

CALIFORNIA

HIGH-SPEED RAIL PROJECT UPDATE

Orange County Transportation Authority
Board Meeting
April 28, 2008



FLY CALIFORNIA

Without ever leaving the ground.

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

High-Speed Trains Around the World



- Steel-wheel-on-steel-rail high-speed train (HST) operations have been extensively proven in regular revenue service – operating in Japan over 40 years and in Europe for over 25 years. HST systems currently operate and are expanding in Japan, Korea, France, Germany, Spain, Italy, England, Belgium, Taiwan, Netherlands, and China.
- HST currently operate in Japan and France at 187 mph, but have been tested at well over 300 mph. The next generation of high-speed trains will operate at maximum speeds of 220 mph – the first of which will be operating in Spain (opening in early 2008).
- State-of-the-art signaling and communications systems permit minimum headways (time between trains) of as little as three minutes. In Japan over 320 trains operate daily on the Tokaido Line (between Tokyo and Osaka) with an average deviation from schedule of less than 20 seconds.

CALIFORNIA HST



- ✓ State-of-the-art electrically powered steel-wheel-on-steel-rail technology
- ✓ Fully grade-separated tracks
- ✓ The majority of the system will be at-grade along side existing railroads, roads, and highways

- **System Length: 800 miles**
- **Maximum Speed: 220 mph**
- **Right-of-Way: 50ft wide**



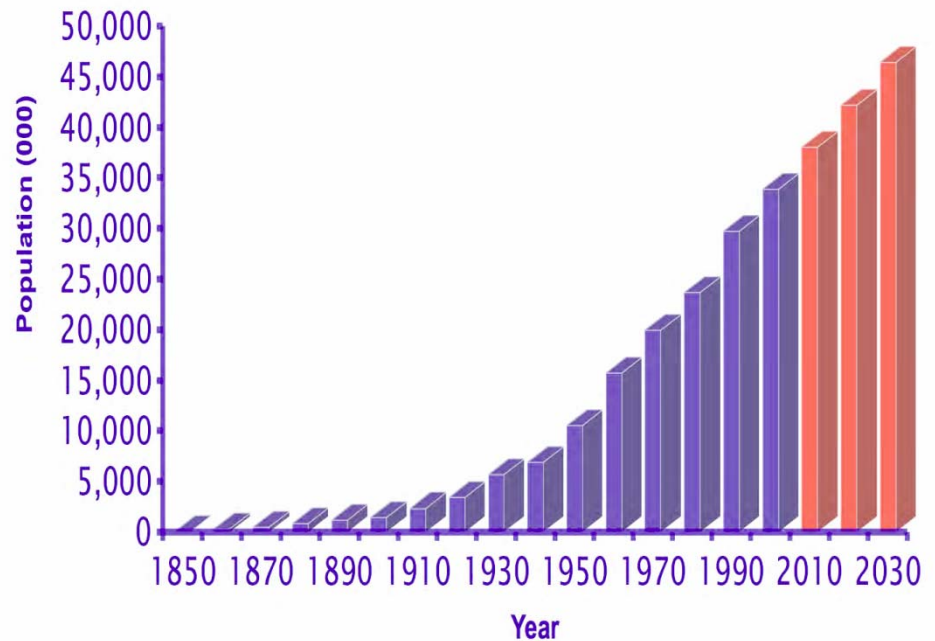
Why do we need it?



CALIFORNIA'S RAPID GROWTH

- Estimated 2006 population: 36,457,549
- By 2030, CA is projected to hold over 15% of the U.S. population, approximately **50 million** people, an increase of 13.5 million or 37%.
- CA currently has 3 out of the 5 most congested urban areas in the USA:
 - Los Angeles (#1)
 - San Francisco-Oakland (#2)
 - San Diego (#5)

