

A New Multimodal Public Private Partnership Approach

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Introduction

- Managing highways for high performance
- Toll road concession model issues
- A concession approach for high performance highways

What is a “High Performance” Highway?

- Extension of managed lanes to whole facility
- Use pricing to manage demand
 - ◆ On congested segments
 - ◆ During peak periods
- Complementary strategies
 - ◆ Operations – ramp metering
 - ◆ Transit, vanpools, carpools
 - ◆ Traveler Information

Current Toll Concession Model

- Maximum toll pre-determined
- Limited ability to vary toll rates to manage demand
- Granting toll rate flexibility with non-compete clauses raises issues
- Revenue-maximizing toll may be higher than throughput-maximizing toll

Toll Rates vs. Revenues (For Demand Elasticity = -0.1)

	Throughput-maximizing	Revenue-maximizing
Toll	\$1.00	\$1.50
Traffic demand	6,000	5,700
Revenue	\$6,000	\$ 8,550

Toll Rates vs. Revenues (For Demand Elasticity = -0.5)

	Throughput-maximizing	Revenue-maximizing
Toll	\$1.00	\$1.50
Traffic demand	6,000	4,500
Revenue	\$6,000	\$ 6,750

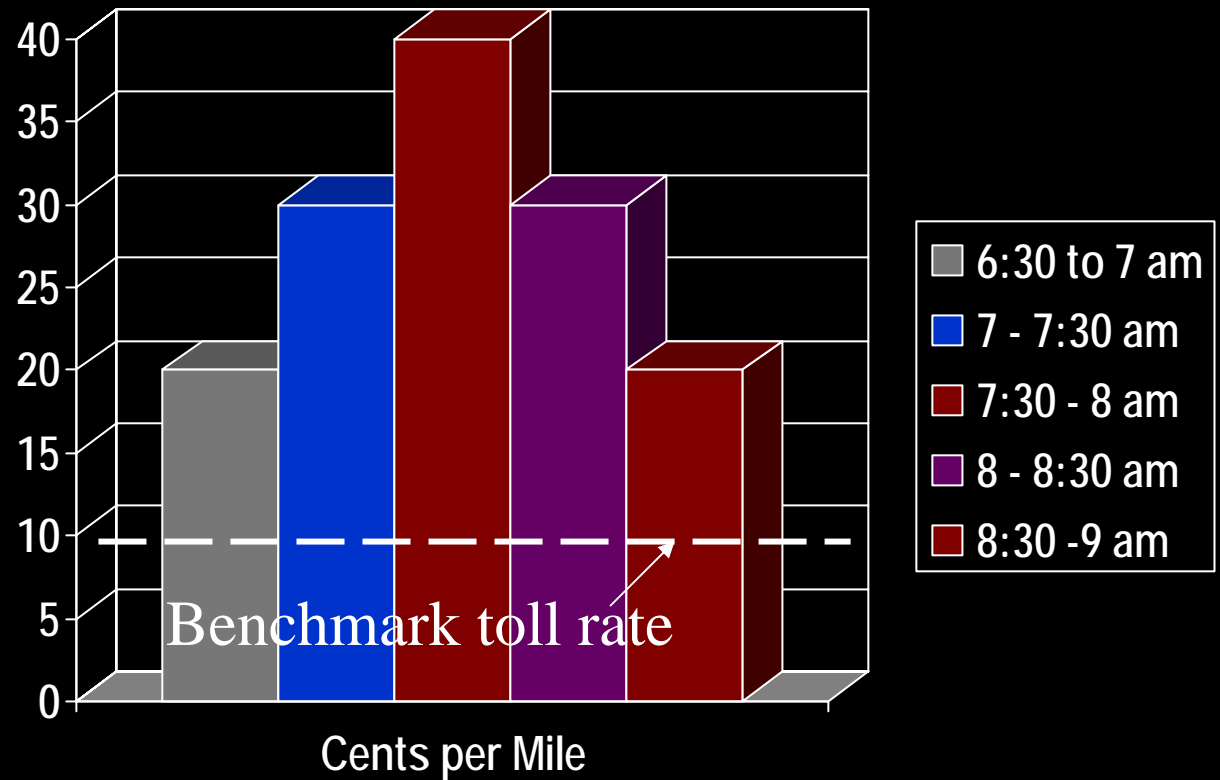
Alternative concession approaches

- Rate of return cap
- Revenue sharing after rate of return cap is reached
- Requirement to reduce off-peak tolls to balance increased revenue from peak tolls
- Availability payments
- Concurrent Real and Shadow Tolls

