E-BIKES IN NORTH AMERICA results from an online survey (14-4885)

Portland NATIONAL INSTITUTE

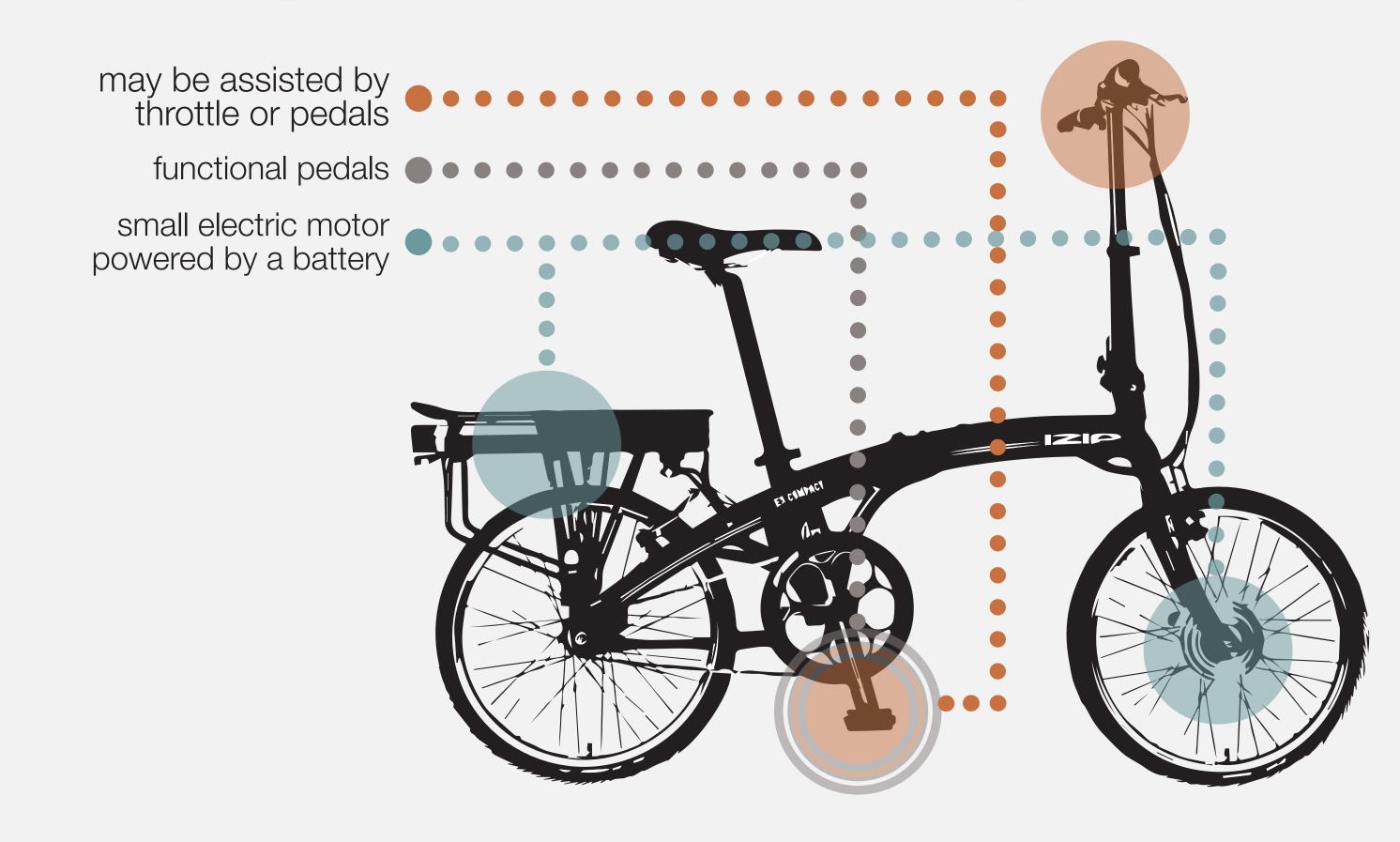




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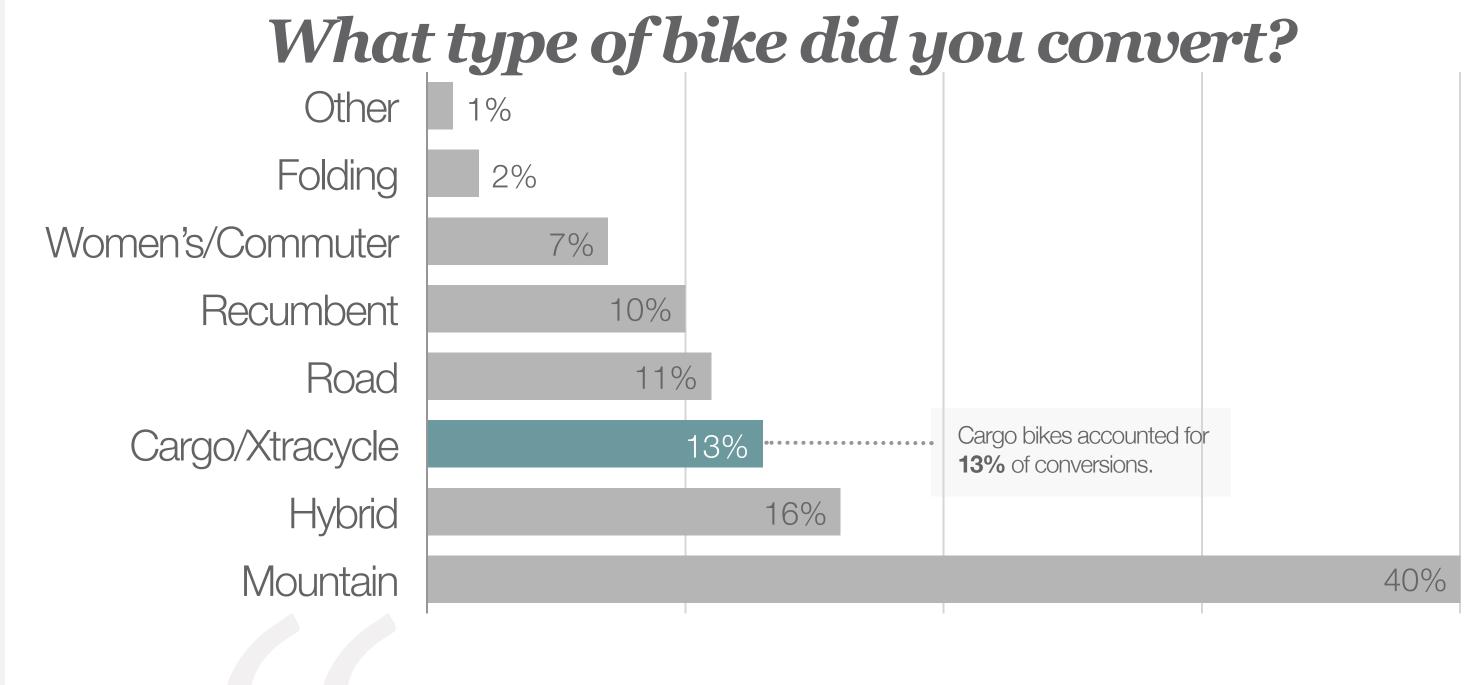
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Electric bikes, or e-bikes, vary widely in their technology and style. This study focuses on e-bikes that are essentially standard pedal bicycles that have a battery and small motor to assist the rider with propulsion. Electric scooters with pedals are not considered e-bikes for this project.



What's an e-bike? E-BIKE PURCHASE DECISIONS: CONVERSION & COST

Over half (52%) converted a standard bike to an electric-assist, while 48% purchased an e-bike.



