Congestion Pricing Equity Impacts

- **Audio:**
  - Via Computer - No action needed
  - Via Telephone – Mute computer speakers, call 1-866-863-9293 passcode 57921892
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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
- **Closed captioning is available at:**
  http://www.fedrcc.us//Enter.aspx?EventID=1760448&CustomerID=321
- **Upcoming Webinars:**
  - Visit http://www.ops.fhwa.dot.gov/tolling_pricing/webinars/index.htm
- **Recordings and Materials from Previous Webinars:**
  - http://www.fhwa.dot.gov/ipd/revenue/road_pricing/resources/webinars/congestion_pricing_2011.htm

Upcoming Webinars

June 23, 2011	Technology to Enable and Complement Congestion Pricing
July 28, 2011	Dynamic Ridesharing and Congestion Pricing
August 25, 2011	Pay-as-You-Drive Insurance
September 22, 2011	Economics of Congestion Pricing and Impacts on Business
October 27, 2011	Integrating Transit with Congestion Pricing and Increasing Congestion Pricing Acceptance
November 17, 2011	Best Practices in Parking Pricing
December 15, 2011	Results of the Urban Partnership and Congestion Reduction Demonstration Programs

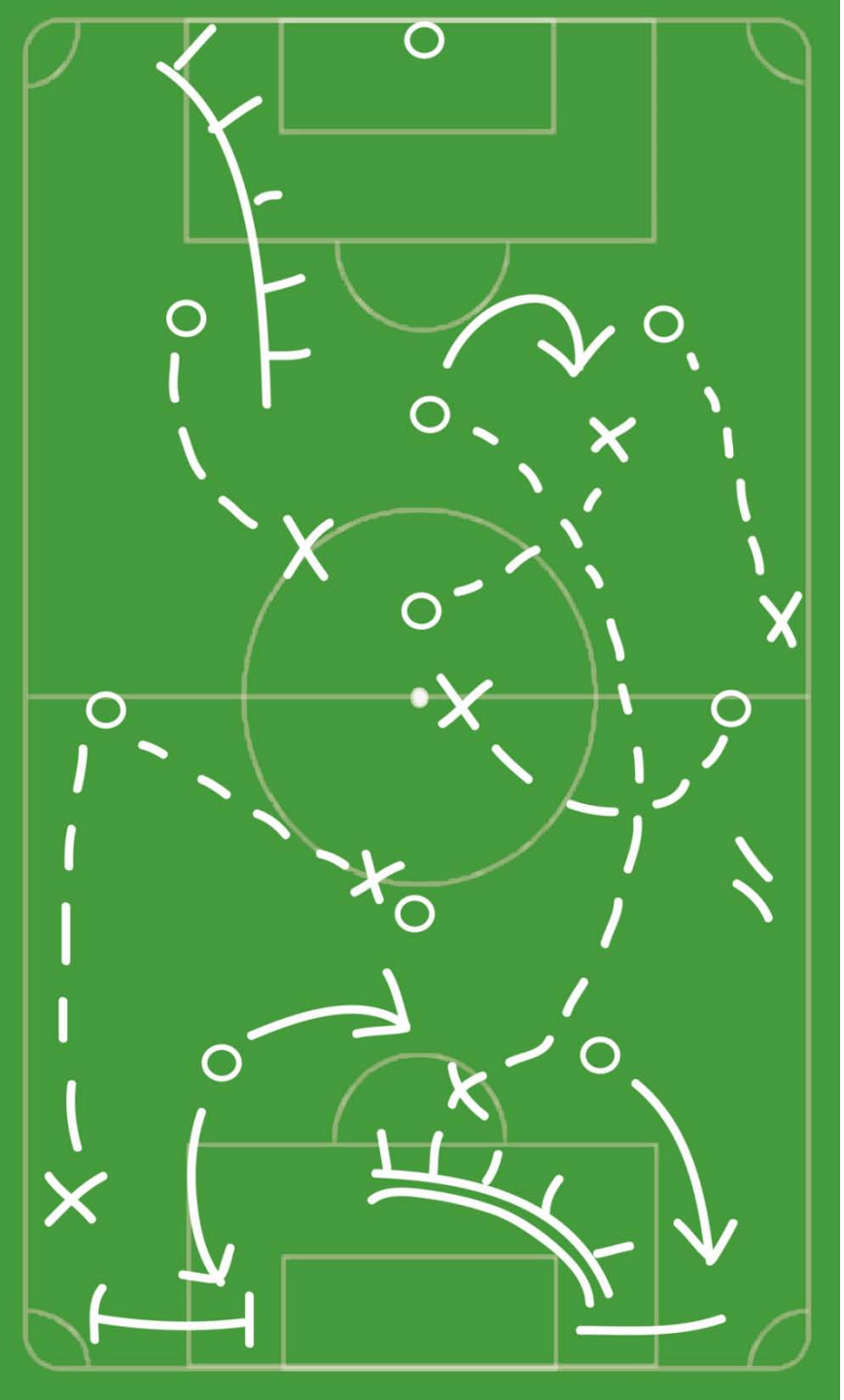
Addressing Equity in Transportation Pricing and Finance

Overcoming the Challenges of Congestion Pricing

Federal Highway Administration Offices of Operations and Innovative Program Delivery
May 2011

Brian D. Taylor
Professor and Chair of Urban Planning
Director, UCLA Institute of Transportation Studies

UCLA
Institute of Transportation Studies



My Game plan

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- Overview presentation on transportation pricing equity
  - Draws from four research projects conducted over the past six years

