Congestion Pricing Benefits, Challenges, and Opportunities

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- **Audience Q&A –** addressed after each presentation, please type your questions into the chat area on the right side of the screen

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- **Upcoming Webinars**:
  - April 19 – Institutional Issues in Congestion Pricing
  - To register, visit http://www.ops.fhwa.dot.gov/tolling_pricing/webinars/index.htm
- You will be notified of the availability of the recording and PowerPoint presentation from this webinar.

Congestion Pricing Benefits, Challenges and Opportunities

An Introduction to FHWA's Congestion Pricing Webinar Series

April 14, 2011

Federal Highway Administration
Office of Operations & Office of Innovative Program Delivery

Presentation Outline

- Part 1: Rationale for and benefits of congestion pricing
- Part 2: Types of congestion pricing
- Part 3: Issues and challenges

More detail is provided in *Congestion Pricing – A Primer: Overview* available at: http://ops.fhwa.dot.gov/publications/fhwahop08039/cp_prim1_00.htm

Part 1

Rationale for and Benefits of Congestion Pricing

Tolling vs. Congestion Pricing

- "Tolling"
  - Purpose to generate revenue
  - "Flat" tolls
- "Congestion pricing"
  - Purpose to manage demand to reduce congestion
  - Tolls vary
  - Results in a range of benefits

Strategies to Reduce Congestion

- Increase capacity:
  - Physical capacity
  - Management and operations

- Reduce demand
  - Provide attractive “substitutes” for driving during rush hours
  - **Congestion pricing**

Economic Rationale

- Social costs of highway use:
  - *Internal* – vehicle operation costs
  - *External*
    - Congestion: $78 Billion nationally (Texas Transportation Institute)
    - Carbon emissions: $20 Billion nationally (Steven Levitt, University of Chicago)
- Costs not paid by user lead to overuse

August 25 Webinar -- Economics of Congestion Pricing and Impacts on Business

How Congestion Pricing Works

- ***Variable toll*** makes the cost borne by user reflect the actual social cost of driving
- ***Willingness to pay*** – people will choose to drive as long as the benefit they get is equal to the cost they face
- Others will shift to using ***substitutes***

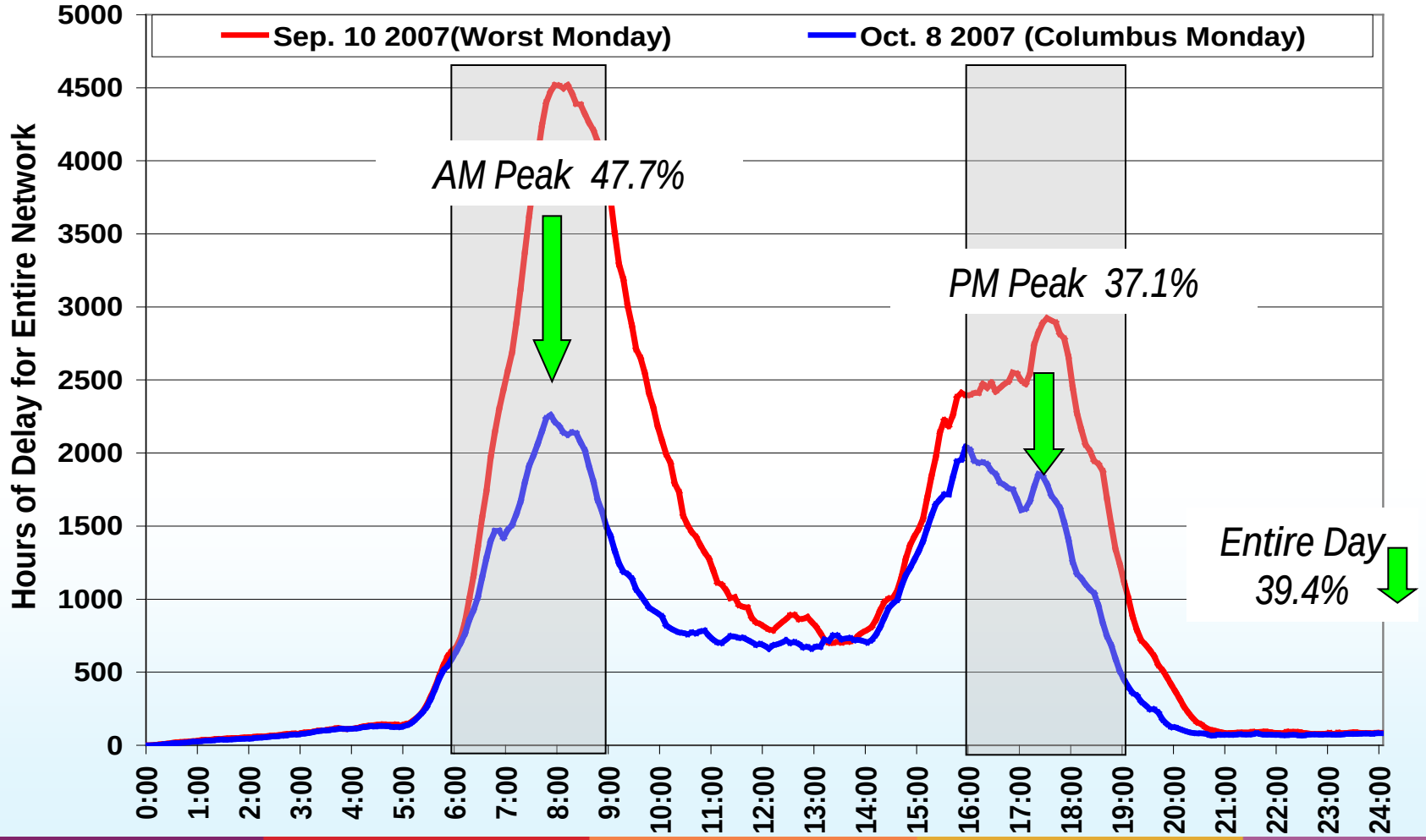
Alternatives to Rush Hour Driving

- **Alternative modes** with *traveler information*
  - Transit
  - Ridesharing
- **Alternative destinations**
  - Telecommuting
- **Alternative times**
  - Flextime, staggered work hours

Primary Benefits of Pricing

1. ***Manages demand:*** Balances demand with supply
2. ***Generates revenue*** for transportation investment
3. ***Signals*** where additional capacity will maximize benefits to travelers
4. ***Contributes*** to USDOT strategic goals

