
The Economic Impact of High Speed Trains for Orange County

by

Orange County Business Council



ORANGE COUNTY
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Executive Summary

High Speed Trains with stops in Orange County promises significant positive economic impact for residents and businesses of Orange County. Research by Cambridge Systematics (2007) finds that Orange County is poised to gain almost 23,000 jobs by 2030.

In addition, the local transportation infrastructure will be enhanced through harnessing investments at the Anaheim Regional Transportation Intermodal Center (ARTIC) thus increasing the efficiencies of the Metrolink train system and the Orange County Transportation Authority bus system as well as supporting new visions of transit oriented development in Orange County. Furthermore, access to popular attractions such as the Disneyland Resort, Honda Center, Knott's Berry Farm, Angels Stadium, and Honda Center will be enhanced. With high number of premier attractions, enhancing the travel options of potential visitors to Orange County will grow the tourism industry which is responsible for over 86,000 jobs in Orange County.

Such intensive investment and efficiencies gained in transportation infrastructure encourages greater land-use density around the train stations which reduces the developed footprint of the region. Orange County will also gain from increased density around the train station locations since these types of locations disproportionately benefit employers and employees in the Services, Finance, Insurance and Real Estate and Government sectors, which are very strong in Orange County. Travel costs of approximately \$300,000 annually and indirect costs in time saved of over \$1.7 million annually can be saved for commuters traveling by High Speed Trains instead of by automobile.

Furthermore, High Speed Trains promise to enhance the local economy and residents of Orange County through providing an alternative mechanism for long-distance travel to locations in California that are typically reached through increased usage of John Wayne Airport. Through substituting flights to California locations such as San Francisco, San Jose, Fresno and Sacramento, residents can save \$300,000 per year in travel time losses and \$22.6 million annually in direct ticket costs. In addition, substituting these flights will enhance Orange County commercial cargo capabilities for "just-in-time" goods as well as promoting greater overall economic efficiency with more alternatives for travel.

Finally, quality of life for Orange County would be enhanced through reduced greenhouse gas emissions and air pollution, reduced congestion on the roads and at airports, increased personal exercise through encouraging a more pedestrian oriented lifestyle, and increased road safety with fewer cars on the road and separate tracks for the network independent of freight trains. High Speed Trains will create a new travel alternative for Orange County residents that promises significant benefits and a new approach to short and long distance transportation.

Introduction

The objective of this study by the Orange County Business Council is to describe the regional economic impact resulting from the creation of a California High Speed Train system. The results will provide policymakers, media and community members about the potential economic impact of High Speed Trains in their communities.

The analysis will use qualitative and quantitative analysis for determining the impact of High Speed Trains. Through restating and building upon the statewide economic impact study performed by Cambridge Systematics (2007) as well as an earlier study from 2003, this research will enable a focused analysis of economic impacts of High Speed Trains for Orange County.

Briefly, the research questions that will be addressed through this analysis are the following:

- What economic activities will be generated and/or enhanced by High Speed Trains?
- How will job creation be affected by High Speed Trains?
- How will local governments benefit, including increases in tax revenue from enhanced economic activity?
- What are the direct cost savings that will result from High Speed Trains?
- What are the efficiency gains for consumers and businesses in the region?
- What are the benefits in quality of life from High Speed Trains and what sectors of the population are most likely to experience these benefits?

Description of Bond Language

In 1996, the State of California established the California High Speed Rail Authority. The Authority began researching the feasibility of High Speed Trains for California and suggested proposed routes. By 2004, discussions were in place to put an initiative on the ballot to begin financing the construction of the system. Although delayed in 2004 and in 2006, for the November 2008 election California voters will have the opportunity to approve a bond (Proposition 1A) for \$9.95 billion in funding to begin construction by 2011 on the first part of an 800 mile statewide system and transportation improvements in existing rail assets to support and feed into the High Speed Train system. With this funding in place, the California Rail Authority will be able to begin to solicit funds from the Federal

Government and private investors to cover the estimated \$40 billion cost of the entire project.

Proposition 1A will be voted on by the voters on November 4, 2008. The \$9.95 billion of bonds will be used to create and enhance rail transportation options in California. The first \$9 billion will be used in conjunction with federal funds for planning and constructing Phase 1 of a High Speed Train system from San Francisco to Anaheim with the Los Angeles to Anaheim as an early implementation phase (which could involve local matching funds such as a partnership with the Orange County Transportation Authority). The second \$950 million of the bond proceeds will be available for other rail projects to provide connectivity to the high speed system and for capacity enhancements and safety improvements on the existing train lines. Proposition 1A replaced Proposition 1 with augmented language to the proposition text allowing greater flexibility in the selection of rail station locations for first round funding, updating the business plan and enabling cost controls through independent cost evaluations.

Background/History of High Speed Trains in California

High Speed Trains in California are promised to be a new alternative to long-distance transportation between Northern and Southern California. With airports reaching limits of capacity, the cost of fuel for automobiles, increasing concerns about greenhouse gas emissions from airplanes and cars, High Speed Train is an alternative that can move Californians across the state faster and cheaper than existing modes of transportation. High Speed Train will operate on separate rail lines thus avoiding delays and safety issues from the shared rail network with freight trains. High speed rail has worked successfully for over thirty years in Japan (Shinkansen), Europe (France's TGV) and in the United States' Northeast Corridor (Acela) so with a proven technology, the time for High Speed Trains for California has come.

