

Designing Public Private Partnerships to Boost Transportation Performance and Expand Travel Choice

Presentation to Chicago Partnerships in
Transportation Conference

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ENVIRONMENTAL DEFENSE

finding the ways that work

Effect of More Public-Private Partnerships in Transportation

- Better system operations and performance with expanded travel choices?

Or just more roads, sprawl, pollution?

- *Sharper clarity about objectives?*

Or diminished public role setting priorities?

- Stronger accountability for outcomes?

Or less transparency than ever?



SAFETEA-LU: Transportation Plans Must Meet Federal Planning Objectives



New duty for state and metropolitan transportation plans to achieve all the planning objectives in U.S. federal SAFETEA-LU law adopted in 2005:

- Serve mobility needs
- Foster economic development
- While minimizing fuel use and
- While minimizing air pollution

This is a major new system asset management challenge for states and Metro Planning Organizations

Planning Strategies Likely Capable of Achieving All Objectives Include



- Real time traffic operations management and monitoring, ramp metering, incident clearance
- Bus Rapid Transit (BRT)
- Improved rail, coastal shipping, truck lanes & intermodal freight
- Safe routes to schools & transit, complete streets for walk/bike
- Dynamic ridesharing, PAYD insurance, parking cash-out
- Smart growth transportation
- Tolls for congestion management on existing and new lanes
- Contracting for performance

PPPs for Better Performance and Choice

Can PPPs Help Agencies Better Manage Overall System Assets?



- PPPs: building new projects vs. better operating and managing existing corridors and networks
- What are the tools for more comprehensive corridor and system management?



Fluor Corporation proposes to dedicate \$500m to better transit in Virginia's I-95/395 corridor PPP concession

PPPs for Better Performance and Choice

How Do We Want To Use Road Pricing?

- Finance/accelerate road expansion?
- Spread the peak, manage congestion?
- Finance public transport, walking, biking, demand management, impact mitigation/remediation?

If tolls are used just to pay for new highway lanes, equity and environment suffer



PPPs for Better Performance and Choice

PPP Concessions: Designed to Boost System Performance and Travel Choice?

