Changes in Vehicle Ownership and Travel Behaviors in Response to the COVID-19 Pandemic

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ITS UCDAVIS INSTITUTE OF TRANSPORTATION STUDIES

3 REVOLUTIONS SHARED·AUTOMATED·ELECTRIC

UC Davis COVID-19 Mobility Study

- Research on temporary vs. longer-term impacts of the pandemic
- Targeted data collections in 15 regions of the United States and two regions in Canada (+ convenience sample internationally)

2018/2019

Information on many topics, e.g.

- Household organization
- Telecommuting patterns
- E-shopping behaviors
- Travel patterns
- Vehicle ownership
- Emerging delivery services
- Personal attitudes and preferences
- Shared mobility adoption
- Propensity towards AVs

Spring 2021

Data collection on:

- Impacts of the COVID-19 on lifestyles
- Employment and activities
- Household organization and child care
- E-shopping behaviors
- Emerging delivery services
- Current travel patterns
- Vehicle ownership
- Shared mobility adoption
- Personal attitudes and preferences

Fall 2021

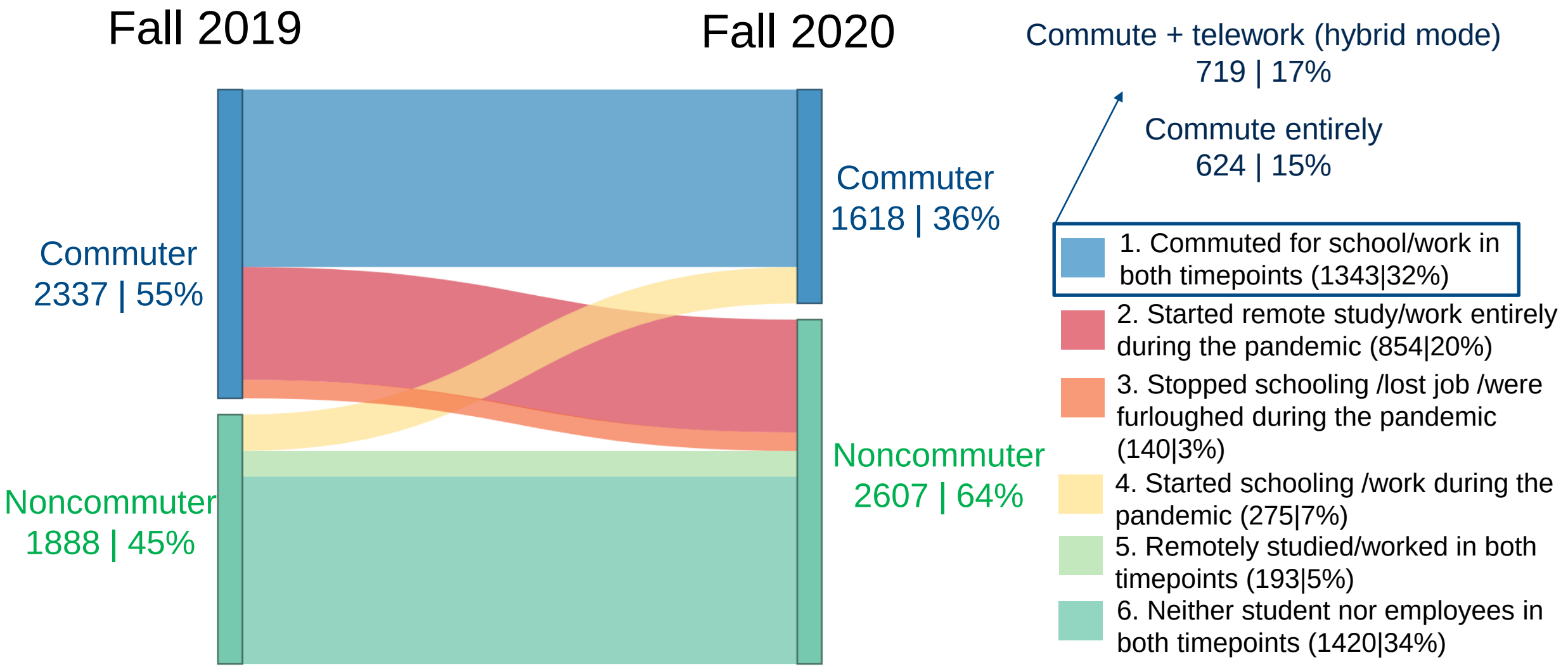
- Sampling Method: Recall of participants from previous surveys:
- Recruitment Method: Direct e-mail
- Valid Emails for Recontact: 9980
- Response Rate: 33.5%
- Incentives: $10 gift card from Amazon, Starbucks, Target or Walmart to each respondent
- Survey administration: Dec. 2020 – Jan. 2021

