
ARE MANAGED LANES WORTH IT? EMPIRICAL DATA ON TIME SAVINGS AND TOLLS PAID FROM SR91, CALIFORNIA

May 27, 2010



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IRF Word Road Meeting
Lisbon, Portugal



Outline

- **What are Managed Lanes**
 - **SR91 California Data Collection**
 - **Results**
 - **Observations**
 - **Conclusions**
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What are Managed Lanes?

High Occupancy Toll (HOT), Express Lanes

- **Built alongside existing highways**
- **Toll Varies with Congestion**

May have a min/max toll amount limit

Displayed at the entry point of the Managed Lanes

Users have option of taking free road after reading the prevailing toll amount

Electronic Tolling

- **High Occupancy vehicles may be allowed free or at a discounted toll**
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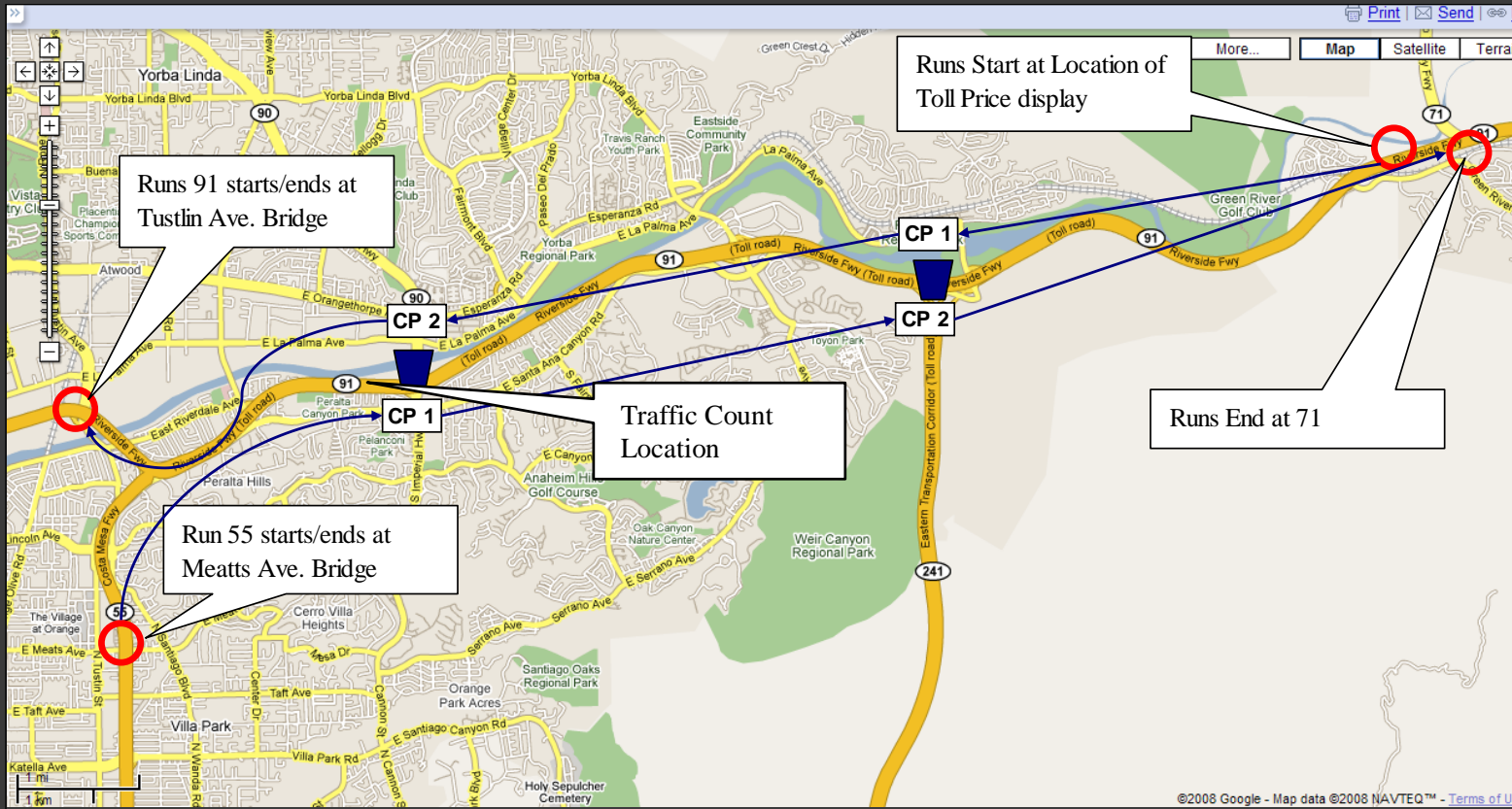
Study Objective

