Managing California's Incremental Intercity Passenger Rail Programs in Support of Future High-Speed Rail

A Survey of the Caltrain Intercity Rail Corridor, Proposed Incremental Infrastructure Improvements for Supporting Statewide CHSR Connectivity

Capitol Corridor, *Caltrain*, ACE Altamont Express, BART, *CHSR* 2035, San Joaquin, Coast Starlight, Pacific Surfliner, Metrolink

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Abstract

The current 2010-2035 political reality and financial condition of the U.S. economy and California's state budget has created long-term challenges delaying the rapid development of proposed High-Speed Rail projects in the 5-8 key identified U.S. mega-regional rail corridors such as California's planned statewide ultra-high speed system that would connect the state's North, Central, and South mega-regions. This survey will review and access the choices in moving forward to future passenger ***high-speed rail*** and ***ultra high-speed*** rail by legislating funding and implementing incremental improvements to existing metropolitan regional connecting passenger rail systems' service infrastructure, and accessing the future impact upon local metropolitan future planning related to projected 2035 population growth.

The survey includes a review of mega-regional rail connectivity and legislative efforts to fund the multiple levels of urban, inter-city/commuter, regional, and high-speed/ultra-high-speed rail to connect important mega-regions of economic activity and large population through a phased incremental higher-speed passenger rail improvement program (HSIRP).

This review also looks broadly at the statewide implementation of the HSIPR program that would improve connectivity and shorten existing travel/trip durations for customers. This also supports the future mega-regional connectivity of building the CHSRP, with an emphasis on the application of these improvements to **Caltrain** to enable the planned CHSR to run its advanced ultra-speed trainsets on existing right-of-way as a shared/ blended system with Caltrain modernized trainsets, system electrification, ATC and high-tech signaling improvements. This is the Northern California part of CHSRA's new "**bookends**" Plan for investment in connecting Northern and Southern existing passenger rail assets.

The proposed/planned California High-Speed Rail system route segments have different types and levels of multi-modal transit feeder services connecting at major city station hubs including light-rail, medium-heavy rail, and on-going bus transit improvement "system packages" with different service and infrastructure attributes which can be up-graded in incremental phases along with regional passenger rail infrastructure. These connecting modes also include metropolitan public transit Rapid Bus with Signal Priority Technologies (Smart Corridors), and proposed advanced BRT with exclusive bus lanes.

To successfully meet the future transportation needs and travel demand of all local community transportation improvement stakeholders, there is a need to concurrently improve multi-modal public transit and passenger/commuter rail systems interface and connectivity with the planned California *High-Speed Rail* system at all of the proposed segment station/transit hubs. The consideration of communities and stakeholders experiencing the immediate and on going benefits of incremental multi-modal rail and public transit on the local level is a benefit as well as the lower cost considerations of closing the "**Multi-generational time gap**" of the ***ultra-high speed*** CHSR for completing the mega-regional connectivity from northern California to southern California.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

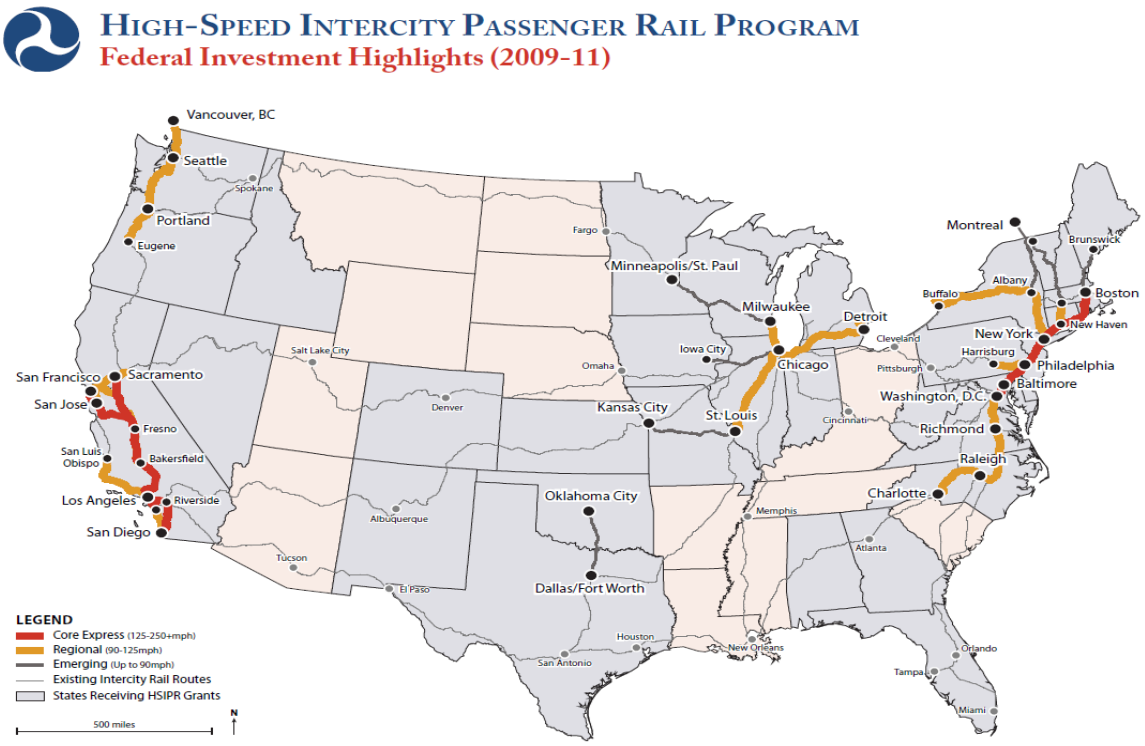
The CHSRA outreach presentation of the initial project concepts and route selection efforts fell short of presenting alternatives of leveraging existing transportation assets in place to use existing rail rights-of-way in a blended/shared mode for the initial lower cost implementation of the "multi-generational" CHSRP. The importance of presenting passenger rail stakeholders and the public with a balanced perspective of analyzing the positive or negative impacts of future implemented High-Speed Rail improvements upon the planned CHSR system routes and the simultaneous immediate benefit of incremental improvements to connecting urban, inter-city and regional rail feeder systems can not be under stated. Current CHSR plan modifications suggest incorporating shared tracks/partnerships to fund incremental higher speed passenger rail improvements to rail infrastructure, operations, and technology; thereby shortening commuter and inter-city travel time by raising operational speeds from the FRA 79 mph to 110-125 mph and even 150 mph in the Amtrak Northeast Corridor ─ as targeted by the 1994 Swift Rail Development Act, the 1995 Next Generation HSR Program, and reaffirmed by APTA in 2010.

It is critical that all of the major connecting passenger rail systems and operators coordinate their incrementally higher-speed passenger rail improvements with a set of standards that will enable the CHSR to operate on their right-away/track to connect efficiently with the key urban/city station multi-modal transportation centers. All of these rail operators/systems need to include in their vision and organizational structures a "TOD Planning Team" to generate revenue through multi-use TOD at their stations to off-set operating costs and provide "capital" to improve their system facilities. The benefits of TOD along city, metropolitan, and regional transit corridors is also key to business and ridership growth along all multi-modal transit and rail corridors by leveraging the "convenience/accessibility" of transit connectivity to housing, work, shopping, and entertainment venues and urban assets. The marketing and "Branding Identity" of TOD and the various operational and design attributes of the station infrastructure and the use of "leading edge" engineering and "industrial design" on all system components including train-sets are strategic in being a "customer/user" generator. The entire HSIPR "family" of connecting urban, inter-city, and mega-regional rail feeders becomes benefactors of these strategies as well as, sustaining future *California High-Speed Rail* rider-ship and revenue profitability.

California's ambitious goal to build a CHSR system with integrated infrastructure elements offers a unique opportunity to ensure that the future CHRSP "unified system package" supports regional and local passenger rail and public transit corridor businesses and their community's economic vitality. Incremental Passenger Rail improvements (HSIPR) that support future CHSR can be a progressive mode choice where land-use and the projected 2035 California population growth indicate a need for faster and higher capacity service to replace or supplement slower more traditional train services and reduce demand on regional highway and state air-corridors. Many medium sized cities which are primarily served by traditional highway infrastructure bus systems are showing selective growth patterns and a growing demand for public transportation and commuter passenger rail with faster service and higher capacity levels.

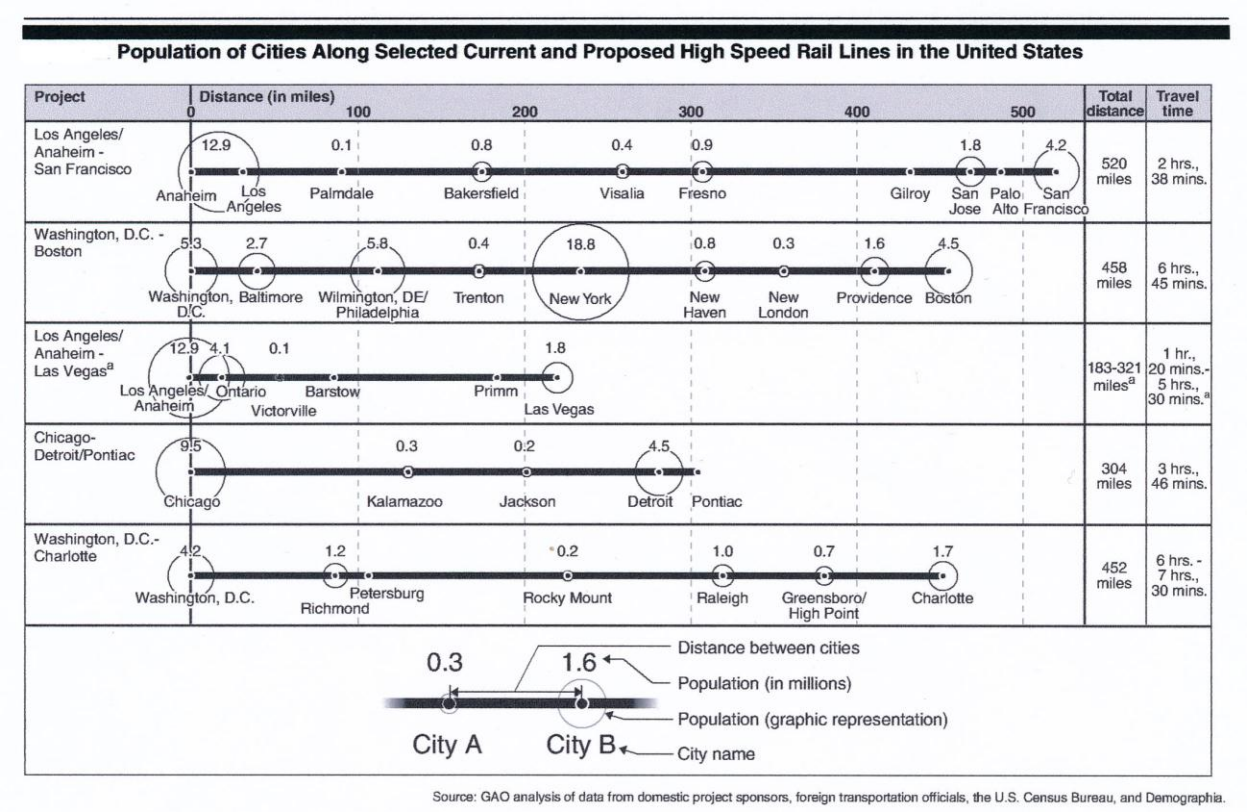
The Funding Prioritization of Incremental Higher-speed Passenger Rail Improvements vs. Ultra High-Speed Rail for "Geographic/Mega-regions"

The theoretical case has been made for investing priority in both Incremental Higher-speed Passenger Rail improvements (HSIRP) and *Ultra High-speed rail* within geographically defined "mega-regions" where population and economic growth forecasts increasing congestion have a growing demand for higher-capacity high speed rail as a transportation mode choice between driving and flying is supported by various land-use "think tanks". Petra Todorich, Director of "America 2050" states in a study by the Lincoln Institute that targeting these mega-regions for priority funding is seen "as a transformative investment ─ a generational investment."



On February 17, 2009 the American Recovery and Reinvestment Act (ARRA) was signed into law. As part of this legislation, $8 billion was provided for intercity and high-speed rail projects. On July 10, the Federal Railroad Administration (FRA) received pre-applications from 40 states totaling $103 billion. The FRA is implementing these passenger rail programs through the statutory program structure of the Passenger Rail Investment and Improvement Act of 2008, signed into law by President Bush. Congress has supplemented the initial $8 billion with additional appropriations of $2.5 billion in FY 2010. The present Administration has proposed an authorization of $53 billion for high-speed rail over the six years from FY 2012 through 2017 which is of March 2012 stalled, along with long-term SAFETEA-LU reauthorization.

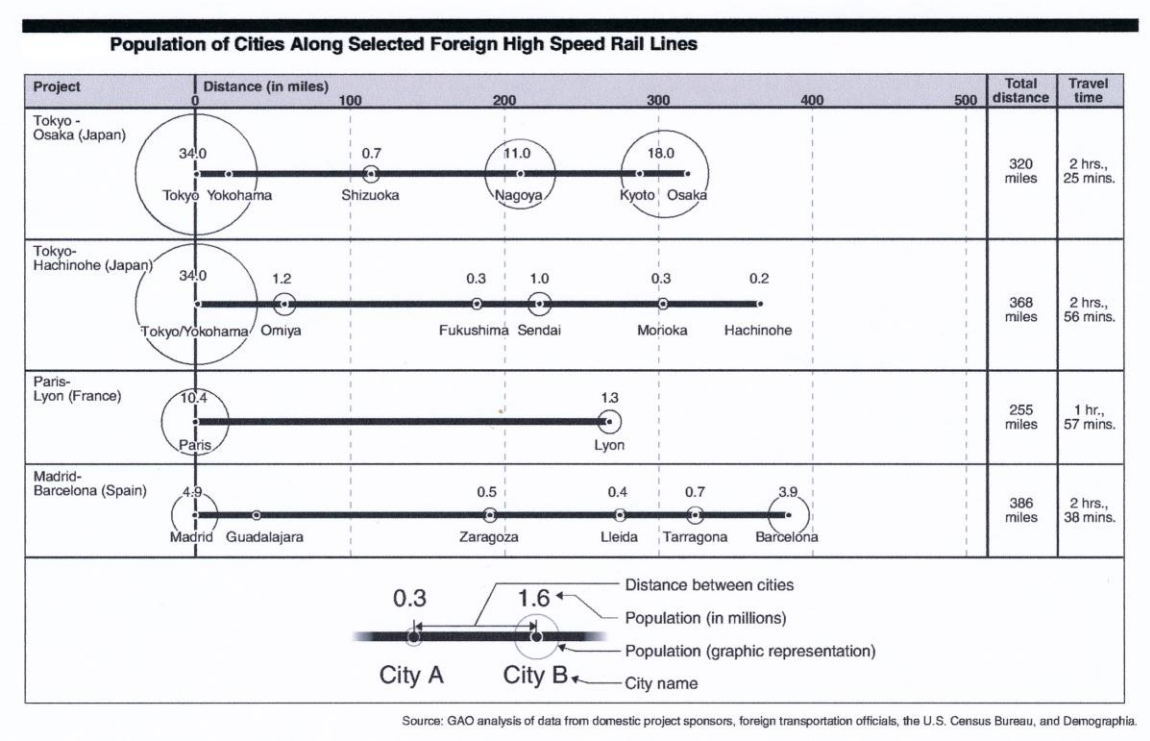
The "mega-region" between San Francisco and Los Angeles and between Boston and Washington, D.C., most closely in projected growth in population, industry and job development, land-use trends, and transportation capacity demands ─ mirror established European and Asian HSR systems like France's TCG route between Paris and Lyon, Japan's "Shinkansen" Tokyo-Nagoya-Osaka corridor, and Spain's Barcelona-Madrid High-speed rail route. Amtrak's Boston-New York Acela Express train is the closest U.S. operating higher speed rail system, which uses advanced train sets with tilting adjustable suspension to boast capability in some sections to 150 MPH, but in fact due to congestion and frequent curves averages less that half that speed. A proposed 30 year investment of $117 billion over 30 years for design, permitting, land acquisition, and construction would be required to reduce travel time between Boston and New York to 2 hours, and New York to Washington to 90 minutes.



Source: GAO analysis of data from domestic project sponsors, foreign transportation officials, the U.S. Census Bureau, and Demographia.

The California High-Speed Rail Project with its planned leading edge exclusive right-of-way, advanced train-sets, and state-of-the art operational and safety technology attributes is the current future hope for a truly quality ultra high-speed rail system to be built as a (DFFOM) project supported by Federal, State, and local funding mechanisms. The funding and approval process will require CHSRA management transparency and accountability, which is in need of streamlining and incorporating an innovative business model plan that will produce private sector growth in generating revenue and profit streams for reinvestment ─ to manage, maintain, operate, and expand while improving existing passenger rail connecting system reliability, faster travel and overall HSIPR customer experience and route connected communities' quality of life.

A key goal in supporting the building of California's high-speed rail network is the growth of jobs in the construction, servicing, operating of the system and sustainable employment growth and supporting mega-region industry, retail, and business job creation. Building new lines and refurbishing American rail may be seen as a smart business plan–with U.S. and international companies interested in investing in factories in the U.S. to build train sets, parts, and possibly service facilities. Looking at European and Asian HSR models for financing, infrastructure construction, and operating high-speed rail systems it could be deducted that centralized government, smaller defense budgets and dedicated taxes with a targeted national priority of building high-speed rail has been helpful in accelerating European/Asian HSR growth.



In France and Spain, as HSR networks were built, regional air traffic was cut at least in half. California's plans for a grade-separated, true high-speed train that will theoretically cruise along at 220 mph is the most ambitious U.S. HSR plan to date, and in line with global HSR trends, and a true mega-project in scope and funding requirements.

The U.S. current level of debt and slow GNP growth with the burden of huge entitlement program costs and mounting global defense costs added to deteriorating revenue growth to keep state budgets in the black over several decades has put the U.S. at a disadvantage in dedicating major resources toward building a national high-speed rail system like Japan's. For U.S. high-speed rail to move forward, John Mica (R-Fl), current Chairman of the House Transportation Infrastructure Committee and others are looking to the private sector and find a way for rail to be built and operated as a Public-Private partnership investment. Targeting the highly trafficked U.S. corridors can bolster the case for such investment.

However, "The Administration continues to fail in attracting private investment, capital and the experience to properly develop and cost-effectively operate true high-speed rail," according to Railroads Subcommittee Chairman Bill Shuster (R-PA). There are some unresolved right-of-way issues and cost estimates challenging the California High-speed Authority in building a leading edge HSR system that will run at 220 mph. In 2008, California residents still passed a $9.9 billion bond. California has continued to get various stimulus funds for their project because they are further along with environmental assessment impacts than some other states, and several state Governors rejected stimulus funding for building HSR in their states based upon political and state budgetary rationalizations. Also, the train in California will be truly high-speed, grade-separated, and cut down on air traffic and vehicle congestion as well as, air quality degradation due to California State's 2035 projected increased air and vehicle travel demand.

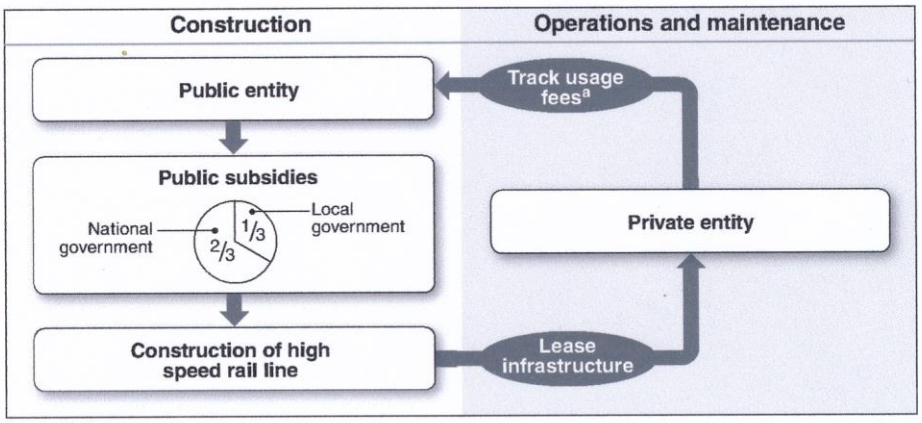
The California HSR infrastructure was originally estimated to cost at least $40 billion, and it will realistically cost at least $100-$117 billion even more than that with train-sets and future segment expansions. No one is arguing that cutting-edge HSR is cheap. France's TGV, however, paid back its construction costs after 12 years of service, and the Paris-Lyon service continues to turn a small-moderate profit. It should be noted that in 2010 not all of TGV system lines and services were profitable. Twenty percent of all TGV services lost money in 2010, and some services may eventually see reductions and elimination. However, the bulk of TGV services, even in the economic downturn, continue to break even or make a profit.

High-speed rail costs more to build to truly run at 150/220 mph or faster, with a dedicated, grade-separated track like the one that California has proposed, but they can offset some costs by ticket pricing structure and might displace airport congestion, saving taxpayer dollars. However this reviewer believes that the funding offset strategy and revenue and profit generation is a much more complex and dependent element of a more complex business modeling strategy required to be put in place by the California High-Speed Rail Authority. This requires a substantial shift in the CHSRA management and operation planning philosophy in looking at how they can adapt the "best of the best" and not succumbing to a mediocrity of compromise in the actual mission of operating the completed California HSR system. U.S. politics and the lack of legislative cooperation on transportation funding re-authorization with a dedicated long-term funding stream for High-Speed Passenger Rail, by a consensus of Republican and Democratic Party support—is bleeding future HSIPR programs and U.S. HSR to death.

In many parts of the world, some of these ***HSR*** systems over several decades recover their initial investment and grow supportive local economies through TOD private/public partnerships and local redevelopment. For high-speed rail to move forward, Congress and others are right to look to the private sector and find a way for ***Ultra/High-Speed Passenger Rail*** to be an appealing investment. Perhaps starting with highly trafficked passenger rail corridors that will make the case for prioritization of federal investment through a combination of incremental passenger rail system infrastructure improvements and select mega-regional ***Inter-City Express*** trains and Ultra/High-Speed Rail mega-regional connectors like the CHSRP is the way forward to the public embracing Ultra/High-Speed Rail's benefit vs. its cost.

This gives a serious rational for looking at the Japanese "Shinkansen" business and management model for building/constructing, implementing, expanding and financing through revenue and profit generation from a nationalized/public sector managed JNR infrastructure build-up to their 1987 privatization. The operators support customer service and profit driven business through private and public sector cooperation/partnerships and land-use development agreements.

Public and Private Sector Roles in High Speed Rail Development and Operation in Japan



Source: GAO.

[a]According to Japanese officials, track usage fees are set at the break-even level, assuming the rail operator's income is only from ticket revenues. This fee is set for a 30-year period, indirectly providing incentives to improve the operational efficiency of the rail operator over time.

The initial start of the first 100 Series Shinkansen line started with Japanese Government approval in December 1958, and construction of the first segment of the Tōkaidō Shinkansen between Tokyo and Osaka started in April 1959; operational in 1964. The cost of constructing the Shinkansen was at first estimated at nearly 200 billion yen, which was raised by way of a government loan, railway bonds and a low-interest loan of US$80 million from the World Bank. Initial cost estimates, had been deliberately understated and the actual figures were nearly double at about 400 billion yen, when the budget shortfall became clear in 1963. Many other planned "Shinkansen" lines were delayed or scrapped entirely as Japan National Railways slid into debt throughout the late '70s, largely because of the high cost of building the "Shinkansen" network. By the early 1980s, the company was practically insolvent, leading to its privatization in 1987

among Japanese operators. The amazing historic reality of their Japanese Shinkansen" and the JR connecting systems of inter-city express trains has resulted in an amazing operation history of safe and reliable travel across their multi-modal rail system, especially the "Shinkansen".

The New Reality Economic Reality for U.S. Ultra High-Speed Rail

There continues to be political and financial difficulties in moving forward and adequately funding U.S. High-Speed Rail projects required massive infrastructure spending: no single project is without its drawbacks, and even some of the most promising projects like the California High-Speed Rail Project for mitigating congestion from future projected population growth may be years away from completed implementation and system operations.

The United States and specifically California has a more developed multi-modal transportation system that presently provides a mix of air, freight and local/regional commuter rail, bus systems, Interstate and state highways and maritime transportation, that offer currently affordable mobility choice than countries like China, Spain, Taiwan who are rapidly advancing their ***Inter-city HS Express*** and ***Ultra High-Speed Rail*** networks. Is it vital for California and the U.S.A. need to constantly maintain, repair and improve its entire transportation infrastructure as well as developing high-speed rail and improved commuter rail systems? The answer in the terms of mobility improvement, economic and lifestyle productivity, and managing the reduction of traffic congestion and the ensuing negative environmental impacts due to land-use demand by 2035; is a resounding yes! But, how do we create an appropriate political prioritization that favors and funds for leading edge high-speed rail projects like the California High-speed rail system and others that will be needed in the 5-8 key U.S. economic mega-regional rail corridors?

The International Monetary Fund projects that China will grow at a rate of 9.5 percent in 2011, far more than the U.S.'s paltry 1.5 percent creating concern over the long-term funding stream needed by the FTA to implement a complete and economically sound system of High-speed rail in the U.S. "China continues to have much faster economic growth than we do, partly because they're spending much more aggressively on 21st century transportation like high-speed rail," (Phineas Baxandall of the U.S. Public Interest Research Group; Huff Post, 2011-10-02; *China High-Speed Rail Offers Few Lessons For U.S. Beyond Growth Potential.*)

A similar rapid development as a national priority, of HSR seems more distant in the current U.S. economic climate and socio-political horizon. The U.S.'s much more stringent planning and EIR Environmental Review processes, federal funding requirements, and in part because of congressional hurdles, the implementation progress on high-speed rail here has been much slower. The rate of long-term GNP growth projections is a critical stakeholder concern in the U.S. sustaining the funding of transportation mega projects like the California High-Speed Rail project let alone significant proposed nationwide HSR and HSIPR connectivity.

USA Proposed HSR Future Network-U.S. Railway Association Map

Moving the CHSRP Forward by Leveraging Existing Rail Assets through Incremental Passenger Rail Infrastructure Improvement

Traveling the last miles through mega-regional metropolitan areas to the urban core or proposed HSR New Stations/Regional Multi-modal Transportation Centers for the start or terminus of the customers trip becomes a "Travel Time/Trip Duration Extender" that can significantly detract or enhance the customers' selection or choice of HSR as a preferred travel mode over flying or driving between cities and mega-regions. The further the distance of travel and more importantly the longer the trip duration the more significant the total trip travel time is impacted by the "last mile" the door to door connectivity convenience and costs. The real time of traveling to Los Angeles or San Diego from San Francisco/Oakland/San Jose can be an additional hour and a half before the departure of a flight from SFO/Oakland/ or even San Jose plus the flight time of 2 hours and an additional 1 hour at the arrival point to the final destination equaling 3.5-4.5 hours travel by flying, or 3-3.5 by CHSR compared to 7-10 hours driving Interstate 5 north to south.

There is a new emerging national trend in certain mega-regions of "**super-commuters**" who live in San Francisco but work in Los Angeles or live in New York City and work in Washington, D.C., Boston, or Philadelphia on the Northeastern corridor during the week utilizing flying and the Amtrak Acela HSR service. The super-commuter is defined as someone who works in the central county of a given metropolitan area, but lives several hours beyond the boundaries of that metropolitan area. A growing number of people are traveling very long distances to work. Many of them travel hundreds of miles from their homes to work taking a combination of cars, planes, trains and buses to get from home to the office.

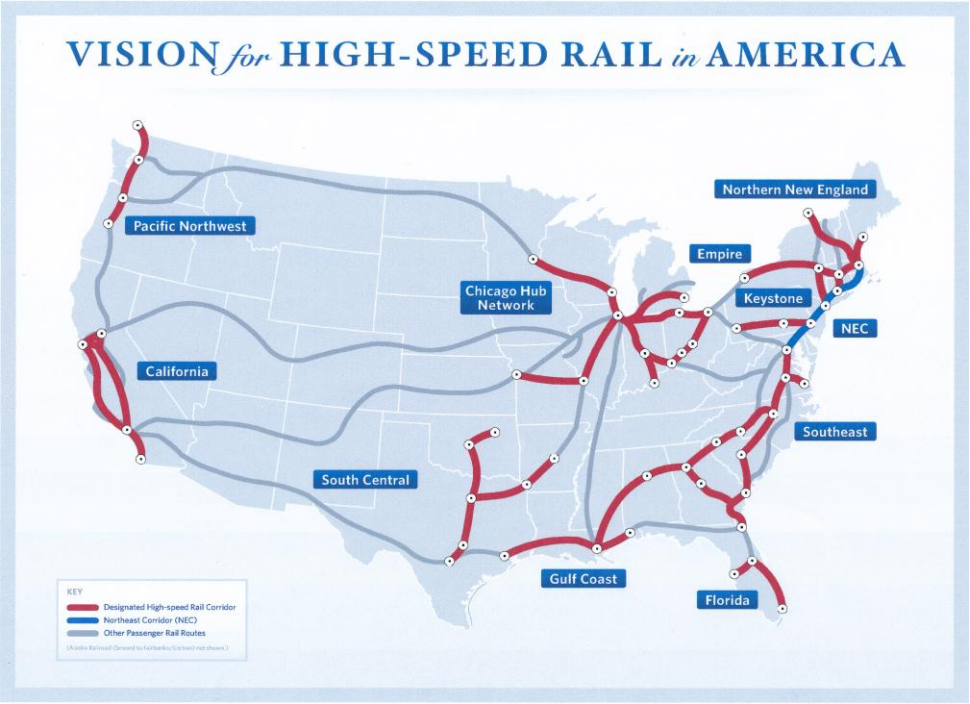
"From 2002 to 2009 the number of super-commuters grew in eight of the 10 largest U.S. metropolitan areas. The growth of super-commuters has occurred not just on the East Coast, but in cities such as Seattle and Houston, which had the greatest increase. The typical super-commuter is under 29 and more likely to be in the middle class. Super-commuters are well-positioned to take advantage of higher salaries in one region and lower housing costs in another," stated in the New York University, Rudin Center for Transportation Report. This is part of the new economic reality where working couples and families can not find work or career advancement opportunities in the same city, or even relocate the family due to regional differences in housing costs and salary income levels. So there is a growing demand on faster passenger/commuter rail and public transportation with shorter travel times and seamless door to door connectivity.

The U.S. over the years of the growing "car culture" has had a decline in rail travel investment or a network of passenger rail lines that knit its regions together. The U.S./California higher personnel incomes promote choice in travel modes that maximize flexibility and speed. Present commuter rail as a fixed route transit system, is currently less flexible and slow compared to air travel in connecting to major cities. As airlines have exponentially increased connectivity with cities of all sizes and locations, competition has also reduced the relative cost of air travel to the point most households can get to their long-distance destinations faster and cheaper via air. Traveling by car for shorter distances of 100-200 miles when factoring in the door to door travel convenience, can be more comfortable and faster than the time of taking several poorly connected transportation modes and or going through early check-in, flight security screenings, and/or air traffic delays due to weather, airport capacity peaks.

Even if high-speed rail were to double the number of riders, its market share would be small compared to air travel. The Amtrak in 2008 accounted for just 6 billion passenger miles compared to U.S. airlines accounting for 583 Billion passenger miles (RITA-U.S. DOT). Thus, the prospects for high-speed rail to compete effectively for a meaningful level of travelers in the U.S., unlike China, is fundamentally limited, and without a significant shift in the U.S. "business model" of developing and operating a HSR system massive ongoing subsidies might be required to keep the U.S. train systems operating once they are built and possibly limiting expansion opportunities.

Legislating Funding Sustainability for Improving U.S. Mega-regional Connectivity with High-Speed Rail and Incremental Passenger Rail Improvement Projects (HSIPR)

There is a new national and global financial reality of funding affordability and tax payer resistance that is impacting sustainable U.S. funding of all transportation infrastructure projects, especially in the development of near future high-speed (150 MPH plus) and ultra high-speed (200 MPH-300 MPH) "bullet train" mega projects requiring billions of dollars of funding and interest carrying charges. "Since the federal Department of Transportation started handing out high-speed rail funds from the Recovery Act in January 2010, about $5 billion was awarded to HSR exceeding 125 mph, 1/60th of what China has spent so far, in Fiscal Year 2012. (U.S. DOT, Senate Appropriations Committee) The U.S. is shockingly behind the times and global trends in connecting its mega-regions with the ultra-high speed rail let alone high-speed inter-city express trains, other than the incrementally improved east coast Amtrak Acela.



Going back historically to the "**Swift Rail Development Act**" of 1994, which found that the development of suitable technologies for the implementation of high-speed rail to be in the national interest, and authorized the FRA to undertake the necessary technology development. "The current technologies applied to existing routes provide an attractive, practical alternative to meet 1994 and future mobility demands on corridors connecting major urban areas up to 400 miles apart, at operating speeds of 110-125 mph, and potentially up to 150 mph."

