

Buying Decongestion: More Equitable Than Tolls?

Transportation 2020 : Equity in Transportation

Congestion-Clearing Payments to Passengers Project

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Research project of Mineta Transportation Institute, transweb.sjsu.edu

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Congestion-Clearing Payments to Passengers: research questions

Instead of building infrastructure or pricing congestion:

- “Would it be possible to manage the volume of peak traffic through payment of incentives at a level that would get enough people to travel as passengers in carpools, vanpools or buses, that the congestion could be eliminated?”
- “If so, at what cost, and with what benefits?”
- “Would the benefits exceed the costs?”

Passenger Verification App

Frequent Flyer Program For Ground Transportation

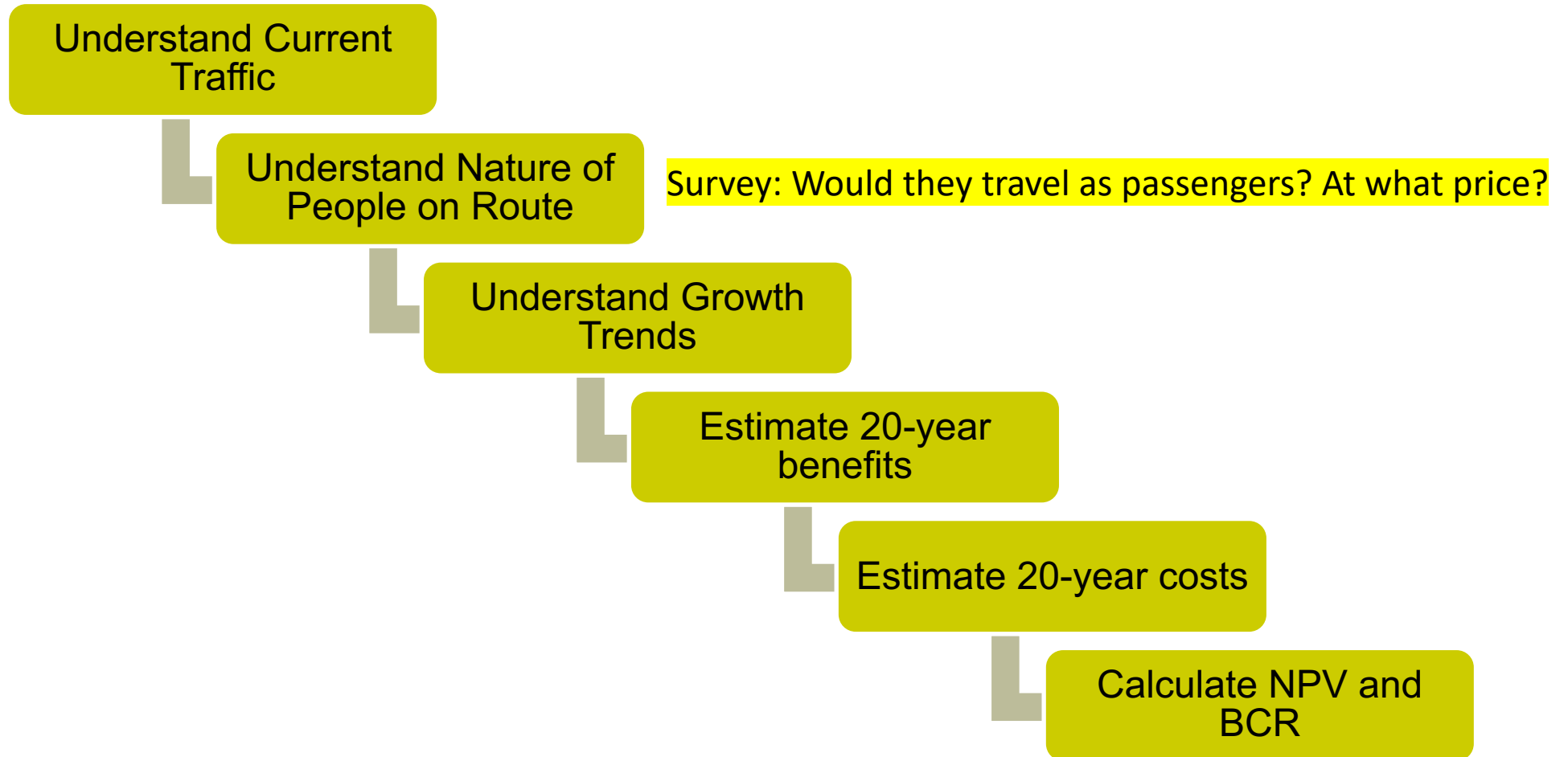
Earn miles for all of your commute and travel. Redeem miles for exclusive rewards.



