Carsharing Trends and Research Highlights

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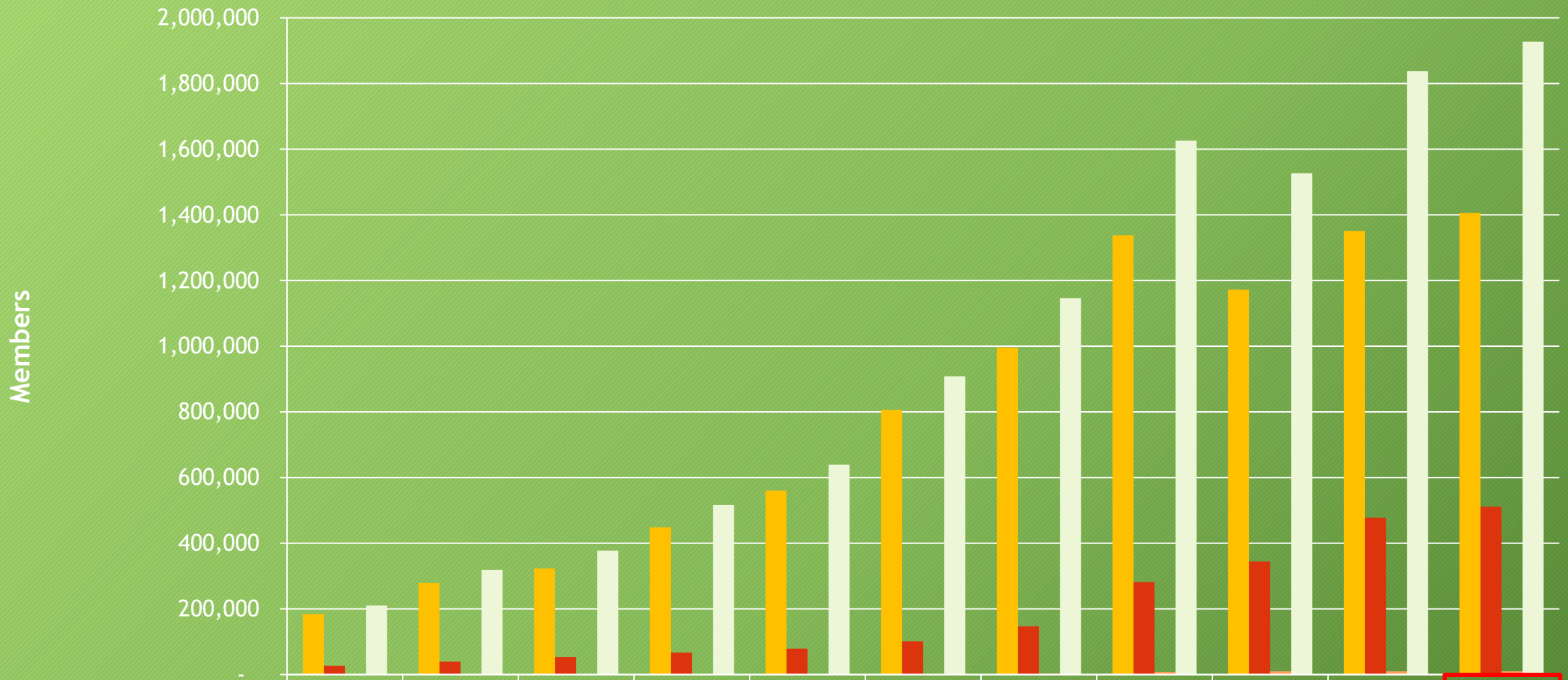
OVERVIEW

- About TSRC
- Growth Trends in the Americas
- Roundtrip Research
- One-way Research
- College/University Study
- Recent Reports
- Shared Mobility and Planning
- Upcoming Research
- Acknowledgements

