



Transportation White Paper

Congestion Pricing for Downtown Seattle

Presentation to Washington Transportation Commission

December 17, 2019

- The City of Seattle has been examining congestion pricing as well as other means of generating revenues.
- Uber is participating nationally in efforts to better understand the promise of congestion pricing.
- The City recently released a phase 1 report examining congestion pricing for downtown.
- Uber commissioned a white paper on the topic from ECONorthwest.

ECONORTHWEST CHARGE

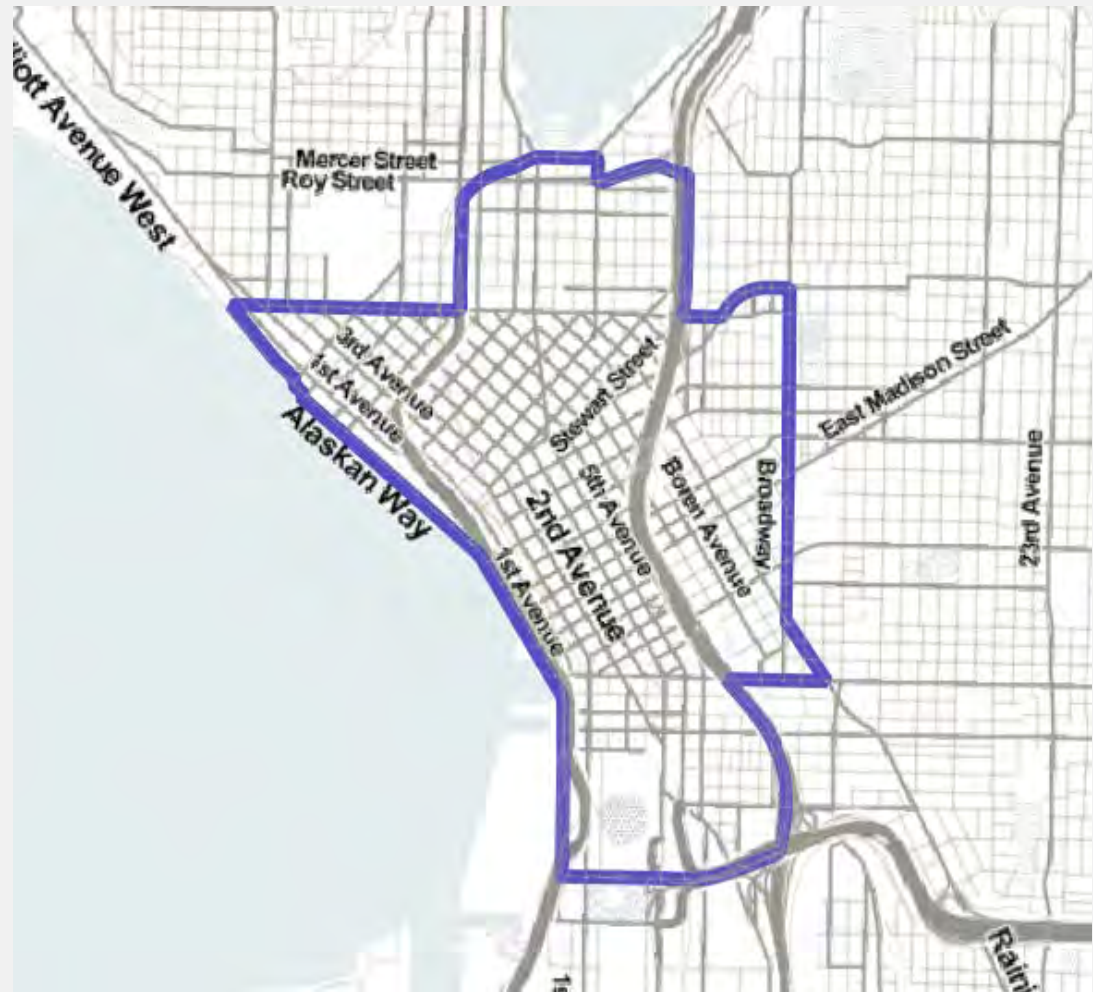
- Examine a fair and efficient toll policy for downtown Seattle that maximizes the benefits of the existing infrastructure.
 - Avoid tolls that are too high or too low
 - Easy to understand and communicate
 - Fair
- Contribute to the City's evaluation of congestion pricing.
- The White Paper addresses all the study objectives outlined in the City's Phase 1 Report

A well designed downtown congestion toll yields significant benefits:

- 30% reduction in travel time during peak travel hours
- \$90 million in annual household travel time savings
- 4% increase in transit usage without increases to transit supply
- \$130 million in annual gross revenues
- Most tolls paid by high-income commuters