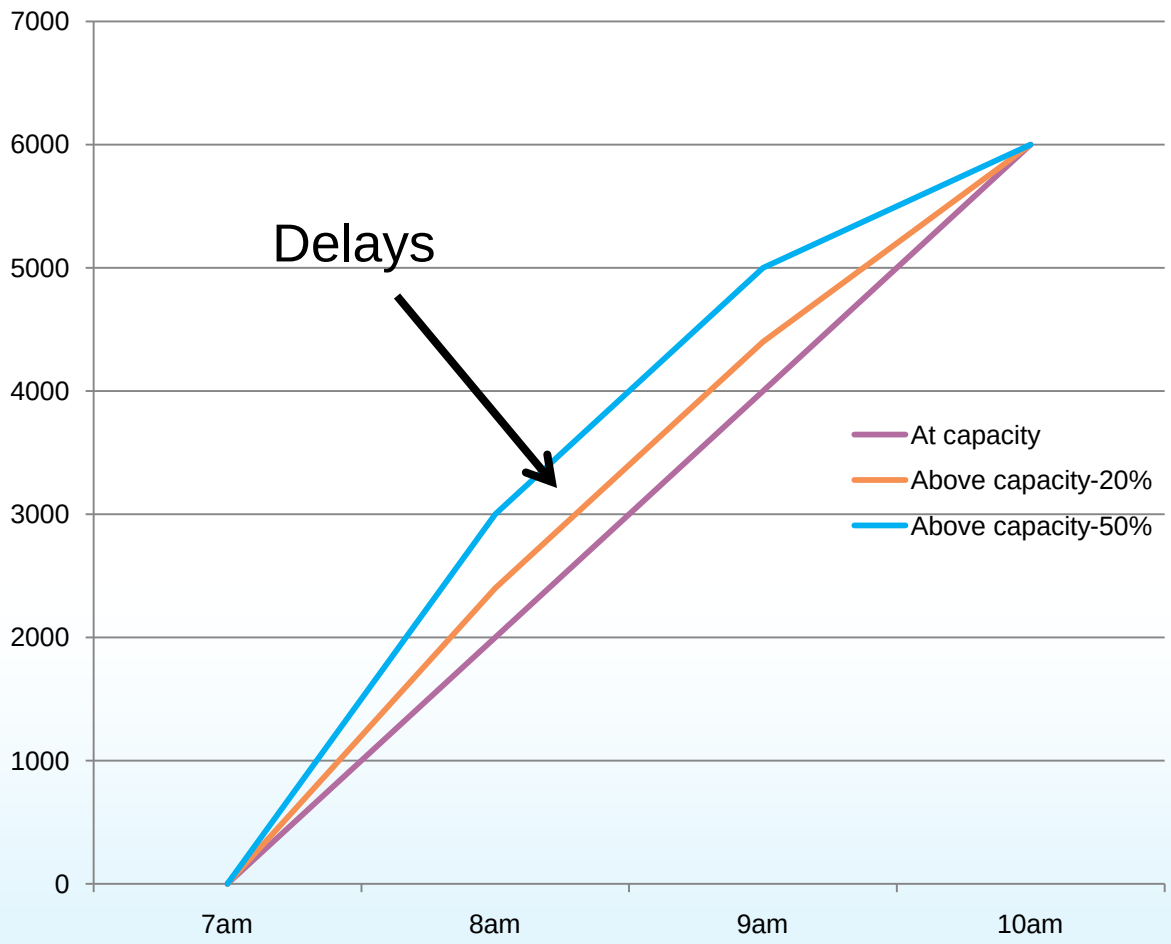
1. Reduces Demand: Small Traffic Reduction Leads to Large Delay Reduction



Impact on Congestion

As the number of cars attempting to use the highway increases above capacity 7am - 8am, **each extra car causes about 2 hours of delay** to other vehicles.

Moving one driver to other modes will save 2 hours, or **about $20 in congestion costs**



2. Generates Revenue to Pay Highway Costs

Major Urbanized Areas	Normal Cost	High Cost
Construction cost/ lane mile*	**$13.4 M.**	**$55.9 M.**
Daily traffic volume in peak periods (5-6 hours/day)	10,000 vehicles	10,000 vehicles
Const. cost per vehicle per mile	$1,340	$5,590
Const. cost for 20-mile round trip	$26,800	$111,800
Annualized const. cost for 20-mile trip**	**$1,742**	**$7,267**
Cost for 20-mile trip per working day	$7.00	$29.00
Gas tax paid for 20-mile trip (2 cents/mile)	**$0.40**	**$0.40**

*Source: FHWA, in 2006 dollars

**Annualization factor 0.065 assuming a 5.25% discount rate and 30-years

3. Provides Market Signals for Investment

- Congestion-based toll rates measure people's *value* of the service
- Higher toll rates signal the need for investment in additional capacity (highway or transit)
- Investments made at these locations will maximize social benefits

4. Supports Strategic Goals

USDOT's Strategic Goals:

- State of Good Repair
- Economic competitiveness
- Livable communities
- Environmental sustainability
- Safety

Summary of Benefits

1. Large reduction in congestion delay
2. New revenue for transportation
3. Market signals for investment
4. Supports USDOT strategic goals:
    1. State of Good Repair
    2. Economic competitiveness
    3. Livable communities
    4. Environmental sustainability
    5. Safety

Questions and Answers on Part 1

Part 2

Types of Congestion Pricing

Types of Congestion Pricing

1. ***Priced lanes***: HOT or Express Toll lanes
2. ***Priced highways***
3. ***Priced zones***: Area or cordon
4. ***Fully priced road networks***: Commercial vehicles or all vehicles
5. ***Pricing not involving tolls:*** Parking and insurance

