



Ridership and Revenue Risk: Implications for High Speed Rail Project Funding and Financing

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Overview of Presentation

- Travel Demand Forecasting Considerations
- Ridership and Revenue Risk
 - Impact on Operating Costs and Revenues
 - Impact on Capital Costs and Revenues
 - Relation to Other Risks
- Policy Considerations and Public Perception
- Rating Agency Concerns



- **Travel Demand Forecasting Considerations**
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Travel Demand Forecasting Considerations

- Identification of competitive modes
- Assumed relationship to air travel costs
- Definition of travel markets
 - Geographic
 - Demographic
- Value of time
- Price elasticity
- Accuracy of model inputs



Definition of Competitive Modes

- Air
- Auto
- Other passenger rail services: intercity, commuter
- Intercity bus services (Bolt, MegaBus)

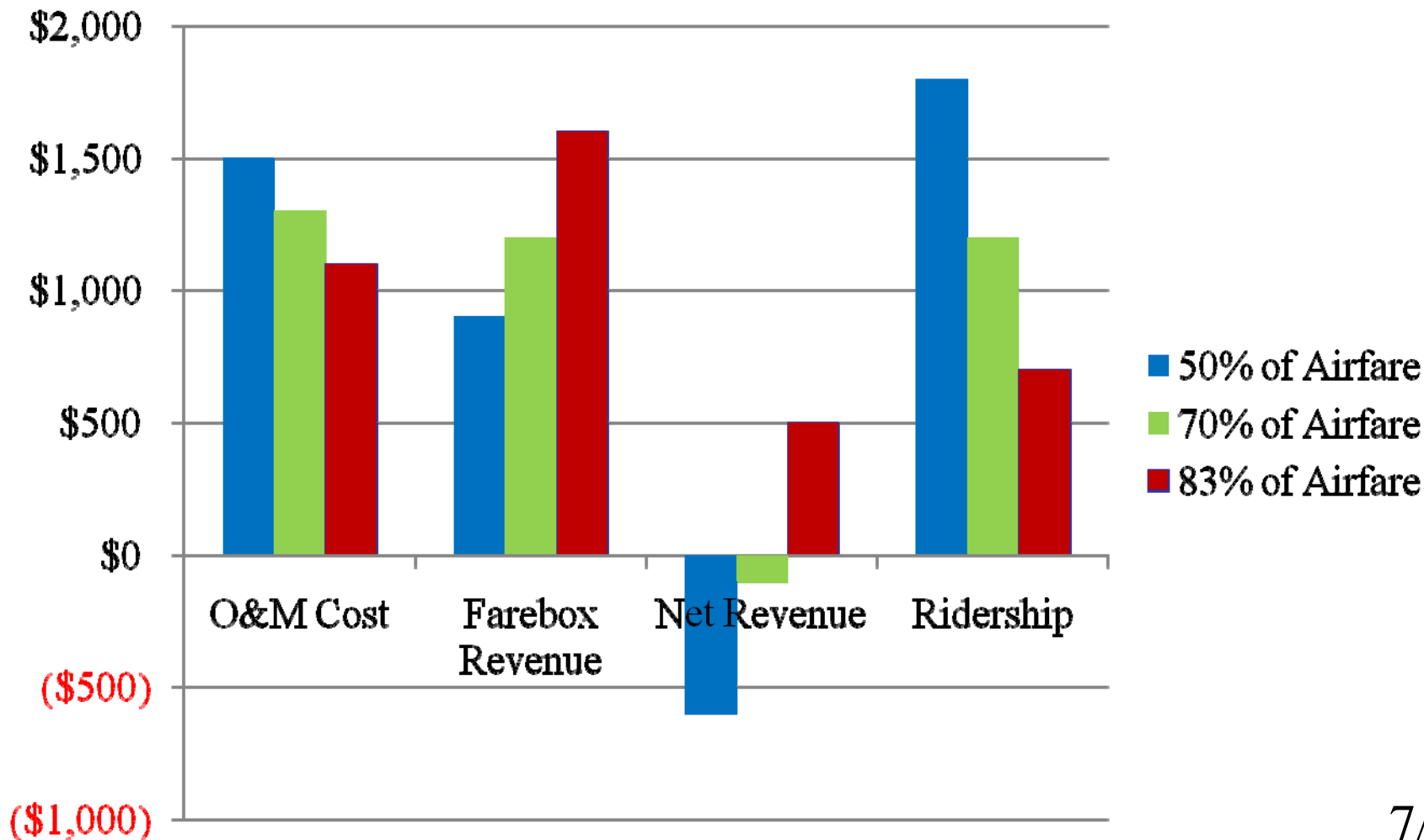


Assumptions re: Competitive Modes

- Airline competition
 - Share of airfare cost
 - Level of market saturation
 - Air carrier response
- Automobile competition
 - Demographic inputs to forecasting model
 - Existing and projected traffic
 - Gravity model and O/D patterns
 - Value of time, by market segment
 - Price elasticity, by market segment
 - Fuel prices



Share of Airfare Assumed (Hypothetical)





Share of Airfare Assumed (Actual):

50%

77%

2030 O&M Costs

Operations & Maintenance Costs*		
O&M COST ITEM <small>Costs shown in millions</small>	HST Ridership Fare Structure 50% of Airfare <small>(millions)</small>	HST Ridership Fare Structure 77% of Airfare <small>(millions)</small>