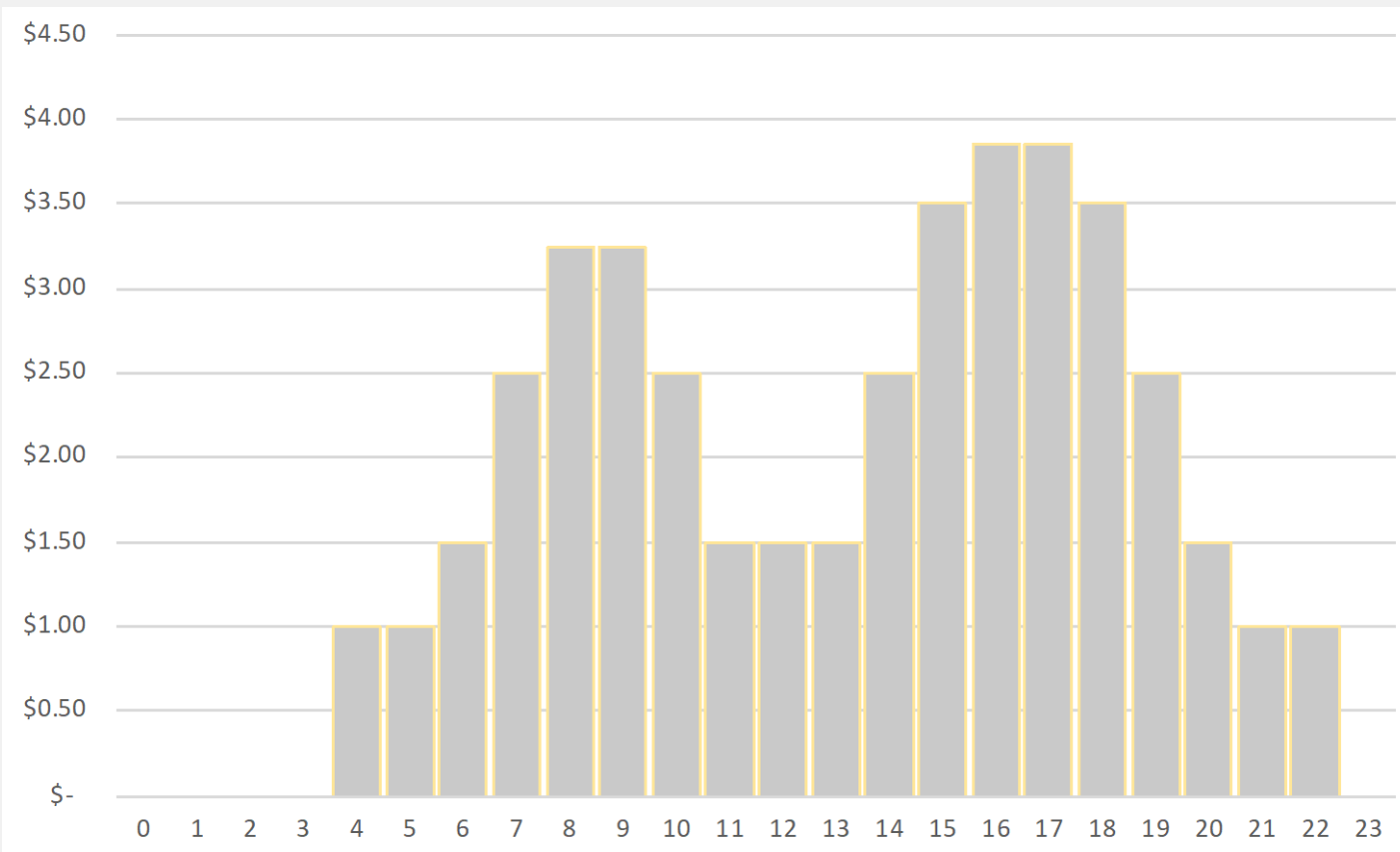
TOLLING ZONE

- Strong coherence within core downtown.
- Secondary zones on the west, east and south of downtown.
- Zones could have different toll rates and/or start and end times.



TOLL RATES

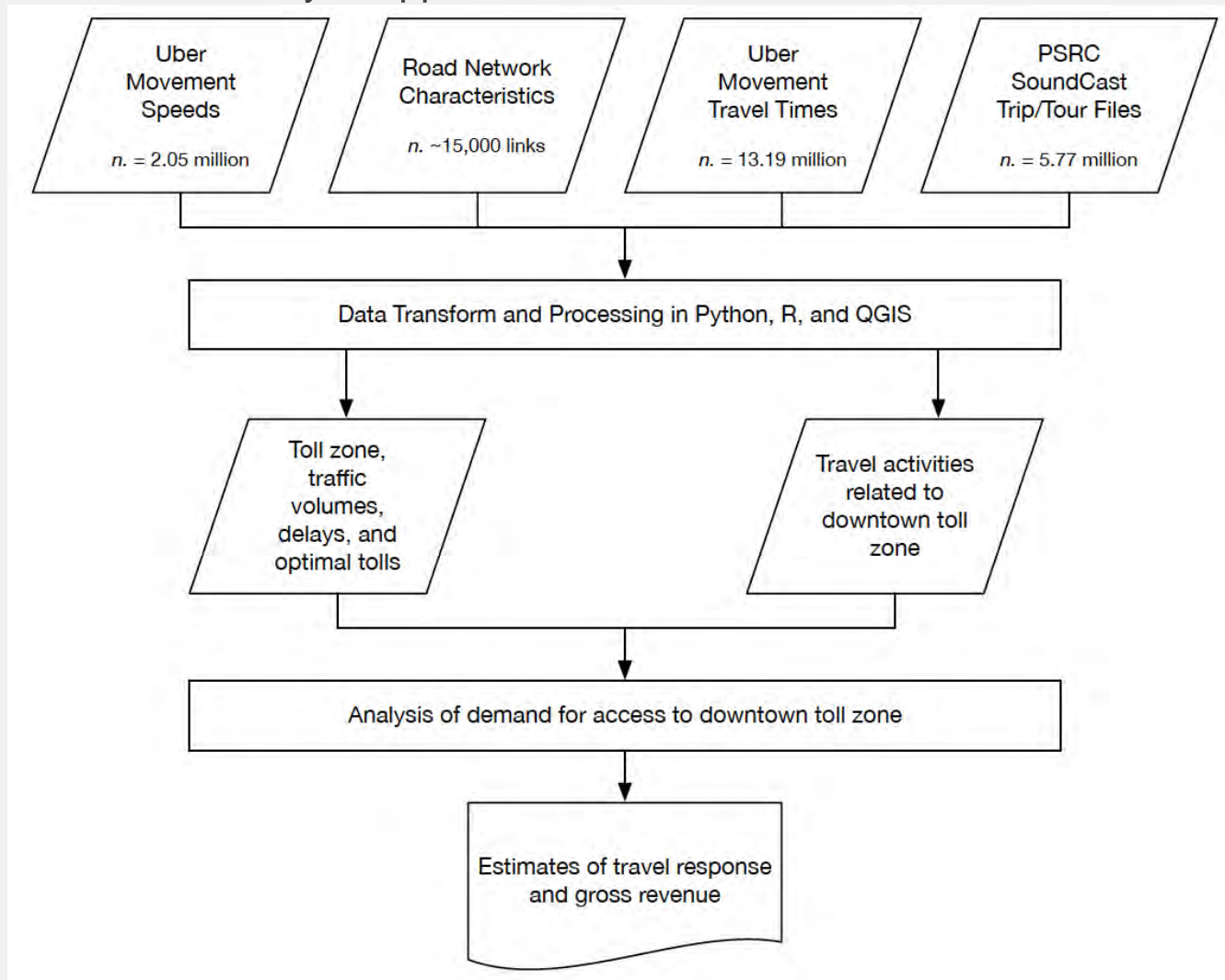
- Tolls vary by hour of the day
- Vehicles pay the toll no more than once per day
- The toll paid is for the highest toll hour of the day



CONGESTION ON URBAN STREETS

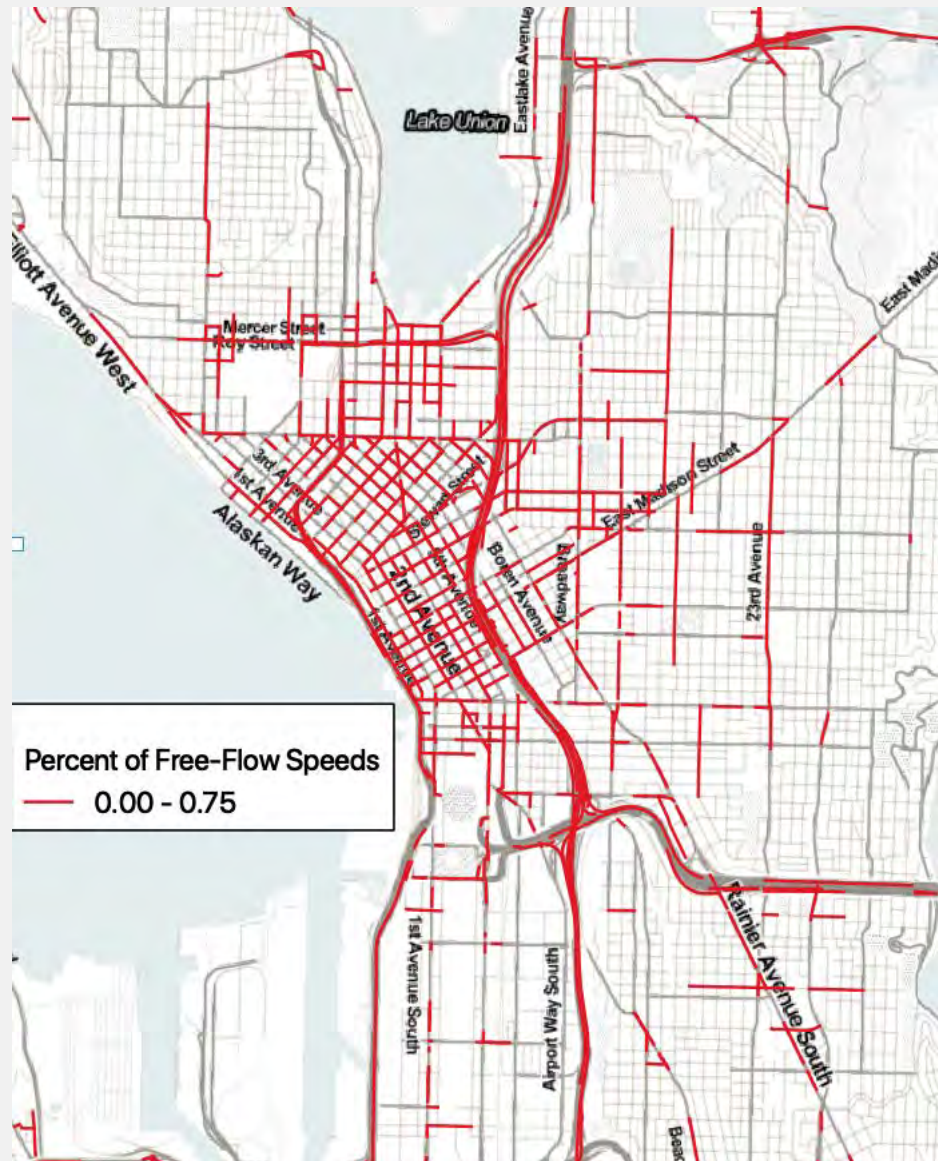
- Urban Networks
 - Prone to hyper-congestion (a condition where the effective capacity of the network declines)
 - Unlike freeways there are many intersecting queues
 - A downtown network can share performance characteristics of a single queue
- Tolling Implications
 - Should toll the hyper-congested state (more severe congestion)
 - Toll would need to be time-of-day specific
 - Simplified toll structure can still yield large benefits
 - Tolls paid by users will offset the time savings to users as a whole

