



High-Speed Rail Scenario

RAPC Meeting

Prepared for:

Regional Airport Planning Committee



METROPOLITAN
TRANSPORTATION
COMMISSION



Bay Conservation
Development Commission

Presentation Topics

- 1. Planned California High-Speed Rail System**
- 2. European Experience with High-Speed Rail Market Share**
- 3. Forecast High-Speed Rail Ridership**
- 4. Forecast Diversion of Air Trips to High-Speed Rail**
- 5. Revised Base Case Airport Forecasts with Diversion of Demand to High-Speed Rail**
- 6. Sensitivity Analysis**
- 7. Next Steps**

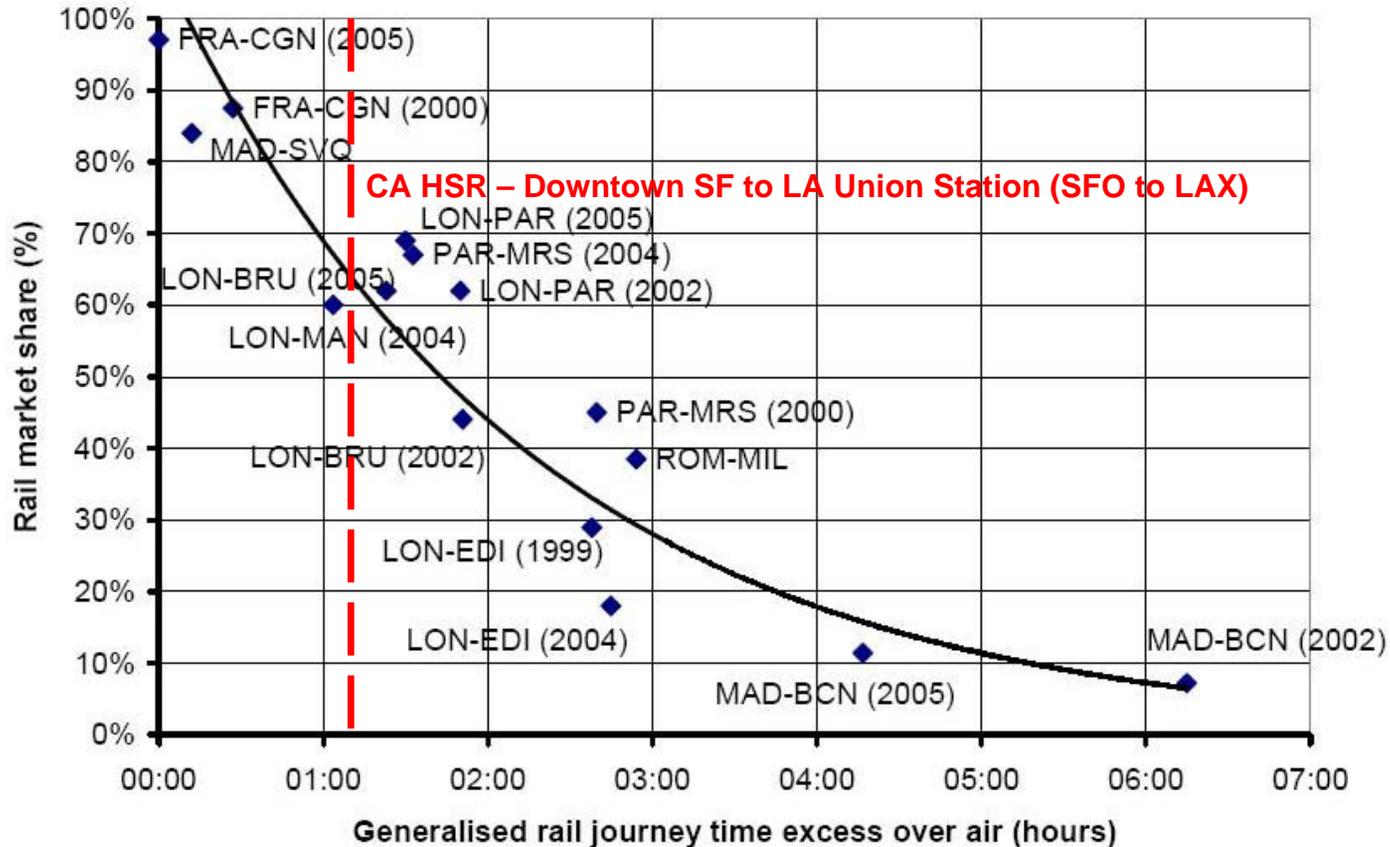
Planned California High-Speed Rail System

