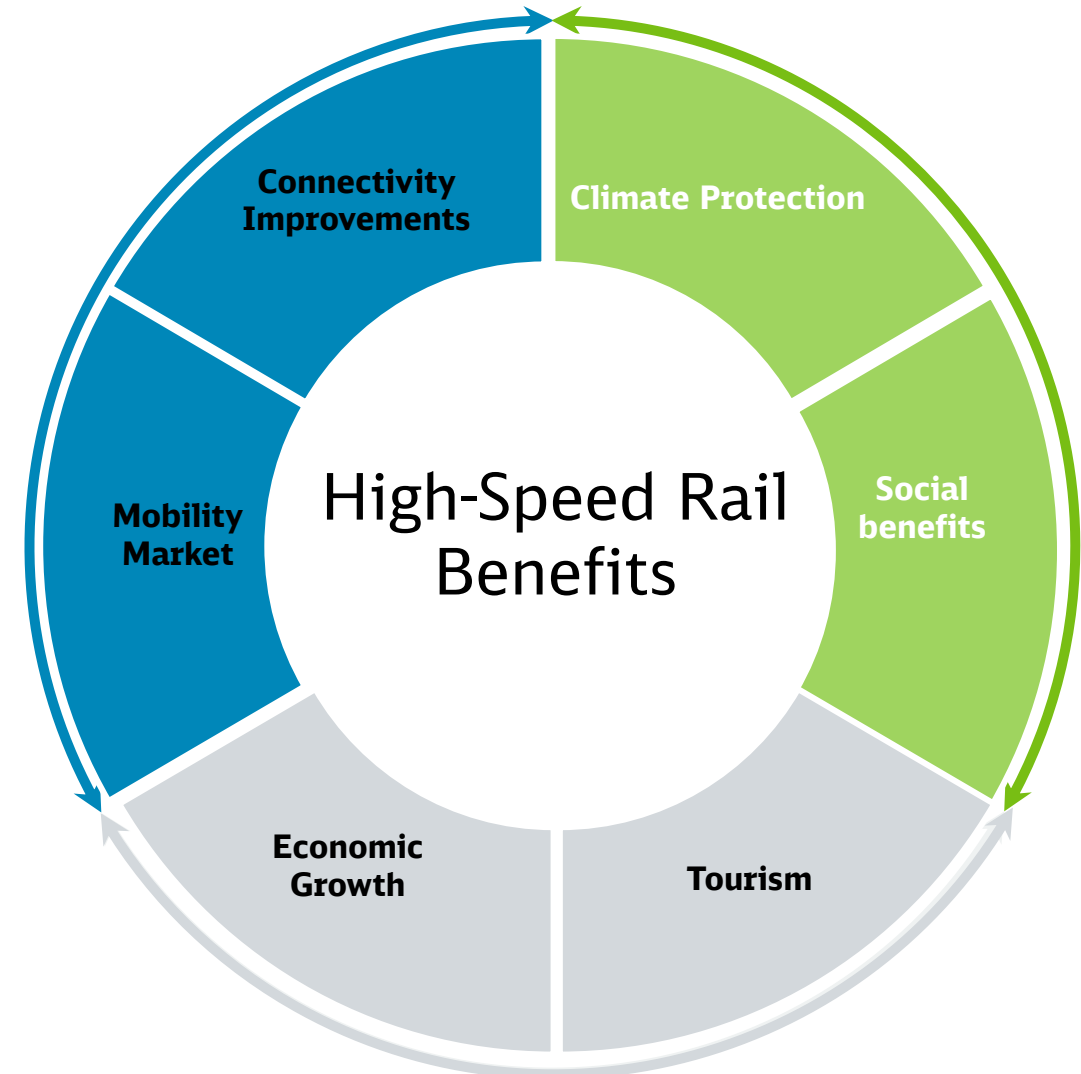
## What are the Benefits?