Infrastructure Maintenance	\$139	\$139
Rolling Stock Maintenance	\$485	\$435
Operations	\$556	\$491
Insurance	\$104	\$93
TOTAL	\$1,284	\$1,160
<small>*O&M costs are based on the 2008 competitive conditions for air and auto (+8% higher than 2006) and HST Fares at 50% and 77% of airfare as described in ridership and revenue document.</small>		

LA/Anaheim to SF Year 2030 Ridership and Revenue Forecast

Market Pairs (Ultimate trip ends)	Fares 50% of air (millions, 2008 \$)		Fares 77% of air (millions, 2008 \$)	
	Riders	\$\$	Riders	\$\$
LA Basin - SF Bay Area, with intermediate markets	31.6	\$ 1,679	22.6	\$1,842
LA Basin - SF Bay Area	10.8	\$ 735	7.3	\$ 762
San Joaquin Valley - LA Basin	8.3	\$ 355	6.1	\$ 418
SF Bay Area - San Joaquin Valley	7.3	\$ 346	5.5	\$ 399
Monterey Bay/Central Coast - LA Basin	1.9	\$ 114	1.5	\$ 130
Monterey Bay/Central Coast - SF Bay Area	2.4	\$ 100	1.7	\$ 106
Within San Joaquin Valley	0.9	\$ 29	0.5	\$ 27
San Diego region - SF Bay Area	3.3	\$ 234	2.0	\$ 219
LA Basin - Sacramento region	1.9	\$ 132	1.3	\$ 135
Other Interregional	1.4	\$ 64	1.0	\$ 69
North & Sierras regions - LA Basin	0.7	\$ 36	0.5	4 40
Sacramento region - San Joaquin Valley	0.6	\$ 32	0.5	4 39
San Diego region - San Joaquin Valley	0.1	\$ 3	0.1	4 4
LA Basin - San Diego region	0.1	\$ 2	0.1	\$ 2
San Diego region - Sacramento region	<0.1	\$ 2	<0.1	\$ 1
Interregional subtotal	39.8	\$ 2,184	27.9	\$2,351
within North LA Basin	4.7	\$ 58	3.7	\$ 69
within SF Bay Area Peninsula	4.8	\$ 54	3.7	\$65
North LA - South LA	3.8	\$ 43	3.2	\$ 55
within South LA Basin	1.5	\$ 16	1.4	\$ 22
Local within-region subtotal	14.8	\$ 171	12.0	\$ 211
Total	54.6	\$ 2,355	39.9	\$ 2,562

Share of Airfare
Assumed (Actual):