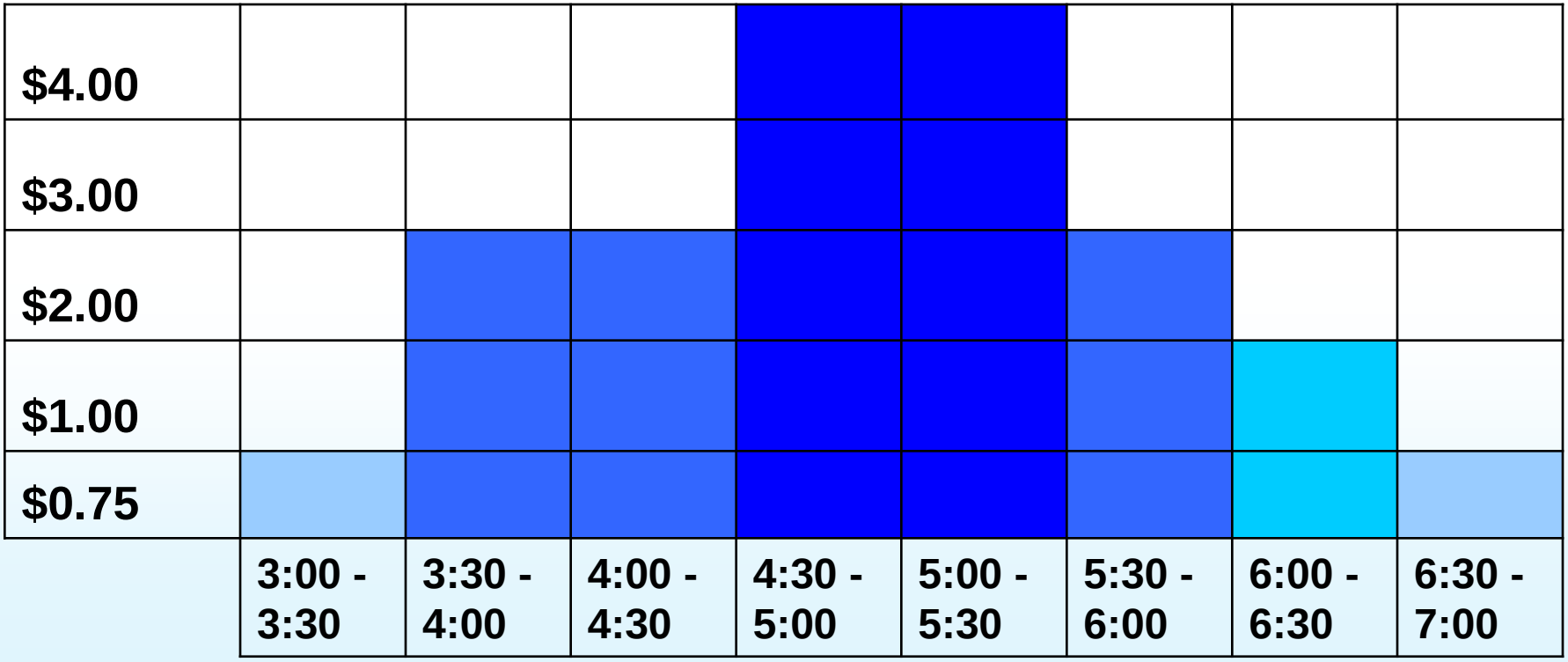
1. Priced Lanes

SR 91, Orange County, CA -

- Four new lanes in median, 10 miles
- Tolls are $1.20 to $10.00

Variable Toll Rates

Maximum Toll Schedule for I-15 HOT Lanes, San Diego, California - Evening Period Northbound

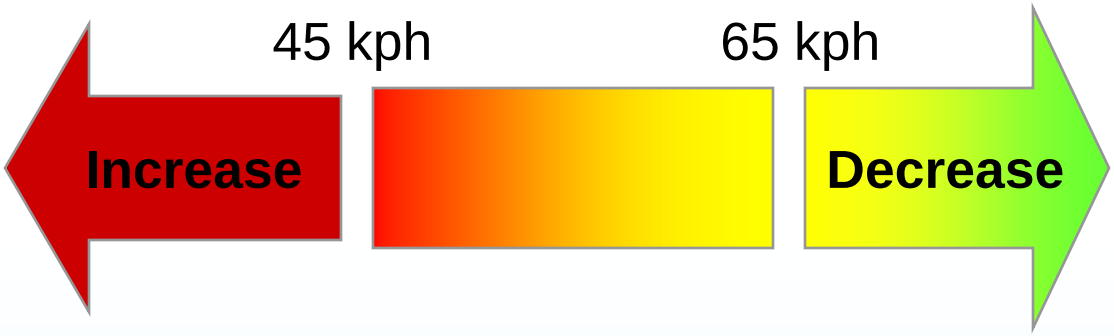


2. Priced Highways

- Proposed variable tolls on the State Route 520 floating bridge, Seattle
  - Tolls on the existing toll-free bridge
  - Will help pay for the new expanded bridge.

Priced Highways (contd.)

