The Clean Miles Standard (CA SB 1014): Make TNCs a more sustainable industry

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Transportation Technology and Policy (TTP)

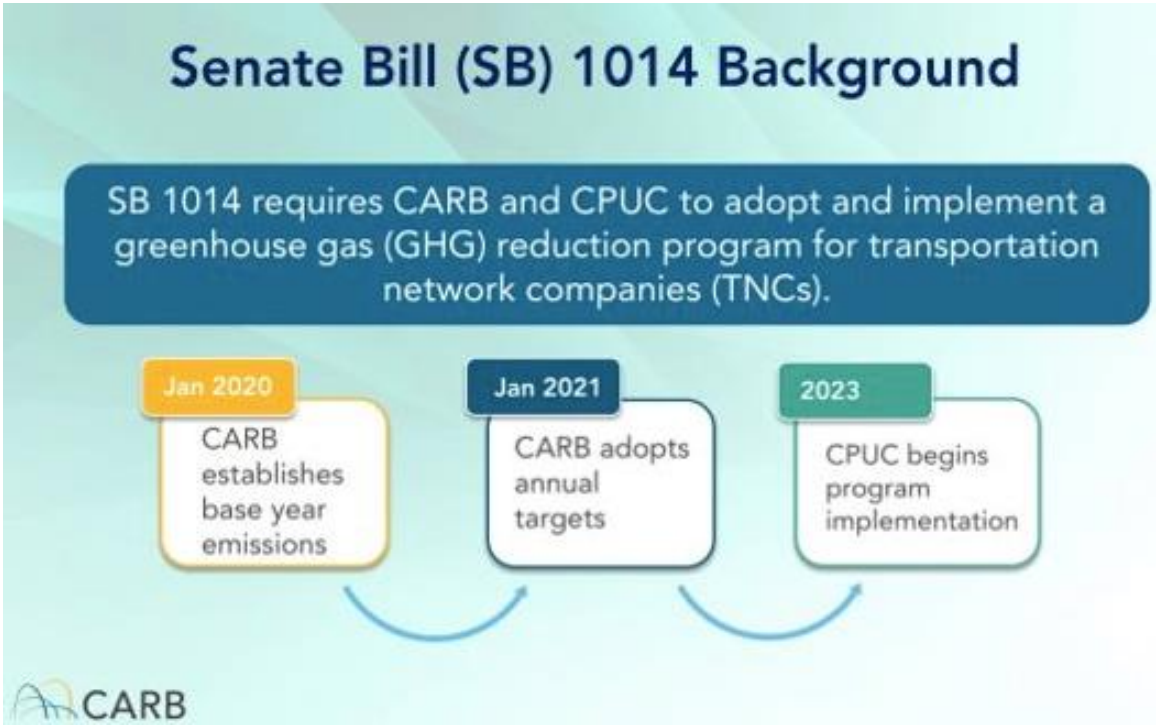
December 8, 2021

ITS UCDAVIS INSTITUTE OF TRANSPORTATION STUDIES

3 REVOLUTIONS SHARED·AUTOMATED·ELECTRIC

CARB Clean Miles Standard

- **Strategies to make TNCs more sustainable:**
  - **Electrify** TNC vehicles fleet.
  - **Increase occupancy** in TNCs.
  - **Decrease "deadheading."**
  - **Increase complementarity** to public transit and active modes.



- **Most of the emphasis, to date, has been on electrification.**

A fundamental problem of mobility is congestion

- Studies have provided evidence that ride-hailing contributes to increasing vehicle miles traveled (VMT).

- Our research shows that:
  - Transit users are more likely to be ride-hailing users – **more than 50% of our TNC users are transit users*** *(Iogansen et al. – accepted to TRB 2022).*
  - **About 50% of ride-hailing trips in sample from California MPOs replace transit and active modes** and create **additional VMTs**** *(Giller et al. - to be submitted in 2022).*

* (n = 5,053 TNC trips in MTC/SFCTA, SCAG, SACOG, SANDAG)
** (n = 5,749 TNC trips in MTC/SFCTA and SCAG)

Pooled services is (so far) a no-win

- **Pooled ride-hailing** (e.g., UberPOOL) – if it does not replace public transit and active modes -- **can help cut congestion,** perhaps by filling the gaps left by transit and bike infrastructure.

- Yet, **pooled trips in the U.S. account for as low as one-eighth** up to one-third of the overall number of ridehailing trips *(Schaller, 2021)*.