Overview of Analytic Approach



5 PM SPEEDS BELOW 75% OF FREEFLOW SPEED

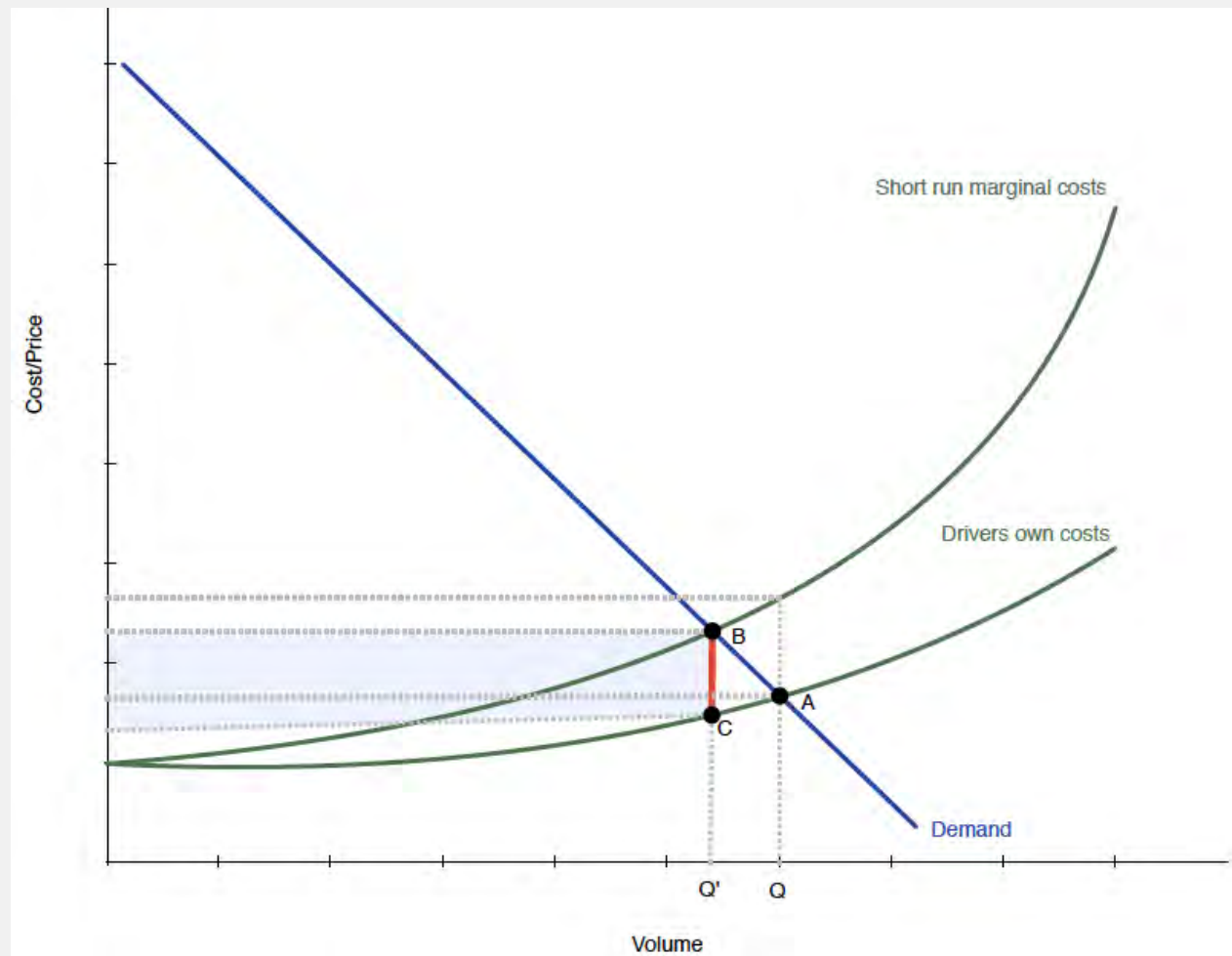
- Uber speeds data summarizes facility performance.
- Filtered by day of week, hour of day.
- Mean speeds, standard deviations, other points in the distribution.