The 1995 "Next Generation High-Speed Rail Technology Demonstration Program" includes the following four elements:

- Positive Train Control
- High-Speed Grade Non-Electric Locomotive
- High-Speed Grade Crossing Protection
- Track and Structures Technology

Many of the existing shared freight and passenger rail corridors operating speeds are still capped at 79 mph by the FRA, utilizing older signal block and control systems in need of improvement. The "Next Generation HSR 1995 Program" recommendations were further advanced by the American Public Transportation Association (APTA) in an adopted policy statement, "*Fleshing out an Ongoing Federal High-Speed and Intercity Passenger Rail Program: Principals for a Legislative Framework*", October 3, 2010. The preamble stated: "The act should clearly state the **intent to integrate high-speed and intercity passenger rail (HSIPR) corridors** across the United States **with the existing Amtrak network**, with commuter rail and transit operations wherever possible to create a national passenger rail network." There was a stated emphasis on the passenger rail network being a part of a "***balanced, multi-modal, and inter-connected national transportation system*** that would enable America's air, rail, and highway systems each to function most efficiently."

There were 23 key points in this APTA proposed legislative framework which included:

1. Preamble: to clearly state the intent to integrate high-speed and intercity passenger rail (HSIRP) corridors with the existing Amtrak network, with regional and local commuter rail and transit operations whenever possible.
2. Separate HSIPR Title in Surface Transportation Authorization Legislation, funded by other than Highway Trust Fund Revenues.
3. Funding Levels, not less than $50 billion for initial 6 year authorization period, supplementing the $10.5 billion provided through the American Recovery and Reinvestment Act of 2009 and FY 2010 transportation appropriations. APATA calls for a separate title of no less that $123 billion over six year.
4. Funding Partnerships: Federal Share 90% with a combination of federal, state, local, regional, and private funding. Tax incentive to attract private sector investment.
5. Dedicated separate Federal funding and revenue source for planning, design, and construction of HSIPR program projects.
6. Ability to leverage funding through public and private financing for faster implementation, less cost, and shared risk---eligible federal credit support programs.
7. National vision, plan and flexible goal strategy for implementing (HSIRP) in defined and agreed upon corridors to increase the speed of passenger rail to shorten intercity trip time.
8. Combination of annual and discretionary grants for streaming annual funded formula allocations in a constant manner to forward the completion of rail projects as scheduled.

Consideration for projects acquiring separate rights-of-way to avoid passenger rail operating in mixed traffic via discretionary grants.

9. Eligibility awarded to sections 301, 302, and 501 of the Passenger Rail Investment and Improvement Act of 2008 PRIIA.
10. Local and Regional Planning of HSIPR projects should be defined at the state and local level, but be aligned with national goals and objectives. The planning process should determine the appropriate type and level of passenger rail for its region (i.e., Express Rail 150 mph+; Regional Rail 110-150 mph; Emerging Rail 90-110 mph; Conventional Rail 79-90 mph.) **Note. Reviewer believes that there is are an additional 3 classifications that could clarify the branding/marketing of HSIPR; Intercity Express HSR 110-125 mph, Regional HSR 125-150 + mph, and Ultra High-Speed Rail running 200 mph plus; i.e,.CHSRP*.) RMB
11. Grant Agreements funded through multi-year authority for adding utility on select corridors.
12. Simplify program delivery, accountability through common standards USDOT and Federal Agencies and EIR processing for HSIPR projects.
13. Expedited grant process may be approved by The Secretary of Transportation
14. Connectivity with existing corridor transportation systems including; current passenger rail, urban transit, regional and intercity bus, airports, highways, bicycle networks, and pedestrian networks is a key requirement in planning and funding decisions for HSIPR projects.
15. Shared corridor facilities benefiting commuters and regional passenger rail to be eligible for investment.
16. Schedule and unforeseen cost contingencies provided for in project agreements/shared risk.
17. Open competition to pre-qualified operating and rail service companies.
18. Access granted by Federal policy change to all freight railroad right-of-way and use of adjacent freight rail rights-of-way must be established to advance HSIPR projects.
19. Apply the statutory liability limit of $200 million on all claims against HSIPR operators, sponsoring agencies, host railroads ─ Amtrak Reform and Accountability Act 1997.
20. Support of Research, Technology and Standards by the HSIPR program entities to establish common standards to insure inter-operability of all levels of passenger rail.
21. Establish DBE, Disadvantage Business Enterprise Program
22. Grade Crossing Elimination funded with in the Federal Highway program.
23. Access to all HSIPR facilities for persons with disabilities through design, communications, ADA design and architectural requirements. *Reference: (23 Point APTA-HSIPR 2010 Policy Statement for Summary)

There lies the dilemma in 2012, 17 plus years since the 1995 "Next-Gen HSIPR" program, of how do we move forward with delivering a "World Class" high-speed passenger rail network for the California Statewide goal of linking the North, Central, and Southern mega-regions together with a Ultra-High Speed Passenger Rail component? How to link and connect the diverse individual Amtrak Rail Operators, Mixed Freight Rail, and public transit systems that are needed to support the CHSRP? By looking at the history of recommended HSIPR improvements and legislative funding efforts for mixed use improvements it is evident that as meaningful and well intentioned as these efforts are; they fall very short of rapid or reasonable implementation or sustainable funding mechanisms. Caltrain has procured a wavier to use heavy rail equipment mixed with European standards rail rolling stock via "Rule of Particular Applicability".

The state of the national and state budget further hamper these necessary and highly advised infrastructure improvements for safety up-grades, advancing significantly higher rail speed, and dramatically reducing travel/trip duration between cities and mega-regions with great benefit to regional, state, and national economy in creating a stronger business climate and jobs in the 5-8 key national urban populated mega-regions and metropolitan areas.

In looking at California a review of the key Amtrak passenger rail operations/corridor routes and metropolitan commuter transit for applying the principals of HSIPR incremental improvement, thereby considering running the CHSR on or adjacent to existing mixed use passenger and freight rail right-of-ways as a blended/shared approach may initially result in an earlier time table for service start-up and a less costly way forward for the CHSRP to obtain connectivity.

The EIS/EIR process for upgrading existing passenger rail systems to raise the FRA speeds from the existing 79 mph to 110 has been cleared for several Amtrak corridors running tradition diesel locomotive services as in the case of Michigan, the Cascades, North Eastern Amtrak-Acela corridor, and Caltrain linking (San Francisco-San Jose-Gilroy) with the appropriate signal, PTC/ATC, and infrastructure improvements. Operating HS passenger rail service and equipment on mixed-used track and corridors shared with heavy freight loads and activity designed for 286,000 lbs freight axel loads, can result in higher damage and maintenance issues with the lighter weight European designed HSR electrified trainsets. Mixed use scheduling conflicts will require PTC and/or ERTMS (European Rail Traffic Management System I-II) 2005 technology: equipment, hardware, computers, and software for mixed passenger and freight operations.

CHSRA and Caltrain's Incremental Passenger Rail Blended Plan
San Francisco - San Jose - Gilroy

Caltrain's—blended HSIRP and Electrification Plan: San Francisco – San Jose – Gilroy 2020-2035 Vision Goals

Fast – it offers passengers a quicker trip with dependability; ***(80/110 mph)***
Safe – **"*improve safety levels*"**, leading edge technology (PTC); **GOAL: *Zero fatal accidents***.
Reliable – moves people effectively; delay time is minimized per train.
Frequent – with 114 trains per weekday 2035 SF-SJ, 6 daily SJ-Gilroy, variety of Train sets
Efficient – operates using technology to lower energy consumption. Multiple unit power (EMU)
Environmentally Friendly – Low noise and Low CO2 emissions, lower environmental impact
Benefits Communities – Social and Economic investment; business and jobs
Catalyst for TOD/Urban Development – CalTrain and CHSR urban and station **TOD**
Promotes Customer Markets – Expansion and Investment opportunities for local businesses
Innovation in customer comfort and services – Comfort technology, industrial design
Local Operational and Community Harmony – Applied uniformity, stakeholder acceptance

The overhaul of California's high-speed rail project could bring the Bay Area $1 billion to electrify Caltrain and lay the path for bullet train service between San Francisco and San Jose sooner than anticipated. The Chronicle on February 13, 2012 published, "that it has learned that officials with Bay Area transportation agencies are in negotiations with each other, and with the California High-Speed Rail Authority, to craft an agreement that would fund an advanced train-control system, electrify the rails on the Peninsula and eliminate some of the rail crossings - perhaps as soon as 2016, five to 10 years earlier than previous estimate". **California Proposition 1A**, the $9.55 billion bond measure approved in 2008 for funding the CHSRP, would pay for the aforementioned CalTrain improvements. The Bay Area would have to match that money with almost $1 billion dollars; $600 million from bond money for HSR service, with an additional $400 million from bond funds dedicated to transit agencies providing connections to the CHSR.

The former BART director, Dan Richard a Gov. Brown appointed 2012 new chairman of the CHSRA, stated that this would be a way to speed-up the plan implementation by using commuter rail lines to help provide initial HSR service by sharing the Caltrain tracks/right-of-way, and thereby advancing the investment in the CHSRP. A new phase plan for the CHSRP as been put forth to deal with the exponential three fold increase in budget/cost projections needed to build and implement the Ultra High-Speed CHSRP.

Project Vision and Scope – CHSRA

VISION: "Inspired by successful high-speed train systems worldwide, California's electrically-powered high-speed trains will help the state meet ever-growing demands on its transportation infrastructure. Initially running from San Francisco to Los Angeles/Anaheim via the Central Valley, and later to Sacramento and San Diego, high-speed trains will travel between LA and San Francisco in under 2 hours and 40 minutes, at speeds of up to 220 mph, and will interconnect with other transportation alternatives, providing an environmentally friendly option to traveling by plane or car."

The new draft also indicated that the new phased approach would build the first stretch as the so-called spine of the system; starting between Chowchilla and Bakersfield, and then building the Central Valley segment that would be extended toward either San Jose or the San Fernando Valley by 2021─ with Ultra High-Speed trains reaching 220 mph would be run by 2026. This would in the case of Caltrain as a connector require compatible electrification and infrastructure improvements including PTC/ATC, advance signaling systems, and passenger platform facilities to avoid changing trains in San Jose. The CHSRA is also working on the same issues in both Southern California and the Bay Area to eliminate or improve rail crossings and add additional tracks to separate local train operations/and or allow CHSR passing capability.

By working simultaneously to Caltrain and Southern California's Metrolink Commuter Rail system it becomes a "**bookends**" HSIRP solution to building and connecting the CHSRP to the two major California Mega-Regions of populations, industry, and economic activity sooner and possible at a lower initial build-out cost. Caltrain management have wanted to electrify their commuter railroad for decades and have completed plans with the EIS/EIR, but lacked the funding. There are also currently on the Caltrain right-of way 43 at-grade rail/street crossings where intersecting streets need to be taken over or under the tracks; for safety and accessibility.

It is felt that by management and supporters that electrification would allow Caltrain to run lighter, faster, and cleaner trains resulting in increased ridership. By incorporating an advanced train-control system, mandated by FRA for commuter lines, it would also support the infrastructure needed to carry high-speed trains through the Peninsula with out significant new construction. Further advantages would also result in quieter, quicker layover/dwell times, and improved environmental benefit. However, this still might create over the years of increased projected population growth and passenger capacity a constraint on line capacity with a two track system running both local and express HSR services, running only two CHSR trains per hour at a speed cap of 110 mph. The plan has not advanced the expensive $4.2 billion funding for the extension to San Francisco's Transbay Terminal/Multi-modal Transportation Center connecting

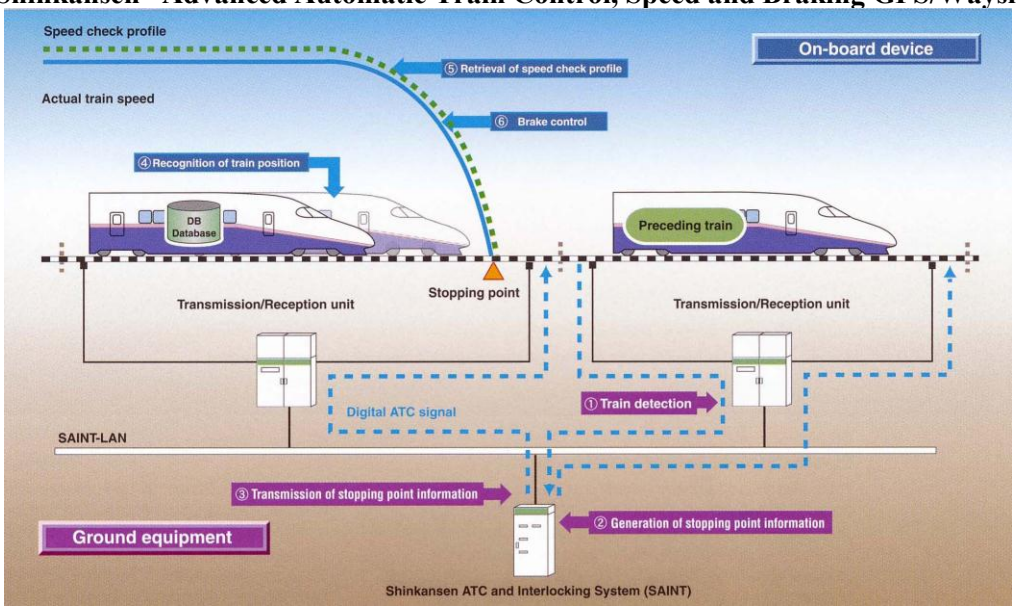
MUNI, AC Transit, SamTrans, BART with the CHSR. The Caltrain terminus station is currently at 3rd and King Streets near the AT&T Giants Ball Park, with enough tracks to provide initially for the added CHSR trainsets for passenger embarkation and debarkation connecting with MUNI.

Caltrain 2025 is an ambitious plan to modernize the system, expand capacity and improve safety by 2015. The program includes three projects: **1)** electrification of the railroad; **2)** positive train control; and, **3)** electric-multiple units.

An electrified train system has many advantages over a diesel system:

- The switch to electric power will reduce harmful emissions up to 90 percent.
- Electric trains are cheaper to operate.
- Electric trains are significantly quieter, a plus for residents/commercial establishments
- Positive train control or PTC* combines Global Positioning Satellite technology with the train's signal system to improve capacity and safety. Caltrain will be able to offer more service. Since PTC allows trains to travel more closely together—(CHSR Compatibility?)
- PTC improves safety by automatically slowing down trains that are traveling too fast and stopping trains before collisions can occur. (Note: Japanese "Shinkansen" ATC System)
- CalTrain is proposing to operate electric multiple units or EMUs:
- Since each set of EMUs has its own power supply, trains stop and start more quickly, reducing travel time. (Note: Caltrain: Photo-Simulation, Proposed Electrified Train-set)
- Without the need for a locomotive, train sets are more flexible and easier to interchange.
- EMUs are designed to absorb energy in a collision, increasing passenger safety

"Shinkansen" Advanced Automatic Train Control, Speed and Braking GPS/Wayside*



To electrify the 50 miles from San Francisco to San Jose is estimated to cost somewhere between $100 million and $150 million. The costs of electrifying the additional 27 miles to Gilroy are harder to estimate, since the Union Pacific tracks are not owned by Caltrain. It may cost as much as $60 million. Propelling trains at high speed requires a lot of power, and the higher voltages carried by overhead lines make it easier to provide faster Caltrain (and future high speed rail) service. Overhead wire is that choice for all new railroad electrification projects around the world, with the exception of third rail used on subway systems and BART.

In addition to providing the wiring to power the trains, Caltrain will need to purchase electric capable trains. This can be done in two different ways. One possibility is that Caltrain could replace its locomotives and outdated fleet of passenger cars with high-performance EMU "Electric Multiple Unit" trains as like BART's, self-propelled trains without separate locomotives. Another option is to replace the existing diesel locomotives with electric locomotives. Current electric locomotives are considered to be significantly more reliable, 20 electric locomotives could replace Caltrain's 23 diesels.

As an example, electric locomotives recently purchased by New Jersey Transit and Amtrak have cost around $6.2 million each, so replacing Caltrain's locomotives would cost about $125 million, minus selling the existing diesels could realize $30 million resulting in a net cost of approximately $90 million. The Long Island Rail Road EMU passenger cars have cost about $2.3 million each, so replacing Caltrain's passenger fleet is estimated at $250 million, minus $30 for diesel locomotive sales and possibly $70 million for passenger cars could result in $150 million fleet replacement expenditure. (Based on Caltrain 2009 Cost Estimates)

Costing out electrification and Caltrain fleet replacement one can arrive at $200 million or $350 million to transform either 50 or 77 miles of the Caltrain system into a modern, high-performance, quiet system capable of 110 mph, for around $4 million per mile. Consider as a comparison, building just 8.7 miles of BART to Millbrae cost over $200 million per mile.

Some arguments have been made over the years as to why not replace Caltrain with BART. Because of BART's design and operational incompatibility with the standard gauge of Caltrain's track which is also the same gauge necessary for the CHSR, makes the costly argument mute. The expense and the need for CHSR and Caltrain track compatibility, and lowering projected CHSR connecting costs by leveraging the existing Caltrans assets for running the CHSR down the peninsula corridor back and forth from San Jose to San Francisco support the same conclusion. BART has proven to be substantially more expensive than Caltrain.

BART extensions are currently costing over $200 million *per mile*. By contrast, the all-in costs for electrifying the existing CalTrain line, enabling it to provide service which is both faster and roomier than BART's, is between $4 million and $5 million per mile, or about *one fortieth* the cost! Furthermore, a decision for the original 1972 system design to go with a wide non-standard rail gauge and train sets has now become an expensive problem with the need to replace BART's 45 year old aging and deteriorating fleet with quieter technologically improved cars for passenger comfort and future projected system capacity demands. There are no American manufactured rail car companies that can presently build the equipment needed, so overseas custom manufactured replacements will be required by a waver process - 60% U.S. content.

Replacing the entire Caltrain line with BART could hypothetically cost as much as $10 billion dollars and 15-20 years to fund and construct while limiting Caltrain service severely. In contrast, an HSIPR upgraded Caltrain could provide faster higher capacity service in 4/5 years, and prepare its infrastructure and operations to handle the future running of the CHSR down its corridor as a blended/shared system and right-of-way connecting the entire state.

Partnership Key to Funding Electrification: Caltrain and the California High-Speed Rail Authority have joined together to form the Peninsula Rail Program, a joint effort to bring high-speed rail to the Peninsula. The agreement between the two agencies protects CalTrain's operations and could provide millions of dollars to help fund electrification. It also emphasizes the importance of an extensive public outreach effort that will inform the environmental process and, ultimately, the overall design of high-speed rail on the Peninsula.

The power to operate the trains will be transmitted from power facilities through overhead wires to contacts on the roof of the car. In order to provide consistent, reliable power to the trains, a series of 10 power facilities will be built along the Caltrain corridor. Eight of the power facilities will be located on the Caltrain right of way. Two will be in San Francisco and one in Burlingame, San Mateo, Redwood City, Mountain View, Sunnyvale and San Jose. Two traction power supply substations will be built near existing electrical networks on publicly owned property in South San Francisco and San Jose. Locations were selected based upon proximity to the tracks and the availability of land within Caltrain owned property.

The 2004 draft report proposed electrifying the railroad from San Francisco to Gilroy. In the final report, the system would be electrified only along its mainline from San Francisco to San Jose. The year of completion, originally forecast for 2008, has been updated to 2015. Caltrain proposed upgrading its diesel fleet with one of three alternatives: electric locomotives that would operate its existing passenger cars; electric locomotives and a fleet of new passenger cars; or EMUs-Electric Multiple Units. The light-weight, self-propelled, European-style cars offer several advantages over the traditional heavy rail cars currently in use by Caltrain. Because they are electric, EMUs produce 90 percent less air pollution and quieter, an advantage for residences near the right of way. Electric-powered trains are compatible with Caltrain's existing standard-gauge tracks and are able to start and stop more quickly, offering maximum operating flexibility. Off -the-shelf EMUs commonly used in Europe and Asia are scientifically designed to absorb energy in a collision, providing additional safety for train crews and passengers.

Current 2012 Existing Caltrain Equipment

"Baby Bullet", Third Street SF Station, "Bullet 928", Diesel Engine Unit, Double-Decker, Seats *(RMB)*

Constraints and Concerns Running CHSR and Caltrain on Mixed-use Rail Facilities – PTC vs. ERTMS, Shared Right-of-Way, Facilities/Crossings

There is a serious concern among stakeholders and rail operators like the Union Pacific, and the BNSF/Burlington Northern & Sante Fe, and Amtrak with the issue of **running different types of passenger and freight heavy rail with the newer proposed CHSR and Caltrain lighter weight trainsets at high speeds** sharing tracks and adjacent right-of-way. Serious discussion between Federal and State agencies and Rail Freight Operators on these issues has resulted in a U.S. House Transportation Committee current **proposal** to extend installing crash avoidance systems and technology estimated at $12 billion until 2020, an additional 5 years from the 2015 previous deadline. A 2008 law was enacted after a California train collision killed 25 people. The cost is seen as a burden that is viewed by the railroads as to outweigh the benefit, and that they could not meet the deadlines for installing the systems. Union Pacific will spend over $2 billion through 2015 in a good faith to meet the 2015 deadline.

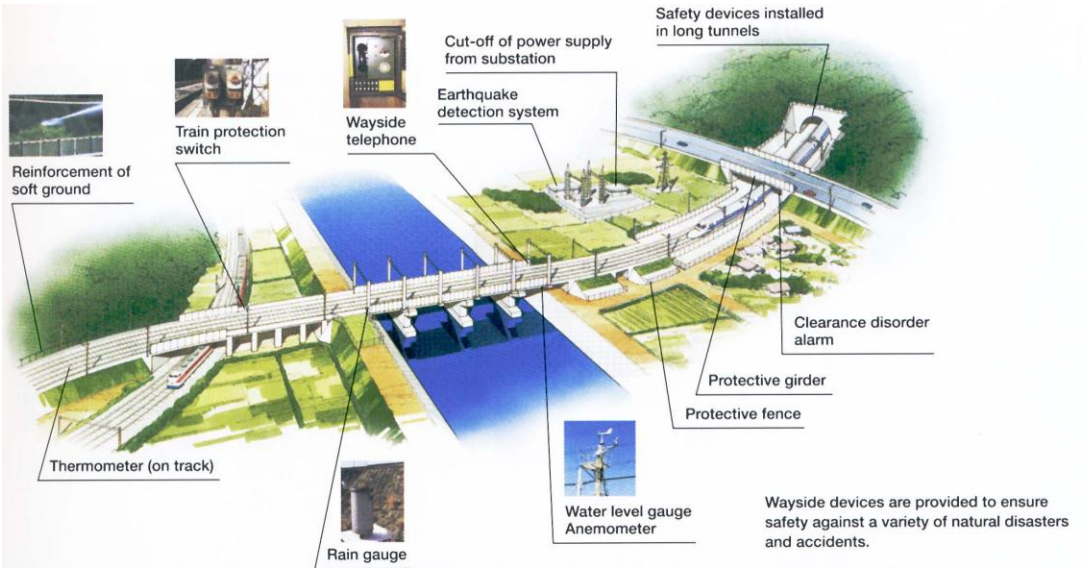
Further more, Union Pacific has raised concerns of the impacts of the CHSRP on the Central Valley route as to **impacting their property rights**, **disruption to freight operations**, and **safety**. They outline perceived safety risks with the Ultra High-Speed Rail sailing past the company's freight line within 100 feet in several locations requiring barriers where closer than 100 feet. There are serious concerns of either operator having a major derailment impacting safety and the philosophical U.S. heavy rail design standards of "Crash worthiness vs. Crash Avoidance," impacting the penetration of the "Technological Envelope," to prevent the compression collapse of passenger rail cars. However, the majority of CHSR operations are involved with BNSF, who remains somewhat open to discussions and problem solving strategies.

These concerns are not without merit when looking at the past history in the U.S. and globally concerning traditional passenger rail, freight operators and high-speed rail accidents and incidents on exclusive and shared right-of-ways. There are important lessons to be learned from how high-speed rail management in different countries not only design and build their specific high-speed rail projects but, their record of safe and reliable operations. Safety and managing accident prevention procedures, training and engineering over-ride controls are areas of management that the German High-speed (ICE) system has also had an historic poor track record along with the recent Chinese HSR 2011 Wenzhou collision with 40 fatalities and scores injured. These issues beyond the funding and building of high-speed rail systems go much deeper into the psychology and motivation of the type of management organization and the particular nation's public sector "political culture" of **managing and regulating** the development and operating of their high-speed rail system.



DB/ HSR ICE; Accidents/Fatalities: Eschede 1998, Lindenberg 2010, Magdeburg 2011 Passenger & Freight

JR's Shinkansen lines Safety System-utilizes wayside devices for disaster/seismic event warning and avoidance demonstrating a management culture that operates by proactively projecting the operational practice of attaining 'extreme safety results and performance ─ resulting in not a single passenger fatality in all of the (50) years of operating the "Shinkansen".



It was reported by investigators in China that there were defects in the devices and equipment involved in detecting that the train ahead was stopped/disabled in the right-of-way to monitor the train position relative to the train ahead and through ATC apply braking. The "Shinkansen" uses a complex but reliable ATC fail safe system. The compatibility issue of what type of PTC/ATC system as a part of the (2015/2020) FRA federal mandate for **Caltrain** and the HSIPR program is of concern. The type and the delivery, funding, and cost of the preferred CHSRP termed as **ERTMS** requires **Caltrain** to abandon their unfunded and CHSR incompatible CBOSS project.

The **ERTMS** time table advantage is that the pilot deployment of the ERTMS standard is ready for application to the statewide HSR connecting network with regulatory hurdles cleared for implementation. "*The sole technology that is fully compliant with all of the CHSRA project and technical requirements is the European Rail Traffic Management System (ERTMS) European Train Control System (ETCS) Level 2 with Global System for Mobile Communications – Railway (GSM-R). ERTMS is service-proven and its attributes are applicable to CHSTP automatic train control. The biggest technical obstacle for importing ERTMS to the U.S. is the lack of available radio frequency spectrum".* (*Ref: CHSRA TM 300.04 Parsons Brinkerhoff*)

- The choice of train control technologies will be limited to solutions that have been successfully demonstrated at high speeds for a period of at least 5 years, to minimize implementation risk and enable a strong safety case to be made to the FRA.
- The CHSRA requires that it not be locked into a single source for procurement, bidding, and supply. Interoperable, interchangeable, open standard and multi-vendor solutions are required and will provide the CHSRA with several sources of supply for extensions, upgrades, and maintenance spare parts into the future, thereby lowering risk and cost.
- Other alternatives to ERTMS are not technically compliant, not compliant with the project requirements, or present too much risk to implementation. (Ref: CHSRA *TECHNICAL MEMORANDUM Automatic Train Control and Radio Systems: Requirements, Solutions and Radio Frequency Spectrum Challenges TM 300.04- prepared by* ***Parsons Brinkerhoff****-May 11, 2004*)

Another concern in the area of **train control and passenger rail capacity constraints** impacting the future of CHSR and Caltrain's running in a blended mode down the San Jose to San Francisco corridor is the limitations posed by having only a **two track system** available. The construction of additional track infrastructure (6.5 mile mid-line overtake between San Mateo 9th Ave and Redwood City-Whipple Avenue) for allowing the CHRS to overtake or pass slower and more frequent **CalTrain services** may be critical when disruptions in service, equipment failure, or intrusions onto the right-of-way occur. Commuters on Caltrain have experienced this periodically; an incident occurs that puts one track out of service for a few hours related to grade crossing accidents (vehicle/pedestrian) and equipment breakdowns, which would be alleviated by electrification, grade separation, pedestrian crossing facilities, security CCV, and barriers. The fact remains that service disruptions have to be planned for as a possible unforeseen event.

When one track for local commuter trains is shut down, service is typically cut over to the other commuter track for a short stretch around the incident area. Caltrain has the option of switching tracks at over a dozen crossovers, spaced every few miles along the peninsula. Trains can

temporarily run the "wrong" way and make their usual station stops on the other platform track, minimizing delays and inconvenience to passengers.

With HSR in the mix, it gets more complicated. If HSR runs down the middle pair of tracks (on a 4 track configuration), cutting over local commuter trains from one platform track to the other platform track requires crossing over both HSR tracks and thus waiting for, or delaying, traffic on those center tracks. Temporarily running on the "wrong" platform track would involve a complex, coordinated sequence of moves that disrupt service on all four tracks. In addition, waiting passengers would have to dash to the opposite platform in order to catch their train. If CHSR ran on the outside pair of tracks and Caltrain commuter service on the inside pair, a disruption on one of the commuter tracks would not conflict with HSR service.

To switch to the other platform track, locals would simply cross over to the adjacent commuter track. Under this scenario, Caltrain stations would have a single island platform in the middle of the right of way, located between the center pair of tracks. Passengers would not have to switch platforms to catch their train on the other platform track, since the platform tracks would serve each side of the same platform. In short, the *fast-slow-slow-fast* track configuration provides great flexibility for dealing with service disruptions on any given track. On the other hand, the *slow-fast-fast-slow* configuration causes a big mess that disrupts all four tracks, whenever one of the local tracks is knocked out of service.

Eliminating disruptions resulting from **at grade street intersections** by vehicles and pedestrians crossing Caltrans right-of-way or any passenger and freight track system is historically an expensive and deadly scenario that every rail operator has experienced. Caltrain has had as many as 16 people yearly intruding onto the right-of-way accidentally and with suicidal intent. The Metrolink has experienced similar accidents including the parking of vehicles on the track by going around track gates and warning signals to damage and derail its trains. With lighter trainsets moving at high speed this becomes exponentially more deadly and serious. Part of the process in managing the infrastructure improvements to remove at grade crossings, involves review and approval by not only local public-works/traffic engineers, often involve Caltrans the state DOT for approval, with mixed multi-agency funding for the design and construction work required. CalTrain has 43 at grade crossing along its corridor requiring major costly improvements and street re-configuration.

Historically there have been 69 grade crossing accidents with fatalities from 2002-2006, on the CalTrain rail corridor according to a FTA 79 month study, 19 in 2009, and 11 in 2011. Trespassers on U.S. commuter rail corridor right-of-ways accounted for 86%. Nationally over a 10 year period, 1996-2005 the **number of highway-rail grade crossing accidents per year has increased by 15 percent** and the **number of fatalities** caused by these accidents has **increased by almost 60 percent**. There is significant data to emphasize the necessity to build grade separation into all intersecting streets and highways that would cross the path of the CHSR and HSIPR improvement projects on commuter rail like Caltrain's. Both the CHSRP and Caltrain in the areas of infrastructure improvements or new construction that impacts streets and state highways will have to deal with and manage project oversight and approval by Caltrans the California DOT. Multiple agency regulations, approvals, and oversight create further constraints.

Caltrans the California State Department of Transportation which builds and has project funding oversight on most multi-modal transportation including railways impacting state highways and public land states that their transportation project mission is: "California and its regional transportation planning agencies develop transportation plans and programs through a continuing, comprehensive and cooperative process. The goal in each project is to develop and maintain a system that provides safe, reliable transportation and mobility for people goods and services in the State." The CHSRA and Caltrain are partners in supporting and meeting these California transportation goals.

The complex multilevel of federal, state, and local agencies and government authority to regulate hundreds of components and aspects from construction and structural specification encompassing seismic requirements to environmental impact regulations and requirements are at the heart of the CHRSA and Caltrain's project management team's focus and responsibilities. The HSIPR program and CHSR project's complexity in the areas of multi-agency regulations and authority far exceeds the understanding and grasp of a majority of project stakeholders and the public, and is often hard to communicate in a clear and transparent public outreach process. These are areas complex in interpretation as a result of legislative, legal interpretation and application that may overrule a public or community favored project's impact mitigation approach. There are technical and engineering design impact mitigation approaches which are also often difficult to grasp by some stakeholders but can often be explained in visual presentation and practical application demonstrations from other successful implemented HSR systems and HSIPR programs throughout the planning and EIS/EIR process.

The California High-Speed Train Project (CHSTP) is expected to encroach upon California Department of Transportation (Caltrans) right-of-way in numerous locations along its alignment route and proposed alternative alignments and Caltrain right-of-way. Due to the number of anticipated encroachments, spanning multiple Caltrans Districts, it was decided to develop a system-wide plan ("Master Agreement for High-Speed Train System Project Development within Caltrans Right-of-Way, 2009") of interaction/coordination with Caltrans. The plan states:

"In accordance with the plan Caltrans will perform Oversight on all work performed by the Authority for locating any portion of the CHSTP within Caltrans Right-of-Way (CROW). In addition, through Supplemental Agreements, the CHSR Authority will be requesting Caltrans to perform additional services beyond those of Oversight, referred to as "Project Development Services" (PDS), including the preliminary engineering (PE) up to 30% design for any existing Caltrans structures that will require modification or replacement for the CHSTP."

