

# *High-Speed Rail*

## *International, USA and California*

*High Speed Rail:  
The Fast Track to Sustainability*  
By

*Hon. Rod Diridon Sr.*

*Chair*

*Intercity and High Speed Rail Committee  
American Public Transit Association*

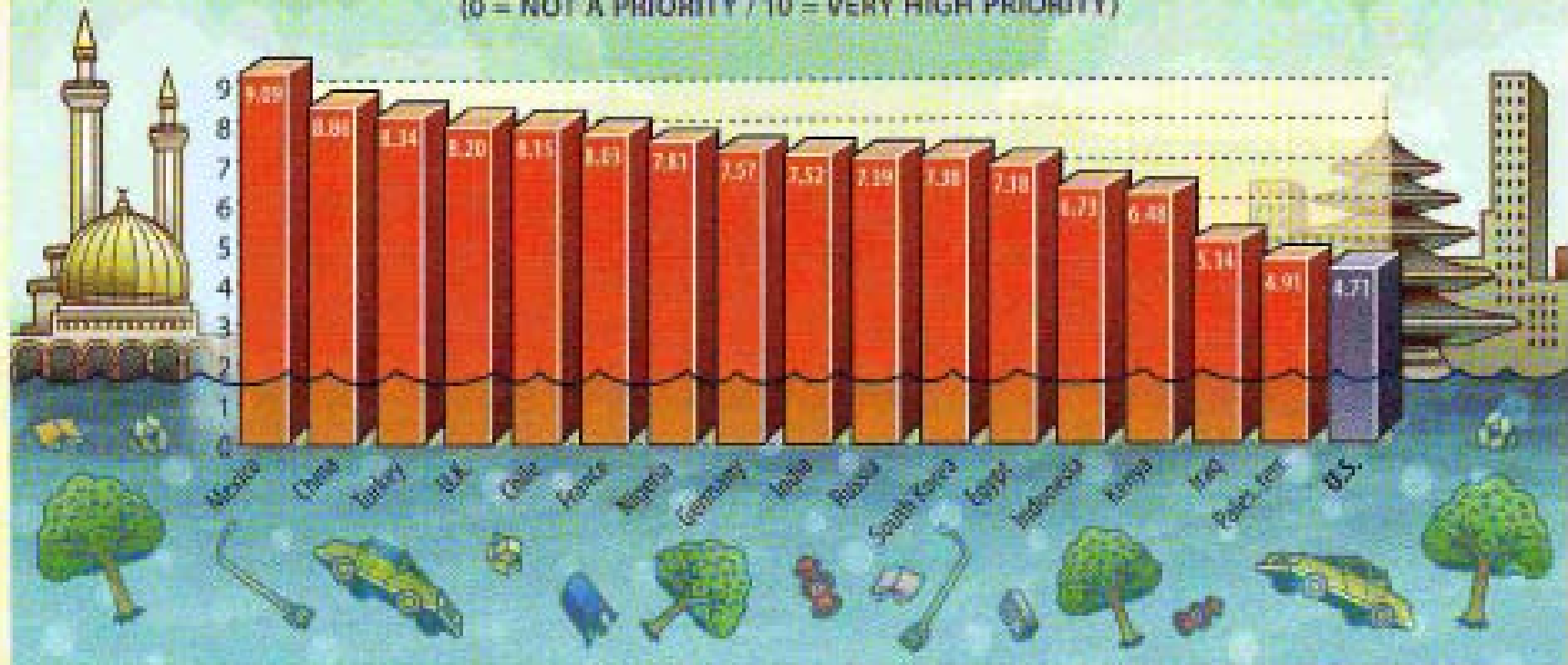
*Member/Chair Emeritus  
California High Speed Rail Authority Board*

## WHAT, US WORRY?

U.S. representatives to the United Nations climate-change conference in Copenhagen may want to go incognito. It now appears unlikely that the Senate will pass a strong climate-protection bill in time for the pivotal December summit. Moreover, the slacker mentality that grips Congress extends to the general populace: A survey of 19 countries by the University of Maryland's Program on International Policy Attitudes

finds that Americans rank dead last when it comes to backing action on climate change. Most other nations show strong popular support for tough government action. Despite Britain's already substantial efforts, 77 percent of Britons think their government should do even more. At the opposite end of the spectrum, only the residents of the Palestinian territories and Iraq are as lackadaisical as us. —Paul Rouben

### HOW HIGH A PRIORITY SHOULD ADDRESSING CLIMATE CHANGE BE FOR YOUR GOVERNMENT? (0 = NOT A PRIORITY / 10 = VERY HIGH PRIORITY)



# High Speed Rail System in Asian Countries

- Korea: KTX
- Japan : Shinkansen
- Taiwan: HSR 700T
- China: CRH Systems

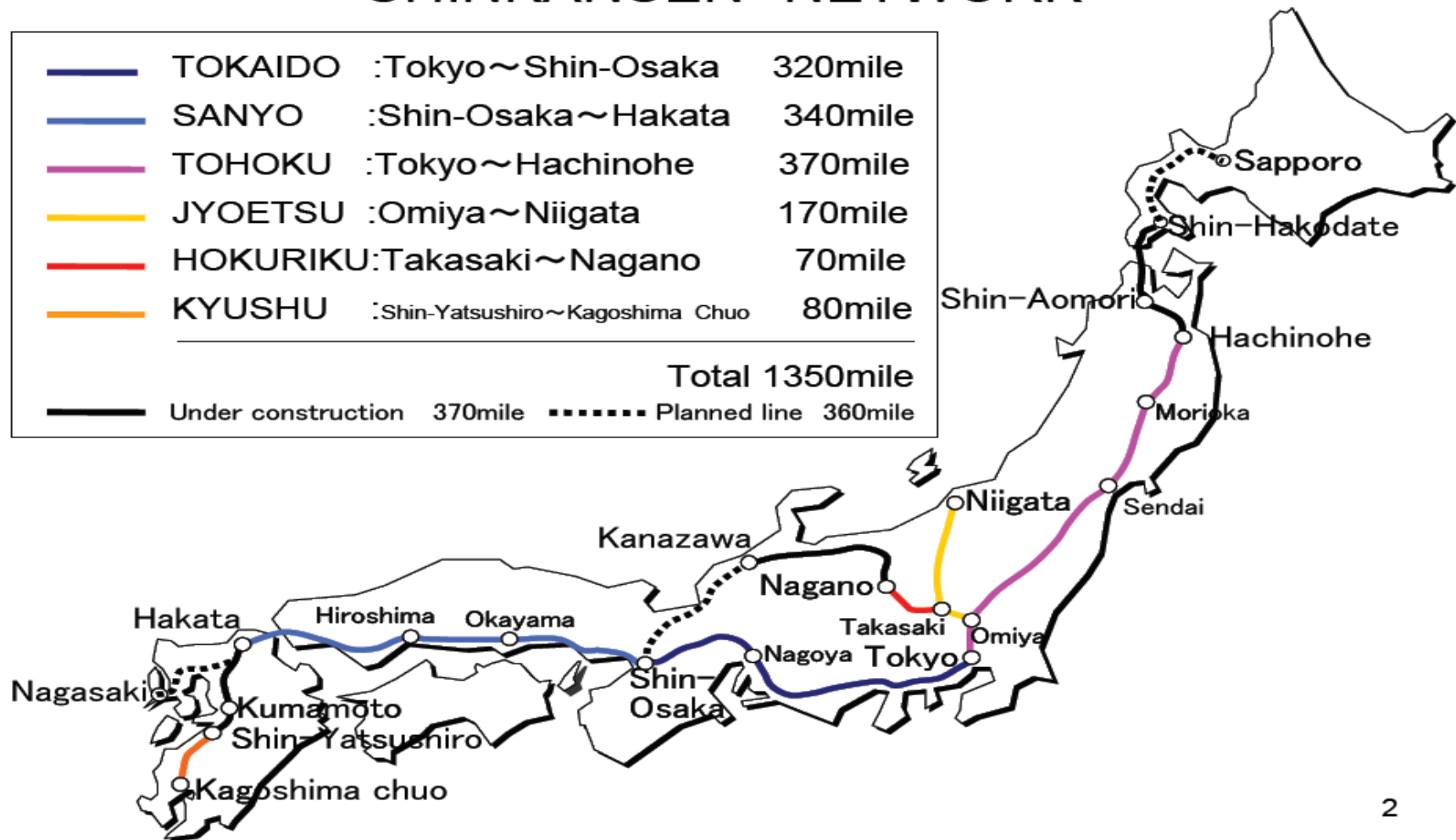
# High Speed Rail in Japan Shinkansen System