50%

77%

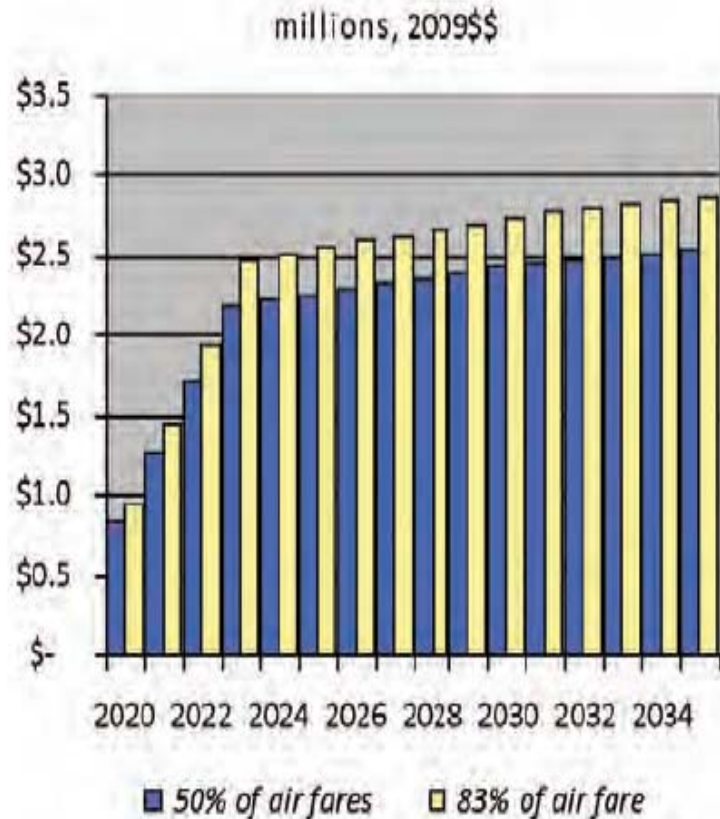


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Figure 2 Revenues per year - Initial Phase

But because fares increase more than riders decline, the 83 percent fare level produces 13 percent more revenue, \$2.87 billion in 2035 (2009 dollars), compared to \$2.4 billion for the 50 percent fare scenario.

Interregional trips account for more than 70 percent of the trips and 90 percent of the revenue, as seen in Table C. Local trips within the LA Basin and within the Bay Area are much shorter than between-region trips, and have a lower per-mile fare, which accounts for the lower revenue from each local traveler.



Share of Airfare Assumed: 83%



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 - **Impact on Capital Costs and Revenues**
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Impact on O&M Costs and Revenues

- Level and type of O&M cost
- Generation of fares, system revenues, and non-system revenues (advertising, sponsorship/naming rights)
- Level and source of O&M subsidy
- Patronage ramp-up period
- Attractiveness for P3 involvement



O&M costs are both fixed and variable

65%*

Fixed OPEX:

- Overheads
- Commercialization
- Communication
- Operations in stations
- Operations of infrastructure
- Maintenance of earthworks
- Maintenance of tunnels
- Maintenance of viaducs and other structures
- Maintenance of security installations
- Training of staff
- Maintenance of the car bodies
- ...

OPEX increasing with speed:

- Energy (most part of it)
- Track maintenance
- Maintenance of the energy supplying system (most part of it)
- Maintenance of the rolling stock (most part of it)
- ...

25%*

OPEX decreasing with speed:

- Driving
- Conducting
- On board services
- Maintenance of the rolling stock (small part of it)
- ...