Furthermore, "to initiate the process in each CHSRP section, the Authority's Regional Managers will prepare a draft Project Initiation Document (PID) to request programming for capital support for the Project Approval and Environmental Document (PA&ED) Phase... The PID is to be updated annually for Caltrans to determine future levels of Oversight and PDS costs necessary to support the Authority's fiscal budget requests. The PID for each section will provide a description of the route alternatives being studied including highway crossings or encroachments, a list of existing State Highway System (SHS) structures requiring modification, a list of where a route alternative runs parallel to the SHS, including areas where there may be

right-of-way impacts (grade-crossings), a preliminary capital cost estimate of new and modified structures on the SHS, and a milestone schedule."

**The Master Agreement defines the roles and responsibilities of affected Caltrans Districts, as well as those of the California High-Speed Rail Authority (the Authority). The Master Agreement will henceforth be the basis of all CHSRP and CalTrain coordination with Caltrans and will create a uniform approval process.*

The intent of the Master Agreement and future proposed amendments is to allow the Authority to follow the same procedures (technical and administrative) with all Districts that address:

a) The extent of oversight to be provided for Caltrans during all phases of the project.
b) Financial responsibility of the Authority and Caltrans for all oversight effort.
c) Post-construction responsibility of the Authority and Caltrans.

***CHSRP Delivery Method:**
Design-Build-Finance-Operate-Maintain (DBFOM)*: The DBFOM is a variation of the DBOM approach where the financial risks are transferred to a private partner while project sponsor retains ownership of the facility. Attracts private financing which can be repaid by future operational revenues.* **(DBOMF) Design-Build-Operate-Maintain-Finance** is the Preferred Option for the CHSRA; (Ref. Rod Diridon 10/7/2011)

Besides the issue of Caltrain's system and right-of-way not being currently electrified and prepared for the CHSR system there is the issue of building the **SF downtown extension** to extend the CHSR and Caltrain to the currently under construction Transbay Transit Center in the heart of San Francisco's business district instead of ending at the current Third Street **Caltrain Station**.

SF Transbay Transportation Center - Caltrain SF 3rd Street Station - Entrance & Rear Platforms *(RMB)*

The project is estimated to be in excess of $3 billion, and was given a very low benefit/cost rating by the MTC---with the possible speculation/political rational of protecting BART ridership in the Millbrae line and completing other future aspirations related to completing the BART loop around the Bay. Preparing and incrementally improving the existing Caltrain system and corridor to run the CHSR as a blended/shared system is not only expensive and complicated to manage and coordinate with multiple agencies, local governments, stakeholders, and the public; but will take time and innovative expertise to pull-off successfully.

Security and safety issues will have to be solved with addition CCV and onboard cameras and monitoring systems including possible radar and wayside detecting devices to prevent and counteract trespassing, right-of-way intrusions, intentional suicides, and terrorist acts of sabotage against Caltrain's and the CHSR's equipment and trainsets.

Managing Caltrain's Shared CHSR Vision by Choosing the Right Attributes

What are the attributes of a Leading-edge high speed rail system or HSIPR commuter rail like Caltrain that project and contribute to the goals which meet customer and stakeholder expectations? The Shinkansen as a benchmark system has carried billions of passengers combining comfort with efficiency, safety, and reliability for over 40 years without a single passenger fatality. That is an incredible feat, unmatched by any other passenger rail system.

It is vital for the Caltrain and the CHSRA to develop the right "integrated and flexible service package and operational model" for maximizing and projecting to stakeholders the benefit of improving Caltrain service and infrastructure with electrification and new trainsets/rolling stock and sharing right-of-way with the CHSR. One very applicable issue derived from an extensive literature search concerning the area of high-speed rail system packaging of attributes is that key components of an operating plan; route structure, service frequency, stop/station spacing, service span, network, and degree of integration with other feeder transit services differ and have outcomes that affect the end-user/customer and the CHSR station locations and surrounding business community acceptance and support of the system.

The Shinkansen trainsets carry up to 1,600 in its **double decked Shinkansen Series E4** that are light weight and very energy efficient using the electric multiple unit (EMU) train system also under consideration by Caltrain and the CHSRA. Caltrain currently operates a fleet of Double-Decked passenger cars with a newer series made by Canadian Bombardier. The Shinkansen by its record of being a safe, punctual, and reliable cost-efficient system has won and retained the trust of the general public, and the riders of the Shinkansen. This is model of stakeholder expectations that needs to be projected by the CHSR and Caltrain's HSIRP "Blended Plan", and the new "**bookends**" north/south HSIRP improvement investment plan prior to implementation.

CHSRA underestimated costs of construction, overestimated job and ridership number projections and political appeasement are taking a front seat in derailing CHRA vision's goals of building a "state of art" CHSR system that matches the Shinkansen model of building a fast, safe, reliable, frequent running, efficient, and environmentally friendly system; that positions the customer and communities' benefits in the front seat. Building a well engineered CHSR/Caltrain HSIPR blended system faster at reduced cost through seasoned project management is one task that American/California ingenuity with Federal sustainable funding legislation could accomplish; but will it be a system that operates with a sustainable business plan that creates reinvestment opportunities and the right kind of statewide TOD/community partnerships, and customer support systems/services.

CHSRA—CHRS Strategic Vision /Promised and Currently Questioned Results

CHSR will be fast and reliable – offers passengers a quicker trip with dependability
CHSR will be cutting edge – **220 MPH** performance by using state-of-art technology
CHSR is cost-effective – moves people at less cost vs. building highways and airports
CHSR will improve mobility – supports inter-regional mobility and multi-modal access
CHSR will stimulate our economy – growth of businesses, jobs, and housing/TOD
CHSR is incremental – built in phases based upon funding availability and demand.
CHSR will create jobs – construction, operations, retail and corporate; 450,000 jobs CA.
CHSR will benefit the environment – energy efficiency, reduce oil dependency, air quality
CHSR supports the President's Vision – major investment in HSR for the nation

CHSR issues of purpose, need, and access equity have to be balanced with the impacts on existing connecting and feeder passenger rail systems like **Caltrain, BART, the Capitol Corridor, ACE Altamont Express, San Joaquin, Coast Starlight, Pacific Surfliner, and Metrolink the** cost of operation and management of the system. The technology and infrastructure design choices may not only affect cost and maintenance factors, but in reality are key Caltrain and (CHSR) product and service marketing features/attributes that will affect customer choice, retention, and help grow future repeat and sustainable rider ship numbers. Picking the right type of infrastructure design; vehicle equipment choice will affect the level of quality perception and Caltrain stakeholder/customer support for a new high-tech CHSR and choosing to fly or drive between the inter-regional cities.

Technologies and system element integration are the "back-room" part of creating a unified and seamlessly running successful HSIPR **Caltrain** and **CHSR** blended/shared facilities. These technologies and integrated system components are the behind the scene "systems technological attributes" which contribute to the customers satisfaction, comfort, and safety and their sense of service reliability and product quality. These system elements can communicate to various stakeholders that we are building the best quality Caltrain HSIPR system that current technologies offer and is adaptable to future CHSRP system expansion and improvements. Caltrain and CHSRA with the Joint Powers Authority must really think and plan carefully the selection and specifications for applied technologies, train equipment/trainsets, electrification, PTC/ERTMS and Wayside Detections Systems, track-configuration and capacities, station design/platform design, elimination of grade crossings as well as the macro areas of funding, community impacts, regulatory compliance issues and political cooperation.

Why build a custom variant for California that doesn't use leading edge off the shelf Shinkansen system components, technologies, or even train-sets when they have the longest experience at running a "state of the art" system with a top rated safety record, highest customer satisfaction, reliable on time frequency, integration with feeder systems, and stunning train-set industrial design and passenger amenities style. Just look at the example of BART's expensive cost and manufacturing dilemma of replacing is aging non-standard rail fleet over the next decade as an

example from not adopting a universal gauge standard standard. Silicon Valley's Apple Inc. with its globally successful leading-edge designed products source hundreds of high-technology components used in their amazing products from Japan and China. A business commitment to innovation, quality control, reliability seems to be a proven Japanese deliverable and China a low cost bidder. Shinkansen proven technologies represent years of research and operational testing through several generations of train-sets and system technology improvements, along with trainsets used on the French TVG, Talgo Trainsets used on the new Spanish HSR system and/or Trainsets by Alstom with tilting technology employed on the U.S. Acela Northeast Corridor.

The "Buy American" policy is going to be a serious problem in the lack of active quality on going U.S. passenger rail and HSR trainsets manufactures capable of delivering these technologically advanced Euro-Asian designed and built trainsets, especially in the low volume for initiating ultra high-speed passenger rail and HSIPR incremental passenger upgrades planed for electrification of the CalTrain corridor and other CHSR shared passenger rail corridors.

Industrial Design for HSIPR Improvement and the CHSR: Innovation in Form and Function Counts

"The Glue that Bonds Form and Function; Marketing and Engineering"

CHRSA/CalTrain, Capitol Corridor, ACE, BART, VTA-Transportation Center-San Jose- CHSRA/3D

A strategically-thinking transportation manager for each CHSR connecting passenger rail system will assemble the best quality industrial design and corporate identity consultation team to develop an integrated visual nomenclature system for train-sets, signage, stations, public infrastructure elements, and media elements to clarify the public's perception and acceptance of the new and improved services, or the organization as a whole. Los Angeles' successful Metro Rapid Bus program is a result of this kind of strategic thinking—delivering the best total "BRT/Rapid Bus Package" of system attributes including performance, frequency, and a leading

edge systems design and applied brand identity. The Japanese "Shinkansen", French TVG, Italian HSR, Spanish HSR. Taiwan HSR, China HSR and German ICE demonstrate strong marketing and branding programs to communicate their services and HSR leading-edge engineering, safety features, customer comfort, and advanced industrial design attributes.

JR-East Shinkansen E-5 Series - French TVG –Paris-Lyon - German (Ice 3) HSR - Italian Alstom AGV

The Caltrain and the CHSRA, with enough financial resources and leading edge strategic planning, can build and operate a blended/HSIPR system that exceeds customer/stakeholder expectations, and grows future demand. The "packaging" of leading-edge technology, design and system attributes will make a difference in the acceptance of Caltrain and California High Speed Rail service implementation and influence the future expansion of HSR in the United States.

NEW JR-East E5 Series Shinkansen – JR-Central N700 - Series - JR-East Series E6 Concept

Key Shinkansen Engineering Technologies Blended with Industrial Design Include:

- Aerodynamic Shape-train set design
- Car body has a large cross-section and lightweight structure
- Bogie dynamic adjustable suspension enhances riding comfort
- EMU powered and intelligent technology
- Noise reduction technology and design features
- Adhesion control and running performance
- Passenger Amenities for comfort and convenience
- Safety Control – Traffic Control System
- Safety Automatic Train Control Technology
- Efficient Electric Power Supply System
- Advanced Current Collection/ Catenary Wire and pantograph technologies
- Specialized modular/slab Track Structure and Construction
- Protection Technologies for Disaster Prevention, and seismic/earthquake detection
- Harmony with the Environment
- Extreme Safety by rigorous maintenance schedules
- Crew training and consistent improvement-training simulators, testing
- Highest level of customer services and products-electronic ticketing/payment technology

Compare the Euro-Asian HSR leading industrial design and technological features to some future electrified power hybrid combo-train concepts for Caltrain and its existing system of diesel engines, and the "Baby Bullet" upgrades built by Bombardier of Canada. A considerable improvement in order to run future electrified Caltrain commuter trains at inter-city express speeds up to 110-125 mph that may also allow CHSR advanced ultra-speed Trainsets to share the Caltrain tracks/right-of-way between San Jose and San Francisco.

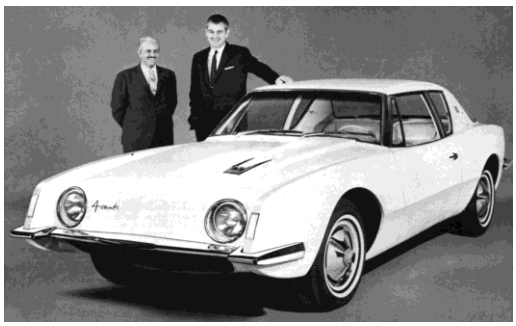
Additional Euro-Asian Industrial Design HSR Concepts and Operational Models

Incredible Global HSR Industrial Design Concepts and Operational Trainsets: Including Acela, Italian HSR, Italian Frecciarossa, Taiwan HSR, Italian Ferrari Treno, ERT500 Italy, UK HSR, NTV Italian Ferrari Treno

In looking and experiencing these incredible Ultra-Speed and High-Speed Rail systems and trainsets one has to suggest that American's have forgotten their heritage in being innovative leaders in manufacturing quality transportation products with leading edge technology and "industrial design". In the period starting in 1920/1929 the field of American Industrial Design was lead by the innovative and prolific designers/visionaries of Walter Dorwin Teague, Henry Dreyfuss, and the French/American designer Raymond Lowey. America had a magnificent heritage in the building and designing of advanced railway equipment, of which some of the most advanced streamline designs were by Raymond Lowey for the Pennsylvania Railroad.

1937 PR K-4S/S1 120+ mph – 1949 TIME – 1937 PR T1 Steam 100 mph – 1934 PR GG-1 High-speed Electric

A brief step back in to the history of Industrial Design's impact to customer appreciation and acceptance can be best summed-up with a couple of the principals of good and effective design and where is the fine line between that acceptance and rejection of leading-edge design innovation. Raymond Lowey, 1895-1986 who had the famous principal of **MAYA** "**most advanced yet acceptable**" for design solutions that imply a vast departure from what the public has been accustomed to accept. Lowey was very involved with designing the later years of Studebaker's leading-edge aerodynamic design/styling, and the incredible light-weight 1961 Avanti sports sedan, when the 1960's American car mode was heavy, lots of chrome metal, and guzzled gas with large V8's.

1960 Avanti 130 mph, Bonneville flats run 196 mph

He later stated that, "weight and lack of aerodynamic design were the enemy of American car manufacturing." The same could be said of rapid performance in designing and building lighter weight advanced high-speed rail trainsets. Lowey and Associates were involved in designing everything from the "ionic" Coke bottle, to Air Force One, EXXON and Shell Corporate Identities, HSR trains, ships/vessels, and even the space station for NASA.

Another great Industrial Designer was Walter Dorwin Teague 1883-1969, whose firm that he founded was very prolific in everything from consumer products and packaging to designing for Boeing the interiors of the 707, 737, 747, 777, and 787 not much different than working on the new ultra high-speed rail interiors and customer facilities. Finally among the three major founding icons of American Industrial Design is Henry Dreyfuss 1904-1972 known for not only thousands of product designs including John Deer tractors and farm equipment but was a leader in the areas and research into "Human Factors Design" and "Graphic Symbol Standards" for reducing operator/user fatigue, preventing control panel/operator mistakes in the operating of machinery, i.e., vehicles/John Deer Tractors, as well as developing highway and architectural sign standards for transportation facilities/train stations/airports.

Dreyfuss' stated principal or "humanistic" belief on good industrial design is that "if people are safer, more comfortable, more eager to purchase, more efficient, or just happier, the design has succeeded." So in the final analysis of good design form and function as applied to multi-modal transportation and especially Caltrain and the CHSR equipment and facilities ─ acceptance, comfort, efficiency, safety and having a pleasurable journey is a key goal and desired result. The lessons in innovation and creativity for supporting Industrial Design methodology is for

management to "think-out-of-the-box" and understand the value and benefit in recognizing the value as a marketing force and tool for HSIPR/CHSR acceptance and customer repeat use.

What is the appropriate customer oriented design and marketing methodology that will support the acceptance of the CHSR and Caltrain/commuter passenger rail as a mode choice over airline travel and the automobile? Studies supporting HSR as a viable alternative mode choice need to answer the long term question of what will really influences the California customer or stakeholder in choosing to support High-Speed passenger rail, when addressing the issues of equipment modernization, and the labor costs in running a HSR system versus a lower speed traditional subsidized commuter rail lines like **Caltrain, BART, Capitol Corridor, ACE, San Joaquin, Starlight Costal, Surfliner, Metrolink.**

Shinkansen Features: Satisfy customer travel demand with, design, connectivity, restaurants, clean trains and station facilities. Photos: R.M. Bazeley

The Shinkansen management's business and marketing philosophy puts the customer first by improving comfort and accessibility from Shinkansen train-sets to their stations and facilities by the universal application of leading-edge industrial designed passenger seating, facilities, services, and products.

To successfully meet the transportation needs and travel demand of key local community transportation improvement stakeholders which include policy makers, transportation operators/agencies, corridor businesses—CHSR passenger rail feeders like Caltrain/BART or SFMTA transit riders composed of workers, commuters, shoppers, school children/students, seniors, and the disabled need quality design and functionality. All passenger rail and public transit systems must put the customer needs, comfort, and safety first. The point of contact with the system attributes, its employees, its facilities, its operation and services is where business is retained or lost. It will be a major point of concern where support and trust is won or lost for the proposed blended Caltrain and future CHSR corridor operations and configuration.

Marketing and Branding Caltrain vs. the CHSRA

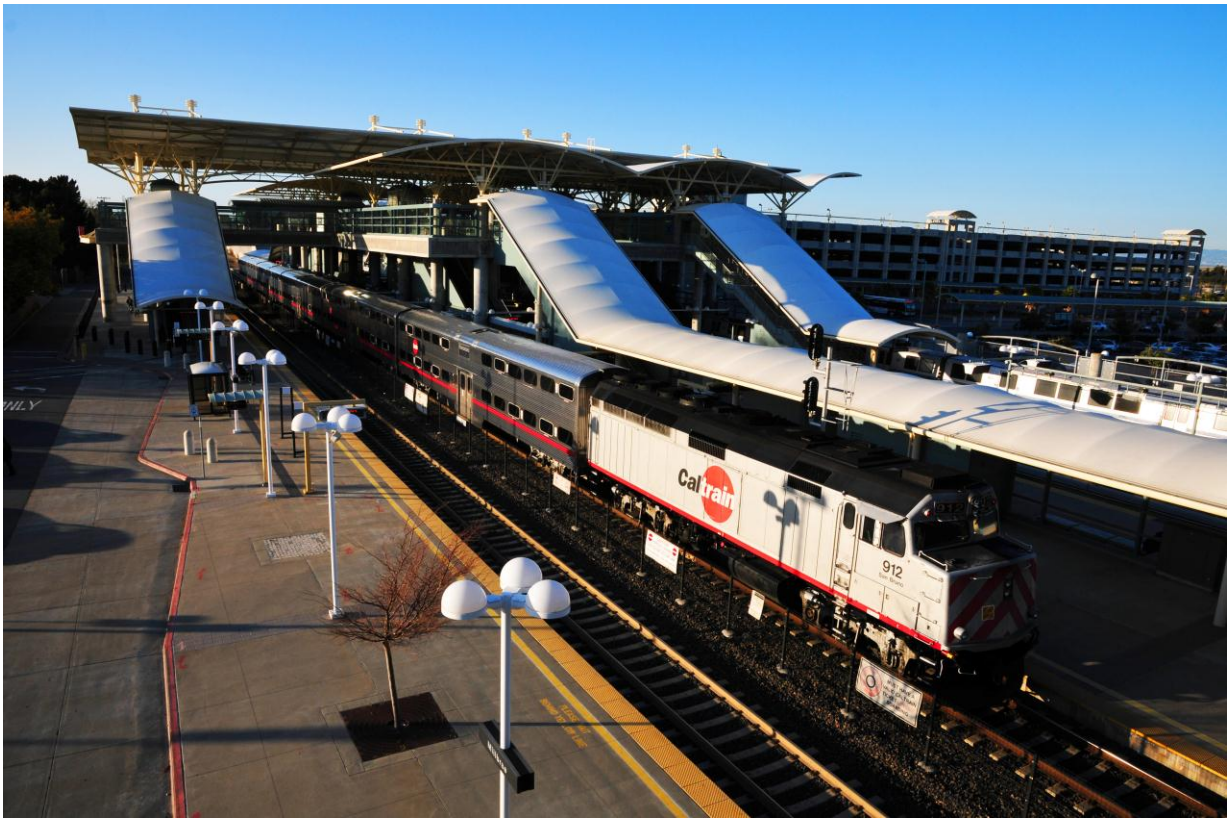
A clear/bold, colorful" Caltrain" Logotype ─ Red/Black/White Fleet Graphic Identity on Silver

Caltrain's "Transportation Identity" and its application rates strongly in Caltrain recognition and fleet uniformity ─ very "traditional railroad look" even if it is not communicating to the customer and corridor communities an environmentally friendly message. It would be good to re-visit a new or revised organizational and train fleet identity program upon the electrification and purchasing of "new" industrial designed euro style EMU units and rolling stock in the future. As a manager I would seriously considering hiring a top-notch Industrial Design firm and Corporate Identity expert with experience in Transportation Identity programs for the European HSR systems and passenger airlines. The 2004 marketing of the "Baby Bullet" express service with its new design "Bombardier" trainsets, was a marketing success that remains a successful source of ridership and revenue due to the significantly shorten trip/travel time between SF and San Jose.

The initial marketing and branding themes of the California High-speed Rail project on the CHRSA web with the use of animated simulations, presents an exciting view for stakeholders to visualize the colorful "Cal Colors" theme applied on contemporary designed train-sets running through the California landscape and entering/departing proposed contemporary architectural station designs. The advertising theme 'fly California" communicates boldly the idea of a new high-speed transportation mode alternative to flying or driving from Sacramento/San Francisco to Los Angeles/San Diego. Caltrain communicates a "Traditional Heavy Passenger rail" service.

The importance in differentiating the CHSRA product and service from traditional passenger rail service like Caltrain can make a real difference in establishing the service's positioning and acceptance in the "public marketplace." Airline passengers, business commuters, UC university students, tourists, automobile users and the business community are potential consumers and supporters of the future CHSRA transportation services. This is especially critical when trying to differentiate the CHSRA service image from HS commuter rail and of being just another expensive HSR system for moderate to high income tourists, businessmen and commuters.

If you compare all of the different California Statewide multi-modal transportation systems and passenger rail operations that not always connect or match schedules for easy customer transfer between systems, you have to come to the conclusion that there is the effect of operational and "customer identity" fragmentation. There is an organizational and operations territorial turf war out there between different competing services. In the Bay Area there is a connectivity problem of BART not being a complete looped system for connecting to San Francisco Airport from San Jose. If Caltrain or BART breakdown, have an accident incident, or other delays many waiting passengers could basically miss their connections and flights waiting too long for the next train. Caltrain at certain times has 30 minutes to an hour delays if a piece of equipment goes down.



This is the Millbrae SFO station (3/4/2012 5:39 P.M) where passengers can connect between BART to the Airport or to San Francisco from the San Jose to San Francisco Caltrain system. BART tracks are parallel to Caltrain's and have a separate adjacent loading platform.

The establishment of a truly effective Brand Identity/Marketing program through being strategically involved in all stages of planning, concept development, and design process of implementing a new HSR passenger service is paramount. There are some significant issues and recommendations in developing and establishing the most effective program that should be considered which include:

- The **importance of the public's perception**: One's correct identification is defined as how an organization wants the public to perceive its business, products or services. This perception is defined not only through words, but through image, graphics, and design.
- It is a **complex and sensitive area** of consideration that is extremely important in sustaining service revenue and customer interest as a travel mode choice.
- It is an **area that is globally expanding** as technology innovation accelerates, brands proliferate, corporations internationalize, and with growing public policy engagement. The public can be easily left with, at best, a **fragmented image** of who one is, what one stands for, and what the organization is capable of delivering.
- **Positive identification** is an essential ingredient in the support of all public transportation organization's communications, advertising, and public outreach…to engage and win the support between the organization, its employees and the public.
- The **Brand Identity must be truly reflective** of the new Caltrain's electrified system and the blended CHSR service and incorporate the elements of community destination points and improvements along the transit corridor route and stations.
- **Branding Identity is Equity:** In terms of real dollars and customer investment, one's identity or the identity of one's HSR service is worth a tremendous amount and effects the long term growth and sustainability of the business.
- **"Your identity is uniquely yours,"** and can build community/stakeholder support and employee esprit d'corps; no one else has it, and it is a prominent factor in the organization's self worth and customer's perceived shared value.
- Many of the communications problems faced by larger public transportation organizations mirror those of corporate businesses where the actual program difference is in **complexity and scale of solutions** being applied and the cost of implementation.
- California's **community diversity** with populations of immigrants has contributed to the complexity of multi-lingual and multi-cultural understanding, perception, and acceptance of transportation projects making communications design and brand identity critical.

Branding also extends the creating the correct and clear messaging of the different variants of passenger rail and High-speed Rail programs so that the public and stakeholders can comprehend in simple terms what type and level of system improvements they are funding and the end result. I would recommend a modified and clear nomenclature for U.S. HSIPR and systems like the CHSR or Euro-Asian extreme HSR systems. These would include **Local Commuter/Transit** (Light Rail, Subways) 80 mph; **Metro-Regional Commuter** (BART) 80 mph (Metrolink) 80-90 mph; **Inter-city Express HSR** (HSIPR) (HS) CalTrain Electrified Express "Baby Bullet", Acela 110-150 mph, Acela HS Express 150-190 mph "**Ultra High-Speed Rail**" CHSR, TVG, and Euro-Asian Systems running exclusive right-of-way and highest technology systems at speeds of 200-300 mph. Terms like "conventional", "very fast", "emerging rail" used are not clear.

Caltrain/CHSR Stakeholders as Customers, Participants and Benefactors

Negative/Positive Communications and Crisis Management


Bakersfield CHSRA Public Meeting and CHSR Alignment/EIR Protests, 9/22/2011

Caltrain's Stakeholder Community Participation Workshops



Introduction of the Caltrain Electrification and HSIPR "Project Vision" and continued process of initiating the project concept, design and construction requires an experienced marketing and stakeholder/public outreach team that properly identifies stakeholders that will need to be apart of the process. This process will also have to be apart of the discussion of running the future CHSR and Caltrain services in a blended/shared right-of-way operational configuration. This process includes the development of printed materials, stakeholder educational and workshop events to exchange ideas and concepts while gather feed-back to maintain project transparency and accountability while gaining and building stakeholder acceptance and consent. Stakeholders and the public as a whole require within the democratic process transparency, communications clarity, and accountability in all matters including the analysis of the project's benefit verses the cost, and environmental/local community impacts vetted in the draft EIS/EIR documents and required public hearing process.

The cost of implementing Caltrain HSIRP and Electrification infrastructure improvements as well as the configuration changes for a blended Caltrain/CHRS includes issues of land-use exchange, right-of-way acquisition for adding additional by pass tracks and right-of-way width

for capacity increase; and the resulting socio-economic, community-lifestyle and environmental impacts. These areas will ideally require hours and many workshops and meetings to educate stakeholders and the public that do not initially participate in the process but show-up later with the "explanation" that they were not given adequate notice that they were going to be directly or indirectly impacted by some aspect of the project---thereby creating expensive hurdles and legal challenges to the projects impact by its route location, acquisition of right-away, or even environmental impact to landscape view, property accessibility/value, natural habitat, or due to perceived operational noise issues.

Aerial Photo of the Small Atherton Station, Caltrain 2 track right-of-way with adjacent pricy residences

Atherton $9.3 million dollar house, Caltrain Loading Resident Commuters, CalTrain "Mini" Atherton Station

When the process of communicating and working on a plan to mitigate "negatively perceived" impacts goes off-track, the philosophy of, "Not in my backyard" can rear its expensive and ugly side within the messy business of public project development through transparency and accountability required by a democracy. The Caltrain corridor has not been free of public controversy, negative public hearings and disagreement about improvements, Caltrain scheduling frequency, safety/operational issues and even the proposed running of CHSR down the Peninsula Caltrain corridor on additional tracks or as a Blended System on the existing Caltrain two track current capacities without HSR bypass capabilities.

There has been a Legal Action Petition filed by of the Town of Atherton, California VS. The CHSRA included the following petitioners; TOWN OF ATHERTON, a Municipal Corp., CITY OF MENLO PARK, a Municipal Corp., CITY OF PALO ALTO, a California Charter City and Municipal Corp., PLANNING AND CONSERVATION LEAGUE, a California nonprofit corp., TRANSPORTATION SOLUTIONS DEFENSE AND EDUCATION FUND, a California nonprofit corp., CALIFORNIA RAIL FOUNDATION, a California nonprofit corp., COMMUNITY COALITION ON HIGHSPEED RAIL, a California nonprofit corp., MIDPENINSULA RESIDENTS FOR CIVIC SANITY, an unincorporated association, and PATRICIA L HOGANGIORNI, (Petitioners and Plaintiff).

Plaintiff: ATHERTON, Calif. – "Walk down Ashfield Road in this well-heeled town of 7,000 on the San Francisco Peninsula and you'll find million-dollar homes surrounded by tall fences and lush, manicured landscaping. Down by the railroad tracks at the end of the street, the post office, the police department, the library and a small town hall cluster together -- a perfectly self-contained unit of municipal government". This is one of the many high-income small towns located on the Caltrain rail corridor between San Jose and San Francisco that question the CHSR and Caltrain HSIPR improvement impacts to their communities' "lifestyle".

How these communications and public outreach situations are handled is a reflection of the "management style", orientation or prioritization of issues to be mitigated. A management team that is heavily weighted toward the financial funding and engineering process in their structure due to limited start-up resources may not in fact place enough emphasis and weight in the areas of project stakeholder interface and management. This is basically a red light scenario or road hazard in the progression of the project in a timely and cost effective manner, as it tries to stay on track within its strictly defined multiple project milestones required to keep a continuous funding stream from the complex levels of financial and funding requirements by the Federal, State, Regional, and local participants in orchestrated alignment. Missed funding opportunities by not making assigned project required milestones can result in millions or billions dollars lost, project cutbacks, and slower implementation.



Caltrain and CHRSA has used some very good print and web design to present the initial vision and concept of Caltrain's 2020 Electrification Plan and the CHSR leading-edge high-speed rail going from Sacramento-San Diego when created and implemented in the form of visual stimulations and realistic station design with their rail branding elements. These simulations and documentation reports, work-shop summaries, key draft EIS/EIR reports are all posted on a public accessible Caltrain and CHSRA websites. The experience of riding HSR customer view, can be viewed by the public as a virtual "experience reference" on the internet/U-Tube.

Managing the public stakeholder out reach process should not only include the presentation and discussion of the Caltrain HSIPR/CHSR Blended Plan project's community impacts and benefits, but an earlier scoping and vetting of community concerns related to land and zoning changes, and traffic congestion due to the increased density of TOD transit oriented development projects, surrounding the build-up around Caltrain rail corridor communities and the San Jose Diridon Station/Multi-modal Transportation Center and San Francisco's Transbay Multi-modal Transportation Center. This is the time to demonstrate and communicate the positive results of station design and multi-use TOD successfully built by Asian and European high-speed rail systems as well as, their HSR engineering attributes and technologies for incrementally improving Caltrain's infrastructure/electrification and implementation of operationally compatible system components supporting the CHSR connectivity and blend/shared operations.

The current CHSRP Regional Engineering and Environmental team that would work with Caltrain and the Peninsula Joint Powers Authority on the shared corridor plan include Parsons Brinkerhoff Quade & Douglas (program management, TY Lin as (program manager oversight) ─ San Jose to San Francisco to HNTB. The roll out of these technical and system attributes are often left until the EIS/EIR draft review process, which is in this reviewers opinion, a bit late in the strategy of stakeholder presentation and educational outreach. Stakeholders need to understand the system attributes and the various infrastructure construction methods, system engineering technology and attributes that will mitigate their concerns of negative impacts to businesses, land-use and value, environmental ecology systems, and PED/traffic safety.

Caltrain also has negative PR issues involved with vehicles, people trespassing on right-of-way, accidental track crossing fatalities/suicides, vandalism, and the potential for equipment sabotage and acts of terrorism needing preventive proactive intervention and monitoring for securing the safety of passengers and the surrounding communities. HSIPR and FTA/DHS funding finally received a California Transit Security Grant in 2008 to install forward facing digital cameras on Caltrain to monitor and record incidents. The project involves installing cameras on 20 locomotives and cab cars and an option to install cameras on an addition 45 trains for a cost of $1.5 million. This is a positive Caltrain public and operational safety improvement benefit. In San Francisco, when a new pedestrian safety traffic plan is designed in conjunction with a proposed urban development project, they roll-out the "tool box" of technologies and design methods used to mitigate community stakeholder PED/Traffic Safety concerns. A toolbox of high-speed rail system attributes, technologies, infrastructure construction methods/examples should be included in the public accessible CHSRA website and printed documentation.

Solutions to mitigate alignment issues impacting community stakeholders need to be vetted out in workshops/hearings prior to showing-up in a EIR draft document where solutions or alternatives are also clearly presented with a positive out-come and benefit to community stakeholders. Change can be a hard concept for some stakeholders to accept the benefit to the public good vs. the perceived negative personal impact. It is an inherent risk in all major public works projects to manage appropriately with sensitivity. The Caltrain outreach goal should be besides projecting transparency in its information but, to reduce potential conflicts through informed consent, by recognizing participants and stakeholder feed-back, mitigating perceived negative impacts, and gaining consensus to build stakeholder trust in the CHSRA vision.