For Orange County, High Speed Trains promises a cost-effective new method for transportation to Los Angeles, the Inland Empire, the Central Valley, Sacramento and the San Francisco Bay area. The plan for the High Speed Train network is to have an initial stop in Anaheim. Construction of the tracks through Orange County could result in between \$2 and \$3.6 billion being spent in Orange County out of the total \$40 billion for the project.

At this time, the Orange County Transportation Authority and the California High Speed Rail Authority have approved a Memorandum of Understanding (MOU) to conduct environmental impact studies on the segment between Anaheim and downtown Los Angeles traveling along the existing railroad right-of-way. Using Measure M funds passed by Orange County voters in 2006 for a 30 year extension of the half cent sales tax, Orange County residents would be able to participate in a synergy of resources that will enhance County residents' quality of life through linking the existing transportation infrastructure to assets to allow

high speed travel to location hundreds of miles away from stations located within the county without the hassle and expense of automobile or air travel.

Anaheim Regional Transportation Intermodal Center (ARTIC)

The Anaheim stop will be at the new Anaheim Regional Transportation Intermodal Center (ARTIC). The ARTIC is a regional strategic partnership funded by public and private funds (sales tax, grants) jointly developed by the City of Anaheim and the Orange County Transportation Authority to serve as the regional transportation hub for the Platinum Triangle Area of Anaheim (near the Disneyland Resort, Honda Center and Angels Field). For a cost of \$250 million, this fifteen acre site will serve as a transportation hub linking high speed rail, Metrolink commuter rail, Amtrak long distance trains, the proposed California/Nevada Super Speed train, and OCTA bus service throughout Orange County. A people mover to nearby attractions and shuttle/taxi service will also be based at the ARTIC. The ARTIC is expected to help create a market-driven mixed-use environment linking sports and entertainment venues with business, retail and residential development (the “Platinum Triangle”), envisioned to be a kind of Orange County “downtown.”

Anaheim Regional Transportation Intermodal Center (ARTIC) Simulated View



Source:

http://www.cahighspeedrail.ca.gov/images/chsr/20080129113814_LA_OC_presentation.pdf

Metrolink and Amtrak Connections

In addition, improvements to existing commuter rail systems which would feed into the High Speed Train network are planned. The Metrolink commuter rail system provides lower speed rail service through Orange County at eleven stations providing forty-four round trips every weekday on three lines and over half a dozen trips on the weekends on two of the rail lines. By 2010, Metrolink

weekday service is expected to expand to train stops at each station every half hour all day during the day. Amtrak also provides hourly service through Orange County from through Los Angeles to San Diego at higher Amtrak prices (except for Metrolink monthly pass holders as part of the “Rail-to-Rail” program).

With improvements in Metrolink and Amtrak service envisioned as part of the Proposition 1A funding and ongoing funding from Orange County’s Measure M, access to High Speed Train stations in Anaheim at the ARTIC will create an efficient, integrated system of transportation options for all of Orange County.

Approach

The research questions will be addressed using the following approach:

- 1) Identify economic activities will be generated and enhanced in Orange County through the presence of High Speed Trains such as tourism and business services.
- 2) Discuss the economic impact of High Speed Trains on job creation.
- 3) Estimate the benefits for local governments in the region through revenue enhancement from additional economic activity derived from High Speed Trains.
- 4) Identify the direct cost savings for businesses and consumers in Orange County from High Speed Trains through quantifying time saved through calculating estimates of passenger boardings for the Orange County region to various locations and quantifying hours saved through High Speed Trains in comparison to travel by air and automobile.
- 5) Estimate efficiency gains to consumers and businesses in Orange County through examining the potential benefits that would come from more efficient movement of people thus freeing up travel resources at other Orange County facilities (John Wayne Airport and freeways) for more efficient goods and population movement.
- 6) Identify quality of life benefits (and the likely targets of these benefits) that will result from High Speed Trains in Orange County through analysis of surveys on transportation enhancement.

Cambridge Systematics Study

The Cambridge Systematics studies of 2007 and 2003 sought to highlight the economic impact of High Speed Trains in California. The 2007 study sought to identify these impacts through examining projections of population growth, job growth (raw numbers and types of employment) and station area impact on

urban footprints in 2030 for three alternative choices on High Speed Trains funding: no project, funding a High Speed Train network using Pacheco Pass near San Jose for Bay Area Access, and funding a High Speed Train network using Altamont Pass east of San Francisco Bay for Bay Area Access. The Pacheco Pass route has since been chosen as the preferred route for the trains out of northern California.

The impacts of the High Speed Train project were also examined through looking at particular configurations of the High Speed Train project such as adding different stations. Sensitivity to the forecasts was also looked at as well. Finally, regional and county growth effects were examined, with a description of impacts on various configurations of the project.

Cambridge Systematics' 2007 study also performed analysis of cost savings and efficiency gains for local regions. However, since their work grouped all the counties of Southern California except for San Diego into a single region of "Southern California" only the simplest job projections statistics were extrapolated from this work while higher level analysis of cost savings and efficiency gains were not used in the research analysis of this report. Too many analytical leaps to be made to have the analysis make sense.

Results: How Will High Speed Trains Affect California?