To understand the behavior of users of Managed Lanes and the relationship between the tolls charged and the time savings accrued

To evaluate the appropriateness of the use of motorway bonus in travel demand modeling



SR91 California – Data Collection



SR91 California – Data Collection

- **Travel Time Data – Parallel travel time runs on the General and Express lanes**
 - **Capture Rate – Freeway Performance Measurement (PeMS) System database, a cooperative effort between UC Berkeley, PATH, and Caltrans that collects, processes, and examines traffic data**
 - **Income Distribution - US Census Bureau**
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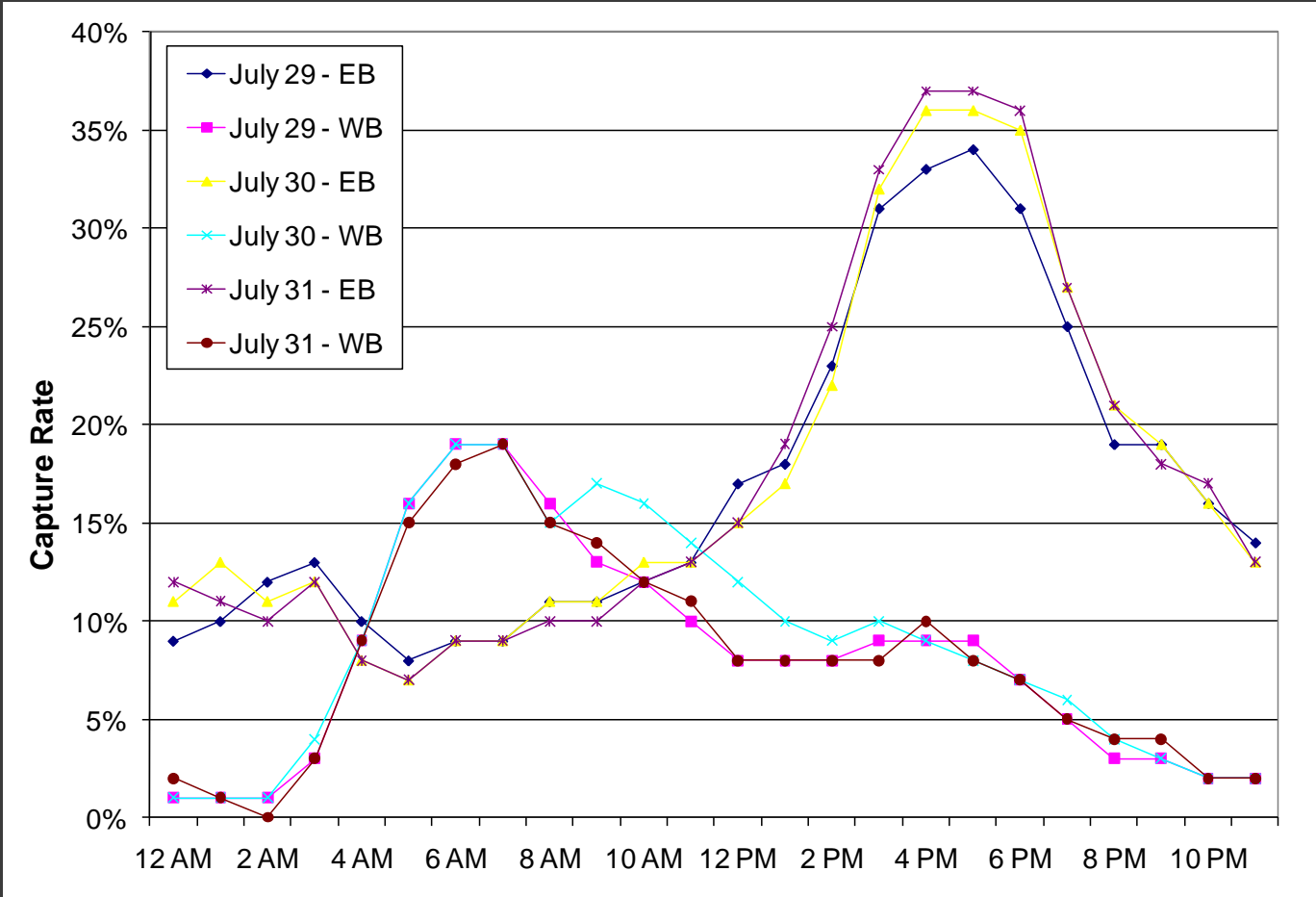