Toll rates on Singapore's Expressways

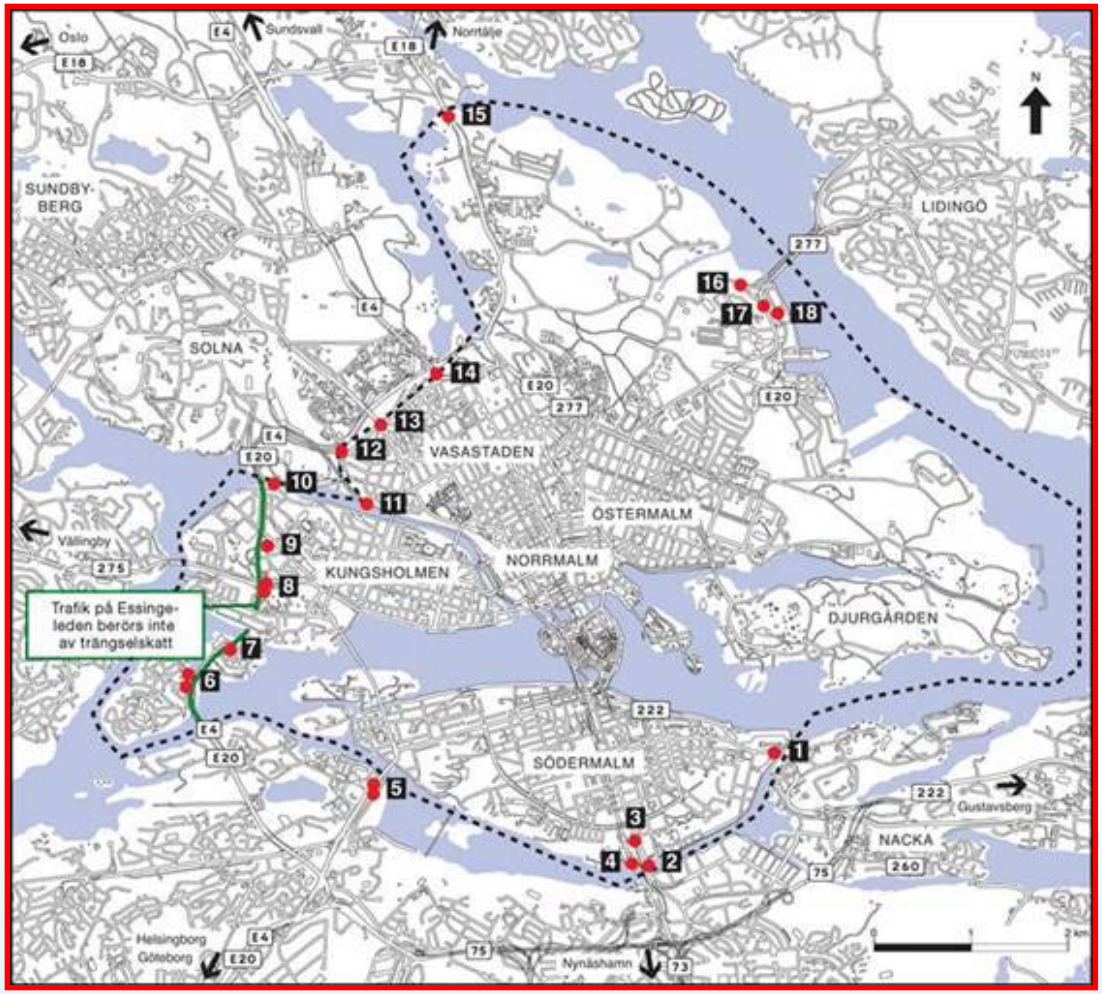


Charges vary from 50 cents to $2.50

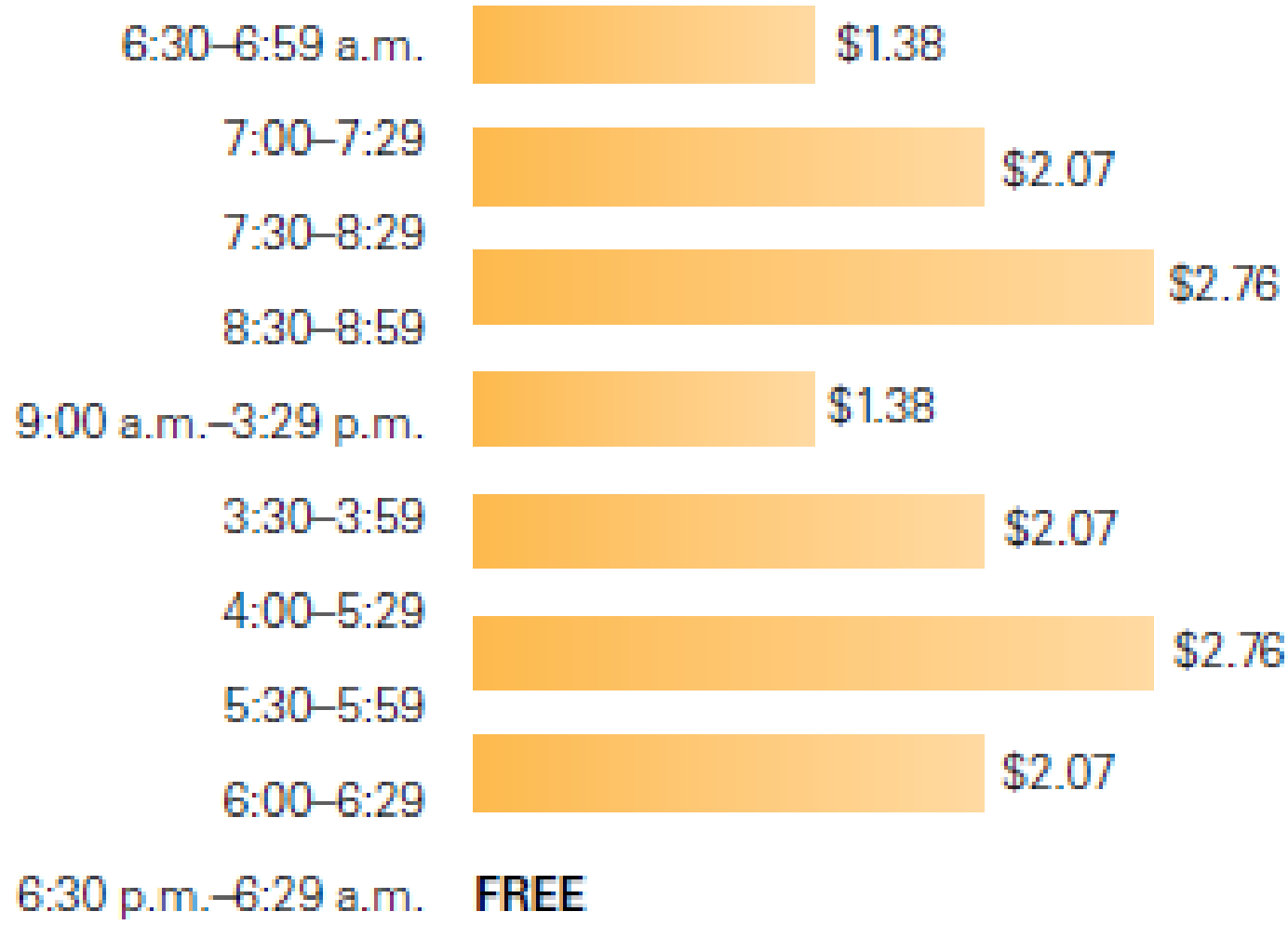
3. Priced Zones

Stockholm Cordon Pricing:

- Cordon around center city
- Charges to enter and to leave central Stockholm



Stockholm's Cordon Toll Rates



New York City Mayor's Proposal

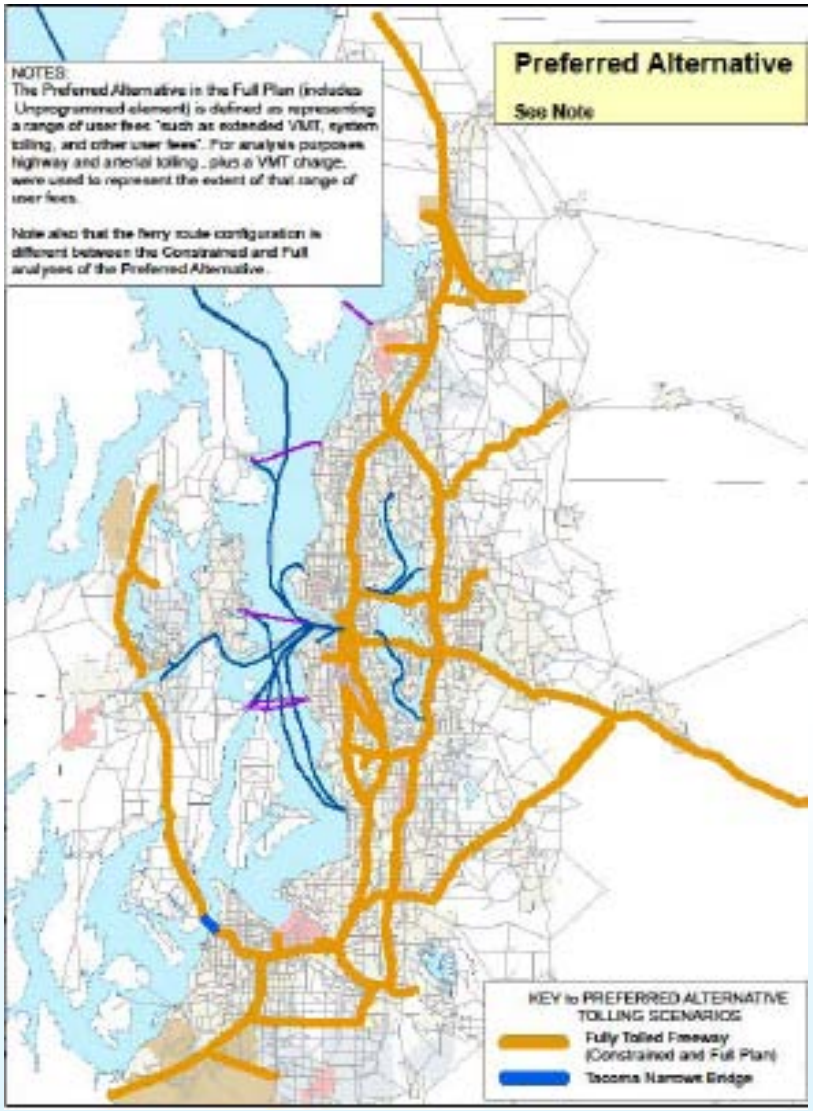
- Cordon around Midtown and downtown Manhattan.
- Annual *net* revenue:
  - $500 million
  - Dedicated to transit