Caltrain and CHSR + TOD:
Public Private Partnership to Develop Ridership and Revenue Opportunity

What is the Transit-Oriented Development benefit to Caltrain/CHSR station areas and surrounding communities accessible by feeder lines? Transit-oriented development with a public-private partnership with local government and developers create a "transit-village" or even a "transit-city/urbanized area" by clustering businesses, housing, jobs, shops and services in close proximity to the Caltrain/CHSR stations, transportation hubs, bus stops/BRT lines, ferry terminal offering access to frequent, high-quality transit services acting as feeder systems to the Caltrain/CHSR. This pattern involves compact higher density development and mixed land uses, along with the amenities of pedestrian-friendly streets and parks. It is in this context that it important to create "safe routes to transit" in and out of the Caltrain/CHSR station and infrastructure components along its routes. There is a Caltrain/CHSRA (MOU) with Caltrans that covers the areas of concern where the CHSR will encroach upon Caltrans right-of-way.

San Jose VTA Light-Rail Downtown Transit TOD Corridor- VTA/MTC/SJDOT photo/3D

To be rated as a successful TOD development in environmental terms, TOD's must serve a significant portion of trips by the Caltrain/CHSR combined with local public transit, walking and biking, rather than by private car. TOD can and should be focused around specific Caltrain/CHSR stations that offer the best return and benefit to the communities served and merged with TOD's developed in areas surrounding the San Jose Diridon Station, Caltrain SF Third Street Station, and the San Francisco Transbay Center as well as down major transit light rail and rapid-bus corridors. Sacramento San Jose, San Francisco, Los Angeles, and San Diego all have very well developed and expanding light rail, BRT/Bus Rapid transit lines, and commuter rail links for feeders that support multi-use TOD for increasing HSIPR/CHSR rider ship and local revenue producing customers. Caltrain and the CHRSA should seriously consider and develop a strong TOD/land-use team to promote revenue and job supportive re-development on and near stations and right-of-way though a public/private partnerships to promote rider generating facilities and community re-investment.

Currently, California Station Area TOD plans must demonstrate that the thresholds for the adjoining transportation corridors supporting feeder lines consisting of local light-rail, BRT/Rapid Bus lines, or even Passenger Ferry Services, are met through existing local station development and adopted plans primarily for building higher density housing. This requirement may be met by existing or new area plans accompanied by appropriate zoning and implemented funding mechanisms. If new station area plans are needed to meet the connecting transit corridor threshold, the regional MOP like the bay area's MTC which works in concert with (ABAG) Association of Bay Area Governments in coordination with transit agencies/authorities and the congestion management agencies.

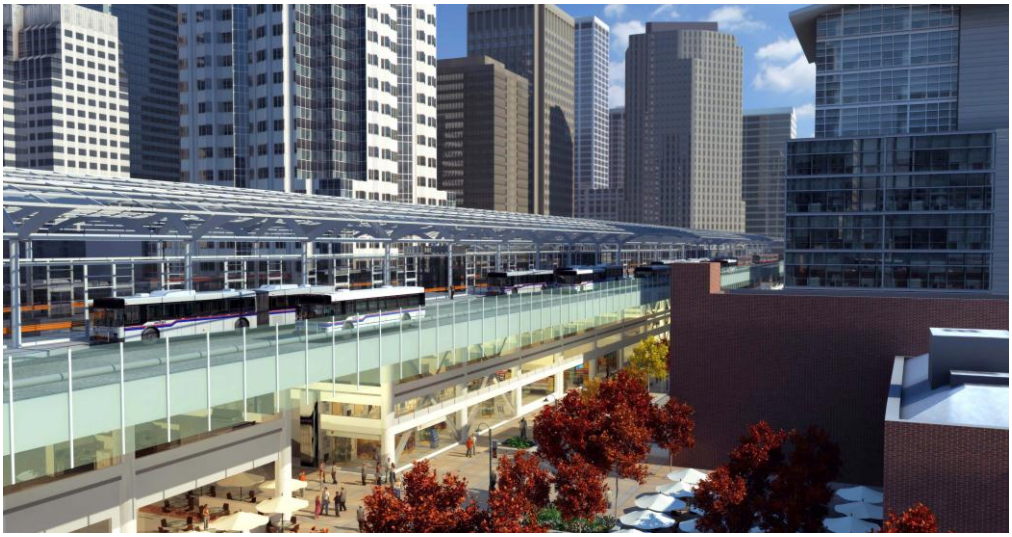


Illustration: San Francisco Downtown Tran bay Terminal Project; CHSRA/SFCTA

CHRSA/CalTrain "Station Area Plans" are opportunities to define vibrant mixed-use, accessible transit villages and quality transit-oriented development (TOD) ─ place where people want to live, work, shop, socialize/entertainment and spend time. These plans at Caltrain/CHRS station sites should incorporate mixed-use developments, commercial /businesses services, educational facilities, child care centers, pocket parks, bike facilities, car share facilities, and other amenities to serve Caltrain/CHRS customers and the local community.

At a minimum, Caltrain/CHSR station plans need to define both the land-use for the area as well as the policies related to zoning, design standards, parking policies, business and commercial development preferences/standards for joint implementation and to secure the option of a public/private partnership in construction and funding. The plans should minimally define current and proposed land-use by type of use and density within a half-mile radius, with a clear acceptance of the projections and identification of existing housing and business assets and the planned and desired re-development characteristics, mixed-use elements, and density capacity. In the end Caltrain/CHSRA should adopt a robust TOD policy and incorporate a TOD planning team to increase local private/public partnerships that will benefit Caltrain/CHSR customer mobility, increase system use and secures revenue funding streams for system re-investment.

Motivating HSIPR Innovation and Implementation through Leadership

The act of motivating creativity and innovation through leadership does not stand unto itself without an organizational support structure, or those that follow or support the leader. The perplexing leadership situation of managing and nurturing the process of creativity and innovation as a driving force for change and implementing HSIPR and the ultimate of a select ***Ultra High-Speed Rail*** mega-regional network in the U.S. is constrained by the lack of sustainable transportation funding and a supportive public policy

How do you build and lead an organization that promotes creativity among managers and employees that leads with innovation in technology, project design, management, and the delivery of services in the public transportation sector, i.e. CHSRA, Caltrain, Amtrak, VTA, AC Transit, LA METRO ─ as often drives the top performing private sector businesses? The "Open Entrepreneurial Model" of corporate leadership taking shape in the private sector can be transferred in part to the public sector. A key component is in having innovation become a key driver of growth by creating transportation products and services that address Caltrain/CHSR stakeholders' and consumers' demands, as well as unmet, and often unarticulated, desires. As discussed, Industrial Design methodology and application to unify many of the fragmented and dated key existing commuter passenger rail infrastructure and components from trainsets and interiors to infrastructure, passenger stations, amenities, and organization identity branding communications.

Innovative consumer product design and industrial design processes depend upon consumer and customer feedback through hands on testing, consumer prototype labs, behavioral observation, and surveys to gather evaluative feedback. An organization that can lead with vision and constantly monitor trend changes via industry and customer feedback can strategically plan and align itself to remain profitable and expand or create new markets by constantly developing innovative products/services that fill customer needs, wants, and demand. It is vital to harness, nurture, and to foster an organizational environment where creativity and innovation in R&D is valued as a vital organizational asset internally and externally. When Caltrain and VTA decided it needed to advance the ability to maintain and repair its present train equipment and rolling stock to control costs and improve reliability for better service to its customers they built a new striking high-tech "Industrial Designed" Euro-style facility in San Jose as photographed (RB).



Caltrain SJ Maintenance Facility –Caltrain Graphics – Interior Repair & Exterior Fueling/Washing Area

All transportation projects like the CHSRP, **Caltrain 2025 Electrification Plan** have to be structured and prepared in a way that creates a clear course to navigate through the constantly changing environment of socioeconomic, environmental, and political conditions; with adjustments and flexibility through constant feedback and assessment by the project manager and his team. Quality communications with feedback reduces risk when management remains open to planned preemptive flexibility and adaptability to changing conditions and external forces that could change client/stakeholder and or customer requirements or needs.

One is reminded of the expression "garbage in garbage out" related to the quality of communications sent and the related quality in return received as feedback when it comes to the clarity of understanding between project team members, management and staff, client and consultant, manufacturer and customer, or politician and voter/constituent. How many times have we heard that the company or its management lost touch with its markets and its customers/stakeholder from deriving faulty or inadequate feedback, so necessary to improve the very product or services being marketed and offered?

This is a very valid issue when it comes to managing complex transportation mega-projects like the CHSRP and the **Caltrain 2025 Electrification Plan** with new Euro-style HS 110-125 mph Inter-city Express Rail trainsets. The project benefits to the existing customer base of CalTrain in the improvement of shorter travel time and increased comfort traveling in high-speed between San Francisco and San Jose and beyond to Gilroy is an exciting prospect to look forward to happening sooner than later with the implementation of HSIPR funding and CHRSA investment. The project planning and implementation by a talented well paid diverse workforce along with Caltrain management leadership's acceptance to outside innovation and creative talent as team members will help this 2025 vision become a reality.

Conclusion: "The Right Stuff"

In evaluating the future potential success of the implementation of Caltrain's 2025 Electrification and Euro-style HS 110-125 mph trainsets and Inter-City Express services on peninsula and urban transit corridor businesses, employees, and customers that are impacted by the design of the Caltrain/CHSRP infrastructure and service mix, it is important to consider the entire HSR "package" of attributes and technology to be incrementally implemented. This survey supports increased customer mode choice and preference levels as being related to the total quality of the "package" of attributes and quality of improved operational reliability, safety, customer comfort, and travel time reduction. With higher speeds contributing to a faster travel and reduced time between major metropolitan cities and mega-regions the mode share of choice in driving and flying are reduced significantly. Because so many levels and CHSR route station stop communities and customers in California will be affected by these major HSIPR Caltrain and CHSRP changes, it is vital to implement a strategic planning process that includes a variety of involved business types, impacted community stakeholders, smart growth/TOD planners, and business economists to work with local and regional transportation policy makers and agencies.

The Right System Level of Attributes

Caltrain customer acceptance and maintaining stable rider-ship growth at the station locations will require improvements such as sustainability in service reliability, efficiency and performance from rural and urban transit feeder services that link seamlessly with the Caltrain/CHSR stations/transit centers. However, environmental and industrial design attributes, advanced safety technology, customer friendly features, and marketing can support differentiating the Caltrain and future CHSR from the negative factors experienced by current Caltrain/CHSR stakeholders, and rail corridor communities and system riders.

The Euro-Asian HS Electrified EMU train-set appearance and leading-edge industrial design styling is a key contributor to the system's customer's comfort, appeal, image, identity and positioning. CalTrain/CHSRA operations and passengers will be served by the application of new technologies including: (ITS) Intelligent Transportation Systems, (GPS) Global Position Systems for tracking, (ATC) Automatic Train Control, (Next-Train) station arrival information, (APC) Automatic Passenger Counting, (AFC) Automated Fare Collection, (Smart Cards) electronic passes/cards for faster boarding with pre-payment, transit-based traffic signal control, wayside seismic/disaster prevention sensing devices and improvements in safety/security technology for greater passenger security.

Consistent marketing methodology and modernization will have to be an ongoing process by Caltrain/CHSRA management linking High-Speed Rail services to the mix of traditional bus service and other competing transportation mode choices of flying and driving available to customers. No single formula, set of attributes, or transit mode is right for all situations nor does any one formula remain static over time.

The Right Investment in California's High-Speed Rail Project

Caltrain and CHSRA management's commitment to Blended HSR needs to thoroughly define its market demand model as related to future land-use and population patterns, and clearly in comparing a new interconnected CHSR system to traditional commuter rail service by the CHSR mode choice as being complementary to existing California's passenger/commuter rail network. This modified approach in adaptability to being system compliant with commuter passenger rail systems like Caltrain San Francisco to San Jose and the California Southern Regional Rail Authority (Metrolink) (OCTA) - Los Angeles/Orange County/San Diego ends of the line with its dramatically faster travel speed and operational safety offers an alternative mode choice to driving and flying as well as a marketing opportunity for CHSRA management, regional and local policy makers, and communities of all sizes to seriously support. This "bookends" approach is a game changer for advancing existing passenger rail speeds incrementally sooner while reducing the costs and build out time table of the CHSRP.

In many cases existing state owned right-of-way and phased segment construction allows for incremental expansions, to adapt to changes in future land-use patterns while maintaining equity in transportation accessibility for all who depend upon public transportation. The Caltrain/CHSR is an exciting complementary incremental improvement which will connect seamlessly with

other transit links in a multi-modal operation environment of pedestrians, bikes, cars, trucks, buses, light rail, heavy rail, and even connecting with maritime (ferries) and aviation hubs.

The form, shape and how well Caltrain and the CHSR work in harmony as a blended/shared customer-oriented system will depend on the quality of strategic planning and customer marketing methodology and strategies built into the process of implementing and maintaining the initial goals and qualities of the system and its operation over a sustained period of time. Caltrain/CHSRA management's response in meeting the current and future needs of customers makes CHSR a serious contender in supporting and stimulating California's mega-regions connectivity, business/population growth, and future global commerce competitiveness.

The Right Policy – Transit First and TOD

The implementation of CHSR in its ability to integrate with Caltrain and existing commuter rail systems as well as, with other transportation modes, adds tremendous business opportunity to impact rider-ship mode choice patterns affected by future land-use patterns, growth changes and benefits to the environment by reducing the increased driving and flying travel demand projected by the MTC, 2035 strategic plan. CHSR implementation will require major feeder improvements to create an effective door to door surface transportation system capability for reducing congestion as well as increasing mobility options for transit riders and community stakeholders.

The survey's APPENDIX A is a snapshot of eight California passenger rail systems that will connect to the CHSR and APPENDIX B includes a photo snapshot of the ten selected CHRS station location cities, businesses and surrounding communities. It became evident that there could be an opportunity to stimulate significant growth and development of TOD at and around those station sites. On CHSR transit feeder corridors such as San Francisco, the importance of rapid, safe, and equitable public transportation has become part of a "transit first policy' with leading-edge rail and BRT/Rapid Bus projects being either implemented or in the process of planning and development. It may be the actual implementation of combining CHSR and feeder-transit modes with a comprehensive land-use plan that embraces Transit-Oriented Development (TOD) of mixed use and innovative urban housing along transit corridors, which will in the end, significantly boost the customer growth and revenue of the built CHSR and Caltrain.

Good policy and integrated transportation and land-use planning have far-reaching consequences and positive impacts on transportation and the viability of transit corridor businesses. The survey shows that ultimately the success of the Caltrain/CHRS station areas and associated transit corridor businesses are intertwined and can orchestrated with transportation demands to create stakeholder and community harmony and stimulate urban vitality through innovation and vision in policy, planning, marketing, and transportation management leadership. The future success of the Caltrain/CHSR as a customer mode choice is critically dependent upon many complex and interrelated issues of land-use, design, operations, infrastructure characteristics, and customer marketing appeal to meet the goals of delivering a faster, more reliable, customer preferred transportation mode.

The Right Management Leadership Model for Driving HSIPR Innovation

Effective leadership and managers embracing a vision of improvement of existing transportation systems need to grasp the importance of the roles of innovation and creativity in the process of developing leading edge transportation systems and solutions that fully benefit society. This requires integrating design and creative strategies within the traditional roles of managing the organization's operations and its mission through discipline, focus, and leadership. Problematically, public sector transportation organizations like Caltrain and the future CHSR are funded by multiple sources of local, regional, state, and federal sources and involve critical public oversight of how the money is programmed and spent. Innovation can be expensive, takes time, and may be out dated by the time the transportation project goes from the arduous planning stage to build-out and implementation.

The public sector and U.S. transportation policy makers need to embrace the ideals of integrity, honesty, and political bi-partisan cooperation in funding sustainable implementation of fast and safe HSIPR and expanded HSR connectivity for the benefit of society and America's economic well being. To be a truly great leader one must have etched in the soul the principals of "doing the right thing", the belief of integrity and service for the benefit of the public. Only history will justify the right and wrong of the CHSRA leadership's strategic decisions, in building a public works mega-project like the California High-Speed Rail project, with the CHSR project's far reaching multi-generational impact, as well as the potential benefit to California, and the future of HSR development and implementation linking U.S. regional mega-regions.

Caltrain/CHSRA leadership must take the ultimate responsibility for its actions, vision, and business ethics by virtue of the authority bestowed by the principals of "public trust". Encompassing the role of leadership; in an increasingly complicated, regulated, and political policy driven environment, are the unpredictable risks that challenge and can compromise and diminish the effectiveness of leadership. Tolerating mediocrity in the quality of a new product, service, or project like the CHSRP or Caltrain's 2025 Electrification Plan should not be accepted or tolerated by passenger rail management or the public.

It is imperative that the American public stand up for legislating Transportation Public Policy priority for building and funding HSIPR and HSR network infrastructure, as well as local multi-modal transit for seamless door to door connectivity. Euro-Asian Ultra High-Speed Rail high-tech industrial designed trainsets and infrastructure are pushing the innovation curve in reliable higher speed capability, and far outdistancing the U.S. The need for greater innovation and creativity is evident in the U.S. when looking at other countries' new and faster "state of the art" high-speed rail and transit system designs coming on line globally. Caltrain is taking the right steps to improve the quality of service and protect its market by funding electrification, trainsets infrastructure and trainsets through partnership and investment from the CHSRP. This is a way forward for Caltrain improvements and implementing higher-speeds in support of building statewide north to south rail connectivity. All aboard, and fly on HS passenger rail.

APPENDIX A

Passenger/Commuter Rail Snapshots

Eight Passenger Rail Systems

CALTRAIN

CAPITOL CORRIDOR

ACE ALTAMOT EXPRESS

BART

SAN JOAQUIN

COAST STARLIGHT

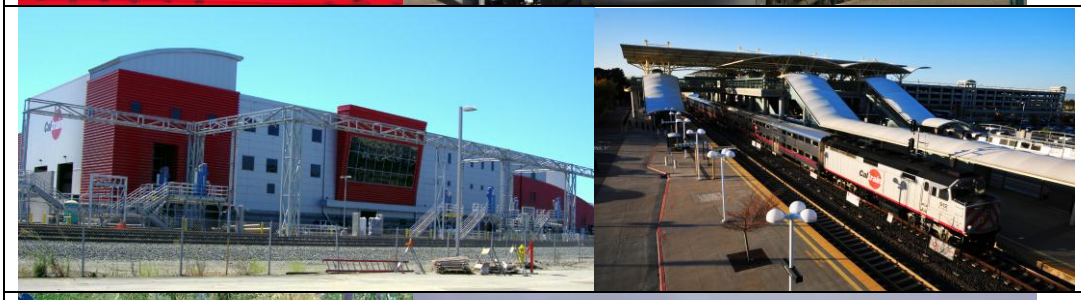
PACIFIC SURLINER

METROLINK

Caltrain: San Jose to San Francisco - Gilroy

Caltrain (reporting mark **JPBX**) is a California commuter rail line on the San Francisco Peninsula and in the Santa Clara Valley (Silicon Valley). The northern terminus of the rail line is in San Francisco, at 4th and King streets; its southern terminus is in Gilroy. Trains operate out of San Francisco and San Jose on an approximately hourly basis every weekday, with more frequent service provided during commute hours and for special events (such as sporting events). Service between San Jose and Gilroy is limited to three daily commute-hour round trips. Average weekday ridership in February 2011 was 41,442 persons per day, up 12.7% from February, 2010. (Fleet 110 Cars, 29 Locomotives)

Caltrain is governed by the **Peninsula Corridor Joint Powers Board** (**PCJPB**), which consists of three member agencies from the three counties in which Caltrain line serves. Each member agency sends three representatives to constitute a nine member Board of Directors. The member agencies are the City and County of San Francisco, SamTrans and the Santa Clara Valley Transportation Authority



Capitol Corridor: Sacramento – San Jose – SF

The ***Capitol Corridor*** is a 168-mile (275 km) passenger train route operated by **Amtrak** in California. Because it is fully supported by the state, the *Capitol Corridor* operates under *Amtrak California*. It runs from the San Francisco Bay Area to Sacramento, roughly parallel to Interstate 80. One train a day continues through the eastern Sacramento suburbs to Auburn, in the foothills of the Sierra Nevada. The trains are administered by the Capitol Corridor Joint Powers Authority and managed by employees of Bay Area Rapid Transit. Capitol Corridor trains started in 1991.

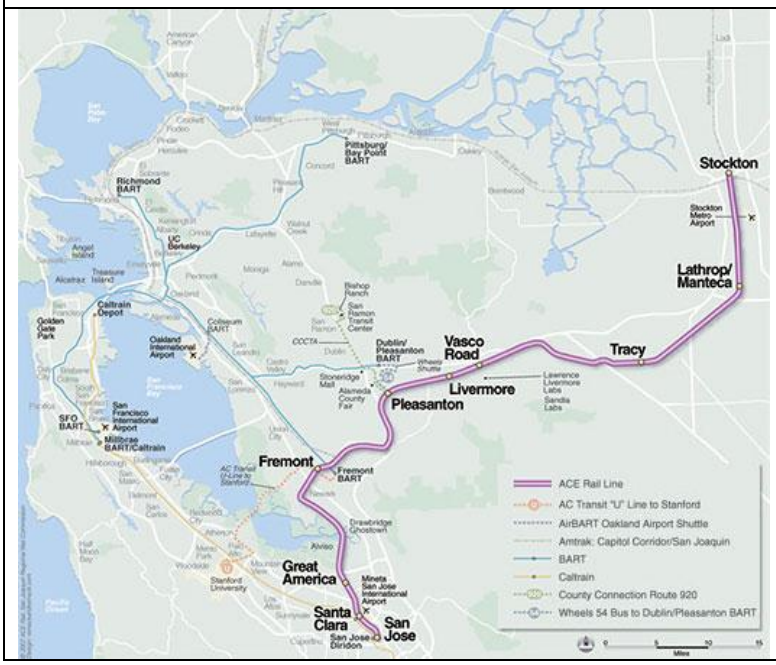
The Capitol Corridor is used by commuters between the Sacramento area and the Bay Area as an alternative to driving on congested Interstate 80. Many politicians, lobbyists, and aides live in the Bay Area and commute to their jobs in Sacramento, while workers in the Oakland, San Francisco, and Silicon Valley employment centers take the Capitol Corridor trains from their less expensive homes in Solano County and the Sacramento metropolitan area. Capitol Corridor has had 16 weekday trains each way between Oakland and Sacramento, up from twelve in 2005. (Seven of the sixteen run to/from San Jose.) According to its management, ridership on the Capitol Corridor trains tripled between 1998 and 2005. Caltrain partnership: San Jose Diridon Station Connect.

ACE Altamont Express

Stockton – San Jose; *Caltrain* Connecter SJ

The **Altamont Commuter Express** (also known as **ACE**, pronounced "ace") is a regional rail service in California connecting Stockton with San Jose. (Fleet 20 cars, 5 Locomotives)

It is named for Altamont Pass, through which it travels. The service started on October 19, 1998, with two trains daily in each direction (weekdays only), and as of November 2009 runs three trains daily in each direction. There are ten stops along its 86 miles (138 km) route; travel time is about 2 hours and 10 minutes end-to-end. The **tracks are owned by Union Pacific**. ACE uses Bombardier Bi-Level Coaches and MPI F40PH-3C locomotives. It is managed by the **San Joaquin Regional Rail Commission** and operations are contracted to **Herzog Transit Services**. Average weekday ridership As of 2008 is 3,700. ACE has explored the possibility of expanding on two lines—a Modesto-Sacramento line, and a Stockton-Pittsburg line.

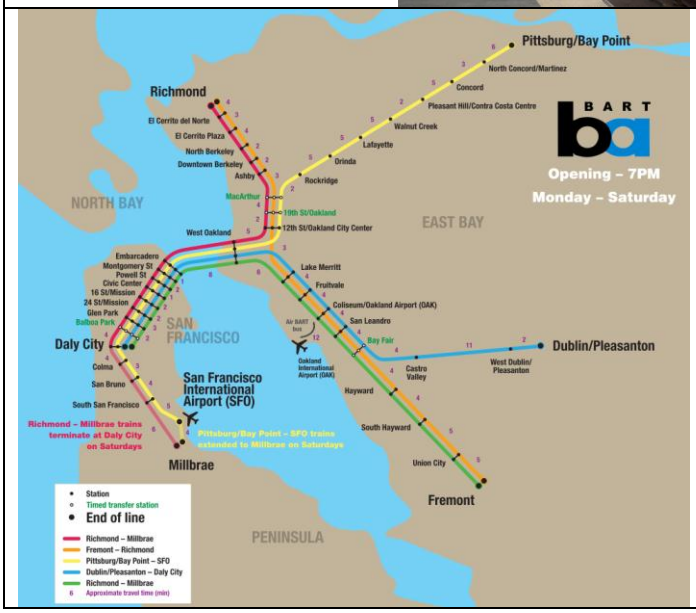


BART- Bay Area Rapid Transit

East Bay – San Francisco *Caltrain* Connect to SFO

Bay Area Rapid Transit (**BART**) is a rapid transit system serving the San Francisco Bay Area. The heavy-rail public transit and subway system connects San Francisco with cities in the East Bay and suburbs in northern San Mateo County. BART operates five lines on 104 miles (167 km) of track with 44 stations in four counties. With an average weekday ridership of 367,591 passengers, BART is the fifth-busiest heavy rail rapid transit system in the United States. (Fleet 669 Heavy Rail)

BART is operated by the San Francisco Bay Area Rapid Transit District, a special-purpose transit district that was formed in 1957 to cover San Francisco, Alameda County, and Contra Costa County. In some ways, BART is the successor to the Key System until 1958. BART has served as a rapid transit and commuter rail system, and provided an alternative transportation route to highway transportation; though its critics counter its four decades to expand at a steep cost.



San Joaquin-Amtrak

La– Orange County – Riverside – San Bernardino

The ***San Joaquin*** (sometimes referred to as ***San Joaquin's***) is a passenger train operated by Amtrak as part of the Amtrak California network in California's Central Valley. Twelve trains a day run between its southern terminus at Bakersfield and Stockton, where the route splits to Oakland (four trains each way a day) or Sacramento (two trains each way a day). At Bakersfield, Thruway Motorcoach bus service connects to Los Angeles Union Station and points in Southern California, the High Desert and the Central Coast. The *San Joaquin* does not continue south of Bakersfield because the only line between Bakersfield and points south, via Tehachapi Pass, is one of the world's busiest single-track freight rail lines. The *San Joaquin* is Amtrak's fifth-busiest service in California. During fiscal year 2011, the service carried over one million passengers, a 9.2% increase from FY2010. Total revenue during FY2011 was US$35,704,109, a 13.9% increase over FY2010.

Coast Starlight-Amtrak

Seattle, Sacramento, Oakland, San Jose, Los Angeles

The ***Coast Starlight*** is a passenger train operated by Amtrak on the West Coast of the United States. It runs 1,377 miles (2,216 km) from King Street Station in Seattle, Washington, to Union Station in Los Angeles, California. The train's name was formed as a merging of two of Southern Pacific's train names, the *Coast Daylight* and the *Starlight*. These were two of SP's numerous Coast Line trains. Major station stops along the route between Seattle and Los Angeles are; Portland and Eugene, Oregon, and Sacramento, Emeryville (for San Francisco), Oakland, San Jose, San Luis Obispo, California, and Santa Barbara, California. During fiscal year 2011, the *Coast Starlight* carried over 425,000 passengers, a decrease of 4% from FY2010. The train had revenue of $39,997,952 during FY2011, a 6.9% increase from FY2010.

Pacific Surfliner-*Amtrak*

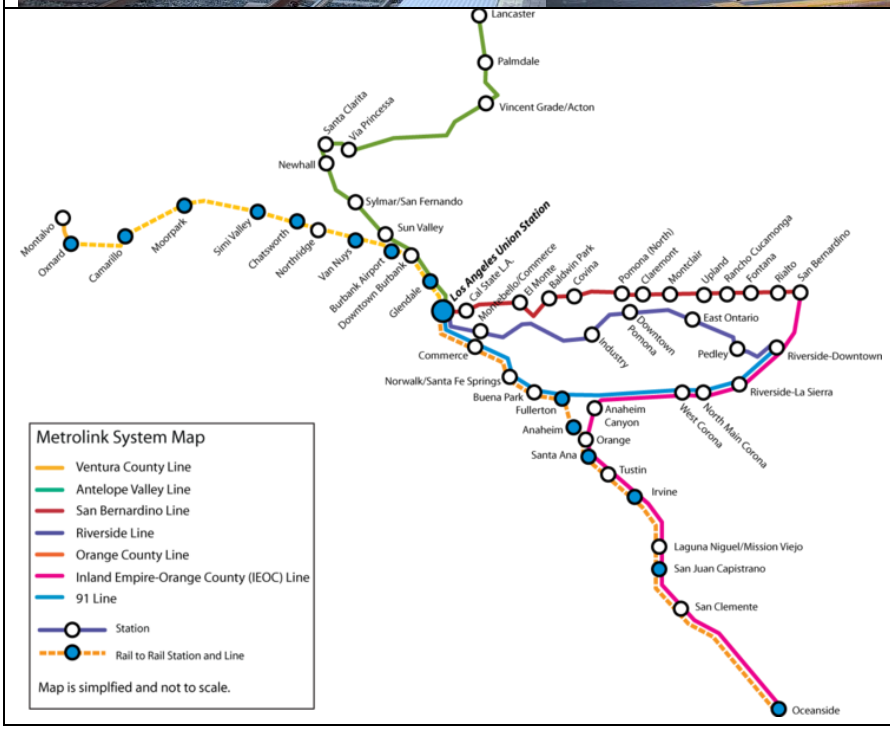
San Diego – Los Angeles – San Luis Obispo

The ***Pacific Surfliner*** is a 350-mile (563 km) Amtrak regional passenger train route serving communities on the coast of Southern California between San Diego and San Luis Obispo. It is part of the Amtrak California series of trains. The service carried nearly 2.8 million passengers during fiscal year 2011, a 6.6% increase from FY2010. Total revenue during FY2011 was $55,317,127, an increase of 11.7% over FY2010.[The *Pacific Surfliner* was Amtrak's third-busiest service, and the busiest outside the Northeast Corridor. The Los Angeles-to-San Diego portion of the *Pacific Surfliner* route was once served by the Santa Fe's *San Diegan* passenger trains until Amtrak took over the route in the 1970's keeping the "San Diegan" moniker until the *Pacific Surfliner* name was bestowed on the route on June 1, 2000 as part of a new marketing campaign reflecting the line's more frequent service north of Los Angeles and new bi-level cars with unique livery manufactured by Alstom that replaced Horizon cars, bi-level California Cars manufactured by Morrison-Knudson, and the Am fleet cars previously assigned to the route.

Metrolink

LA– Orange County – Riverside – San Bernardino

Metrolink (reporting mark **SCAX**) is a commuter rail system serving Los Angeles and the surrounding area of Southern California; it currently consists of six lines and 55 stations using 512 miles (824 km) of track. The system operates in Los Angeles County, San Diego County, Orange County, Riverside County, San Bernardino County and Ventura County. It connects with the Metro Rail system which serves Los Angeles County, with the San Diego Coaster and Sprinter commuter rail services which serves San Diego County and with Amtrak's *Pacific Surfliner*, *Coast Starlight*, *Southwest Chief* and *Sunset Limited* intercity rail services. The system, founded in 1991 as the **Southern California Regional Rail Authority** (**SCRRA**), started operation in 1992. Average weekday ridership rose to 41,000 by May 2011.



APPENDIX B

TOD Snapshots: CHSR Segment Station Locations

Ten Cities

SACRAMENTO

SAN FRANCISCO

SAN JOSE

MERCED

FRESNO

BAKERSFIELD

PALMDALE

LOS ANGELES

ANAHEIM

SAN DIEGO

*

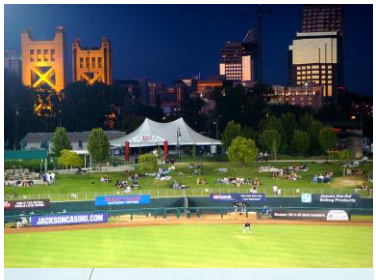
SACRAMENTO

TOD

Snapshot: Grade A

State Capitol

Diverse Urban Land-use
100 Square Miles
Pop: 1,418,788
Retail Business $1.57B
CHSR Customer Base
Excellent-Urban, U.C.D.