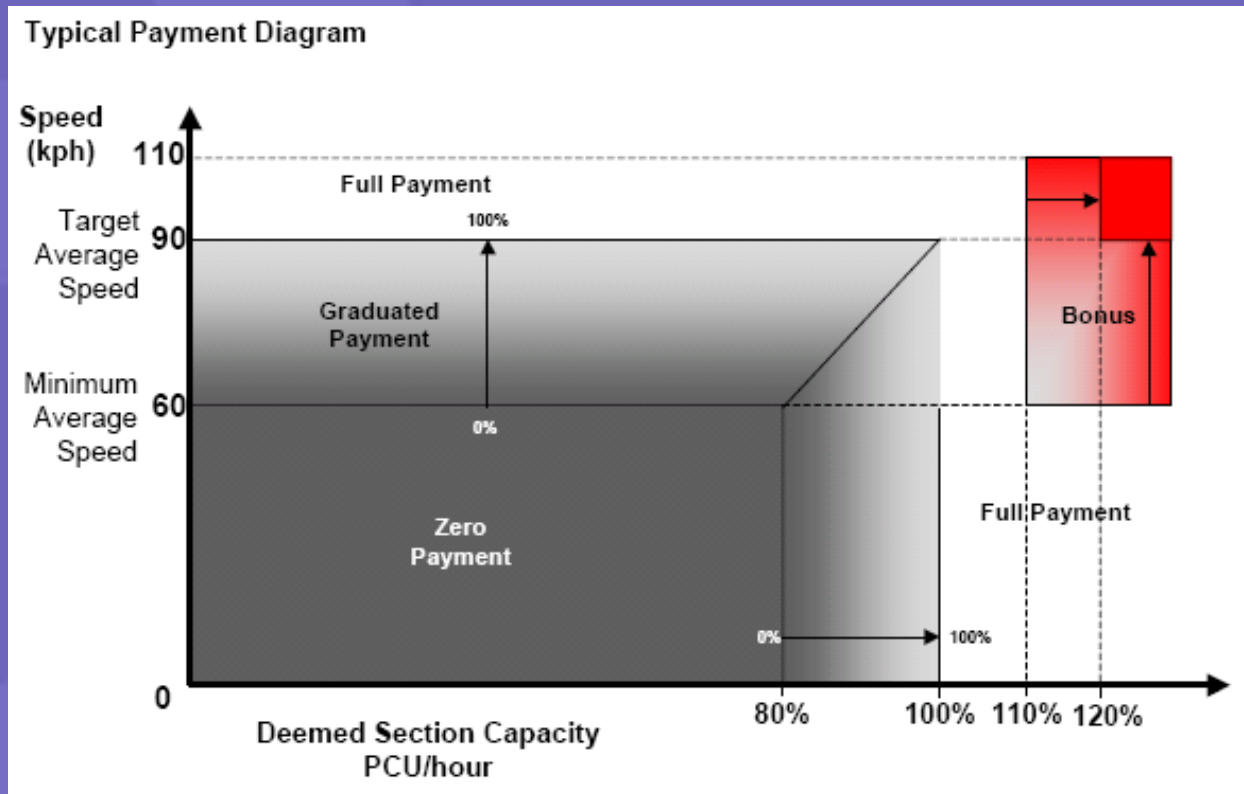


- Concessions: for what, how long?
- Contracts: aligned with planning goals?
- Non-compete agreements? Toll rate caps? Public sector equity stake?
- Environmental performance standards and agreements?
- Use of toll revenues?
- Disclosure, transparency, oversight?

Congestion Management Payment: Rewarding Traffic Management

Payment to concessionaire based on measured actual hourly traffic speeds and flows by 2km road segment

Congestion Management Payment Contract
Darrington to Dishforth A1 Highway in Yorkshire, UK
(a non-tolled road)



PPPs for Better Performance and Choice

Why Not Link Concessionaire Compensation to System & Environmental Performance?

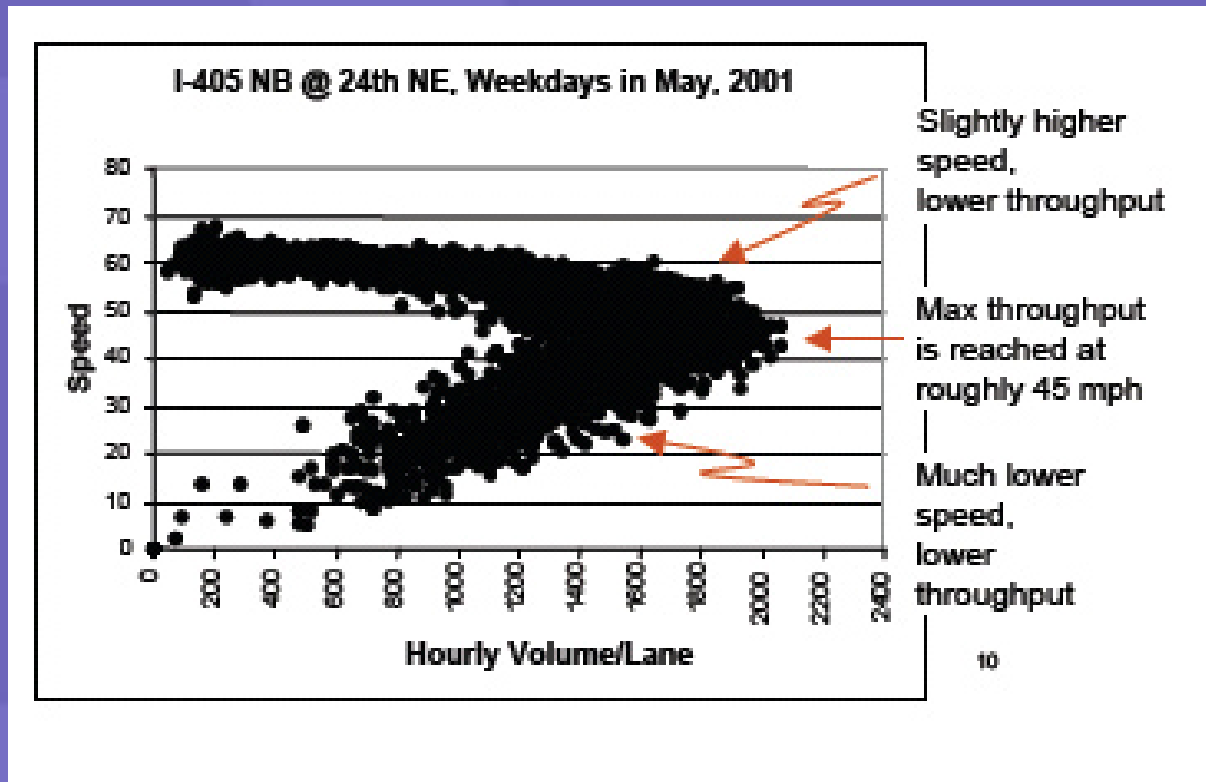
- Payment to contractor based in part on person-km & ton-km moved at given level of service instead of toll collected
- Payment adjusted for pollution hot spot violations, noise, or community impacts, with incentives to cut GHGs
- Accrual of penalty points for exceeding key thresholds gives rise to default and remedy period
- Failure to remedy means contract termination