Summer 2021

- Same sampling and recruitment method as previously
- Sample Size: 16,450
- Response Rate: 24.6%
- Incentives: $5 gift card from Amazon, Starbucks, Target or Walmart to each respondent
- Survey Administration: July to Sep. 2021

- Next data collection planned for Spring/Summer 2022
- More information at postcovid19mobility.ucdavis.edu

Change in Commuting Status



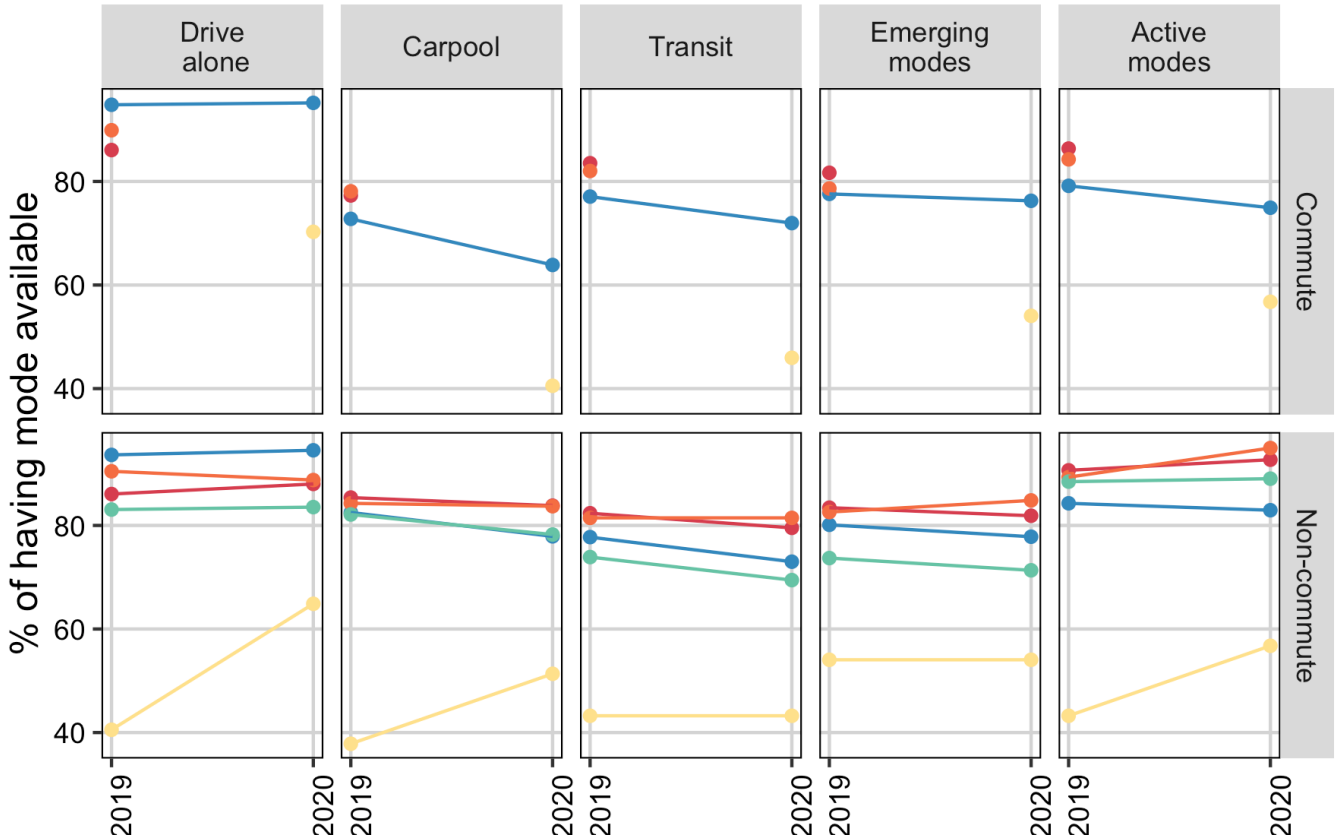
(Weighted sample n = 4,225)