TRANSPORTATION SUSTAINABILITY RESEARCH CENTER

- Founded in 2006
- TSRC conducts global research on a wide-array of topics:
  - Advanced vehicles and fuels
  - Energy and infrastructure
  - Goods movement
  - Innovative mobility
  - Mobility for special populations
  - Transportation and energy systems analysis
- Published 100 research studies
- Leader international carsharing industry benchmarking and research since 1999

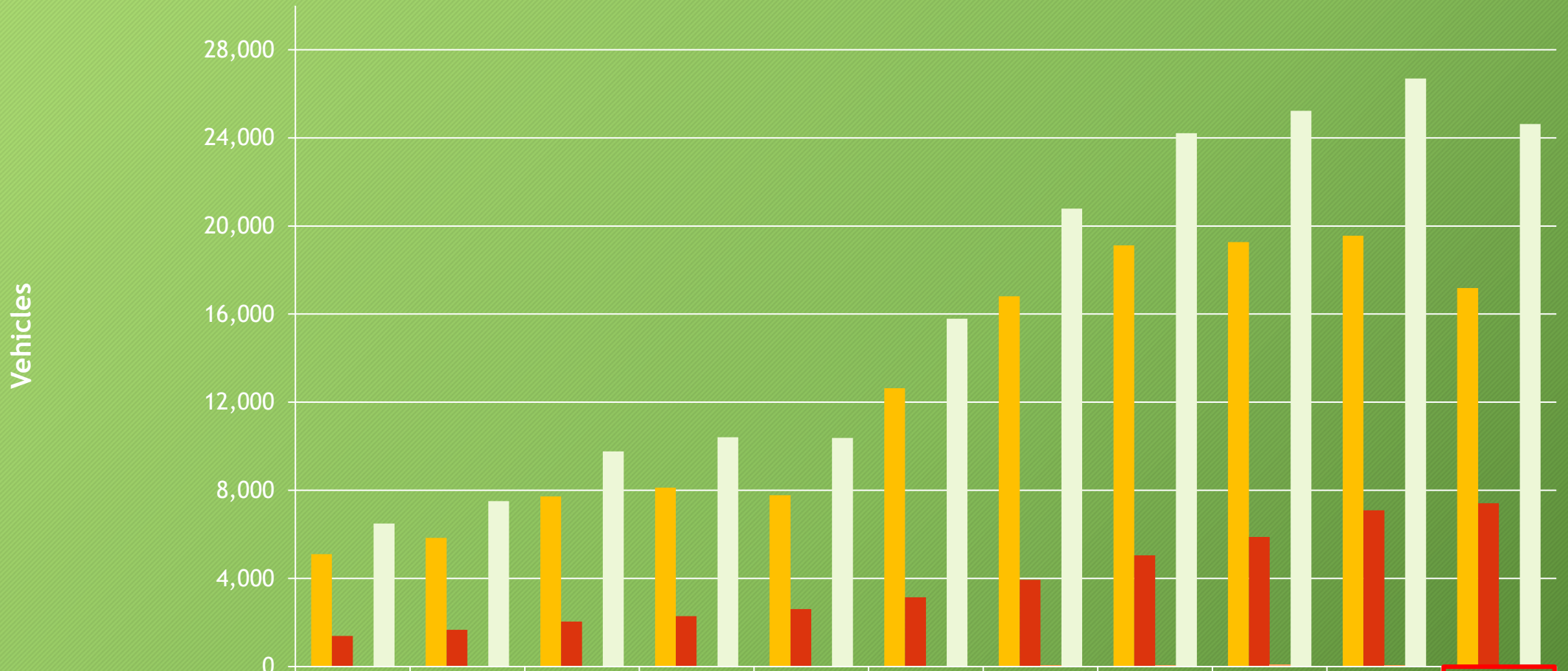
North American Membership Growth



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 (Jan)
U.S. (n=21)	184,292	279,234	323,681	448,574	560,572	806,332	995,926	1,337,803	1,172,490	1,351,051	1,405,447
Canada (n=17)	26,878	39,664	53,916	67,526	78,856	101,502	147,794	281,675	344,403	477,528	511,654
Mexico (n=1)						750	2,654	6,174	9,639	9,275	10,127
North America (n=39)	211,170	318,898	377,597	516,100	639,428	908,584	1,146,374	1,625,652	1,526,532	1,837,854	1,927,228