Source: <https://www.getmiles.com/> Screenshot captured March 2020



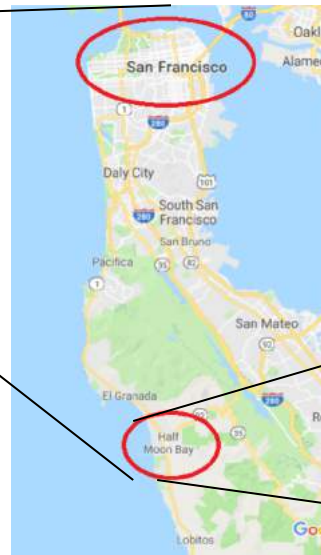
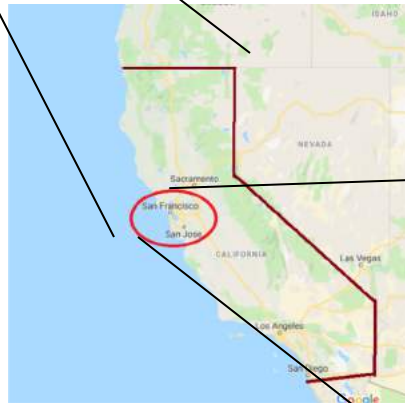
Incentive Solution Evaluation Methodology



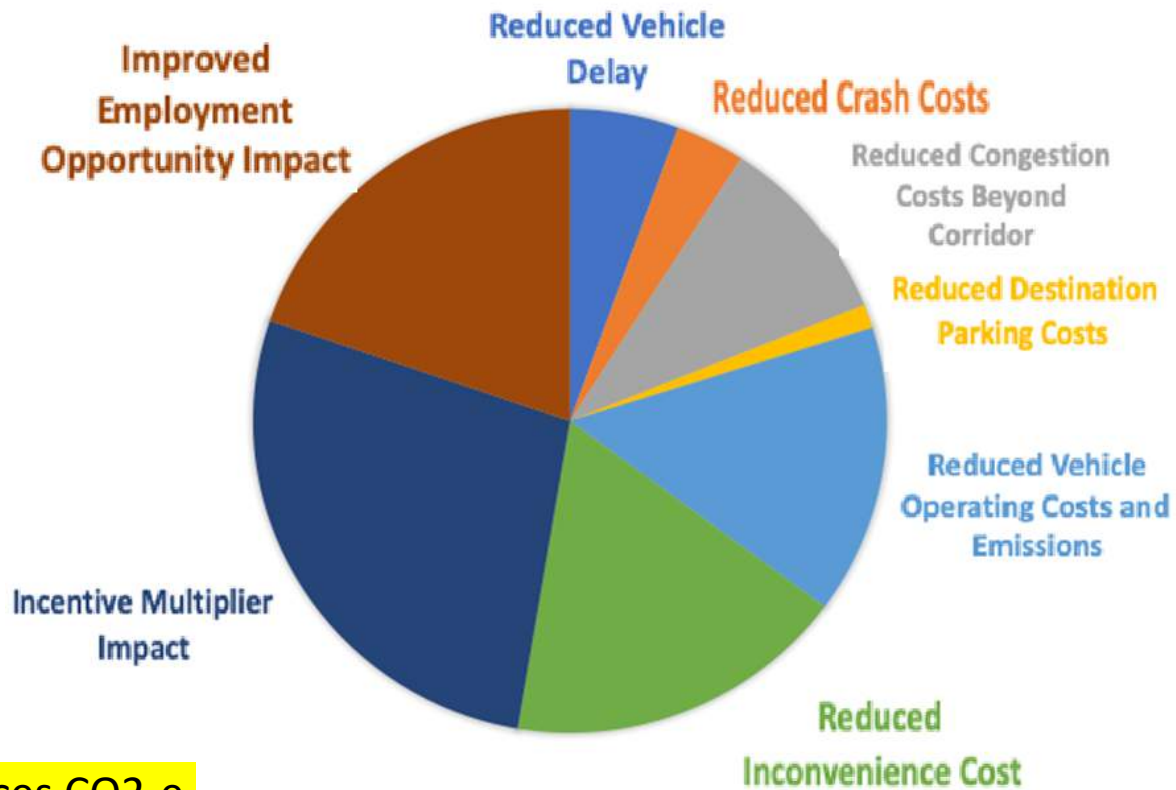
Case study route in California

From Half Moon Bay to Silicon Valley

A single bottleneck at the beginning of the route and capacity of about 1,400 vehicles per hour, with no plan for expansion, and chronic daily congestion at the bottleneck.