California Population Growth



Source: US Census Bureau Population Data

CONGESTION

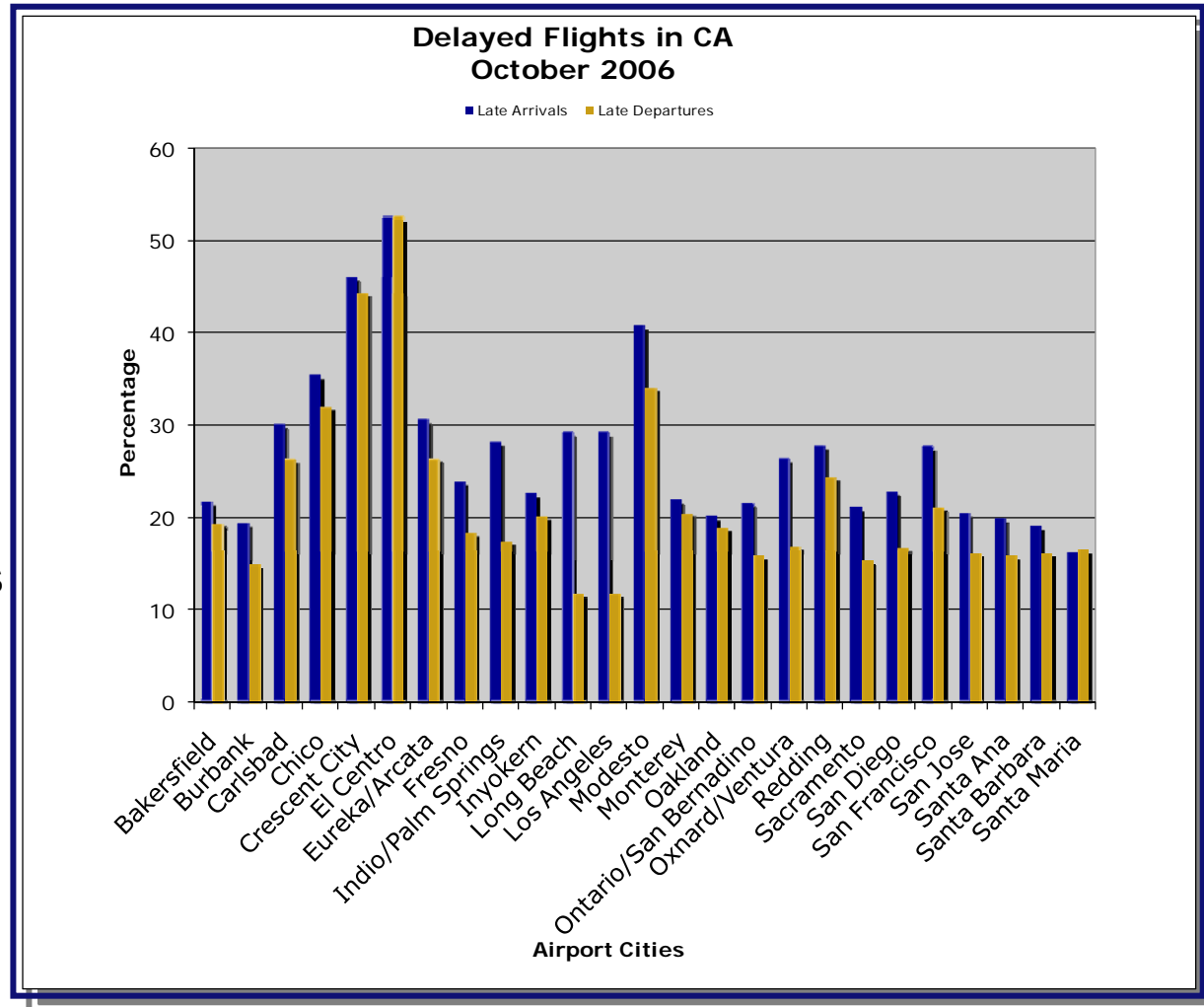
Automobile

- Congestion costs CA approximately **\$20 billion per year** in extra fuel and lost time, and congestion is increasing by an average of 10% per year

Air

- Over the next 20 years, LAX, SAN, and SFO airports are predicting “**unacceptable delays**” and reaching capacity

- These delays result in a net total of **90 new gates** and **5 new runways** needed to accommodate the intercity demand

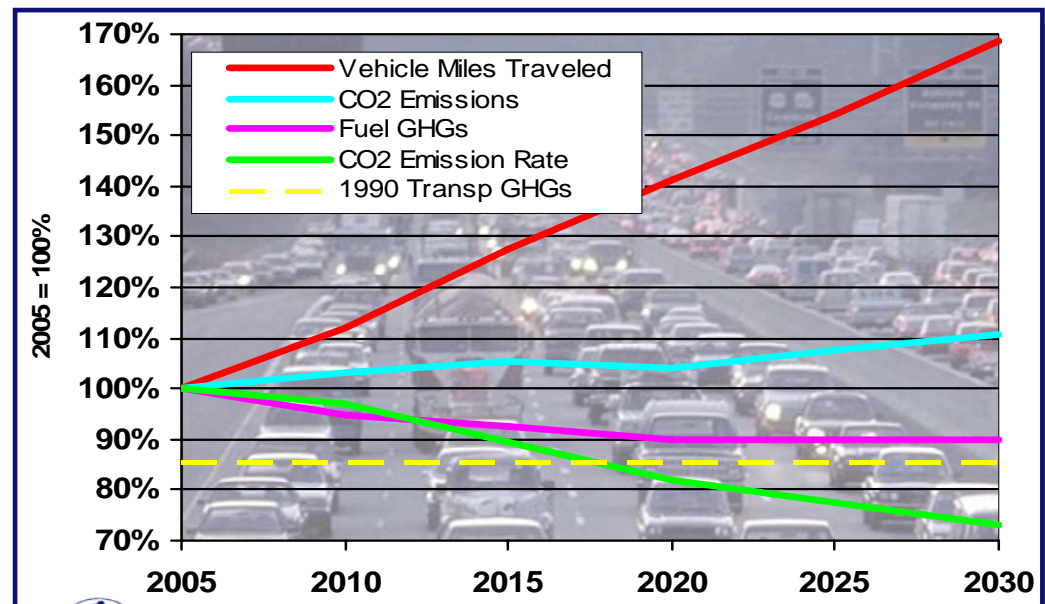


Source: Department of Transportation - October 2006 Air Travel Consumer Report

POLLUTION

- CA is the 12th largest source of greenhouse gas (GHG) emissions on the planet, with emissions rising by 15.1% during 1990-2004
- CA has recognized this problem and enacted legislation, AB 32, which requires GHG to return to 1990 levels
- 41% of the State's emissions come from the transportation sector
- Cleaner fuels and more efficient vehicles alone *are not* projected to achieve AB 32's goals.