Adapt from example of British Columbia's Sea-to-Sky Highway:

PPP deal total payment = *(Availability payment) + (Vehicle usage payment)*
+/- (Performance Incentive payments) + (End Payments)

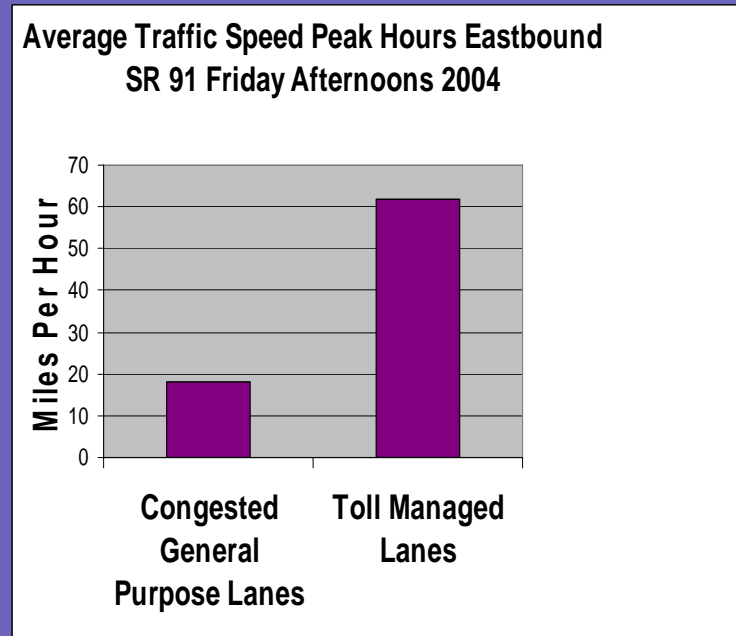
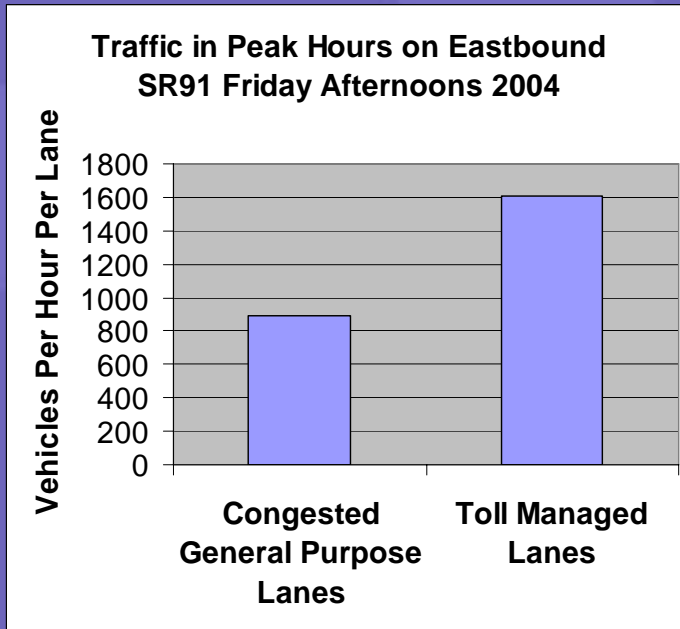
Congestion Management: Key to High Performance Corridors

If congestion reaches critical point, speeds drop, vehicles bunch up, and per lane throughput plummets



Tolls: A Traffic Management Tool or Just A Way to Build More Roads?