(Shaheen and Cohen 2017)

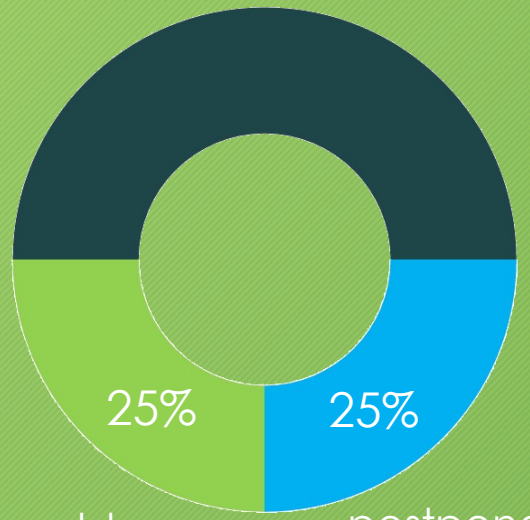
North American Vehicle Growth



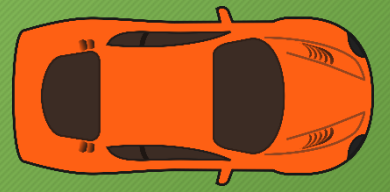
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 (Jan)
U.S. (n=21)	5,104	5,840	7,722	8,120	7,776	12,634	16,811	19,115	19,270	19,555	17,178
Canada (n=17)	1,388	1,667	2,046	2,285	2,605	3,143	3,933	5,048	5,881	7,093	7,412
Mexico (n=1)						18	40	47	73	43	39
North America (n=39)	6,492	7,507	9,768	10,405	10,381	15,795	20,784	24,210	25,224	26,691	24,629

(Shaheen and Cohen 2017)

Roundtrip Impacts: North America

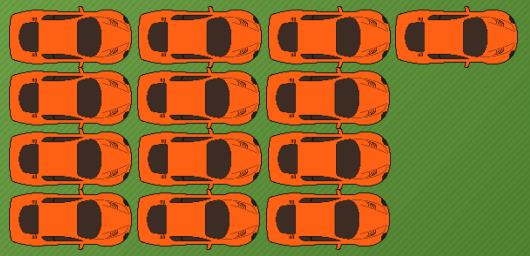


1 carsharing vehicle



REPLACES

9 – 13 vehicles



(Martin et al. 2010; Shaheen and Chan 2015)

Roundtrip Impacts: North America

.58 - .84 metric tons
34% - 41%

Reduction of **GHG emissions per year** for one household

27% - 43%

Reduction of **VMT per year** considering vehicles sold and purchases postponed

$154 - $435

Monthly household savings per US member after joining carsharing

public transit and non-motorized modes

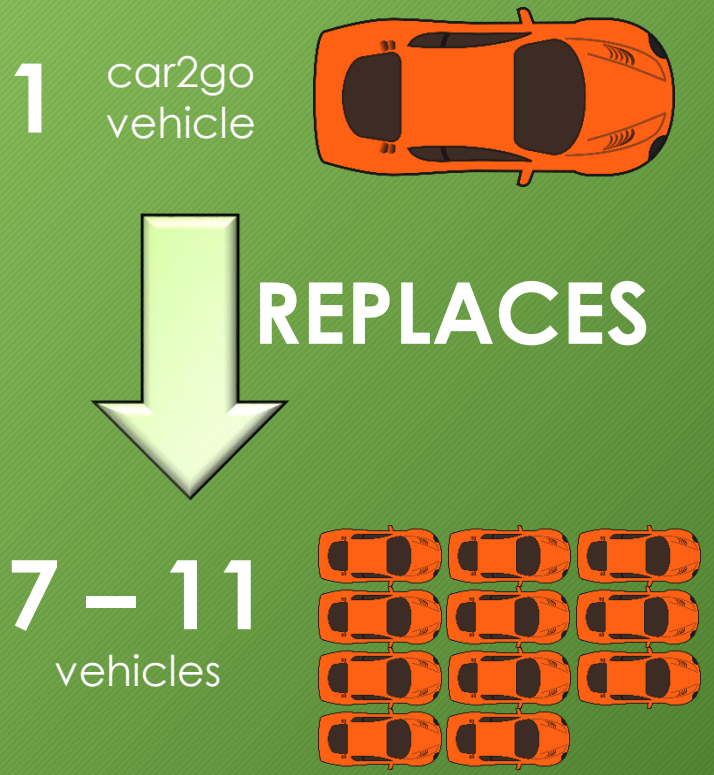
More users increased (than decreased) their modal use; including bus, rail, walking, biking, and carpooling