Benefit and Costs

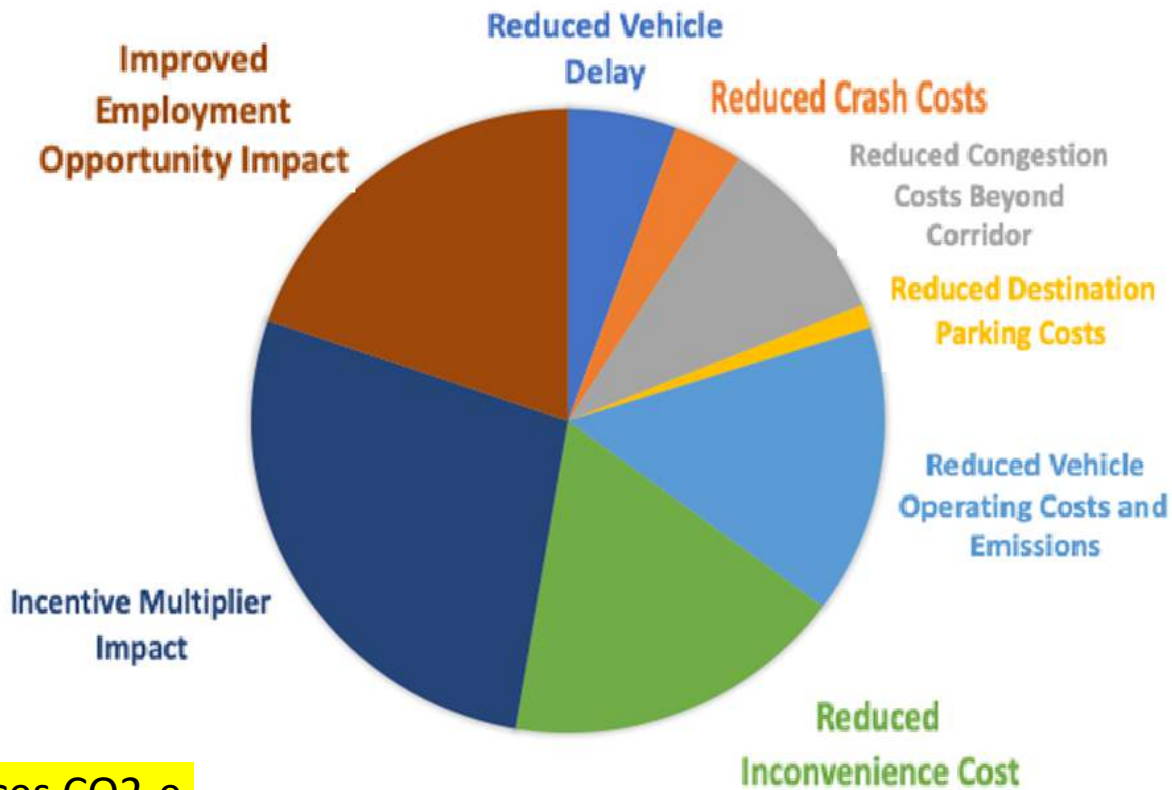


Case Study Route Only
3% discount factor

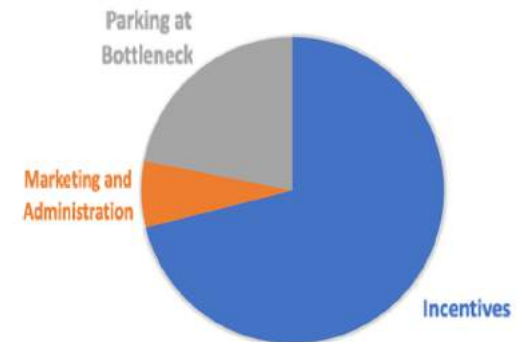
Reduces CO2-e emissions by 181,000 tonnes over the 20 years