10%*

•As a proxy and variable with the corridor and the country
 •Source: Michel LeBoeuf presentation



Commercial Risk

- Imperfect knowledge of the market
- Too pessimistic or optimistic traffic forecast
- Wrong evaluation of the sensitivity to prices

Hiring a traffic forecaster ready to share the risk such as an operator

- Under evaluation of the strength of competitors' reaction
 - Insufficient notoriety
- Inadequate market segmentation
- Wrong service packaging

Marketing & Timing are of the essence

- Failure in securing customer loyalty
 - Lack of flexibility in the service
 - Inability to adjust the fare policy
 - Impossibility to adapt the product
- Lack of real time reactivity to the change in competition

**Freedom & Flexibility
+
Real time revenue management**



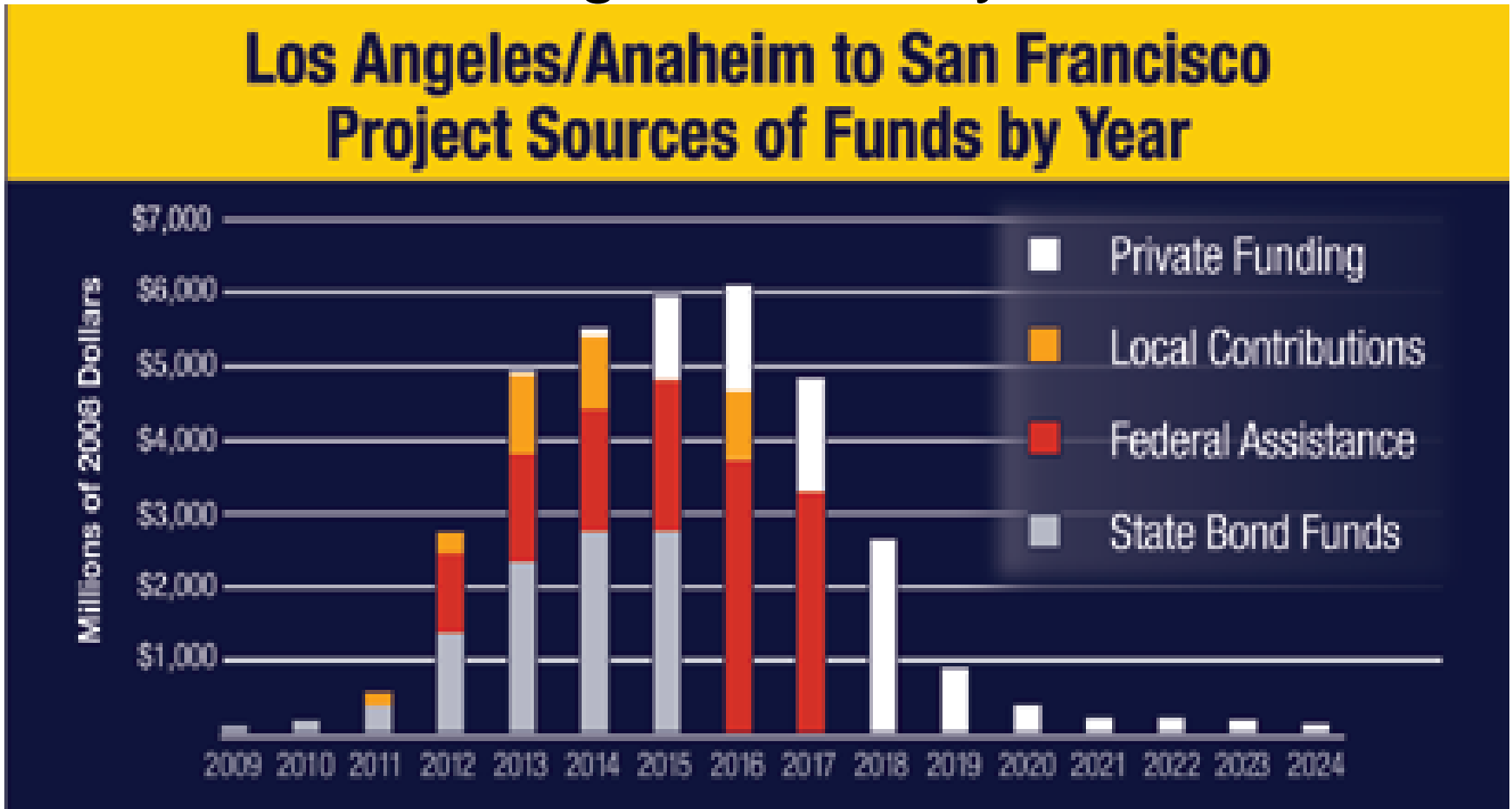
Impact on Capital Funding:
(eg -Level of Net Revenues for debt service,
capital replacement, P3 availability payment