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Driving for Dollars

- Funding shortfalls prompted a search for new surface transportation revenues

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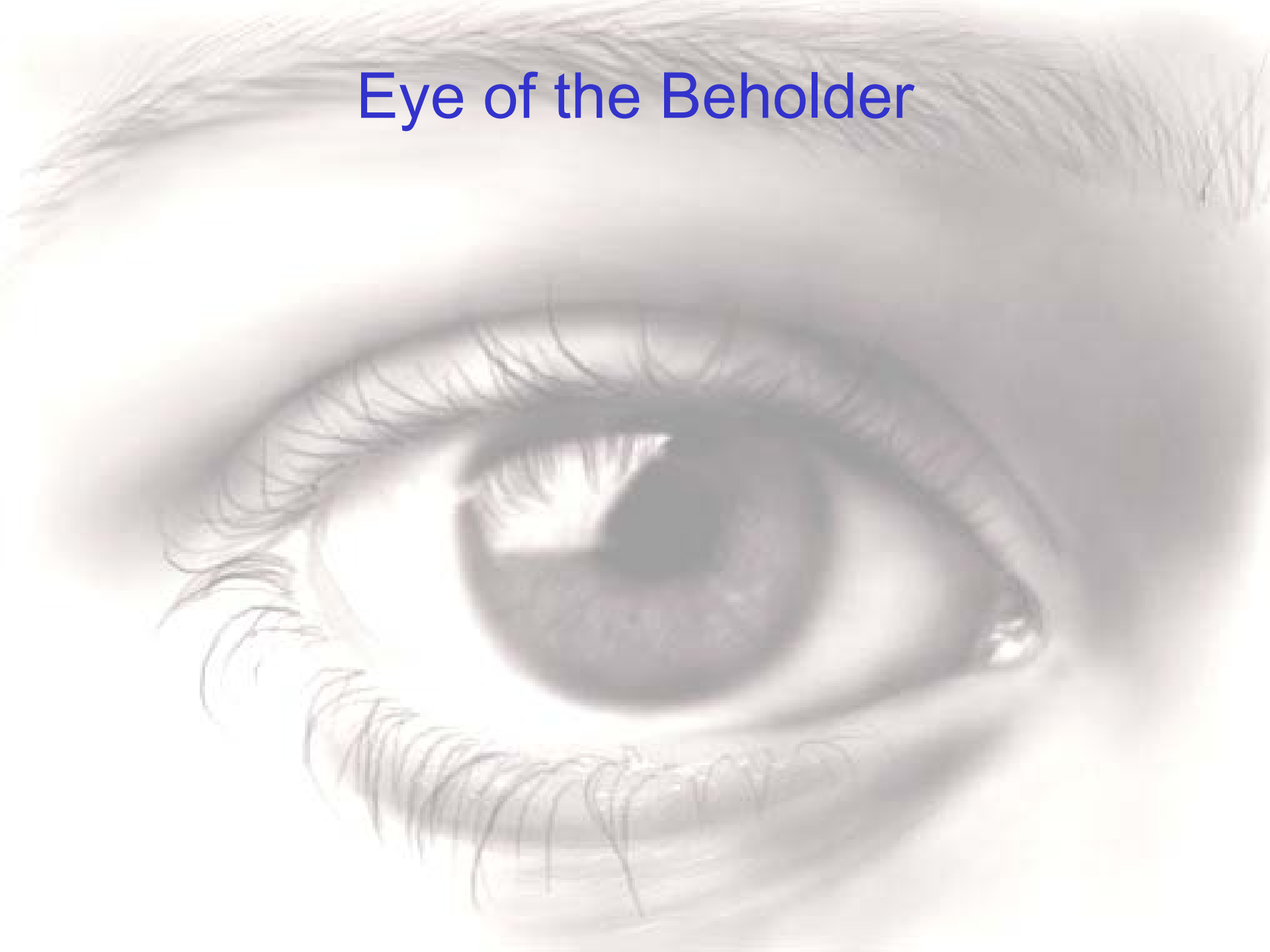
- New technologies make it relatively easy to directly charge users for road use
  - Principles of efficiency and effectiveness support a turn toward tolling

Driving for Dollars

- Funding shortfalls prompted a search for new surface transportation revenues

- New technologies make it relatively easy to directly charge users for road use
  - Principles of efficiency and effectiveness support a turn toward tolling
  - But what about equity?

Eye of the Beholder



Eye of the Beholder

- Equity is defined differently by different interests at different times

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- To paraphrase former Supreme Court Justice Potter Stewart on the question of pornography:

Eye of the Beholder

- Equity is defined differently by different interests at different times

- To paraphrase former Supreme Court Justice Potter Stewart on the question of pornography:
  - *Most of us can't precisely define equity or inequity in transportation finance, but we think that we know it when we see it*

A Slippery Concept…

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- Many reasonable, and often incongruent, ways to define equity

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A Slippery Concept…

- Many reasonable, and often incongruent, ways to define equity

- In transportation policy, debates over these differences are often sincere,
- …but sometimes tactical

- Can create both confusion and cynicism toward legitimate questions of public policy

Transportation Equity

- Two general ways to think about transportation equity

Transportation Equity

- Two general ways to think about transportation equity
  - Transportation is (an end in itself)
  - Transportation does (a means to an end)

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- Transportation is
  - Transportation ***programs***

Transportation Equity

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  - Transportation does (a means to an end)

- Transportation is
  - Transportation ***programs***
- Transportation does
  - Facilitating economic and social ***activity***

Transportation Does

- Transportation is a critical link to education, paid work, recreation, health care, culture, and many other aspects of quality living

Transportation Does

- Transportation is a critical link to education, paid work, recreation, health care, culture, and many other aspects of quality living
  - Public officials are rightly concerned that people have sufficient levels of mobility
  - Or, more accurately, *accessibility* to quality living

Transportation Does

- Public investments in transportation are needed to provide basic access to essential goods, services, employment, and housing

Transportation Does

- Public investments in transportation are needed to provide basic access to essential goods, services, employment, and housing

- But how to pay for such investments raises a host of questions about fairness and equity

Transportation Is
(Transportation finance programs)

- The focus of my presentation

Transportation Is

- Four important questions with respect to finance programs:

1. Who pays for transportation?
2. How and where do they pay?
3. Who benefits from transportation?
4. How and where do they benefit?

Applying Notions of Justice to Transportation Finance

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- *Egalitarian* views emphasize <u>outcomes</u>

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Applying Notions of Justice to Transportation Finance

- *Egalitarian* views emphasize outcomes
- *Difference* or *resource-based* views emphasize opportunities
- *Libertarian* views emphasize markets

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Types of Equity Common to Transportation Policy Debates

- **Market Equity**
  - Bring prices in line with costs imposed and/or benefits received
- **Opportunity Equity**
  - Treat individuals, interest groups, or jurisdictions equally
- **Outcome Equity**
  - Redistribute resources to effect equal outcomes

Why do people debating equity in transportation seem so often to be talking past one another?

Why do people debating equity in transportation seem so often to be talking past one another?

Because they focus on different units of analysis

Units of Analysis in Transportation Policy

- **Individuals/Households**
  - Residents, voters, travelers, etc.
- **Groups/Interests**
  - Modal interests, industries, racial/ethnic groups, etc.
- **Areas** (geographic)
  - States, counties, legislative districts, etc.

Thinking about equity in transportation finance

	Type of Equity		
Unit of Analysis	***Market Equity***	***Opportunity Equity***	***Outcome Equity***
Geographic States, counties, legislative districts, etc.	Transportation spending in each jurisdiction matches revenue collections in that jurisdiction	Transportation spending is proportionally equal across jurisdictions	Spending in each jurisdiction produces equal levels of transportation capacity/service
Group Modal Interests, racial/ethnic groups, etc.	Each group receives transportation spending/benefits in proportion to taxes paid	Each group receives a proportionally equal share of transportation resources	Transportation spending produces equal levels of access or mobility across groups
Individual Residents, voters, travelers, etc.	The prices/taxes paid by individuals for transportation should be proportional to the costs imposed	Transportation spending per person is equal	Transportation spending equalizes individual levels of access or mobility

Unit of Analysis	Type of Equity		
	Market Equity	***Opportunity Equity***	***Outcome Equity***
Geographic States, counties, legislative districts, etc.	*Congestion Toll*: High if expenditures are targeted to where they are collected *Sales Taxes*: High if expenditures are targeted to where they are collected	*Congestion Toll:* High if revenues are used to improve transportation service in jurisdiction where they are collected *Sales Taxes*: Moderate because revenues collected from all consumers are likely to improve service for travelers where the taxes are collected	*Congestion Toll:* Low unless expenditures targeted to areas with low levels of mobility *Sales Taxes*: Low unless expenditures are targeted to areas with low levels of mobility
Group Modal Interests, racial/ethnic groups, etc.	*Congestion Toll*: High if revenues are targeted to groups in rough proportion to their collection *Sales Taxes*: Low because light-users of transportation systems are almost certain to cross-subsidize heavy transportation system users	*Congestion Toll:* High if the revenues are spent to improve transportation services for groups from whom the tolls are collected. *Sales Taxes*: Moderate if the revenues collected from all consumers are used to improve transportation services for the groups from whom the taxes are collected	*Congestion Toll:* Low unless expenditures are targeted to groups with low levels of mobility *Sales Taxes*: Low unless expenditures are targeted to groups with low levels of mobility
Individual Residents, voters, travelers, etc.	*Congestion Tolls*: High if revenues are targeted to improve facilities, communities occupied by toll payers *Sales Taxes*: Low because tax payments unrelated to transportation system cost imposed or benefits received	*Congestion Tolls:* Moderate because transportation toll revenues are likely to indirectly benefit individual travelers *Sales Taxes*: Low because transportation expenditures are unlikely to be returned to taxpayers in proportion to payments	*Congestion Toll:* Low unless expenditures are targeted to individuals with low levels of mobility *Sales Taxes*: Low unless expenditures are targeted to individuals with low levels of mobility