2 toll managed lanes carry as much peak hour traffic – at 3 times the speed - as moved in 4 free, but congested lanes

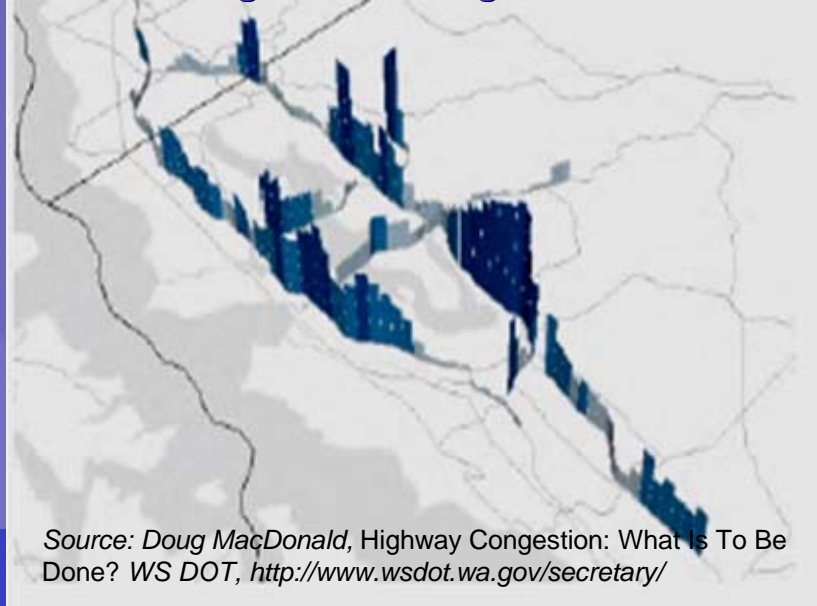


Report to Congress on the Value Pricing Pilot Program Through March 2004, US Federal Highway Administration (2004), available at: [http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/AD276ECC2E3A077885257005006B5614/\\$FILE/March%202004%20Report%20of%20Congress.pdf](http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/AD276ECC2E3A077885257005006B5614/$FILE/March%202004%20Report%20of%20Congress.pdf)

Congestion Management Toolbox Needed to Reclaim Lost Peak Period Road Capacity



Lost Peak Period Highway Productivity in Central Puget Sound Region



Source: Doug MacDonald, Highway Congestion: What Is To Be Done? WS DOT, <http://www.wsdot.wa.gov/secretary/>

Apply "fix-it-first" approach to existing roads before or as new capacity is added:

- Incident clearance
- Ramp metering
- Signal retiming
- Congestion charges
- Bus rapid transit
- Rideshare options
- Bike-transit linkage
- Commute and PAYD incentives
- Smart Growth transportation
- Performance based contracting

PPPs for Better Performance and Choice

Commuter Benefit Incentives & Pay-As-You-Drive Insurance Cut Congestion, Fuel Use, Emissions

- Cash-in-lieu-of-parking and employer provided transit benefits can cut auto trips by 10-30%



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Bus Rapid Transit Can Cut Congestion, Fuel Use, Emissions



Vehicles



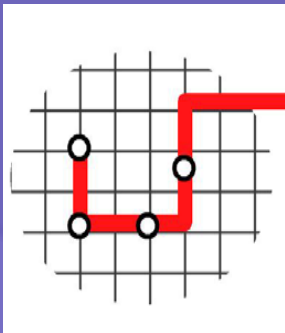
Running Ways



Stations & Terminals



Systems



Service Plan

Arterial vs. Motorway BRT

Arterial BRT

- Short inter-stop spacing
- Shorter distance travel
- Easy to serve with cheap walk/bike access
- Hard to site park-and-ride lots
- More opportunity for transit oriented development