- Opened in 1964
- Total Service Mileage: 1,350 miles
- Operated by 4 Japan Railway Companies
- Total Fleet approx. 4,000 cars
- Max. 12 Trains during peak hour
- Up to 350 km/h operation

# High Speed Rail in Japan Route Map

## SHINKANSEN NETWORK

	TOKAIDO :Tokyo~Shin-Osaka	320mile
	SANYO :Shin-Osaka~Hakata	340mile
	TOHOKU :Tokyo~Hachinohe	370mile
	JYOETSU :Omiya~Niigata	170mile
	HOKURIKU: Takasaki~Nagano	70mile
	KYUSHU :Shin-Yatsushiro~Kagoshima Chuo	80mile
Total 1350mile		
	Under construction	370mile
	Planned line	360mile



# High Speed Rail in Japan New Train set N700 Series



# High Speed Rail in Korea

## KTX

- Korean High Speed Rail:
  - Between Seoul and Busan
    - TGV based design.
    - Total 46 train sets:
      - 12 trains by Alstom
      - 34 trains by Hyundai-Rotem
    - Max Speed: 300 km/h



Korea



# High Speed Rail in Taiwan

- Opened: January 5, 2007
- Total length: 345 km
- Max Speed: 300+ km/h
- 12 car trains, total 30 train sets

# High Speed Rail in Taiwan Route Map



Created by Mineta Transportation Institute

# High Speed Rail in Taiwan

## HSR 700T Series



Created by Mineta Transportation Institute

# High Speed Rail in China

- Mid to Long Range Rail Transportation Improvement Plan is on-going.

200 – 250 km/h Lines: 11,000 km, mostly dedicated for passenger, some freight.

360 km/h Lines: 10,000 km, dedicated for passenger services

# High Speed Rail in China Route Map





# European HSR

## Major players:

- Spain
- France
- Germany
- Italy

## Other countries with HSR:

- Holland
- Belgium
- England

Units:	200 kph	-	125 mph
	250 kph	-	155 mph
	300 kph	-	186 mph
	350 kph	-	217 mph



Europe 2025





# RENFE Spain

## 1<sup>st</sup> HSR 1992

- **Lines built :**

	<b>Distance</b>	<b>Trip time</b>	<b>old alignment</b>
• Madrid - Seville:	472 km	2hr 15min	6 hr
• Madrid - Barcelona:	635 km	2hr 38min	7 hr
• Madrid – Valladolid:	180 km	1hr	
• Cordoba - Malaga:	170 km	1hr	
  
- **Under construction**
  - Barcelona Perpignan (French border) 340 km

# Spain: Rolling Stock for $\geq 300$ kph

AVE S 100



AVE S 102

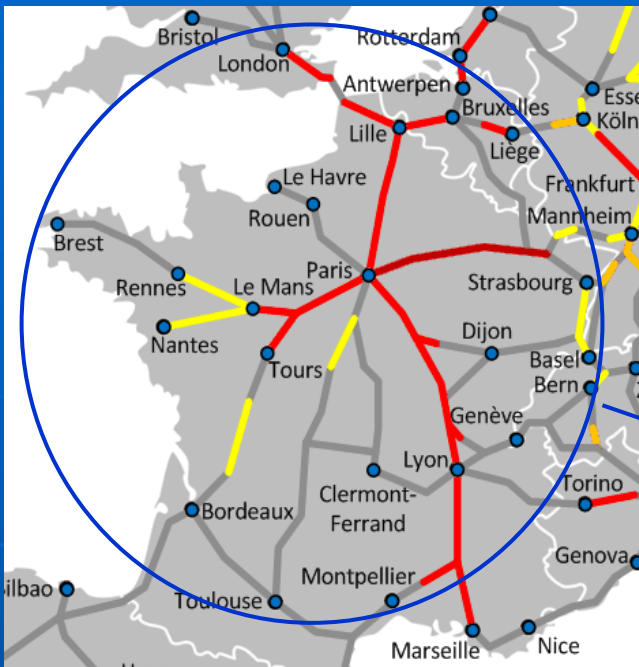


AVE S 103  
(ICE-3)



# SNCF France

1<sup>st</sup> HSR 1981



Approximately 3 hrs travel time

## ■ Lines built : alignment

- Paris - Lyon:
- Paris - Tours:
- Paris - Calais:
- Lyon - Marseille:
- Paris - Metz:
- Paris - London:
- London – Bruxelles

## Distance

## Trip time

## old

427 km	2hr	3hr 50min
282 km	1hr 10min	2hr 15min
329 km	1hr 30min	3hr
251 km	1hr 40min	3hr
300 km	1hr 25min	2hr 45min
(480 km)	2hr 15min	6hr 30min
(~350 km)	2hr	5hr

## ■ Under construction

- Dijon – Mulhouse
- Metz – Strasbourg
- Tours – Bordeaux

425km	(2012)
96 km	(2014)
303 km	(2015)

# France: Speed records

- **Long distance:** 1067 km in 3hr 29min → average speed 305 kph! (TGV Réseau: Calais to Marseille May 26; 2001)
- **Top speed:** 574.8 kph (April 3<sup>rd</sup>; 2007)



## **Train-Consist:**

- Two TGV-EST locomotives and two powered Jacobs bogies (AGV).
- 12 powered axles of 16 total
- Total power 20 MW!

# Next Generation TGV = AGV

- Major differences:
  - Distributed power (EMU rather than locomotive design)
  - Powered Jacobs-Bogie
  - Reduced axle load
  - Permanent magnet motors (synchronous motors)
  - Improved aero-dynamics
  - More passenger space (no locomotive)





# DB Germany

1<sup>st</sup> HSR 1991

Most HSR lines are operated at 250 kph

Only lines with max speed 300 kph are listed here

## ■ Lines built :

- Frankfurt - Köln: 177 km
- Ingolstadt - Nürnberg: 89 km

## ■ Under construction

- Ebensfeld – Erfurt: 122 km
- München-Leipzig-Berlin planned opening 2017

# Germany: Rolling Stock

Type	Design	Vmax	Trains	In Service
ICE-1	Siemens	280 kph	60	1982
ICE-2	Siemens	280 kph	44	1989
ICE-3	Siemens	330 kph	72	2000



ICE-2



ICE-3



# FS Italy

1<sup>st</sup> HSR 2005 (300kph)

Italy has an extensive alignment of 200+ kph. It had trains running at 200 to 250 kph starting in the 1970ies.