Example:

Comparing the Equity of Congestion Tolls and Transportation Sales Taxes

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Institute of Transportation Studies

Unit of Analysis	Type of Equity		
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Example:

Comparing the Equity of Congestion Tolls and Transportation Sales Taxes

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Is congestion pricing fair?

UCLA
Transportation Studies

Overview

- Road pricing remains a contentious political issue
  - often on the grounds that it is unfair

Is Pricing Unfair?

- Views on road pricing are often visceral, amorphous, and inconsistent

Overview

- Number of road pricing projects continues to grow in U.S., and abroad
  - But significant political skepticism about the fairness of the idea remains

Well short of a groundswell

- Many road pricing proposals have failed to make it to implementation

Well short of a groundswell

- Many road pricing proposals have failed to make it to implementation
  - Almost always falling victim to political objections
  - Often (either sincerely or tactically) on equity grounds

Hot for HOT lanes

- U.S. HOT lanes projects
  - Denver
  - Houston
  - Miami
  - Minneapolis/St. Paul
  - Orange County (CA)
  - Salt Lake City
  - San Diego
  - Seattle

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  - Orange County (CA)
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  - San Diego
  - Seattle
- More in the works

Hot for HOT lanes

- HOT lanes add choices
  - Pay tolls to bypass traffic
  - Or remain in the congested free lanes

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  - They have generally proven popular and effective where implemented in the U.S.

Lukewarm on HOT Lanes?

- HOT lanes add choices
  - Pay tolls to bypass traffic
  - Or remain in the congested free lanes
  - They have generally proven popular and effective where implemented
  - But they have often raised considerable equity concerns during planning and implementation

The price is right

- Plans for area- and system-wide pricing programs progressing
  - Albeit slowly
  - Mostly in the form of feasibility studies and pilot testing in the U.S.

Cool on Cordons

- Opposition to these other forms of road pricing is much stronger in the U.S.

Cool on Cordons

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  - Particularly area or cordon pricing

Charge the other guy

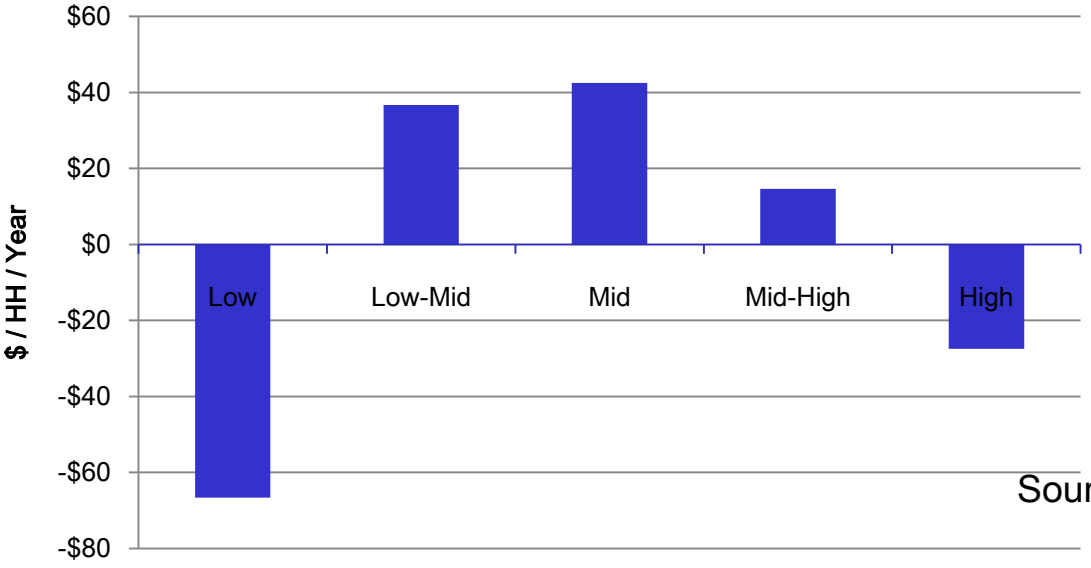
- Opposition to other forms of road pricing is much stronger in the U.S.
  - Particularly area or cordon pricing

- Polls: fewer equity concerns with truck tolls
  - Vast majority of respondents are not commercial truckers

Is pricing unfair?

- Recent empirical studies:
  - Road pricing more progressive than many other popular forms of transportation finance

Annual Loss/Gain by Income Group with a Shift from Congestion Fees to Sales Taxes: 91 Express Lanes



Source: Schweitzer & Taylor, 2008

Less scrutiny of familiar tax instruments

- Recent empirical studies:
  - Road pricing more progressive than many other popular forms of transportation finance
  - But equity concerns raised far less often with proposals to hike fuel or sales taxes for transportation

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- Lessons from case studies of efforts to overcome equity objections to pricing