Educational Institutions
U.C. Davis Medical Center
Sacramento State

State Railway Museum
Convention Center
Urban Parks,

Excellent Transit Links:

Light-Rail, Buses,
Commuter Rail Amtrak
Capitol Corridor Rail
Maritime Port Facilities

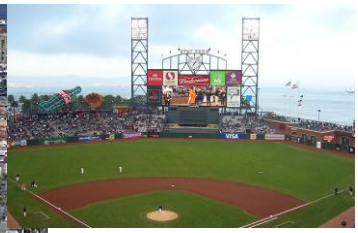
SAN FRANCISCO

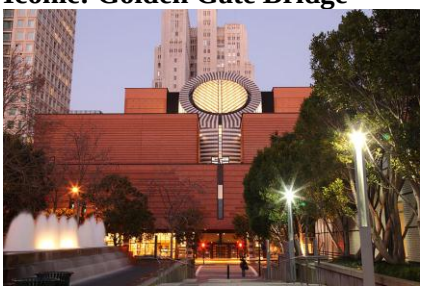
TOD

Snapshot: Grade A+

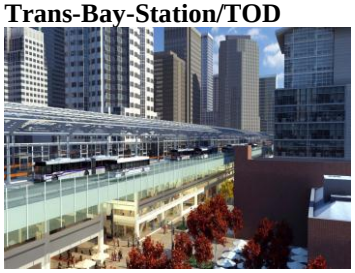
Urban/Metro Land-use
47 Square Miles
Pop: 815,358 PC $70,776
13th Largest U.S. City
CHSR Customer Target
U.S. Overseas Tourists,
U.C.S.F., Bio-tech, Metro

Educational Institutions:
U.C.S.F., Bio-Engineering,
Medical School. USF, Academy of Art, Art Institute
SF Symphony, Opera, Ballet,
Convention Center, Teams: SF Giants, SF Forty-Niners
Iconic: Golden Gate Bridge





Transit Links:
CalTrain SF-SJ, BART,
SFMTA-Light-Rail+ Bus System, Southwest-
SFO Intl. Airport, CHSR
Trans-Bay-Station/TOD



SAN JOSE

TOD

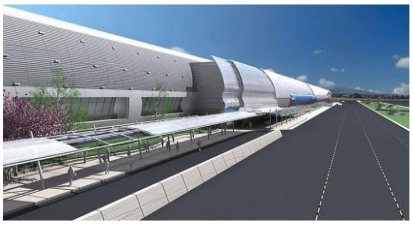
Snapshot: Grade A+

Silicon Valley-High-Tech

Diverse Urban Land-use
100 Square Miles
Pop: 958,789
10th Largest U.S. City
CHSR Customer Base
Excellent-Urban, U.C.D.,
SJ Sharks- HP Pavilion

Educational Institutions
San Jose State University
Mineta Transportation Institute,
Performing Arts,
Tech Museum,
Convention Center
Urban Parks

Excellent Transit Links:
VTA Light-Rail, Buses,
Commuter Rail Amtrak
Capitol Corridor, Altamont
Commuter Express,
CalTrain-SJ-SF
SJ/Mineta Intl. Airport



MERCED

TOD

Snapshot: Grade C+

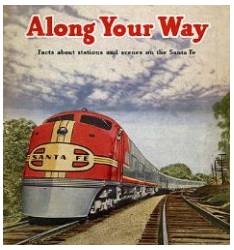
U.C. Merced

Diverse Rural Land-use
23 Square Miles
City size is #153 in CA
Pop: 18.000 #153 CA
CHSR Customer Base
U.C. Merced, Yosemite

Educational Institutions:
U.C. Merced (New
Expanding Campus 4,000-
Future 32,000
Merced College
Agriculture, Yosemite
NP Gateway

Transit Modes:

Amtrak Thruway Buses,
Commuter Rail Amtrak
San Joaquin Rail-280 Daily
Passengers (Merced)
Outdated-Upgrades
CHSR: TOD Dev. 20-30
years future Growth tied to
U.C. Merced

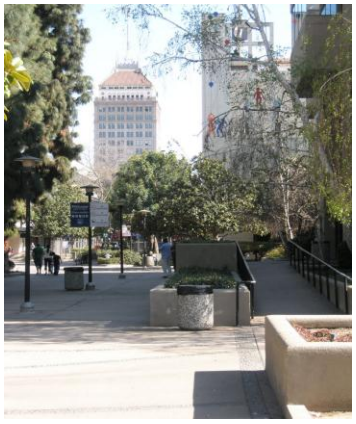


FRESNO

TOD

Snapshot: Grade A-

Amtrak Station

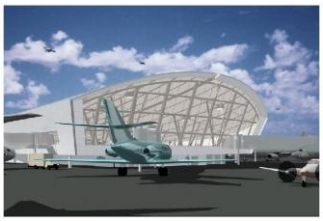


Diverse Urban Land-use
104 Square Miles
Pop: 466,714 City
Retail Business $4.7 B
CHSR Customer Target:
5th Largest City in CA
Metro Pop 1,107,416

- **Hispanic – 468,070 (43 %)**
- **White – 304,522 (40%)**
- **Black – 45,005 (8%)**
- **Asian – 87,922 (4.3%)**
- **Mixed – 17,208 (2.9%)**

Education: Fresno State
IRS Processing-Gov Jobs

Excellent Transit Links:
Buses-Greyhound, Local
Fresno Intl. Airport
Commuter Rail Amtrak
San Joaquin Express
2 Million Monthly
Passengers. +10% 2010



BAKERSFIELD

TOD

Snapshot: Grade B-

Amtrak Station

Diverse Urban Land-use
115 Square Miles
Pop: 324,463
CHSR Customer Base
Growing Slowly
Housing Value (-10.3%)

- **Hispanic - 139,406 (43.0%)**
- **White - 132,712 (40.9%)**
- **Black - 25,997 (8.0%)**
- **Asian - 14,041 (4.3%)**
- **Mixed - 9,572 (2.9%)**

Average Transit Links:

Golden Empire- Buses
Commuter Rail Amtrak
413,000 Passengers. +4.3%
2010

PALMDALE

TOD

Snapshot: Grade C-

Transportation Center

Small Town Land-use
102 Square Miles
Pop: 143,277 City
PC Income $46,763
CHSR Customer Target:
TOD density potential low,
High Desert-arid

Housing-Recreation Center
Edwards Air Force Base

Transit Links:
Buses-Greyhound, Local
Antelope Valley Bus Line
Linking to:
Commuter Rail Amtrak
LA Metro-liner

LOS ANGELES

TOD

Snapshot: Grade A

Diverse Business/Trade

Diverse Urban Land-use
470 Square Miles
Pop: 3.8 Million
2nd Largest U.S. City
CHSR Customer Base
Excellent-Urban/Retail
U.C.L.A.., Staples Center

Educational Institutions:
U.C.L.A., Medical Centers,
Southwest Law, U.S.C.,
Disney Performing Arts,
Convention Center, Parks,
Sport Teams: Lakers, Clippers,
Dodgers. Kings

Excellent Transit Links:
Union Station: Amtrak,
LA Metro-Light-Rail,
BRT/Bus System, TOD,
LA Intl. Airport

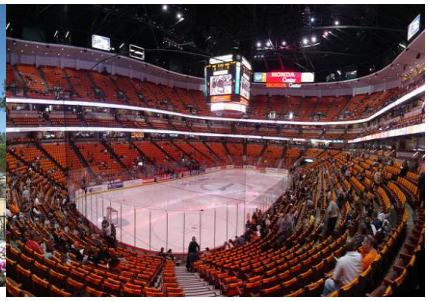
ANAHEIM

TOD

Snapshot: Grade B

- **Pop. 337,896 +3%**
- **Income PC $21,675**
- **House ($540,414)**
- **50 Square Miles**
- **CHSR best target Disneyland visitors**

- **Transportation: Metro-liner, Amtrak, Bus, Freeway, Interstate Connectivity B+ A-**
- **Main Attractions: Disneyland, Anaheim Ducks-Hockey Team**



Hispanic 180,666 (53.5%)
White 90,711 (26.8%)
Asian 48,024 (14.2%)
Black 9,324 (2.8%)

SAN DEIGO

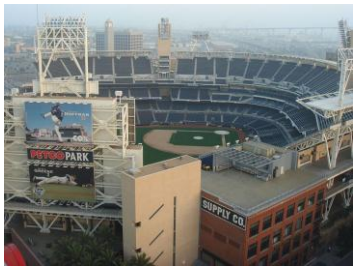
TOD

Snapshot: Grade B+

Bio-Science
Business/U.S.N. 3rd Fleet

Diverse Urban Land-use
324 Square Miles
Pop: 1.2 Million +2.7%
8th Largest U.S. City
CHSR Customer Target
Tourists, U.C.S.D., U.S. Navy, Defense, Bio-tech

Educational Institutions:
U.C.S.D., Bio-Engineering, Medical School, Salk Institute, Disney Performing Arts, Convention Center, Sport Teams: SD Chargers,
Iconic: Balboa Park-SD Zoo



Transit Links:
Amtrak: Coastal Liner, San Diego-Light-Rail, Bus System, Southwest-
SD Intl. Airport

ABBREVIATIONS AND ACRONYMS

ACCMA	Alameda County Congestion Management Agency
AC Transit	Alameda-Contra Costa Transit Agency
ADA	Americans with Disabilities Act, Reference to ADA Compliant
ADT	Average daily traffic; average daily trips
ADT	Automatic Train Detection (rail/HSR system)
ATC	Automatic Train Control (rail/HSR system)
Automatic Guidance	A mechanical or electronic system for automatic guidance control of vehicle
AVL	Automatic vehicle location system
Branded Identity	Identity and image communicated through graphic design. Logo, Vehicle (Train-sets) Graphics and paint schemes, organizational identity applied to all marketing communications, advertising, media, vehicle fleets, uniforms, signage,
BART	Bay Area Rapid Transit
BRT	Bus Rapid Transit
BSP	Bus Signal Priority
Caltrans	California Department of Transportation
CCTV	Closed-Circuit Television

CHSR	California High-speed Rail
CHSRA	California High-speed Rail Authority
CHSRP	California High-speed Rail Project
CMA	Congestion Management Agency
CNG	Compressed natural Gas
EVP	Emergency vehicle preemption
FHWA	Federal Highway Administration
FTA	Federal Transportation Administration
GPS	Global positioning system
Headway	The time interval between the passing of the front ends of transit vehicles moving along the same lane or track
HOV	High-occupancy vehicle
HRT	Heavy Rail Transit
HSR	High-speed Rail, UHSR Ultra High-Speed Rail
ICE	ICE – Intercity Express-HSR; DB German Railway
JR/JNR	Japan Railways (Private 1987); Japan National Railways (Pre-1987)
JPA	Joint Powers Authority
LA Metro Rapid	Los Angeles BRT, Bus Rapid Transit System (LA Metro Rapid 720-Wilshire)

LOS	Levels of service (quality and quality of transit free flow, affected by levels of congestion, Scaled A-F)
LRT	Light Rail Transit
MTA	Metropolitan Transportation Authority (Los Angeles area)
MTC	Metropolitan Transit Commission (S.F. Bay Area)
MTI	Mineta Transportation Institute
Next-Train	Information system denoting the arrival of the next train, displayed at rail train stops
NIMBY	"Not in my backyard"
MUNI	San Francisco Municipal Railway, Operates Buses, LRT, Street Cars, and Cable Cars
NABI	North American Bus Industries, Leading-Edge Bus Design (LA Metro Rapid)
Ped	pedestrian
Rapid Bus	Bus system with wider spacing between stops, 5. Mile – 1 Mile with special system elements and attributes to increase speed, frequency with special buses, branding. Usually one step below a full BRT with exclusive travel way
SAM Trans	San Mateo County Transit
Smart Corridors	Refers to the implementation of signal priority and signal management along a corridor to create better traffic flow, when linked with Bus Transit GPS it can give signal priority to transit: i.e., AC Transit San Pablo Rapid Bus
SFCTA	San Francisco County Transportation Authority

SOV	Single-Occupancy Vehicle
TCRP	Transit Cooperative Research Program
Trans-Def	Transportation Solutions Defense and Education Fund
TSP	Traffic Signal Priority
TOD	Transit-Oriented Development
TSP	Traffic Signal Priority
TVM	Ticket Vending Machine
VMS	Variable Message Sign
WiFi	Wireless Fidelity

Table 9 Abbreviations and Acronyms

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M.S.T.M., M.S.I.D., C.T.S.M.

PRINCIPAL INVESTIGATOR

Roger Bazeley currently is serving as Director of Marketing/Industrial Design Services, for Design Strategy-USA, an industrial design and marketing communications consulting firm, which has specialized in corporate and brand identity programs for both private and public sector organizations. The projects have included transportation design and branding programs for airlines and transit organizations, retail store design and marketing programs, as well as packaging and industrial design. Over the past decade Mr. Bazeley has concentrated efforts on transportation design, traffic and pedestrian safety improvement projects in San Francisco and the State of California.

He led a ten year campaign as a PTA/San Francisco District Board member for school traffic and pedestrian safety improvements. Working collaboratively with city, regional, and state agencies along with numerous stakeholder groups these improvements have contributed to the statewide reduction of school children's fatalities and injuries. Roger Bazeley authored the 2001, State PTA *School Traffic and Pedestrian Safety Improvement Resolution* resulting in local and statewide legislation which changed the policy and funding priorities for school and pedestrian safety projects.

Roger Bazeley holds a M.S. in Industrial Design/Packaging from Pratt Institute, where his thesis on *Redesigning Public Safety Services/NYPD—Public Sector Branding*, lead to implementing a Brand Identity program for the NYPD in 1974, resulting in the iconic "NYPD Blue and white" public safety identity. He also holds two undergraduate degrees from the University of Wyoming, with a B.A. in Advertising/Art Design, and a B.A. in International Studies/Anthropology.

June 2007, Mr. Bazeley was awarded an M.S.T.M., Masters of Science in Transportation Management from the Mineta Transportation Institute, San Jose State University. He is an active member in professional organizations and participates as a safety advocate in a number of local, regional, and state transportation and pedestrian safety committees. Currently he has been an advocate of building quality leading-edge high-speed rail systems in select U.S. mega-regions if backed by sustainable public-private funding with a strong TOD/revenue based business plan for creating sustainable HSR re-investment opportunities to cover HSR operations and future expansions. Mr. Bazeley actively works in maritime transportation safety and security areas with the U.S.C.G.-AUX. facilities inspections unit at container ports, hazardous materials handling ship facilities, vessel inspections, and marine environmental pollution incident prevention and response.

Managing the California High Speed Rail Authority

A Survey of Management's Vision and Project Concept to Implementation

Compared to" The Shinkansen" Business Model

Roger Bazeley

High Speed Rail Management-MTM-296F
Instructor Stan Feinsod
October 10, 2011

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Abstract

The assessment and stakeholder presentation of the California High Speed Rail proposed system's service and infrastructure improvements' future impact upon community infrastructure; future planning and projected growth are currently incomplete. The years of public workshops and community outreach presenting the initial concepts and route selection efforts fall short of gaining a balanced perspective of analyzing the positive or negative impacts of implemented High-Speed Rail improvements upon CHSR system route businesses, their customers, and employees by not presenting a strong Business Plan or TOD Plan.

It is critical that the California High-Speed Rail Authority implement within its vision and organizational structure a "TOD Development Team" to produce a "viable business plan" that will contribute revenue through multi-use TOD at its stations to off-set operating costs and provide "capital" to finance future and initial route segment completion and expansion. The marketing and "Branding Identity" of the various operational and design attributes of the station infrastructure and the use of "leading edge" engineering and industrial design of all system components including the train-sets are strategic in being a "customer/user" generator of California High-speed Rail rider ship and revenue profitability. The Japanese 'Shinkansen" business model" with specific reference to the JR East, JR West, JR Central, JR North are used as a comparative bench-mark for this review with recommendations for improvement.

This review also looks at the proposed California High-Speed Rail systems' proposed service and infrastructure improvements of the system and highlights the 10 route segments proposed stations' communities diverse land-use characteristics, city architecture, business types, and social-economic characteristics and potential for viable Multi-use TOD and capturing a sustainable customer base from each location.

The California High-Speed Rail system route segments have different types and levels of multi-modal transit feeder services including light-rail, medium-heavy rail, and on-going bus transit improvement "system packages" with different service and infrastructure attributes. These include Rapid Bus with Signal Priority Technologies (Smart Corridors), and proposed advanced BRT with exclusive bus lanes. To successfully meet the transportation needs and travel demand of all local community transportation improvement stakeholders, there is a need to concurrently improve interface and connectivity with the California High-Speed Rail system at all of the segment station/transit hubs.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The California High-Speed Rail Authority's goal to build a completely new HSR system with integrated infrastructure elements offers a unique opportunity for utilizing strategic customer marketing tools, impact survey methodologies, and planning strategies to ensure that the CHRSA "unified system package" supports transit corridor businesses and their community's economic vitality. HSR—in its very nature of "state of the art" service and creative infrastructure/equipment design possibilities—offers further rational for applying innovative customer targeted TOD planning, marketing strategy, and operational service modeling for influencing community businesses, customers and stakeholders in supporting the implementation of High-speed rail in California.

The positioning and design characteristics of the HSR "package" of integrated services, operations and facilities/equipment requires on-going intensive quantitative and qualitative marketing research to guide the strategic planning process in HSR implementation. HSR can be an alternative mode choice where land-use and the projected 2035 California population growth indicate a need for faster and higher capacity service to replace or supplement slower more traditional train services and reduce demand on regional highway and state air-corridors. Many medium sized cities which are primarily served by traditional highway infrastructure bus systems are showing selective growth patterns and a growing demand for public transportation with faster service and higher capacity levels

It is imperative to fully engage transit corridor businesses and their neighborhood community stakeholders by addressing their needs with a process that measures the business community's pre-expectations of the California High-speed Rail system's realistic costs, impacts and economic benefits. Measuring the resulting impacts of implemented HSR improvements will help transit managers and planners minimize through transit policy, planning, and design—the potential perceived negative impacts that could impact the economic viability of some HSR corridor businesses, corridor accessibility for customers and employees as well as community support for Transit-Oriented Development (TOD). It may be that the particular combination of innovative land-use planning and TOD, when aligned with the most effective CHSR design and infrastructure attributes will be the most successful way to sustain long-term economic growth and business viability at the CHSR station hubs.

The goals of reducing highway and airport congestion—is no less important than moving people, goods, and services, and ultimately customers in and around these CHSR station center communities in supporting the ideals of the freedom of mobility; to shop, to entertain, to work, and to carry out daily activities. The Japanese "Shinkansen Business Model" understands this as a critical factor in producing a sustainable flow of revenue and capital funding vital for expansion. Having mode choice in a multi-modal transportation system is vital to maintaining the freedom of business competition, efficient land-use development, and environmentally sensitive growth of our California communities.

California High-Speed Authority's Vision vs. JR-East's Shinkansen

Project Vision and Scope - CHSRA

VISION: ***"Inspired by successful high-speed train systems worldwide, California's electrically-powered high-speed trains will help the state meet ever-growing demands on its transportation infrastructure. Initially running from San Francisco to Los Angeles/Anaheim via the Central Valley, and later to Sacramento and San Diego, high-speed trains will travel between LA and San Francisco in under 2 hours and 40 minutes, at speeds of up to 220 mph, and will interconnect with other transportation alternatives, providing an environmentally friendly option to traveling by plane or car."***

SCOPE: "800 miles of track… up to 24 stations… the most thorough environmental review process in the nation. Due to the large scope of the project, the planning process proceeded in phases: first, program-level review assessing …and identifying corridors for further study, and second, project-level review in more detail for determining the best alignment and station locations within each of nine system sections. Why? Greater community input, resulting in the best system for all Californians." (CHSRA.org)

Management Vision and Principles – JR-EAST

Business Goal: ***"Enhancing customers' confidence in our ability to provide safe and reliable services at our stations, on our trains and elsewhere,"*** **Chairman M. Otsuka**

"The JR East Group aims to function as a dynamic corporate group providing quality leading-edge services with railway businesses at its core. To that end, each person working for the group will reflect the viewpoints of customers by providing safe, reliable transportation and high-quality, convenient products and services. At the same time, group employees will continue raising the levels of services and technologies to earn the trust and confidence of customers. We will grow continuously and advance in harmony with customer by generating earnings while meeting social responsibilities as a "Trusted Life-Style Service Creating Group". (JR-East)

Basic Principles:

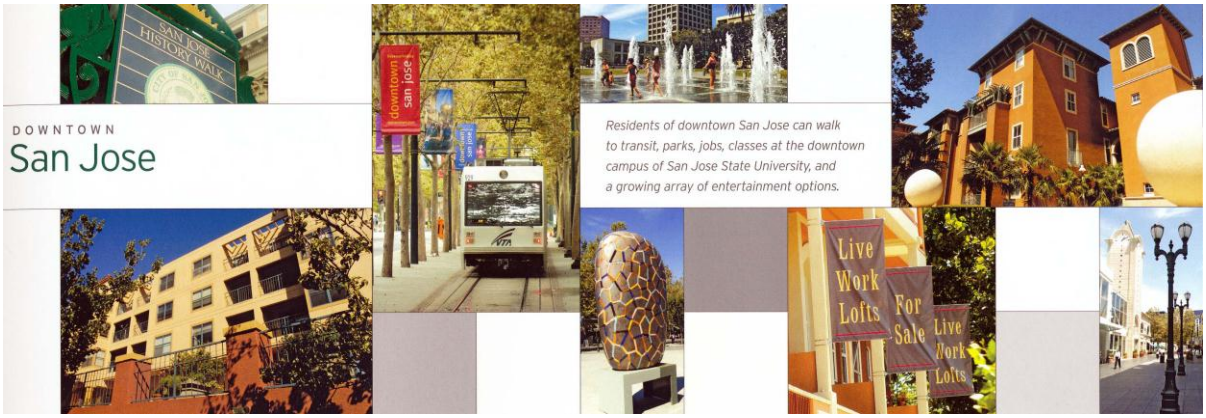
1.) Putting the customer first;
2.) Ensuring safety and quality;
3.) Developing the group's autonomy, collaboration, and new initiatives.

- *The California High-Speed Rail Authority was established in 1996, "as the state entity responsible for planning, constructing and operating an 800-mile-long high-speed train system serving California's major metropolitan areas". The Authority has a nine-member policy board (five appointed by the governor, two appointed by the Senate Rules Committee, and two by the speaker of the Assembly) and a core staff. The majority of the environmental, planning and engineering work is performed by private firms under contract with the Authority." (CHSRA)*

The "Shinkansen" business model of business capitalism and economics in meeting and exceeding the delivery of high-speed rail transportation services and products is interwoven in the fabric of the entire system concept and principles of management. In fairness to the High-Speed Rail Authority model of management and organization the Japanese have a 50 year head start on building a "Shinkansen" system with public /private partnerships in building, operating, and incorporating extensive multi-use re-development around their metropolitan stations. Their centralized government approach on managing and ability to fund rail transportation "mega projects" was in part a result of national priority, a long history of maintaining an extensive rail system, and a national budget for over four decades that did not have to dedicate a large portion of their strong GNP on military/defense expenditures as the USA. The entire JNR system was also privatized and re-organized in 1987 into separate corporate/conglomerate entities after bankruptcy. These are JR East, JR Central, JR West, JR Kyushu.

The California High-Speed Rail Project has moved itself and its vision toward the EIS/EIR process in evaluating the 10 various selected route segments in spite of the political and public policy constraints inherent in a "democratic process" from its start in seeking original voter approval and start-up funding through the bonding process. There are key project milestone pressures tied to Federal funding requirements to start with the selected Central Valley segment construction to secure continued funding that could impact the quality of the end product.

What are these factors that could compromise the overall project? Some include the lack of management organization funding, time, and abilities to complete a through "Business Plan" that coordinates economic and real-estate opportunities to construct station facilities and create CHSR transportation development incentive zoning at each location for appropriate and effective TOD projects, and improved feeder system connectivity at these key activity hubs.



The Prioritization of HRS Implementation and Funding for "Geographic/Mega-regions"

The theoretical case has been made for investing priority in High-speed rail within geographically defined "mega-regions" where population and economic growth forecasts increasing congestion have a growing demand for higher-capacity high speed rail as a transportation mode choice between driving and flying is supported by various land-use "think tanks". Petra Todorich, Director of "America 2050" states in a study by the Lincoln Institute that targeting these mega-regions for priority funding is seen "as a transformative investment ─ a generational investment."

The "mega-region" between San Francisco and Los Angeles and between Boston and Washington, D.C., most closely in projected growth in population, industry and job development, land-use trends, and transportation capacity demands ─ mirror established European and Asian HSR systems like France's TCG route between Paris and Lyon, Japan's "Shinkansen" Tokyo-Nagoya-Osaka corridor, and Spain's Barcelona-Madrid High-speed rail route. Amtrak's Boston-New York Acela Express train is the closest U.S. operating higher speed rail system, which uses advanced train sets with tilting adjustable suspension to boast capability in some sections to 150 MPH, but in fact due to congestion and frequent curves averages less that half that speed. A proposed 30 year investment of $117 Billion over 30 years for design, permitting, land acquisition, and construction would be required to reduce travel time between Boston and New York to 2 hours, and New York to Washington to 90 minutes.

The California High-speed rail with its planned leading edge exclusive right a way, advanced train-sets, and state-of-the art operational and safety technology attributes is the best hope for a truly quality high-speed rail system to be initially implemented and supported by Federal, State, and local funding mechanisms. The funding and approval process will require management transparency and accountability, but is in need of streamlining and incorporating an innovative business model plan that will produce private sector growth in generating revenue and profit streams for reinvestment ─ to manage, maintain, operate, and expand while improving system reliability and overall HSR customer experience and route connected communities quality of life. A key goal in supporting the building of California's high-speed rail is the growth of jobs in the construction, servicing, operating of the system and sustainable employment growth and supporting mega-region industry, retail, and business job creation. Building new lines and refurbishing American rail may be seen as a smart business plan–with U.S. and international companies interested in investing in factories in the U.S. to build train sets, parts, and possibly service facilities. Looking at European and Asian HRS models for financing, infrastructure construction, and operating high-speed rail systems it could be deducted that centralized government, smaller defense budgets and dedicated taxes with a targeted national priority of building high-speed rail has been helpful.

The U.S. current level of debt and slow GNP growth with the burden of huge entitlement program costs and mounting global defense costs added to deteriorating revenue growth to keep

state budgets in the black over several decades has put the U.S. at a disadvantage in dedicating major resources toward building a national high-speed rail system like Japan's.
For U.S. high-speed rail to move forward, John Mica (R-Fl), Chairman of the House Transportation Infrastructure Committee and others are looking to the private sector and find a way for rail to be built and operated as a Public-Private partnership investment. Targeting the highly trafficked U.S. corridors can bolster the case for such investment. However, "The Administration continues to fail in attracting private investment, capital and the experience to properly develop and cost-effectively operate true high-speed rail," according to Railroads Subcommittee Chairman Bill Shuster (R-PA). There are some unresolved right-away issues and cost estimates challenging the California High-speed Authority in building a leading edge HSR system that will run at 220 mph. In 2008, California residents still passed a $9.9 billion bond. California has continued to get various stimulus funds for their project because they are further along with environmental assessment impacts than some other states, and several state Governors rejected stimulus funding for building HSR in their states based upon political and state budgetary rationalization.

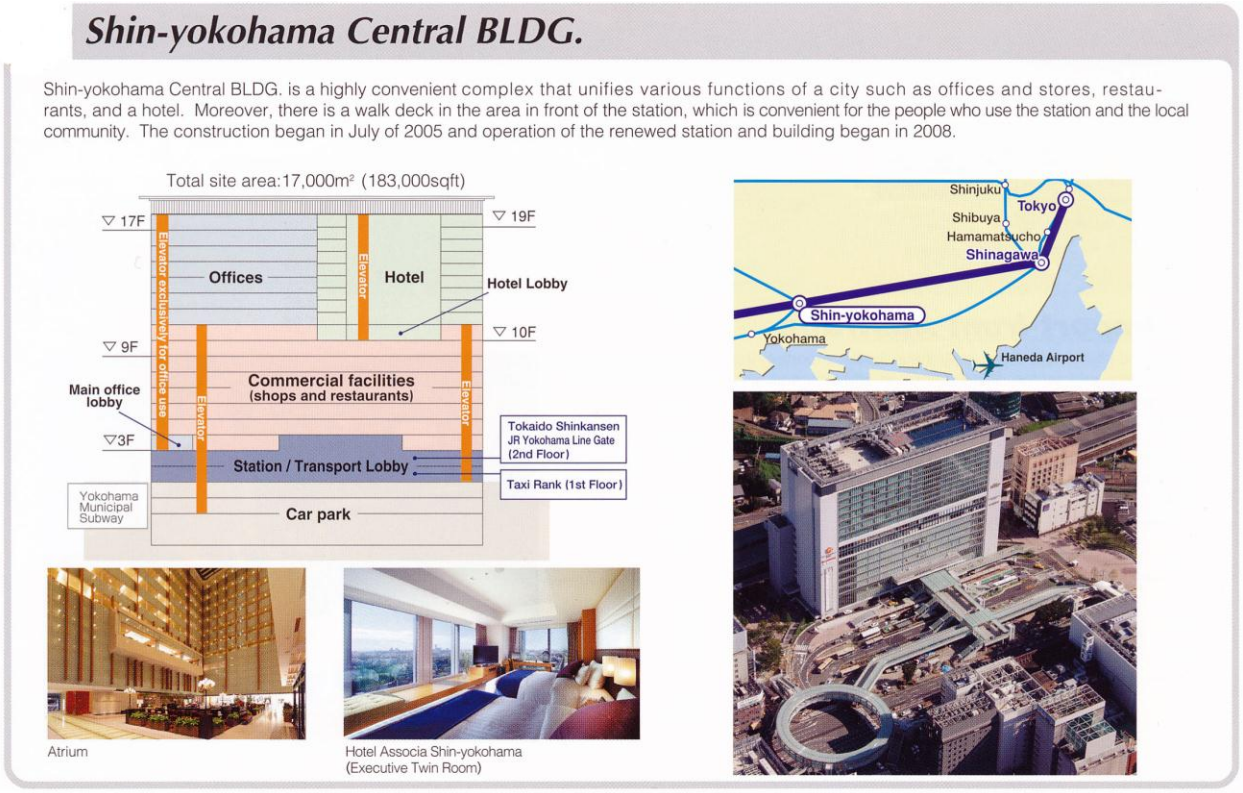
Also, the train in California will be truly high-speed, grade-separated, and will cut down on air traffic and vehicle congestion as well as, air quality degradation due to 2035 projected increased air and vehicle travel demand. In France and Spain, as HSR networks were built, regional air traffic was cut at least in half. California's plans for a grade-separated, true high-speed train that will theoretically cruise along at 220 mph is the most ambitious U.S. HSR plan to date, and in line with global HSR trends, and a true mega-project in scope and funding requirements.

The California HSR infrastructure is estimated to cost at least $40 billion, and it will realistically cost even more than that with train-sets and future segment expansions. No one is arguing that cutting-edge HSR is cheap. France's TGV, however, paid back its construction costs after 12 years of service, and the Paris-Lyon service continues to turn a profit. It should be noted that in 2010 not all of TGV system lines and services were profitable. Twenty percent of all TGV services lost money in 2010, and some services may eventually see reductions and elimination. However, the bulk of TGV services, even in the economic downturn, continue to break even or make a profit.

High-speed rail costs more to build to truly run at 150 mph or faster, with a dedicated, grade-separated track like the one that California has proposed, but they can offset some costs by ticket pricing structure and might displace airport congestion, saving taxpayer dollars. However this reviewer believes that the funding offset strategy and revenue and profit generation is a much more complex and dependent element of a more complex business modeling strategy required to be put in place by the California High-speed Rail Authority. This requires a substantial shift in the high-speed authority management and operation planning philosophy in looking at how they can adapt the best of the best and not succumbing to a mediocrity of compromise in the actual mission of running and operating the completed California HSR system.

In many parts of the world, some of these HSR systems over several decades recover their investment and grow supportive local economies through TOD and private/public partnerships and local redevelopment. For high-speed rail to move forward, Congress and others are right to

look to the private sector and find a way for rail to be an appealing investment. Perhaps starting with highly trafficked corridors that will make the case for prioritization of federal investment is the way forward to the public embracing high-speed rail's benefit vs. its cost. This gives a serious rational for looking at the Japanese "Shinkansen" business and management model for building, implementing, expanding and financing through revenue and profit generation from a nationalized/public sector managed JNR infrastructure build-up to their privatization process supporting a customer service and profit driven business through private and public sector cooperation/partnerships and land-use development agreements.



Looking at the Japanese "Shinkansen" Business and Management Vision Model as a Strategy for the CHSRA to Embrace: Understanding "Japanese "Keiretsu"

After the 1987 privatization of the Japanese National railway the conversion to a private controlled management structure shifted in organizational structure and management philosophy, defined as a Keiretsu system, a very complex form that goes beyond what we might call a "corporate conglomerate".

