WHO IS BUYING SUVs AND LIGHT TRUCKS IN MONTREAL?
A Factor and Cluster Analysis

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TRAM TRANSPORTATION RESEARCH AT MCGILL
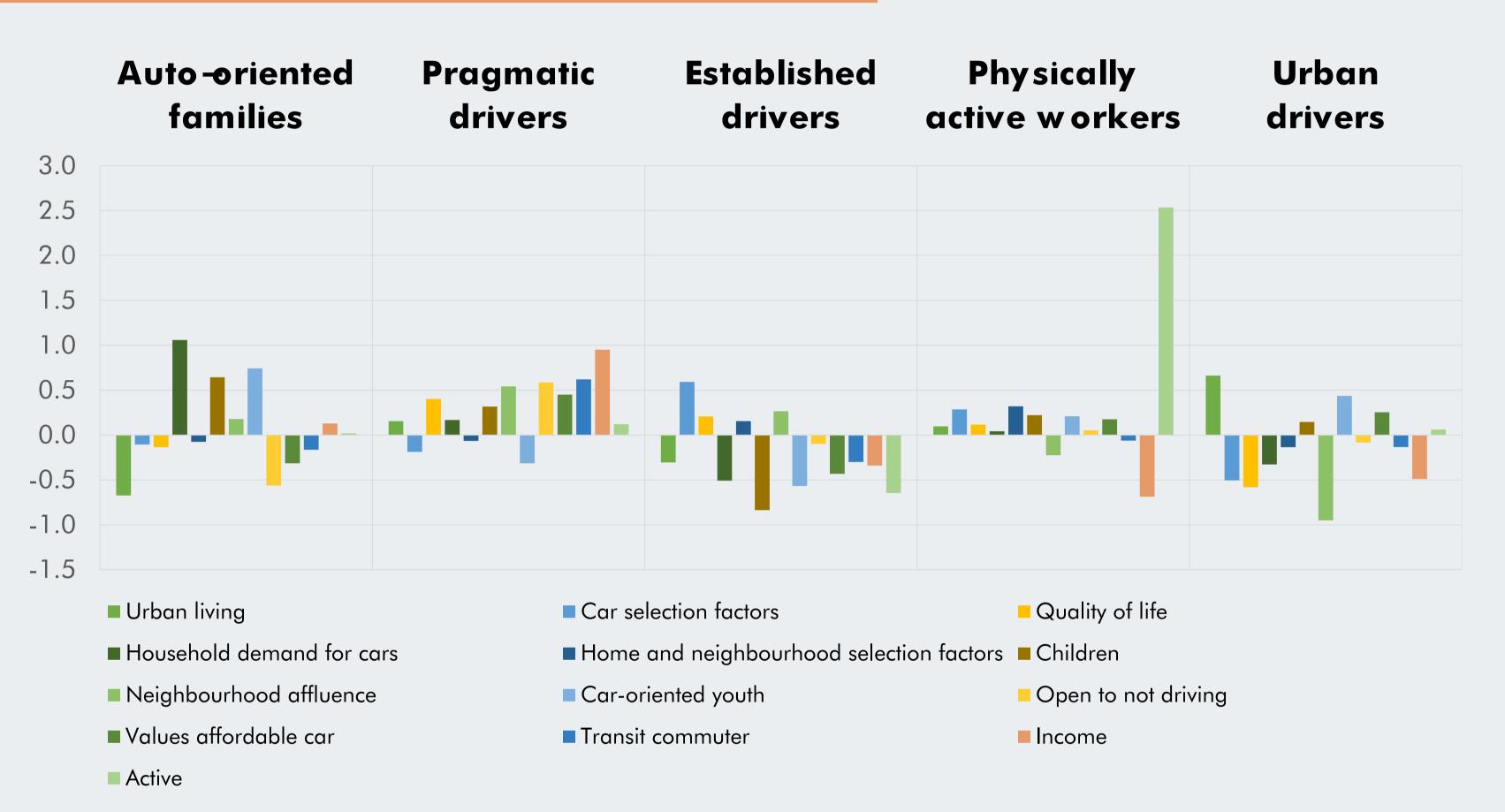McGill · McGill SCHOOL OF URBAN PLANNING · CIRRELT

INTRODUCTION

- Light truck sales now account for 77% of all new vehicle sales in Canada. Globally, there have never been more SUVs on roads than today.
- These vehicles impose significant negative externalities in the form of higher fatalities, increased congestion, environmental impacts, and infrastructure wear and tear.
- Who is buying these vehicles? How do underlying attitudes and behaviors affect the decision to buy or drive a light truck or SUV?
- This typology can help understand the different segments of drivers that choose to own and drive vehicles that pose such significant negative externalities.