- [Where public transit and active modes are not viable] governments need to devise **strategies to make pooled services appealing** (e.g., the Clean Miles Standard).

Longer travel time is the Achilles Hill of pooled ridehailing

#Finding

- The **longer travel time typical of a pooled ride** likely makes it **less attractive than** the faster and costlier **solo ridehailing** *(Compostella et al. accepted at TRB 2022).*

#ProposedStrategy

- **Increase the matching rate** by offering **pooling as the default option** (vs. solo ridehailing).

(n = 5,136 TNC trips in MTC/SFCTA, SCAG, and SANDAG)

Award “green” credits for incentivizing pooling

#Finding

- **Those who travel for business** -- or someone else pay for the ride – are **likely not to choose pool** vs. solo ridehailing *(Compostella et al. accepted at TRB 2022).*

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- Employers could use pooled ridehailing and **receive “green” credits** (e.g., tax breaks) in exchange.
- Award automakers with **“green” credits for producing “shared-centric” vehicles.**

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Subsidizes would help lower income and minorities to pool

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- **Lower income and/or minority groups** are the ones using pooled services the most.

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- **Governments may consider subsidizing pooled rides** (to fill the gaps in the transit network) especially for disadvantaged and underserved communities.

(n = 5,136 TNC trips in MTC/SFCTA, SCAG, and SANDAG)

We need a set of *high occupancy-oriented* regulations

#Finding

- [currently implemented] **“road fees”** aimed at fighting congestion **do not increase the cost of traveling alone*** enough (*Compostella et. al, 2021*).

#ProposedStrategy

- Policymakers should establish regulations to discourage traffic-clogging single-passenger travel, and **exempt shared forms of mobility, including pooled ridehailing**.

* With the exception of congestion area fees (such as London’s) that can substantially discourage solo travelling

AV technology may make solo ridehailing even more attractive

#Finding

- **Removing the driver cost** – (if) when automated vehicles (AV) will be commercially available – **will make ridehailing far cheaper per-mile** (Compostella et. al, 2020).

#ProposedStrategy

- The **fare difference between solo and pooled ridehailing may be too small** to motivate travelers to choose pooled over solo ridehailing – **pooling shall be incentivized but solo-passenger options made less attractive.**

Thank you!

For questions

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The second fundamental problem of mobility is congestion

- **Transit users are more likely to be ride-hailing users** – more that 50% of our TNC users are transit users *(logansen et al. – accepted to TRB 2022).*

TNC user distribution & trip characteristics	Class 1 Heavy car users (37%)	Class 2 Light car users (33%)	Class 3 Transit riders (20%)	Class 4 Cyclists (10%)	Class 5 Sample average
Number of TNC trips by each class	417	977	**2100**	470	3964
% of total TNC trips in the sample	10%	25%	**53%**	12%	100%
TNC trip mode share by each class	0.6%	1.4%	**10.5%**	1.1%	1.9%
TNC user group (based on self-reported monthly TNC usage frequency)					
Non-user (less than 1 day per month)	**59%**	46%	33%	40%	48%
Occasional users (1-3 days per month)	37%	**42%**	31%	40%	38%
Frequent users (4+ days per month)	4%	12%	**36%**	20%	14%
TNC user group (based on observed one-week trip frequency in travel diary)					
Non-user (0 times per week)	**90%**	78%	46%	65%	75%
Users (1 time per week)	4%	7%	**14%**	13%	8%
Users (2-3 time per week)	5%	11%	**19%**	14%	10%
Users (4+ time per week)	1%	5%	**21%**	8%	7%
Average one-week TNC trip frequency					
Among entire sample from 4 MPOs	0.22	0.58	**2.06**	0.96	0.78
Among TNC users (SACOG)	2.75	3.02	**5.44**	3.63	2.56
Among TNC users (3 MPOs)	2.25	2.64	**3.81**	2.69	3.15