## ■ Lines built :

- Roma - Napoli:
- Turin - Novara:
- Milano – Treviglio:
- Padua - Mestre:

## Distance Trip time

200 km	1hr 30min
84 km	
24 km	
24 km	

## note

25 kV
25 kV
3 kVdc
3 kVdc

## ■ Under construction

- Milano - Bologna - Firenze



# Italy: Rolling Stock

Type	Design	Vmax	Trains	In Service
ETR 500 (P)	Ansaldo/Bombardier	300 kph	60	1982



# Congressionally Designated Steel Wheel on Rail Systems

<b>System</b>	<b>Total Cost</b>
New York (Empire)	\$1.5
Pennsylvania (Keystone)	\$1.3
New England Rail	\$2.8
Southeast High Speed Rail	\$4.9
South Central Corridor	\$2.9
Florida High Speed Rail	\$14.4
Midwest Regional Rail	\$8.6
Ohio-Cleveland Hub	\$3.9
California High Speed Rail	\$33.0
Pacific Northwest	\$2.4
Gulf Coast	\$5.2
<b>Total Costs</b>	<b>\$80.9</b>

(All costs in 2007\$)

Billions)

Created by Mineta Transportation Institute

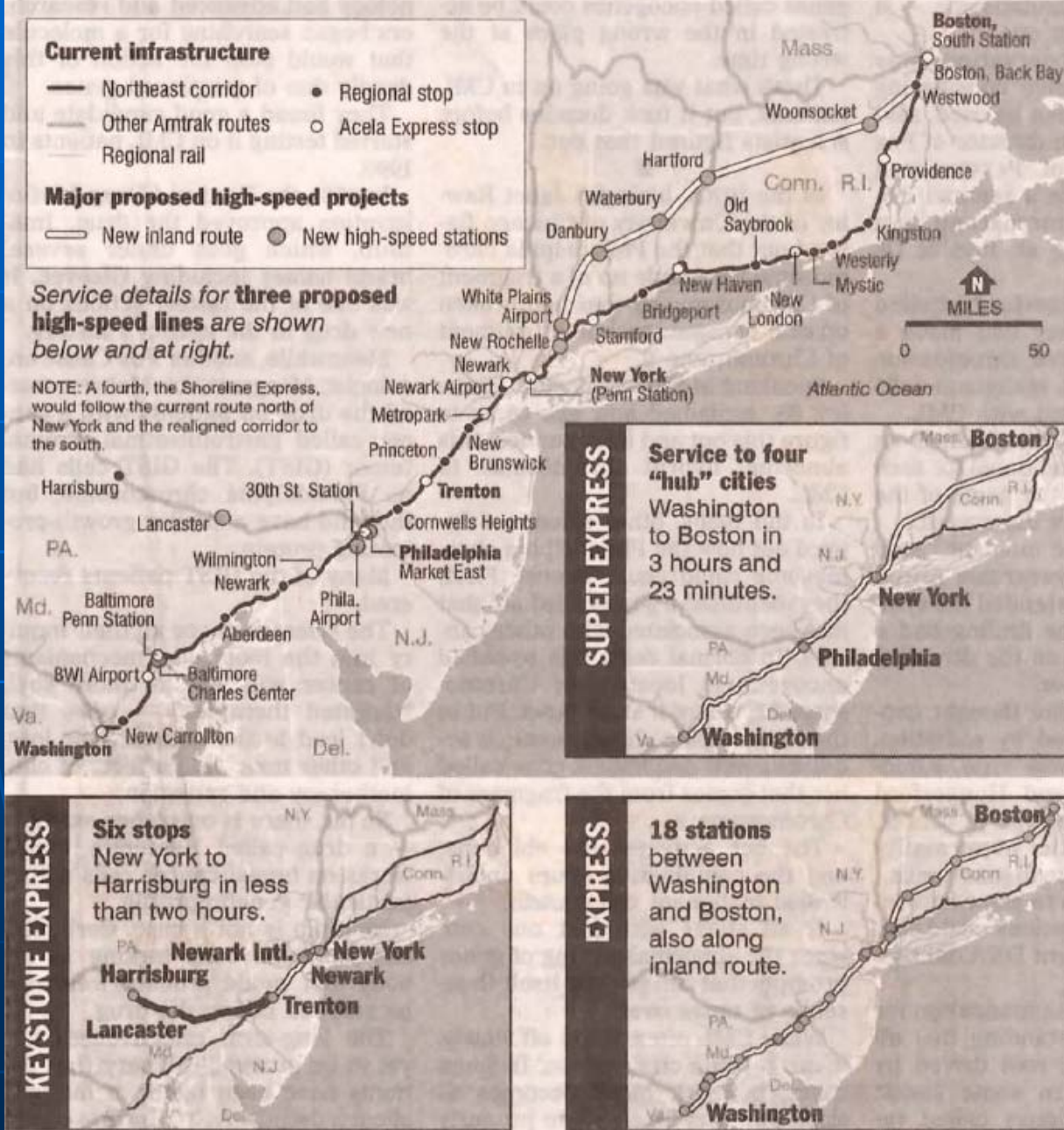
# Intermediate and High Speed Rail Corridor Designations



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# Amtrak's High-Speed Plan for the Northeast Corridor

On Tuesday, Amtrak detailed a plan for bringing high-speed rail service to the Northeast Corridor by 2040. The plan calls for dedicated high-speed tracks along the entire corridor, as well as a new inland route north of New York. The cost would be about \$117 billion.



