

California State Route 73



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Overview

Name: California State Route 73

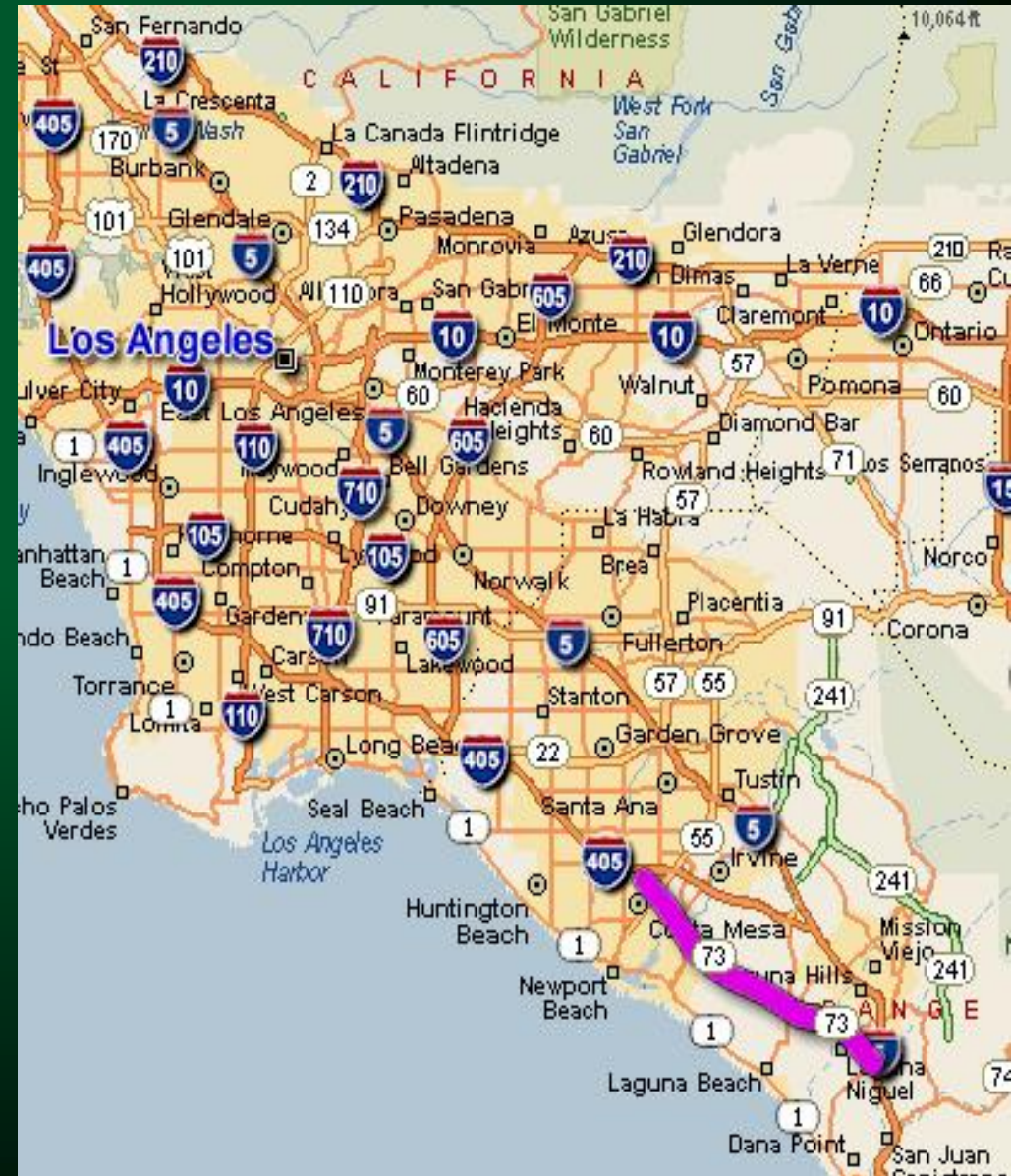
Place: Orange County,
California

Length: 15 miles (24 Km),
108 total lane miles (175 Km)

Total Cost: \$780 Million
for design and construction

Cost per mile: \$52 M/mile

Year: 1996



Purpose

To reduce congestion on:

- The Pacific Coast Highway (**State Route 1**),
- **Interstate 5** and
- **Interstate 405**

Description

- From North West (**Interstate 405**)
- To South East (**Interstate 5**)
- Through the **San Joaquin Hills**