Growth in Driving Outstrips GHG Emissions Improvements



Source: The Center for Clean Air Purity

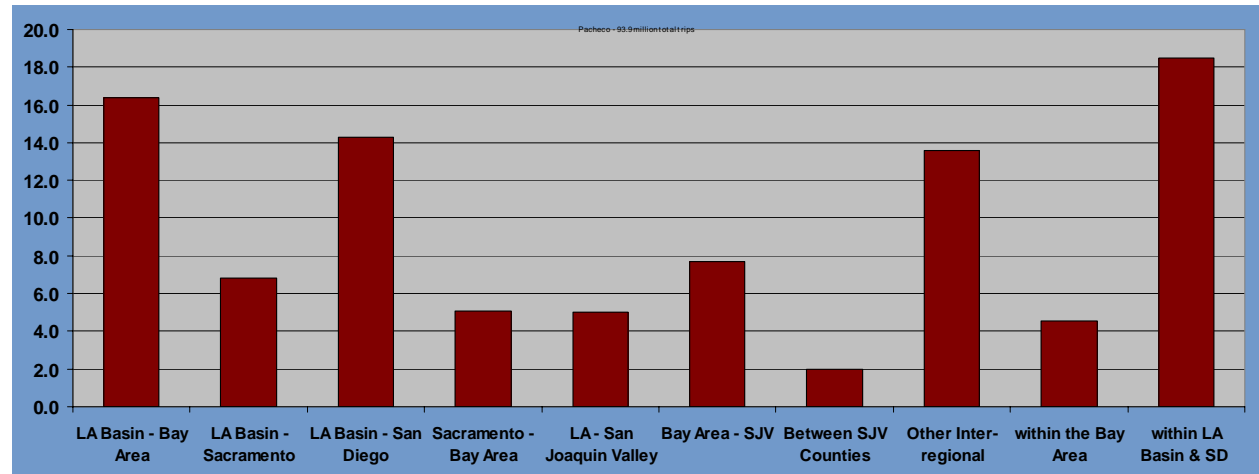


Who will ride it?