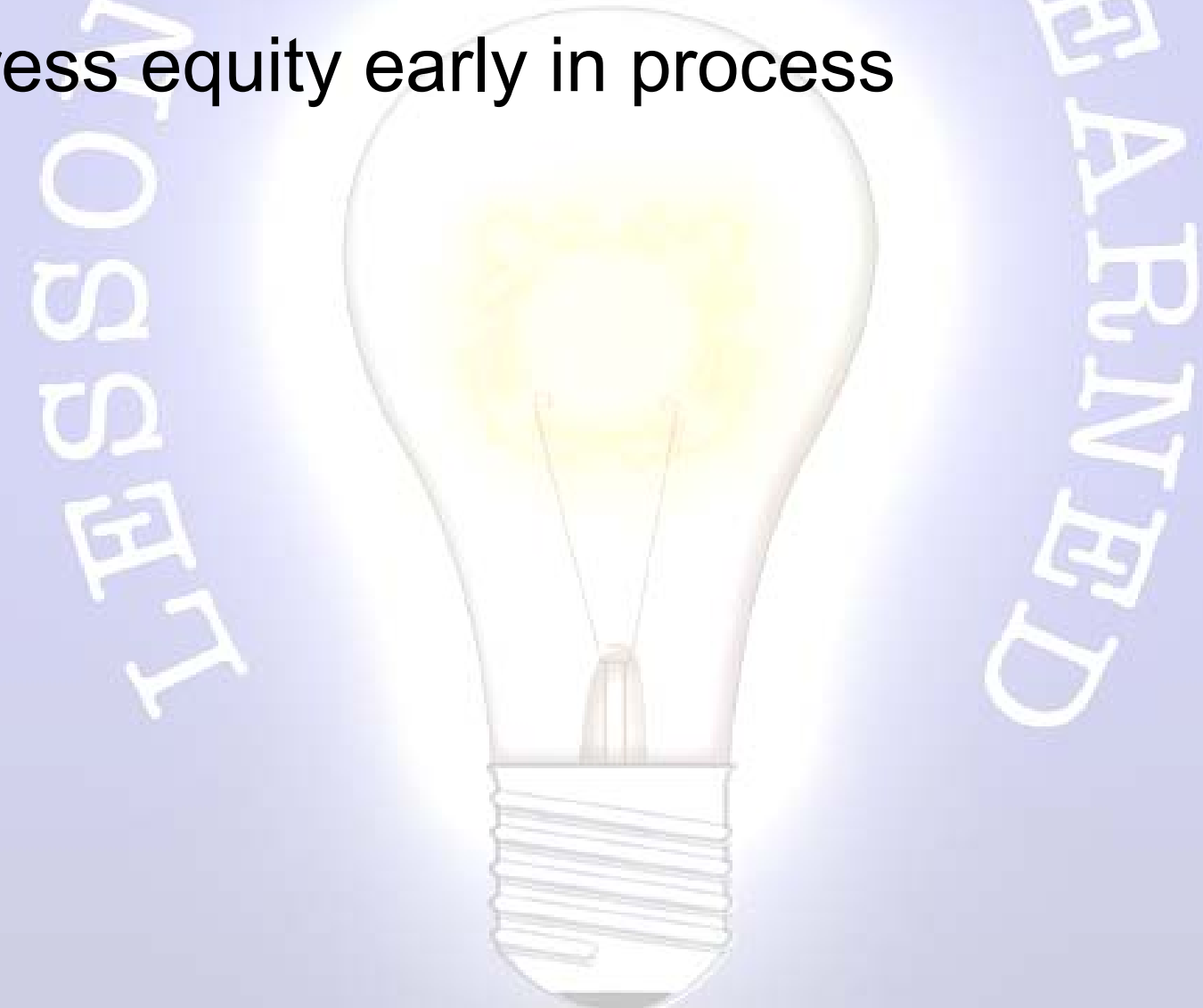
Case Studies

- Reviewed 14 pricing projects worldwide
- Equity issues common to all
  - Pivotal role in at least three U.S. cases

LESSONS LEARNED

Successfully addressing equity concerns

- Address equity early in process



Successfully addressing equity concerns

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- Organize constituencies for the toll revenues

Address equity early in the process

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- When equity is explicitly addressed at the outset
  - elected officials are less likely to harden opposition on equity grounds

Address equity early in the process

- When equity is explicitly addressed at the outset
  - elected officials are less likely to harden opposition on equity grounds
  - Increases process transparency
  - Avoids putting project proponents on defensive
  - Encourages planners to sincerely address equity concerns

Secure broad-based support among public/interest groups

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- Just the fact of community outreach increases comfort with the idea of road pricing
  - And whether it is fair

Secure broad-based support among public/interest groups

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- Public education can lead some to argue for pricing to correct for current inequities

Secure broad-based support among public/interest groups

- Just the fact of community outreach increases comfort with the idea of road pricing
- Public education can lead some to argue for pricing to correct for current inequities
- Open, ongoing, and sincere public dialogue common to every successful case of implementation

Build trust between public officials and transportation agencies

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- Road pricing equity concerns stretch well beyond low-income travelers

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  – The geographic distribution of revenue collection and distribution is central

Build trust between public officials and transportation agencies

- Road pricing equity concerns stretch well beyond low-income travelers
  - The geographic distribution of revenue collection and distribution is central
  - Geographic equity concerns arise more frequently when all or part of the toll revenues are slated for other modes or other places

Organize constituencies for the toll revenues

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- The use of toll revenues affects both the actual and perceived equity of road pricing

Organize constituencies for the toll revenues

- The use of toll revenues affects both the actual and perceived equity of road pricing

- Economists and engineers tend to emphasize pricing as a way to increase system efficiency
  - But public officials tend to focus on revenues

Organize constituencies for the toll revenues

- Geographic equity concerns can be addressed
  - By dedicating the revenues to improvements in the tolled corridor

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- But a primary focus on transit has often proven problematic (Stockholm, New York)

Conclusion

- Pricing raises equity concerns more than other forms of transportation finance

Eye of the Beholder

Pricing raises equity concerns more than other forms of transportation finance

But there is little empirical support for the idea that pricing is less fair than other forms of transportation finance

A Transportation Equity Framework

	Type of Equity		
Unit of Analysis	***Market Equity***	***Opportunity Equity***	***Outcome Equity***
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Source: Taylor & Norton, 2010

Conclusion

- Pricing raises equity concerns more than other forms of transportation finance

- Road pricing is most likely to be implemented when:
  - Equity issues of all kinds are addressed up front, and
  - Outreach and education efforts are extensive, ongoing, and sincere

Conclusion

- To most public officials
  - The benefits of pricing lie principally in the revenue generated
  - Thus active constituencies for revenues are important

Conclusion

- Equity issues are more likely to be successfully negotiated
  - In places with track records of political trust and inter-governmental cooperation

For more information see:

How Fair is Road Pricing? Evaluating Equity in Transportation Pricing and Finance

by Brian D. Taylor

A Report of the National Transportation Policy Project of the BiPartisan Policy Center

Washington, DC, 2010

http://www.bipartisanpolicy.org/library/research/how-fair-road-pricing-evaluating-equity-transportation-pricing-and-finance

Thank You

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UPA/CRD

URBAN PARTNERSHIP AGREEMENT/CONGESTION REDUCTION DEMONSTRATION PROGRAM

Equity Analysis in the National Evaluation

Carol Zimmerman, Ph.D.

Battelle


Atlanta


Los Angeles


Miami


Minnesota


San Francisco


Seattle

Context for the Evaluation

UPA/CRD

- Six sites with variety of pricing projects:
  - HOT Lanes: Atlanta, Los Angeles, Miami, Minnesota
  - Variable Parking Pricing: San Francisco, Los Angeles
  - Full Facility Pricing: Seattle
- Equity is one of twelve evaluation analysis areas
- Local partners are responsible for most of data collection
  - Exception is DOT-funded household travel panel surveys in Atlanta and Seattle conducted by Volpe Center and stakeholder interviews conducted by Battelle
  - Limited local evaluation resources constrain ability to field custom survey research for equity and other analyses

Equity Analysis Approach

UPA/CRD

- Four principal questions will be addressed:
  - What are the direct social effects of pricing projects for various socioeconomic groups?
  - What is the spatial distribution of the effects of pricing projects?
  - Are there differential impacts on low-income and minority groups?
  - How does re-investment of congestion pricing revenues impact various transportation system users?
- Will also examine success of a site's mitigation measures, if any, in the original project designs

Data Source: Change in Transportation Cost

UPA/CRD

- Tolls paid
  - Toll system data summarized by zip code
  - Traveler surveys
- Parking paid
  - Traveler surveys
- Transit fare paid
  - Mode shift from traveler surveys and apply average transit fare
- Vehicle operations
  - VMT from surveys and apply operating cost factors
- Adaptation or inconvenience costs
  - Not likely to be available