The work by Cambridge Systematics (2007) revealed the following findings regarding how High Speed Trains will affect the economic success and quality and life for Californians:

- Statewide and regional economic impact models show enhanced population growth of approximately 501,000 more people by 2030). More people will come to California as a result of increased economic opportunity, higher quality of life and transportation access as a result of High Speed Trains in California with increased employment growth rates regionally with particular growth in San Diego, Orange and Fresno counties. (Cambridge Systematics, 2007, page 1-3)
- Statewide employment is projected to increase by at least 1.5 percent over and above job increases projected if no High Speed Train network is built. (Cambridge Systematics, 2007, page 1-3). This could result in hundreds of thousands of new jobs.
- If only half of the predicted job gain are realized, the annual increase in income taxes statewide collected is estimated at half a billion dollars

annually. (HST Preliminary Funding Strategy and Finance Plan, 2007, page. 21)

- The High Speed Train network will create economic growth most strongly in the Finance/Insurance/Real Estate, Services and Government sectors through enabling greater efficiency in moving people to concentrated locations where Finance, Services and Government flourish. (Cambridge Systematics, 2007, page 1-5)
- The High Speed Train system is expected to reduce petroleum consumption and reduce carbon emissions between eight and 12 billion pounds of carbon dioxide each year. (HST Preliminary Funding Strategy and Finance Plan page 21)
- The most dramatic impacts of the High Speed Train system will be felt in Central Valley counties such as Madera, Merced, and Stanislaus counties. Internal employment growth would occur in these regions moving employment closer to locations that have a High Speed Train station. (Cambridge Systematics, 2007, page 1-5)
- Land-use throughout California will become 1.3% more “efficient” (less land per new job and resident) with the Pacheco Pass route. Increased land use efficiency will come because of increased density around station locations. This will allow for enhanced population and economic growth without enhanced density beyond the stations and in virgin lands. In other words, station sites will become more like “downtowns” leaving non-station sites to remain with suburban character without the need for dramatic expansion of the developed footprint of the region to infringe on untouched areas allowing for greater environmental protection. Southern California is expected to be impacted the most by this concentration around station sites (Cambridge Systematics, 2007, page 1-9)

Statewide System



Source:

http://www.cahighspeedrail.ca.gov/images/chsr/20080323164928_PREFERRED_State_020608-Small.pdf

Structure of Report

The rest of the report will focus more specifically on Orange County. The findings to be presented in this report are the following:

- 1) Economic impact for Orange County in terms of job growth and business enhancement
- 2) Economic impact for tax revenues for the local government and state
- 3) Direct cost savings to be experienced by commuters and in commercial/goods movement
- 4) Efficiency gains by commuters and commercial/goods movement
- 5) Impact on quality of life environmentally, health and other enhancements

Economic Impact

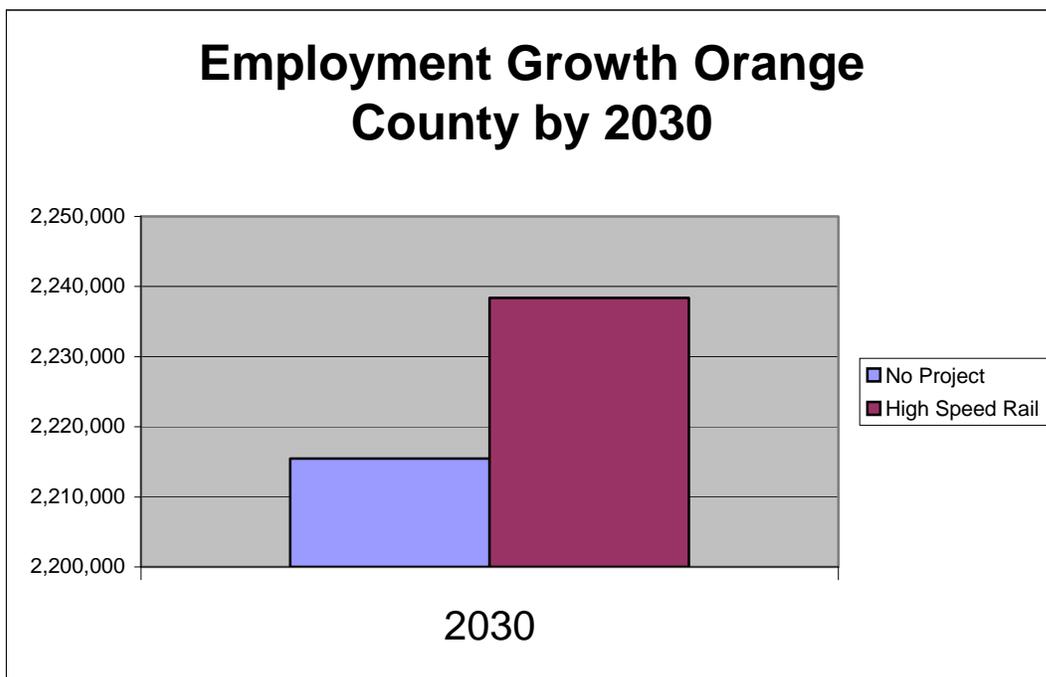
Developing a High Speed Train network also promises significant economic impact in Orange County through job creation and tax revenue increases.

Job Creation

High Speed Trains are expected to boost population in Southern California by about 144,000 by 2030, over and above the population if no High Speed Train network is constructed. Employment is expected to increase by about 127,000

by 2030 in Southern California. (Cambridge Systematics, 2007, page 4-2). Most of this growth is expected to be concentrated in the FIRE (Finance, Insurance, Real Estate) and services sectors experience greater job growth proportionately as a result of High Speed Trains. (Cambridge Systematics, 2007, page 4-9)

Estimating employment growth for Orange County through examining the proportion of employment of Orange County for Southern California, Orange County should expect to add almost 23,000 new jobs by 2030 over and above the projected increase in jobs if no High Speed Train network is built. With overall job growth projected to be approximately 21,725 jobs per year by 2030 even without the project, an extra thousand jobs per year due to the High Speed Train network would be a welcome addition.