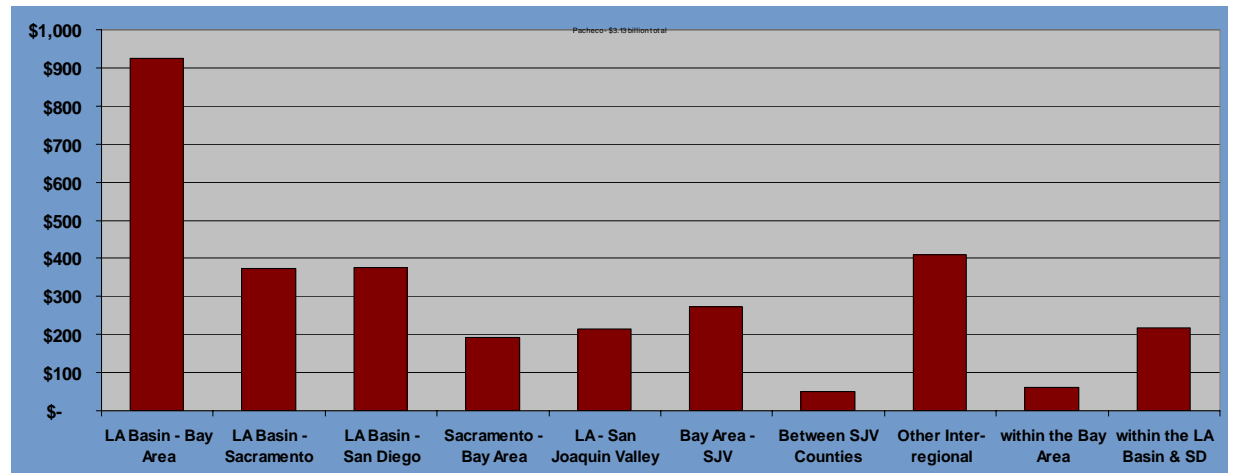
2030 – RIDERSHIP/REVENUE

Ridership



- *93.9 million trips by 2030*

Revenue

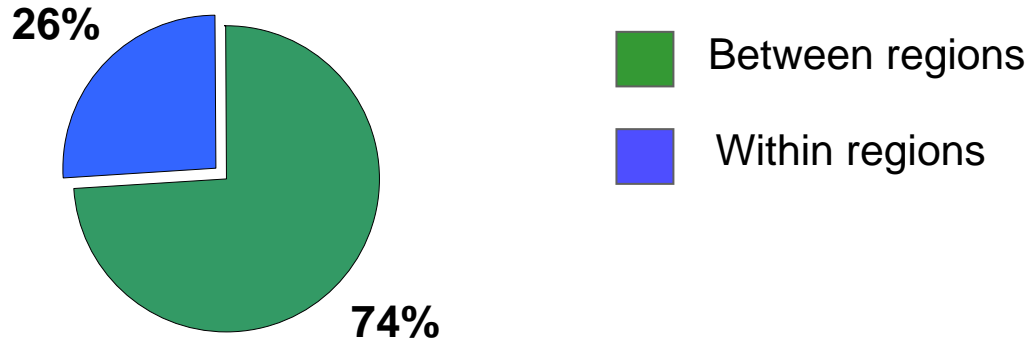


- *\$3.1 billion by 2030*

HST TRIPS & REVENUE

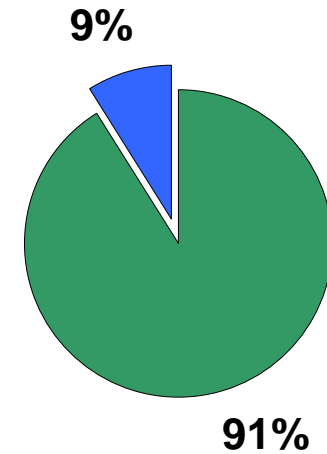
TRIPS

88-94 million/year

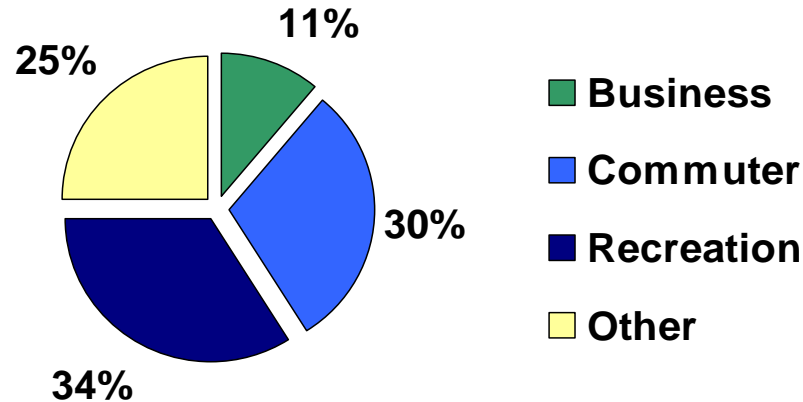


REVENUE (2006 \$\$)

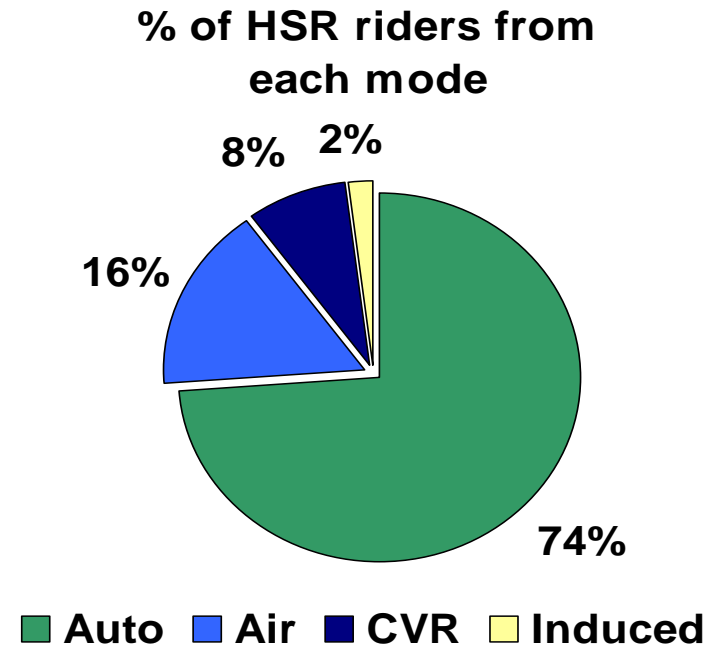
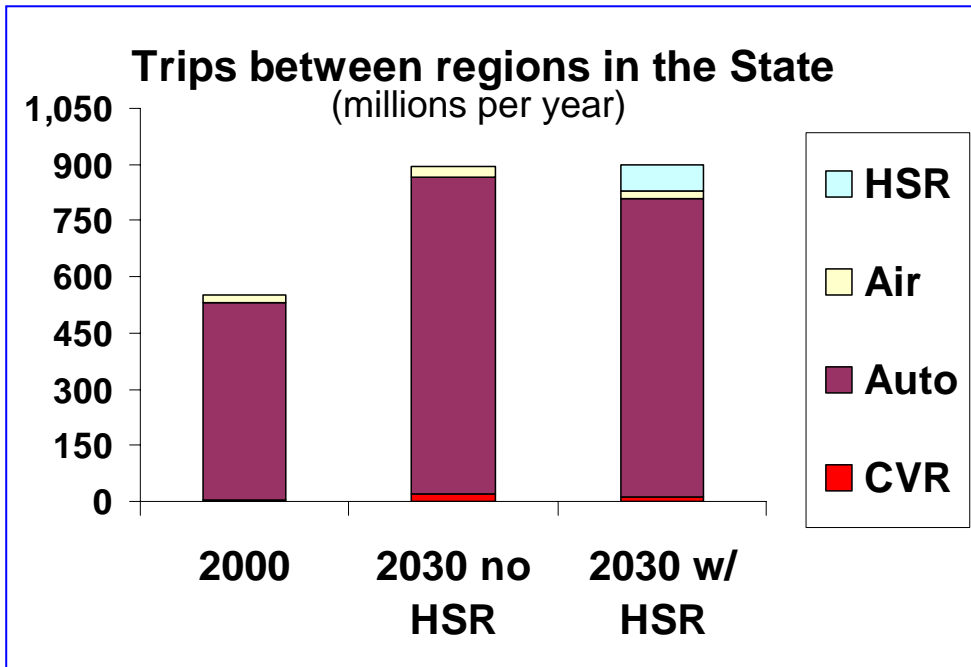
\$2.8-3.1 billion/year



HSR travellers' reasons for trips (between regions in the State)



IN-STATE TRIPS & HST SHARE



In 2030, HST will carry 7% of trips between regions, air & conventional trains 2%, and auto 89%.



What will it cost?
How will it be built?