Results

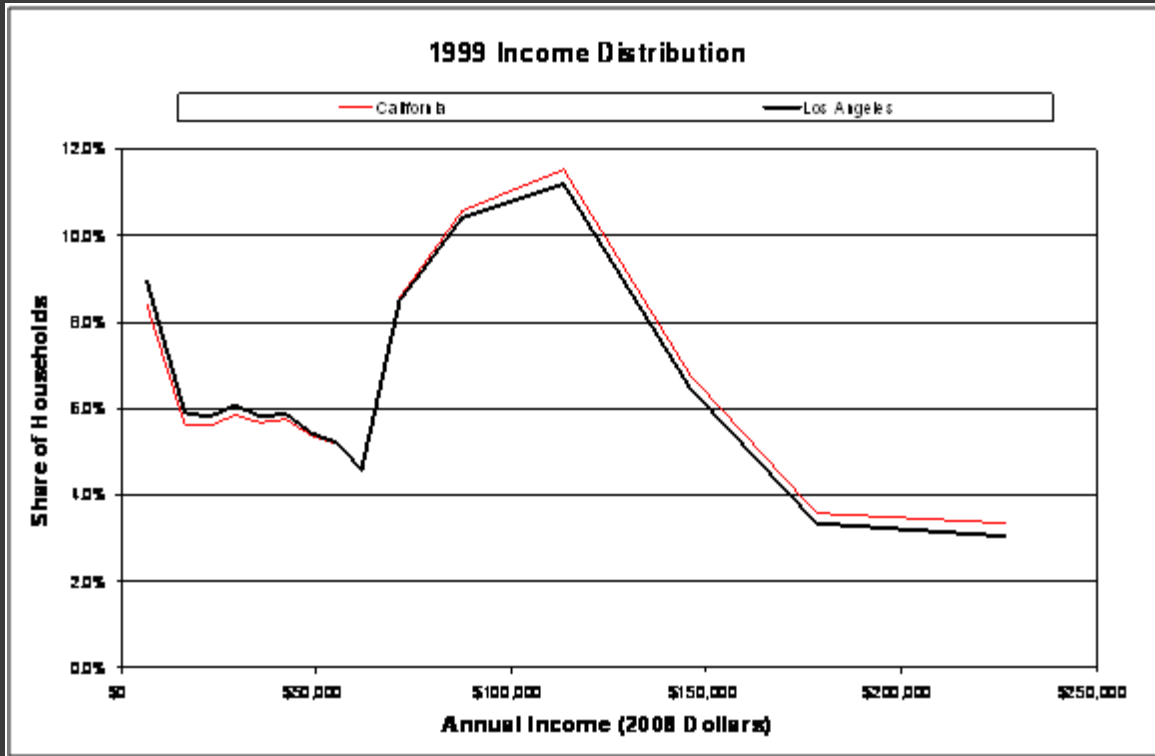
| Westbound - July 30, 2008 – Wednesday | | | | | | | | | | |
|---------------------------------------|--------------------|-----------------------|---------|------------------|---------|----------------|--------------|-----------------------|----------------------|------------------|
| Run Start Time | Run Length (Miles) | Travel Time (Minutes) | | Avg. Speed (mph) | | Toll Paid (\$) | Time Savings | Effective VOT (\$/hr) | Capture (Calculated) | Capture (Actual) |
| | | Express | General | Express | General | | | | | |
| 5:59 AM | 11.5 | 10.42 | 14.28 | 66 | 48 | \$3.80 | 3.87 | \$59 | 4% | 16% |
| 7:01 AM | 12.7 | 10.88 | 15.27 | 70 | 50 | \$4.95 | 4.38 | \$68 | 5% | 19% |
| 7:47 AM | 11.5 | 10.42 | 14.40 | 66 | 48 | \$4.95 | 3.98 | \$75 | 6% | 15% |
| 1:01 PM | 11.5 | 10.57 | 11.23 | 65 | 61 | \$1.95 | 0.67 | \$176 | 0% | 10% |
| 1:46 PM | 12.7 | 10.52 | 10.92 | 72 | 70 | \$1.95 | 0.40 | \$293 | 0% | 9% |
| 3:48 PM | 11.5 | 9.77 | 11.55 | 71 | 60 | \$1.95 | 1.78 | \$66 | 5% | 9% |
| 4:53 PM | 12.7 | 10.65 | 10.90 | 72 | 70 | \$1.95 | 0.25 | \$468 | 0% | 8% |
| 5:53 PM | 11.5 | 9.47 | 11.08 | 73 | 62 | \$1.95 | 1.62 | \$72 | 6% | 7% |
| Eastbound - July 30, 2008 – Wednesday | | | | | | | | | | |
| Run Start Time | Run Length (Miles) | Travel Time (Minutes) | | Avg. Speed (mph) | | Toll Paid (\$) | Time Savings | Effective VOT (\$/hr) | Capture (Calculated) | Capture (Actual) |
| | | Express | General | Express | General | | | | | |
| 6:32 AM | 12.2 | 10.53 | 11.15 | 69 | 66 | \$1.95 | 0.62 | \$190 | 0% | 9% |
| 7:23 AM | 13.0 | 11.72 | 12.17 | 67 | 64 | \$1.95 | 0.45 | \$260 | 0% | 9% |
| 8:17 AM | 12.2 | 10.77 | 10.92 | 68 | 67 | \$1.95 | 0.15 | \$780 | 0% | 11% |
| 1:19 PM | 12.2 | 11.05 | 10.80 | 66 | 68 | \$2.75 | -0.25 | N/A | 0% | 17% |
| 2:07 PM | 13.0 | 11.10 | 11.92 | 70 | 65 | \$3.90 | 0.82 | \$287 | 0% | 22% |
| 4:11 PM | 11.5 | 15.17 | 28.25 | 45 | 24 | \$8.75 | 13.08 | \$40 | 12% | 36% |
| 5:11 PM | 13.0 | 12.70 | 29.82 | 61 | 26 | \$8.75 | 17.12 | \$31 | 20% | 36% |
| 6:13 PM | 12.2 | 12.77 | 24.22 | 57 | 30 | \$5.10 | 11.45 | \$27 | 36% | 35% |