PV 20-yr benefits \$640 Million

Benefit and Costs



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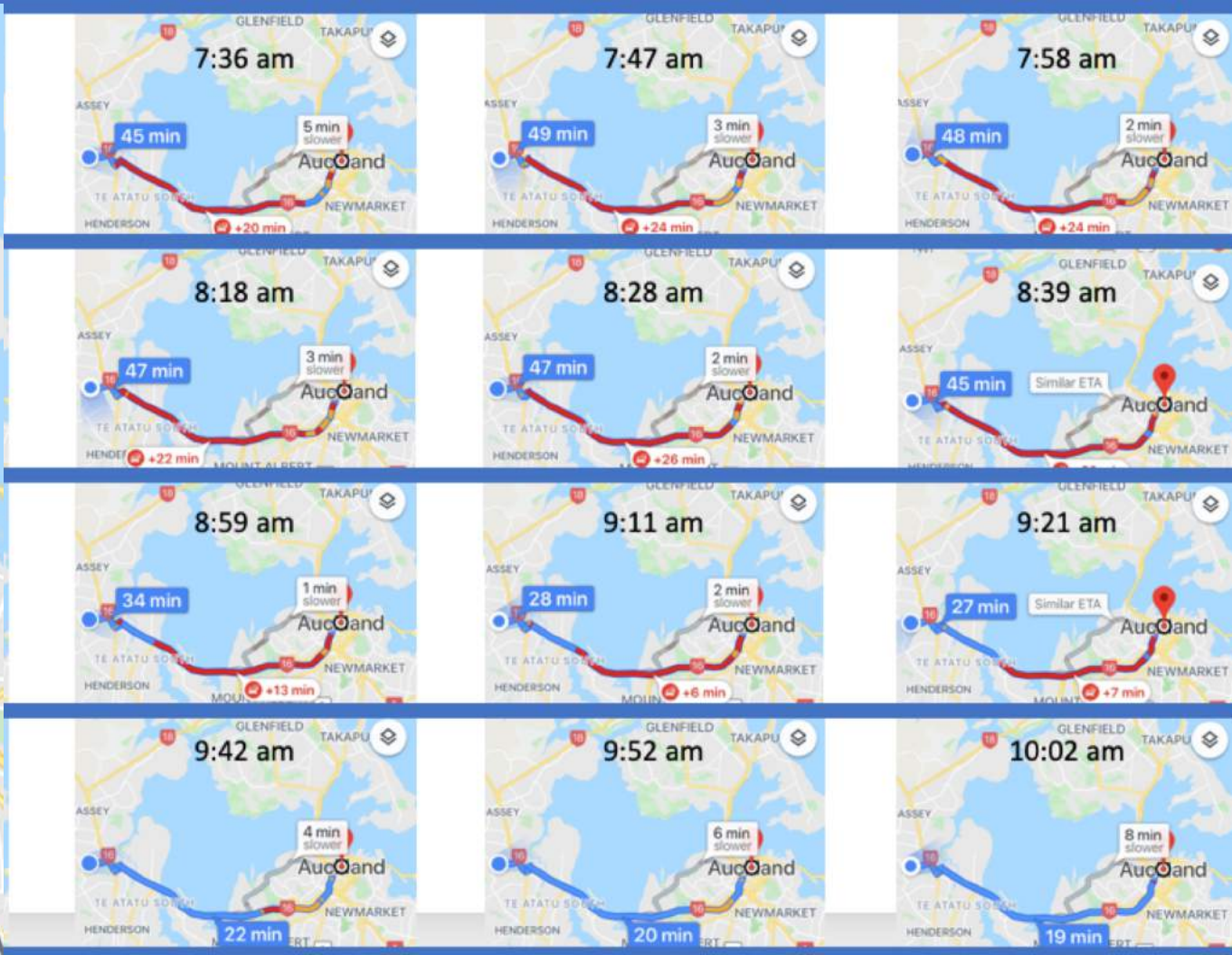
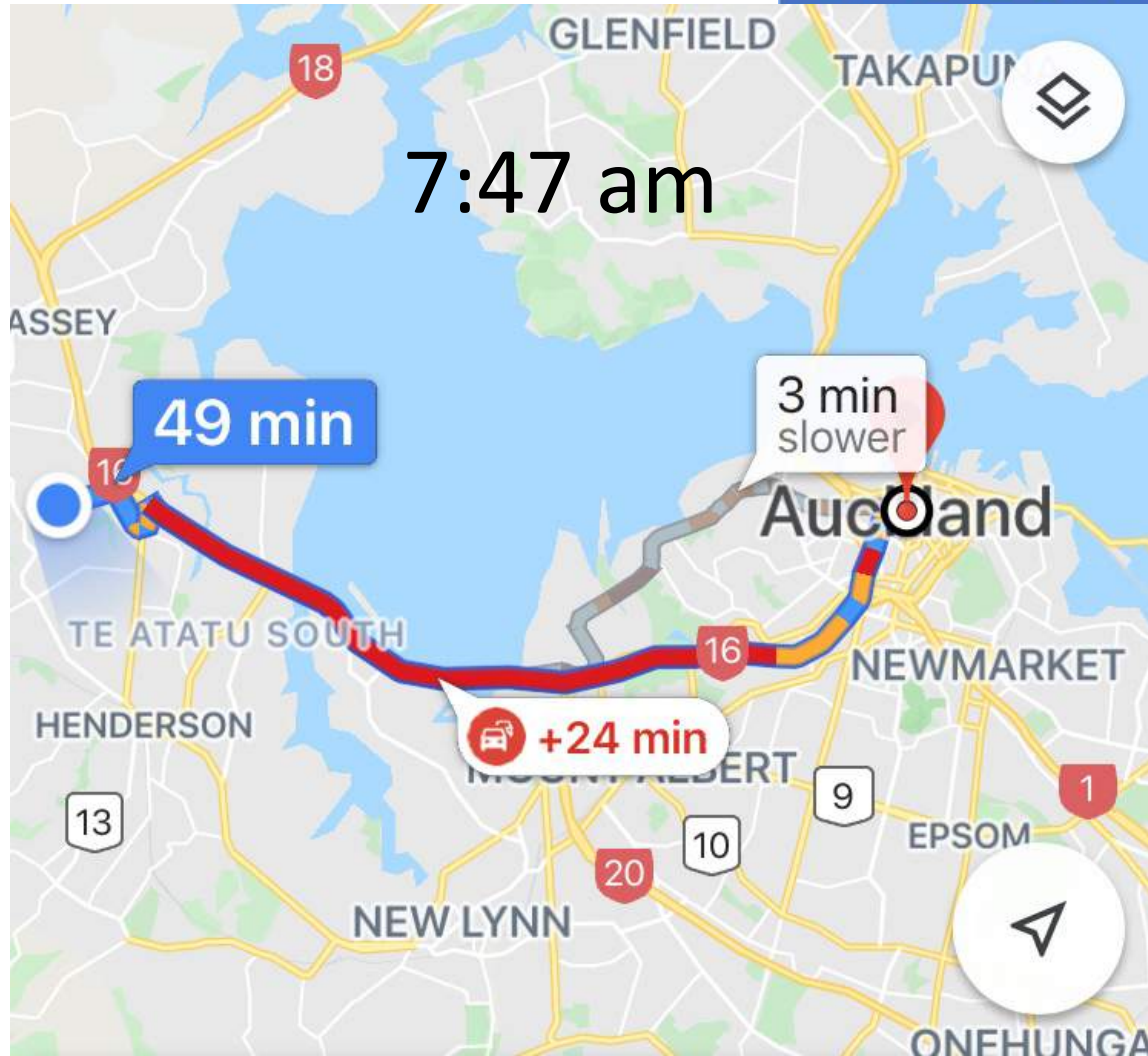