METHODS

- Data: Wave 1 of the Montreal Mobility Survey (2019).
- Sample: 2,203 Montrealers who owned at least one vehicle.
- Vehicle type data was cleaned and categorized in line with Natural Resource Canada's Fuel Consumption Guide.
- Respondents ranked nine reasons for their car choice from "Not important at all" to "Absolutely essential".
- Respondents were also asked about home location factors, main mode to work, attitudes to modes, and weekly travel behavior.
- Land use and location variables were calculated based on census tract and postal code level data.
- Factor analysis: 13 factors containing 45 variables explaining 58.7% of the total variance.
- Cluster analysis: 5 clusters providing best distribution and most reasonable results.

ANALYSIS/RESULTS

Factor–cluster analysis

Auto-oriented families | Pragmatic drivers | Established drivers | Physically active workers | Urban drivers

Legend:
- Urban living
- Household demand for cars
- Neighbourhood affluence
- Values affordable car
- Active
- Car selection factors
- Home and neighbourhood selection factors
- Car-oriented youth
- Transit commuter
- Quality of life
- Children
- Open to not driving
- Income

Travel behavior and attitudes

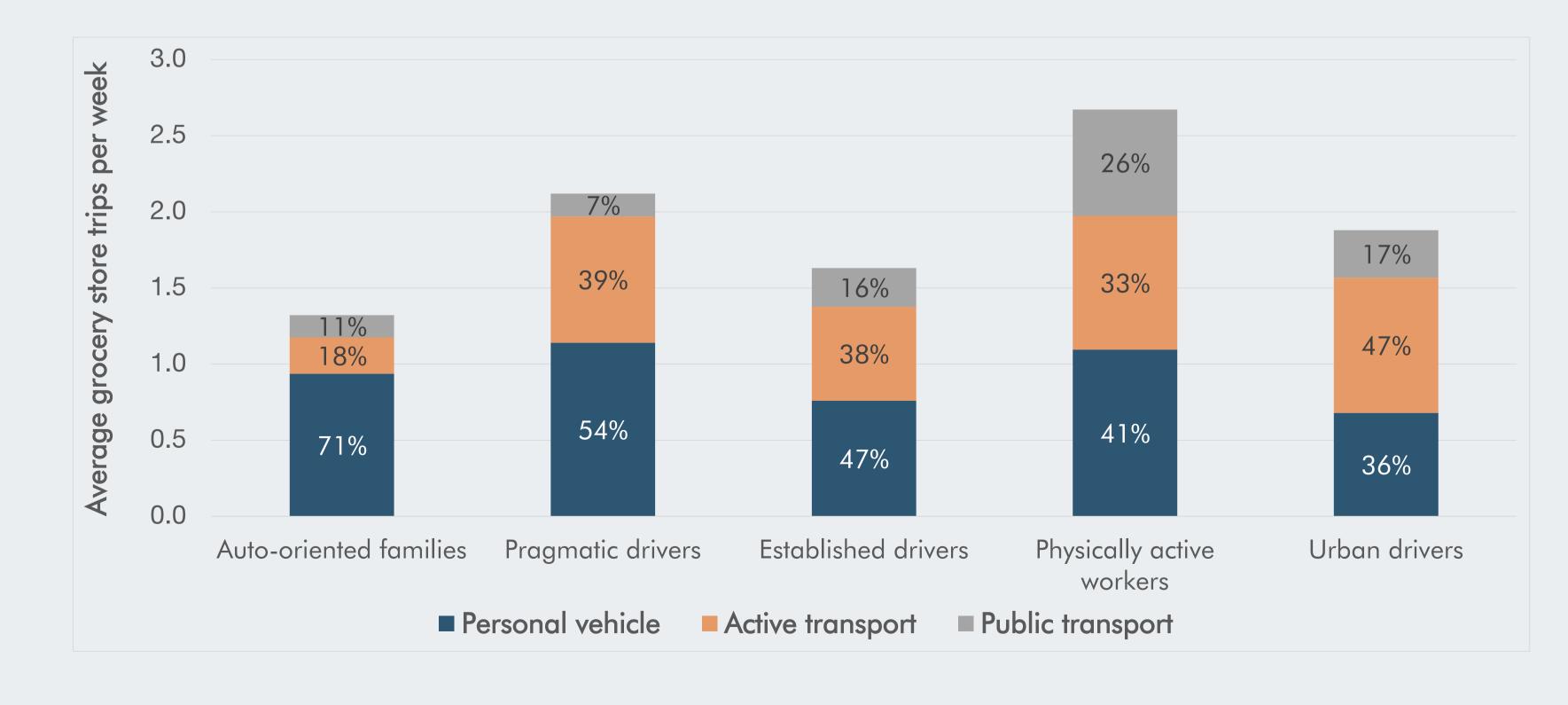|	Total	Auto–oriented families	Pragmatic drivers	Established drivers	Physically active workers	Urban drivers
Reported driving trips in the last 7 days	3.55	3.55	2.78	1.68	4.06	2.54
Primary mode to work						
Personal vehicle	47%	50%	31%	63%	60%	50%
Active transport	10%	7%	11%	8%	11%	14%
Public transit	42%	43%	57%	29%	29%	36%
Main mode is a vehicle because it is faster	79%	80%	80%	72%	78%	83%
Modes to non-work locations						
Personal vehicle	35%	49%	45%	26%	32%	29%
Active transport	44%	29%	41%	52%	39%	47%
Public transit	21%	22%	14%	21%	29%	24%
I would like to drive more than I currently do						
Agree	10%	15%	1%	10%	20%	15%
Neutral	32%	36%	11%	49%	35%	31%
Disagree	57%	50%	88%	41%	45%	54%
I would like to use transit more than I currently do						
Agree	37%	23%	50%	35%	42%	34%
Neutral	33%	37%	32%	35%	36%	30%
Disagree	30%	41%	18%	30%	22%	36%
I would like to cycle more than I currently do						
Agree	53%	44%	72%	39%	61%	55%
Neutral	19%	19%	15%	24%	21%	18%
Disagree	28%	38%	14%	37%	18%	27%
I would like to walk more than I currently do						
Agree	64%	49%	67%	70%	56%	67%
Neutral	22%	28%	21%	19%	27%	19%
Disagree	14%	22%	12%	11%	17%	14%