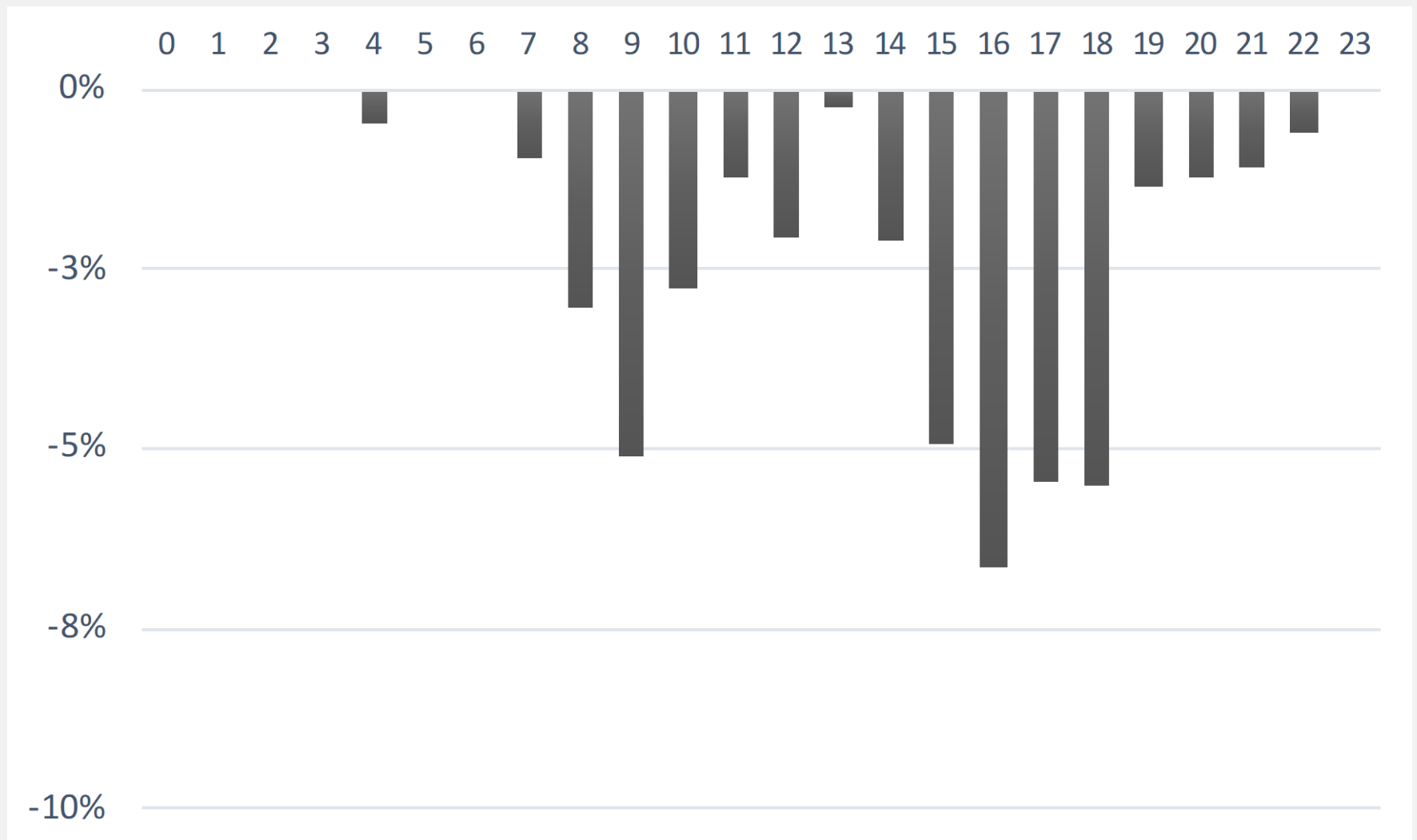
STANDARD DIAGRAM

Optimal tolls can be estimated from data about speeds, volumes, and nature of delay on road segments.

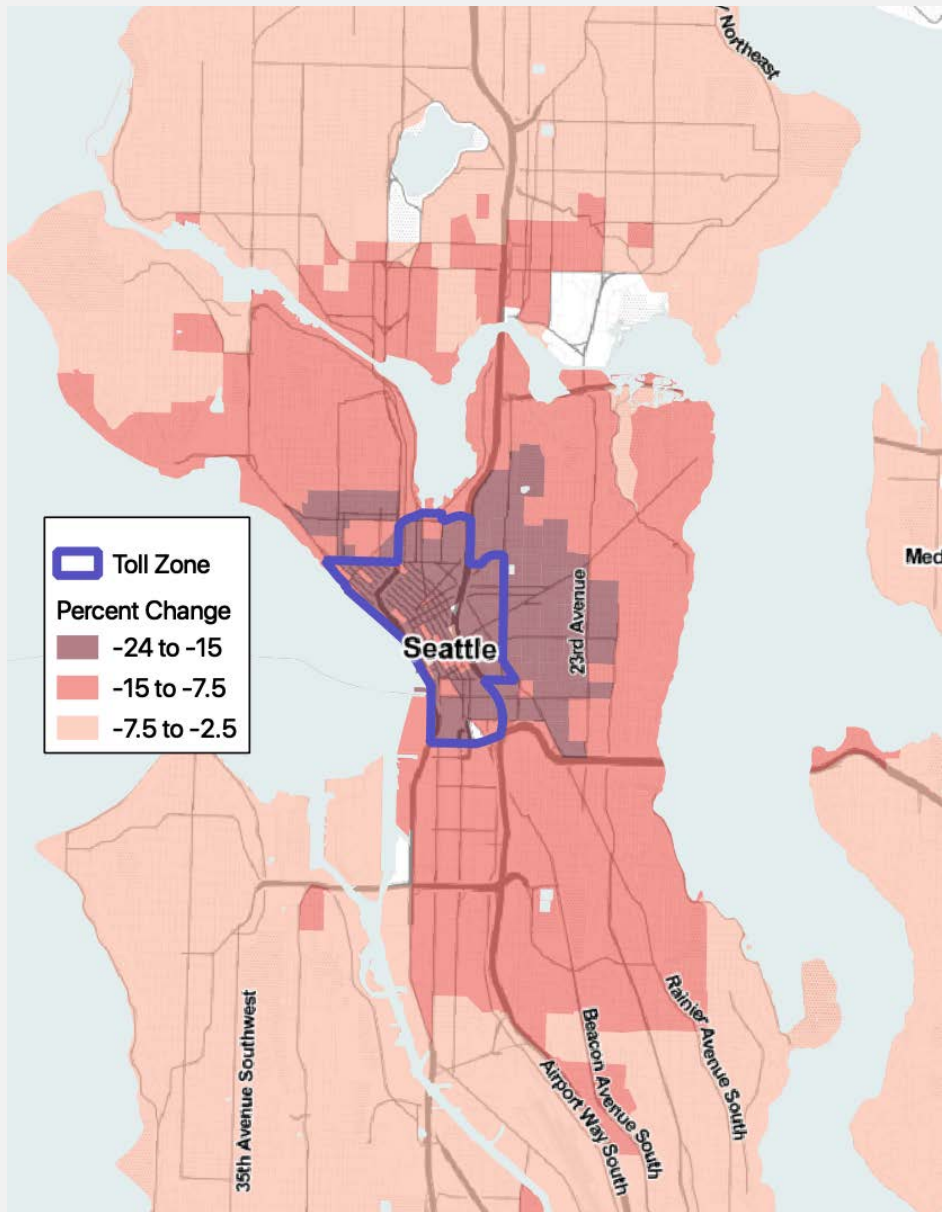
Starting with a fixed estimate of demands.