4. Fully Priced Road Networks

Trucks only	All vehicles
•Germany •Switzerland •Austria •Hungary •Czech Republic	•Singapore (expressway system) •US. metropolitan areas (planned): •Seattle (Full facilities) •San Francisco and Atlanta (Lanes only)

Long Range Plan: Seattle, WA

- Entire freeway system (all lanes) will be tolled
- Variable tolls will be used to manage demand



5. Pricing Not Involving Tolls

Parking Pricing

- San Francisco – Curbside and Off-street

Mileage-based car insurance

- Several pilots

Employer-based parking cash-out

- Several California examples

Upcoming webinars:

- ***September 22 -- Best Practices in Parking Pricing***
- ***October 27 -- Dynamic Ridesharing and Congestion Pricing***
- ***November 17 -- Pay-as-You-Drive Insurance***

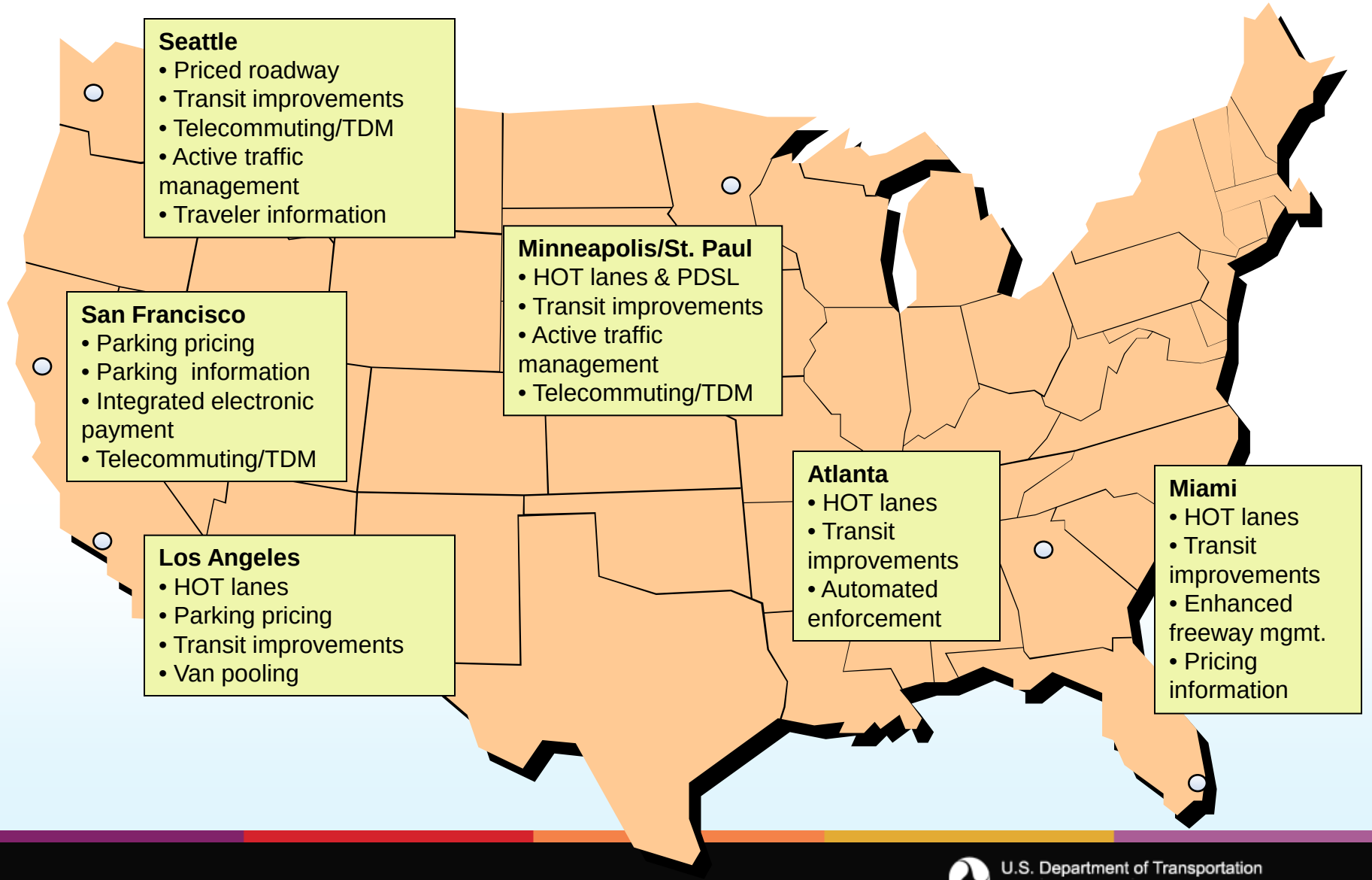
Key U.S. Congestion Pricing Projects

December 15 webinar -- Results of the Urban Partnership and Congestion Reduction Demonstration Programs

Key U.S. Projects

- Urban Partnership Agreements (UPA)
  - Miami – I-95 Express Lanes
  - Minneapolis – I-35W HOT Lanes
  - San Francisco – Parking Pricing
  - Seattle – SR 520 Bridge tolls
- Congestion Reduction Demonstration (CRD)
  - Atlanta – I-85 HOT Lanes
  - Los Angeles – I-110 and I-10 HOT Lanes

Congestion Reduction Strategies of the Sites



Miami

- HOT lanes on I-95 from Fort Lauderdale to downtown Miami
- Increased the occupancy from HOV-2+ to HOV-3+, requiring registration
- Expanded the 10- lane highway to 12 lanes
- Added 500 extra parking spaces at the Golden Glades Interchange
- Three new transit routes were introduced
- Twenty-three new articulated (58 seat) buses
- Added Ramp signaling and Transit Signal Priority

Minneapolis

•I-35W HOV to HOT Lanes,
New HOT Lanes, and Priced Dynamic Shoulder Lane (PDSL)
• 6 New or Expanded Park-and-Ride Lots
• 27 New Buses
• Transit Advantage Bypass
• Marquette and Second (MARQ2) Dual Bus Lanes in Downtown Minneapolis
• Real-Time Transit and Traffic Signs
• Driver Assistance for Shoulder-Running Buses
• Telecommuting/ROWE