Statistics

- \$40 Billion
- 800 Miles Long
- 1600 Miles of Track
- 26 Stations
- 150 Miles of Bridges, Viaducts, and Elevated Structures
- 35 Miles of Tunnels
- 610 Grade Separations

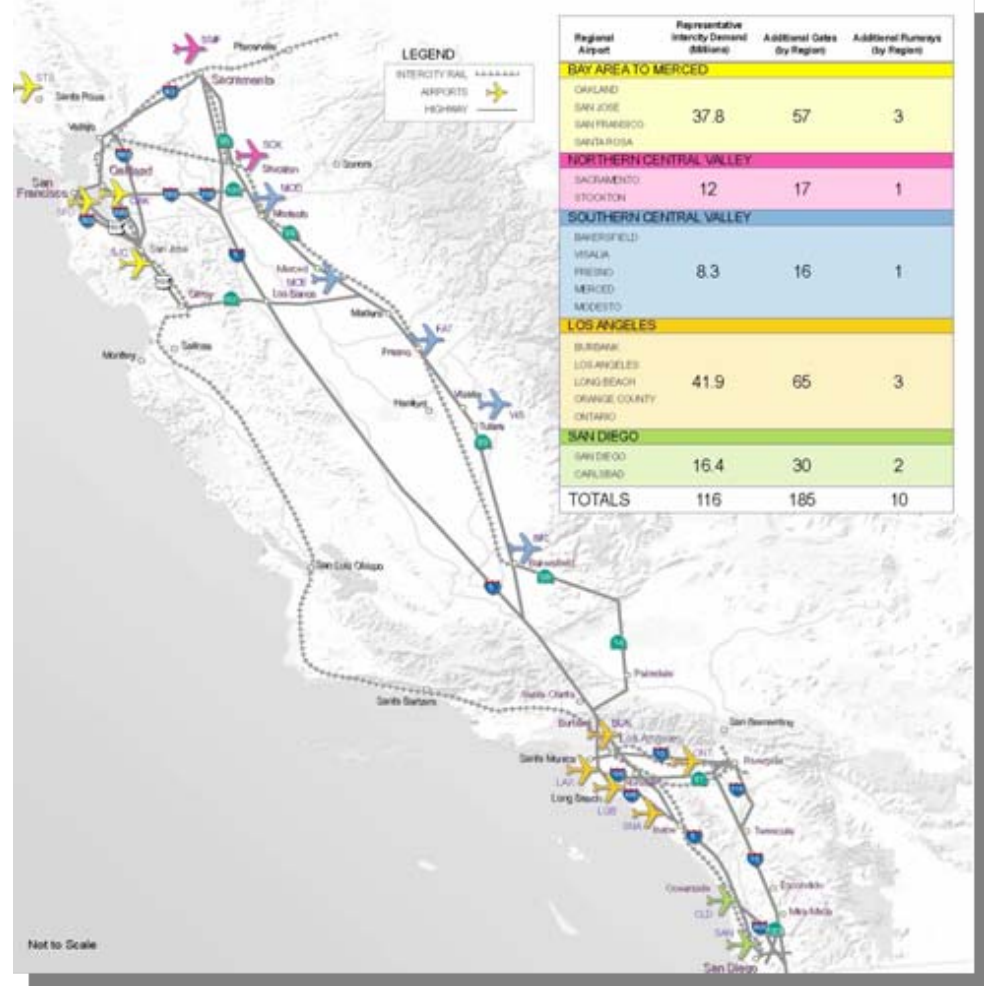


TO SERVE THE GROWING POPULATION

*“... California would have to build nearly 3,000 miles of new freeway plus five airport runways and 90 departure gates in the next two decades... The price tag: \$82 billion, and such levels of construction are barely possible in the real world.”
January 28, 2004 Oakland Tribune article*

Improvement	Cost
Highway Component	\$66 Billion
Aviation Component	\$16 Billion
Total Cost	\$82 Billion

❖ The HST system would cost less than half the cost of freeway and aviation alternatives



Source: CA High Speed Train System EIR/EIS: Appendix 2E



What are the benefits?



BENEFITS

Economic:

- HST will generate approximately **\$3 billion** in annual revenues
- HST will create 450,000 permanent jobs by 2035 and 160,000 construction-related jobs to plan, design, and build the system.
- HST will eliminate the need to construct 3,000 lane miles of freeway, 90 airport gates, and 5 additional airport runways
- Increased mobility will help to alleviate critical housing problems

Congestion:

- HST results in nearly 70 million fewer long-distance auto trips on highways annually
- HST will divert airline passengers to reduce delays at CA's 9 largest airports and increase statewide mobility
- HST will carry 94 - 117 million annual passengers by 2030, with the ability to further expand capacity at a relatively low cost

Energy Savings and Air Emissions Reductions:

- HST will reduce CO2 emissions by nearly 18 billion pounds annually by 2030
 - Equivalent to taking over 1.4 million passenger cars off the road each year
 - Meets almost 50% of AB 32 GHG reduction goal
- HST saves 22 million barrels of oil annually
 - Equivalent to energy cost savings of over 2 billion dollars at \$100/barrel
 - Uses 1/3 the energy per mile of air travel & 1/5 the energy per mile of auto travel



Phasing



PHASING PLAN

Phase I - Anaheim to Los Angeles to Merced and the San Francisco Bay Area

The selection of Phase I is consistent with the California High-Speed Rail Authority's (CHSRA) stated objectives: connecting the major metropolitan areas of the state while serving the fastest growing region, the Central Valley. Phase I is the backbone of the network, producing the highest potential ridership and revenue, which in all likelihood will attract substantial private sector financing. Within Phase I the CHSRA will capitalize on improvements already planned and underway in selected segments of the network as well as developing a HST segment in the Central Valley that will provide for the commissioning and testing of the train equipment.