- ◆ **Ultimate Network (Full System) Includes Lines to Sacramento and San Diego**
- ◆ **Initial Phase Provides Service Between the Bay Area and Anaheim via the Central Valley**
 - The California High Speed Rail Authority Currently Envisages the Initial Phase to be Operational by 2020
 - No Dates Have Been Established for Service Expansion Beyond the Initial Phase



European Experience with High-Speed Rail Market Share

Difference Between Rail and Air Generalized Journey Time and Relationship with Market Share

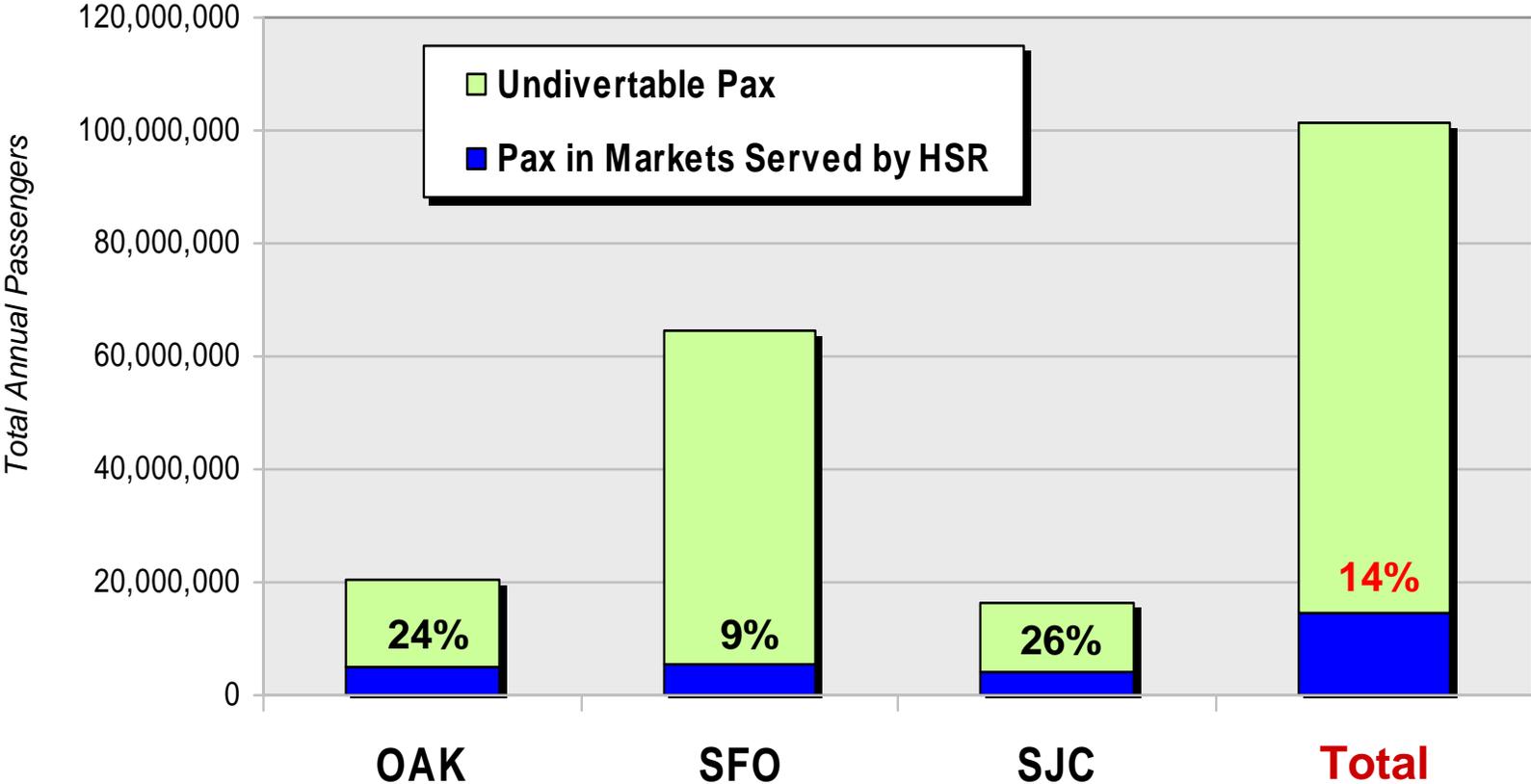


Source: Steer Davies Gleeve, *Air and Rail Competition and Complementarity*, Report Prepared for the European Commission DG TREN, London, August 2006, Figure 2.7.

Note: CA HSR times assume 60 minute airport terminal time, 20 minute HSR station terminal time. Other times from California HSR ridership forecasts.

Proportion of Bay Area Air Trips in California Corridor Markets

Maximum Potential Passenger Diversion to HSR
2035



Forecast High-Speed Rail Ridership

- ◆ **Detailed Ridership Forecasts Prepared for MTC and California High Speed Rail Authority in 2007**
 - Assumed Full System in Operation
 - Assumed High-Speed Rail Fares Set to 50% of Comparable Air Fares
 - Ridership Forecasts Generated Using Statewide Interregional Travel Model