Keiretsu: a *system, series, grouping of enterprises, order of succession*) is a set of companies with interlocking business relationships and shareholdings. It is a type of business group. The *Keiretsu* has maintained dominance over the Japanese Economy for the greater half of the twentieth century. The member companies own small portion of the shares in each others company, centered on a core bank; this system protects company managements from stock market fluctuations and take-over attempts, thus enabling long-term planning in innovative projects; it is a key element of the automotive industry in Japan.

The *Japanese Keiretsu* took various preventive measures to avoid takeovers from foreign companies. One of them was *interlocking* or *cross-holding* of shares. This method was established by *Article 280* of *Commerce Law* where each company held a stake in the others company. This helped reduce the pressure on management to achieve short-term goals at the expense of the long-term growth. Interlocking of shares serves as a tool for monitoring and disciplining of the group firms. The level of group orientation or strength between the member companies is determined by the *interlocking shares ratio* (the ratio of shares owned by other group firms to total shares issued) and the *intra-group loans ratio* (the ratio of loans received from financial institutions in the group to total loans received).

Types of Keiretsu:

Horizontal keiretsu

The primary aspect of a horizontal keiretsu, (also known as *financial keiretsu*) is that it is set up around a Japanese bank. The bank aids these companies with a range of financial services. The leading horizontal Japanese keiretsu also referred to as the "Big Six" include: Fuyo, Sanwa, Sumitomo, Mitsubishi, Mitsui, and Dai-Ichi Kangyo bank groups. Horizontal keiretsu's may also have vertical relationships, called branches. The linkage of these corporate groups through ownership of long-term equity and production activities, leads to emergence of vertical keiretsu.

Vertical keiretsu

Vertical Keiretsu (also known as *industrial keiretsu*) is used to link suppliers, manufacturers, and distributors of one industry. One or more sub-companies are created to benefit the parent company (for example: Toyota and Honda). Banks have lesser influence on *distribution keiretsus*. This vertical model is further divided into levels, called tiers. The second tier

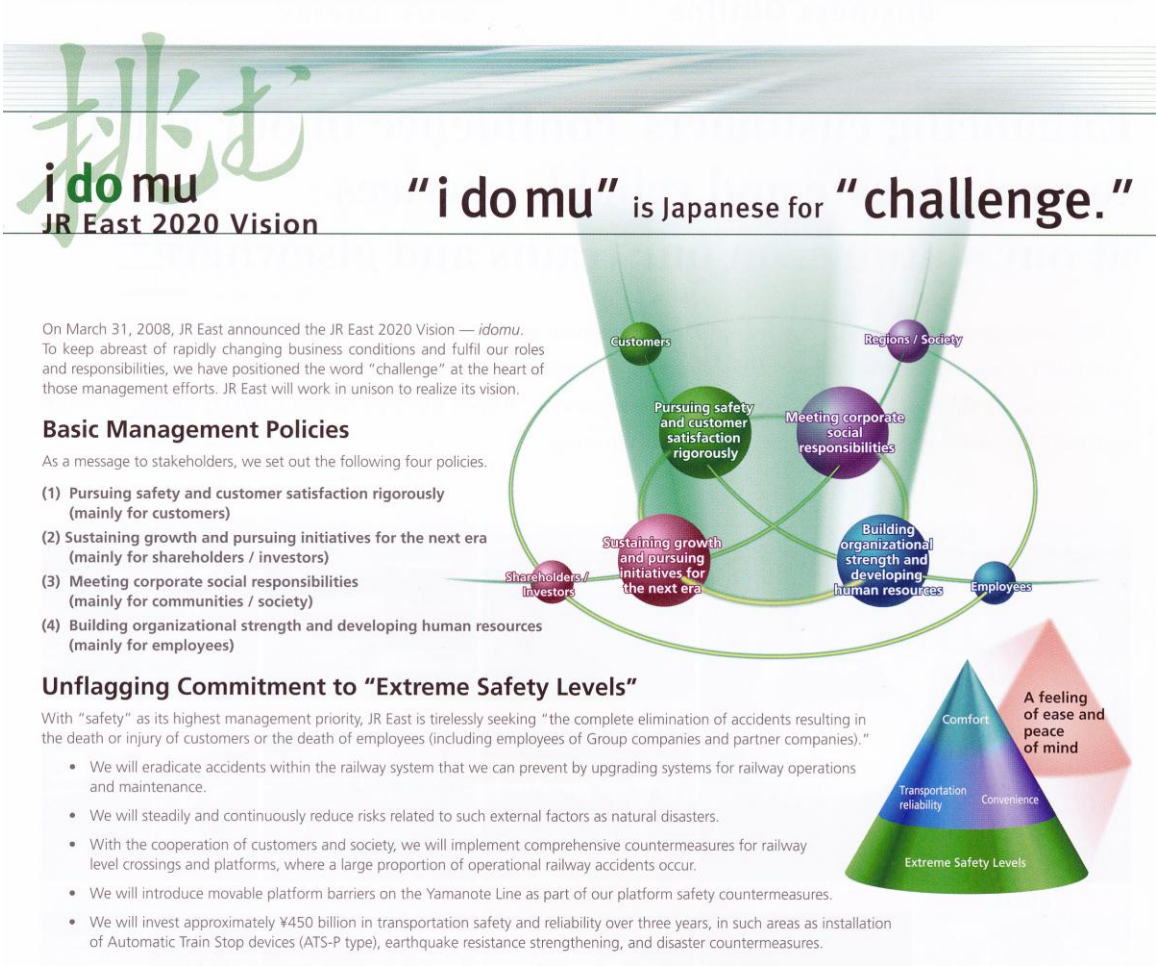
constitutes major suppliers, followed by smaller manufacturers, who make up the third and fourth tier. The lower the tier, greater are the risks of economic disruption; moreover due to low position in the keiretsu hierarchy, profit margins are low.

The initial start of the first 100 Series Shinkansen line started with Japanese Government approval in December 1958, and construction of the first segment of the Tōkaidō Shinkansen between Tokyo and Osaka started in April 1959. The cost of constructing the Shinkansen was at first estimated at nearly 200 billion yen, which was raised in the form of a government loan, railway bonds and a low-interest loan of US$80 million from the World Bank. Initial cost estimates, however, had been deliberately understated and the actual figures were nearly double at about 400 billion yen. As the budget shortfall became clear in 1963. Many other planned "Shinkansen" lines were delayed or scrapped entirely as Japan National Railways slid into debt throughout the late '70s, largely because of the high cost of building the "Shinkansen" network. By the early 1980s, the company was practically insolvent, leading to its privatization in 1987.

The current "Shinkansen" business model as demonstrated by JR-East and variations by the other privatized sections is very unique in creating a customer and profit driven Business Model that surrounds and integrates all aspects of Transportation and "customer life-style" services and products. The culture and business model challenges and motivates the management structure toward constant improvement through innovation, design, and marketing new services and products to its customers and stakeholder partnerships. JR-East Managements Vision for 2020 is represented by the expression "I do mu" or "challenge".

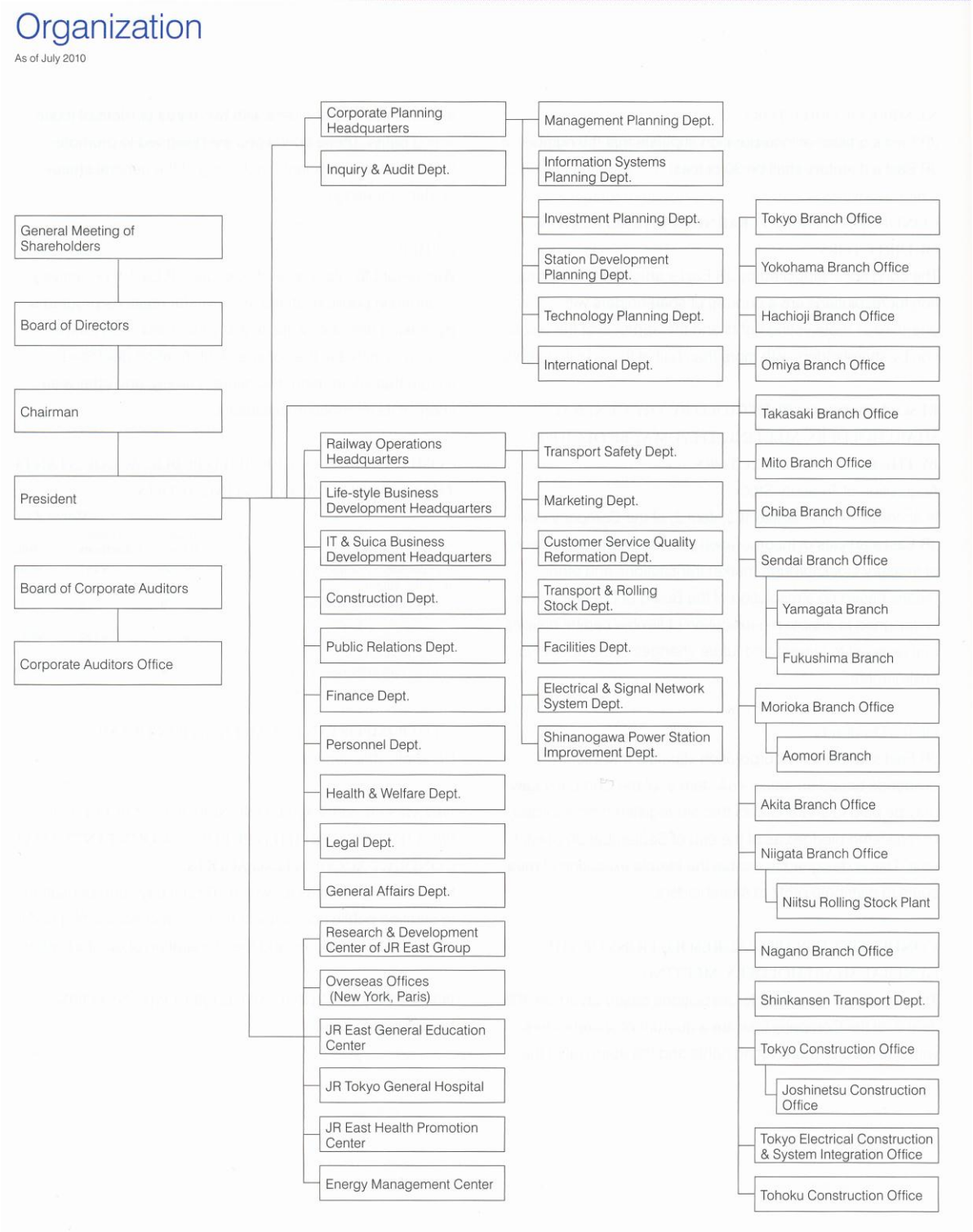
JR-East management's current 2010-2020 business philosophy and commitment for moving forward include: **1.)** Increasing focus on investment growth to raise corporate value; **2.)** Opening the way to develop new business areas based upon JR-East's existing strengths; **3.)** Taking a positive and long-term approach to global environmental problems-proactively; **4.)** Upgrading the Tokyo metropolitan area railway network to make-line-adjacent areas more attractive and accessible; **5.)** Invigorating regional railway lines and interregional communications (community stakeholders outreach), and developing TOD "compact city" initiatives; **6.)** To developing life-style businesses to increase non-transportation operating revenues by 40% of TOR by 2018; and **7.)** Establish "Suica" electronic debit/money card system (mutual-use on railway network/nation wide acceptance.

The following JR-East diagram (2010-2020) illustrates their management philosophy and the relationship to the various interacting elements of building a more successful and profitable organization serving the customer and their communities by meeting areas of social responsibility. This is the vision they see and want to project through the entire organization and externally to sustain improvement and business/service expansion through meeting and exceeding their "business and management challenges."



JR-EAST Managements Vision for 2020, Policies and Goals; JR East Diagram 2010

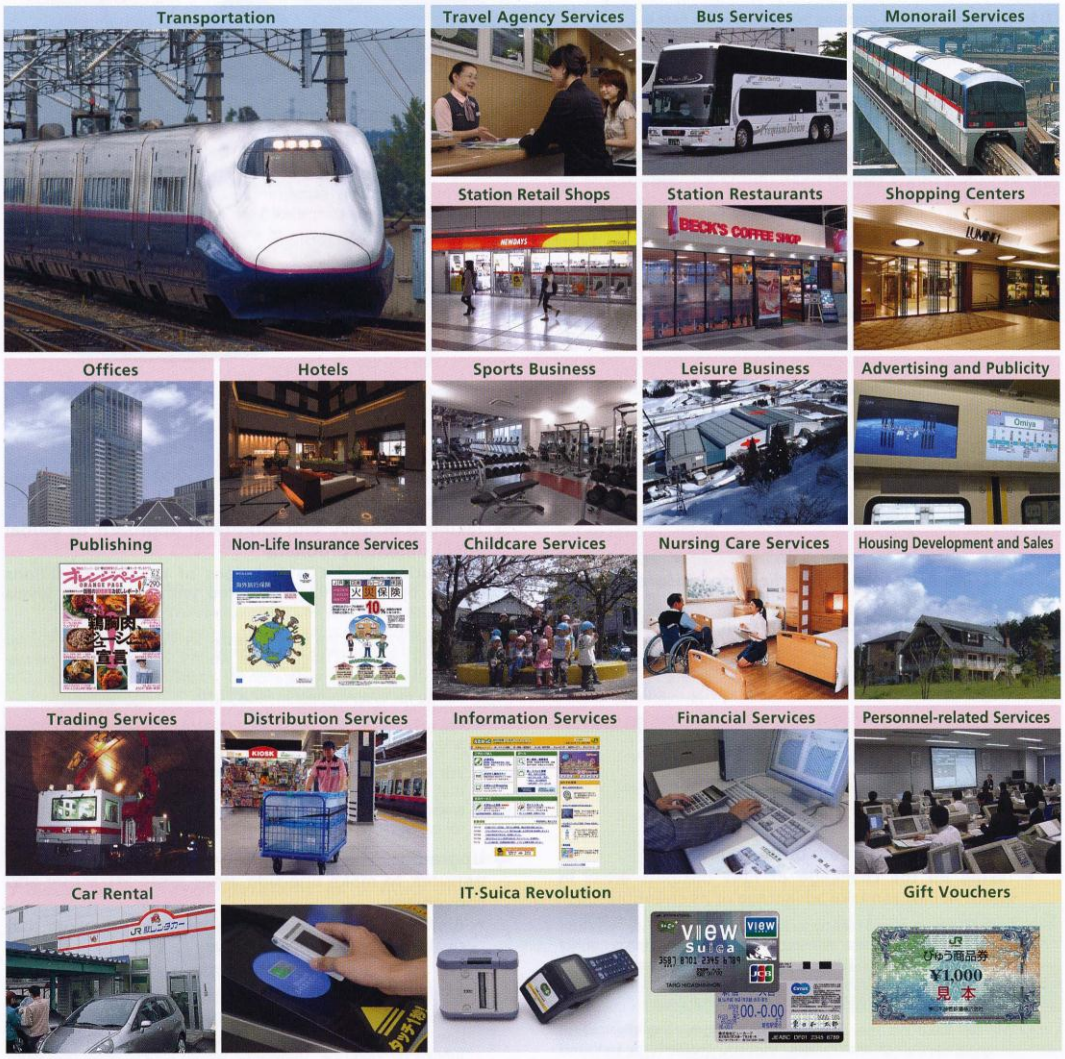
JR-East Management Organization Chart-2010



Business Outline

Enhancing customers' confidence in our ability to provide safe and reliable services at our stations, on our trains and elsewhere

JR East Group operates a range of businesses, of which the most important are our railway stations and our trains – the main pillars of our organization. We are adding to these by developing our life-style and IT & Suica operations.
On the basis of JR East 2020 Vision, we will strive to become a "Trusted Life-Style Service Creating Group" in which customers can have confidence on the reliability behind the safety.

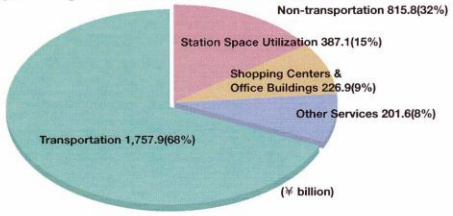


Overview of JR East's Lifestyle Business

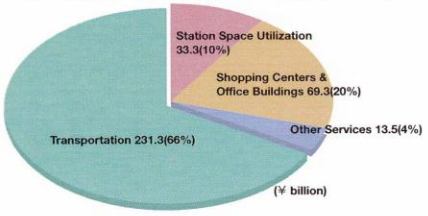
Breakdown of JR East's Revenue

FY2009
1$=¥90

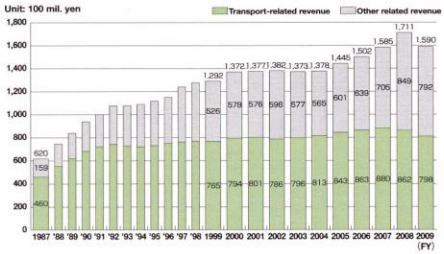
Operating Revenues: ¥2,573.7 billion($28.6billion)



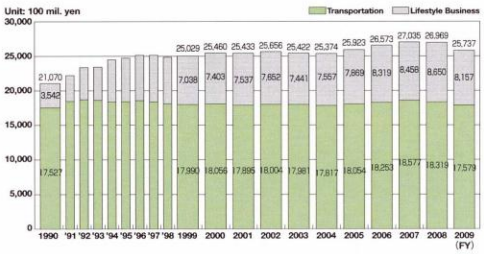
Operating Income: ¥344.8 billion($3.8billion)



Changes in JR East's lifestyle business related revenue (nonconsolidated)



JR East Group's consolidated sales



Revenue from lifestyle business, on a consolidated basis, includes, station space utilization business, shopping center and office building business and other business. On a non-consolidated basis, revenue from lifestyle business includes 1) transport-related revenue including that from the lending of railway properties (land, buildings, and spaces under viaducts), moneys collected from tenants on station premises including those from the on-board sales of goods, foods, and beverages, on-board advertisements, and 2) other related revenue including real estate rentals of station buildings and the sales of housing land and houses built for sale.

JR East's Lifestyle Business(Increasing commercial value of stations)

By effectively connecting Shinkansen and conventional railway networks, the commercial value of our stations is heightened. At our nodal stations on the railway network, synergetic effects with related businesses are generating substantial returns.

Station Space Unilization

Retailing: 1,840 stores
Restaurant: 690 stores
KIOSK: 556 stores
Convinience stores: 420 stores

Shopping Centers & Office Buildings

Shopping Centers: 133 buildings
Office Buildings: 20 buildings

Hotel Operations

42 hotels: 6,005rooms

(As of Mar.31.2010)

China's and Other HSR Management/Business Models Are Tied to Public Policy and Culturally Driven Socio-Economics vs. Safety

There continue to be difficulties in moving forward and adequately funding U.S. High-speed rail projects required infrastructure spending: no single project is without its drawbacks, and even some of the most promising projects like the California High-Speed rail project for mitigating congestion from future projected population growth may be years away from completed implementation and system operations. It's important to look at other countries that have built or are implementing HSR system expansions with HSR Information Exchange Agreements (MOU) with the California High-Speed Rail Authority including Japan, France, Germany, Spain, Italy, United Kingdom, Taiwan and China.

China's need for a rapid expanding transportation infrastructure is at a critical path in matching its accelerated economy's mega growth and population. In many of China's cities like Beijing with its massive traffic jams most urban Chinese workers commute by taking slow buses, riding bikes, or walking. There is a tremendous short time line for building a transportation system that provided for the mobility of workers linking major densely packed cities and supporting the flow of freight and goods from manufacturing centers.

China High-speed Rail –CRH-5; CRH-3; CRH-2+Engineer

The United States and specifically California has a more developed multi-modal transportation system that presently provides a mix of air, freight and local/regional commuter rail, bus systems, Interstate and state highways and maritime transportation, that offer currently affordable mobility choice. Is it vital for California and the U.S.A. need to constantly maintain, repair and improve its transportation infrastructure as well as developing high-speed rail and improved commuter rail systems? The answer in the terms of mobility improvement, economic and lifestyle productivity, and managing the reduction of traffic congestion and ensuing negative environmental impacts due to land-use demand by 2035; is a resounding yes! But, how do we create an appropriate political prioritization that favors and funds leading edge high-speed rail projects like the California High-speed rail system and others that will be needed?

The International Monetary Fund projects that China will grow at a rate of 9.5 percent in 2011, far more than the U.S.'s paltry 1.5 percent creating concern over the long-term funding stream needed by the FTA to implement a complete and economically sound system of High-speed rail in the U.S. "China continues to have much faster economic growth than we do, partly because

they're spending much more aggressively on 21st century transportation like high-speed rail," (Phineas Baxandall of the U.S. Public Interest Research Group; Huff Post, 2011-10-02; *China High-Speed Rail Offers Few Lessons For U.S. Beyond Growth Potential.*)

A similar rapid development as a national priority, of HSR seems more distant in the current U.S. economic climate and socio-political horizon. The U.S.'s much more stringent planning and EIR Environmental Review processes, federal funding requirements, and in part because of congressional hurdles, the implementation progress on high-speed rail here has been much slower. The rate of long-term GNP growth projections is a critical stakeholder concern in the U.S. sustaining the funding of transportation mega projects like the California High-Speed Rail project.

USA Proposed HSR Future Network-U.S. Railway Association Map

China as a rapidly developing economy has in some areas mirrored the rapid growth pattern that the United States had after World War II with rapid suburban growth and corporate expansion that was greatly enhanced by the massive construction over the next three decades of the Interstate high-way system, legislated in 1956 under President Eisenhower. For example, China in the past 2 decades has **built a national expressway network larger** than the one that connects the European Union and almost the equivalent of the U.S. Interstate Highway System improving access between provinces and metropolitan areas. In 2009 China **opened 166 airports to civilian air transportation** with major increases to 260 by 2015, which is still substantially less than the 569 airports certified for scheduled service around America. “China is "rightsizing" its transportation network to reflect its burgeoning economy and the extraordinary

foot print of its cities, five of which are "mega cities" with populations over 10 million (Shanghai, Beijing, Guangzhou, Shenzhen and Don guan).” This leads to the second reason why China is fundamentally different than America: “**economic geography**.”

China’s National Rail Network-Including HSR lines-China Rail

A key factor in ensuring high-speed rail's “business model” success is the closeness of employment and population centers. The largest Chinese cities aren't nearly as spread out as U.S. cities in terms of distance and the high speed rail lines are connecting larger urban cities. China’s High-speed rail connects the city of Wuhan (5.3 million) with Guangzhou (13.2 million) along a 601 mile rail line, a shorter distance than New York to Chicago. The Wuhan-Guangzhou high-speed trains, averaging 194 miles per hour, will get travelers from these two cities in three hours, less than one-third the time it took traveling by conventional train. Linked to the existing conventional rail system, 90 percent of the Chinese population will be accessible to rail. It’s critical to evaluate the principal of “economic geography” and socio-economic land-use of the California’s chosen urban stations a comparison of their potential for positive and sustainable revenue and passenger generating capabilities through the principal of TOD or creating transit business development zones in key areas along the CHSRA proposed routes and future expansions.

China is at a very different point in its economic development than the U.S. and Europe. The U.S. over the years of the growing “car culture” has had a decline in rail travel investment or a network of passenger rail lines that knit its regions together. The U.S./California higher personnel incomes promote choice in travel modes that maximize flexibility and speed. Present commuter rail as a fixed route transit system, is currently less flexible and slow compared to air

travel in connecting to major cities. As airlines have exponentially increased connectivity with cities of all sizes and locations, competition has also reduced the relative cost of air travel to the point most households can get to their long-distance destinations faster and cheaper via air. Traveling by car for shorter distances of 100-200 miles when factoring in the door to door travel convenience, can be more comfortable and faster than the time of taking several poorly connected transportation modes and or going through early check-in, flight security screenings, and/or air traffic delays due to weather, airport capacity peaks. Even if high-speed rail were to double the number of riders, its market share would be small compared to air travel. The Amtrak in 2008 accounted for just 6 billion passenger miles compared to U.S. airlines accounting for 583 Billion passenger miles (RITA-U.S. DOT). Thus, the prospects for high-speed rail to compete effectively for a meaningful level of travelers in the U.S., unlike China, is fundamentally limited, and without a significant shift in the U.S. "business model" of developing and operating a HSR system massive ongoing subsidies might be required to keep the U.S. train systems operating once they are built and possibly limiting expansion opportunities. "Since the federal Department of Transportation started handing out high-speed rail funds from the Recovery Act in January 2010, about $5 billion was awarded to HSR exceeding 125 mph, 1/60th of what China has spent so far, in Fiscal Year 2012. (U.S. DOT, Senate Appropriations Committee)

As a current model of the rapid development and implementation process China's high-speed rail network became the envy of the world. But, on July 23, 2011 a collision between two high-speed trains near the city of Wenzhou killed 40 people and injured scores more; demonstrating public policy management practices where there was a demonstrable lack of transparency and accountability by the government, HSR engineering, construction contractors, component manufacturing suppliers, and China's rail management in suppressing many inquiries and accurate investigation information access and exchange. Does this point to a management model of a country focusing on speed and rapid infrastructure build-out at the compromise of safety and quality?



China HSR-2011 Wenzhou Collision Scenes, Rep. Pelosi – U.S. & China HSR Talks

Knowing that the China High-speed rail is one of several countries that have technical information exchange agreements (MOU) with the California High-speed rail Authority, it should be of concern to the California High-speed Rail Authority in looking at high-speed rail in China as a solid benchmark model for the United States.

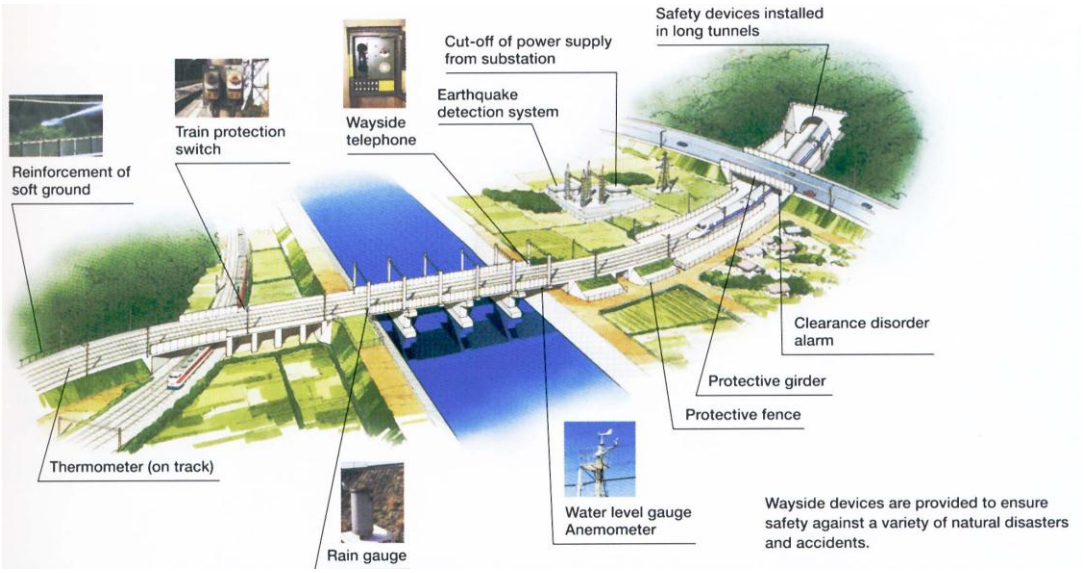
There are important lessons to be learned from how high-speed rail management in different countries not only design and build their specific high-speed rail projects but, their record of safe and reliable operations. Safety and managing accident prevention procedures, training and

engineering over-ride controls are areas of management that the German High-speed (ICE) system has also had an historic poor track record. These issues beyond the funding and building of high-speed rail systems go much deeper into the psychology and motivation of the type of management organization and the particular nation's public sector "political culture" of managing and regulating the development and operating of their high-speed rail system.

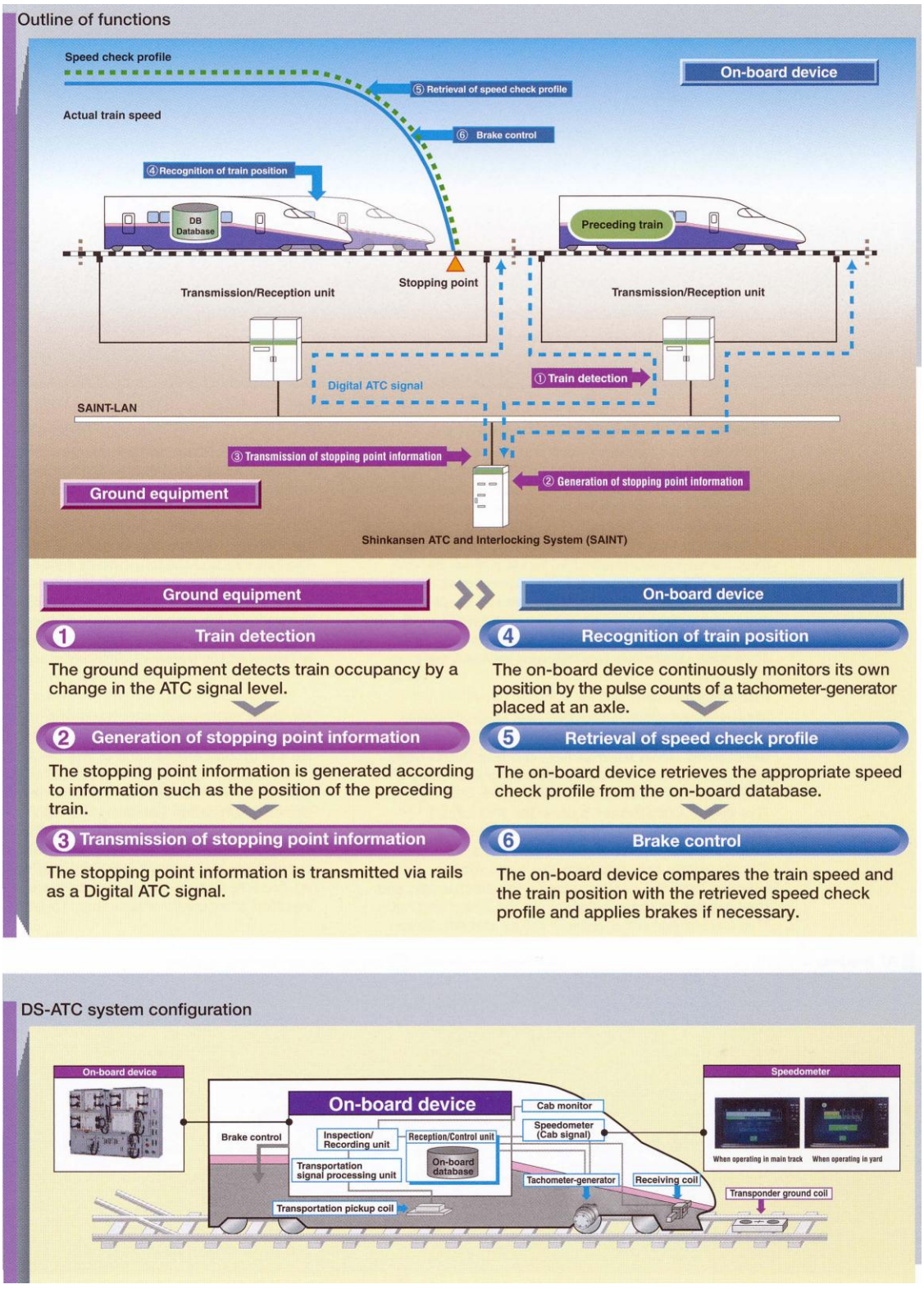


DB/ HSR ICE; Accidents/Fatalities: Eschede 1998, Lindenberg 2010, Magdeburg 2011

JR's Shinkansen lines Safety System-utilizes wayside devices demonstrating a management culture that operates by proactively to projecting the operational practice of attaining 'extreme safety results and performance---resulting in not a single passenger fatality in all of the years of operating the "Shinkansen".



It was reported by investigators in China that there were defects in the devices and equipment involved in detecting that the train ahead was stopped/disabled in the right-of-way to monitor the train position relative to the train ahead and through ATC apply braking. The "Shinkansen" uses a complex but reliable ATC fail safe system. How the system works functionally is shown in the following JR-East diagram.



Shinkansen DS-ATC Diagram: Ref: JORSA-Japan Rolling Stock Association-200

The factors of "economic geography", public policy , funding mechanisms and their national prioritization, as well as management's organizational goals effecting the direction and type of business model and operational philosophy; can dramatically impact the, efficiency, reliability, and safety of the high speed rail system. The goals of developing, operating and expanding a country's high-speed rail system are very different when analyzing management style and management practices, beyond "the formal organization chart" when comparing the California High-Speed Rail Authority's developing and changing form and function to China's National High-Speed rail system, France's TGV system, and the Japanese "Shinkansen" management style; which is deeply embedded by "culturally driven motivation and work life style philosophy.