San Francisco

- Parking Pricing – large-scale downtown parking pricing project which will use intelligent parking management technology and techniques
- Real-time Information—Will inform customers about where parking is available, to manage demand for a portion of the on-street and off-street parking supply
- Parking Information will be provided via 511 Phone and Web
- 6,000 metered on-street parking spaces, 12,250 parking spaces in 14 city-operated garages and one lot

Seattle

- Manage throughput and travel reliability with congestion pricing and, partially fund the replacement of the SR-520 Lake Washington floating bridge
- Adding new transit service (including ferries) and operational improvements
- Deploying active traffic management and other technology applications to improve overall system efficiency
- Meld tolled and non-tolled system segments for quicker and more reliable travel times throughout the region
- Work with major employers in the Lake Washington corridor to enhance telework and travel demand reduction programs

Atlanta

- HOT Lane network on a 20 mile segment of I-85
- HOV vehicle occupancy designation was increased from HOV-2 to HOT-3
- Two new park and ride lots
- Six new commuter coaches

Los Angeles

- **HOT lanes** – Convert the HOV facilities to HOT for I-10 from I-605 to Union St. and I-110 from Artesia Transit Center to Adams Blvd.

- **Enhanced Silver Line BRT and New Feeder Services** – 41 new CNG buses for service on I-10 and I-110 plus 17 additional buses deployed by local transit agencies for commuter service.

- **Vanpools** – Activities to support the formation of 100 new vanpools.

- **Transit Signal Priority** – LADOT will install bus signal priority technology at 19 signals in downtown LA.

- **Park and ride improvements** – Enhanced signage, lighting, security, sound attenuation, and bus stop relocation at 8 Park and Ride lots along the Harbor Transitway.

Questions and Answers on Part 2

Part 3

Congestion Pricing Issues and Challenges

Key Issues

1. Institutional
2. Equity
3. Technology and Operations
4. Relative effectiveness – benefits, revenue, environmental impacts
5. Public acceptance

1. Institutional Issues

- Legislation: Federal and state
- Planning and project development
- Inter-agency collaboration
- Public involvement and outreach

Webinar on 4/19/11 -- Institutional Issues in Congestion Pricing

2. Equity Issues

Income-based equity	•Affordability of new charges
Modal Equity	•Increasing the attractiveness of driving alone vs. taking transit or carpooling
Geographic equity	•*Ad-hoc* tolling of some facilities in a region to make up funding gaps
Benefit-based equity (fairness)	•Charges disproportional to benefits received

May 26 Webinar -- Congestion Pricing Equity Impacts

3. Technology Issues

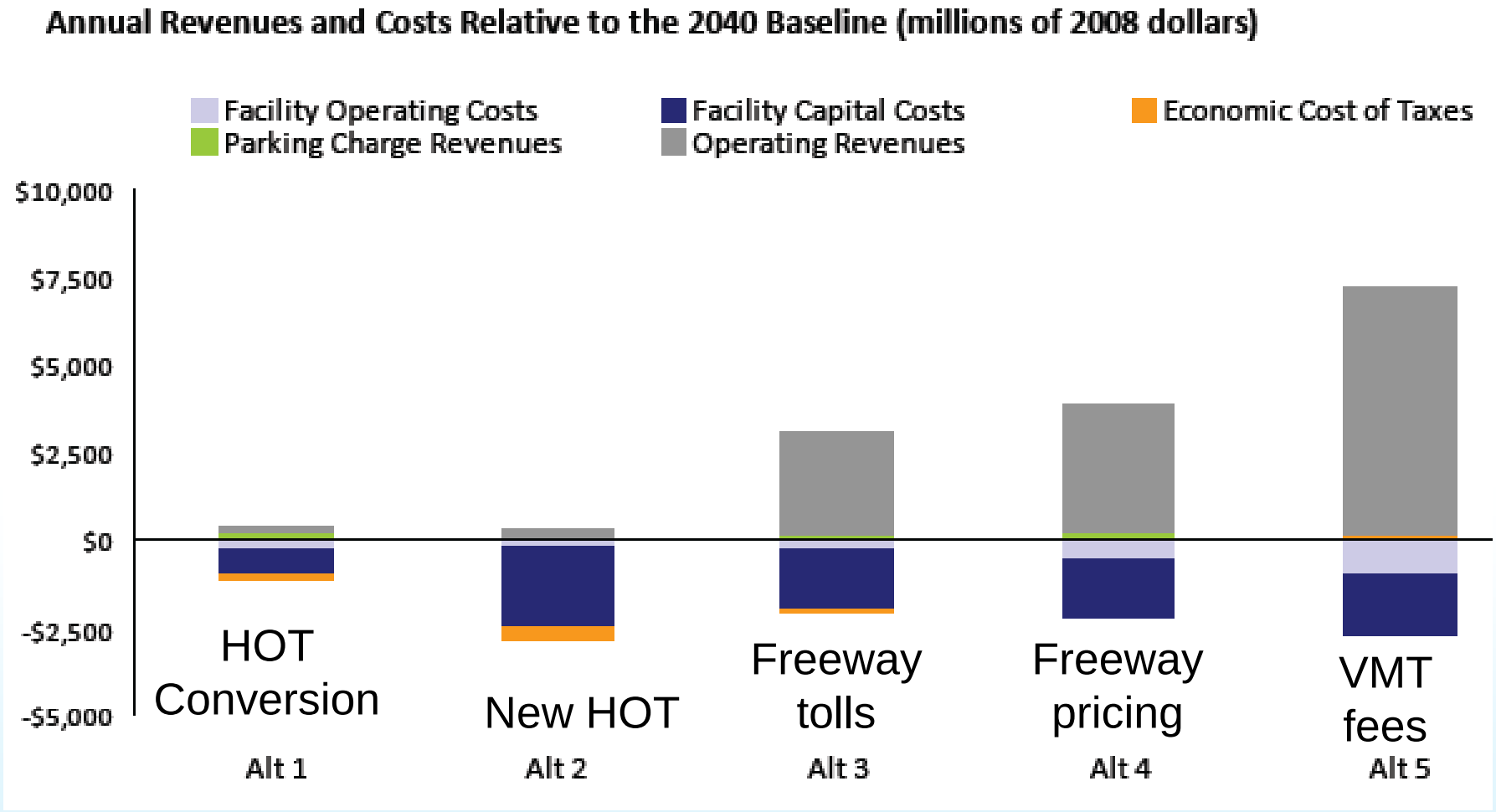
- Costs for implementation:
  - Compared with minimal cost for fuel tax collection
- Operations:
  - Open road tolling/all-electronic payment
  - Interoperability – seamless travel
  - Active traffic management
  - Traveler information