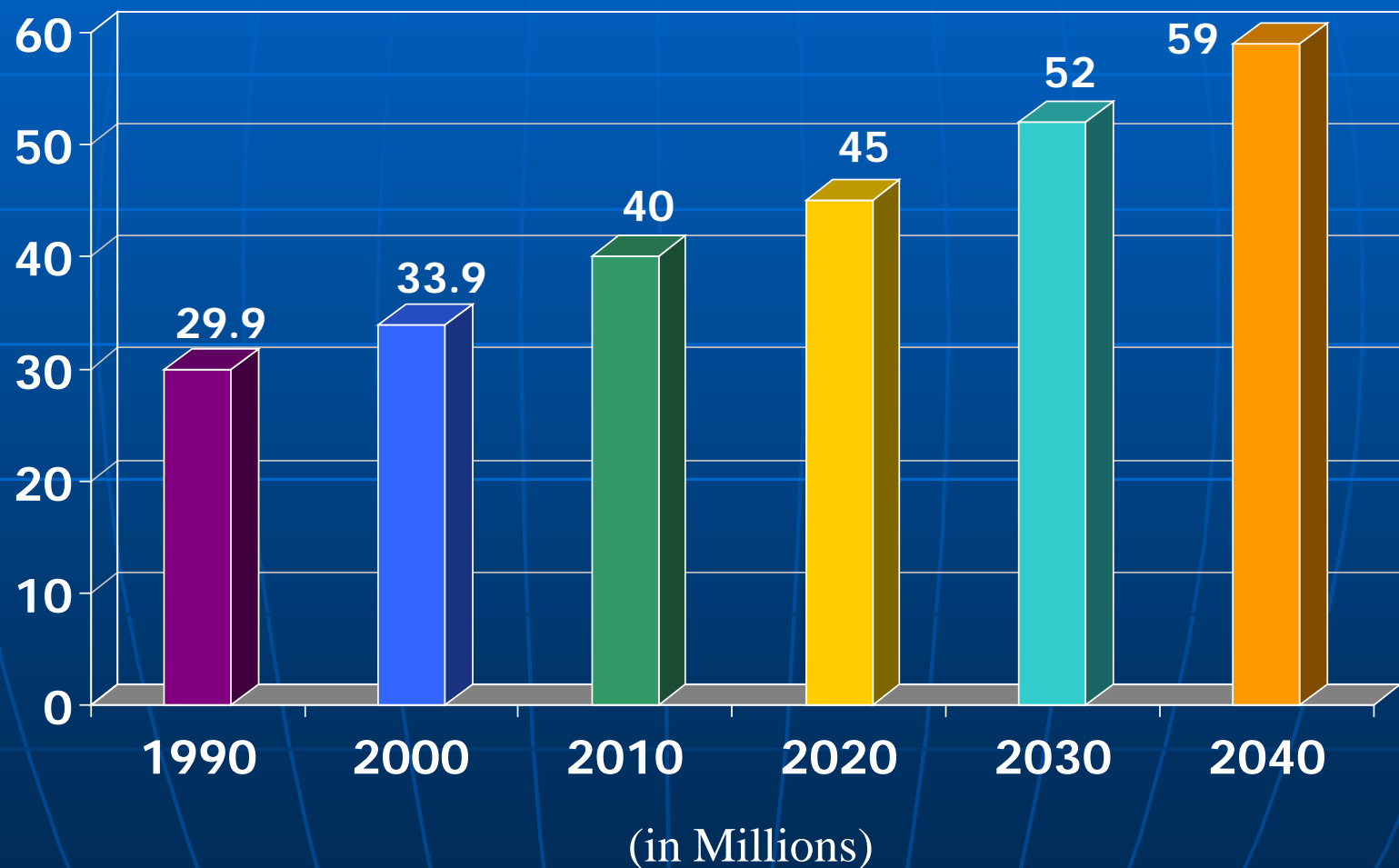
# California High-Speed Rail Authority

- Authorized by legislation in 1996
- Nine-member authority board - five appointed by Governor, two by State Senate, two by State Assembly
- Budget expended in state/federal funds to date, \$200+M
- Program level Environmental Clearance certified on July 9, 2008

# CHSRA 2009 Fiscal Summary

- Business plans by Charles River Associates, 2001, expanded upon by Cambridge Systematics, 2008
- Expected performance, at \$55 per direction, of the starter line from Anaheim via Los Angeles, the Central Valley, Gilroy, San Jose, to San Francisco:
  - Completion – 2018-2020
  - Ridership – 45 to 55 million per year
  - Gross revenue - \$2.4B
  - Net after O and M - \$1.1B
- Design, construction and rolling stock (year of construction values)
  - Federal - \$17 to \$19B
  - State - \$9 B
  - Public/private partnership - \$10 to \$12B
  - Local cost sharing - \$4 to \$5 B

# California's Existing & Projected Population



Sources: 1990 and 2000 - U.S. Census Bureau; Projections - CA Dept. of Finance, 1998

# HIGH-SPEED TRAIN TRAVEL TIMES

- High-speed trains will provide Californians with safe, predictable, consistent and competitive region-to-region transportation.

	Travel Time (Hrs:Min)								
	Los Angeles	San Francisco	San Jose	San Diego	Sacramento	Fresno	Bakersfield	Riverside	Anaheim
Los Angeles	N/A	2:38	2:09	1:18	2:11	1:24	0:54	0:33	0:20
San Francisco	2:38	N/A	0:30	3:56	1:06	1:20	1:51	3:10	2:57
San Jose	2:09	0:30	N/A	3:27	0:52	0:51	1:21	2:41	2:28
San Diego	1:18	3:56	3:27	N/A	3:29	2:42	2:12	0:48	N/A
Sacramento	2:11	1:06	0:52	3:29	N/A	0:53	1:23	2:43	2:37
Fresno	1:24	1:20	0:51	2:42	0:53	N/A	0:37	1:56	1:43
Bakersfield	0:54	1:51	1:21	2:12	1:23	0:37	N/A	1:26	1:13
Riverside	0:33	3:10	2:41	0:48	2:43	1:56	1:26	N/A	N/A
Anaheim	0:20	2:57	2:28	N/A	2:37	1:43	1:13	N/A	N/A

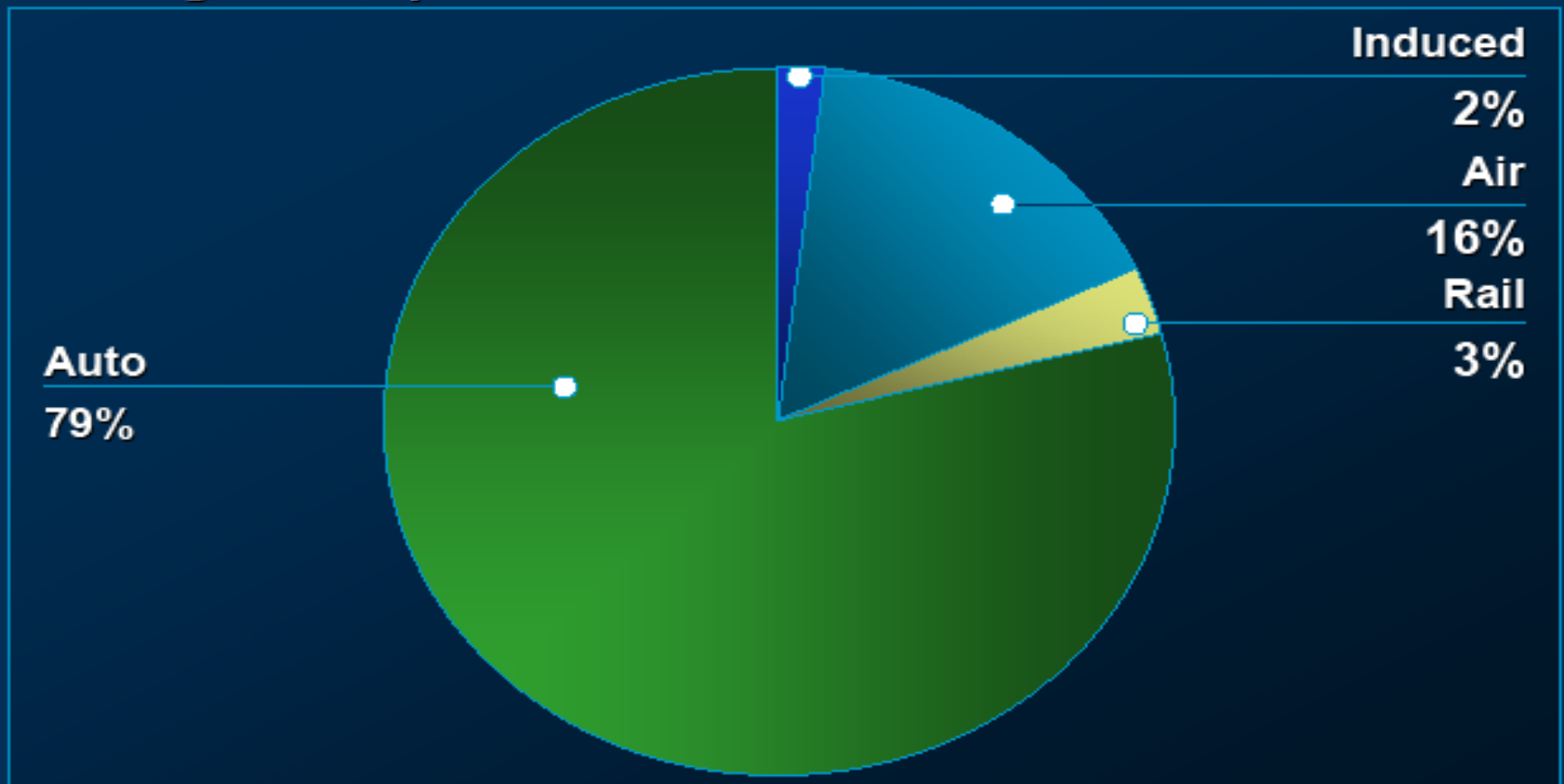
*Optimal Express Trip Times between City Pairs (220 mph [350 kph] maximum speed)*



# Sources of HSR Ridership (Interregional Trips)

## Sources of HSR Ridership

- Interregional Trips



# California's 2050 population estimated at 60M+

## Alternatives to meet that need:

Key variables	Highway/Airport Alternatives:	California High Speed Rail Alternative:
	<b>3,000 added lanes/miles of freeway and 2 new international airports</b>	<b>790 miles of California High Speed Rail</b>
Cost	\$100 Billion	\$40 Billion
Capacity beyond 2050	None	Adequate until 2100
Energy	22 million barrels of petroleum per year more than HSR	Electric power: 1/5 the energy of a car, 1/3 energy of a plane per seat/mile
Pollution	Creates 18 billion more pounds per year of CO <sub>2</sub> than HSR	Base Case
Safety	43,000 people killed and hundreds of thousands injured on US highways in 2007	No fatalities in 45 years of Japanese Shinkansen and more than 25 years of French

# ECONOMIC BENEFITS

Like past major infrastructure projects – California’s water, university and highway systems – the high-speed train system would be an economic stimulant and smart investment in California’s infrastructure.