Net Present Value
\$500 Million
BCR is 4.5



PV 20-yr costs
\$140 Million

Northwestern Motorway (9 March 2020)





Source of Funds

- Route evaluations – transportation research funds
- Pilot projects – transportation research funds
- Ongoing implementations – smart people will figure this out

Equity

- Do nothing or charge congestion tolls
 - Cost of congestion hits less well-off disproportionately as % of income
- Expand infrastructure:
 - Absorbs money that could be used for better purposes, doesn't solve the problem (see Northwestern Motorway)
- Passenger incentives (at congestion-clearing level):
 - Increases access to jobs and education
 - Reduces transportation costs, distributes money
 - Benefits all, but to greater proportion vs income for the less well-off



Next Steps for Research

- Revising final report (180 pages)
- Method is available for evaluating more routes.
Your suggestions, please?!
- Exploring options for funding a pilot project on the case study route

Any Questions?

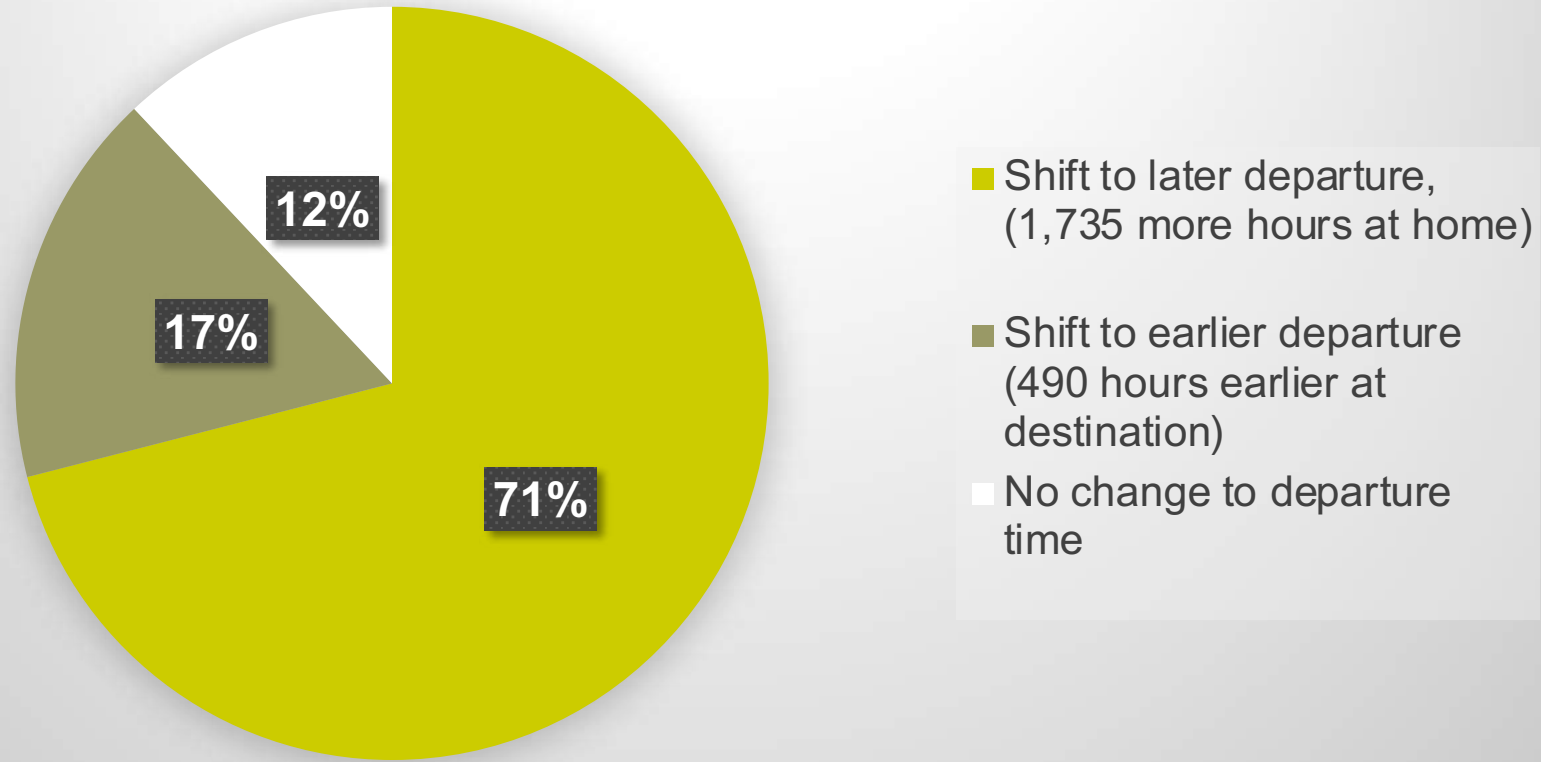
Contact Details

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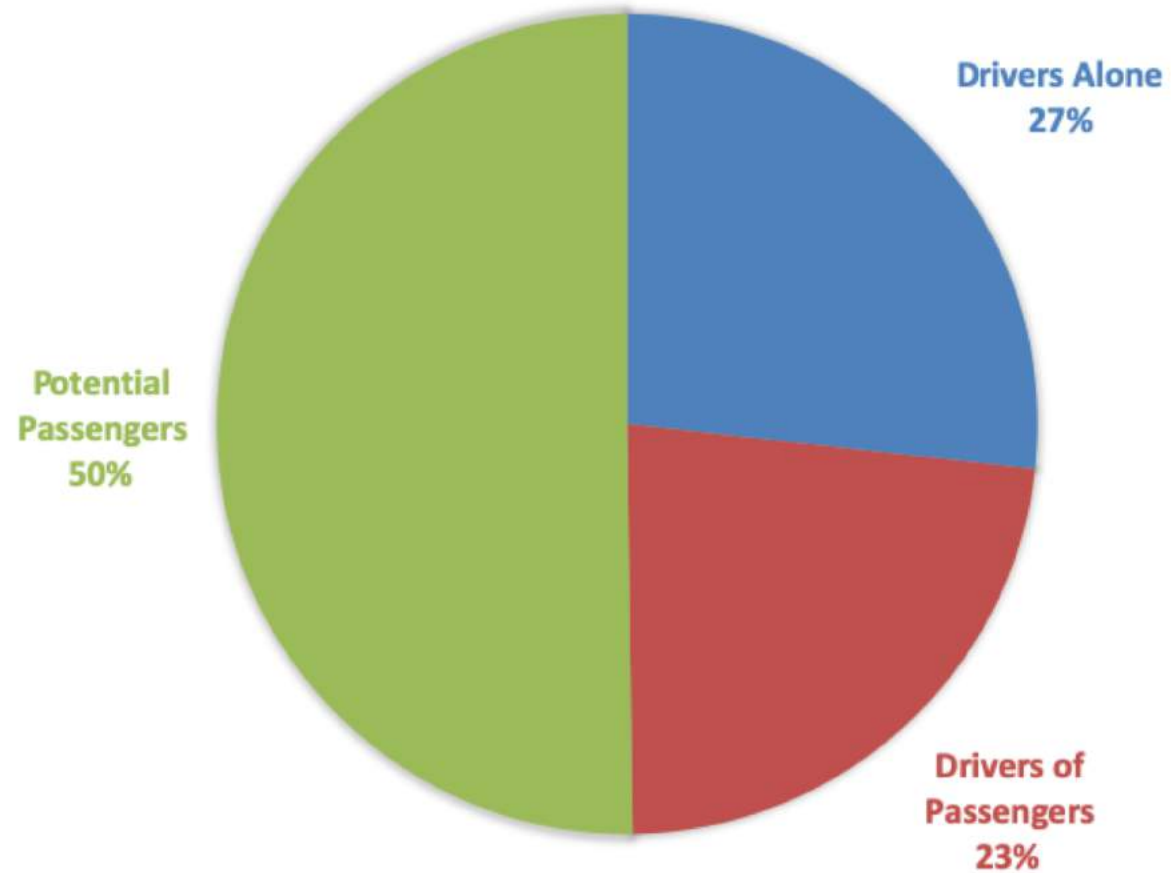
- Thanks!
- Email me if you would like to read the project report.