Distinctive Characteristics by Groups

Commuted for school/work in both timepoints (1343 | 32%)	Started remote study/work entirely during the pandemic (854 | 20%)	Stopped studying /lost job /were furloughed during the pandemic (140 | 3%)	Started studying /work during the pandemic (275 | 7%)	Remotely studied/worked in both timepoints (193 | 5%)	Neither student nor employees in both timepoints (1420 | 34%)
• Working age (35-54) • Highest % of possessing a driver's license, highest % of household vehicle ownership • 11% reduced work hours • Largest household size, highest % who has kids who study remote • Pro-driving • Tech-savvy • Car-dependent • Pro in-person interaction	• Non-whites • Well-educated • 40%: all of job tasks can be performed at home • Highest household income • High % who has kids who study remote • Pro-environment • Pro-active • Pro-urban • Pro-telecommute	• Female • most pro-driving • highest number of vehicles per driver • Highest constraints on taking transit • Lowest household income • Most concern on the impact of COVID • Least pro-environment	• Younger age group (18-34) • Non-female • Less-educated • 8% increased work hours • Less Pro-telecommute • Least concern on the impact of COVID	• Full-time workers • Lowest % of possessing a driver's license • Highest constraints on driving • 45%: all of job tasks can be performed at home, the highest among all classes • Suburban/Rural residents • Pro-telecommute • Least pro in-person • Least car-dependent • Least pro-active • Least pro-driving	• Older age group (55+) • Non-Hispanic, Latino or Spanish origin whites • Highest constraints on biking & walking • Lowest % of household vehicle ownership • Least pro-urban • Least tech-savvy

Change in Mode Availability & Usage

- Driving alone was the most available and most used mode for both commuting and non-commuting trips before the pandemic, and it became even more so during the pandemic.