Funding Sources by Year

Los Angeles/Anaheim to San Francisco Project Sources of Funds by Year





Related Risks and Allocation: P3

RISK	PRIVATE SECTOR RESPONSIBILITY	PUBLIC SECTOR RESPONSIBILITY
Pre-Development Phase		X
Right-of-Way Cost Risk		X
Public Funding Risk		X
Debt Financing Risk	X	X
Capital Cost Risk	X	
Operating/Performance Risk	X	
Maintenance Risk	X	
Revenue Risk	X	X



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Policy Considerations and Public Perception

- Clarify policy objectives
 - Maximize ridership
 - Maximize revenue
 - Minimize cost
 - Maximize public benefit
 - Maximize return on investment
- Clarify assumptions for benefit-cost analysis and public benefit computation



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Results of Benefit-Cost Analysis

Present value in 2008 dollars, discounted 4 percent through 2050
Total Amount 2010-2050

Millions of 2008 Dollars

Benefits

<i>Passenger Revenue</i>	\$33,718
<i>Benefits to High-Speed Train Passengers</i>	
Intercity Travelers	\$55,210
Urban Area Travelers	\$1,542

Benefits to Highway Travelers

Congestion Reduction for Intercity Travelers	\$27,081
Congestion Reduction for Urban Area Travelers	\$15,385
Accident and Pollution Reduction	\$13,822

Benefits to Air Travelers

Delay reduction for Airline Passengers	\$1,969
Delay Reduction for Airline Operations	\$1,750

Total Benefits	\$150,478
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Costs

Capital	\$33,993
Operating & Maintenance	\$19,065

Total Costs	\$53,058
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Total (Net Present Value)	\$97.420
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Benefit-Cost Ratio	2.84
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Internal Rate of Return	8.8%
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Project Benefits Computation (example)

- Travel time saving – users and no-users
- Operating cost savings – users and non-users
- Accident reduction and safety
- Greenhouse gas emission reduction
- Other environmental and social benefits
- Promote energy independence
- Reduced cost for additional highway and airline capacity
- Economic development
- Job creation – short and long term



Summary of Benefit-Cost Analysis Results (through 2050)

Total Benefits	\$150.5 (billions of 2008 dollars)
Total Costs	\$53.1 (billions of 2008 dollars)
Net Present Value	\$97.4 (billions of 2008 dollars)
Benefit/Cost Ratio	2.84

Note: Excludes benefits from induced employment growth and business efficiency savings, greenhouse gas and energy savings, development around stations, and potential freight revenues, and avoided costs for highway maintenance and capital investment.



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Rating Agency Concerns: Investment-Grade of Ridership and Revenue Forecasts

- Underlying demographic forecasts
 - Assumptions
 - Magnitude
 - Timing
- Underlying economic conditions
 - Employment growth
 - Unemployment
 - Tourism
 - Seasonal variation



Rating Agency Concerns: Investment-Grade of Ridership and Revenue Forecasts

- Travel model structure and calibration
 - Traffic patterns and characteristics
 - Travel survey
 - Rate structure
 - Fare sensitivity
 - Forecast sensitivity analysis
- Performance history of model
- Reasonableness of results



Key Conclusions

- Forecasting is an interactive process that combines technical analysis and policy considerations
- Goal is to achieve balance among highest benefit for the public, minimum public cost, optimal private sector involvement, and meeting rating agency expectations



- Key conclusions

Iterative process that combines technical analysis and policy considerations

Balance between achieving the highest benefit for the public, minimizing public cost, maximizing private sector involvement, and meeting rating agency expectations