Ownership and vehicle factors

	Total n = 2203	Auto–oriented families n = 376	Pragmatic drivers n = 536	Established drivers n = 642	Physically active workers n = 116	Urban drivers n = 533
Light truck status						
Average # of SUVs	0.38	0.53	0.42	0.37	0.31	0.25
Average # of light trucks	0.46	0.71	0.48	0.45	0.36	0.32
% with at least one light truck	41%	59%	44%	40%	34%	30%
Access to number of private automobiles	1.48	2.00	1.44	1.38	1.52	1.27
When you selected your primary automobile, what was the importance of each of the following factors?						
Safety	3.81	3.70	3.90	3.98	3.94	3.57
Fuel efficiency	3.77	3.45	4.03	3.79	3.92	3.68
Quality of manufacture	3.94	3.71	4.09	4.13	4.07	3.69
Good warranty	3.59	3.41	3.59	4.01	3.76	3.16
Customer service	3.27	3.08	3.11	3.83	3.47	2.83
Comfort	3.72	3.74	3.54	3.84	3.95	3.49
Spaciousness	3.64	3.72	3.52	3.85	3.89	3.41
Usefulness for everyday driving	3.81	3.83	3.60	3.96	4.12	3.77
Price	4.07	3.98	4.06	3.99	4.19	4.20
Average Importance	3.74	3.62	3.72	3.95	3.92	3.53