- Creating 160,000 construction-related jobs lasting decades.
- High-speed trains improve California’s economy, resulting in an additional 450,000 new permanent jobs by 2035.
- Cost benefit analysis based upon “investment grade” ridership forecasts concluded that the high-speed train system benefits would be more than two times its cost.



# California High-Speed Train Project



790 Miles Long

26 Stations

150 Miles of Bridges, Viaducts, and Elevated Structures



35 Miles of Tunnels

610 Grade Separations

510,000 Square Yards of Retaining Walls

110 Power Supply, Switching and Paralleling Sub-Station

STATISTICS

# California High-Speed Train Project



**FLY CALIFORNIA**  
*Without ever leaving the ground.*



**215 Million Cubic Yards of Earthwork**



**9.2 Million Cubic Yards of Concrete**



**4.5 Million Tons of Steel**



**1,600 Miles of Track**



**2,400 Miles of Electrical and Communication Cables**

**126,000 Construction Jobs**

**14,000 Operations and Maintenance Jobs**

**32,000 Engineering and Management Jobs**

**Statistics**



Anaheim, CA



Fresno, CA

# Program Management

**Dominic Spaethling**

**Altamont**

Brent Ogden, AECOM

**SF to San Jose**

Tim Cobb, PE, HNTB

**Gary Kennerly**

**SJ to Central Valley**

Dave Mansen, Parsons

**Tom Tracy, PE**

**Sac to Fresno**

Ken Sislak, AECOM

**Fresno to Palmdale**

Bob Schaevitz,  
URS/Hatch  
Mott/ARUP

**Bruce Armistead, PE**

**Palmdale to LA**

Dan Tempelis,  
Hatch Mott/URS.ARUP

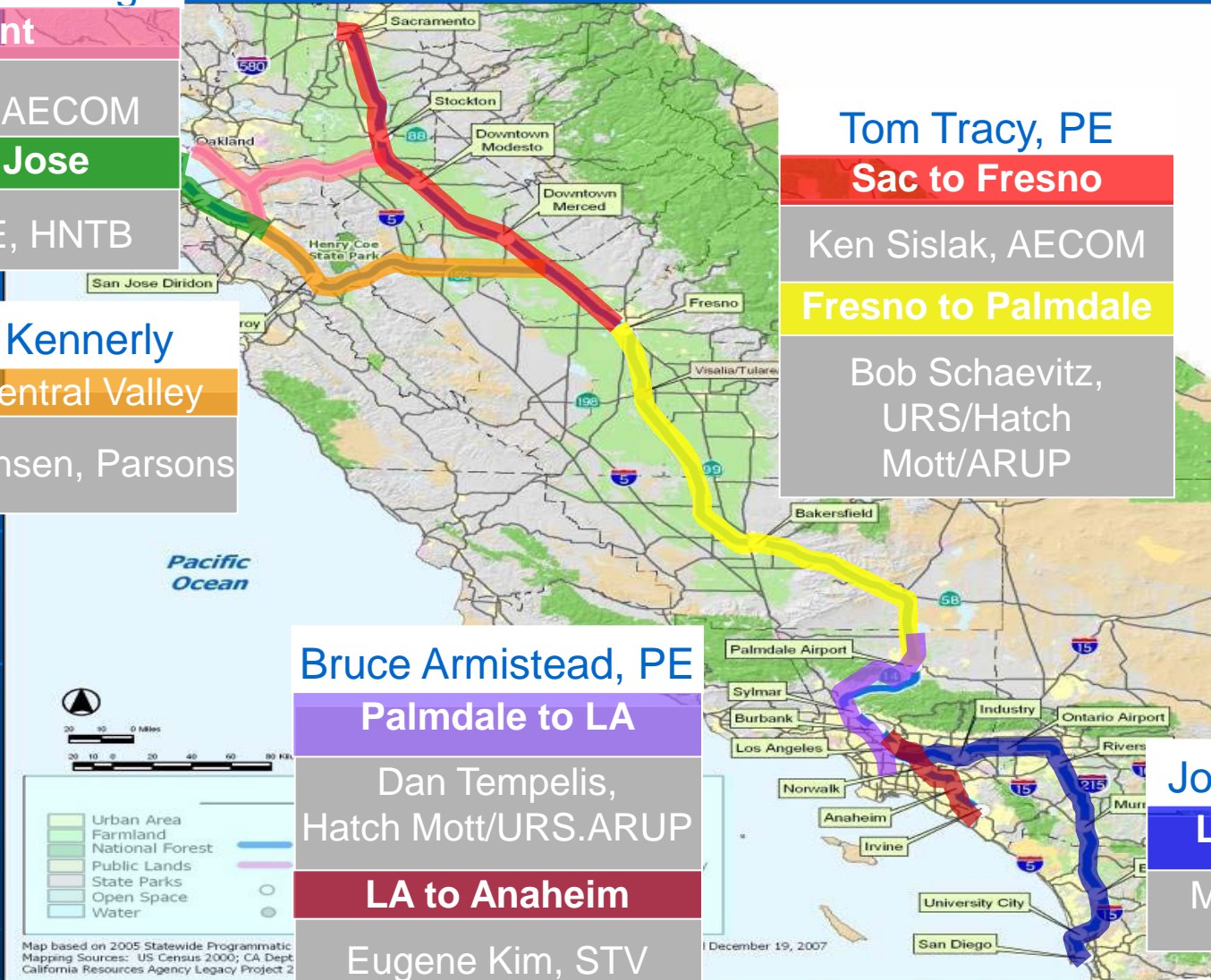
**LA to Anaheim**

Eugene Kim, STV

**Jose Martinez, PE**

**LA to San Diego**

Mike Zdon, HNTB





## Environmental Milestones Schedule

Section/Activity	Assigned Weight	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%	Percent Complete Toward SCOTSD		
	Plan Actual/Forecast % Complete	Scoping Report	Head Start to Approve Release of the AA Report	Release Preliminary AA Report	Event Briefing to Approve Supplemental AA Report	Release Supplemental AA Report	Technical Reports	Admin Draft EIR/EIS	15% Design	Draft EIR/EIS	Final EIR/EIS	NOI/ROD												
San Francisco - San Jose 50 miles	Plan Actual/Forecast % Complete	May '09 Mar. '10 A 100%	Apr. 8, 2010 Apr. 8, '10 A	Apr. '10 Apr. '10 A 100%	Jun. 1, 2010 Aug. 6, 2010	Jul. '10 Aug. '10 25%	Sep. '10 Nov. '10 60%	Sep. '10 Sept. '10 60%	Dec. '10 Dec. '10 85%	Dec. '10 Dec. '10 0%	July '11 July '11 0%	Sept. '11 Sept. '11 0%												52%
San Jose - Merced 120 miles	Plan Actual/Forecast % Complete	Oct. '09 Mar. '10 A 100%	May 5, 2010 Jun. 3, 2010	May '10 June '10 A 100%	Aug. 5, 2010 Oct. 7, 2010	Aug. '10 Oct. '10 2%	Apr. '11 Apr. '11 20%	Apr. '11 Apr. '11 25%	Dec. '10 Dec. '10 55%	July '11 July '11 0%	Feb. '12 Feb. '12 0%	Apr. '12 Apr. '12 0%												47%
Merced - Fresno 80 miles	Plan Actual/Forecast % Complete	Mar. '10 Mar. '10 A 100%	Apr. 8, 2010 Apr. 8, 2010	Apr. '10 Apr. '10 A 100%	Jun. 5, 2010 Aug. 6, 2010	June '10 Aug. '10 0%	Aug. '10 Nov. '10 60%	Aug. '10 Sept. '10 60%	Sept. '10 Dec. '10 45%	Nov. '10 Dec. '10 0%	June '11 July '11 0%	Apr. '11 Sept. '11 0%												47%
Fresno - Bakersfield 110 miles	Plan Actual/Forecast % Complete	Mar. '10 Mar. '10 A 100%	Dec. 5, 2009 Jan. 3, 2010	Mar. '10 June '10 A 100%	Jun. 3, 2010 Sept. 2, 2010	June '10 Sept. '10 0%	Sept. '10 Nov. '10 60%	Sept. '10 Sept. '10 50%	Aug. '10 Oct. '10 50%	Jan. '11 Jan. '11 0%	July '11 July '11 0%	Sept. '11 Sept. '11 0%												46%
Bakersfield - Porterville 80 miles	Plan Actual/Forecast % Complete	Mar. '10 Mar. '10 A 100%	Aug. 3, 2010 Sept. 2, 2010	Aug. '10 Sept. '10 80%	Oct. 7, 2010 Nov. 4, 2010	Nov. '10 Dec. '10 0%	Sept. '11 Sept. '11 60%	Sept. '11 Sept. '11 50%	Nov. '11 Nov. '11 60%	Dec. '11 Dec. '11 0%	June '12 June '12 0%	Sept. '12 Sept. '12 0%												21%