AUTO TOUR REDUCTIONS

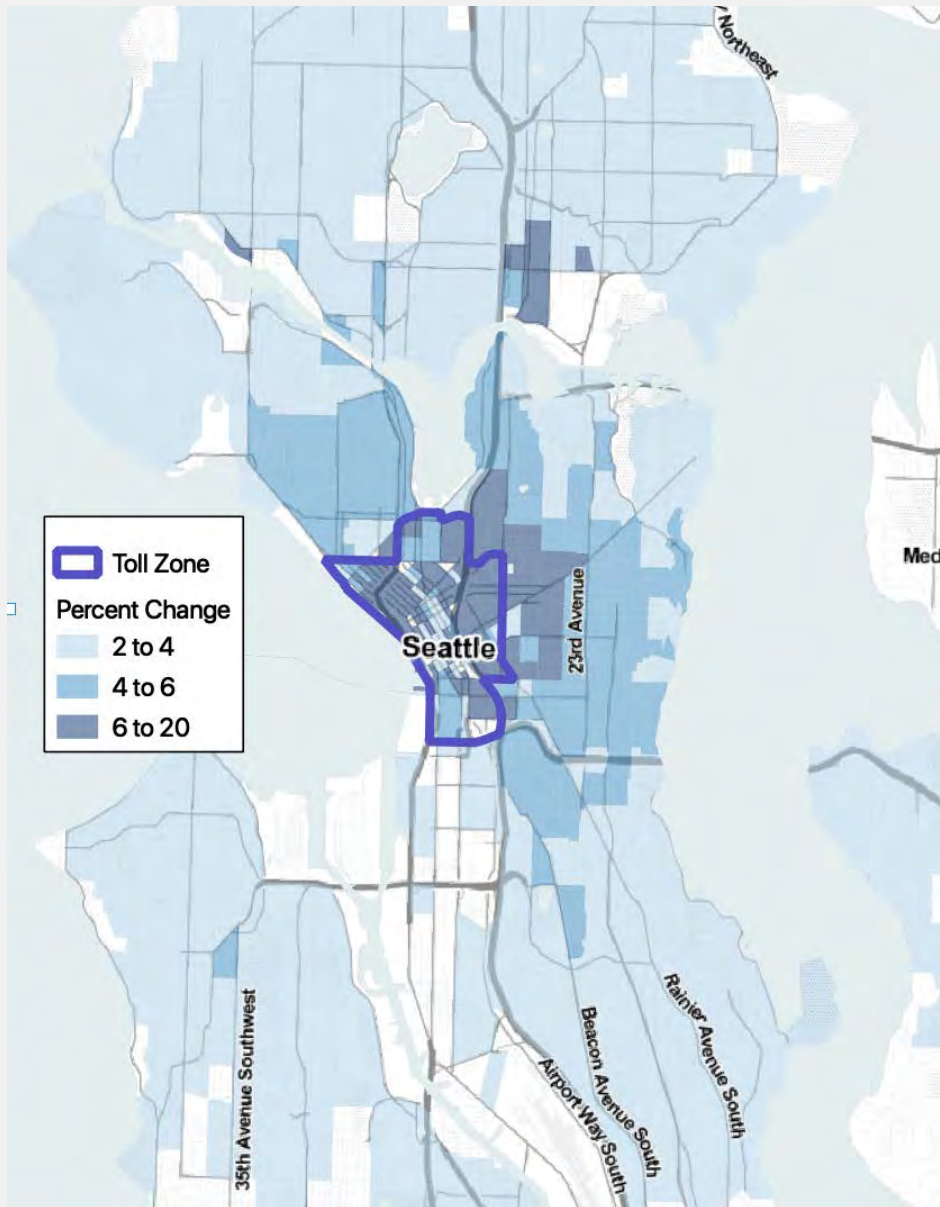


AUTO TOURS



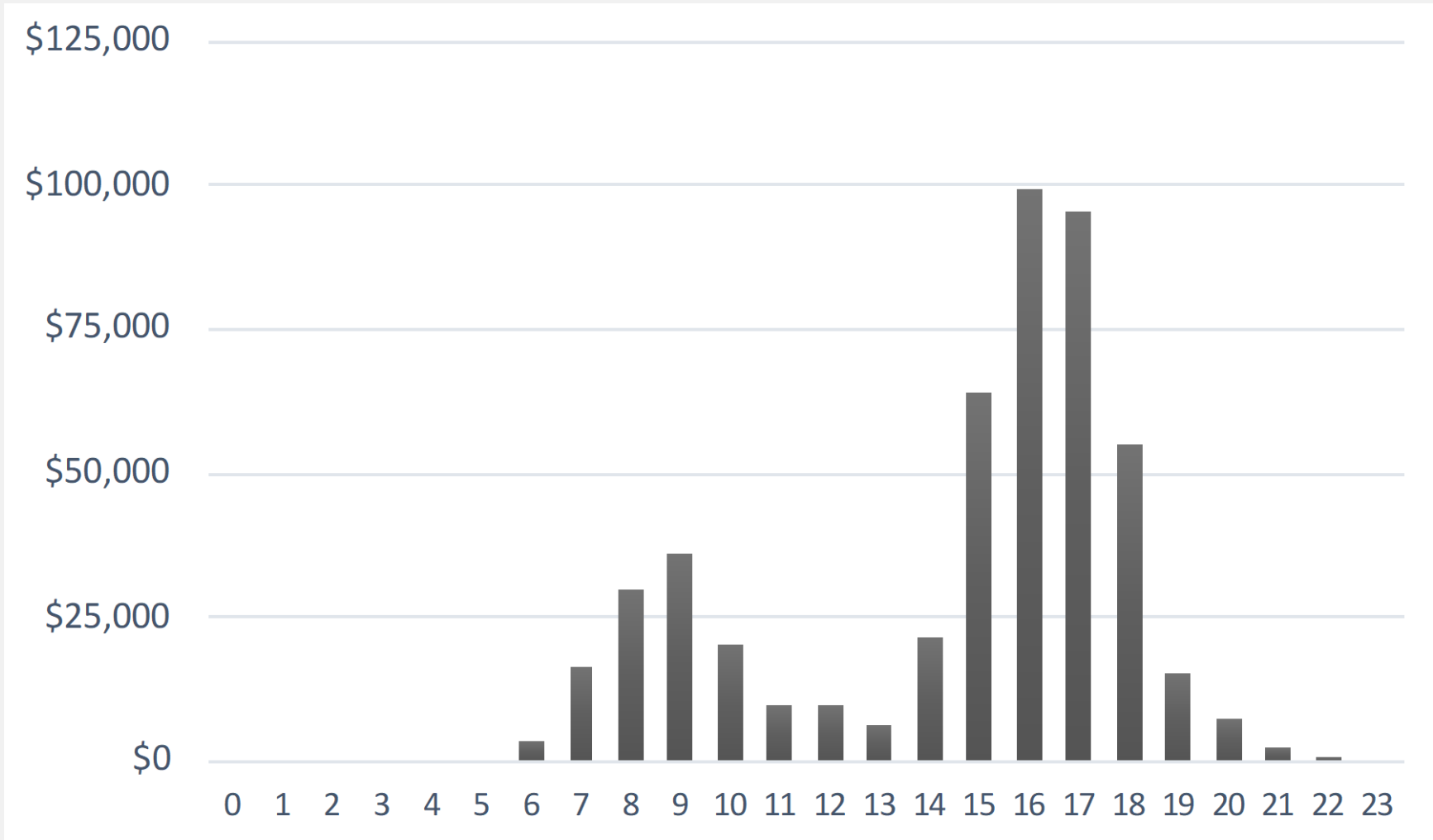
- Close-in, shorter distance, auto tours respond more to tolls.
- This is an expected result of a cordon/area charge.