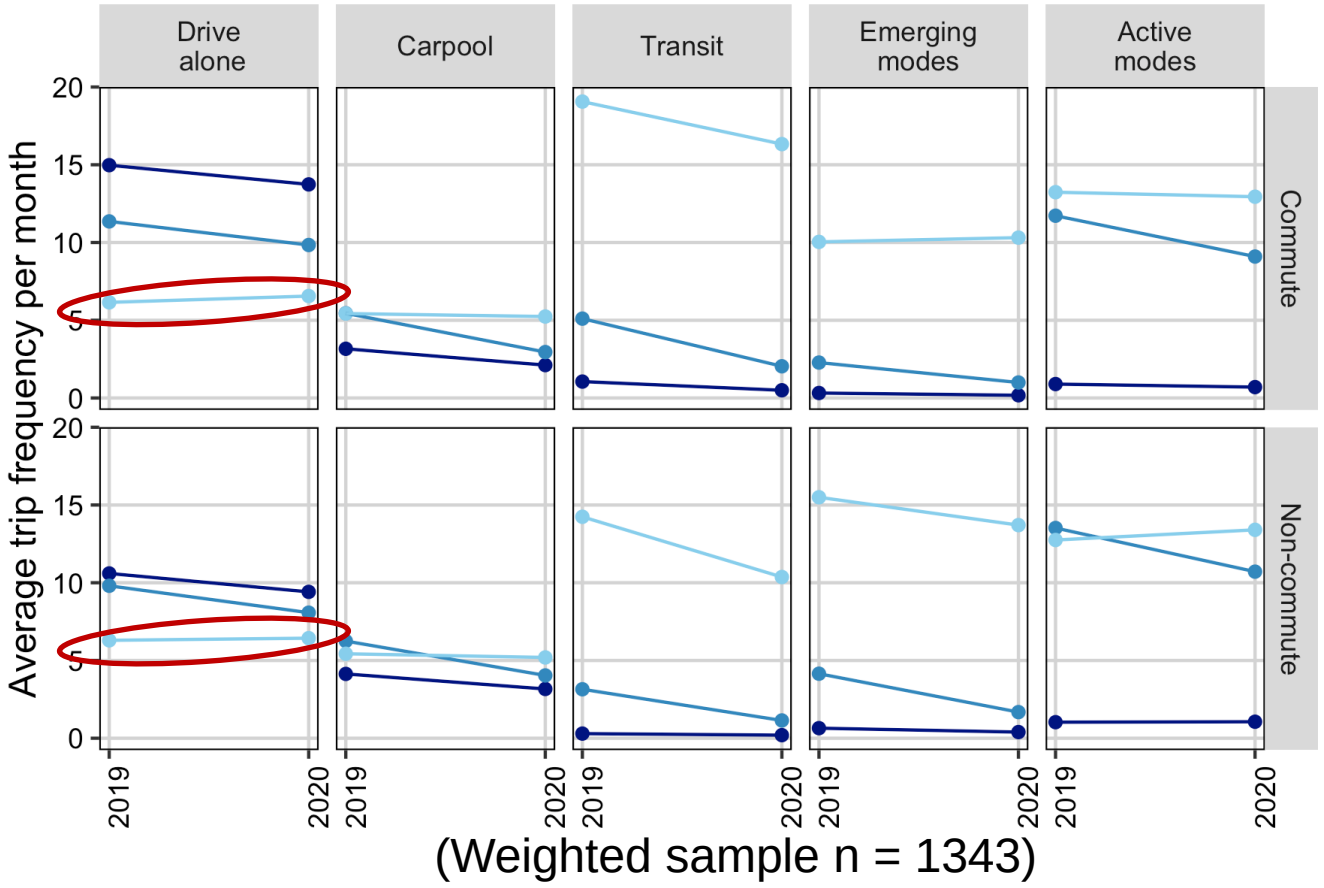


1. Commuted for school/work in both timepoints (1343|36%)
2. Started remote study/work entirely during the pandemic (852|23%)
3. Stopped schooling /lost job /were furloughed during the pandemic (140|4%)
4. Started schooling /work during the pandemic (41|1%)
5. Remotely studied/worked in both timepoints (55|1%)
6. Neither student nor employees in both timepoints (1257|34%)

Note: The availability of commuting modes has been omitted in the figure for non-commuters.

Multimodal users have increased driving alone

- Commuters in both timepoints (Group 1) are further classified into three clusters.
- Overall, multimodal users have increased their driving alone trips during the pandemic, though also increased trips by active modes.