HOT Lane BRT

- Long inter-stop spacing
- Longer distance travel
- More dependent on costly park-and-ride access
- More likely to spur sprawl, inequitable access to jobs
- May worsen unhealthy pollution hot spot exposure



Dynamic Ridematching: Expanding Travel Choices Where Transit Does Not Reach

Pay-me-not-to-drive systems (www.nuride.com)

The advertisement is a horizontal flow diagram. At the top center is the NURIDE logo with the tagline "Ride the Network". Below the logo is a central image of two people in a car. To the left of the car is a vertical line with a green dot at the top and bottom. To the right of the car is another vertical line with a green dot at the top and bottom. A horizontal line connects the two green dots. Below the horizontal line are three columns of text and images. The first column shows a woman at a computer with the heading "Plan Trips Online" and text about logging into the website. The second column shows the car image with the heading "Ride Together" and text about meeting fellow riders. The third column shows the Starbucks and Home Depot logos with the heading "Get Paid" and text about earning cash for trips.

NURIDE
Ride the Network

Plan Trips Online
Log into www.nuride.com, enter your desired trip and find just the right person who is going your way.

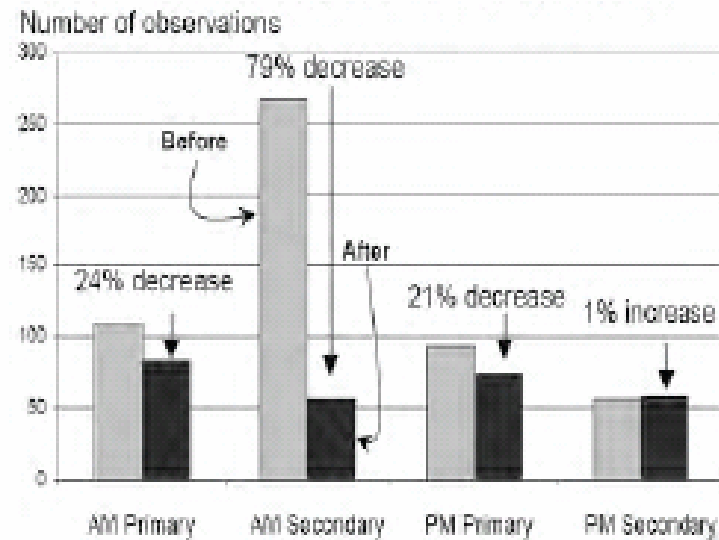
Ride Together
Meet your fellow Nurider and enjoy the ride.

Get Paid
Confirm your trip and earn over \$500 a year in cash, good at participating retailers.

PPPs for Better Performance and Choice

Ramp Metering Can Cut Congestion, Fuel Use, Emissions

Ramp Meters Improve Traffic Flow



Conflict results at S 212th St. to NB SR 167

Primary conflicts: when either the merging Behind or the adjacent mainline vehicle brake to avoid each other.