TRANSIT TOURS



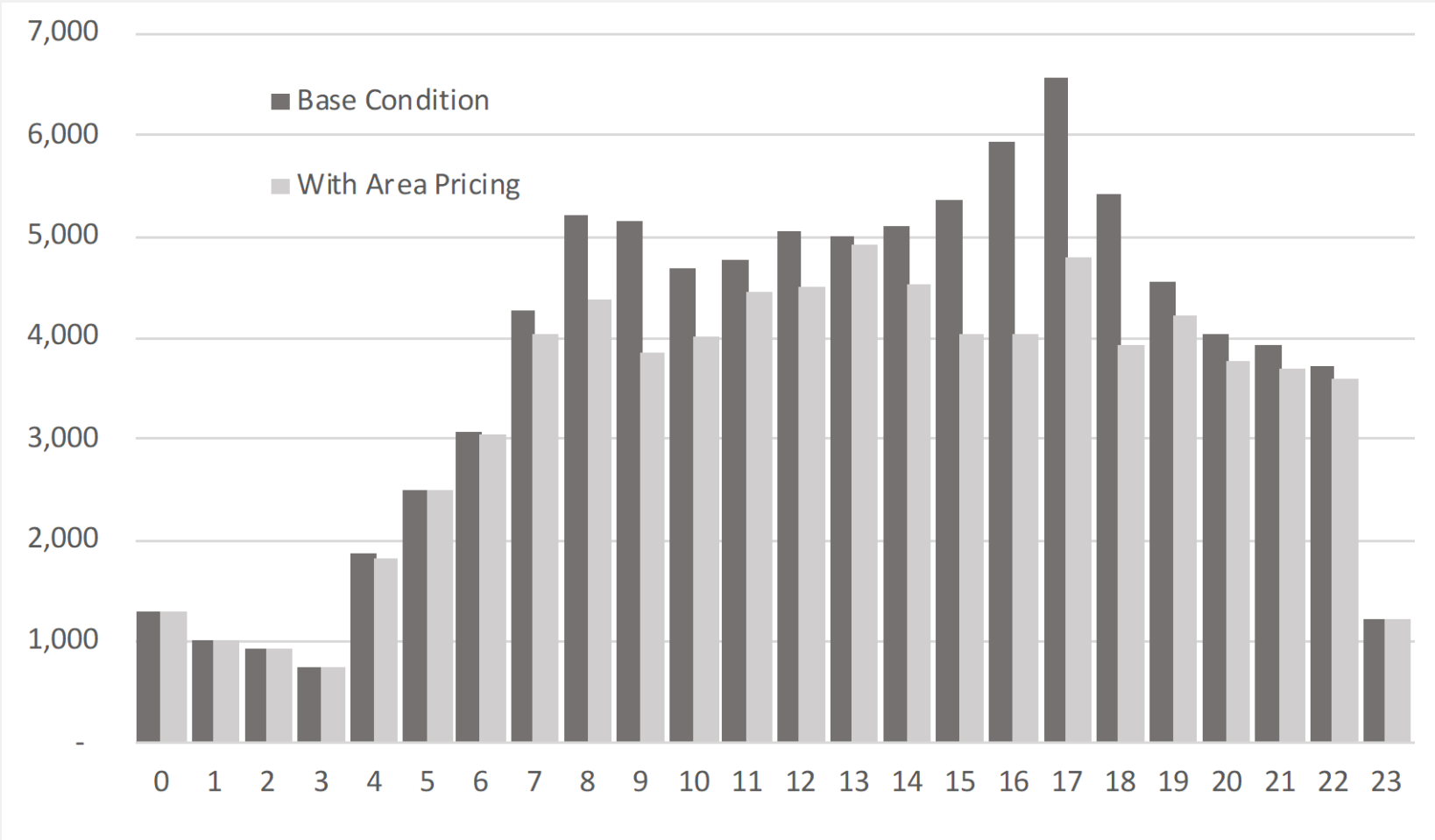
- Transit tours would likely increase where transit service is already competitive.
- Adding more transit services could yield additional transit tours.