Palmdale - Los Angeles 60 miles	Plan Actual/Forecast % Complete	June '10 May. '10 A 100%	May 8, 2010 Jun. 8, '10 A	May '10 Jul. '10 A 100%	Aug. 3, 2010 Sept. 2, 2010	Aug. '10 Sept. '10 0%	Oct. '10 Dec. '10 50%	Oct. '10 Dec. '10 30%	Jan. '11 Jan. '11 60%	Jan. '11 Mar. '11 0%	Aug. '11 Oct. '11 0%	Oct. '11 Dec. '11 0%												41%
Los Angeles - Anaheim 30 miles	Plan Actual/Forecast % Complete	Aug. '09 Mar. '10 A 100%	N/A Apr. 24, '09 A	Apr. 24, 2009 Apr. 24, '09 A 100%	Jun. 8, 2010 Jul. 8, '10 A	June '10 July '10 A 25%	Sept. '10 Nov. '10 50%	Sept. '10 Sept. '10 45%	Aug. '10 Aug. '10 60%	Jan. '11 Jan. '11 0%	July '11 July '11 0%	Feb. '11 Sept. '11 0%												55%
Los Angeles - San Diego 187 miles	Plan Actual/Forecast % Complete	June '10 June '10 A 100%	Jul. 1, 2010 Sept. 2, 2010	Jul. '10 Sept. '10 80%	Jan. 6, 2011 Jan. 8, 2011	Jan. '11 Jan. '11 0%	Aug. '12 Dec. '12 0%	Aug. '12 Dec. '12 5%	Aug. '12 Mar. '13 5%	Feb. '13 Mar. '13 0%	Sept. '13 Aug. '13 0%	Dec. '13 Dec. '13 0%												16%
Waxed - Sacramento 110 miles	Plan Actual/Forecast % Complete	Feb. '10 Apr. '10 A 100%	Feb. 3, 2011 Dec. 2, 2010	Feb. '11 Jan. '11 16%	May. 6, 2011 Feb. 1, 2011	May '11 Feb. '11 0%	Sept. '11 Apr. '12 0%	Sept. '11 Apr. '12 0%	Oct. '11 July '12 1%	Jan. '12 Oct. '12 0%	Nov. '12 June '13 0%	Mar. '13 Aug. '13 0%												8%
Altamont Occidental Roll Project 55 miles	Plan Actual/Forecast % Complete	Feb. '10 Mar. '10 A 100%	Nov. 4, 2010 Dec. 7, 2010	Dec. '10 Oct. '10 25%	Mar. 5, 2011 Nov. 4, 2010	Mar. '11 Dec. '10 0%	Nov. '11 Feb. '12 0%	Nov. '11 Feb. '12 0%	Dec. '11 Apr. '12 1%	Mar. '12 Mar. '12 0%	Sept. '12 Mar. '13 0%	Dec. '12 May '13 0%												3%

A = Actual



# CHSTP Environmental Schedule

San Francisco to San Jose - 50 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule															
					FY 10/11				FY 11/12				FY 12/13							
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Scoping Report	29-May-09	31-Mar-10 A	100	100	█															
Initial Board Briefing	08-Apr-10	08-Apr-10 A	100	100	◆															
Board Briefing to Approve Release of AA Report	08-Apr-10	08-Apr-10 A	100	100	◆															
Release Preliminary AA Report	30-Apr-10	30-Apr-10 A	100	100	█															
Board Briefing to Approve Supplemental AA Report	01-Jul-10	05-Aug-10	0	0																
Release Supplemental AA Report	30-Jul-10	31-Aug-10	25	25			█													
Administrative Draft EIR/EIS	30-Sep-10	30-Sep-10	50	50		█														
Technical Reports	30-Sep-10	30-Nov-10	50	50		█														
15% Design	31-Dec-10	31-Dec-10	55	55		█														
Draft EIR/EIS	31-Dec-10	31-Dec-10	0	0																
Final EIR/EIS	29-Jul-11	29-Jul-11	0	0																
NOD/ROD	30-Sep-11	30-Sep-11	0	0																
Progress Complete Toward NOD/ROD	30-Sep-11	30-Sep-11	52	52		█														



Status Date: June 30, 2010

- █ Planned
- █ Actual
- █ Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

San Jose to Merced - 120 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	FY 10		FY 10/11				FY 11/12				FY 12/13					
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4		
Initial Board Briefing	03-Dec-09	03-Dec-09 A	100	100																
Scoping Report	30-Oct-09	31-Mar-10 A	100	100	■															
Board Briefing to Approve Release of AA Report	06-May-10	03-Jun-10 A	100	100			◆													
Release Preliminary AA Report	31-May-10	10-Jun-10 A	100	100	■	■														
Board Briefing to Approve Supplemental AA Report	05-Aug-10	07-Oct-10	0	0																
Release Supplemental AA Report	31-Aug-10	29-Oct-10	0	0																
15% Design	31-Dec-10	31-Dec-10	65	65	■	■	■	■												
Administrative Draft EIR/EIS	29-Apr-11	29-Apr-11	25	25	■	■	■	■	■											
Technical Reports	29-Apr-11	29-Apr-11	20	20	■	■	■	■	■											
Draft EIR/EIS	29-Jul-11	29-Jul-11	0	0																
Final EIR/EIS	29-Feb-12	29-Feb-12	0	0																
NOD/ROD	30-Apr-12	30-Apr-12	0	0																
Progress Complete Toward NOD/ROD	30-Apr-12	30-Apr-12	47	47	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■