- The first 3 miles are Freeway: **Corona del Mar Freeway**
- Opened in 1978

- The next 12 miles are Tollway: **San Joaquin Hills Transportation Corridor**
- Operated by: **San Joaquin Hills Transportation Corridor Agency (SJHTCA)**
- Opened in 1996

Magnitude

State Route 73 includes:

- ▼ 10 interchanges
- ▼ 68 bridges
- ▼ 725,000 square feet (67,000 m²) of retaining walls
- ▼ 32 million cubic yards (24,000,000 m³) of excavation

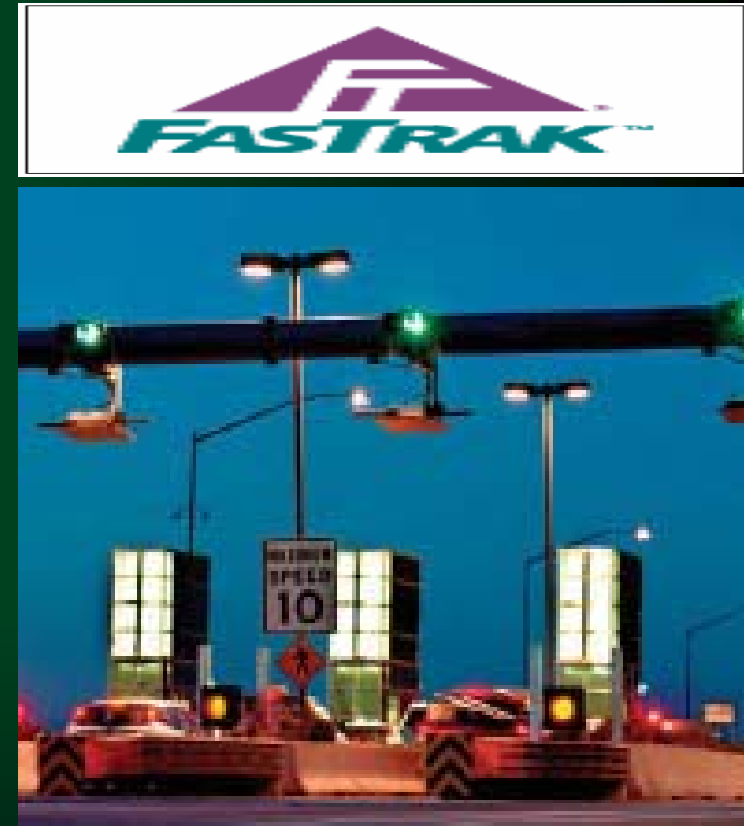
Construction & Technical Information

- Construction was divided into 4 different sections, each with its own management system and quality control
- Basically It has 6 lanes
- There are no HOV lanes currently, but there are reserved spots for them