Concurrent Real and Shadow Tolls – with Dynamic Tolling

- Concessionaire has freedom to set real toll rates
- Revenues compared with revenue based on a “benchmark” shadow toll, and a actual vehicle throughput
- Excess revenue paid to public authority on periodic basis

Dynamic Toll Rate vs. Benchmark Toll Rate



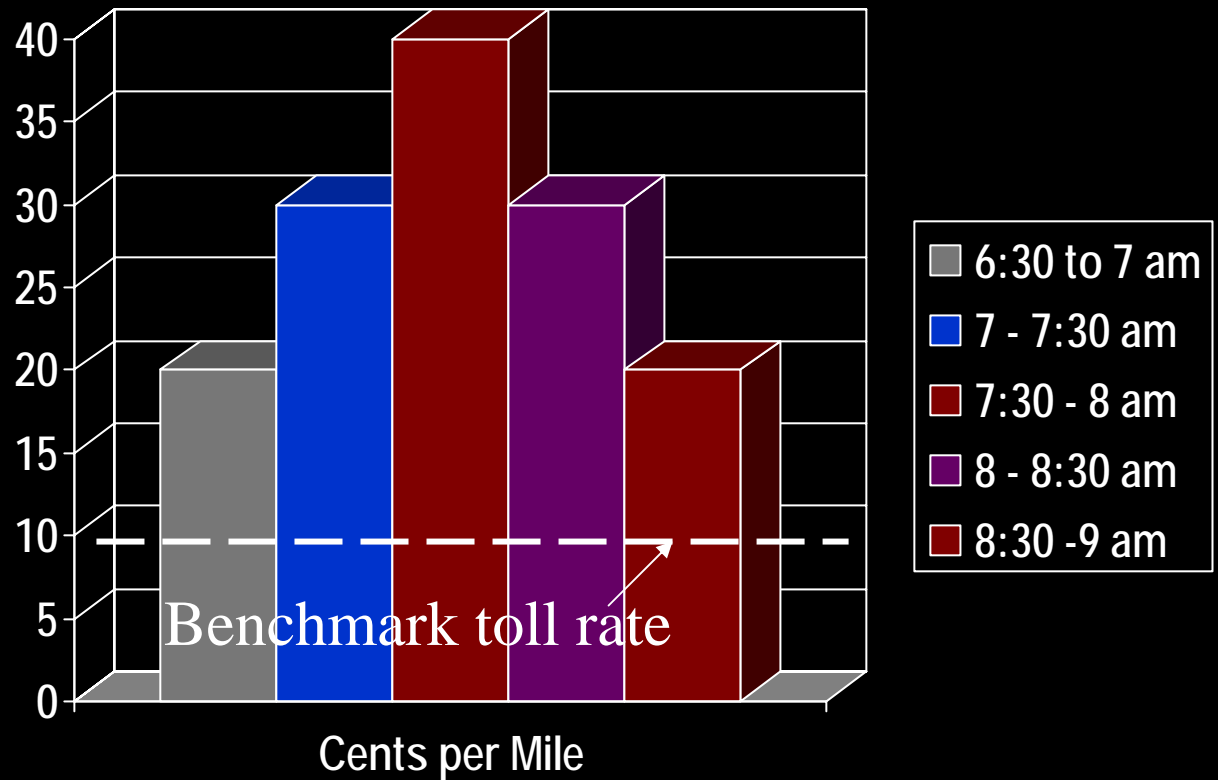
Incentives and Penalties

- Potential Incentives:
 - ◆ Concessionaire gets more revenue if it accommodates higher vehicle throughput
- Potential Disincentives:
 - ◆ Concessionaire loses revenue if guaranteed speed is not provided, since shadow tolls are not paid out

Concurrent Real and Shadow Tolls – with Pre-scheduled Toll Rates

- Concessionaire has freedom to set toll rates
- Submits toll schedule by time of day for ensuing month or quarter
- Anticipated revenue computed
- Compared with revenue based on a “benchmark” shadow toll set, and a base vehicle throughput
- Expected excess revenue paid to public authority in advance

Pre-Scheduled Toll Rate vs. Benchmark Toll Rate



Incentives and Penalties

- Potential Incentives:
 - ◆ Concessionaire gets to keep revenue from all vehicles that it accommodates above a “base” vehicle throughput used in computing revenues
- Potential Disincentives:
 - ◆ Concessionaire loses revenue if guaranteed speed is not provided, since tolls cannot be charged

Other Potential Applications

- Express Toll Lanes
- HOT Lanes:
 - ◆ Since concessionaire is paid a shadow toll per vehicle, loss of revenue for free or discounted HOV use is not a concern