Data Source: Change in Travel Impacts

UPA/CRD

- Travel time
  - Traveler and transit surveys
- Travel distance
  - Traveler and transit surveys

Data Source: Change in Air Quality Impacts

UPA/CRD

- Measure change in VMT by link in priced roads
- Apply emission factors to VMT by link
- Associate link with zip code or Census tract data for socio-economic characteristics of impacted neighborhoods

Data Source: Perceptions and Attitudes

UPA/CRD

- Travelers' perception of fairness of pricing on low income groups
  - Traveler and transit surveys
- Travelers' attitude toward pricing as means for reducing congestion or increasing available parking
  - Traveler and transit surveys
- Stakeholders' perception of public acceptance of pricing
  - Stakeholder interviews

Data Source:
Use of Net Revenues

UPA/CRD

- Stakeholders' opinion on expected or desired use of net revenues
  - Stakeholder interviews

Data Source: Mitigation Measures

UPA/CRD

- Did site incorporate projects to mitigate potentially negative effect of pricing on vulnerable populations?
  - If so, what effect have those projects had?
- Example is Los Angeles' Metro Express Lanes Rewards (transit/toll credits for frequent transit use) and Metro Express Lanes Toll Credit Program (for qualifying low income households).
  - How many people have received credits?
- Example of transit improvements offering greater mobility options and alternative to paying toll
  - What population segments are using the transit improvements?

Findings to Date: Miami

UPA/CRD

- Survey of 95 Express Bus riders shows:
  - 57% increase in ridership from 2008 – 2010
  - New riders were proportionately more men, white and higher income
  - Population previously served by Express Buses continue to benefit from service improvements, even though the characteristics of the ridership changed somewhat
- General purpose lanes experienced dramatic improvement when HOT lanes were added
  - A.m. peak speed climbed from 19 to 42 m.p.h. in GP
  - Lower income drivers can have improved travel in GP lanes and don't need to change modes to avoid tolls

Next Steps

UPA/CRD

- Evaluation reports on results of other sites to be issued between 2012 and 2014
- Final reports summarizing findings of all sites will follow
- For more information, see www.upa.dot.gov.

Environmental Justice Analysis of a Priced Facility

FHWA Webinar on Equity Impacts of Pricing

Jamie Strausz-Clark
Director of Public Affairs and Policy, PRR

Presentation Overview

- **Environmental Justice –** How EJ relates to congestion pricing
- **Context –** Urban Partnership Agreement SR 520 Variable Tolling Project
- **Research Methodology**
- **Potential Effects**
- **Mitigation**
- **Environmental Justice Determination**
- **Ideas for future EJ analyses**

Environmental Justice

- Negative environmental and human health effects should not disproportionately impact EJ populations.
- Benefits of public projects should be evenly distributed.
- EJ populations should have meaningful opportunities to participate in decision-making process.

Environmental Justice

How EJ relates to transportation

- USDOT, FHWA, NEPA, and Civil Rights Act
- Negative effects associated with transportation
  - Limited access to publicly-funded facility
  - Disruptions in community cohesion
  - Hazardous materials, noise, water and/or air pollution

Environmental Justice

Populations

Number of persons in family or household	48 Contiguous states and D.C.	Alaska	Hawaii
1	$10,890	$13,600	$12,540
2	14,710	18,380	16,930
3	18,530	23,160	21,320
4	22,350	27,940	25,710
5	26,170	32,720	30,100
For each person, add	3,820	4,780	4,390

Source: *Federal Register*, Vol. 76, No. 13, January 20,2011, pp. 3637-3638

Environmental Justice

Populations (cont'd)

- Black
- Hispanic (regardless of race)
- Asian/Pacific Islander
- American Indian/Alaskan Native
- Some other race

Project context

SR 520 Variable Tolling Project

Lake Washington Urban Partnership Agreement

- Federal grant to apply variable tolling and other strategies to reduce congestion in the SR 520 corridor.
- Price an existing facility
- Environmental justice analysis was for an Environmental Assessment

How SR 520 Tolling Will Work

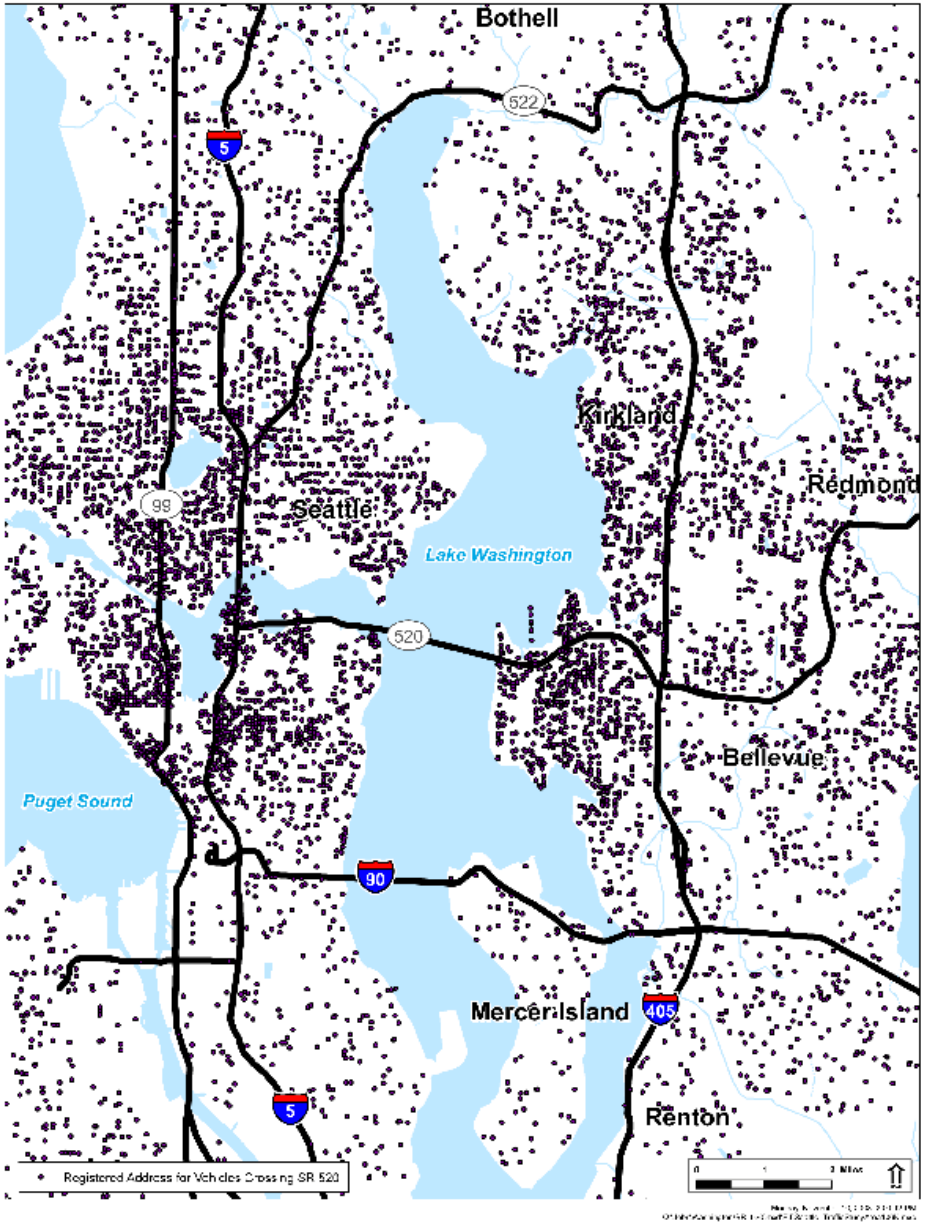
- All electronic tolls – no toll booths
- Users will either purchase an electronic transponder and set up pre-paid toll account or pay by mail
- Tolls collected in both directions
- Variable tolls – rates will vary by time of day