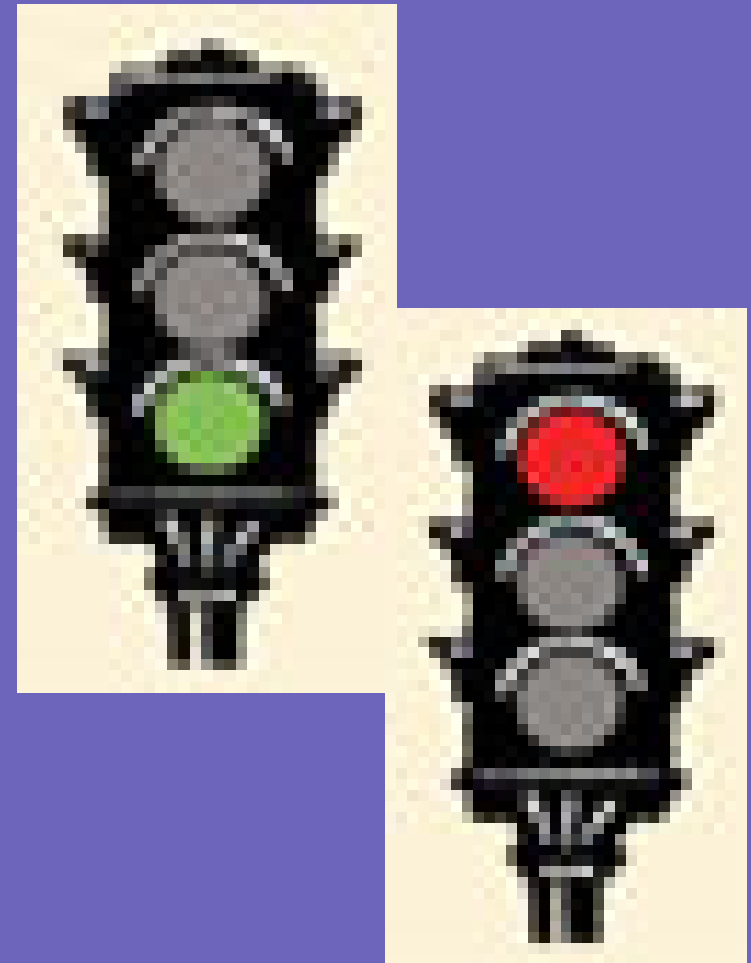
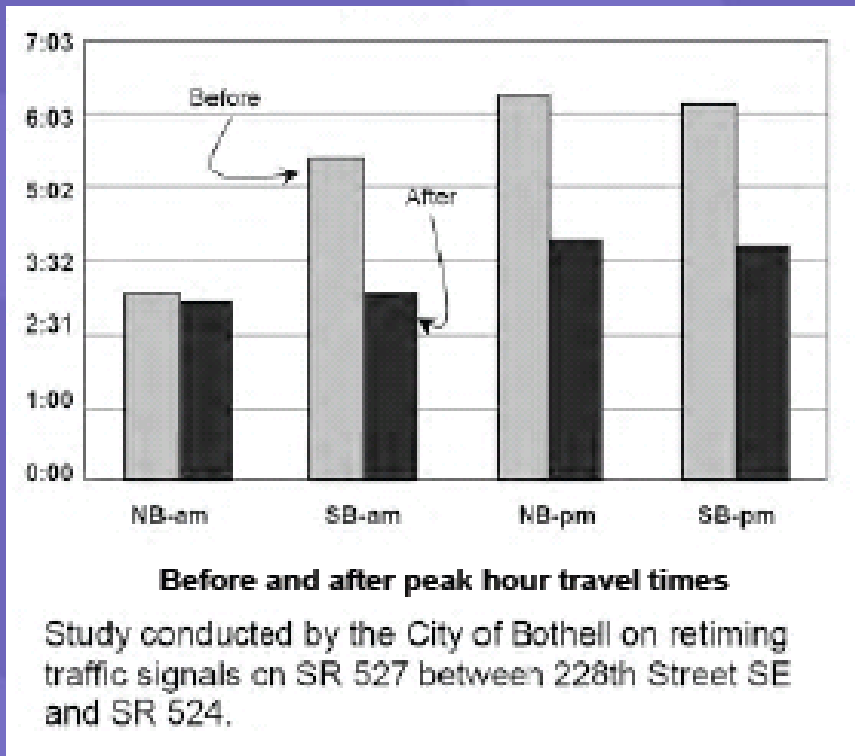
Secondary conflicts: mainline drivers behind a primary conflict that also must brake.

Source: Doug MacDonald, Highway Congestion: What Is To Be Done? WS DOT, <http://www.wsdot.wa.gov/secretary/>

PPPs for Better Performance and Choice

Signal Retiming Can Cut Congestion, Fuel Use, Emissions

Effect of Signal Retiming on Peak Road Travel Time



Source: Doug MacDonald, Highway Congestion: What Is To Be Done? WS DOT, <http://www.wsdot.wa.gov/secretary/>

Rapid Incident Management Can Cut Congestion, Fuel Use, Emissions

Potential impact of incidents on vehicle throughput capacity of 3-lane divided freeway:

- Car out of gas on shoulder: **-20%**
- Disabled car blocking 1 lane: **-50%**
- Accident blocking 2 lanes: **-85%**