(Martin et al. 2010; Shaheen and Chan 2015)

One-way Impacts: North America

Member Vehicle Holdings

- 2-5% Sold a vehicle
- 1-3 Vehicles sold per a car2go vehicle
- 7-10% Postponed a vehicle purchase / vehicle acquisition
- 4-9 Vehicles suppressed per car2go vehicle



(Martin et al. 2016)

One-way Impacts: North America

VEHICLE IMPACTS FROM FREE-FLOATING ONE-WAY CARSHARING

City	Vehicles Shed (sold)	Vehicles Suppressed (foregone purchases)	Total Vehicles Removed per Carsharing Vehicle	Range of Vehicles Removed per Carsharing Vehicle
Calgary, AB (n=1,498)	2	9	11	2 to 11
San Diego, CA (n=824)	1	6	7	1 to 7
Seattle, WA (n=2,887)	3	7	10	3 to 10
Vancouver, BC (n=1,010)	2	7	9	2 to 9
Washington, DC (n=1,127)	3	5	8	3 to 8

(Martin et al. 2016)

One-way Impacts: North America

4% - 18%

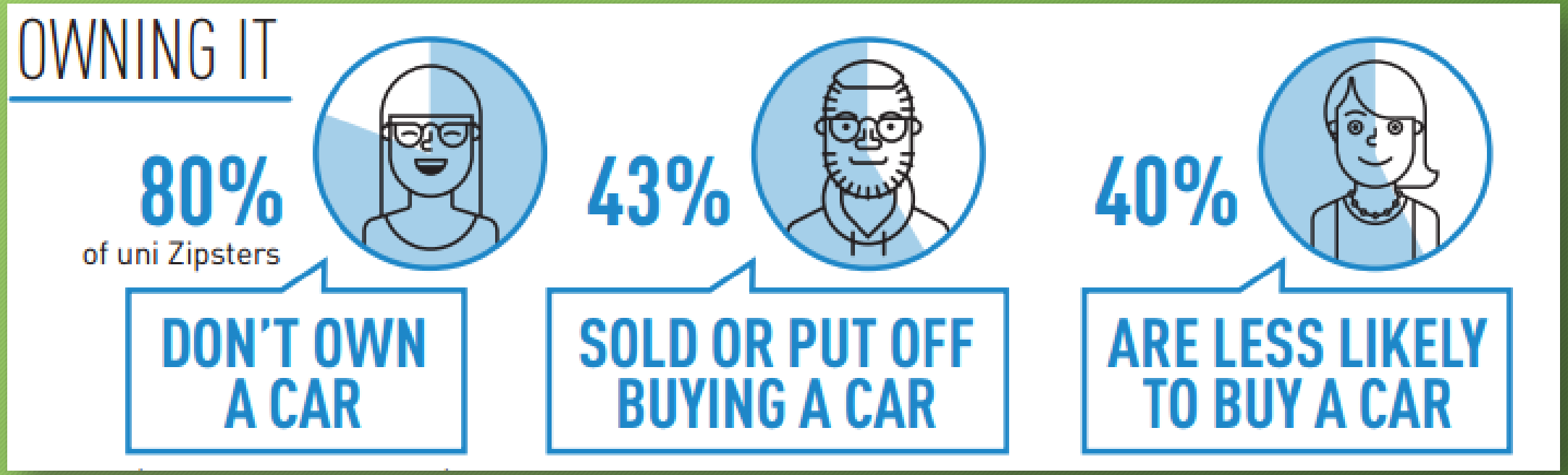
Average reduction of **GHG emissions per year** per car2go household