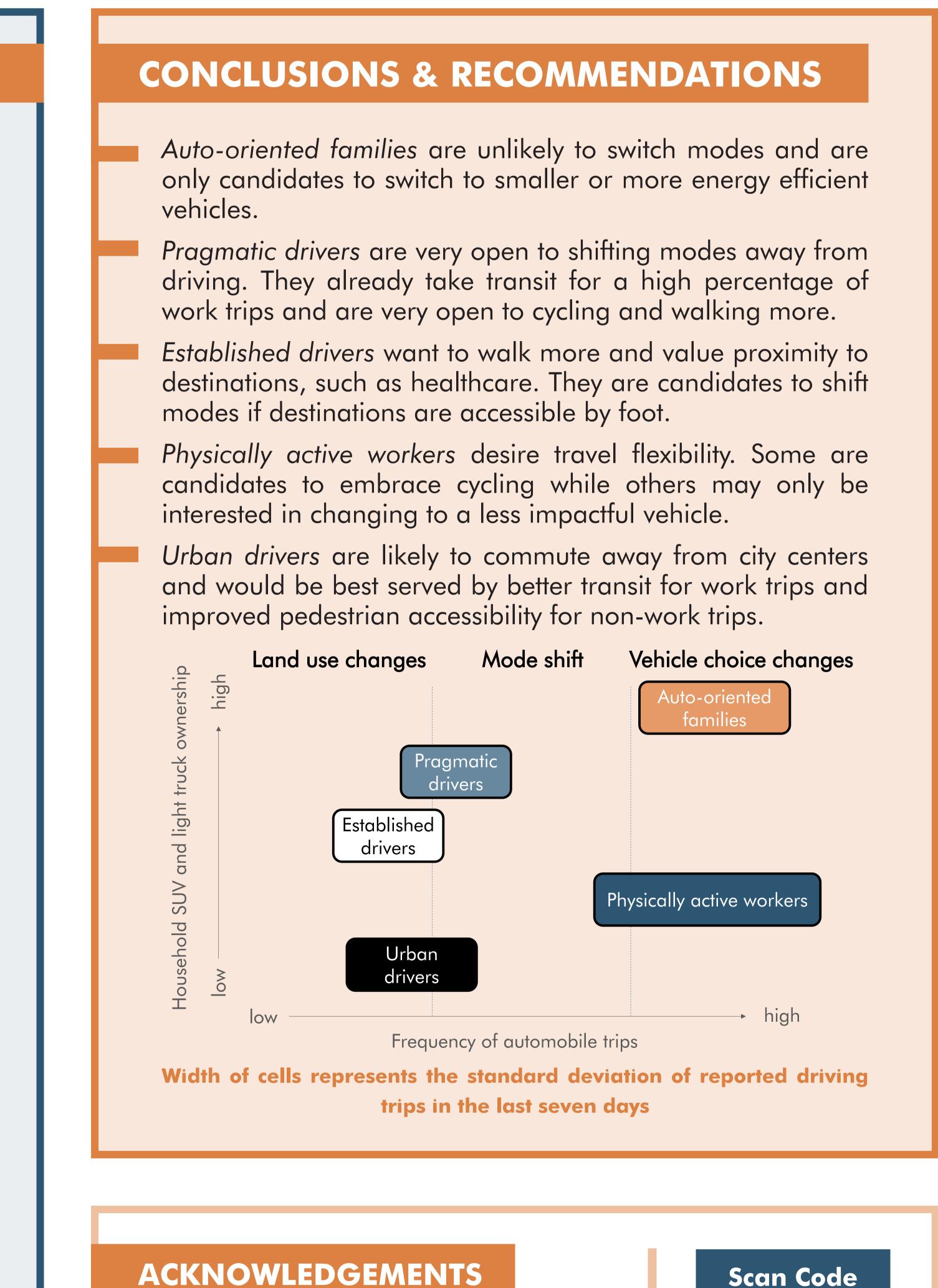**Ranked on a 1–5 scale from "not important at all" to "absolutely essential"**

The Costco Effect

Auto-oriented families make the fewest trips to the grocery store per week but are the most likely to drive for these trips. This behavior suggests that these households purchase large quantities of groceries at once. Bulk purchasing can explain why a larger vehicle may be chosen by these households. It is also possible that owning a larger vehicle shifts the behavior of grocery shoppers towards bulk purchasing.

Average grocery store trips per week

Cluster	Personal vehicle	Active transport	Public transport
Auto-oriented families	71%	18%	11%
Pragmatic drivers	54%	39%	7%
Established drivers	47%	38%	16%
Physically active workers	41%	33%	26%
Urban drivers	36%	47%	17%

■ Personal vehicle ■ Active transport ■ Public transport

CONCLUSIONS & RECOMMENDATIONS

- *Auto-oriented families* are unlikely to switch modes and are only candidates to switch to smaller or more energy efficient vehicles.
- *Pragmatic drivers* are very open to shifting modes away from driving. They already take transit for a high percentage of work trips and are very open to cycling and walking more.
- *Established drivers* want to walk more and value proximity to destinations, such as healthcare. They are candidates to shift modes if destinations are accessible by foot.
- *Physically active workers* desire travel flexibility. Some are candidates to embrace cycling while others may only be interested in changing to a less impactful vehicle.
- *Urban drivers* are likely to commute away from city centers and would be best served by better transit for work trips and improved pedestrian accessibility for non-work trips.

Land use changes | Mode shift | Vehicle choice changes
Household SUV and light truck ownership (low–high) / Frequency of automobile trips (low–high)

Auto-oriented families / Pragmatic drivers / Established drivers / Physically active workers / Urban drivers

Width of cells represents the standard deviation of reported driving trips in the last seven days

ACKNOWLEDGEMENTS

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