Methodology

- Identify SR 520 users
- Collect and evaluate data on SR 520 users
  - Surveys
  - Focus groups
  - Spanish-language telephone interviews

Study area

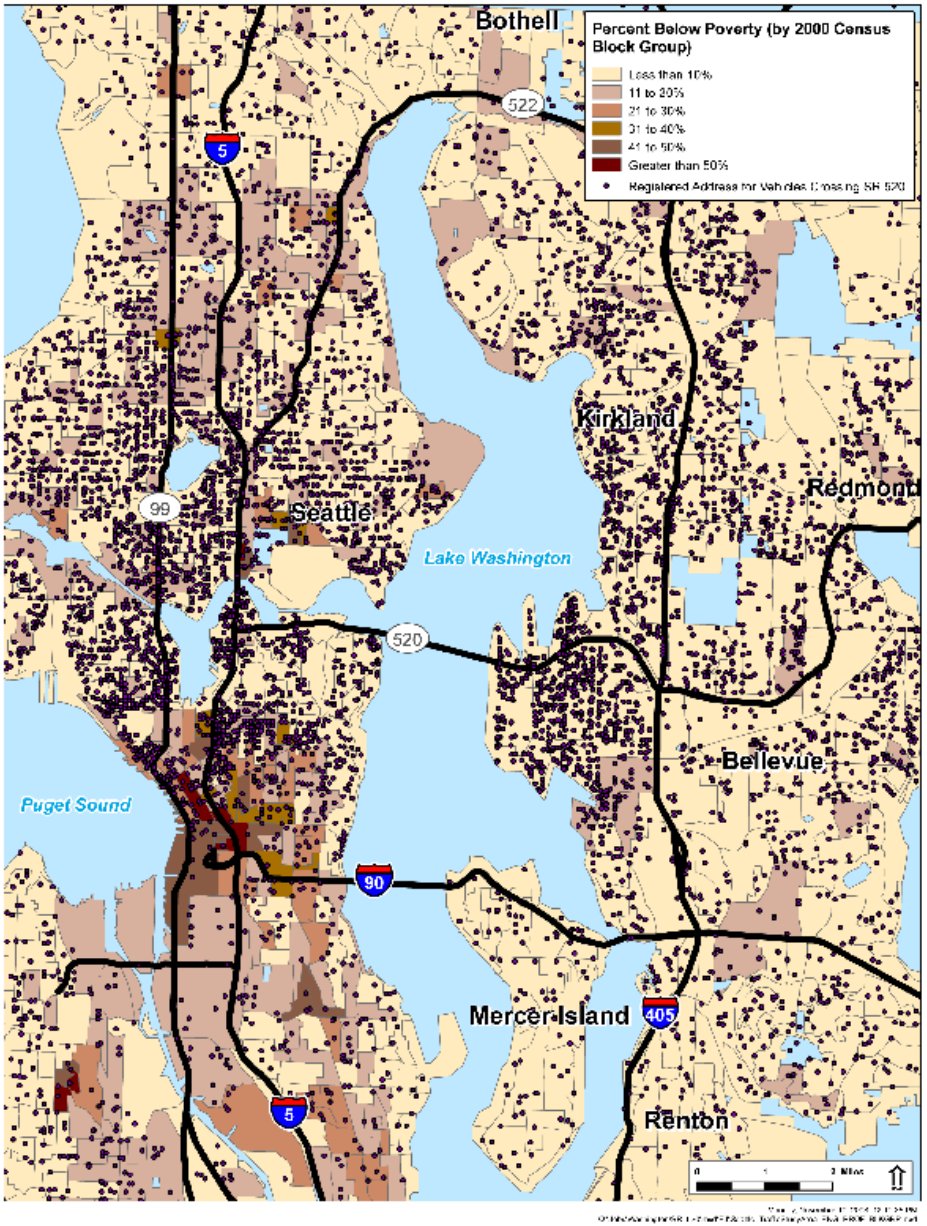
Videotaped license plates on SR 520 bridge in May 2008



Washington State Department of Transportation

Study area

Overlaid with poverty data from 2000 Census



Data collection

Data Collection Method	Sample Description	Sample Size(s)
Telephone survey	SR 520 bridge users *Low-income* *Minority* *Non-EJ*	N=659 *N=71* *N=292* *N=367*
Transit-intercept survey	SR 520 bridge transit users *Low-income* *Minority* *Non-EJ*	N=447 *N=12* *N=108* *N=341*
Focus groups	SR 520 bridge users *Low-income* *Non-EJ*	N=12 *N=4* *N=8*
Spanish-language telephone interviews	Spanish-speaking SR 520 bridge users *Low-income* *Household income at/below 130% poverty*	N=6 *N=2* *N=4*

Potential effects

- Congestion pricing benefits some low-income users
- Cost of tolls burdens some low-income users
- Transit was not a viable alternative for some users
- Un-tolled routes add time and distance
- Transponder technology adds burden

Potential Effects

- Some low-income users support congestion pricing
  - All users will benefit from faster, more reliable trip
  - Nearly 36% of low-income telephone survey respondents, half of low-income focus group participants, and all of Spanish-language interviewees indicated they would pay toll for this benefit
  - Consistent with HOT Lanes studies
  - Tolls may be less costly than traffic delays for some low-income families
- Many low-income users would avoid the toll
  - 68% of low-income survey respondents indicated they would change their travel behavior to avoid the toll
  - Most low-income focus group participants and interview respondents said tolls would be a burden for their families
  - While some will forgo the trip or use an un-tolled alternative, others will give up other family expenditures

Potential effects (cont'd)

- Transit is not a viable option for many low-income users
  - 51% of low-income telephone survey respondents said they would **not** use transit to avoid the toll
  - Of those who said they would **not** use transit,
    - 53% said service was too infrequent
    - 56% said they live/work too far from transit
  - Many low-income users are car-dependent
- Un-tolled routes add substantial time and distance
  - More than 64% of low-income telephone survey respondents said they would use un-tolled routes
  - Of those who said they would use un-tolled routes
    - 67% said alternate route would greatly increase travel time
    - 97% said alternate route would greatly increase travel distance

Potential effects (cont'd)

- Transponders create burden
  - 25% low-income telephone survey respondents would not be able to use credit, debit, or checking account to prepay
  - Nearly 20% of low-income respondents to telephone survey said they could not afford $12 transponder
  - Surcharge for low-income users without transponder could present burden

Other equity impacts

- Limited-English proficient (LEP) populations may have difficulty understanding electronic tolling system
- Toll may present burden to social service agencies that provide transportation to low-income clients

Mitigation

- Transit improvements
  - Increase transit availability across SR 520, especially to/from communities with higher concentrations of low-income populations
- Customer Service Centers (CSC)
  - Establish CSCs at either end of bridge
  - Purchase transponders and establish accounts with cash
- Transponder retail outlets
  - Establish outlets at grocery and convenience stores, pharmacies
- EBT cards
  - Enable transponder purchase and reloading with Electronic Benefits Transfer (EBT) card