- ◆ **Updated Ridership Forecasts Released by California High Speed Rail Authority in December 2009**
 - Ridership Forecasts Prepared for Initial Phase Only
 - Assumed High-Speed Rail Fares Set to 83% of Comparable Air Fares
 - *Based on Analysis Suggesting this Fare Level Will Maximize Ratio of Revenue to Operating Costs*
 - Total High-Speed Rail Ridership in 2035 of 41 million Annual Trips
 - *29 million Inter-regional Trips, 12 million Intra-regional Trips*

Forecast Diversion of Air Trips to High-Speed Rail

- ◆ **High-Speed Rail Scenario Based on Initial High-Speed Rail System in 2035**
- ◆ **High-Speed Rail Market Share in California Corridor Markets Derived from CHSRA December 2009 Ridership Forecasts**
 - HSR Fares at 83% of Corresponding Airfares
 - Ridership Projections on Region to Region Basis
 - *Inter-regional Trips Allocated to Airports in Multi-Airport Regions*
- ◆ **Diversion from Air to High-Speed Rail Derived from Change in Air Market Share Between No-Build and High-Speed Rail Scenarios**
- ◆ **Diversion Percentages from Air to High-Speed Rail by Market at OAK Assumed to be 75% of Diversion Percentages at SFO and SJC Due to Greater Distance of Primary OAK Market Area from Planned Stations**
 - Diversion Percentages by Airport Adjusted to Give Forecast Regional Diversion