Managing the CHRSA Planning, Contracts and Construction Process--- Compared with the Shinkansen Model

Caltrans the California State Department of Transportation which builds and has project funding oversight on most multi-modal transportation impacting state highways and public land states that their transportation project mission is: "California and its regional transportation planning agencies develop transportation plans and programs through a continuing, comprehensive and cooperative process. The goal in each instance is to develop and maintain a system that provides safe, reliable transportation and mobility for people goods and services in the State." The CHSRA is a major partner in supporting and meeting these California transportation goals.

The complex multilevel of federal, state, and local agencies and government authority to regulate hundreds of components and aspects from construction and structural specification encompassing seismic requirements to environmental impact regulations and requirements are at the heart of the CHRSA management team's focus and capabilities. The CHSR project's complexity in the areas of multi-agency regulations and authority far exceeds the understanding and grasp of a majority of project stakeholders and the public and is often hard to communicate in a clear and transparent public outreach process. These are areas complex in interpretation as a result of legislative, legal interpretation and application that may overrule a public or community favored project's impact mitigation approach. There are technical and engineering design impact mitigation approaches which are also often difficult to grasp by some stakeholders but can often be explained in visual presentation and practical application demonstrations from other successful implemented HSR systems.

The California High-Speed Train Project (CHSTP) is expected to encroach upon California Department of Transportation (Caltrans) right-of-way in numerous locations along its alignment route and proposed alternative alignments. Due to the number of anticipated encroachments, spanning multiple Caltrans Districts, it was decided to develop a system-wide plan ("Master Agreement for High-Speed Train System Project Development within Caltrans Right-of-Way, 2009") of interaction and coordination with Caltrans. The plan states:

"In accordance with the plan Caltrans will perform Oversight on all work performed by the Authority for locating any portion of the CHSTP within Caltrans Right-of-Way (CROW). In addition, through Supplemental Agreements, the Authority will be requesting Caltrans to perform additional services beyond those of Oversight, referred to as "Project Development Services" (PDS), including the preliminary engineering (PE) up to 30% design for any existing Caltrans structures that will require modification or replacement for the CHSTP."

Furthermore, "to initiate the process in each CHSTP section, the Authority's Regional Managers will prepare a draft Project Initiation Document (PID) to request programming for capital support for the Project Approval and Environmental Document (PA&ED) Phase... The PID is to be updated annually for Caltrans to determine future levels of Oversight and PDS costs necessary to support the Authority's fiscal budget requests. The PID for each section will provide a description of the route alternatives being studied including highway crossings or encroachments, a list of existing State Highway System (SHS) structures requiring modification, a list of where a route alternative runs parallel to the SHS, including areas where there may be right-of-way impacts, a preliminary capital cost estimate of new and modified structures on the SHS, and a milestone schedule for the following:"

Milestones:

- **Alternative Analysis Report**
- **15% Design**
- **Draft EIR/EIS**
- **30% Design**
- **Final EIR/EIS**
- **NOD/ROD**

*The Master Agreement defines the roles and responsibilities of affected Caltrans Districts, as well as those of the California High-Speed Rail Authority (the Authority). The Master Agreement will henceforth be the basis of all coordination with Caltrans and will create a uniform approval process within all Districts.

Summary and Recommendations to coordinate and streamline the approval process by Caltrans

1. **Both parties identify primary contacts within each CHSTP Section**
2. **Follow the Caltrans process for project approval, as described in Caltrans PDPM**
3. **Identify at the earliest practical time, any and all impacts to freeway interchanges**
4. **Set up meetings with all District Directors or their representatives.**
5. **Identify Project Development Teams (PDTs) for this Project.**
6. **The Master Agreement will guide both Parties' Work***
7. **ProjectSolve2 site will be used to post and share**

The Master Agreement is a legally binding document that commits both parties to the terms of the agreement. The intent of the Master Agreement and future proposed amendments is to allow the Authority to follow the same procedures (technical and administrative) with all Districts that address:

a) The extent of oversight to be provided for Caltrans during all phases of the project.
b) Financial responsibility of the Authority and Caltrans for all oversight effort.
c) Post-construction responsibility of the Authority and Caltrans.

Possible CHSRP Delivery Methods Reviewed:

Design-Build (DBB): A traditional form of project delivery of the design and construction of the project infrastructure are conducted by different entities dividing the DBB process into two separate phases for design and construction

Design-Build (DB) Combines design and construction phases into one fixed-fee contract.

Design-Build—Operate-Maintain and Build-Operate (DBOM and BOT): Contractor is responsible for the project's design, construction, operation, and maintenance for a defined/agreed period of time.

Design-Build-Finance-Operate-Maintain (DBFOM)*: The DBFOM is a variation of the DBOM approach where the financial risks are transferred to a private partner while project sponsor retains ownership of the facility. Attracts private financing which can be repaid by future operational revenues.* **(DBOMF) Design-Build-Operate-Maintain-Finance** is the Preferred Option for the CHSRA; (Ref Rod Diridon 10/7/2011)

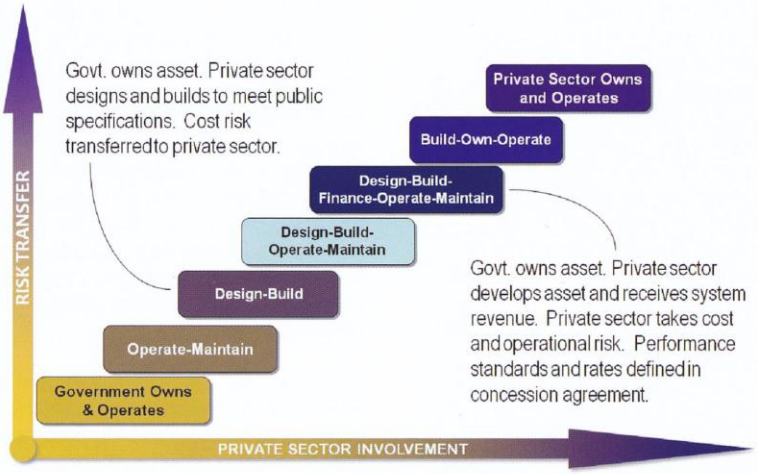
Build Own Operate (BOO): Under a BOO, the design, construction, operation, and maintenance of the facility are the contractor's responsibility. The private partner owns the facility and is assigned all operating revenue risk and surplus revenues for the life of the facility.

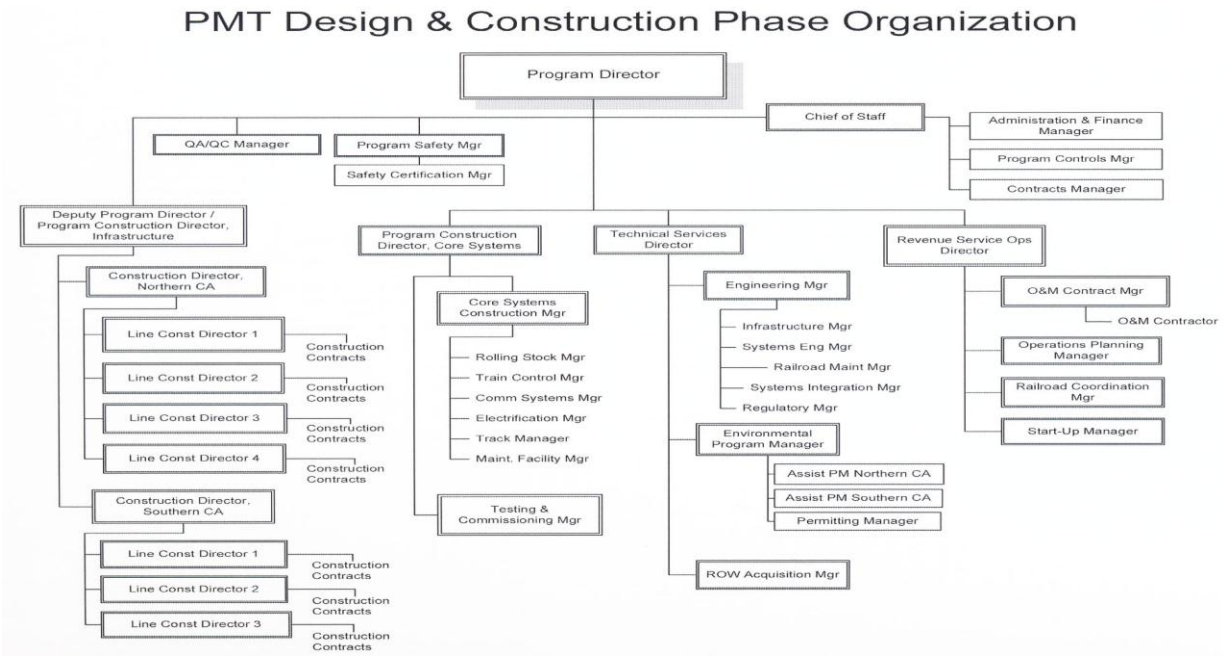
Availability Payments (AP): This mechanism accomplishes performance-based compensation in an asset that is not projected to generate sufficient revenue to encourage private investment where private firms would have to accept risk related to the on-going performance in the project's design, construction, and O&M.

Public-Private Partnership Funding: Considers private investment in exchange for future project revenues; vendor financing related to the projects equipment, train-sets; Design-build contracting transfers to private sector entities or a multiparty private sector consortium best in position to manage risks.

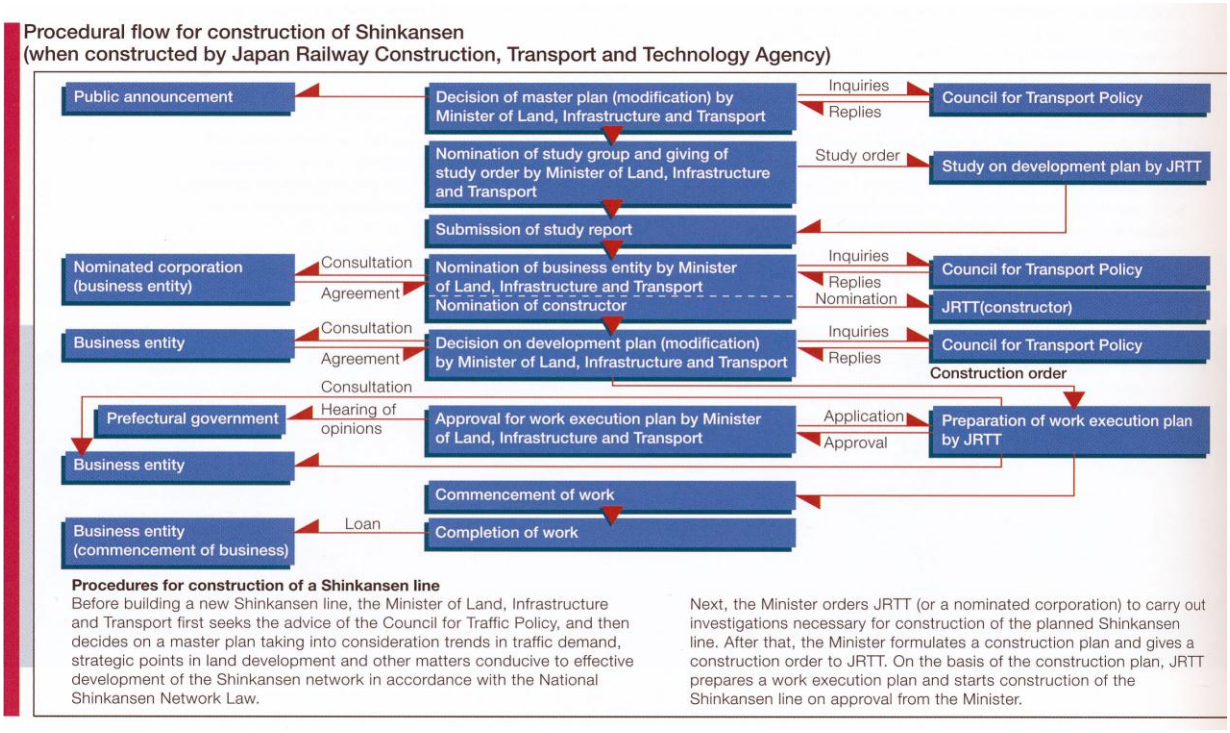
Alternative Delivery Approaches

The Authority is considering a wide variety of project delivery approaches to optimize the allocation of risks. These approaches can range from less private participation to more private sector involvement as depicted in the figure below. Each approach is associated with a different risk allocation scheme.





The Japanese Shinkansen model for procedural flow for construction of the Shinkansen by Japan Railway Construction, Transport and Technology has a very interesting centralized top down flow of authority and project approvals that is very focused as a group of area agencies on the primary goal of building and delivering the Shinkansen line expansion projects. The prefecture governments which are some what like the state government are involved in providing local review and business partnership feedback for consideration by the Transportation Minister.



Managing and Projecting the CHSR Vision by Choosing the Right Attributes

What are the attributes of a Leading-edge high speed rail system that project and contribute to the Goals which meet customer and stakeholder expectations? By looking at the Shinkansen model which is an established system that that has carried billions of passengers combining

comfort with efficiency, safety, and reliability for over 40 years without a single passenger fatality. That is an incredible feat, unmatched by any other high-speed rail system.

The Shinkansen system carries a large number of passengers, up to 1,600 in it's double decked Shinkansen Series E4 that are light weight, while being very energy efficient using the electric multiple unit (EMU) train system. By its record over many years of being a safe, punctual reliable and cost-efficient system has won and retained the trust of the general public, and the riders of the Shinkansen. This is model of stakeholder expectations that needs to be projected by the CHSR through an innovative and realistic business plan, prior to construction.

CHSRA rationalization of construction jobs and political appeasement are taking a front seat in derailing the true CHRA vision's goals of building a "state of art" CHSR system that matches the Shinkansen model of building a fast, safe, reliable, frequent running, efficient, and environmentally friendly system; that positions the customer and communities' benefits in the front seat. Building a well engineered system in a timely manner and on budget through seasoned project management is one task that American/California ingenuity can accomplish; but will it be a system that operates with a sustainable business plan that creates reinvestment opportunities and the right kind of TOD/community partnerships, and customer support systems/services.

The Shinkansen is a global pioneer in high-speed rail technologies which are constantly improved through research in order to enhance customer services and make the system more environmentally friendly, efficient, and reliable. Its primary operation on a dedicated special engineered track system and alignment contribute to its seamless operation with the integration of technologies, designs, products, and services operating in perfect harmony. Seeking "harmony" and uniformity in applications is significant in the way the Japanese view the world, and the design and operation of the Shinkansen high-speed rail and its related sub-systems and interlinking service and community partnerships. The interlocking view of the ideal high-speed rail system or "Shinkansen" should include:

JR-East Shinkansen—Shinkansen Basic Concept/ Vision Goals

Fast – it offers passengers a quicker trip with dependability; ***300kmh/ plus (186/205 mph)***
Safe – **"*extreme safety levels*"**, leading edge technology (ATC); ***Zero fatal accidents***.
Reliable – moves people effectively; delay time is 0.3 minutes per train.
Frequent – with as many as 15 trains per hour, and a variety of Transport Formats-Train sets
Efficient – operates using technology to lower energy consumption. Multiple unit power (EMU)
Environmentally Friendly – Low noise and Low CO2 emissions, lower environmental impact
Benefits Communities – Social and Economic investment; business and jobs
Catalyst for TOD/Urban Development – Shinkansen promotes **urban** and station **TOD**
Promotes Customer Markets – Expansion opportunities for "life-style businesses
Innovation in customer comfort and services – Comfort technology, industrial design
Operational and Management Harmony – Applied uniformity, group acceptance

CHSRA—CHRS Strategic Vision /Promised Results

CHSR will be fast and reliable – offers passengers a quicker trip with dependability
CHSR will be cutting edge – **220 MPH** performance by using state-of-art technology
CHSR is cost-effective – moves people at less cost vs. building highways and airports
CHSR will improve mobility – supports inter-regional mobility and multi-modal access
CHSR will stimulate our economy – growth of businesses, jobs, and housing/TOD
CHSR is incremental – built in phases based upon funding availability and demand.
CHSR will create jobs – construction, operations, retail and corporate; 450,000 jobs CA.
CHSR will benefit the environment – energy efficiency, reduce oil dependency, air quality
CHSR supports the President's Vision – major investment in HSR for the nation

Once built, the CHSR issues of purpose, need, and access equity have to be balanced with the cost of operation and management of the system. The technology and infrastructure design choices may not only affect cost and maintenance factors, but in reality are key (CHSR) product and service marketing features/attributes that will affect customer choice, retention, and help grow future repeat and sustainable CHSR rider ship numbers. Picking the right type of infrastructure design; vehicle equipment choice will affect the level of quality perception and stakeholder/customer support for a new high-tech CHSR and/or choosing to fly or drive between the inter-regional cities.

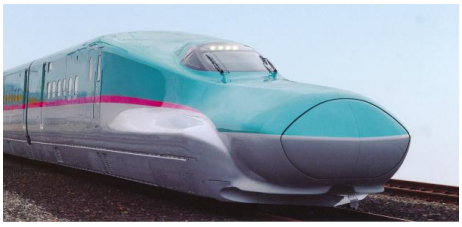
Technologies and system element integration are the "back-room" part of creating a unified and seamlessly running Shinkansen or any successful high-speed rail system being implemented around the globe. These technologies and integrated system components are the behind the scene

"systems technological attributes" which contribute to the customers satisfaction, comfort, and safety and their sense of service reliability and product quality. These system elements can communicate to various stakeholders that we are building the best quality high-speed rail system that current technologies offer and is adaptable to future system expansion and improvements as they become available through rigorous testing by other HSR systems around the word, like the Japanese Shinkansen.

Why build a custom variant for California that doesn't use leading edge off the shelf Shinkansen system components, technologies, or even train-sets when they have the longest experience at running a "state of the art" system with a top rated safety record, highest customer satisfaction, reliable on time frequency, integration with feeder systems, and stunning train-set industrial design and passenger amenities style. Would Californians really want to end-up with 40 year old deteriorating, noisy, unclean non-standard train-sets and custom specifications as on the Bay Area BART, thereby reducing BART's flexibility of being affordably upgraded and expanded? Off the shelf purchasing of proven standards, technology components, and Shinkansen train-sets may be the better choice for building the first really true 220 mph CHSR system. Silicon Valley's Apple Inc. with its globally successful leading-edge designed products source hundreds of high-technology components used in their amazing products from Japan. A business commitment to innovation, quality control, reliability seems to be a proven Japanese deliverable. Shinkansen proven technologies represent years of research and operational testing through several generations of train-sets and system technology improvements.

Key Shinkansen Technologies Include:

- Aerodynamic Shape-train set design
- Car body has a large cross-section and lightweight structure
- Bogie dynamic adjustable suspension enhances riding comfort
- EMU powered and intelligent technology
- Noise reduction technology and design features
- Adhesion control and running performance
- Passenger Amenities for comfort and convenience
- Safety Control – Traffic Control System
- Safety Automatic Train Control Technology
- Efficient Electric Power Supply System
- Advanced Current Collection/ Catenary Wire and pantograph technologies
- Specialized modular/slab Track Structure and Construction
- Protection Technologies for Disaster Prevention, and seismic/earthquake detection
- Harmony with the Environment
- Extreme Safety by rigorous maintenance schedules
- Crew training and consistent improvement-training simulators, testing
- Highest level of customer services and products-electronic ticketing/payment technology



JR-East E5 Series Shinkansen – JR-Central N700 - Series - JR-East Series E6 Concept

What is the appropriate customer oriented design and marketing methodology that will support the acceptance of the CHSR as a mode choice over airline travel or the automobile? Studies supporting HSR as a viable alternative mode choice need to answer the long term question of what will really influences the California customer or stakeholder in choosing to support HSR, when addressing the issues of equipment modernization, and the labor costs in running a HSR system versus a lower speed traditional subsidized commuter rail line like CalTrain.

It is vital for the CHSRA to develop the right "integrated and flexible service package and operational model" for maximizing and projecting to stakeholders the benefit of building the CHSR. One very applicable issue derived from an extensive literature search concerning the area of high-speed rail system packaging of attributes is that key components of an operating plan; route structure, service frequency, stop/station spacing, service span, network, and degree of integration with other feeder transit services differ and have outcomes that affect the end-user/customer and the CHSR station locations and surrounding business community acceptance and support of the system.





Shinkansen Features: Satisfy customer travel demand with, design, connectivity, restaurants, clean trains and station facilities. Photos: R.M. Bazeley

The Shinkansen management's business and marketing philosophy puts the customer first by improving comfort and accessibility from Shinkansen train-sets to their stations and facilities by the universal application of leading-edge industrial designed passenger seating, facilities, services, and products.

To successfully meet the transportation needs and travel demand of key local CHSR community transportation improvement stakeholders which include policy makers, transportation operators/agencies, corridor businesses—CHSR feeder transit riders composed of workers, commuters, shoppers, school children/students, seniors, and the disabled—there is a major need to further analyze and measure perceived CHSR impacts prior to and after CHSR route segment improvements have been implemented. The CHRSA from the start needs to project the philosophy and intent to put the customer needs first. The point of contact with the system attributes, its employees, its facilities, its operation and services is where business is retained or lost. It will be a major point of concern where support and trust is won or lost for the CHSR.

Engineer/Operator – Series E5/M – Shinkansen Cleaning Crew – Series 300-168 mph

Marketing and Branding the California High-Speed Rail

The initial marketing and branding themes of the California High-speed Rail project on the CHRSA web with the use of animated simulations, presents an exciting external view for stakeholders to visualize the colorful "Cal Colors" theme applied on contemporary designed train-sets running through the California landscape and entering/departing proposed contemporary architectural station designs. The advertising theme 'fly California" communicates boldly the idea of a new high-speed transportation mode alternative to flying or driving from Sacramento/San Francisco to Los Angeles/San Diego.

The importance in differentiating the CHSRA product and service from traditional and even the Amtrak ACELA passenger rail service can make a real difference in establishing the service's positioning and acceptance in the "public marketplace." Airline passengers, business commuters, UC university students, tourists, automobile users and the business community are potential consumers and supporters of the future CHSRA transportation services. This is especially critical when trying to differentiate the CHSRA service image of being just another expensive HSR system for moderate to high income tourists, businessmen and commuters.

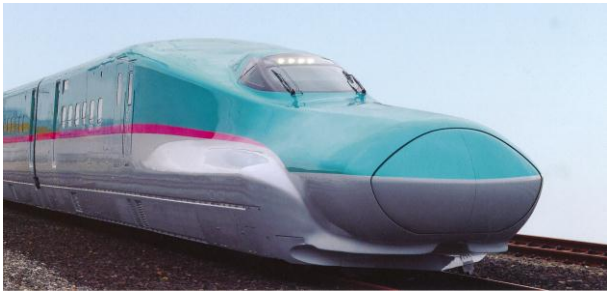
The establishment of a truly effective Brand Identity/Marketing program through being strategically involved in all stages of planning, concept development, and design process of implementing a leading-edge HSR service is paramount. There are some significant issues and recommendations in developing and establishing the most effective program that should be considered which include:

- The importance of the public's perception: One's correct identification can roughly be defined as how an organization wants the public to perceive its business, products or services. This perception is defined not only through words, but through image, graphics, and design.

- It is a complex and sensitive area of consideration that is extremely important in sustaining service revenue and customer interest as a travel mode choice.
- It is an area that is globally expanding as technology innovation accelerates, brands proliferate, corporations internationalize, and with growing public policy engagement. The public can be easily left with, at best, a fragmented image of who one is, what one stands for, and what the organization is capable of delivering.
- Positive identification is an essential ingredient in the support of all public transportation organization's communications, advertising, and public outreach…to engage and win the support between the organization, its employees and the public.
- The Brand Identity must be truly reflective of the new CHSRA service and incorporate the elements of community destination points and improvements along the transit corridor route and stations.
- Branding Identity is Equity: In terms of real dollars and customer investment, one's identity or the identity of one's HSR service is worth a tremendous amount and effects the long term growth and sustainability of the business.
- "Your identity is uniquely yours," and can build community/stakeholder support and employee esprit d'corps; no one else has it, and it is a prominent factor in the organization's self worth and customer's perceived shared value.
- Many of the communications problems faced by larger public transportation organizations mirror those of corporate businesses where the actual program difference is in complexity and scale of solutions being applied and the cost of implementation.
- California's urban community diversity with populations of immigrants has contributed to the complexity of multi-lingual and multi-cultural understanding, perception, and acceptance of transportation projects making communications design and brand identity critical.

CHRSA-Station Design Proposal-San Jose-illustration CHSRA Website

A strategically-thinking transportation manager will assemble the best quality industrial design and corporate identity consultation team to develop an integrated visual nomenclature system for the CHSRA's train-sets, signage, stations, public infrastructure elements, and media elements to clarify the public's perception and acceptance of the new services, or the organization as a whole. Los Angeles' successful Metro Rapid Bus program is a result of this kind of strategic thinking—delivering the best total "BRT/Rapid Bus Package" of system attributes including performance, frequency, and a leading edge systems design and applied brand identity. The Japanese "Shinkansen", French TVG, Italian HSR, and German ICE demonstrate strong marketing and branding programs to communicate their services and HSR leading-edge engineering, safety features, customer comfort, and advanced industrial design attributes.



1.) JR-East Shinkansen E-5 Series; 2.) French TVG –Paris-Lyon; 3.) German (Ice 3) HSR 4.) Italian Alstom AGV

The CHSRA, with enough financial resources and leading edge strategic planning, can build and operate a HSR system that exceeds customer/stakeholder expectations, and grows future system demand. The packaging of leading-edge technology, design and system attributes will make a difference in the acceptance of California High Speed Rail service implementation and influence the future expansion of HSR in the United States.

Managing CHSRA Stakeholders as Customers, Participants and Benefactors

Introduction of the "Project Vision" and continued process of initiating the project concept, design and construction requires an experienced marketing and stakeholder/public outreach team that properly identifies stakeholders that will need to be apart of the process. This process by the CHSRA included the development of printed materials, stakeholder educational and workshop events to exchange ideas and concepts while gather feed-back to maintain project transparency and accountability while gaining and building stakeholder acceptance and consent. Stakeholders and the public as a whole require within the democratic process transparency, communications clarity, and accountability in all matters including the analysis of the project's benefit verses the cost.

The cost of building the CHRS includes land-use exchange, right-of-way acquisitions, and the resulting socio-economic, community-lifestyle and environmental impacts. These areas will ideally require hours and many workshops and meetings to educate stakeholders and the public that do not initially participate in the process but show-up later with the "explanation" that they were not given adequate notice that they were going to be directly or indirectly impacted by some aspect of the project---thereby creating expensive hurdles and legal challenges to the projects impact by its route location, acquisition of right-away, or even environmental impact to landscape view, property accessibility/value, natural habitat, or due to perceived operational noise issues.

How these situations are handled is a reflection of the "management style", orientation or prioritization of issues to be mitigated. A management team that is heavily weighted toward the financial funding and engineering process in their structure due to limited start-up resources may not in fact place enough emphasis and weight in the areas of project stakeholder interface and management. This is basically a red light scenario or road hazard in the progression of the project in a timely and cost effective manner, as it tries to stay on track within its strictly defined multiple project milestones required to keep a continuous funding stream from the complex levels of financial and funding requirements by the Federal, State, Regional, and local participants in orchestrated alignment. Missed funding opportunities by not making assigned project required milestones can result in millions or billions dollars lost, project cutbacks, and slower implementation.

The CHRSA has used some very good tools effectively to present the initial vision and concept of 800 miles of leading-edge high-speed rail going from Sacramento-San Diego when created and implemented in the form of visual stimulations and realistic station design with CHSR rail

branding elements. These simulations and documentation reports, work-shop summaries, key draft EIS/EIR reports are all posted on a public accessible California High-speed Rail Authority website. The simulations should include the experience of riding the high-speed rail system from a customer view, and include the reference to other successful systems like the Japanese "Shinkansen" or the French TVG where these video images can be visualized by the public website viewers as a virtual "experience reference".

Many of the impacted stakeholders that are needed for CHRSA support have never ridden or experienced the benefits of the "state-of-the-art" high-speed rail available around the globe, let alone remember the experience when we ran quality full-service passenger services connecting major cities, until the 1960'/1970's when the airlines captured the major rail travel mode share between cities. Even regional commuter rail systems found themselves operating in the red and at great risk of extinction, with a nation priority shift to building the interstate highway system and urban regional freeways supporting personal autos and truck commerce. There are numerous HSR videos posted by Asian and European high-speed riders on U-Tube that communicate the aforementioned HSR experience.

The public stakeholder out reach process should not only include the presentation and discussion of the CHSRA project's community impacts and benefits, but an earlier scoping and vetting of community concerns related to land and zoning changes, and traffic congestion due to the increased density of TOD transit oriented development projects, surrounding the build-up around proposed high-speed rail stations. This is the time to demonstrate and communicate the positive results of station design and multi-use TOD development successfully completed by Asian and European high-speed rail systems as well as, their HSR engineering attributes and technologies for CHSRA to build a safe operational model that mitigates negative environmental impacts.

This is an area that was not initially emphasized or presented by the CHSRA on its website prior to emphasis on route and right-of-way selection and the following segment contracting assignment to engineering project management firms. The current Regional Engineering and Environmental teams include Parsons Brinkerhoff Quade & Douglas (program management, TY Lin as (program manager oversight) --- San Jose to San Francisco to HNTB, Altamont Corridor to AECOM, San Jose to the Central Valley-Parsons, Sacramento to Merced-AECOM, Merced to Fresno-AECOM, Fresno to Bakersfield-URS/Hatch and Mott/ARUP, Palmdale to Los Angeles-Hatch Mott/URS, ARUP, Anaheim to Los Angeles-STV, Los Angeles to San Diego-HNTB.

The roll out of these technical and system attributes are often left until the EIS/EIR draft review process, which is in this reviewers opinion, a bit late in the strategy of stakeholder presentation and educational outreach. Stakeholders need to understand the system attributes and the various infrastructure construction methods, system engineering technology and attributes that will mitigate their concerns of negative impacts to businesses, land-use and value, environmental ecology systems, and PED/traffic safety. In San Francisco, when a new pedestrian safety traffic plan is designed in conjunction with a proposed urban development project, they roll-out the "tool box" of technologies and design methods used to mitigate community stakeholder PED/Traffic Safety concerns. A toolbox of high-speed rail system attributes, technologies,

infrastructure construction methods/examples should be included in the public accessible CHSRA website and printed documentation.

The CHSRA handling method of public concerns and perceived negative impact issues were demonstrated at a CHSRA high-speed rail project press conference in Bakersfield on September 22, 2011. There were street protesters and signs expressing a negative response to an alignment proposal impacting the Bakersfield High School campus. The students pleaded there case and vented their view point of re-alignment of the leg between Fresno and Bakersfield in the public hearing on the 3,300 page EIR draft.


Bakersfield CHSRA Public Meeting and CHSR Alignment/EIR Protests, 9/22/2011

During a break, a CHRSA project official spokeswoman, Rachel Wall said, "Getting them engaged in the civic process should get the extra credits or something." This is the type of positive feedback that the student participants and community stakeholders needed to hear directly during the process. **The result** of stakeholder/public push-back: On 10/6/2011 CHSRA will issue a new revised design/alignment spring 2012 for the 114-mile CHSR Fresno-Bakersfield segment. The pull-back on the CHSR plan also reflects the influence of two new board members appointed by the new Governor Jerry Brown.

Solutions to mitigate alignment issues impacting community stakeholders need to be vetted out in workshops/hearings prior to showing-up in a EIR draft document where solutions or alternatives are also clearly presented with a positive out-come and benefit to community stakeholders. Change can be a hard concept for some stakeholders to accept the benefit to the public good vs. the perceived negative personal impact. It is an inherent risk in all major public works projects to manage appropriately with sensitivity. The CHSRA outreach goal should be besides projecting transparency in its information but, to reduce potential conflicts through informed consent, by recognizing participants and stakeholder feed-back, mitigating perceived negative impacts, and gaining consensus to build stakeholder trust in the CHSRA vision.