Mitigation (cont'd)

- Multi-language outreach
  - Outreach in Chinese, Korean, Japanese, Russian, Spanish, and Vietnamese
  - Provide information about purchasing transponder, establishing account, and using system
- Train social service workers
  - Provide information about tolling and options to avoid tolls

Environmental Justice Determination

- An effect is disproportionately high and adverse if:
  - Low-income and/or minority populations will predominately bear the effects; or
  - Low-income and/or minority populations will suffer the effects and the effects will be considerably more severe or greater in magnitude than the adverse effects suffered by the general population
- Analysis
  - Although EJ populations do not predominately bear the effects, the effect is more severe for EJ populations
  - Concluded that with mitigation outlined in the document, most adverse effects would be avoided or minimized
  - Therefore, no disproportionately high and adverse effect

Ideas for future Environmental Justice analyses

- Examine benefits to low-income people of congestion pricing
- Evaluate effects of system-wide congestion pricing on low-income populations
- Evaluate effectiveness of mitigation strategies

For More Information

- Urban Partnership SR 520 Variable Tolling Project Environmental Justice Discipline Report
- http://www.wsdot.wa.gov/NR/rdonlyres/7385DB04-01D7-418C-9BA7-C9A475886E4E/0/D1EnvironmentalJustice.pdf

Questions

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International Perspectives on Road Pricing Equity Analysis and Mitigation

Agenda

1. Equity: The International Perspective
    1. Types of Equity
    2. Mitigation
2. International Case Studies
    1. New Zealand
    2. Hong Kong
    3. London
    4. Stockholm
    5. Manchester
3. Conclusions

Equity Analysis

Types of Equity	Units of Analysis	Impacts of Concern	Measures to Assess Impact
Opportunity (Horizontal) **Market** (Horizontal) **Outcome** (Vertical)	Income Geographic (location) Demographic (race, gender, etc.) Ability Mode Vehicle type Trip Type	**Financial / Economic** Price/Fare structure Economic opportunity & development Other Financial/ Economic **Transportation Service** Delay Reliability Other service quality metrics **External** Crash risk Induced congestion Emissions Noise	Per Capita Per Trip Per vehicle mile Per Dollar

Adapted from Todd Litman (2002)

Equity Mitigation Measures

1. Use of revenues

- Judicious use of revenues is the single most important way of mitigating equity effects.
- hypothecate or ring-fence revenues from the project for use on transportation uses (incl public transportation)

2. Vary pricing by time of day, type and location of road, vehicle type, etc.

3. Facility design: boundaries/ charging locations

4. Discounts/Exemptions

5. Provide payment means for the unbanked

Auckland NZ Equity Issues

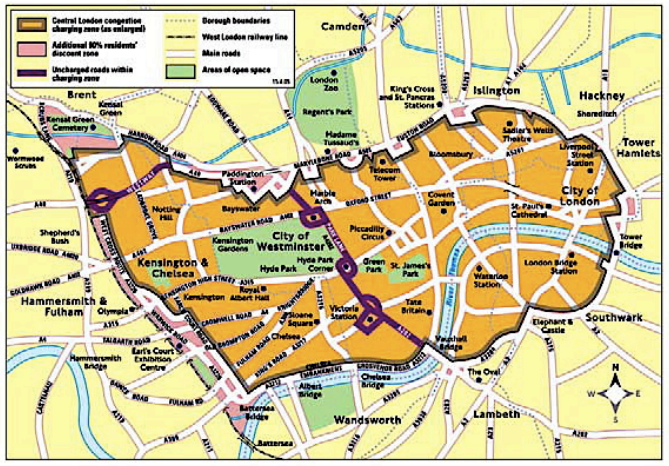
- Areas without Public Transit *outcome (vertical):* Lower income residents lived in areas with poorest level of PT in Auckland. (Social Exclusion).
- Ethnic Inequity *outcome (vertical):* Disproportionate effects on native New Zealand Maori's who tended to be
    - lower income
    - use diesel vehicles.
    - Live further out and therefore had higher distance based charges
- Inequities were viewed as violations of the Treaty of Waitangi.

Hong Kong

- Class (vertical) Inequity *outcome (vertical)*: Congestion charge impacts wealthier much less than less wealthy as a percent of income.
  - Universal equity issue faced on every RUC project,
  - should be addressed first before it becomes a major issue.
- Geographic Region Inequity *opportunity (horizontal):*
  - Charging program improved emission standards to all trucks inside HK (including trucks from mainland China).
  - The program provided low cost loans to HK residents improve vehicles, but vehicles originating outside HK were not included.
  - A large number of commercial vehicles entering HK from China which were older and dirtier emitters.
  - Policy was attacked as inequitable by legislators who argued we were creating trade barriers with China.

London Congestion Charge

- Congestion charge
- Flat fee per day
- Declaration-based
- History: Introduced for central zone (2003), western extension added (2007), western extension removed (2010)



London Equity Issues

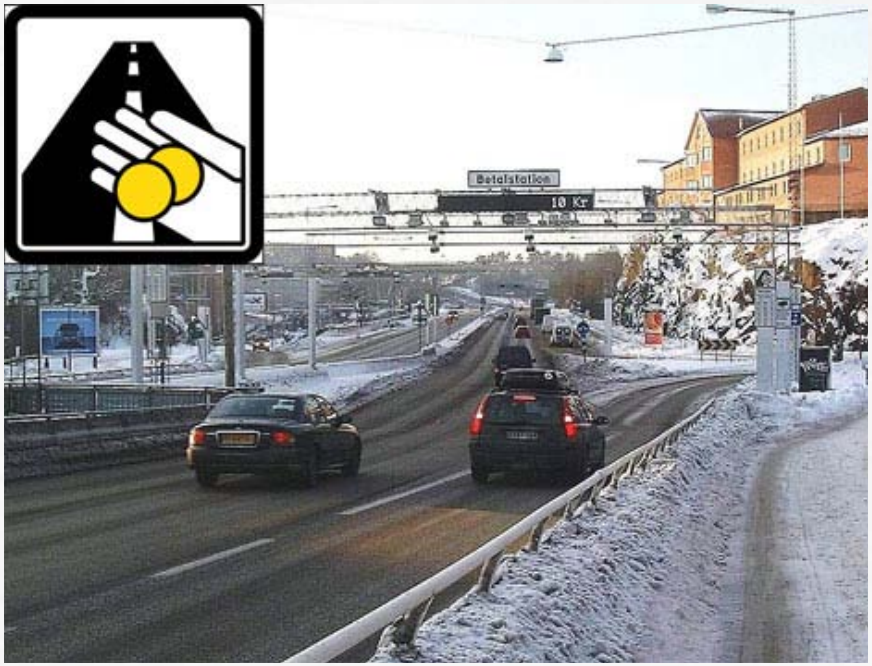
1. Poverty by postal code *outcome (vertical)* - many poorer neighborhoods were not served by public transit leaving privately owned cars as the only viable means to travel into jobs in central London.

2. Social Exclusion in Commercial Vehicle Fleets (Low Emissions Zone (LEZ) charges) *outcome (vertical)*– some small fleet commercial vehicle operators could not afford to purchase newer trucks with cleaner diesel engines to get lower LEZ charges. Big operators could all upgrade.