Innovation

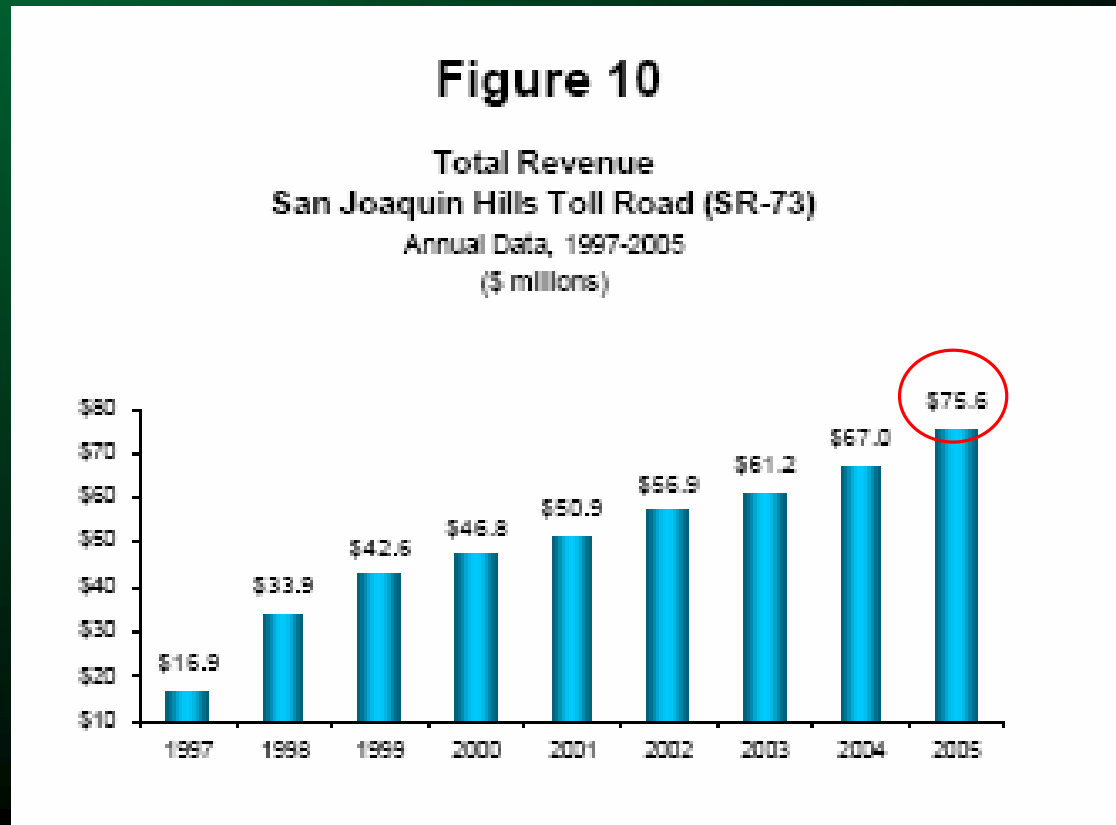
- Electronic Toll Collection Sys.
 - Allow to pass through toll booths at high speed (limit **70 mph**)
 - Use RFID to detect vehicles
 - RFID unit is affixed to the inside of a vehicle's windshield
 - Average toll **\$0.25 - \$4.25** depending on the time and segment



Economic Benefits

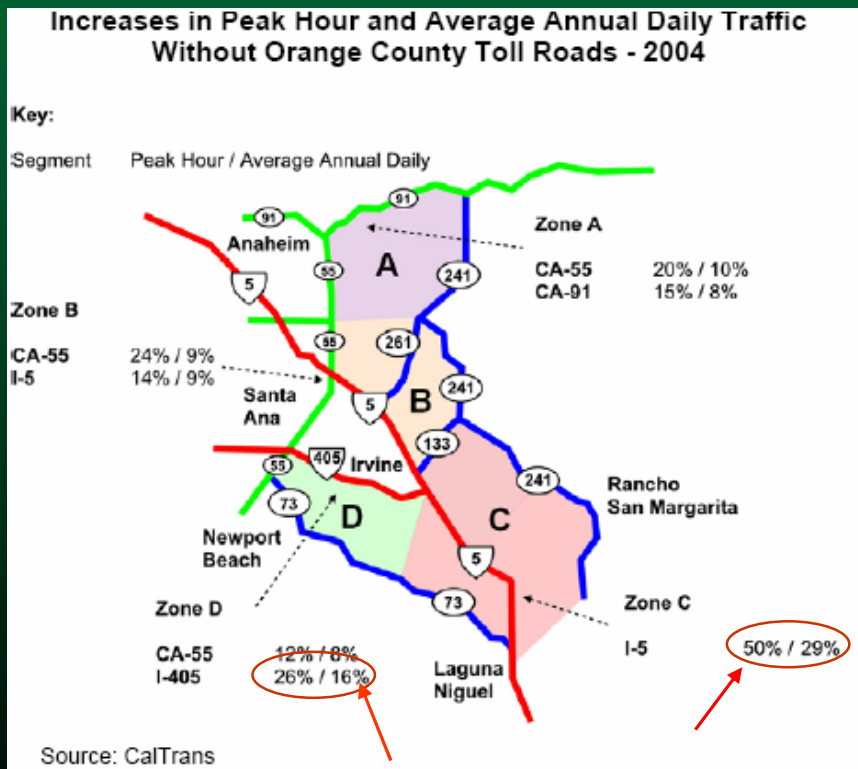
1. Toll Collection (Revenue)

- In Fiscal Year 2005 **\$75.6 million**
- Toll revenue increase **12.8%** from 2004 to 2005 and **48.0%** since 2001



Economic Benefits

2. Reduce Traffic Congestion on Non-Toll Hwys
 - I-405 and I-5 carry **26%** and **50%** more traffic
 - In I-405 and I-5 travel time reduced **23.5** & **24.9** min



