

Research Title:

Adopting Automated Vehicles and Creating Equitable Transport Markets

Primary Investigator:

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Automated vehicles (AV) provide opportunities to improve public transportation (PT) in low-density suburbs. However, AVs may adversely affect PT demand and service. In this research, we aim to maximize positive AV externalities such as providing mobility to under-served populations whilst minimizing negative externalities, e.g., congestion. We develop a stylized model connecting a suburb to a central business district and compare outcomes over multiple market structures. We assess monopolistic to competitive AV markets. We compare the market structure results to an optimal social welfare outcome and derive subsidies and congestion charges. The results show that duopoly market structure manages to provide reasonable service at a relatively low cost, which is close to the social optimum including subsidies to AV services. The findings may aid policymakers in developing regulatory tools that generate equitable transport equilibria outcomes.