Revised Base Case Airport Forecasts with Diversion of Demand to High-Speed Rail

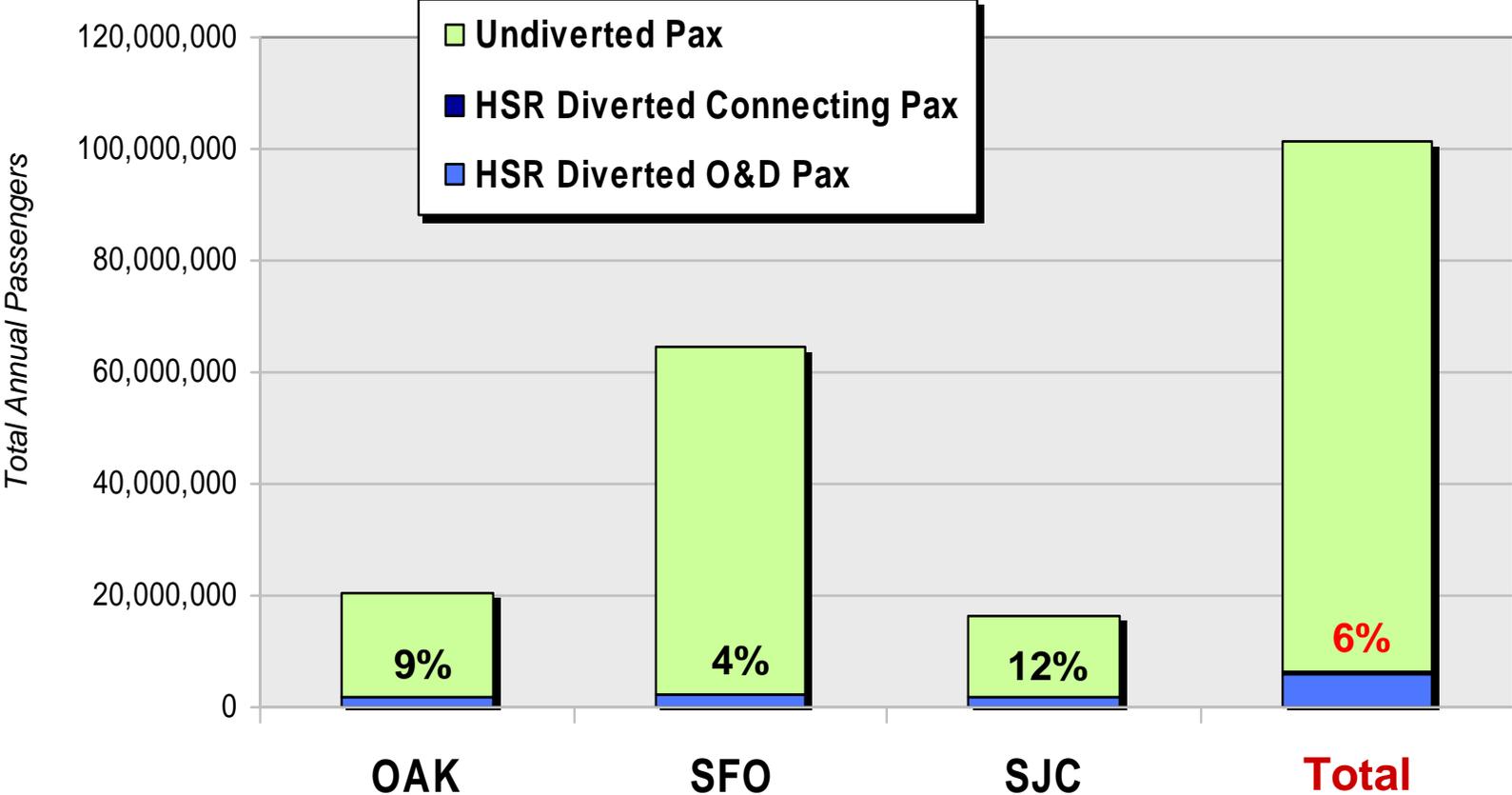
- ◆ **Resulting Assumed 2035 Diversion to High-Speed Rail by Market**
 - Accounting for Different Airport Market Shares

		OAK	SFO	SJC
LAX	Los Angeles Int'l	49%	66%	66%
SNA	Orange County	38%	51%	51%
BUR	Burbank	51%	68%	68%
ONT	Ontario Int'l	16%	21%	21%
LGB	Long Beach	38%	51%	51%
PSP	Palm Springs	15%	19%	19%
SAN	San Diego	15%	20%	20%
TOTAL CORRIDOR		36%	46%	46%

