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
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

<table>
<thead>
<tr>
<th>ZONE A</th>
<th>Riders per Hr.</th>
<th>Adjusted</th>
<th>6 hours of Peak</th>
<th>Cost per Vehicle</th>
<th>Total Cost</th>
<th>Gal. per Vehicle</th>
<th>Total Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-55 to CA-22</td>
<td>1,716</td>
<td>1,716</td>
<td>10,296</td>
<td>$0.01</td>
<td>$129.65</td>
<td>0.004</td>
<td>39.6</td>
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<tr>
<td>CA-91 to CA-55</td>
<td>2,401</td>
<td>2,401</td>
<td>14,406</td>
<td>$0.29</td>
<td>$4,238.17</td>
<td>0.09</td>
<td>1,304.1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ZONE B</th>
<th>Riders per Hr.</th>
<th>Adjusted</th>
<th>6 hours of Peak</th>
<th>Cost per Vehicle</th>
<th>Total Cost</th>
<th>Gal. per Vehicle</th>
<th>Total Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-55 to I-5</td>
<td>1,841</td>
<td>1,841</td>
<td>11,048</td>
<td>$0.01</td>
<td>$115.32</td>
<td>0.003</td>
<td>35.6</td>
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<tr>
<td>I-5 to TR-133</td>
<td>2,772</td>
<td>2,700</td>
<td>16,200</td>
<td>$0.29</td>
<td>$4,830.83</td>
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<td>1,424.9</td>
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</table>

<table>
<thead>
<tr>
<th>ZONE C</th>
<th>Riders per Hr.</th>
<th>Adjusted</th>
<th>6 hours of Peak</th>
<th>Cost per Vehicle</th>
<th>Total Cost</th>
<th>Gal. per Vehicle</th>
<th>Total Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-5 to End</td>
<td>3,448</td>
<td>2,700</td>
<td>16,200</td>
<td>$0.79</td>
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<table>
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<tr>
<th>ZONE D</th>
<th>Riders per Hr.</th>
<th>Adjusted</th>
<th>6 hours of Peak</th>
<th>Cost per Vehicle</th>
<th>Total Cost</th>
<th>Gal. per Vehicle</th>
<th>Total Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-55 to I-405</td>
<td>1,893</td>
<td>1,893</td>
<td>11,357</td>
<td>$0.18</td>
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<td>I-405 to I-5</td>
<td>3,524</td>
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</table>

| Daily Totals: | 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!