June 23 -- Technology to Enable and Complement Congestion Pricing

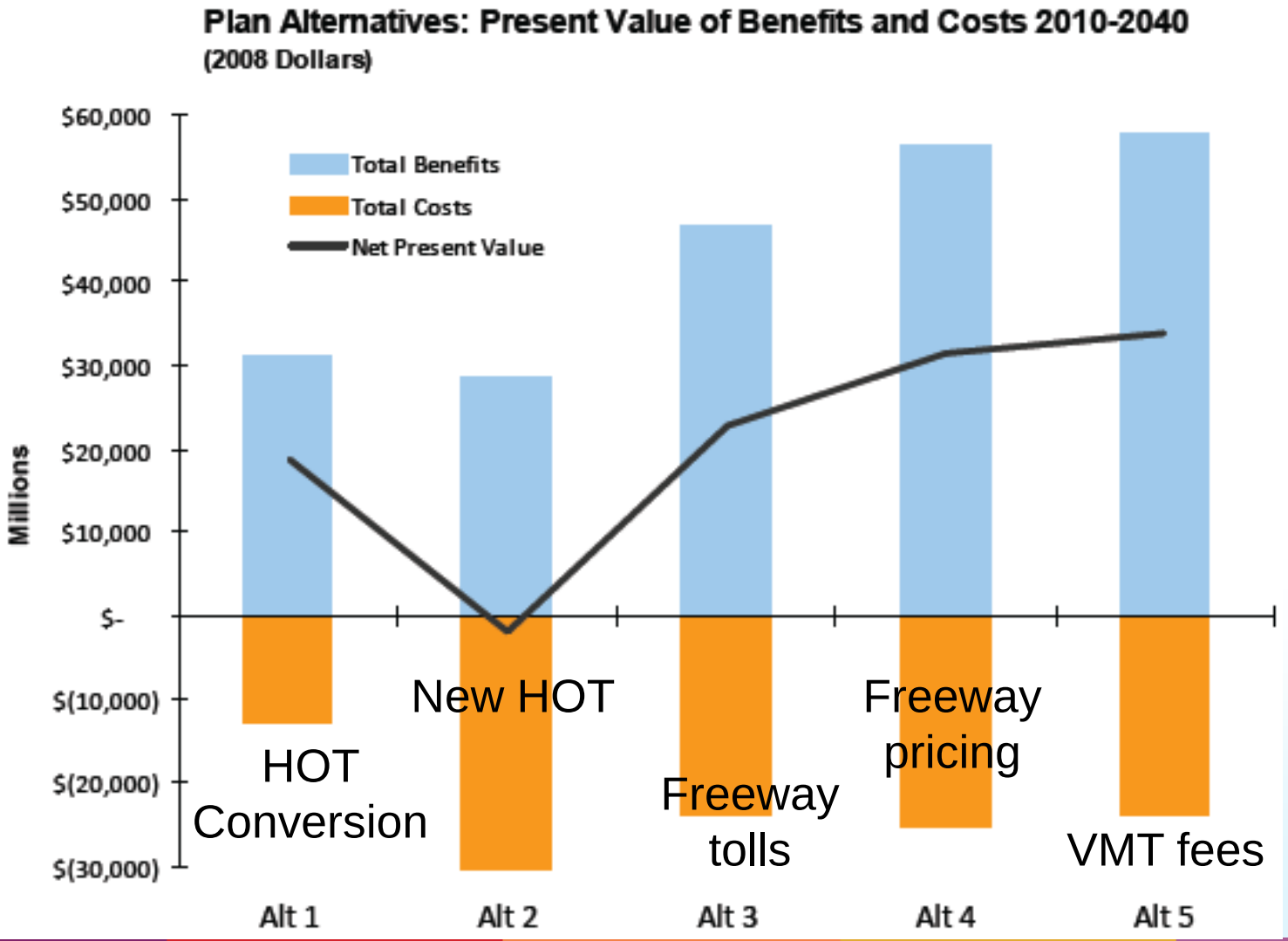
4. Effectiveness Issues

User benefits	•Congestion reduction, etc.
Environmental impacts	•Emissions reduction
Revenue	•Financial feasibility