- Additionally Some Connecting Passengers at SFO Traveling to/from Central Valley Airports May be Diverted to High-Speed Rail
 - *Will Depend on Airline Fare Policies and Coordination with HSR Service*

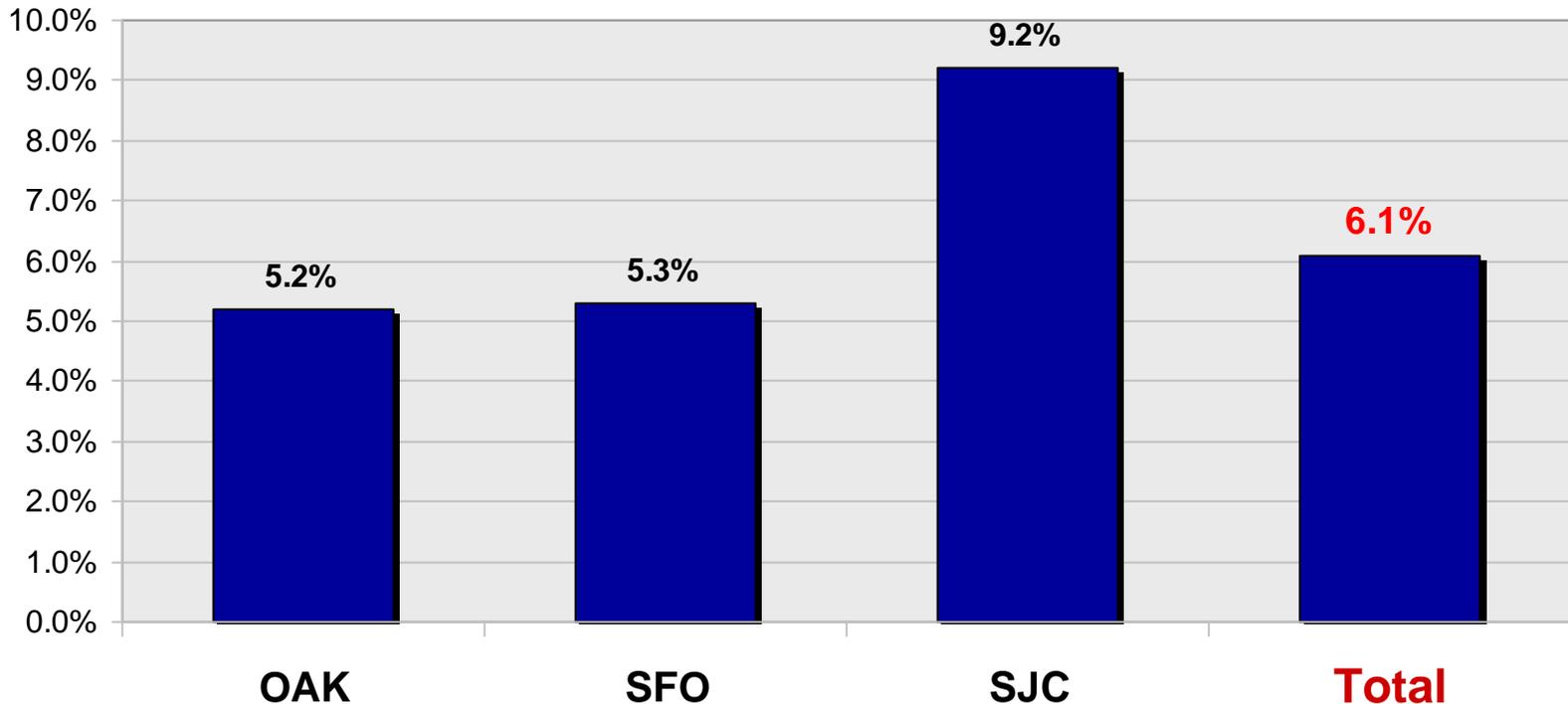
Revised Base Case Airport Forecasts with Diversion of Demand to High-Speed Rail - 2035