DAILY GROSS REVENUE BY HOUR

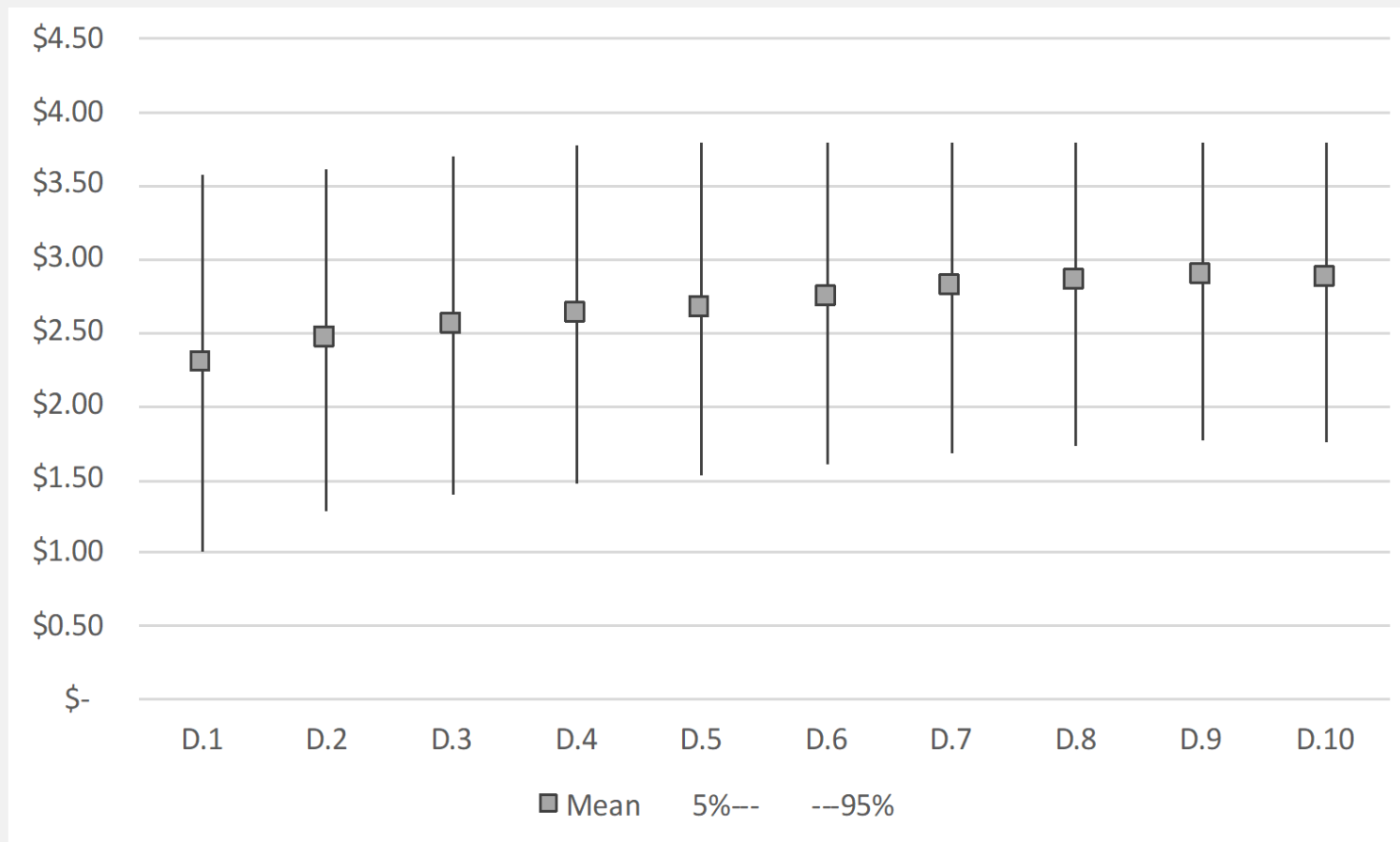


TRAVEL TIMES

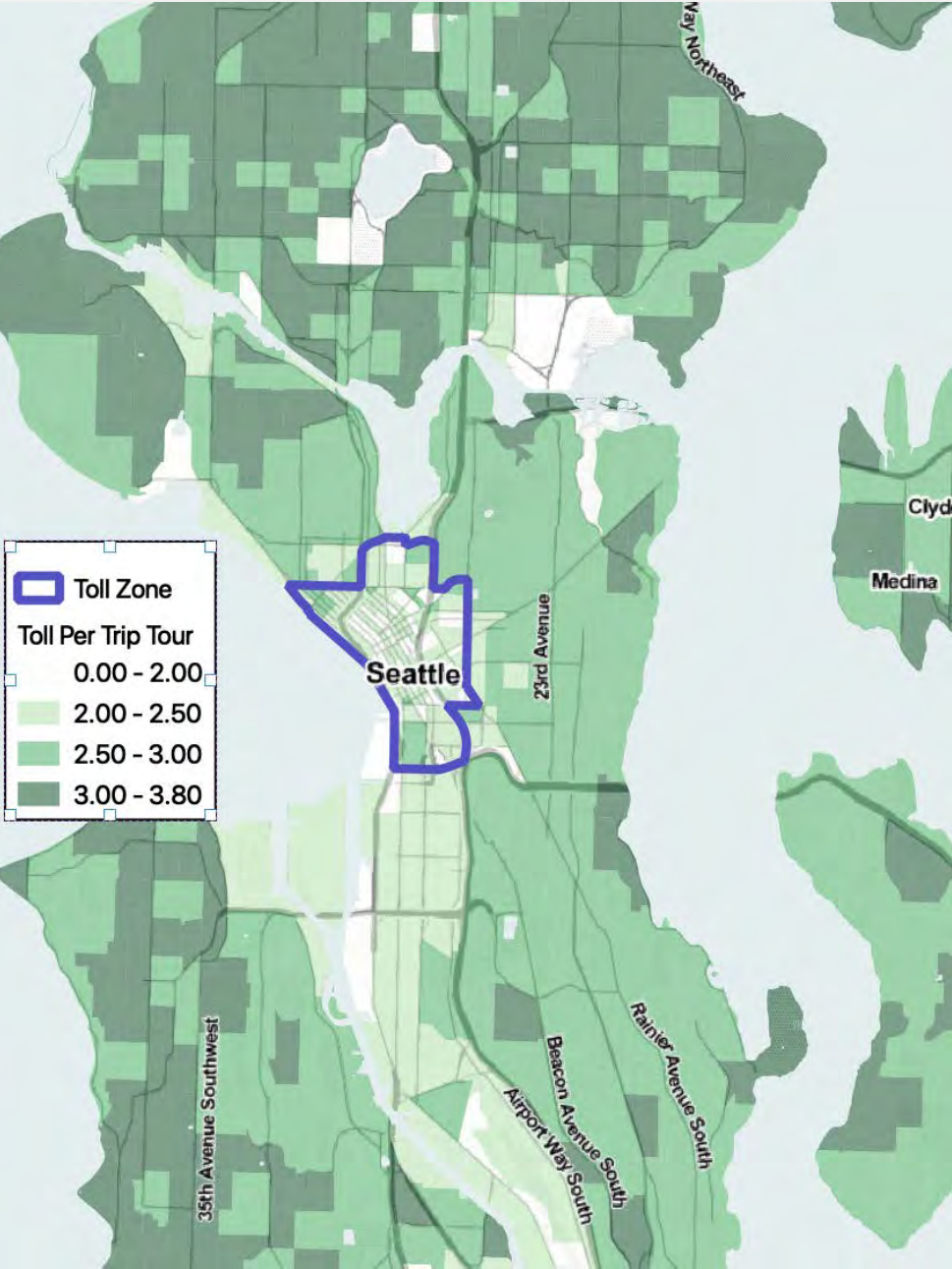
Hours of Auto Travel Time With and Without Pricing: 30% Time Savings In Peak



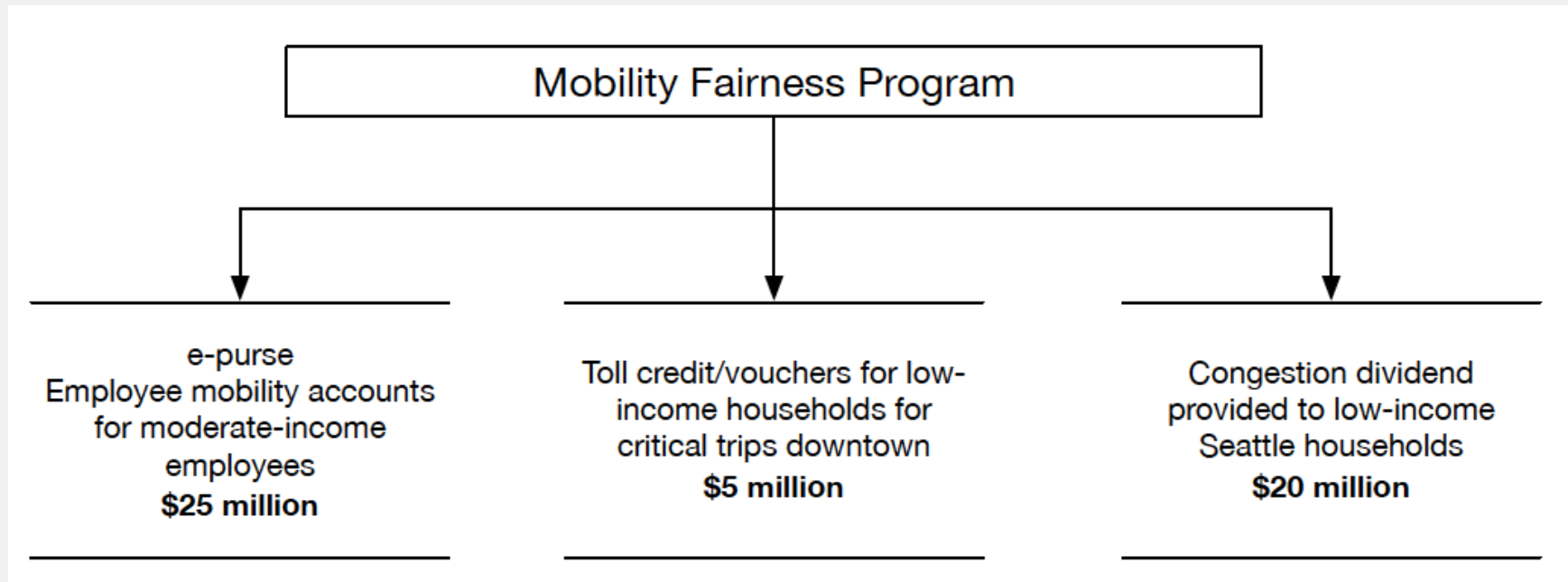
Average Toll Paid per Tour by Income Decile