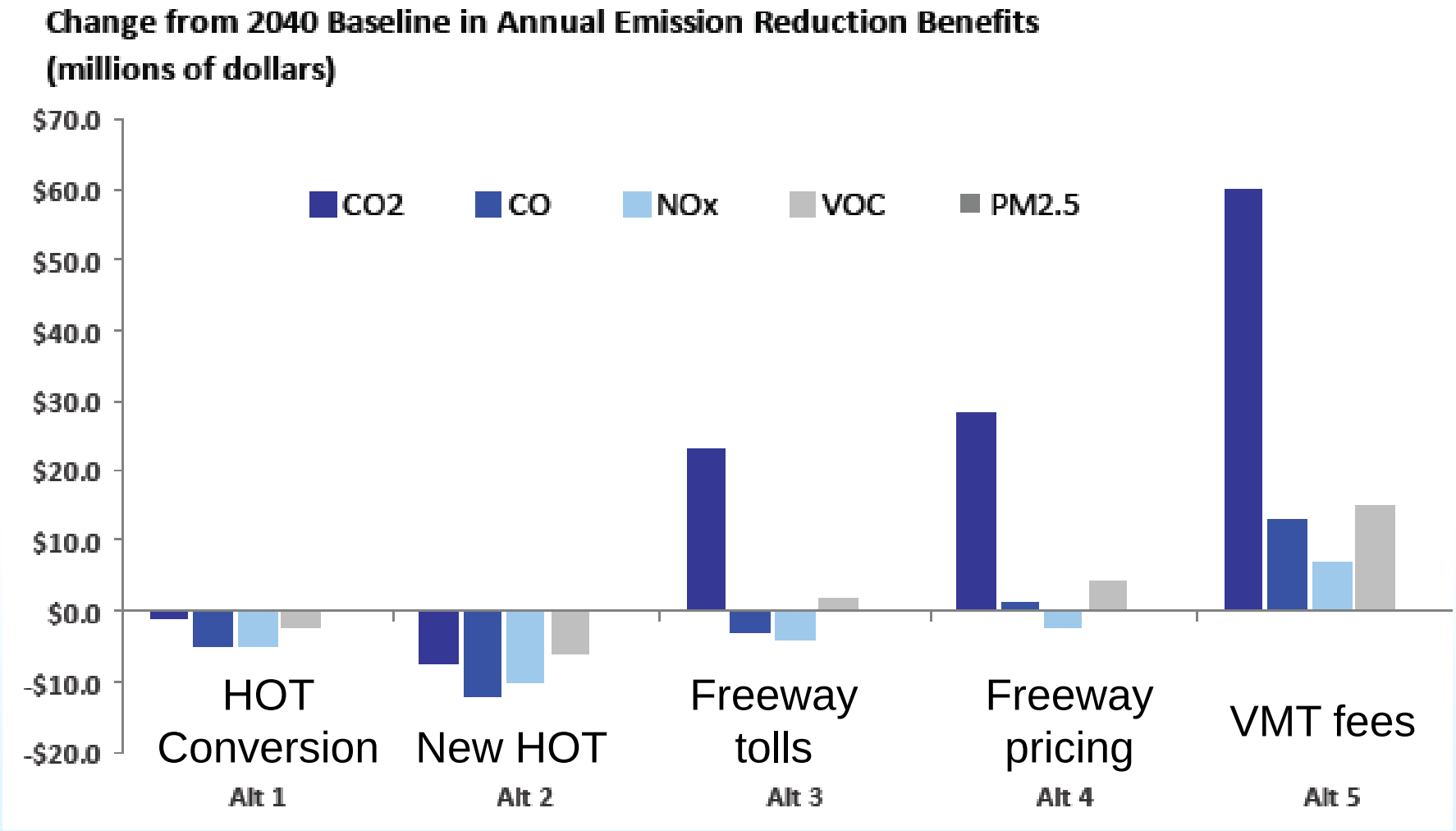
Seattle Study: Revenue vs. Cost



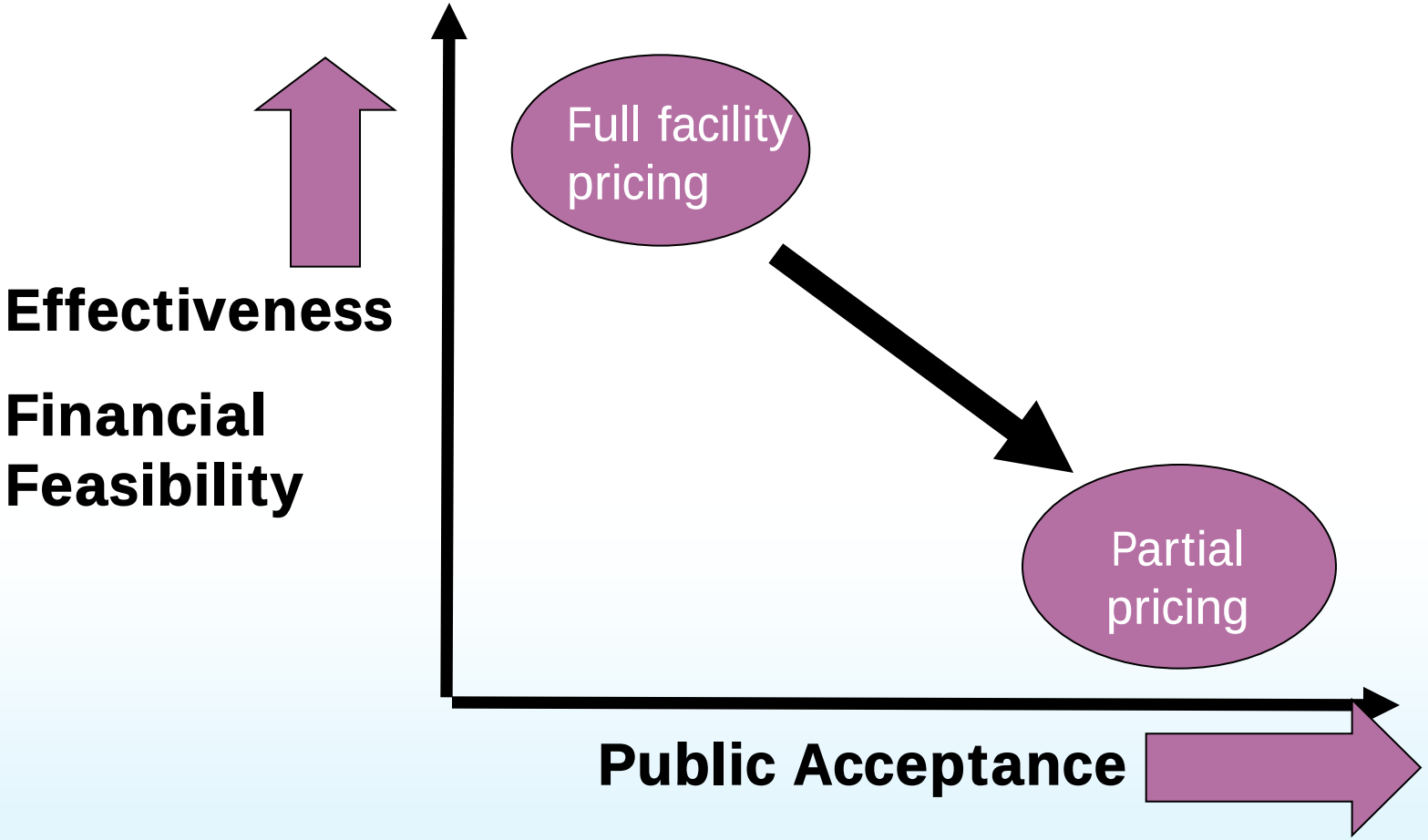
Seattle Study: Benefits vs. Costs



Seattle Study: Emission Reductions



Effectiveness vs. Public Acceptance



5. Public Acceptance Issues

- Paying twice
- Privacy
- Availability of travel alternatives
- Credibility and trust of government agency
- Traffic diversion
- Complexity

- **July 28 Webinar -- *Integrating Transit with Congestion Pricing and Increasing Congestion Pricing Acceptance***

Summary

- Congestion pricing has many benefits
- Operates successfully worldwide
- Innovative projects are being implemented or planned in several U.S. cities
- Equity and public acceptance issues need to be addressed

Questions and Answers on Part 3

Upcoming Webinar – April 19, 2011

Institutional Issues in Congestion Pricing

To register, go to:

http://www.ops.fhwa.dot.gov/tolling_pricing/index.htm

Upcoming Webinars – May through December 2011

- May 26 -- Congestion Pricing Equity Impacts
- June 23 -- Technology to Enable and Complement Congestion Pricing
- July 28 -- Integrating Transit with Congestion Pricing and Increasing Congestion Pricing Acceptance
- August 25 -- Economics of Congestion Pricing and Impacts on Business
- September 22 -- Best Practices in Parking Pricing
- October 27 -- Dynamic Ridesharing and Congestion Pricing
- November 17 -- Pay-as-You-Drive Insurance
- December 15 -- Results of the Urban Partnership and Congestion Reduction Demonstration Programs.

Registration will open at one month prior to each webinar.

Additional FHWA Products

- Primers, brochures, fact sheets, and other materials to inform about various congestion pricing related topics.

- FHWA Tolling and Pricing web sites:

  FHWA Office of Operations:

  http://ops.fhwa.dot.gov/tolling_pricing/index.htm

  FHWA Office of Innovative Program Delivery:

  www.fhwa.dot.gov/ipd