6% - 16%

Average reduction of **VMT per year** per car2go household

(Martin et al. 2016)

Recent Study of Zipcar's College/University Market: Fall 2016



n=~10,000

(Stocker et al. 2016)

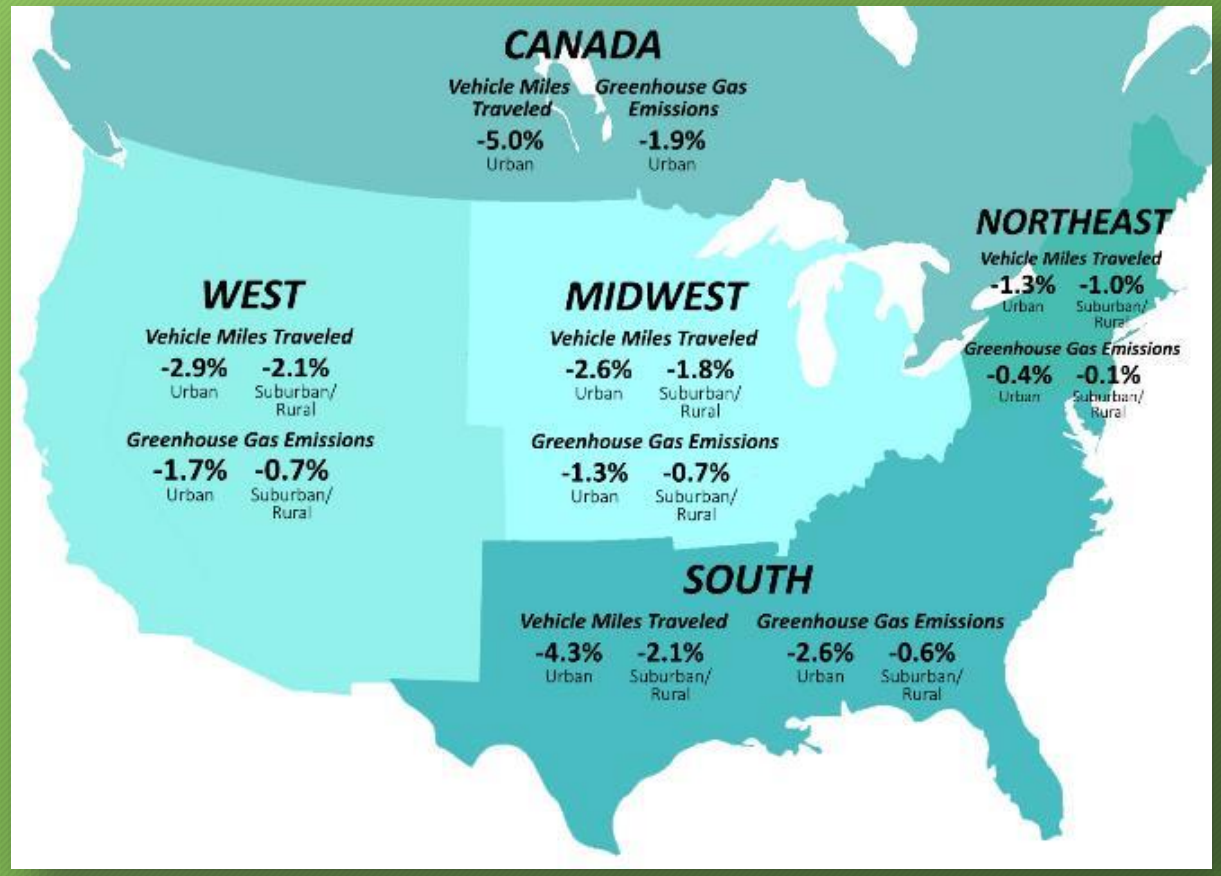
Impact on Vehicle Miles Traveled (VMT) and Greenhouse Gas (GHG) Emissions