Source: Orange County estimate derived from Orange County Business Council analysis of statistics from Cambridge Systematics (2007)

Not only will Orange County experience greater job growth through the creation of a High Speed Train network, Orange County will experience an increase in jobs in sectors of the economy that Orange County has traditional strengths. The High Speed Train network will promote increased land use density around station sites. Some industries that benefit from wide commuter-sheds of potential employees or customers are most interested in locating near rail stations. These industries need a large number of highly skilled and specialized employees so they find it easier to attract these employees if they are located near easy commuter access. Business professionals, government workers, research scientists, university professors and financial specialists are more likely to work at an employment location that is easy to get to than one that is difficult.

(Cambridge Systematics, 2003, page 3-18). In addition, research on Japanese and French High Speed Train stations shows that economies of agglomeration emerge around these stations where businesses in these fields obtain a competitive advantage from being located close to ancillary services and a well-educated labor force (Cambridge Systematics, 2007, page 1-8)

As the tables below indicate, Orange County has significant employment in the Finance/Insurance/Real Estate (FIRE) sector, the Business & Professional Services sector which frequently have a demand for highly skilled and educated employees, as well as large growth in the Tourism industry. Over 272,000 people worked in the Business & Professional Services sector in Orange County in 2007 with another 128,000 in the FIRE sector and 171,600 in Tourism. The shift-share analysis in particular highlights Orange County's competitive advantages in FIRE and Business & Professional Services. Therefore, Orange County stands to disproportionately benefit from increased employment in these sectors through the presence of a High Speed Train network encouraging greater employment and population density around the stations.

Orange County Employment Growth, by Industry, 2001-2007

	2001 Employment	2007 Employment	Growth (Loss) from 2001 to 2007
Natural Resources and Mining	600	600	0
Construction	80,700	103,700	23,000
Durable Goods Manufacturing	147,800	126,100	(21,700)
Nondurable Goods Manufacturing	60,700	54,200	(6,500)
Wholesale Trade	83,900	87,100	3,200
Retail Trade	150,100	160,700	10,600
Transportation, Warehousing and Utilities	30,400	28,700	(1,700)
Information	40,200	31,300	(8,900)
Financial Activities (FIRE)	106,100	128,500	22,400
Business & Professional Services	248,400	272,300	23,900
Educational and Health Services	114,600	141,600	27,000
Leisure and Hospitality (Tourism)	154,300	171,600	17,300
Other Services	45,200	47,600	2,400
Government	150,900	159,200	8,300

Source: California Employment Development Department

Shift Share Analysis Comparing Components of Orange County Employment Growth, 2001-2007

	O.C. Job Growth Due to State Growth	O.C. Job Growth Due to O.C. Industrial Mix	O.C. Job Growth Due to O.C. Competitive Advantage
TOTAL COUNTY EMPLOYMENT	54,341	(3,990)	48,949
Breakdown by Industry			
Natural Resources and Mining	23	(16)	(7)
Construction	3,102	8,470	11,429
Durable Goods Manufacturing	5,680	(35,408)	8,028
Nondurable Goods Manufacturing	2,333	(10,378)	1,545
Wholesale Trade	3,225	4,161	(4,185)
Retail Trade	5,769	4,985	(153)
Transportation, Warehousing and Utilities	1,168	(1,695)	(1,174)
Information	1,545	(7,307)	(3,138)
Financial Activities (FIRE)	4,078	4,882	13,440
Business & Professional Services	9,547	(798)	15,152
Educational and Health Services	4,404	12,723	9,872
Leisure and Hospitality (Tourism)	5,930	15,320	(3,950)
Other Services	1,737	(433)	1,096
Government	5,800	1,504	996

Source: Orange County Business Council analysis of data from California Employment Development Department

Orange County's station site at the ARTIC at the Platinum Triangle in Anaheim suggests that increased land use density will occur at this location. This location is also within one of the greatest potential employment growth sites—the Platinum Triangle (between the 57, 5 and 22 Freeways near the Disneyland Resort and sports venues).

Thus, over the long term, Orange County should expect to have increased employment in high wage, high skill jobs in clusters that it is particularly strong in as well as growth in the tourism industry where Orange County has significant assets, there will be significant economic impact for the county. Given the land-use planning decisions and economic development efforts already underway in Orange County, supporting High Speed Train access to the County will result in economic growth with wide-ranging positive impacts for the local region.

Tourism Growth

High Speed Trains also provide the opportunity for additional ways for tourists to come to Orange County. Orange County is home to some of the premier tourist attractions in the world such as the Disneyland Resort (Disneyland, California Adventure, Downtown Disney), Knott's Berry Farm, the Anaheim Convention Center, Angels Stadium, the Honda Center and 42 miles of beaches with major attractions in Huntington Beach, Newport Beach and Laguna Beach. A

substantial number of the tourists arriving through regional airports come to Southern California to experience these attractions in Orange County. According to the California Division of Tourism, over 31 million tourists visit Orange County each year. Each day these tourists spend, on average, \$100.10 per day in Orange County generating over \$506 million in tax receipts annually. The tourism industry is responsible for over 86,000 jobs in Orange County. While growing at an average annual growth rate of 4.9%, creating a new means for tourists to arrive through High Speed Trains from locations all across California would grow the market share of these attractions even more enabling substantial economic growth with wide-ranging benefits for the region.

