

Policy Memo

Autonomous vehicles and land use

June 11

To: Scott Haggerty, chair of governing Commission of Bay Area Metropolitan Transportation Commission

From: Shen Qu, Policy Advisor

Date: 6/11/2019

RE: How Bay Area should be planning for autonomous vehicles?

Summary

This memo is one of the series of policy analysis about autonomous vehicles for Bay Area. It tries to answer how the autonomous vehicles will affect urban land use, and What the MPO and cities should be planning to seize this opportunity and address the challenges.

Background: Explains the current and projected status of AVs.

Technology

Industry: Waymoo and others Uber and Lyft Taas

Academia (Gandia et al. 2019)

Government USDOT, Ca DMV

What are the crutial effects? What are the crutial response for land use?

Changes: Discusses how AVs could influence demand for transportation and, in turn land use. For this analysis, use both theory and research.

focus on relevant changes

(Milakis, Van Arem, and Van Wee 2017) Many substantial implications of autonomous vehicles are not considered in this memo, such as safety, liability, and etc. [ripple effects]. This analysis focus on the impact on land use, which have short-term and long-term influences. The short-term influences include the change of parking, urban design, affected by travel demand and behavior

The long-term influences include the restructure of urban forms and spatial distributions.

essence

Four stage

Theory: bid-rent theory, utility maximize.

Research: Identifies the benefits and costs of these possible outcomes.

focus on Characteristic:

cut off labor cost,

round-the-clock services.

full ridesharing by realtime matching

Time cost (Singleton 2019)

Methodology

high risk in use sufficient principle, and likelihood principle. another option is covariance principle.

Internet, Air Transport system, TNC

inference:

Behavior and land use (Soteropoulos, Berger, and Ciari 2019)

(Hawkins and Nurul Habib 2019)

previous research had give many estimation of the change on road capacities, parking lots, curve space.

use cost and transaction costs - full match

deals fail

The short-term Response

(Legacy et al. 2019)

Presents policy and planning options for mitigating or otherwise addressing the possible land use effects.

designating pilot area

housing,

parking,

urban design

The strategic planning

long-term effects (Milakis 2019)

Discusses how the MPO and cities may need alter the tools and analyses they use to consider AVs.

Zoning, Division, and partition, not uniform

Conclusion

overestimated and under estimate

from link to node

CA should play a leading role. responsibility

Notes

References

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