(Weighted sample n = 1343)

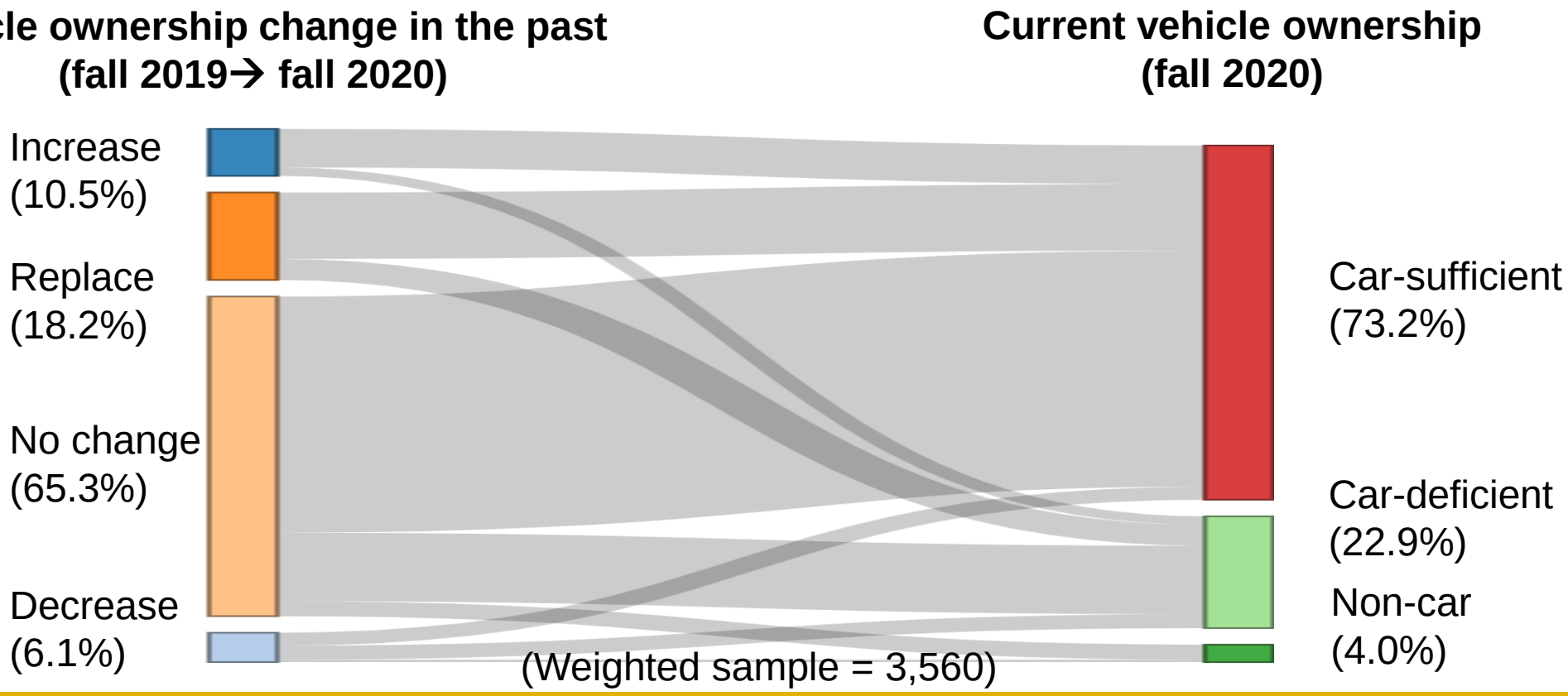
Class 1
Heavy Drive-alone Users
(980 |73%)

Class 2
Light Drive-alone Users
(242 | 18%)

Class 3
Multimodal Users
(121 | 9%)

Change of Vehicle Ownership (before)

- More individuals have increased their number of vehicles rather than decreased.
- They are more likely to be in working age (less than 55), Caucasians, male, well-educated, high-income urban residents with large household size. They are also more pro-driving and car-dependent.



Change of Vehicle Ownership (after)

- More individuals expect to increase the number of their vehicles other than decrease in the future.
- They are more likely to be in working age (35-55), non-Hispanic, male, well-educated, high-income full-time employed urban residents with large household size. They are also more pro-driving and car-dependent.