CHSRA + TOD:
Public Private Partnership to Develop Business and Revenue Opportunity

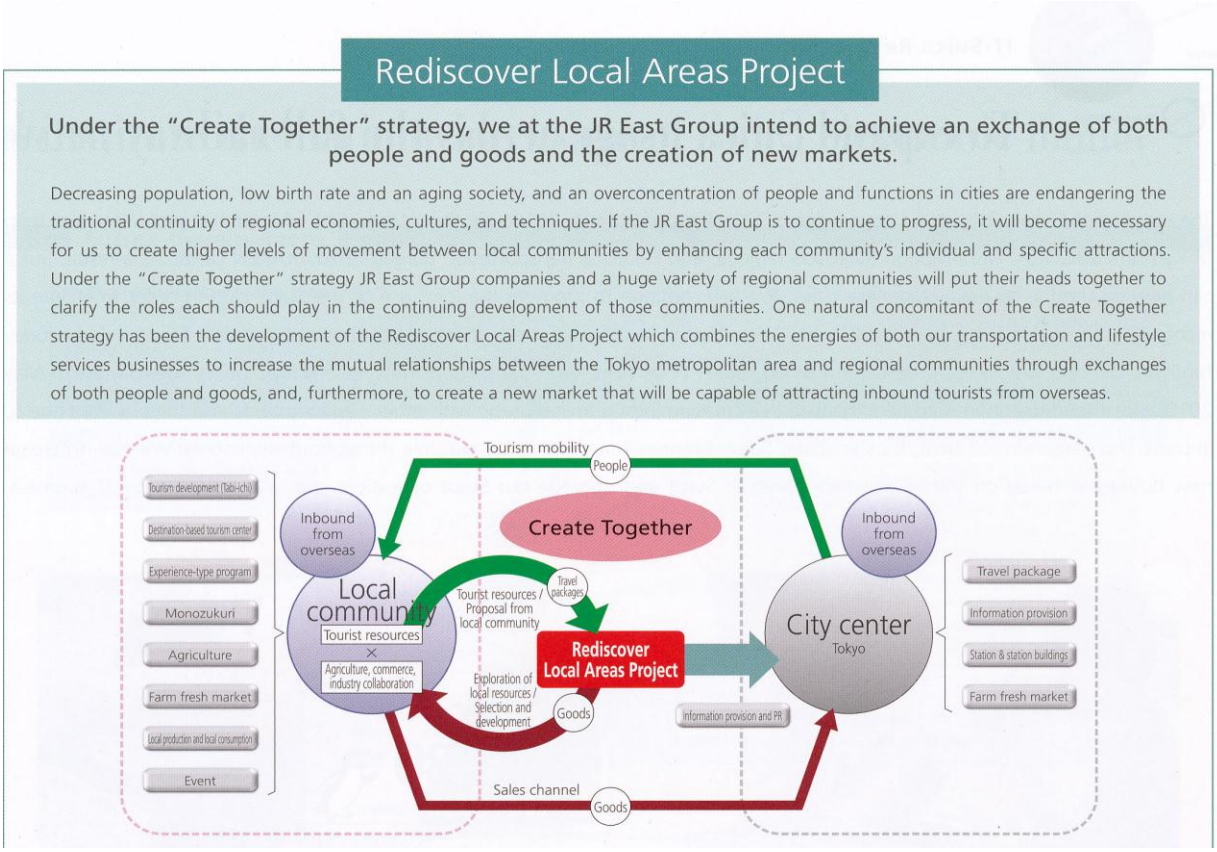
TOD: One Strategy with Many Benefits

What is the Transit-Oriented Development benefit to CHSR station areas and surrounding communities accessible by feeder lines? Transit-oriented development with a public-private partnership with local government and developers create a "transit-village" or even a "transit-city/urbanized area" by clustering businesses, housing, jobs, shops and services in close proximity to the CHSR stations, transportation hubs, bus stops/BRT lines, ferry terminal offering access to frequent, high-quality transit services acting as feeder systems to the CHSR. This pattern involves compact higher density development and mixed land uses, along with the amenities of pedestrian-friendly streets and parks. It is in this context that it important to create "safe routes to transit" in and out of the CHSR station and infrastructure components along its routes. There is a CHSRA (MOU) with Caltrans that covers the areas of concern where the CHSR will encroach upon California Department of Transportation (Caltrans) right-of-way in numerous locations along its alignment route.

San Jose VTA Light-Rail Downtown Transit TOD Corridor- VTA/MTC/SJDOT photo/3D

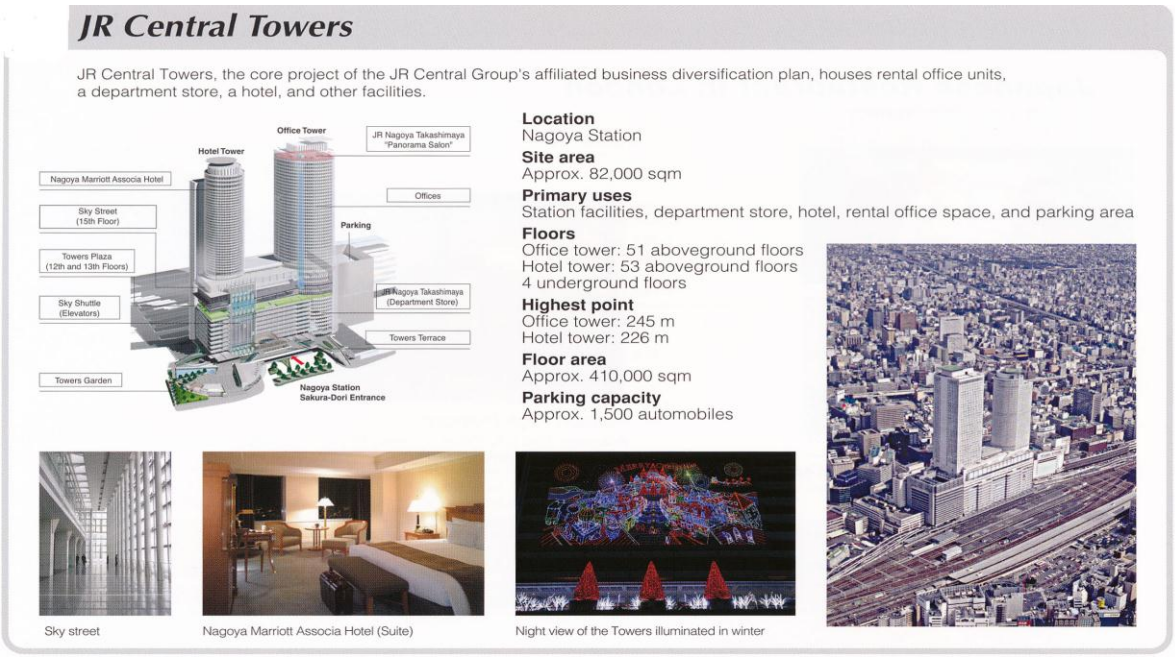
To be rated as a successful TOD development in environmental terms, TOD's must serve a significant portion of trips by the CHSR combined with local public transit, walking and biking, rather than by private car. TOD can and should be focused around specific CHSR stations that offer the best return and benefit to the communities served and merged with TOD's developed in areas surrounding the CHSR stations and down major transit light rail and rapid-bus corridors. Sacramento San Jose, San Francisco, Los Angeles, and San Diego all have very well developed and expanding light rail, BRT/Bus Rapid transit lines, and commuter rail links for feeders that support multi-use TOD for increasing CHSR rider ship and local revenue producing customers.

The Japanese "Shinkansen" business model integrates TOD and "Business Opportunity" redevelopment and zoning around it's major Transportation centers and stations areas like Tokyo Station City" to create alternative revenue generation and new "Shinkansen" associated customer markets for diverse life-style products and services. JR-East Group along its "Shinkansen" lines is maximizing the potential of station location for active "life-style business development. This is something that the CHRSA should seriously consider and develop a strong TOD/land-use management team to develop significant revenue and job supportive re-development on and near CHRSA stations and right-away though a public/private partnership in ownership and leasing business and other types of revenue generating facilities to re-invest into CHSR infrastructure, operations and expansion.



JR-EAST Local Areas Project Flow Diagram-2010 Company Information publication

JR-East and the other Shinkansen operating Business Groups/Organizations integrate development surrounding the station areas and have significant revenue generation from "Ekinaka; (in-station business) retail shops. The closest business plan that emulates this in the Bay Area is the retail business leasing model that the SFO Airport and other large International Airports have been doing for years. CHRSA can certainly develop stations along its routes with retail businesses that include restaurants, bank branches, stores, Department Stores, TOD Housing, business office towers, and even rental cars with a special emphasis on environmentally friendly businesses like "car share" with urban hybrids and all electric vehicles. The revenue from these operations would be re-invested into the CHSR.



JR-Central Tower Development-Nagoya Station-JR Central Corp. Publications

Presently, California Station Area TOD plans must demonstrate that the thresholds for the adjoining transportation corridors supporting feeder lines consisting of local light-rail, BRT/Rapid Bus lines, or even Passenger Ferry Services, are met through existing local station development and adopted plans primarily for building higher density housing. This requirement may be met by existing or new area plans accompanied by appropriate zoning and implemented/funding mechanisms. If new station area plans are needed to meet the connecting transit corridor threshold, the regional MOP like the bay area's MTC which works in concert with (ABAG) Association of Bay Area Governments in coordination with transit agencies/authorities and the congestion management agencies.

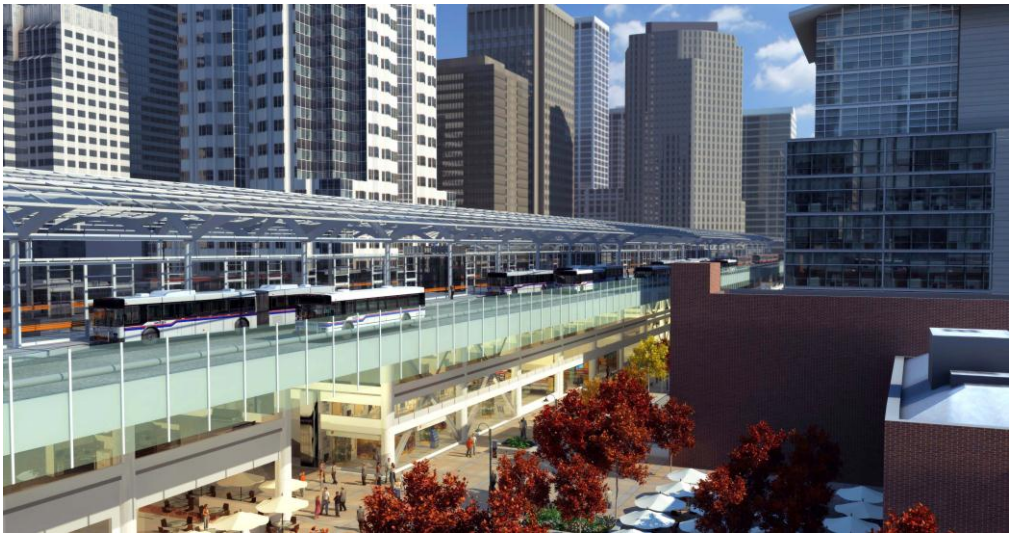


Illustration: San Francisco Downtown Tran bay Terminal Project; CHSRA/SFCTA

CHRSA "Station Area Plans" are opportunities to define vibrant mixed-use, accessible transit villages and quality transit-oriented development (TOD)-place where people want to live, work, shop, socialize/entertainment and spend time. These plans at CHRS station sites should incorporate mixed-use developments, commercial /businesses services, educational facilities, child care centers, pocket parks, bike facilities, car share facilities, and other amenities to serve CHRS customers and the local community.

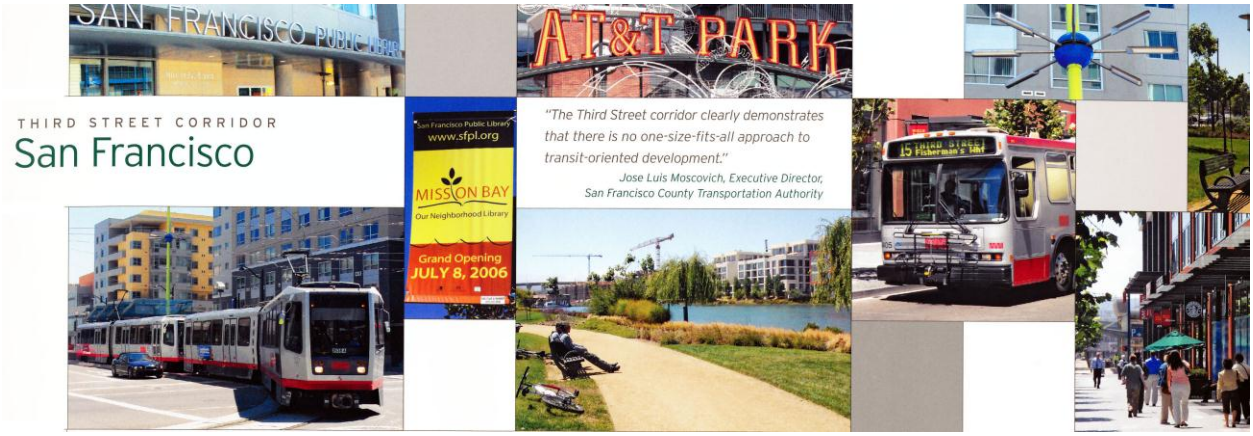


Photo Collage: San Francisco 3rd Street. Light- Rail Corridor, TOD/Transit Feeders/Amenities, MTC/SFCTA/SFMTA/ABAG/BCDC

At a minimum, CHSR station plans need to define both the land-use for the area as well as the policies related to zoning, design standards, parking policies, business and commercial development preferences/standards for joint implementation and to secure the option of a public/private partnership in construction and funding. The plans should minimally define current and proposed land-use by type of use and density within a half-mile radius, with a clear acceptance of the projections and identification of existing housing and business assets and the planned and desired re-development characteristics, mixed-use elements, and density capacity. In the end CHSRA adopting a robust TOD policy and building an innovative management planning team for CHSR stations and surrounding areas with local private/public partnership, benefits CHSR customer mobility and secure revenue funding streams for system re-investment.

Conclusion

In evaluating the future potential success of the implementation of CHSR services on urban transit corridor businesses, employees, and customers that are impacted by the design of the CHSRP infrastructure and service mix, it is important to look at the entire HSR "package" of attributes and technology implemented successfully around the globe. This survey of using the Japanese "Shinkansen" as a benchmark supports increased customer mode choice and preference

levels as being related to the total quality of the "package" of attributes and management associated business model. With higher speeds contributing to a faster travel and reduced time between major metropolitan cities and mega-regions the mode share of choice in driving and flying are reduced significantly. Because so many levels (and different CHSR route station stop communities and customers) in California will be affected by these major CHSRP changes it is vital to implement a strategic planning process that includes a variety of involved business types and impacted community stakeholders, smart growth/TOD planners, and business economists to work with local and regional transportation policy makers and agencies.

The Right System Level of Attributes

Customer acceptance and maintaining stable rider-ship growth at the station locations these will require improvements sustainability in service reliability, efficiency and performance from rural and urban transit feeder services linking seamlessly with the CHSR stations/transit centers. However, environmental and industrial design attributes, advanced safety technology, customer friendly features, and marketing can support differentiating the CHSRP from the negative factors experienced by current CHSR stakeholders, and rail corridor communities and system riders.

The importance of high-speed train set design and community/customer sensitive attributes in the JR-East Shinkansen reinforces its incredible record of safety, reliability, performance and customer acceptance. The "Shinkansen" train-set appearance and leading-edge industrial design styling is a key contributor to the system's customer's comfort, appeal, image, identity and positioning. CHSRA operations and passengers will be served by the application of new technologies including: (ITS) Intelligent Transportation Systems, (GPS) Global Position Systems for tracking, (ATC) Automatic Train Control, (Next-Train) station arrival information, (APC) Automatic Passenger Counting, (AFC) Automated Fare Collection, (Smart Cards) electronic passes/cards for faster boarding with pre-payment, transit-based traffic signal control, wayside seismic/disaster prevention sensing devices and improvements in safety/security technology for greater passenger security.

Consistent marketing methodology and modernization will have to be an ongoing process by CHSRA management linking High-Speed Rail services to the mix of traditional bus service and other competing transportation mode choices of flying and driving available to customers. No single formula, set of attributes, or transit mode is right for all situations nor does any one formula remain static over time.

The Right Investment in California's High-Speed Rail Project

CHSRA management's commitment to HSR needs to thoroughly define its market demand model as related to future land-use and population patterns, and clearly in comparing a new CHSR system to traditional commuter rail service by differentiating to the CHSR mode choice. HSR with its dramatically faster travel speed and operational safety offers an alternative mode

choice to driving and flying as well as a marketing opportunity for CHSRA management, regional and local policy makers, and communities of all sizes to seriously support.

The key benefit opportunity of the CHSRA besides building a fast, safe, and reliable HSR system, is that of creating job opportunities and to stimulate "smart growth" in creating TOD and livable communities at all of its route contact points and stations. In many cases existing state owned right-of-way and phased segment construction allows for incremental expansions, to adapt to changes in future land-use patterns while maintaining equity in transportation accessibility for all who depend upon public transportation. The CHSR is an exciting alternative mode which integrates rapidly with other transit links in a multi-modal operation environment of pedestrians, bikes, cars, trucks, buses, light rail, heavy rail, and even connecting with maritime (ferries) and aviation hubs.

The form, shape and how well HSR works as a truly customer-oriented system will depend on the quality of strategic planning and customer marketing methodology and strategies built into the process of implementing and maintaining the initial goals and qualities of the system and its operation over a sustained period of time. The proven global benefit in operating HSR like Japan's Shinkansen and France's TVG and customer response in meeting the current and future needs of customers makes CHSR a serious contender in supporting and stimulating California's mega-regions connectivity, business/population growth, and future global commerce competitiveness.

The rate of long-term GNP growth projections is a critical stakeholder concern in the U.S. sustaining the funding of transportation mega projects like the California High-Speed Rail project. The Federal Government and California State government leadership needs to permanently legislate and provide a funding mechanism that supports the CHSRP and other mega-region high-speed passenger rail projects with legal and regulatory separation from the freight rail systems and AMTRAK hand-cuffing the forward progress in right-of-way acquisition, operation controls and federal regulations.
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The Right Policy – Transit First and TOD

The implementation of CHSR in its ability to integrate with existing commuter rail systems as well as, with other transportation modes, adds tremendous business opportunity to impact rider-ship mode choice patterns affected by future land-use patterns, growth changes and benefits to the environment by reducing the increased driving and flying travel demand projected by the MTC, 2035 strategic plan. CHSR implementation will require major feeder improvements to create an effective door to door surface transportation system capability for reducing congestion as well as increasing mobility options for transit riders and community stakeholders.

The survey includes a photo snapshot of the selected CHRS station location cities, businesses and their surrounding communities. It became evident that there could be an opportunity to stimulate significant growth and development of TOD at and around those station sites. On CHSR transit feeder corridors such as San Francisco, the importance of rapid, safe, and equitable

public transportation has become part of a "transit first policy' with leading-edge rail and BRT/Rapid Bus projects being either implemented or in the process of planning and development. It may be the actual implementation of combining CHSR and feeder-transit modes with a comprehensive land-use plan that embraces Transit-Oriented Development (TOD) of mixed use and innovative urban housing along transit corridors, which will in the end, significantly boost the customer growth and revenue of the built CHSR.

Good policy and integrated transportation and land-use planning have far-reaching consequences and positive impacts on transportation and the viability of transit corridor businesses. The survey results showed that the successes of the CHRS station areas and associated transit corridor businesses are intertwined and can orchestrated with transportation demands to create stakeholder and community harmony and stimulate urban vitality through innovation and vision in policy, planning, marketing, and transportation management leadership.

There should be a clearer picture of which CHSR elements and system attributes which could be successful and a picture of those that need to be reevaluated or modified for reducing negatively perceived impacts to CHSR route cities and community businesses. In the end it may be the very business model, land-use, and location of a particular business or business type that may have to make major adjustments or even relocate. Just as transportation modeling and systems need to remain flexible and adaptable to population and land-use changes, so must CHSR corridor businesses.

The future success of the CHSR as a customer mode choice is critically dependent upon many complex and interrelated issues of land-use, design, operations, infrastructure characteristics, and customer marketing appeal to meet the goals of delivering a faster, more reliable, customer preferred transportation mode. HSR is a marketing sensitive mode will be most successful when shaped with a high quality strategic business plan that embraces a responsive public outreach and planning process that fully involves future customers, transit corridor businesses and other key stakeholders in its planning, development, and implementation.

CHSRA leadership must take the ultimate responsibility for its actions, vision, and business ethics by virtue of the authority bestowed by the principals of "public trust". Encompassing the role of leadership; in an increasingly complicated, regulated, and political/policy driven environment, are unpredictable risks that challenge and can compromise and diminish the effectiveness of leadership. Tolerating mediocrity in the quality of a new product, service, or project like the California High-speed Rail should not be accepted or tolerated by the CHSRA or the public.

APPENDIX A

TOD Snapshots: CHSR Segment Station Locations

Ten Cities

SACRAMENTO

SAN FRANCISCO

SAN JOSE

MERCED

FRESNO

BAKERSFIELD

PALMDALE

LOS ANGELES

ANAHEIM

SAN DIEGO

*

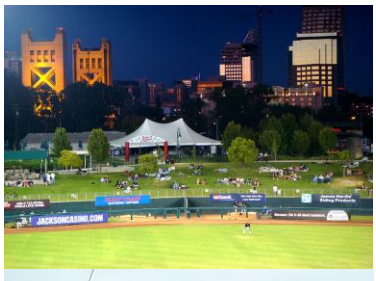
SACRAMENTO

TOD

Snapshot: Grade A

State Capitol

Diverse Urban Land-use
100 Square Miles
Pop: 1,418,788
Retail Business $1.57B
CHSR Customer Base
Excellent-Urban, U.C.D.



Educational Institutions
U.C. Davis Medical Center
Sacramento State

State Railway Museum
Convention Center
Urban Parks,

Excellent Transit Links:

Light-Rail, Buses,
Commuter Rail Amtrak
Capitol Corridor Rail
Maritime Port Facilities

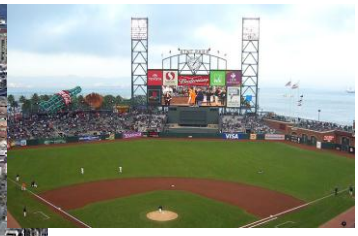
SAN FRANCISCO

TOD

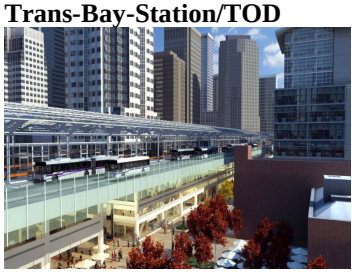
Snapshot: Grade A+

Urban/Metro Land-use
47 Square Miles
Pop: 815,358 PC $70,776
13th Largest U.S. City
CHSR Customer Target
U.S. Overseas Tourists,
U.C.S.F., Bio-tech, Metro

Educational Institutions:
U.C.S.F., Bio-Engineering,
Medical School. USF, Academy of Art, Art Institute
SF Symphony, Opera, Ballet,
Convention Center, Teams: SF Giants, SF Forty-Niners
Iconic: Golden Gate Bridge



Transit Links:
CalTrain SF-SJ, BART,
SFMTA-Light-Rail+ Bus System, Southwest-
SFO Intl. Airport, CHSR
Trans-Bay-Station/TOD



SAN JOSE

TOD

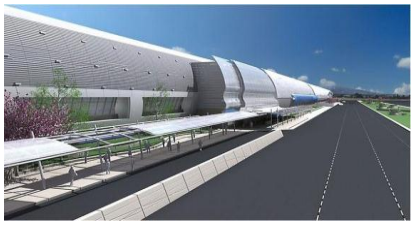
Snapshot: Grade A+

Silicon Valley-High-Tech

Diverse Urban Land-use
100 Square Miles
Pop: 958,789
10th Largest U.S. City
CHSR Customer Base
Excellent-Urban, U.C.D.,
SJ Sharks- HP Pavilion

Educational Institutions
San Jose State University
Mineta Transportation Institute,
Performing Arts,
Tech Museum,
Convention Center
Urban Parks

Excellent Transit Links:
VTA Light-Rail, Buses,
Commuter Rail Amtrak
Capitol Corridor, Altamont
Commuter Express,
CalTrain-SJ-SF
SJ/Mineta Intl. Airport



MERCED

TOD

Snapshot: Grade C+

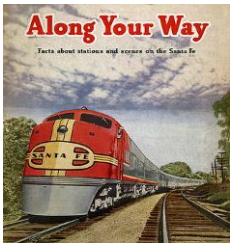
U.C. Merced

Diverse Rural Land-use
23 Square Miles
City size is #153 in CA
Pop: 18.000 #153 CA
CHSR Customer Base
U.C. Merced, Yosemite

Educational Institutions:
U.C. Merced (New
Expanding Campus 4,000-
Future 32,000
Merced College
Agriculture, Yosemite
NP Gateway

Transit Modes:

Amtrak Thruway Buses,
Commuter Rail Amtrak
San Joaquin Rail-280 Daily
Passengers (Merced)
Outdated-Upgrades
CHSR: TOD Dev. 20-30
years future Growth tied to
U.C. Merced

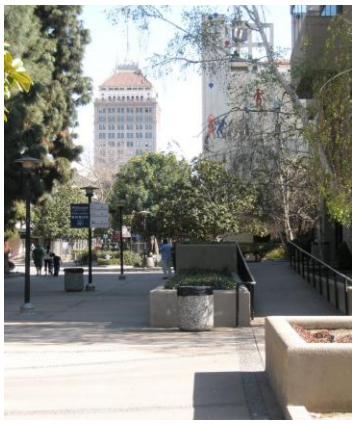


FRESNO

TOD

Snapshot: Grade A-

Amtrak Station

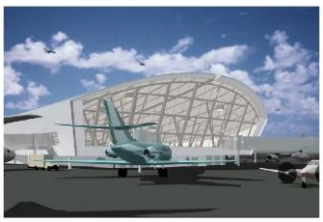


Diverse Urban Land-use
104 Square Miles
Pop: 466,714 City
Retail Business $4.7 B
CHSR Customer Target:
5th Largest City in CA
Metro Pop 1,107,416

- **Hispanic – 468,070 (43 %)**
- **White – 304,522 (40%)**
- **Black – 45,005 (8%)**
- **Asian – 87,922 (4.3%)**
- **Mixed – 17,208 (2.9%)**

Education: Fresno State
IRS Processing-Gov Jobs

Excellent Transit Links:
Buses-Greyhound, Local
Fresno Intl. Airport
Commuter Rail Amtrak
San Joaquin Express
2 Million Monthly
Passengers. +10% 2010



BAKERSFIELD

TOD

Snapshot: Grade C+

Amtrak Station

Diverse Urban Land-use
115 Square Miles
Pop: 324,463
CHSR Customer Base
Growing Slowly
Housing Value (-10.3%)

- **Hispanic - 139,406 (43.0%)**
- **White - 132,712 (40.9%)**
- **Black - 25,997 (8.0%)**
- **Asian - 14,041 (4.3%)**
- **Mixed - 9,572 (2.9%)**

Average Transit Links:

Golden Empire- Buses
Commuter Rail Amtrak
413,000 Passengers. +4.3%
2010

PALMDALE

TOD

Snapshot: Grade C-

Transportation Center

Small Town Land-use
102 Square Miles
Pop: 143,277 City
PC Income $46,763
CHSR Customer Target:
TOD density potential low,
High Desert-arid

Housing-Recreation Center
Edwards Air Force Base

Transit Links:
Buses-Greyhound, Local
Antelope Valley Bus Line
Linking to:
Commuter Rail Amtrak
LA Metro-liner

LOS ANGELES

TOD

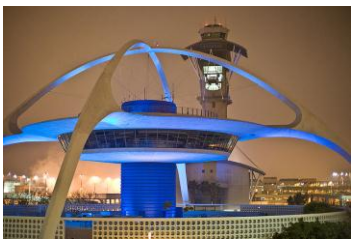
Snapshot: Grade A

Diverse Business/Trade

Diverse Urban Land-use
470 Square Miles
Pop: 3.8 Million
2nd Largest U.S. City
CHSR Customer Base
Excellent-Urban/Retail
U.C.L.A.., Staples Center

Educational Institutions:
U.C.L.A., Medical Centers,
Southwest Law, U.S.C.,
Disney Performing Arts,
Convention Center, Parks,
Sport Teams: Lakers, Clippers,
Dodgers. Kings

Excellent Transit Links:
Union Station: Amtrak,
LA Metro-Light-Rail,
BRT/Bus System, TOD,
LA Intl. Airport



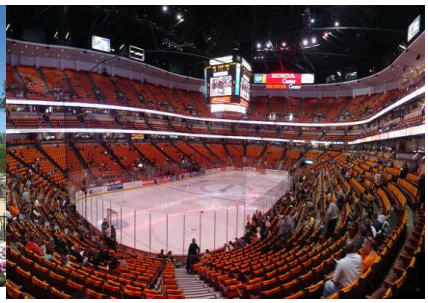
ANAHEIM

TOD

Snapshot: Grade B

- **Pop. 337,896 +3%**
- **Income PC $21,675**
- **House ($540,414)**
- **50 Square Miles**
- **CHSR best target Disneyland visitors**

- **Transportation: Metro-liner, Amtrak, Bus, Freeway, Interstate Connectivity B+ A-**
- **Main Attractions: Disneyland, Anaheim Ducks-Hockey Team**



Hispanic 180,666 (53.5%)
White 90,711 (26.8%)
Asian 48,024 (14.2%)
Black 9,324 (2.8%)

SAN DEIGO

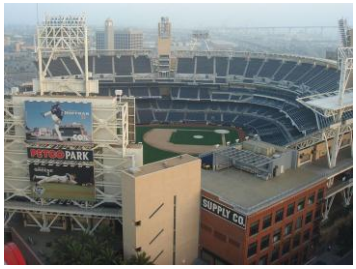
TOD

Snapshot: Grade B+

Bio-Science Business/U.S.N. 3rd Fleet

Diverse Urban Land-use
324 Square Miles
Pop: 1.2 Million +2.7%
8th Largest U.S. City
CHSR Customer Target Tourists, U.C.S.D., U.S. Navy, Defense, Bio-tech

Educational Institutions: U.C.S.D., Bio-Engineering, Medical School, Salk Institute, Disney Performing Arts, Convention Center, Sport Teams: SD Chargers,
Iconic: Balboa Park-SD Zoo



Transit Links:
Amtrak: Coastal Liner, San Diego-Light-Rail, Bus System, Southwest-
SD Intl. Airport

ABBREVIATIONS AND ACRONYMS

ACCMA	Alameda County Congestion Management Agency
AC Transit	Alameda-Contra Costa Transit Agency
ADA	Americans with Disabilities Act, Reference to ADA Compliant
ADT	Average daily traffic; average daily trips
ADT	Automatic Train Detection (rail/HSR system)
ATC	Automatic Train Control (rail/HSR system)
Automatic Guidance	A mechanical or electronic system for automatic guidance control of vehicle
AVL	Automatic vehicle location system
Branded Identity	Identity and image communicated through graphic design. Logo, Vehicle (Train-sets) Graphics and paint schemes, organizational identity applied to all marketing communications, advertising, media, vehicle fleets, uniforms, signage,
BART	Bay Area Rapid Transit
BRT	Bus Rapid Transit
BSP	Bus Signal Priority
Caltrans	California Department of Transportation
CCTV	Closed-Circuit Television

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CHSR	California High-speed Rail
CHSRA	California High-speed Rail Authority
CHSRP	California High-speed Rail Project
CMA	Congestion Management Agency
CNG	Compressed natural Gas
EVP	Emergency vehicle preemption
FHWA	Federal Highway Administration
FTA	Federal Transportation Administration
GPS	Global positioning system
Headway	The time interval between the passing of the front ends of transit vehicles moving along the same lane or track
HOV	High-occupancy vehicle
HRT	Heavy Rail Transit
HSR	High-speed Rail
ICE	ICE – Intercity Express-HSR; DB German Railway
JR/JNR	Japan Railways (Private 1987); Japan National Railways (Pre-1987)
JPA	Joint Powers Authority
LA Metro Rapid	Los Angeles BRT, Bus Rapid Transit System (LA Metro Rapid 720-

	Wilshire)
LOS	Levels of service (quality and quality of transit free flow, affected by levels of congestion, Scaled A-F)
LRT	Light Rail Transit
MTA	Metropolitan Transportation Authority (Los Angeles area)
MTC	Metropolitan Transit Commission (S.F. Bay Area)
MTI	Mineta Transportation Institute
Next-Train	Information system denoting the arrival of the next train, displayed at rail train stops
NIMBY	"Not in my backyard"
MUNI	San Francisco Municipal Railway, Operates Buses, LRT, Street Cars, and Cable Cars
NABI	North American Bus Industries, Leading-Edge Bus Design (LA Metro Rapid)
Ped	pedestrian
Rapid Bus	Bus system with wider spacing between stops, 5. Mile – 1 Mile with special system elements and attributes to increase speed, frequency with special buses, branding. Usually one step below a full BRT with exclusive travel way
SAM Trans	San Mateo County Transit
Smart Corridors	Refers to the implementation of signal priority and signal management along a corridor to create better traffic flow, when linked with Bus Transit GPS it can give signal priority to transit: i.e., AC Transit San Pablo Rapid Bus

SFCTA	San Francisco County Transportation Authority
SOV	Single-Occupancy Vehicle
TCRP	Transit Cooperative Research Program
Trans-Def	Transportation Solutions Defense and Education Fund
TSP	Traffic Signal Priority
TOD	Transit-Oriented Development
TSP	Traffic Signal Priority
TVM	Ticket Vending Machine
VMS	Variable Message Sign
WiFi	Wireless Fidelity

Table 9 Abbreviations and Acronyms

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