Phasing Plan Considerations:

- Cost
- Early utilization
- Serving many regions
- Development of a high-speed segment
- Ridership/Revenue
- Local and regional funding
- Significant operating revenues

PHASE I

PHASE 1

**SAN FRANCISCO
BAY AREA
TO
MERCED
TO
LOS ANGELES
TO
ANAHEIM**



PHASE I - SEGMENTS

5 Years

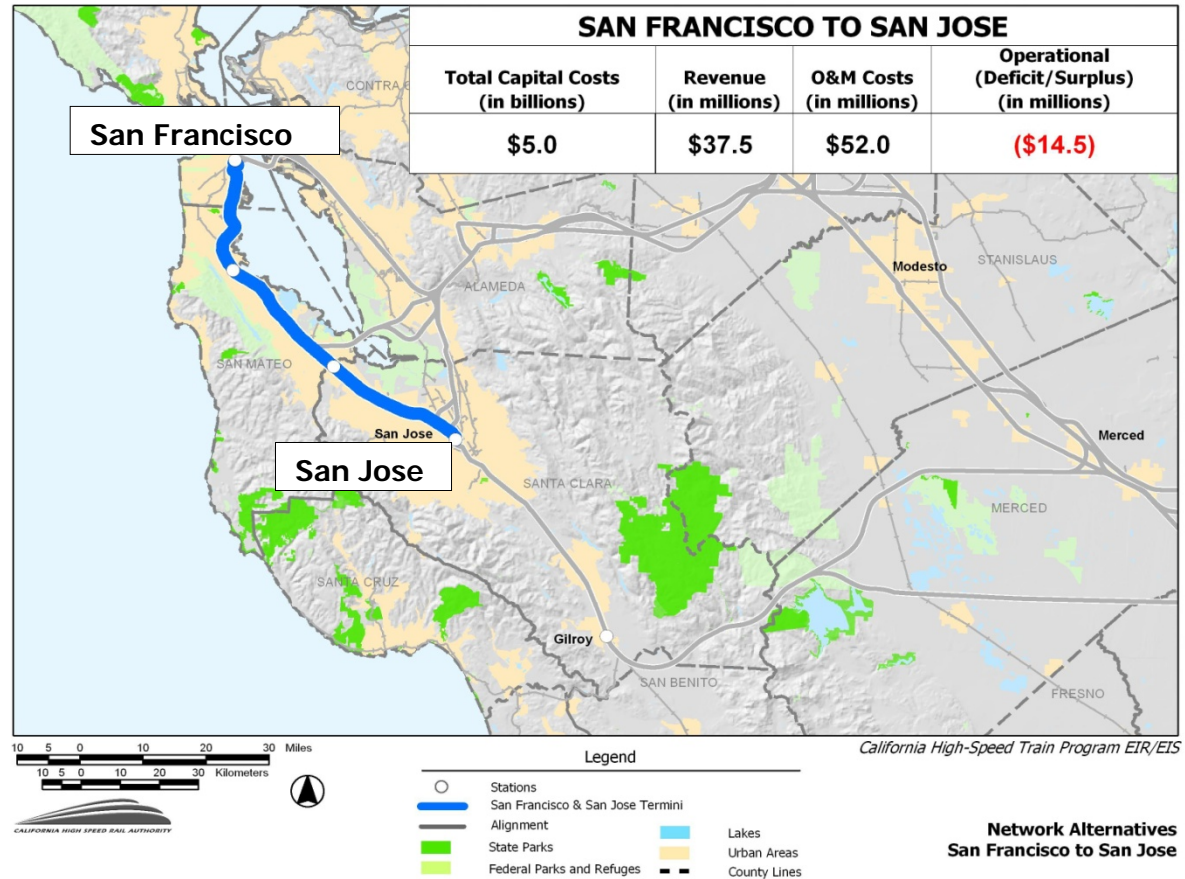
- SF – San Jose
- LA – Anaheim

7 Years

- Merced – Bakersfield

10 Years

- Bakersfield – LA
- Merced – Bay Area



PHASE I - SEGMENTS

5 Years

- SF – San Jose
- LA – Anaheim

7 Years

- Merced – Bakersfield

10 Years

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Anaheim



PHASE I - SEGMENTS

5 Years

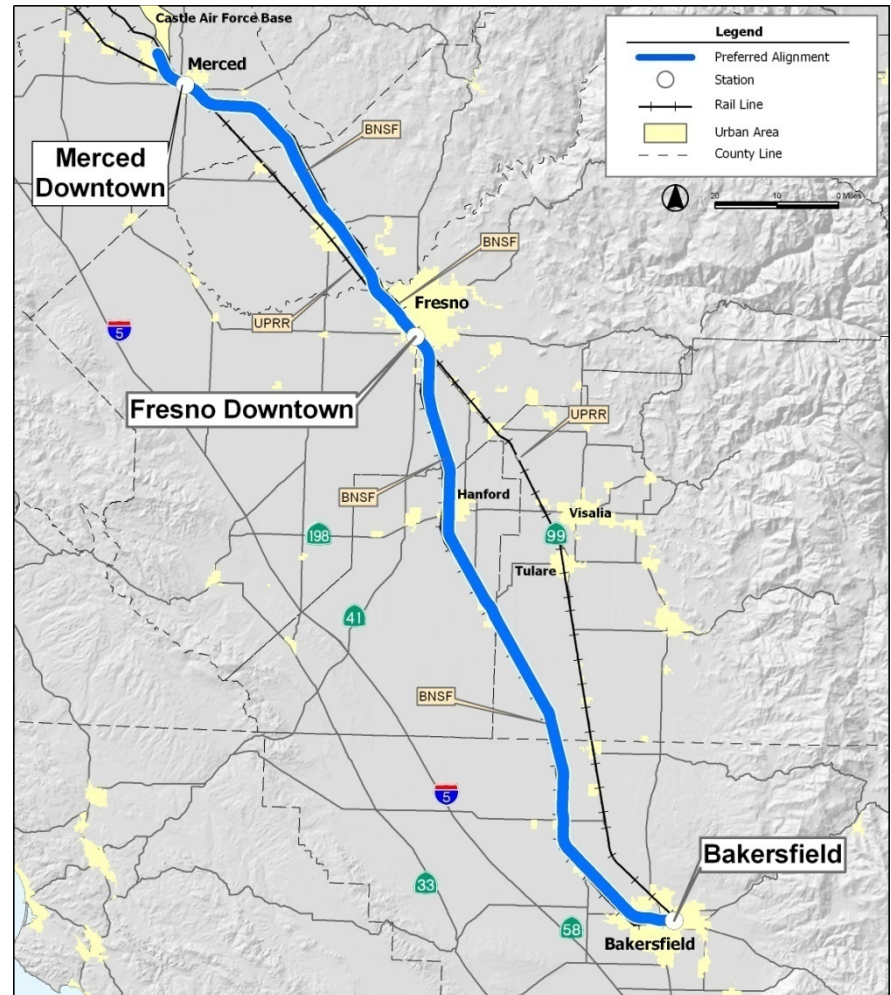
- SF – San Jose
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7 Years

- Merced – Bakersfield

10 Years

- Bakersfield – LA
- Merced – Bay Area





Project Financing



Finance Plan

To fund the Project's estimated costs of \$30 billion for construction and \$500 MM in finance fees, the Authority must access private, state, federal, and local sources.

<u>Funding Sources</u>	<u>Amount (in \$B)*</u>
Public-Private Partnerships (P3)	\$5 to \$7.5
State Support	\$9 to \$12.5
Federal Support	\$10 to \$12.5
Local Partnerships	\$2 to \$4
Additional Funding Sources	
Environmental "Benefit Capture"	\$0.5 to ?
Additional Local Corridor Cost Sharing	\$1 to \$3
Total Funding	\$27.5 to \$39.5

*All figures are in 2006\$

Public-Private Partnerships – State Commitment

The Project's funding will likely comprise private and public sources; however, local, state and federal support will be important early on.