If Congestion Went Away

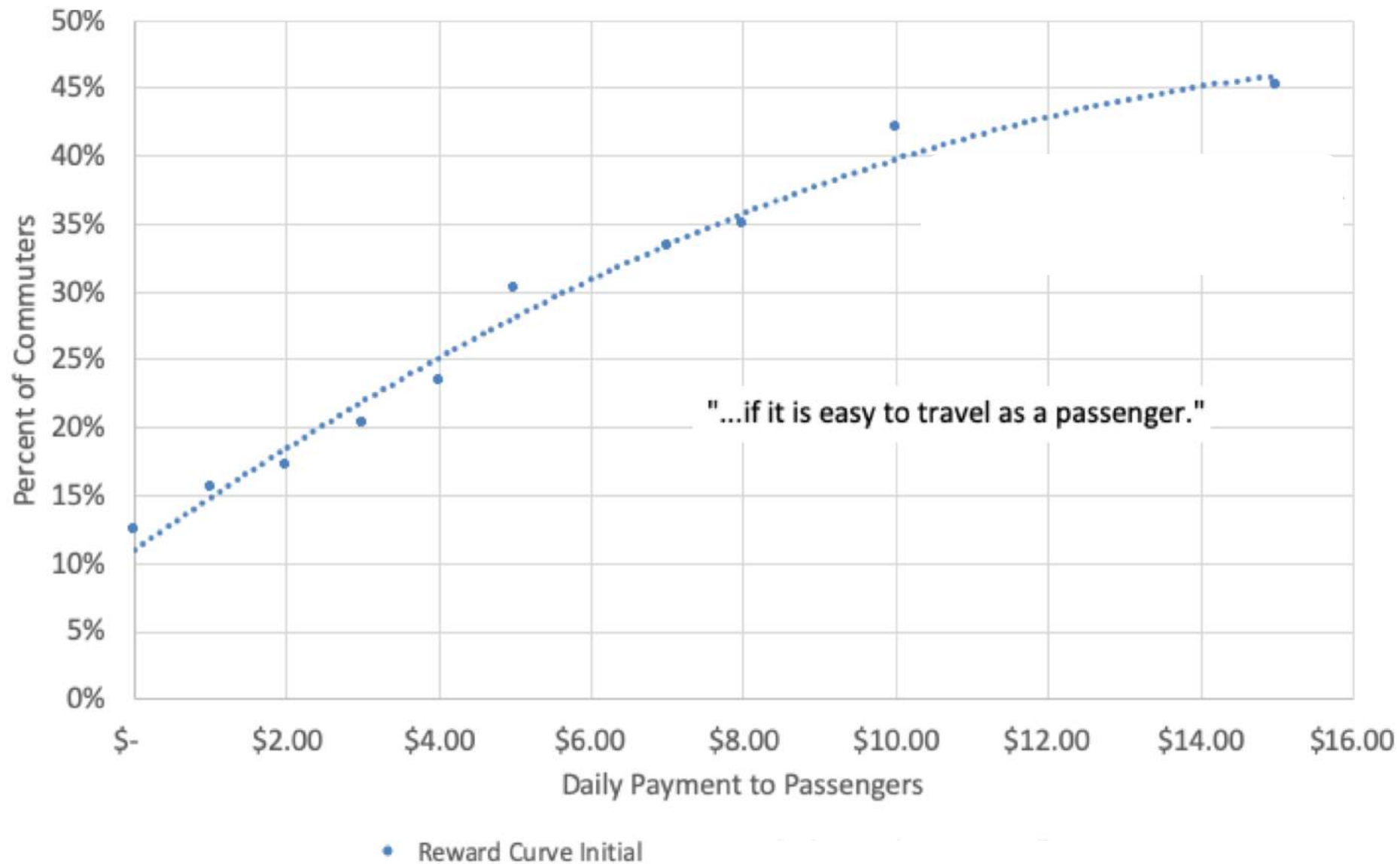
Existing Commuters



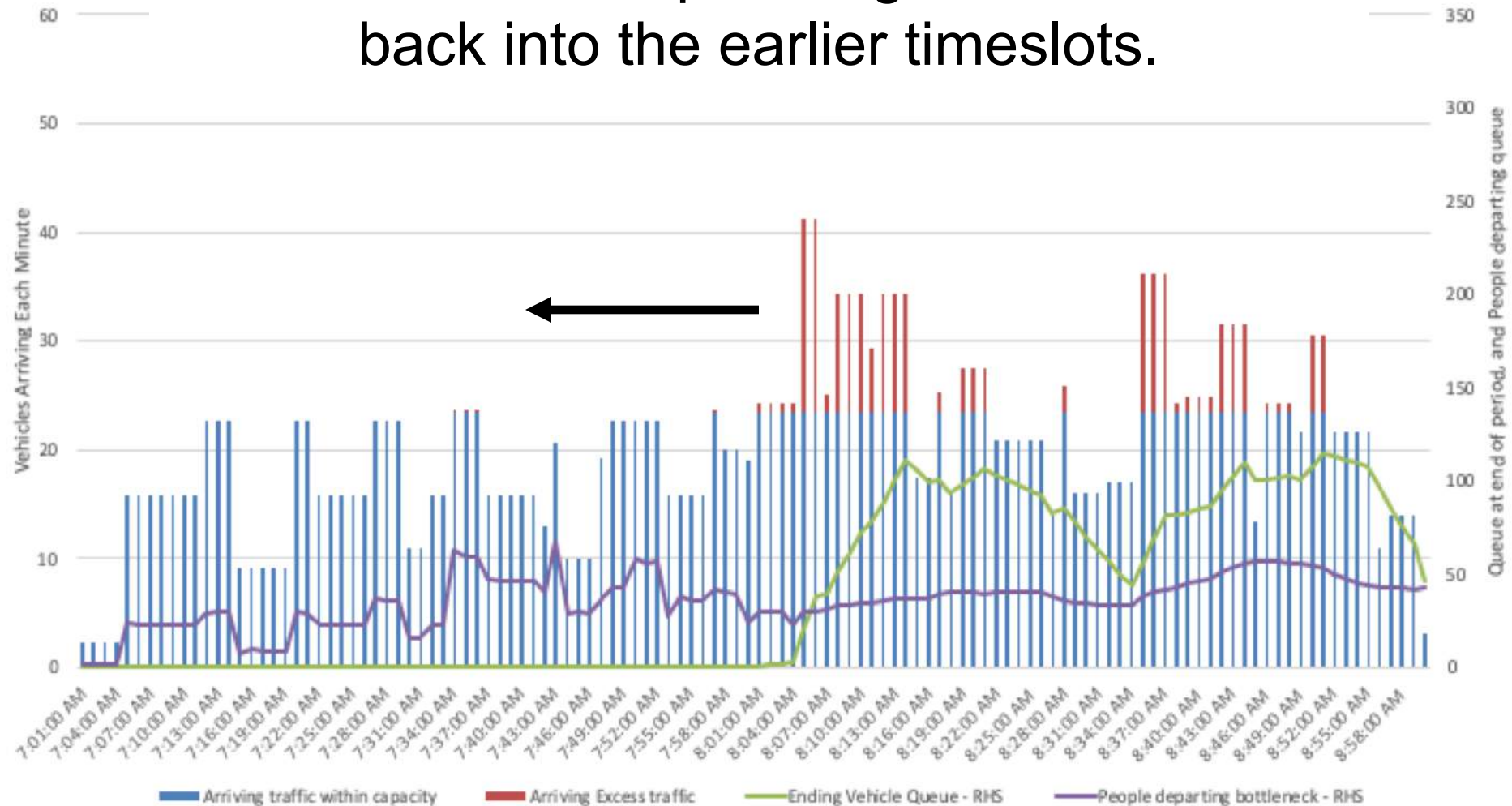
Survey Response: Willingness to Share the Ride



Reward Sought for Being a Passenger



With maximum passenger rates a queue still forms. A "go-early bonus" would be needed to entice passengers and drivers back into the earlier timeslots.



Need to limit SOV travel at peak of peak

□ Options

- Charge a price for SOV travel at peak
- Physically constrain SOV travel at peak
- Provide an HOV bypass so all HOV have preference over SOVs at peak