San Francisco

San Jose

Los Angeles



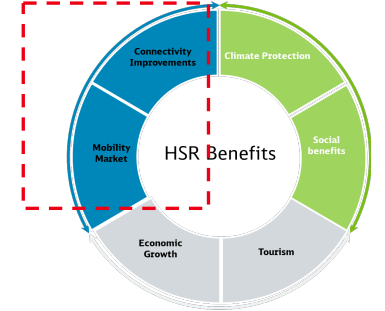
Source: CHSRA Communications Outreach



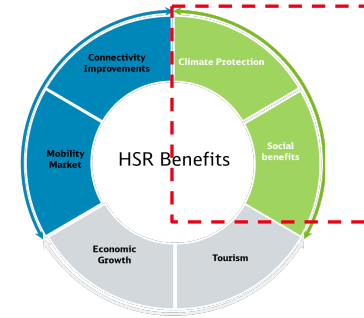
# Electrified High-Speed Rail will improve the mobility market and connectivity.



- The city of **San Francisco due to its location** is embracing the arrival of High-Speed Rail for a direct safe reliable quick connection to LA and other large cities. Settled while sharing efforts and investment, e.g. the Caltrain Electrification Program, to enhance existing services. High-speed rail ridership will positively impact transit services, **synergies through densification and increased ridership**. HSR approaches the city in the **very heart of the urban center**. The HSR accessibility is **downtown friendly** and will reduce congestion and relief pressure in the roads services access and exiting town.
- **San Jose to become via HSR due to its centered location** at the southern region of the Bay Area a new & very attractive HSR destination. The city and the agencies are working together on developing to a multimodal hub, and an ambitious **TOD Met area** creating a new city center point retaining residents, enlarging residential areas around station and liasing closer with tech industry in the Silicon Valley to attract employees from regions further distanced away.
- The City of **Los Angeles**, LA Metro and the Authority are working to ensure and modernize LAUS serving DT, LA county and **regional services to OC and San Diego county**. HSR will finally provide a direct train connection from LA to **Northern California**. In Los Angeles, HSR will aim to connect to the interstate Brightline system to **Las Vegas**



# Electrified High-Speed Rail will help reduce CO2-Emissions and will provide social benefits and social equity.

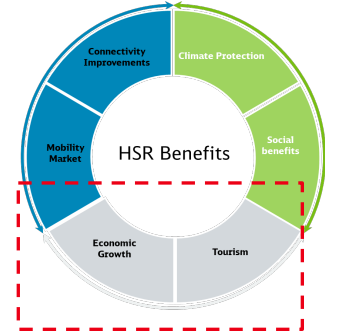


- High-Speed Rail will use 100% renewable energies and will reduce Green House Gas emissions in the larger cities and throughout the state of California. Cities where an extensive rail system is not as widely represented today will especially benefit from CO2-savings.
- High-Speed Rail will enable a wider exchange of expertise and services across the state and the large cities in Northern California and Southern California to attract employees from Central Valley and other areas of the State, through daily feasible commuting times. Vice versa, more affordable residential areas are accessible for employees of the tech industry.
- High-Speed rail will provide affordable means of transportation to roadmap a feasible safe green and reliable customer journey to the population even to those without access to alternative means of transportation.

# Electrified High-Speed Rail will accelerate economic growth and will increase tourism.



- Traditionally, trade and commerce are directly linked to transportation. Manpower and Services exchange **to and between cities** will drive **economic growth**.
- High-speed rail will help promote the job, the real estate, development markets and will provide **better access** to healthcare, universities, sports, cultural entertainment, and leisure travel which might be currently not in close reach for some local communities due to the geographically stretched state configuration.
- **City businesses** will benefit from increased high-speed rail ridership, increase business hours as more customers will be able to use transportation more times of the day with faster travel times between origin/destination.
- CA as a **touristic destination** will experience a higher demand for cities sightseeing, state parks and coastal areas by larger groups and families travelling from CA and abroad.







**Thank you**