- Private participation could be expected in the range of \$5.0 to 7.5 B through several funding mechanisms.



Project debt
Vendor financing
System operations
Private ownership

- The extent and cost of private funding will reflect the risks inherent in the Project.



Environmental
Political
Construction
Ridership

- Public support, both financial and political, is needed to create an opportunity for the Authority to leverage private participation.

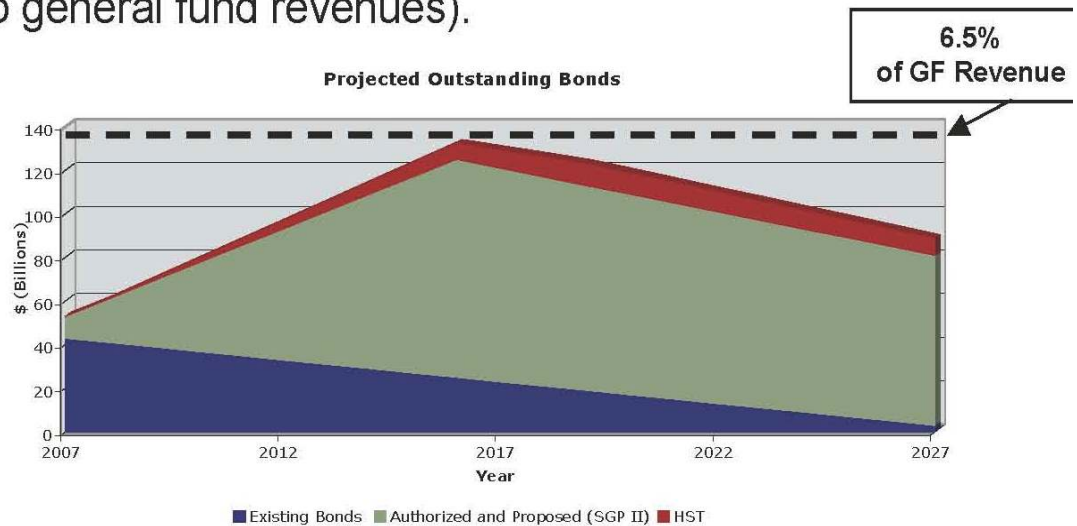


Certain governmental powers (e.g., eminent domain) are not available to private partners

State Support – Both Vital and Affordable

The **\$9.95 B** in **GO Bonds** already scheduled for the 2008 ballot are **affordable** under the Administration's current debt capacity guideline.

- The Governor projects \$100 B in bonds to be issued through FY 2015-16; \$9 B in GO Bonds HST bonds could also be issued without exceeding a debt ratio of 6.5 percent (ratio of debt service to general fund revenues).
- The State has an estimated GO bond capacity of **\$41 B (\$28 B** in 2006 dollars) beyond the Governor's planned \$100 B – without exceeding a debt ratio of 7.0 percent.
- The State also could support the Project through the issuance of bonds backed by a dedicated state-wide sales tax, instead of traditional GO bonds, thereby lowering the interest rates and appealing to investors desiring "diverse credits." A sales tax for HST could be "dovetailed" with the end of the current state-wide sales tax for the State's Economic Recovery Bonds (ERBs).