3. Parking by mobile telephone *opportunity (horizontal)*— Signage in English language was considered inequitable to EU citizens of non-English-speaking countries.

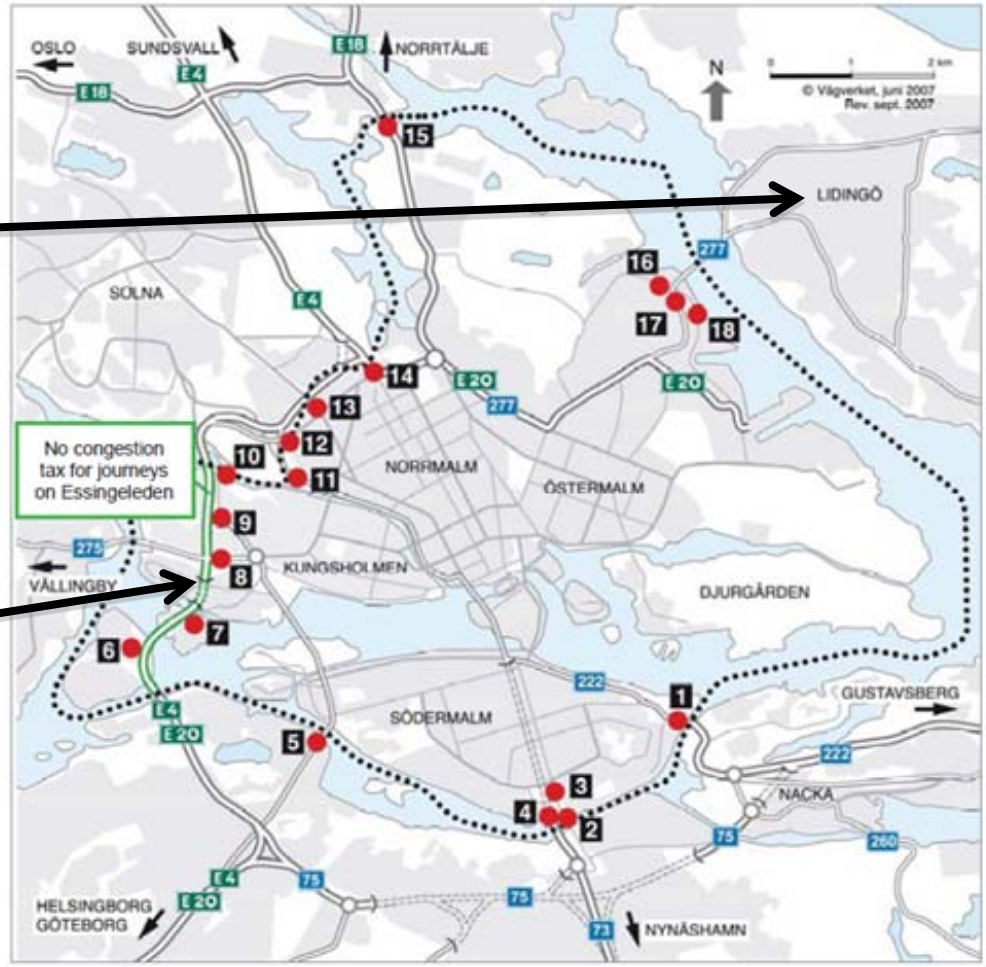
Stockholm Congestion Tax

- Cordon charge
- Time-of-day pricing
- Payment by Declaration or Post Payment by mail
- Outreach Activities
  - Pilot program
  - Referendum



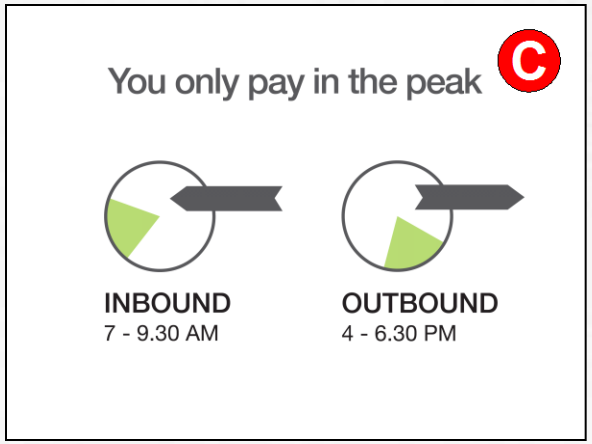
Stockholm Equity Issues

- Mitigation measures
  - Lidingo Island exemption *opportunity(horizontal)*
  - Essingeleden Bypass *opportunity(horizontal)*



Manchester Congestion Charge

- Proposed (failed) congestion charging project in Manchester UK
- Mitigation measures
  - Total package including transit improvements
  - Many Discounts/exemptions
  - Nuanced pricing: 2 rings, directional charging
- But it still failed because of equity issues:



Manchester Equity Issues:

1. Drivers vs. non-drivers *opportunity (horizontal)*: Much money planned for spent on improved Public Transit versus very small amount planned for actual road improvements.
2. Geographic issues *opportunity (horizontal)*:
    1. Edge issues: people paying for road charging just outside the zone versus those inside the zone.
    2. Unbalanced use of revenues: Improvement of Public Transit inside the zone but exclusion of improvements to larger areas of people outside the zone (yet still part of Greater Manchester and subject to the charge).

Manchester Equity Issues:

3. <u>Rebates/exemptions caused more problems than they solved</u> *opportunity (horizontal)*:
   - Exemptions for private bus operators and taxis
   - Access to employment for low income workers (Low Income Worker Discount)
   - Access to employment and education for disabled users ("Blue Badge" Discount)
   - Access to medical appointments (Medical Appointment Rebate)
   - Exemptions for doctors and National Health Service Employees but not commercial vehicles, private hired limo's, and non-NHS hospital employees – yet essential workers such as cleaners, kitchen support, lab technicians and temp nurses.

Conclusions

- **Be Proactive**: In addressing equity, need to do upfront analysis during program, anticipating vertical and horizontal equity concerns, and what mitigation measures can be put in place to offset equity arguments.
- **React Positively & Define the equity concern:** Translate an equity issue into a structure of opportunity/market (horizontal) and outcome (vertical) in order to clearly define the equity argument.
- **Be Holistic:** measure the entire equity argument of the system as it existed before, and what you're changing, in order to look at it as a whole: Are we better off with the new system than we were with the old system?

Resources

- Victoria Transportation Policy Institute (Todd Litman) http://www.vtpi.org/
- Centre for Transport and Society (Phil Goodwin) http://www.transport.uwe.ac.uk/staff/phil.asp

Thank You!

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FHWA Resources

Available on web:

Income-Based Equity Impacts of Congestion Pricing—A Primer
http://ops.fhwa.dot.gov/publications/fhwahop08040/cp_prim5_00.htm

Synthesis of Congestion Pricing-Related Environmental Impact Analyses
http://ops.fhwa.dot.gov/publications/fhwahop11008/index.htm

Surface Transportation Efficiency Analysis Model (STEAM)
http://www.fhwa.dot.gov/steam/products.htm

Underway:

Environmental Justice in Transportation: Emerging Trends and Best Practices

Guidebook on Evaluating and Mitigating Equity Impacts of Road Pricing