-0.1% to -2.6%

Reduction of **GHG emissions**

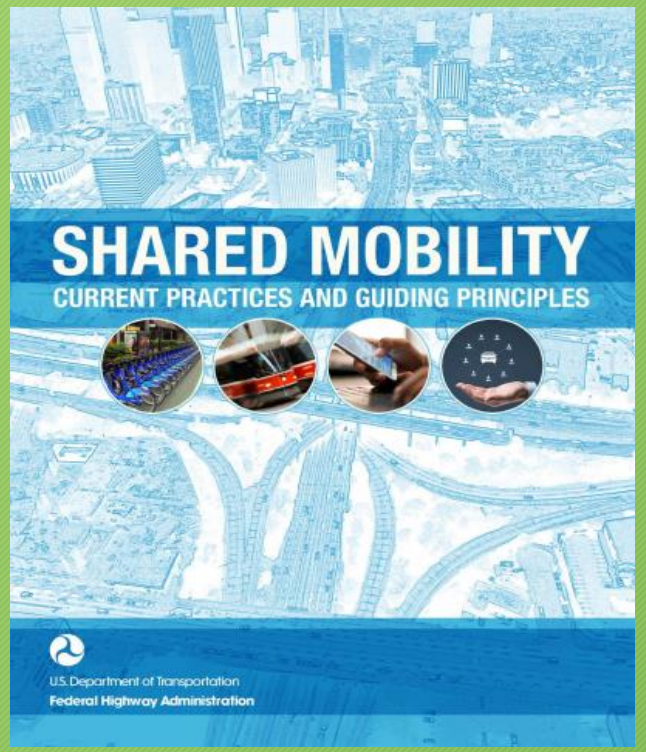
-1% to -5%

- Reduction of **VMT**
- VMT reductions are **greatest in urban land-use contexts**
- Members of **Southern and Canadian campuses** have the **greatest VMT reductions**

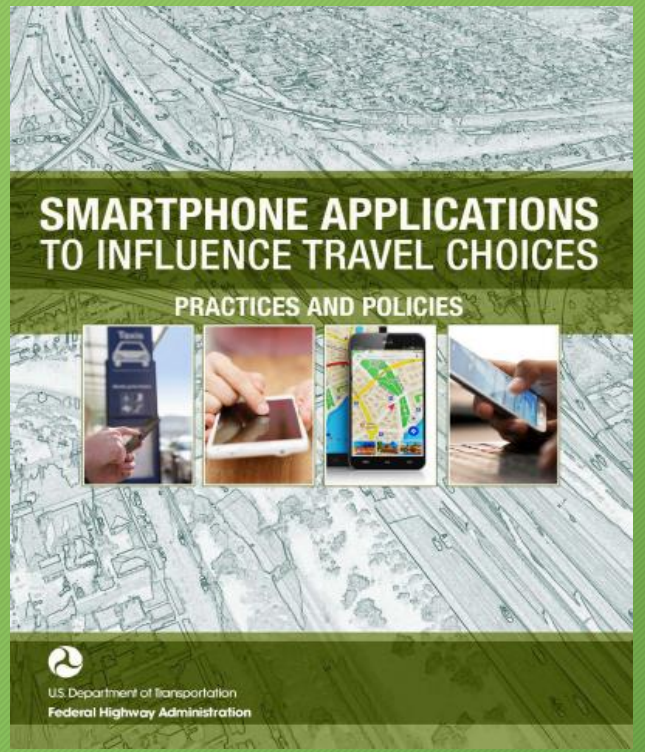


(Stocker et al. 2016)