What has been done so far?



Activities & Milestones

✓ ***Business Plan (2000)***

- Corridor Evaluation
- Financial Plan
- Public Outreach
- Ridership, Revenue and Benefit-Cost
- System Integration

✓ ***Statewide Program EIR/EIS (2000 – 2005)***

- Technical Studies
- Draft EIR/EIS
- Public Hearings
- Final EIR/EIS (certified Nov. 2005)

✓ ***Blueprint for Building California's High-Speed Train (2005)***

✓ ***Bay Area – Central Valley Tier 2 Program EIR/EIS (2005 – 2007)***

- Technical Studies
- Draft EIR/EIS (July 2007)
- Public Hearings/Comments

✓ ***Advertised and Awarded 9 multi-year contracts for professional services (2006 - 2007)***

- Engaging over 90 firms to conduct engineering & environmental studies, financial planning and visual simulation

✓ ***Project Phasing Plan Adopted (May 2007)***

✓ ***Preliminary Financing Plan Prepared and Endorsed (May 2007)***



How does it relate to you?



Anaheim to LA: Project Level EIR/EIS

- **Develop Detailed Project Alternatives**
- **Project Definition – 15% Preliminary Engineering Design**
- **Public Outreach to Agencies, Stakeholders, and Communities**
- **Site-Specific Environmental Analyses**



Anaheim to Los Angeles



Vertical Alignment Shared-Track Alternative

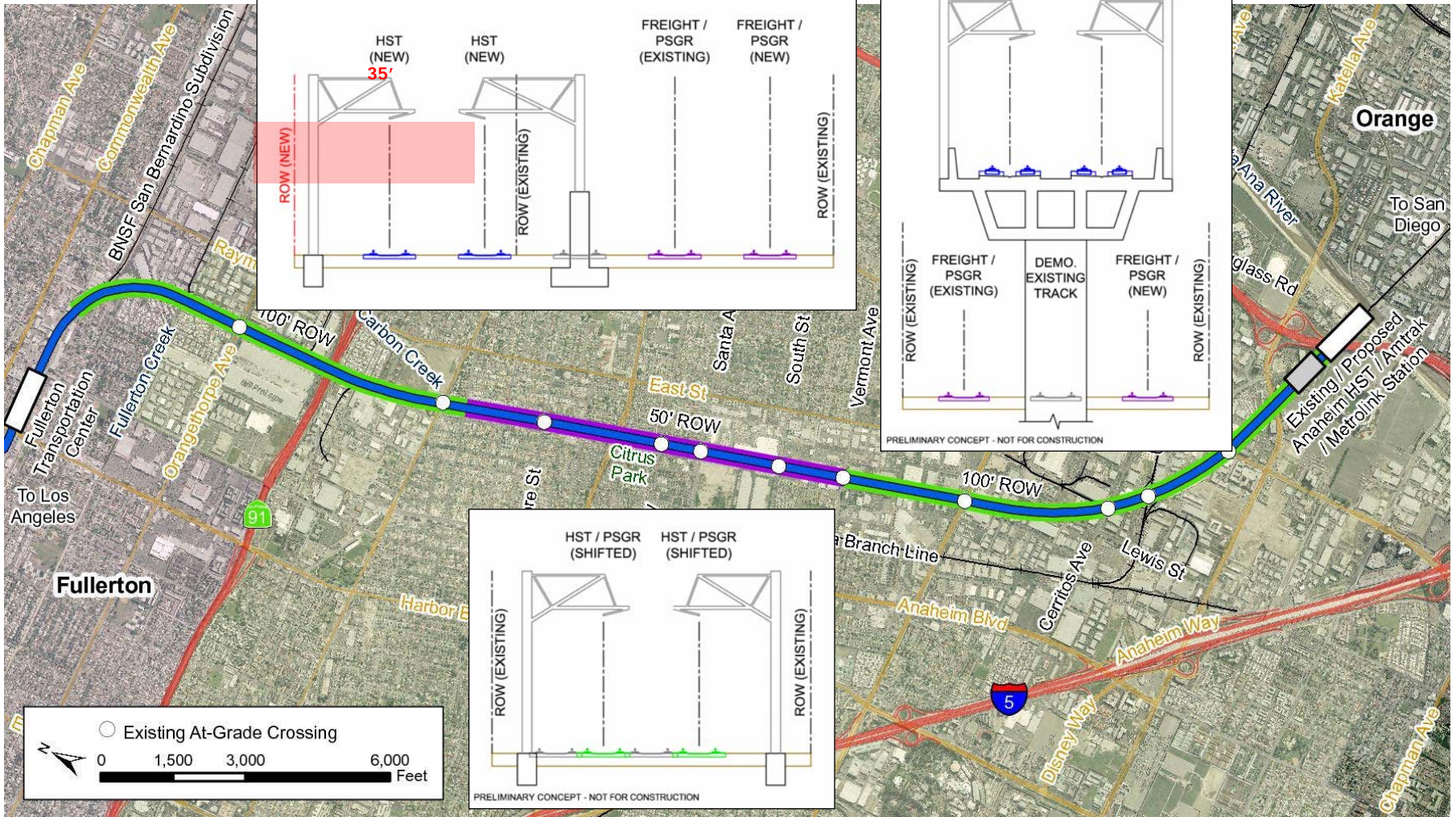


Vertical Alignment Dedicated-HST Alternative



Sub-Section 1: Anaheim to Fullerton

Dedicated-HST Alternative (4 Tracks)



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