Source: Doug MacDonald, Highway Congestion: What Is To Be Done? WS DOT, <http://www.wsdot.wa.gov/secretary/>

OBDO: Performance Incentives Set to Meet Planning Objectives



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Peak period shoulder lane on Minnesota motorway



1. Add new bus/van services, rush hour shoulder lanes, contract for toll-based road traffic management services in congested corridor
2. Tolls set by concessionaire to manage demand and keep congestion from degrading peak road capacity
3. Tolls revenues dedicated to corridor improvement: road, public transport, walk/bike access, impact mitigation
4. Concurrent Real and Shadow Tolling: private operator fee based on persons moved without congestion, independent of congestion toll revenues

PPPs for Better Performance and Choice

Tolling Existing Lanes: Acceptable When It Boosts Performance, Choices

Public has approved of tolls on formerly free roads when used to improve public transport, cut congestion, boost travel speeds:

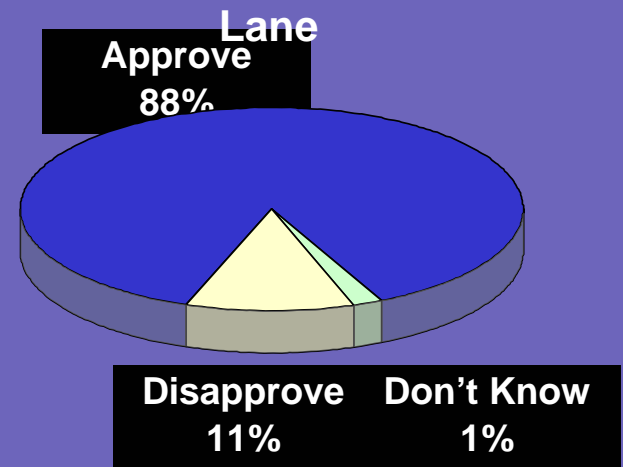
- London
- Singapore
- Oslo
- Trondheim
- Bergen
- Stockholm

Popular opinion on cordon charge in Stockholm **for** - **against**:

Before start of tolling: 31% - 62%

After 6 months: **52%** - 40%

San Diego's Popular I-15 HOT Lane



FasTrak Customer

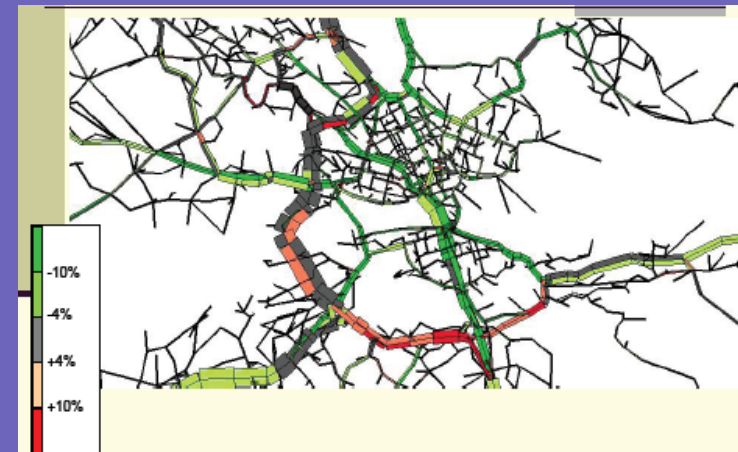
PPPs for Better Performance and Choice



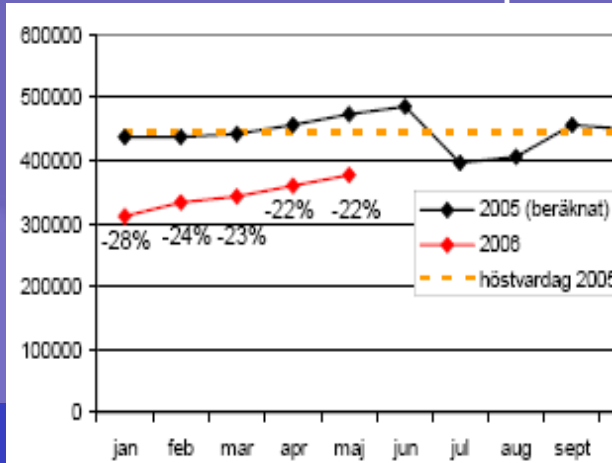
Congestion Charging for High Performance Networks