Tax Revenue for Local and State Government From New Employment

Furthermore, creating a High Speed Train network would enhance tax revenue for the local governments of Orange County and the State of California. Using a model created by Southern California Edison, tax revenues can be projected based on average wages and employment estimates. Cambridge Systematics estimates that Orange County would have almost 23,000 new jobs by 2030. If this is the case, then assuming current tax rates, total tax revenue for Orange County is expected to increase by \$4.1 million annually and cumulatively nearly \$103 million by 2030. These revenue estimates are not inflation adjusted.

On an annual basis, tax revenues would increase by approximately \$4.1 million per year. See the table below for calculations:

Tax Revenue Generation Per Job Created In Orange County

Orange County Mean Annual Wage (First Quarter 2008)	\$46,910
Multiplier Effect	2
Estimated Taxable Purchases	\$26,868
Estimated CA state income tax per job	\$4,310
Sales Tax Revenue (7.75%) from taxable purchases per job	\$2,082
Total contribution to State General Fund	\$5,922
68% of State General Fund Returned to Orange County for Services in Orange County	\$4,027
Total Orange County Tax Revenue Per New Job (State General Fund Returned to Orange County + City Share of Sales tax + County share of sales tax + Transportation share of sales tax)	\$4,497

Source: Orange County Business Council analysis of data from California Employment Development Department and Southern California Edison

Sales Tax Breakdown Per Job Created

State share of sales tax (6%)	\$1,612
City share of sales tax (1%)	\$269
County share of sales tax (0.25%)	\$67
Transportation share of sales tax (0.5%)	\$134
Total Sales Tax Revenue	\$2,082

Source: Orange County Business Council analysis of data from California Employment Development Department and Southern California Edison

Total Tax Revenue Increase of Orange County Generated by High Speed Trains

	2030
Jobs Created	22,924
Tax Orange County Tax Revenue (Orange County Tax Revenue * Number of Jobs Created)	\$103,093,400
Tax Revenue Annually	\$4,123,916

Cost Savings

Construction of the High Speed Train project will have direct cost savings for both commuters and in commercial/goods movement.

Passenger Cost Savings

Commuter cost savings is measured through examining the hours saved and money saved through High Speed Train travel from locations in Orange County to other locations around the state. Instead of taking airplanes to San Francisco and Sacramento or cars to Los Angeles and Burbank, workers in Orange County can take High Speed Trains to these locations instead.

In an environment where there had been significant support for a second major airport in Orange County due to over-crowding and capacity issues at John Wayne airport, reducing the passenger load by getting travelers on rail to other parts of California rather than flying makes a powerful message. Furthermore, since airport capacity in Southern California is limited, a High Speed Train network making access to Ontario Airport, Bob Hope Airport in Burbank and air facilities in Riverside and Palmdale easier are major reasons for Orange County residents to support High Speed Trains.

Also, High Speed Trains makes automobile access to locations near and far much easier and cost effective for Orange County residents. Travel from Anaheim to Los Angeles will be much faster and potentially cheaper than making the same automobile trip. Trips from Orange County to other parts across the state such as Bakersfield, Fresno or San Jose will also be faster and cheaper through a High Speed Train network as well.

To examine these issues quantitatively, an examination is made on the costs of air travel to various locations across the state and the value of time saved through taking High Speed Trains in comparison to automobile or air travel. These estimates are conservative with potential cost savings likely to be higher.

Air Travel

For analysis of air travel, the direct costs saved through High Speed Trains were determined by examining the most frequent long distance travel pairs:

- Anaheim to San Francisco
- Anaheim to Sacramento
- Anaheim to San Jose
- Anaheim to Fresno

Direct costs were examined by money saved on air ticket costs in comparison to High Speed Train ticket costs. Indirect cost savings were estimated by examining money saved on the value of time through taking High Speed Trains instead of travel by air. (The value of time was estimated through examining the median hourly wage for Orange County workers first quarter 2008 as determined by the Employment Development Department).

Cost Savings for Tickets

	San Francisco	Sacramento	San Jose	Fresno
Ticket Cost of High Speed Trains	\$57	\$56	\$54	\$41
Ticket Cost estimate of Airplane	\$156	\$150	\$150	\$120
Money Saved	\$99	\$94	\$96	\$79
Number of Projected Riders Annually (based on an estimate of the number of travelers taking 737 jets out of John Wayne Airport each day to these locations)	109,500	73,000	36,500	18,250
Dollars Saved Annually	\$10,840,500	\$6,862,000	\$3,504,000	\$1,441,750

Source: California High Speed Rail Authority at <http://cahighspeedrail.ca.gov/map.htm> , Analysis by Orange County Business Council of air travel

Comparing the costs of air travel between Anaheim and long distance locations around the state shows that over \$22.6 million per year would be saved in direct travel costs if Orange County travelers to San Francisco, Sacramento, San Jose or Fresno took High Speed Trains instead of traveling by air. Even assuming that the ticket cost of High Speed Trains were to be double the estimated cost as projected today, direct cost savings for tickets still is in the millions of dollars.