HSR Passenger Diversion
2035



Based on the High-Speed Rail Diversion Estimates, Total Aircraft Activity at the Primary Airports Could be Reduced by 6.1% in 2035

High-Speed Rail Scenario
Percent Reduction in Annual Operations at the Primary Airports
2035



Assumes Airlines Continue to Serve the Southern CA Markets with Small Narrow Body Aircraft Similar to Base Year (2007) Service Patterns

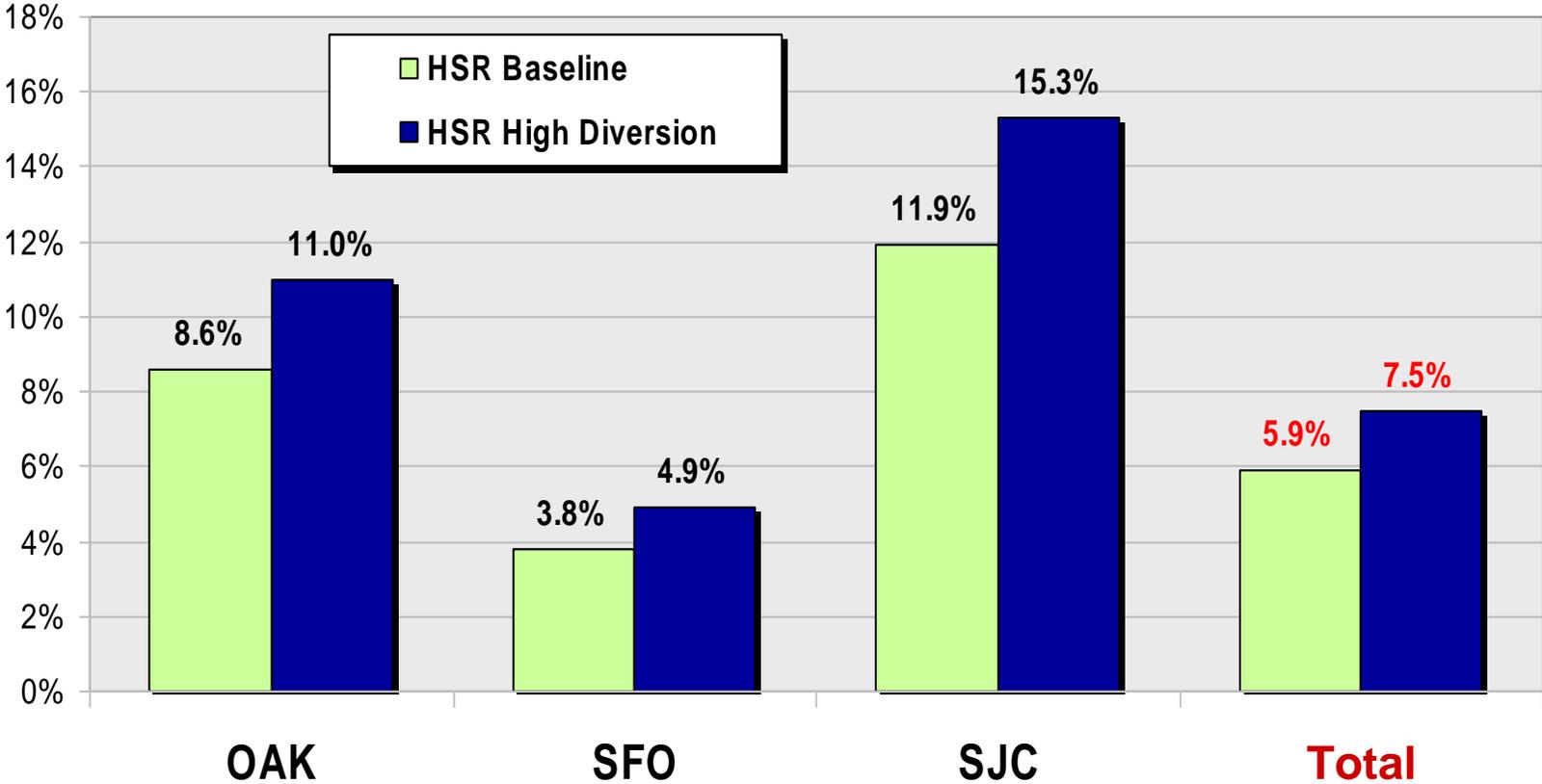
Sensitivity Analysis

- ◆ **Assumptions Giving a Higher Diversion Percentage from Air to Rail**
 - High-Speed Rail Fares Set to 50% of Corresponding Air Fares