Impact of Toll Road Traffic on Non-Toll Highways & Interstates at Peak

Segment	Travel Time at Peak			Speed at Peak		
	Minutes with TR	Minutes w/o Toll Roads	Change in Time	MPH with TR	MPH w/o Toll Roads	Change in Speed
CA-55 to CA-22	5.1	5.2	+0.1	65	63	-2.6%
CA-91-CA-55	8.5	13.0	+4.6	53	35	-35.0%
CA-55 to I-5	2.8	2.95	+0.2	64	62	-4.0%
I-5 to TR-133	13.8	31.9	+4.4	53	35	-34.2%
I-5 to End	12.4	35.9	+23.5	41	14	-65.5%
CA-55 to I-405	1.4	5.6	+4.2	63	16	-74.5%
I-405 to I-5	41.1	66.0	+24.9	13	8	-37.8%

Economic Benefits

2. Total Peak Hours Saved for Shifting Traffic to Toll Roads

- Zone C and I-5 route = 62,554 minutes
- Zone D and I-405 route = 67,292 minutes
- Total **2,164** hours and **\$16,230,000** per year

(assuming Avg. ridership 1.27 persons/car & Avg. value of time \$30/hr)

Economic Benefits

3. Fuel Efficiency

- Fuel Reduction **10% - 35%**
- Annual Savings in Fuel Reduction **1,330,400 gallons & \$4,250,000**

Calculation of Fuel Savings

	Traffic Volume			Additional Fuel Costs		Additional Fuel Use	
	Riders per Hr.	Adjusted Max.	6 hours of Peak	Cost per Vehicle	Total Cost	Gal. per Vehicle	Total Gallons
ZONE A							
CA-55 to CA-22	1,716	1,716	10,296	\$0.01	\$128.65	0.004	39.6
CA-91 to CA-55	2,401	2,401	14,406	\$0.29	\$4,238.17	0.09	1,304.1
ZONE B							
CA-55 to I-5	1,841	1,841	11,048	\$0.01	\$115.32	0.003	35.5
I-5 to TR-133	2,772	2,700	16,200	\$0.29	\$4,630.83	0.09	1,424.9
ZONE C							
I-5 to End	3,448	2,700	16,200	\$0.79	\$12,810.92	0.24	3,941.8
ZONE D							
CA-55 to I-405	1,893	1,893	11,357	\$0.18	\$2,063.57	0.06	634.9
I-405 to I-5	3,524	2,700	16,200	\$0.28	\$4,483.39	0.09	1,379.5
Daily Totals:					\$28,470.85		8,760.3
Annual Savings:				Fuel Cost:	\$7,117,713.26	Gallons:	2,190,065.6

Source: LECG

Overall Economic Benefits

- ✓ Toll Road TR-73 save drivers:
 - ***Over \$75 million revenue a year (2005) from the toll collection;***
 - ***Over \$16 million a year from the travel time saved as a result of reduced traffic congestion during just the daily peak periods;***
 - ***Over 1 million gallons of gasoline per year as a result of improved fuel efficiency***
 - ***Over \$4 million per year in total savings from improved fuel efficiency.***

[Source: “*Economic Benefits of Toll Roads Operated by the TCA,*” LECG, Emeryville, California, June 2006]

Social Benefits

✓ Increased Property Values

- Increase the adjacent land values for easy accessibility

✓ Business Benefits

- Increased efficiency of commercial vehicle fleets
- Less time loss for employees and emergency vehicles
- Less health problems by reducing air pollution
- Increased desirability of the area for employees to live

Policy Challenges

- ✓ PPP - Design Build Approach
- ✓ Cost Exceed (more than double)
 - Originally Estimated cost \$380M
 - Design Build Cost \$778M
 - Construction contract awarded before design
- ✓ Preserving the San Joaquin Hills
 - 4000 fossils and Numbers of artifacts unearthed
(Some of them were 35M yrs old)
- ✓ Environmental Impact Review:
 - Endangered species
 - Wildlife habitat

Community Problems



Initially the road was designed as a Freeway but later Toll way

Results

- 90,000 - 130,000 vehicles per day
- Public Satisfaction
 - Over 65% responded positively to the TR
 - 77% percent felt that the toll roads reduced traffic congestion
- Covered debt service as well as operational costs easily

Conclusion

- ✔ Design Build method is not cost effective
- ✔ Necessary conditions for any major infrastructure project:
 - Strong local public support
- ✔ Multiple revenue sources
 - Development tax during building permit

Any Comment/Question Appreciated

Thank you!