Indirect Cost Savings in Time Saved

	San Francisco	Sacramento	San Jose	Fresno
Travel Time High Speed Trains (including a prudent waiting of 15 minutes prior to departure)	3.15	2.85	2.92	1.97
Travel Time Air (including check-in time)	3.00	3.00	3.00	3.00
Time Saved	-0.15	0.15	0.08	1.03
Number of Projected Riders Annually (based on an estimate of the number of travelers taking 737 jets out of John Wayne Airport each day to these locations)	109,500	73,000	36,500	18,250
Value of Time (\$17.16/hour—median hourly wage for Orange County First Quarter 2008)	\$17.16	\$17.16	\$17.16	\$17.16
Dollars Saved Annually	-\$281,853	\$187,902	\$52,195	\$323,609

Source: California High Speed Rail Authority at <http://cahighspeedrail.ca.gov/map.htm> , Analysis by Orange County Business Council of air travel

In addition, an indirect cost through travel time saved was examined. Since air travel is fast like High Speed Trains, travel time saved is not as significant. Nevertheless, almost \$300,000 per year is saved through travelers taking High Speed Trains rather than taking airplanes. This estimate is conservative with potential savings likely to be higher. Since the travel time by High Speed Trains to the Bay Area and Sacramento is almost equal to travel time by air, the greatest savings would occur in travel to locations such as Fresno which are closer geographically so time on the train is comparatively short (even though travel time by air to even the closer location is the same as travel time by air to a further location such as San Francisco).

Automobile Travel

Direct costs were saved examined by money saved on automobile travel costs (gas) in comparison to High Speed Train ticket costs from Anaheim to a variety of common locations. Indirect cost savings were estimated through examining money saved on the value of time through taking High Speed Trains instead of travel by automobile. (The value of time was estimated through examining the median hourly wage for Orange County workers first quarter 2008 as determined by the Employment Development Department). These estimates are conservative with potential cost savings likely to be higher.

Cost Savings for Travel by Automobile

	Los Angeles	Burbank	Palmdale	Bakersfield	Fresno	San Francisco
Ticket Cost of High Speed Trains	\$9	\$19	\$23	\$31	41	\$57
Cost for Travel by Automobile	\$7	\$9	\$19	\$36	\$55	\$90
Money Saved	-\$2	-\$10	-\$4	\$5	\$14	\$33
Number of Projected Riders Annually (estimated from 1/10 the riders of the Orange County Metrolink line to Los Angeles annually and an additional fifty riders per day to the other locations annually)	205,000	18,250	18,250	18,250	18,250	18,250
Dollars Saved Annually	-\$410,000	\$182,500	-\$73,000	\$91,250	\$255,500	\$602,250

Source: California High Speed Rail Authority at <http://cahighspeedrail.ca.gov/map.htm>, and analysis by Orange County Business Council

Cost savings by automobile travel revealed that car travel to locations close to Anaheim such as Los Angeles, Burbank or Palmdale was more cost effective in terms of direct cost than taking High Speed Trains. However, direct costs for travel by automobile to further locations such as Bakersfield, Fresno and San Francisco were more than the direct costs of travel by High Speed Trains. Still, examining just a selection of potential common destinations for Orange County travelers finds that overall, direct costs by car exceed those of High Speed Trains by almost \$300,000. Direct cost savings are likely higher as other potential destinations could have been included but were not.

Indirect Cost Savings in Time Saved

	Los Angeles	Burbank	Palmdale	Bakersfield	Fresno	San Francisco
Travel Time High Speed Train (including a prudent waiting of 15 minutes prior to departure)	0.58	0.70	1.02	1.47	1.97	3.15
Travel Time Car	1.00	1.25	1.50	2.00	3.00	7.00
Time Saved	0.42	0.55	0.48	0.53	1.03	3.85
Number of Projected Riders Annually (estimated from 1/10 the riders of the Orange County Metrolink line to Los Angeles annually and an additional fifty riders per day to the other locations annually)	205,000	18,250	18,250	18,250	18,250	18,250
Value of Time (\$8.58/hour—one half of median hourly wage for Orange County First Quarter 2008*)	\$8.58	\$8.58	\$8.58	\$8.58	\$8.58	\$8.58
Dollars Saved Annually	\$732,875	\$86,122	\$75,683	\$83,512	\$161,805	\$602,852

Source: California High Speed Rail Authority at <http://cahighspeedrail.ca.gov/map.htm>, and analysis by Orange County Business Council

*the typical value of time by car travel in the transportation academic literature is one half of the median wage

Indirect cost savings in time saved by those traveling by car amounted to over \$1.7 million annually. This estimate is conservative with potential savings likely to be higher. Again, distances that are further away have greater cost savings. However, even shorter trips to locations such as Los Angeles or Burbank have respectable indirect cost savings values.

Map of Route Through Orange County from Los Angeles



Source: http://www.cahighspeedrail.ca.gov/images/chsr/20080129114440_LA_OC_factsheet.pdf

Commercial/Goods Movement

Commercial/goods movement cost savings will occur due to High Speed Trains freeing up capacity at the one major airport in Orange County: John Wayne Airport. John Wayne Airport is under legal restrictions as a result of a settlement agreement by the County with the City of Newport Beach in 1985 to limit the number of passengers to 10.3 million annual passengers until 2011 with an average of 85 daily departures out of the airport and have no flights in or out of the airport between 10:00PM and 7:00AM. Because of these restrictions (which are likely to continue into the indefinite future), while the physical capacity of John Wayne Airport is not necessarily limited, the capacity of the airport to handle the air traffic of a county of 3.1 million people in a region of 18 million is severely limited and not projected to change without serious alterations in how people conduct air travel. Recognizing these limits, Orange County went through a severely disruptive political debate for a decade over the re-use of El Toro Marine Corps Air Station to transform it into an international airport. With the

2002 vote to ban the conversion of El Toro into an international airport, these capacity limitations at John Wayne are more severe than ever.