 - *Fare Assumption Used for the Earlier (2007) Ridership Forecasts*
 - Full System in Operation by 2035
 - *Change from the Initial System Primarily Affects Travel Between the Bay Area and the San Diego Region*

- ◆ **Airlines May Reduce Average Aircraft Size to Maintain Service Frequency**
 - Will Offset the Reduction in Aircraft Operations from Diversion of Air Trips to Rail

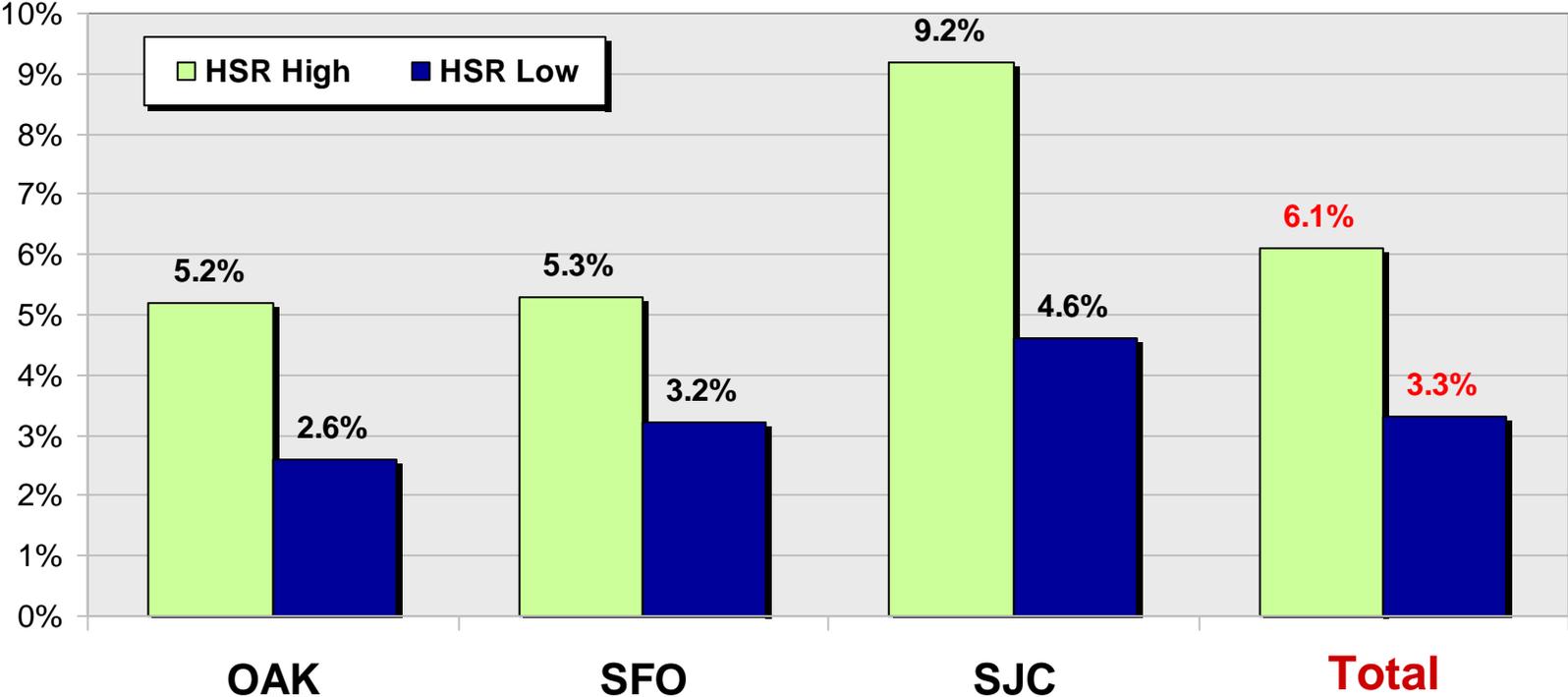
If HSR Fares Were 50% of Air Fares and the Full HSR System was Built, Air Travel Diversion to HSR Would Increase