Recent Reports

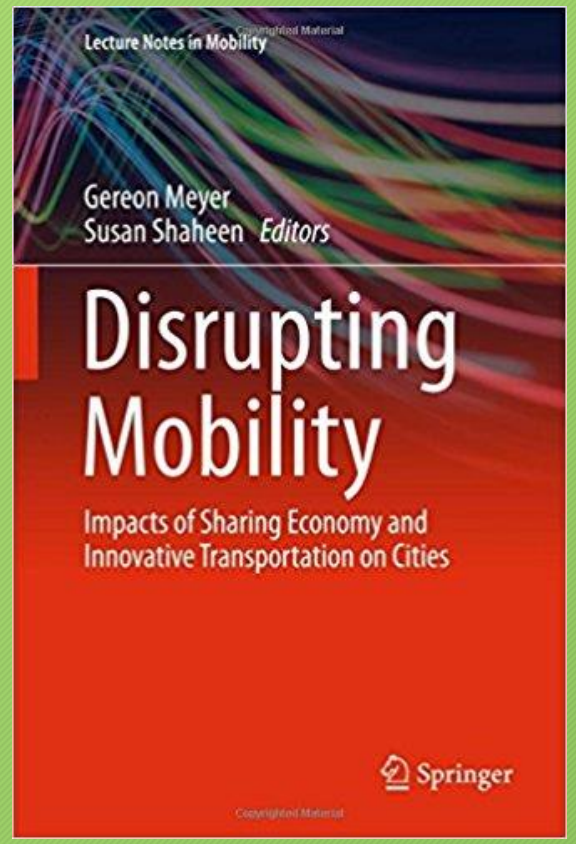


https://ops.fhwa.dot.gov/publications/fhwahop16022/fhwahop16022.pdf



https://ops.fhwa.dot.gov/publications/fhwahop16023/fhwahop16023.pdf

https://www.planning.org/publications/report/9107556/



Available at:

https://www.amazon.com/Disrupting-Mobility-Impacts-Innovative-Transportation/dp/3319516019

Recent Book

Shared Mobility Policies

- Public Rights-of-Way
- Incentive Zoning
- Insurance & Taxation
- Transportation Demand Management

Public Rights-of-Way

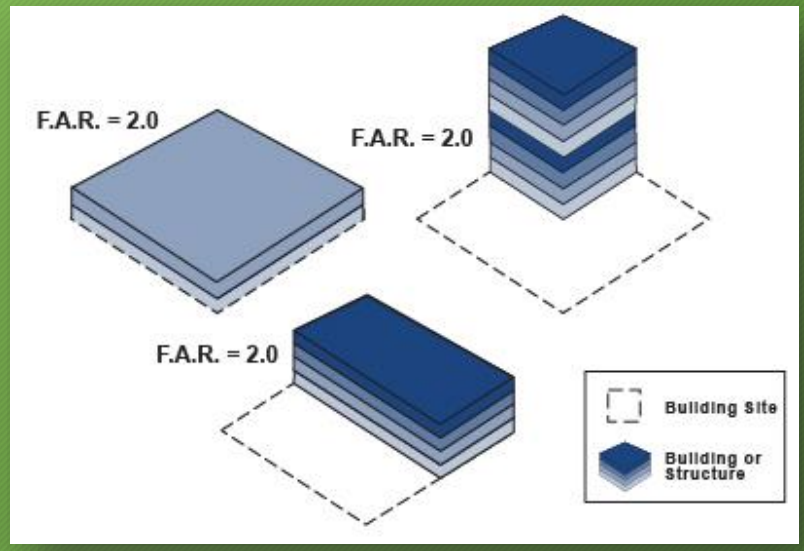
Incentive Zoning for the Inclusion of Shared Mobility

Parking-Specific Policies

- Parking Reduction: Downgrading the required number of spaces in a new development
- Parking Substitution: Substituting general use parking for shared modes in either new or existing developments

Policies Allowing Increased Density

- Greater Floor-to-Area Ratios
- More Dwelling Units
- Greater Height Allowance



Shared Mobility Planning and Public Policy

Shared Mobility as a Social Benefit:
Maximum government support based on the social and environmental benefits of shared mobility

Shared Mobility as a Sustainable Business:
Moderate government support balancing social and environmental benefits with revenue generating enterprises

Shared Mobility as a Business:
Shared mobility is treated like a business, and government provides a minimum level of support.