This situation is particularly acute with regards to commercial/goods movement. Because of the limitations on flights out of John Wayne Airport, few flights are relegated to commercial/goods movement. Instead, the scarce number of flights is reserved almost exclusively for passenger travel. Therefore, goods movement into Orange County by air occurs mostly by rail and/or truck. The rail capacity of Orange County is becoming more limited due to the expansion of the Metrolink train network to half hourly trains by 2010 on tracks owned and operated by the SCCRA (Southern California Regional Rail Authority). Road capacity for trucks is becoming ever more constrained as traffic increases with rising population and economic activity of commuters. Expanding the capacity for air cargo/commercial goods movement is essential.

Since High Speed Trains are not envisioned as a commercial/goods movement mechanism, the advantages and cost savings from High Speed Trains are the result of indirect savings. With a High Speed Train network in place, short distance (by air) flights between John Wayne Airport and San Francisco, Oakland, San Jose, San Diego, Fresno and Sacramento could be eliminated or dramatically curtailed. This freed up air capacity would then be re-allocated to the most market efficient option. Given the limitation on cargo travel by rail (on Metrolink dominated tracks) and by truck on commuter congested roads, air cargo traffic could increase. The estimated cost savings are derived in the following analysis:

- 1) Number of passengers on High Speed Trains to San Francisco, Oakland, San Jose, San Diego, Fresno and Sacramento instead of on airplanes (derived by the number of passengers currently on flights from John Wayne Airport to these destinations)
- 2) Number of flights eliminated from John Wayne Airport to these destinations
- 3) Number of flights from John Wayne Airport re-allocated for air cargo
- 4) The value of goods and time saved from flying cargo out of John Wayne Airport rather than trucking it in to Orange County from alternative airports (LAX, Ontario)

Commercial Goods Movement Estimate

Total number of daily flights out of John Wayne Airport allowed under legal restrictions.	85
Number of daily flights to destinations on the High Speed Train network (San Francisco, San Jose)	15
Total number of passengers on High Speed Trains (derived from estimating number of passengers assuming a one hundred person 737 aircraft and adjusting for continuing air travel to these destinations by some passengers)	1,100
Estimate of number of flights re-allocated to air cargo *	9

Source: Orange County Business Council estimate based on examining destination data on John Wayne Airport travel patterns

*Some flights cancelled to destinations on the High Speed Train network may be re-allocated to new locations not currently served by John Wayne Airport

Solid statistics on the value of goods and time saved are not available. However, through such a model it is apparent that money can be saved if a High Speed Train network enables greater use of the limited air capacity of Orange County's airport for greater cargo/goods travel through the elimination of short distance (by air) flights from Orange County to locations around the state.

Efficiency Gains/Avoided Costs

Commuter

Efficiency gains to residents and businesses in Orange County would also come through enabling greater choices of transportation options. As discussed more extensively above, freeing up airport space at John Wayne Airport through having High Speed Trains to assume some of the passenger burden will result in direct cost savings. However, because of the same limitations on flights in and out of John Wayne Airport (legal restrictions), travel options are more difficult. Increased passenger moving capacity for Orange County alleviates this problem.

Furthermore, market efficiency gains could accrue to commuters through enabling further options for the usage of John Wayne Airport. Currently, because of the flight restrictions at John Wayne Airport (85 average daily departures, 10.8 million annual passengers, and no flights between 10:00 PM and 7:00 AM), flights into and out of John Wayne Airport are among the most expensive tickets a consumer could purchase from travel into and out of the Los Angeles Basin. Frequently, tickets are \$20 to \$50 more than comparable tickets out of LAX to the same destination. If the average of fifteen departures a day to Northern

California destinations out of John Wayne Airport were reallocated for other uses due to more passengers taking High Speed Trains, the greater competition could result in price decreases for consumers with the supply of flights for non-Northern California destinations increased.

Also, a greater choice of potential destinations could occur where new flights to different locations get added by airlines seeking to diversify their passenger base amidst the large Southern California market. For example, between 2001 and 2008, Aloha Airlines had direct flights from John Wayne Airport to Hawaii. While these flights were discontinued, a greater supply of flights to non-Northern California destinations could encourage the airlines to experiment with new locations again.

Commercial/Goods Movement

Similar to the analysis of cost savings for commercial/goods movement, efficiency gains in commercial/goods movement will also occur due to a smarter use of limited resources in Orange County for cargo/goods. As discussed earlier, legal limitations on the capacity of John Wayne Airport affect its ability to host air cargo/goods. Such limitations impact the efficiency of goods/cargo movement through forcing time consuming and expensive round-trips for air cargo though LAX, Ontario or other regional airports to ensure that goods arrive in Orange County. While some cargo may go out of John Wayne Airport, the growth potential for this is limited thus reserving it only for the most time intensive air cargo travel. Rail options for cargo/goods into Orange County are similarly limited, not by legal restriction, but by the same logic that drives greater passenger travel into John Wayne Airport than cargo travel—higher and better usage of limited resources to move people not cargo. Metrolink trains have a higher priority on SCRRRA (Southern California Regional Rail Authority) owned tracks (throughout most of Orange County) than freight trains. As Metrolink service expands in 2010, there will be even fewer freight trains carrying commercial items and goods into Orange County.