Stockholm Central Area Charge

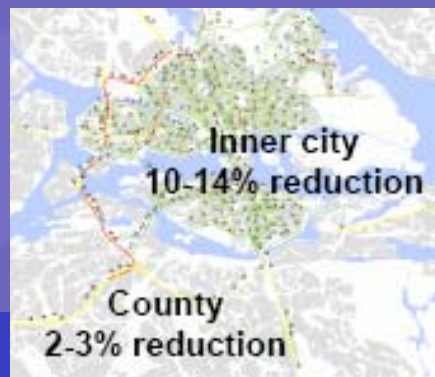
- Traffic reduced overall by 1/4
- Queue times down 30-50%
- Emissions down 14%



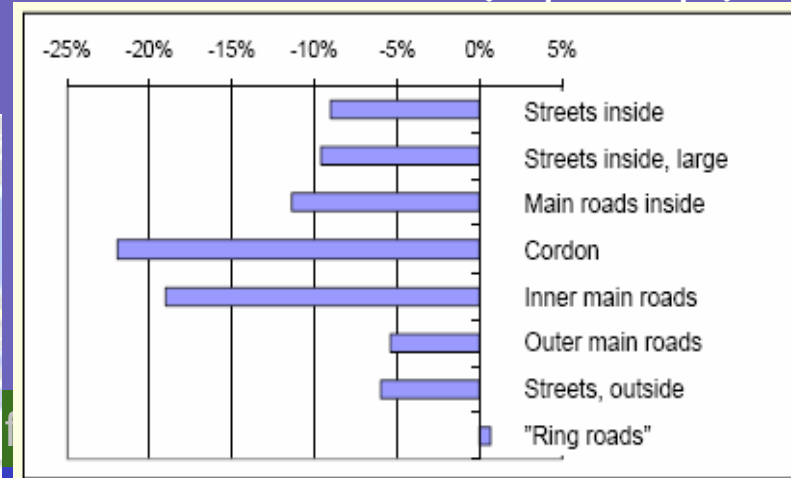
Cordon Area Traffic 6am-7pm



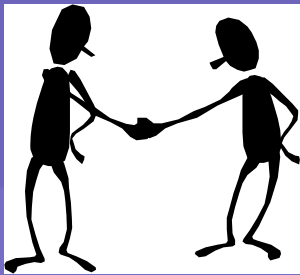
CO2 Emission Reduction



Overall Traffic Reduction (Map & Graph)



Environmental and Community Performance Agreements



COMMUNITY BENEFITS AGREEMENT

LAX MASTER PLAN PROGRAM



- Cut political and regulatory risk & support Corporate Social Responsibility
- Ensure PPP toll roads comply with and exceed state & federal requirements
- Streamline compliance through community and environmental agreements with dedicated funding for monitoring and mitigation

PPPs for Better Performance and Choice

Los Angeles Airport CBA: Model for Other Infrastructure Deals?

20+ community groups, environmental organizations, school districts and labor unions signed agreement with city and airport authorities related to expansion of LAX airport in 2004

LAX Community Benefits Agreement includes:

- Sound proofing affected schools and homes
- Retrofitting diesel construction & operations vehicles to cut air pollutants by 90%
- Electrifying airplane gates to eliminate pollution from jet engine idling
- Studying health impacts of airport operations on communities and making studies public
- \$15 million in job training funds, with local hiring and contracting program
- Monitoring LAX, enforcing the agreement's provisions and holding LAX accountable to the community



Environmental Performance Standards and Agreements



- Environmental reviews: barrier to PPPs or a path to higher performance?
- Consideration of alternatives, secondary, indirect, induced impacts, mitigation, and ideas from all key stakeholders
- Post-concession agreement environmental management plans are weak:
 - incentive is to cut cost of environmental compliance, not boost performance
 - focused on “how” rather than “what”
- Why not design PPPs for performance?

For More Information



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