Status Date: June 30, 2010

- Planned
- Actual
- Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

**Merced to Fresno - 65 miles**

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule															
					FY 10		FY 10/11				FY 11/12				FY 12/13					
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4		
Initial Board Briefing	03-Dec-09	03-Dec-09 A	100	100																
Scoping Report	31-Mar-10	31-Mar-10 A	100	100	█	█														
Board Briefing to Approve Release of AA Report	08-Apr-10	08-Apr-10 A	100	100	◆															
Release Preliminary AA Report	26-Apr-10	26-Apr-10 A	100	100	█	█														
Board Briefing to Approve Supplemental AA Report	03-Jun-10	05-Aug-10	0	0			◆													
Release Supplemental AA Report	30-Jun-10	31-Aug-10	0	0			█													
Administrative Draft EIR/EIS	31-Aug-10	30-Sep-10	50	50	█	█														
Technical Reports	30-Aug-10	30-Nov-10	50	50	█	█														
15% Design	30-Sep-10	31-Dec-10	45	45	█	█														
Draft EIR/EIS	30-Nov-10	31-Dec-10	0	0			█													
Final EIR/EIS	30-Jun-11	31-Jul-11	0	0				█												
NOD/ROD	31-Aug-11	30-Sep-11	0	0					█											
Progress Complete Toward NOD/ROD	31-Aug-11	30-Sep-11	47	47	█	█														



**Status Date: June 30, 2010**

- █ Planned
- █ Actual
- █ Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

Fresno to Bakersfield - 110 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	'10		FY 10/11				FY 11/12				FY 12/13					
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4		
Initial Board Briefing	03-Dec-09	03-Dec-09 A	100	100																
Scoping Report	31-Mar-10	31-Mar-10 A	100	100	█															
Board Briefing to Approve Release of AA Report	03-Dec-09	03-Jun-10 A	100	100			◆													
Release Preliminary AA Report	31-Mar-10	30-Jun-10 A	100	100	█	█														
Board Briefing to Approve Supplemental AA Report	03-Jun-10	02-Sep-10	0	0			◆	◆												
Release Supplemental AA Report	30-Jun-10	16-Sep-10	0	0			█	█												
Administrative Draft EIR/EIS	30-Sep-10	30-Sep-10	50	50	█	█	█	█												
15% Design	31-Aug-10	31-Oct-10	50	50	█	█	█	█												
Technical reports	30-Sep-10	30-Nov-10	50	50	█	█	█	█												
Draft EIR/EIS	31-Jan-11	31-Jan-11	0	0					█	█										
Final EIR/EIS	31-Jul-11	31-Jul-11	0	0							█	█								
NOD/ROD	30-Sep-11	30-Sep-11	0	0									█	█						
Progress Complete Toward NOD/ROD	30-Sep-11	30-Sep-11	49	49	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█



Status Date: June 30, 2010

- █ Planned
- █ Actual
- █ Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

**Bakersfield to Palmdale - 85 miles**

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule															
					FY 10/11				FY 11/12				FY 12/13				FY 10			
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2
Scoping Report	31-Mar-10	31-Mar-10 A	100	100	[Gantt bar for Scoping Report, completed by Q4 FY 10]															
Initial Board Briefing	06-May-10	01-Jul-10	100	100	[Gantt bar for Initial Board Briefing, completed by Q1 FY 11]															
Board Briefing to Approve Release of AA Report	05-Aug-10	02-Sep-10	0	0	[Gantt bar for Board Briefing to Approve Release of AA Report, planned for Q3 FY 11]															
Release Preliminary AA Report	31-Aug-10	30-Sep-10	55	55	[Gantt bar for Release Preliminary AA Report, completed by Q4 FY 10]															
Board Briefing to Approve Supplemental AA Report	07-Oct-10	04-Nov-10	0	0	[Gantt bar for Board Briefing to Approve Supplemental AA Report, planned for Q1 FY 11]															
Release Supplemental AA Report	30-Nov-10	31-Dec-10	0	0	[Gantt bar for Release Supplemental AA Report, planned for Q4 FY 10]															
Administrative Draft EIR/EIS	30-Sep-11	30-Sep-11	3	3	[Gantt bar for Administrative Draft EIR/EIS, planned for Q3 FY 11]															
Technical Studies	30-Sep-11	30-Sep-11	0	0	[Gantt bar for Technical Studies, planned for Q3 FY 11]															
15% Design	30-Nov-11	30-Nov-11	5	5	[Gantt bar for 15% Design, planned for Q4 FY 10]															
Draft EIR/EIS	31-Dec-11	31-Dec-11	0	0	[Gantt bar for Draft EIR/EIS, planned for Q4 FY 11]															
Final EIR/EIS	29-Jun-12	29-Jun-12	0	0	[Gantt bar for Final EIR/EIS, planned for Q2 FY 12]															
NOD/ROD	30-Sep-12	30-Sep-12	0	0	[Gantt bar for NOD/ROD, planned for Q3 FY 12]															
Progress Complete Toward NOD/ROD	30-Sep-12	30-Sep-12	21	21	[Gantt bar for Progress Complete Toward NOD/ROD, completed by Q4 FY 10]															



**Status Date: June 30, 2010**

- Planned
- Actual
- Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

Palmdale to Los Angeles - 60 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule															
					FY 10/11				FY 11/12				FY 12/13				FY 13/14			
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4		
Scoping Report	30-Jun-09	31-Mar-10 A	100	100	[Gantt bar for Scoping Report, completed by Q4 FY10]															
Initial Board Briefing	01-Apr-10	01-Apr-10 A	0	0	[Gantt bar for Initial Board Briefing, completed by Q4 FY10]															
Board Briefing to Approve Release of AA Report	06-May-10	08-Jul-10	0	0	[Gantt bar for Board Briefing to Approve Release of AA Report, completed by Q4 FY10]															
Release Preliminary AA Report	31-May-10	30-Jul-10	100	97	[Gantt bar for Release Preliminary AA Report, completed by Q4 FY10]															
Board Briefing to Approve Supplemental AA Report	05-Aug-10	02-Sep-10	0	0	[Gantt bar for Board Briefing to Approve Supplemental AA Report, completed by Q4 FY10]															
Release Supplemental AA Report	31-Aug-10	30-Sep-10	0	0	[Gantt bar for Release Supplemental AA Report, completed by Q4 FY10]															
Administrative Draft EIR/EIS	29-Oct-10	31-Dec-10	30	30	[Gantt bar for Administrative Draft EIR/EIS, completed by Q4 FY10]															
Technical Reports	29-Oct-10	31-Dec-10	30	30	[Gantt bar for Technical Reports, completed by Q4 FY10]															
15% Design	29-Oct-10	31-Jan-11	40	40	[Gantt bar for 15% Design, completed by Q4 FY10]															
Draft EIR/EIS	31-Jan-11	31-Mar-11	0	0	[Gantt bar for Draft EIR/EIS, completed by Q4 FY10]															
Final EIR/EIS	31-Aug-11	31-Oct-11	0	0	[Gantt bar for Final EIR/EIS, completed by Q4 FY10]															
NOD/ROD	31-Oct-11	30-Dec-11	0	0	[Gantt bar for NOD/ROD, completed by Q4 FY10]															
Progress Complete Toward NOD/ROD	31-Oct-11	30-Dec-11	41	41	[Gantt bar for Progress Complete Toward NOD/ROD, completed by Q4 FY10]															