(n = 5,053 TNC trips in MTC/SFCTA, SCAG, SACOG, SANDAG)
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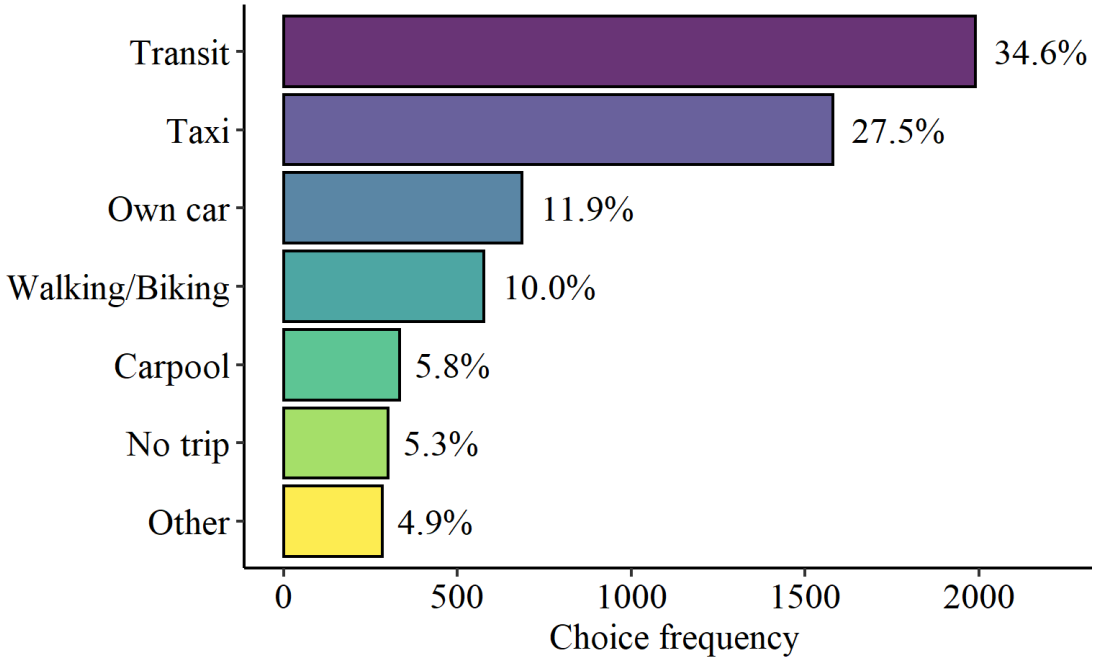

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The first fundamental problem of mobility is pollution

- Reducing emissions from the transportation sector via **the electrification of** intensively used vehicles (e.g., **TNCs**) **is fundamentally important.**

- **Vehicle efficiency** could and **should be strengthened**.

- **Yet**, **fuel switching cannot mitigate** all the externalities from traffic demand; among them **congestion**.

The second fundamental problem of mobility is congestion

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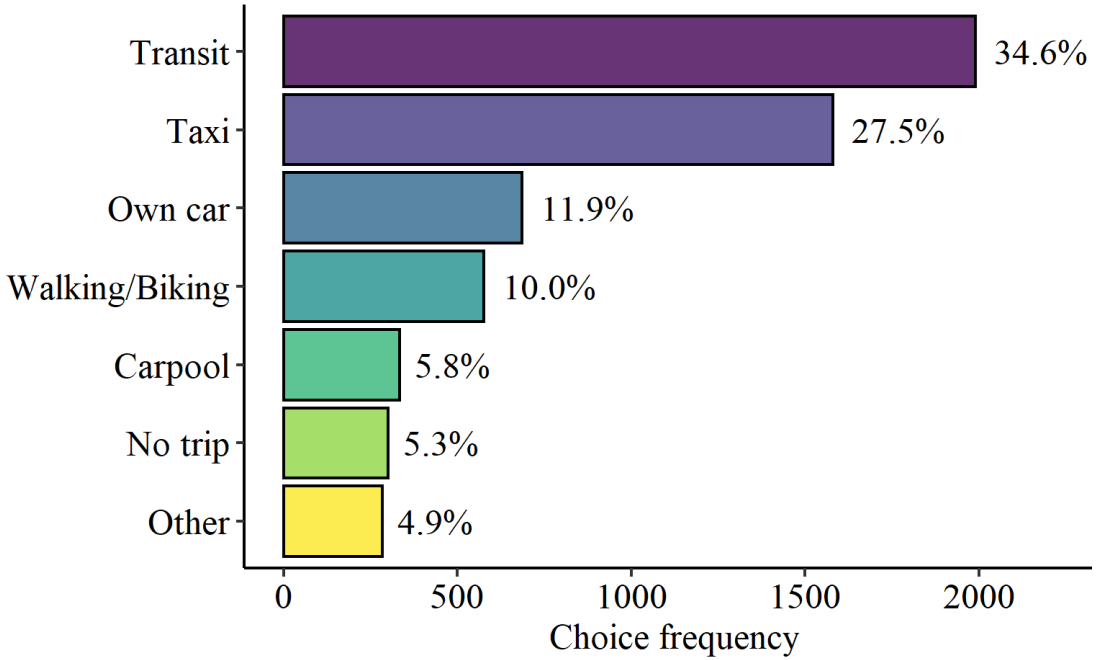

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- [Where public transit and active modes are not accessible] governments need to devise **strategies to make pooled services appealing** (e.g., the Clean Miles Standard).