As a result of these factors, air cargo to serve the 3.1 million people and \$150 billion economy of Orange County must instead be trucked in from other airports tying up roads with greater congestion. Creating a High Speed Train network will expand the supply of flights that would be eligible to fly out of John Wayne Airport thus promoting more efficient movement of goods and cargo into Orange County.

Quality of Life

Furthermore, construction of a High Speed Train network for California will enhance the quality of life in Orange County. It will have environmental, health and life satisfaction benefits for the residents of the local area.

Environmental

A High Speed Train network would decrease the environmental impact of travel within the Southern California and travel throughout the state of California. Rather than taking a car from Anaheim to work in the Inland Empire or Los Angeles, Orange County residents could take High Speed Trains which could get them to Riverside in the same time it would take a car trip and saving seventy-two pounds of carbon dioxide from being put into the atmosphere. The trip from Anaheim to Los Angeles would save almost twenty-two pounds of carbon dioxide from being put in to the atmosphere and only take twenty minutes. Please see the chart below for additional examples of carbon savings.

Pounds CO2 Saved/Trip	Los Angeles	Palmdale	Bakersfield	Fresno	Stockton	Sacramento	San Jose	San Francisco
Anaheim	21.75	65.25	128.25	213	304.5	337.5	417	349

Source: California High Speed Rail Authority at <http://cahighspeedrail.ca.gov/map.htm>

In addition, a High Speed Train network promises to make land use more efficient in California with a particularly strong effect in Southern California including Orange County. Cambridge Systematics (2007) found that land use throughout California will be 1.3% more “efficient” (less land per new job and resident) with a High Speed Train network than if no network were built (Cambridge Systematics, 2007, page 1-9). Increased land use efficiency will come because of increased density around station locations. This will allow for enhanced population and economic growth without enhanced density beyond the stations and in virgin lands. In other words, station sites will become more like “downtowns” leaving non-station sites to remain with suburban character without the need for dramatic expansion of the developed footprint of the region to infringe on un-touched areas allowing for greater environmental protection.

Orange County will particularly benefit from this trend as the Anaheim station at the ARTIC will be the transportation hub for the Platinum Triangle development located between the 5, 57 and 22 Freeways near Disneyland, Angels Stadium and the Honda Center. This large residential/commercial development is projected to have approximately 18,000 residences and over 20 million square feet of commercial/office/institutional development targeted at leading-edge high-salary employment and venues for harnessing the synergy of the sports/entertainment facilities nearby. This location will be central population hubs for Orange County and are ready to benefit from an influx of further transit-oriented development that historically occurred as a result of easy access to public transportation.

According to Cambridge Systematics, intensification of development around the High Speed Train stations promises to reduce the projected urban footprint of the Los Angeles basin by thousands of acres even as population and employment in the region soars.

Health

High Speed Trains also can play a role in promoting increased health for residents of Orange County. Increasing the number of residents taking public transportation rather than using automobiles will enhance the opportunities for residents to walk. Walking at train stations and having a more pedestrian oriented lifestyle will promote exercise and lead to a healthier population. Cities like New York are considered to be among the healthiest cities in America given the higher level of exercise residents get due to a pedestrian friendly atmosphere facilitated by greater levels of public transportation.

In addition, a High Speed Train network would help reduce air pollution. Removing cars from the road and planes from the air would reduce emissions in ozone, particulate matter and carbon monoxide. In 2006, Orange County had 120 days where its air pollution readings were in the “moderate” range, twelve days where it was “unhealthy for sensitive groups” and two days where it was “unhealthy.” Removing even a relatively small number of cars from the road and airplanes from the sky can have a significant impact since every bit helps.

Safety

Safety for travelers will also be enhanced through having fewer people on the road commuting but instead on trains. Travelers in cars are subject to the risks of car accidents while having these same people travel by trains reduces the risk of their premature death as well as increases the safety of others on the road who are traveling by car since there are fewer automobiles to contend with as a result of the lower congestion on the roads.

Survey Support

Orange County residents have also supported transit improvements in Orange County by large margins. Measure M was renewed to extend the half cent sales tax for transportation projects with 68.5% of the vote in November 2006. Other surveys support these findings as well indicating support for transit improvements.

How Important are Infrastructure Improvements for Transit Services?

	Sep-05	Feb-06
Not At All Important	3.0%	2.9%
Not Very Important	4.1%	3.9%
Somewhat Important	31.8%	31.5%
Very Important	61.2%	61.6%

Source: Center for Public Policy/Orange County Business Council

Conclusion

The objective of this study by the Orange County Business Council was to describe the regional economic impact resulting from the creation of a California High Speed Train system. The results will provide policymakers, media and community members about the potential economic impact of High Speed Trains in their communities.

Through restating and building upon the statewide economic impact studies performed by Cambridge Systematics, this research enables a focused analysis of economic impacts of High Speed Trains for Orange County. With direct cost savings through providing a more cost effective method of travel for Orange County residents to locations near and far, increased overall employment in the county as well as impacts in commercial goods movement through the reallocation of scarce airport facilities at John Wayne Airport, Orange County would experience significant positive economic impact. Tourism will also be increased with a new method of transportation for tourists coming to see Orange County attractions. In addition, gains would be experienced through increased tax revenues, decreased greenhouse gas emissions, lower air pollution, a smaller urban footprint through increased land use densities, increased safety, reduced congestion on the roads and airports, potential health improvements, and higher quality life.

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