Status Date: June 30, 2010

- Planned
- Actual
- Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

Los Angeles to Anaheim - 30 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule															
					FY 10/11				FY 11/12				FY 12/13				FY 13/14			
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2
Initial Board Briefing	04-Feb-10	04-Feb-10 A	100	100	●															
Board Briefing to Approve Release of AA Report	04-Feb-10	04-Feb-10 A	100	100	●															
Scoping Report	31-Aug-09	31-Mar-10 A	100	100	■															
Release Preliminary AA Report	24-Apr-10	24-Apr-10 A	100	100	■															
Board Briefing to Approve Supplemental AA Report	03-Jun-10	08-Jul-10	100	100	●															
Release Supplemental AA Report	30-Jun-10	30-Jul-10	100	95	■															
15% Design	31-Aug-10	31-Aug-10	60	60	■															
Administrative Draft EIR/EIS	30-Sep-10	30-Sep-10	45	45	■															
Technical Reports	30-Sep-10	30-Nov-10	50	50	■															
Draft EIR/EIS	31-Jan-11	31-Jan-11	0	0	■															
Final EIR/EIS	31-Jul-11	31-Jul-11	0	0	■															
NOD/ROD	30-Sep-11	30-Sep-11	0	0	■															
Progress Complete Toward NOD/ROD	30-Sep-11	30-Sep-11	56	56	■															



Status Date: June 30, 2010

- Planned
- Actual
- Forecast
- Board Briefing Planned
- Board Briefing Actual/Forecast





# CHSTP Environmental Schedule

Los Angeles to San Diego - 167 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule Gantt Chart															
					FY 10				FY 10/11				FY 11/12				FY 12/13			
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4		
Initial Board Briefing	04-Feb-10	04-Feb-10 A	100	100	[Gantt bar for Initial Board Briefing]															
Scoping Report	30-Jun-10	30-Jun-10 A	100	100	[Gantt bar for Scoping Report]															
Board Briefing to Approve Release of AA Report	01-Jul-10	05-Aug-10	0	0	[Gantt bar for Board Briefing to Approve Release of AA Report]															
Release Preliminary AA Report	30-Jul-10	30-Sep-10	80	80	[Gantt bar for Release Preliminary AA Report]															
Board Briefing to Approve Supplemental AA Report	06-Jan-11	06-Jan-11	0	0	[Gantt bar for Board Briefing to Approve Supplemental AA Report]															
Release Supplemental AA Report	31-Jan-11	31-Jan-11	0	0	[Gantt bar for Release Supplemental AA Report]															
Technical Reports	31-Aug-12	31-Dec-12	0	0	[Gantt bar for Technical Reports]															
Administrative Draft EIR/EIS	31-Aug-12	31-Dec-12	0	0	[Gantt bar for Administrative Draft EIR/EIS]															
15% Design	31-Aug-12	29-Mar-13	3	3	[Gantt bar for 15% Design]															
Draft EIR/EIS	28-Feb-13	31-Mar-13	0	0	[Gantt bar for Draft EIR/EIS]															
Final EIR/EIS	30-Aug-13	30-Aug-13	0	0	[Gantt bar for Final EIR/EIS]															
NOD/ROD	31-Dec-13	31-Dec-13	0	0	[Gantt bar for NOD/ROD]															
Progress Complete Toward NOD/ROD	31-Dec-13	31-Dec-13	18	18	[Gantt bar for Progress Complete Toward NOD/ROD]															



Status Date: June 30, 2010

- Planned
- Actual
- Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

Merced to Sacramento - 110 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule																
					10	FY 10/11				FY 11/12				FY 12/13							
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4			
Scoping Report	26-Feb-10	30-Apr-10 A	100	100	[Gantt bar: 26-Feb-10 to 30-Apr-10]																
Initial Board Briefing	02-Sep-10	06-May-10 A	100	100	[Gantt bar: 02-Sep-10 to 06-May-10]																
Board Briefing to Approve Release of AA Report	03-Feb-11	02-Dec-10	0	0	[Gantt bar: 03-Feb-11 to 02-Dec-10]																
Release Preliminary AA Report	28-Feb-11	31-Jan-11	16	16	[Gantt bar: 28-Feb-11 to 31-Jan-11]																
Board Briefing to Approve Supplemental AA Report	05-May-11	03-Feb-11	0	0	[Gantt bar: 05-May-11 to 03-Feb-11]																
Release Supplemental AA Report	31-May-11	28-Feb-11	0	0	[Gantt bar: 31-May-11 to 28-Feb-11]																
Administrative Draft EIR/EIS	30-Sep-11	30-Apr-12	0	0	[Gantt bar: 30-Sep-11 to 30-Apr-12]																
Technical Reports	30-Sep-11	30-Apr-12	0	0	[Gantt bar: 30-Sep-11 to 30-Apr-12]																
15% Design	31-Oct-11	31-Jul-12	1	1	[Gantt bar: 31-Oct-11 to 31-Jul-12]																
Draft EIR/EIS	31-Jan-12	31-Oct-12	0	0	[Gantt bar: 31-Jan-12 to 31-Oct-12]																
Final EIR/EIS	30-Nov-12	30-Jun-13	0	0	[Gantt bar: 30-Nov-12 to 30-Jun-13]																
NOD/ROD	29-Mar-13	30-Aug-13	0	0	[Gantt bar: 29-Mar-13 to 30-Aug-13]																
Progress Complete Toward NOD/ROD	29-Mar-13	31-Aug-13	8	8	[Gantt bar: 29-Mar-13 to 31-Aug-13]																



Status Date: June 30, 2010

- Planned
- Actual
- Forecast
- ◆ Board Briefing Planned
- Board Briefing Actual/Forecast



# CHSTP Environmental Schedule

## Altamont Corridor Rail Project - 85 miles

Task Description	Planned Finish	Actual / Forecast Finish	Planned To Date %	Physical % Complete	Schedule Gantt Chart															
					FY 10		FY 10/11				FY 11/12				FY 12/13					
					FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4		
Scoping Report	26-Feb-10	31-Mar-10 A	100	100	[Gantt bars for Scoping Report, completed by FY 10 FQ4]															
Initial Board Briefing	01-Jul-10	06-May-10 A	100	100	[Gantt bars for Initial Board Briefing, completed by FY 10 FQ4]															
Board Briefing to Approve Release of AA Report	04-Nov-10	07-Oct-10	0	0	[Gantt bars for Board Briefing to Approve Release of AA Report, starting FY 10 FQ4]															
Release Preliminary AA Report	31-Dec-10	29-Oct-10	25	25	[Gantt bars for Release Preliminary AA Report, starting FY 10 FQ4]															
Board Briefing to Approve Supplemental AA Report	03-Mar-11	04-Nov-10	0	0	[Gantt bars for Board Briefing to Approve Supplemental AA Report, starting FY 10 FQ4]															
Release Supplemental AA Report	31-Mar-11	31-Dec-10	0	0	[Gantt bars for Release Supplemental AA Report, starting FY 10 FQ4]															
Administrative Draft EIR/EIS	30-Nov-11	29-Feb-12	0	0	[Gantt bars for Administrative Draft EIR/EIS, starting FY 10 FQ4]															
Technical Reports	30-Nov-11	29-Feb-12	0	0	[Gantt bars for Technical Reports, starting FY 10 FQ4]															
15% Design	30-Dec-11	30-Apr-12	1	1	[Gantt bars for 15% Design, starting FY 10 FQ4]															
Draft EIR/EIS	31-Mar-12	31-May-12	0	0	[Gantt bars for Draft EIR/EIS, starting FY 10 FQ4]															
Final EIR/EIS	28-Sep-12	29-Mar-13	0	0	[Gantt bars for Final EIR/EIS, starting FY 10 FQ4]															
NOD/ROD	31-Dec-12	31-May-13	0	0	[Gantt bars for NOD/ROD, starting FY 10 FQ4]															
Progress Complete Toward NOD/ROD	31-Dec-12	31-May-13	9	9	[Gantt bars for Progress Complete Toward NOD/ROD, starting FY 10 FQ4]															



Status Date: June 30, 2010

- Planned
- Actual
- Forecast
- ◆ Board Briefing Planned
- ◆ Board Briefing Actual/Forecast

# Contact Information

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