Promote multi-modal travel

#Finding

- **Those who are keener to use transit and active modes** are the **most likely to pool** (vs. solo) *(Compostella et al. accepted at TRB 2022).*

#ProposedStrategy

- **Promote** a multi-modal mobility model and **pooling to fill the gaps** left behind by the transit and bike infrastructure network.

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Incentive pooling in dense urban environments

#Finding

- Ride-hailing **trips started in high-density areas are more likely to be pooled** (vs. solo) *(Compostella et al. accepted at TRB 2022).*

#ProposedStrategy

- **Offering pooled ridehailing as the default option** (vs. solo) in dense areas may increase matching chances and its appeal to drivers and travelers.

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The less car are owned the more people use pooling

#Finding

- **Car-ownership reduces the likelihood of pooling.**

#ProposedStrategy

- **Eliminate minimum parking requirements** (e.g., the proposed CA Assembly Bill 1401) that lead to more driving over other travel modes and drive-up development costs such as that could otherwise go towards for better public transportation infrastructure.

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- **More efforts should be put on increasing pooling matching rates and drivers 'willingness to offer this service that is necessary to increase the willingness to pool among riders.**

- **TNC providers could promote pooling (and increase matching chances) by offering discounts (perhaps, with the financial aid of the public) based on the extra time travelers must add to their average travel time – ridehailing companies could provide more discount for more extra time and may even classify (in the app) pooling as a different service based on the extra time (Alemi, 2018).**

- **local authorities should require TNC providers to share data on users and their trips, in an anonymized format, to a publicly trusted neutral third-party institution – such data would be useful to increase the understanding on consumers behavior and their demand for pooled services. Local authorities together with TNC providers could also give pooled vehicles new designated curb spaces instead of free on-street pick-up/drop-off that induce traffic clogging.**

matching rate determines the profitability of pooled rides services

- As discussed by Shaheen, (2018), the public sector could exempt pooled vehicles to pay tolls and apply a low- or zero-registration fees for owners who use their vehicle for pooling (and who agree on monitoring).
- The matching rate determines the profitability of pooled rides services. In low-density, auto-oriented, sprawl-developed neighborhoods finding people with similar origin and destination, and making pooled rides popular, is an even harder task. The public sector could change the single/low-occupancy vehicle culture of these dispersed areas by providing a combination of multi-modal alternatives that promotes pooled ridehailing as a feeder to the transit network.
- The public sector could change the single/low-occupancy vehicle culture of these dispersed areas by providing a combination of multi-modal alternatives that promotes pooled ridehailing as a feeder to the transit network. A strategy may consist of straightening the routes served by pooled rides and investing in a better biking and walking infrastructure to enable passengers to walk or bike to/from the designated pick up/drop off points that should be located on the main route (Kindler, 2021).
- Travelers who usually know in advance when they need a ride as well as temporal flexibility to take the ride, could give a broader time window to book their pooled ride and increase the likelihood of being matched with other passengers (Kindler, 2021).
- Furthermore, since finding people with similar origin and destination in low-density neighborhoods is challenging, riders may share part of their trip on a pooled ridehail, and complete the rest of the trip with another mode which station happen to be on the way (Kindler, 2021). All could be booked and paid via integrated multi-modal Mobility as a Service (MaaS) platforms with which travelers could book and pay a multi-modal trip.

- **I learn that frequent TNC users are the most likely to consider the pooled option when using TNC services;**

- **this cohort of TNC users would be among the least affected by the imposition of a hypothetical single-passenger travel tax, as they already have incorporated pooled on-demand services into their routine and are likely to consider pooled rides in their mode choice decisions on a daily basis. This is good news for TNC providers that may not lose users if ridehailing fares increase except for pooling.**

- **I found that young people under the age of 35 are reported to use pooled ridehailing services most often.**

- **Although I acknowledge that this is largely an impact of stage in life, I suggest new public-private partnerships to create educational programs to facilitate behavioral stickiness, so that young users continue pooling once they get older.**