

Optimal Ride Service For All: Users, Service Providers, and Society

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How can public agencies work with Uber/Lyft to improve transportation network efficiency and equity?

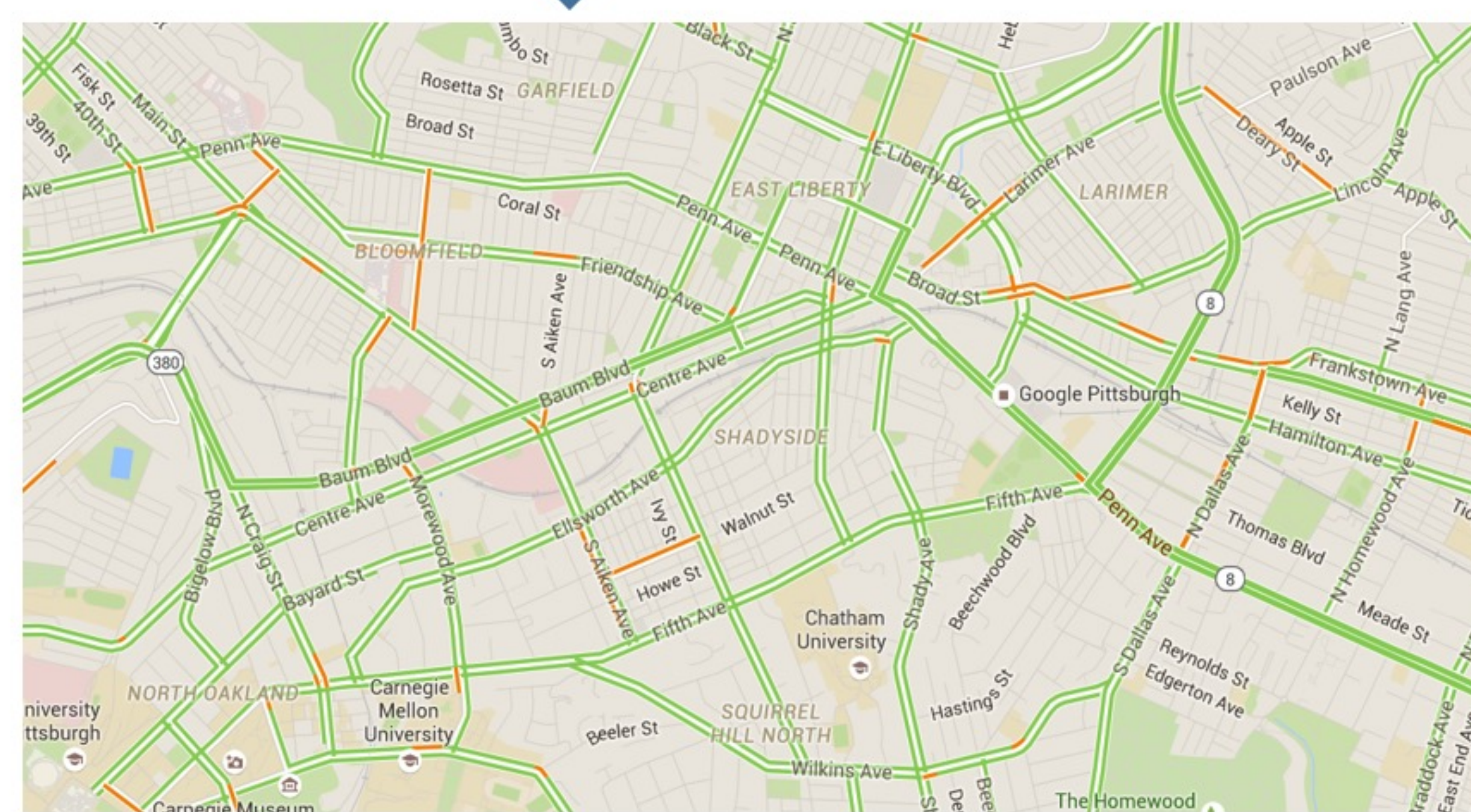
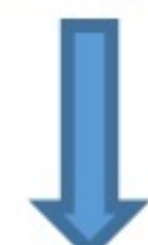
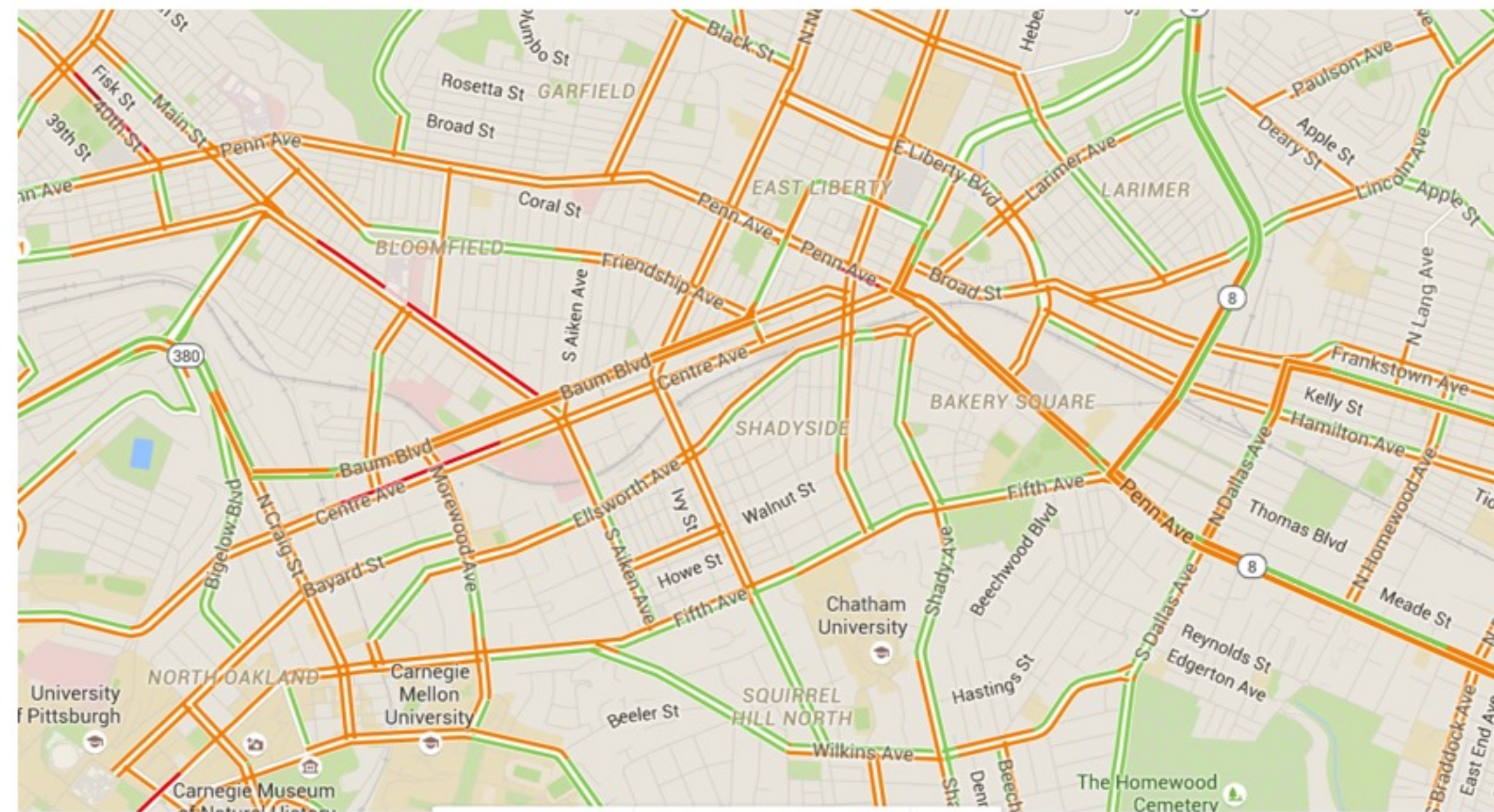
Challenge:

- Transportation systems face increasing **congestion, emissions, energy use, and infrastructure deterioration.**
- Uber/Lyft is likely to add more congestion than relief
- Current strategies are **often difficult to design, costly to implement, and inequitable.**

Solution:

- An **inexpensive, effective, and fair** incentive system for **demand control** with **voluntary participation from service providers**
- leverage a **small fraction of shared vehicles to improve system-wide performance**

Clogged transportation

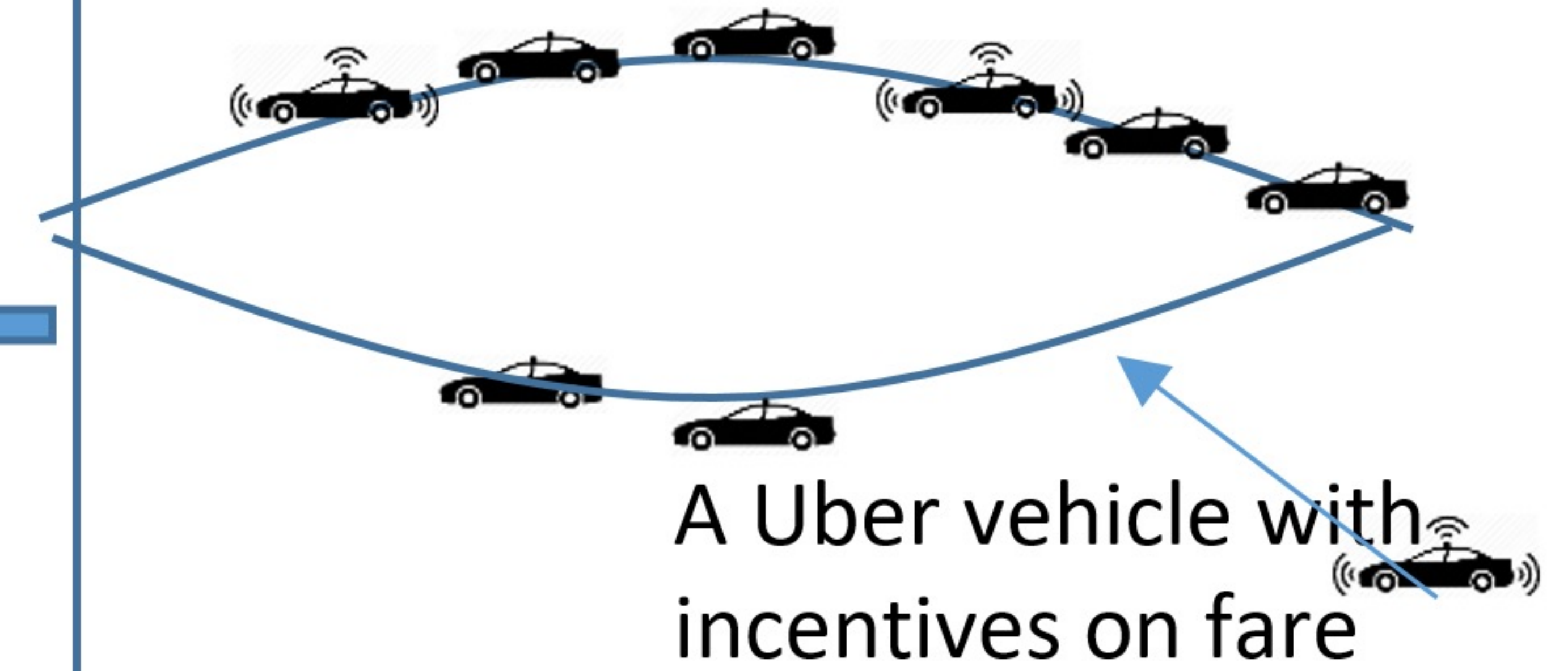


Smarter and greener transportation

Scientific Impact:

- Proposes a joint technical and social framework to price ride-sharing toward social good.
- Integrates traveler's behavior and service-provider's behavior on the transportation network.
- Provides a novel optimization/control model of infrastructure pricing

Public agencies set the (dis)incentive regulations



Influences on four choices of riders:

1. Departure time
2. Route
3. Pooling
4. Pick-up/drop-off curbs

Broader Impact:

- Improves understanding of how public right-of-way and ride-sharing can be leveraged for social good.
- Planners and policymakers need new tools to understand the impact of coordinated fleets, and to work with service providers
- Win-win-win for public agencies, travelers and service providers.