SR91 California – Capture Rates



SR91 California – Income Distribution/Value of Time



| Value of Time (\$/hour) | | Percentage of Population |
|-------------------------|------|--------------------------|
| From | To | |
| \$0 | \$11 | 32.6% |
| \$11 | \$15 | 11.3% |
| \$15 | \$19 | 9.8% |
| \$19 | \$22 | 8.5% |
| \$22 | \$28 | 10.4% |
| \$28 | \$37 | 11.2% |
| \$37 | \$47 | 6.5% |
| \$47 | \$56 | 3.3% |
| \$56 | \$75 | 3.0% |
| > \$75 | | 3.4% |



Observations

- **There are several periods during the day when the travel time savings are relatively modest.**
 - **Even during such periods, the SR91 Express Lanes do manage to capture some traffic.**
 - **The value of time alone is not enough to justify the usage of toll lanes during many periods of the day.**
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Observations

- **Reasons for such users to choose the toll lanes**
 - **over-estimation of the potential time saved,**
 - **reliable travel time on the tolled lanes**
 - **perception of safety and security on the tolled section.**

- **Anecdotal evidence from various sources citing user experiences have pointed out a reported time savings of 30 to 60 minutes per one-way trip on the SR-91 managed lanes.**



Conclusions

- The results support the hypothesis that *toll road users often over-estimate the time they will save on the toll road*
 - This research helps provide support to the use of “motorway bonus” in the toll road demand modeling.
 - The results should also be helpful to those in the investment community that are evaluating the traffic and revenue potential of Managed/Express/HOT lanes.
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Thank you

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