High-Speed Rail Scenario
Percent Diversion of Annual Passengers to HSR at the Primary Airports
2035



If Airlines Were to Substitute Smaller Aircraft in Some Southern CA Markets, the Reduction in Aircraft Activity Would be Less

High-Speed Rail Scenario
Percent Reduction in Annual Operations at the Primary Airports
2035



Note: Assumes average aircraft seats per operation in the Bay Area-Southern CA markets falls from 128 to 92.

Other Factors That Could Change Diversion from Air to High-Speed Rail

- ◆ **Need for Security Screening of High-Speed Rail Passengers**
 - Current High-Speed Rail Ridership Forecasts Assume that High-Speed Rail Passengers Will Not Need to be Screened
 - *Reduces the Rail Terminal Time Compared to Air*
 - Introduction of Screening Would Increase Overall Travel Time by High-Speed Rail
 - *Will Reduce the Diversion of Air Trips to Rail*
- ◆ **Airline Competitive Response to Loss of Market Share**
 - May Reduce or Eliminate Any Fare Differential Between Air and High-Speed Rail
 - *Reduction in the Fare Differential Will Reduce the Diversion of Air Trips to Rail*
- ◆ **No Quantitative Assessment Made of the Potential Effect of These Factors**

Next Steps

- ◆ **Calculate Impacts of Diversion of Air Trips to High-Speed Rail for Use in Target Analysis**
 - Change in Aircraft Operations
 - Change in Ground Access Travel

- ◆ **Impacts to be Considered**
 - Aircraft Delay
 - Service Frequency
 - Air Quality Emissions
 - Greenhouse Gas Emissions
 - Population Exposed to 65 CNEL and 55 CNEL Aircraft Noise

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Appendix

CHSRA Forecast High-Speed Rail Ridership

- ◆ **December 2009 Forecast Ridership by Segment**
 - Initial Phase, 2035, High-Speed Rail Fares 83% of Air Fares

Market Pairs (Ultimate trip ends)	Riders (millions)	Revenues (millions, 2009\$)
LA Basin – Bay Area, with intermediate markets	23.4	\$2,095
<i>LA Basin- Bay Area</i>	7.9	\$900
<i>San Joaquin Valley - LA Basin</i>	6.3	\$467
<i>Bay Area - San Joaquin Valley</i>	5.8	\$458
<i>Monterey Bay /Central Coast - LA Basin & Bay Area</i>	2.9	\$238
<i>Within San Joaquin Valley</i>	0.5	\$32
San Diego region - Bay Area	2.0	\$234
LA basin – Sacramento region	1.2	\$143
Other Inter-regional	1.5	\$86
North & Sierra regions - LA Basin	0.5	\$43
Sacramento region - San Joaquin Valley	0.5	\$42
Inter-regional subtotal	29.1	\$2,643
within LA basin	7.9	\$152
within Bay Area Peninsula	4.0	\$76
Local within-region subtotal	11.9	\$228
Total Initial Phase	41.0	\$2,871
Source: High-Speed Rail Authority Program Management Team, 2009		

Source: California High-Speed Rail Authority, *Report to the Legislature*, December 2009, Table C.

Diversion of Demand to High-Speed Rail in California Corridor Markets (Bay Area to Southern California/San Diego)

HSR Passenger Diversion
2035