AVERAGE TOLLS



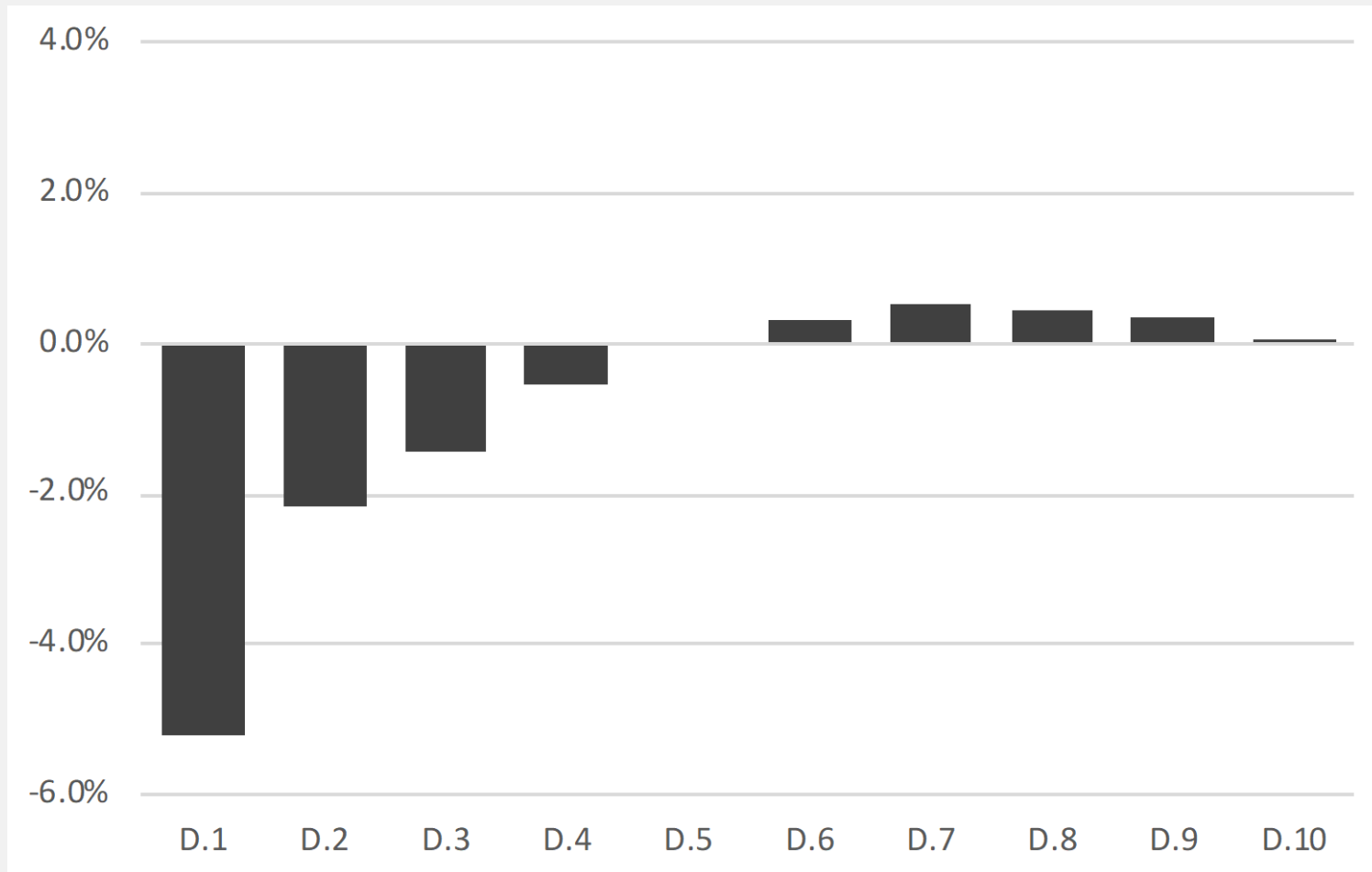
MOBILITY FAIRNESS PROGRAM



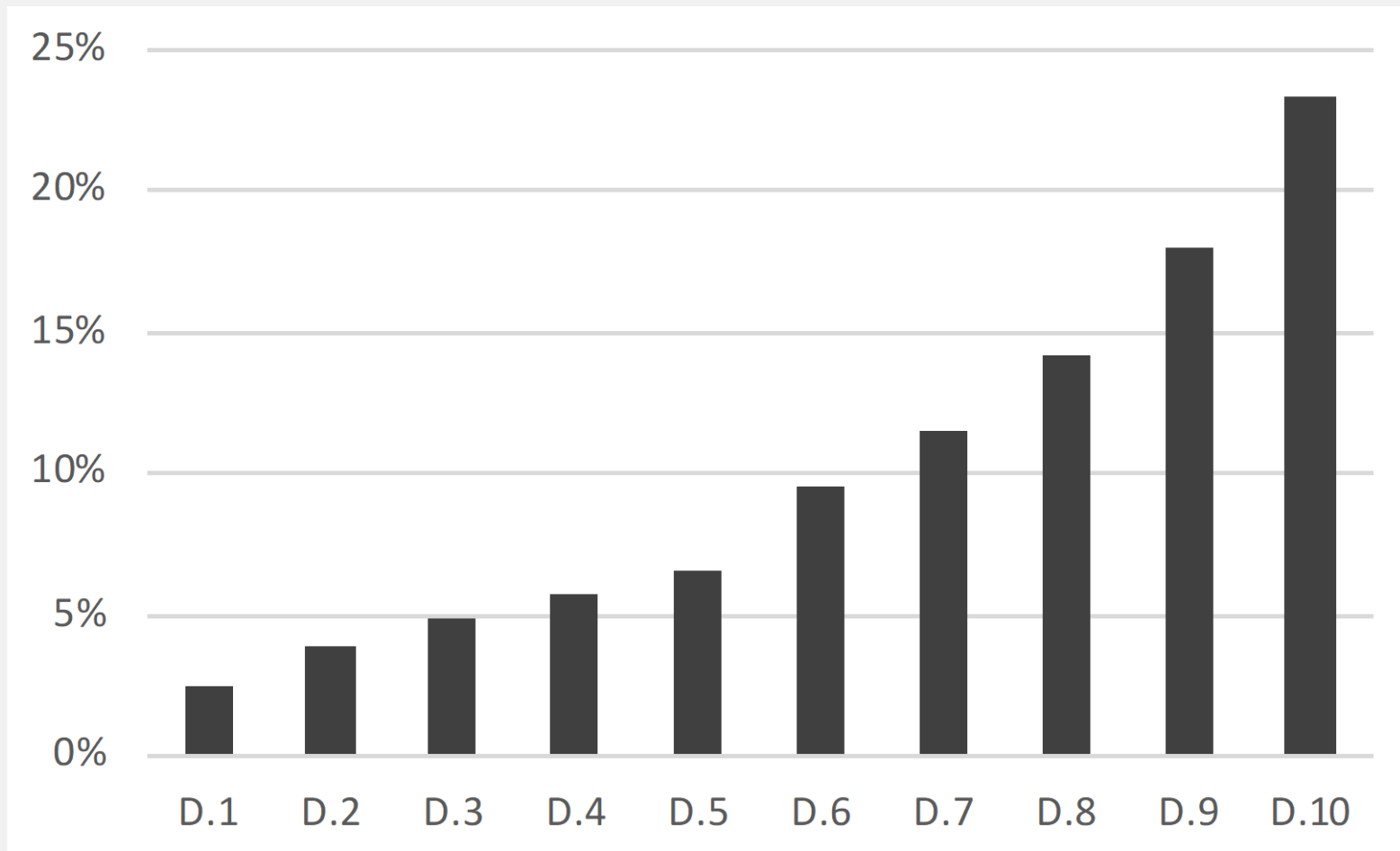
\$50 M of \$130 million to advance mobility fairness

- e-purse program: \$80/month for downtown workers at or below regional median income.
- Toll credits/vouchers for auto trips for essential services, such as medical visits, by low-income drivers.
- \$25 monthly mobility dividend to all Seattle low-income households.

Toll Plus e-Purse Share of Income for an Average Downtown Employee by Income Decile



Share of Toll Revenue by Regional Household Income Decile



- Cordon/Area charges are not an ideal form of pricing, but still can yield benefits if carefully designed.
- A toll system for downtown streets can also be designed to address questions of fairness.
- Key features of fair and efficient congestion pricing include:
 - Area toll levied on all vehicles
 - Tolls vary by time of day, adjusted quarterly
 - Mobility e-purse program at 30% of gross revenues to mitigate impacts on those earning below median income



Portland



Eugene



Seattle



Boise

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