Upcoming Research

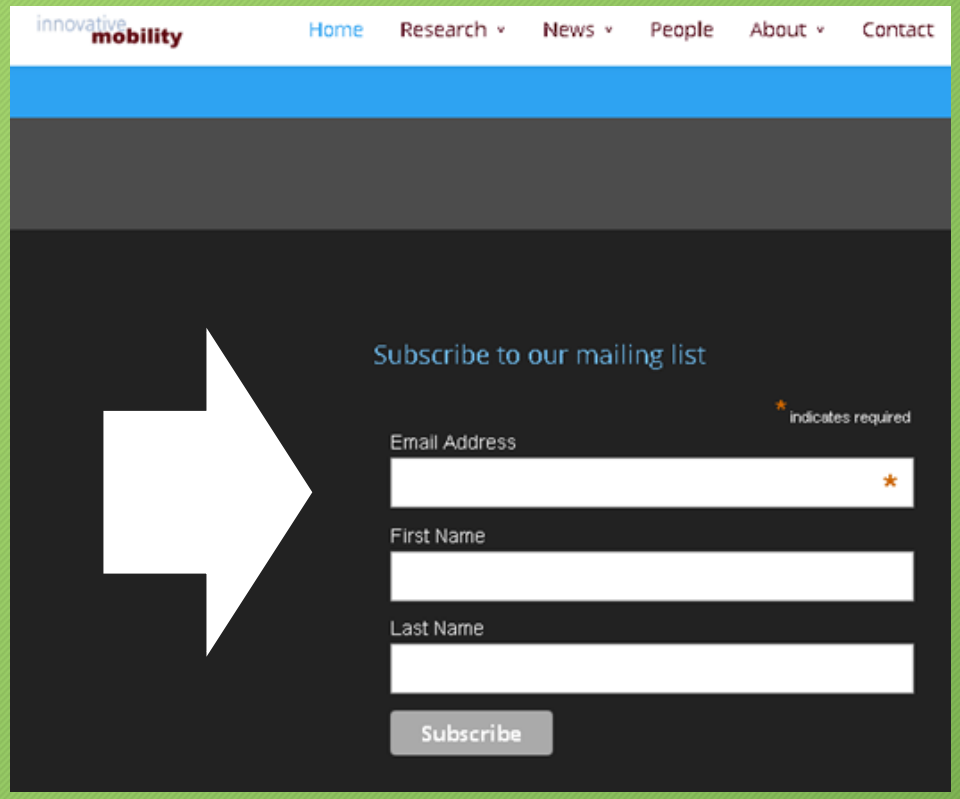
- North American and International Carsharing Market Outlooks (Summer/Fall 2017)
- Impacts Study of Lyft and Uber (Summer 2017)
  - Study will assess the impacts of travel behavior, vehicle ownership, VMT, modal shift, and GHG emissions
- P2P Carsharing Impact Study (Summer 2017)
- Bikesharing GHG Study (Fall 2017)

Upcoming Research

- U.S. Federal Highway Administration Studies of Mobility on Demand (Fall 2017)
- U.S. Federal Transit Administration Mobility on Demand Sandbox (2018-19)
  - $8 million funding for an array of mobility pilots with 11 partners (12 locations)
  - Booz Allen Hamilton and TSRC leading the independent evaluation for all sites
  - Measure project impacts and identify factors that may support or impede innovative transportation service models

Innovative Mobility Highlights, Carsharing Outlook, and Latest Research

Subscribe for the latest updates (Innovative Mobility Highlights, Carsharing Outlooks, Policy Briefs, Research Highlights and more!) at: imr.berkeley.edu (bottom of home page)



Acknowledgments

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