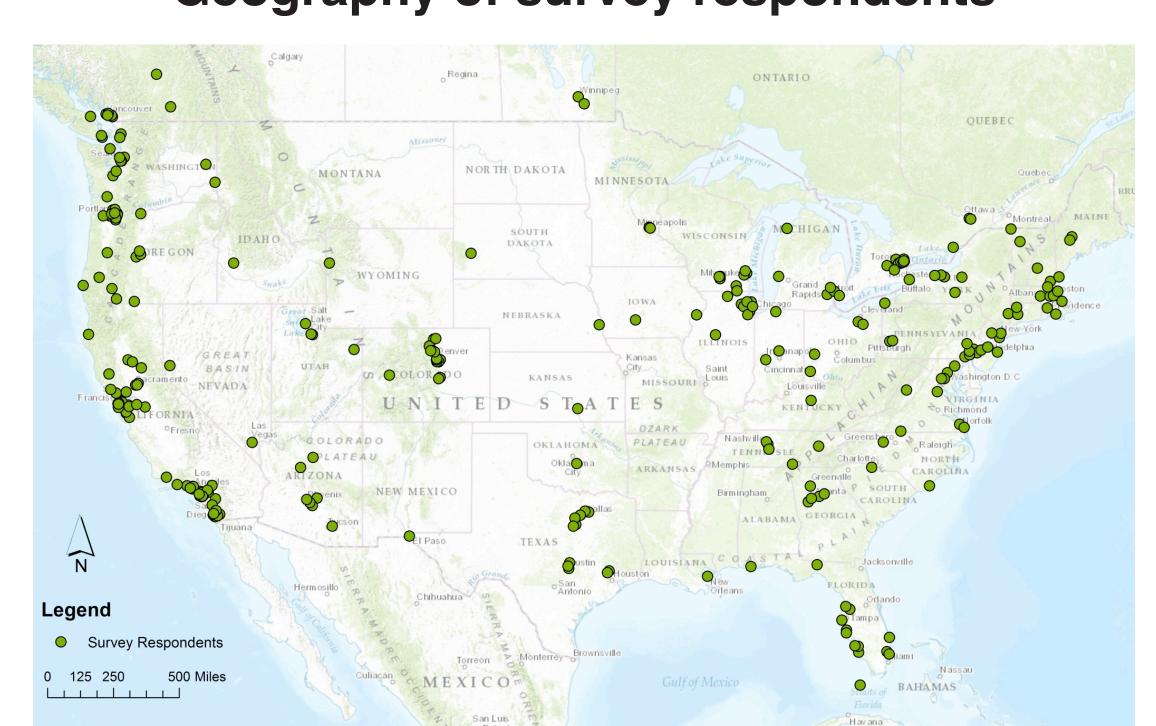
To replace 95% of car trips and make commuting fun.

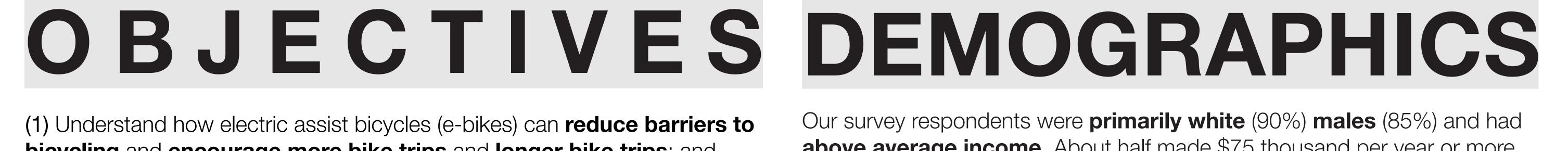
(1) Understand how electric assist bicycles (e-bikes) can reduce barriers to bicycling and encourage more bike trips and longer bike trips; and (2) Increase the diversity of people bicycling, including people with a disability or chronic injury.

METHODOLOGY

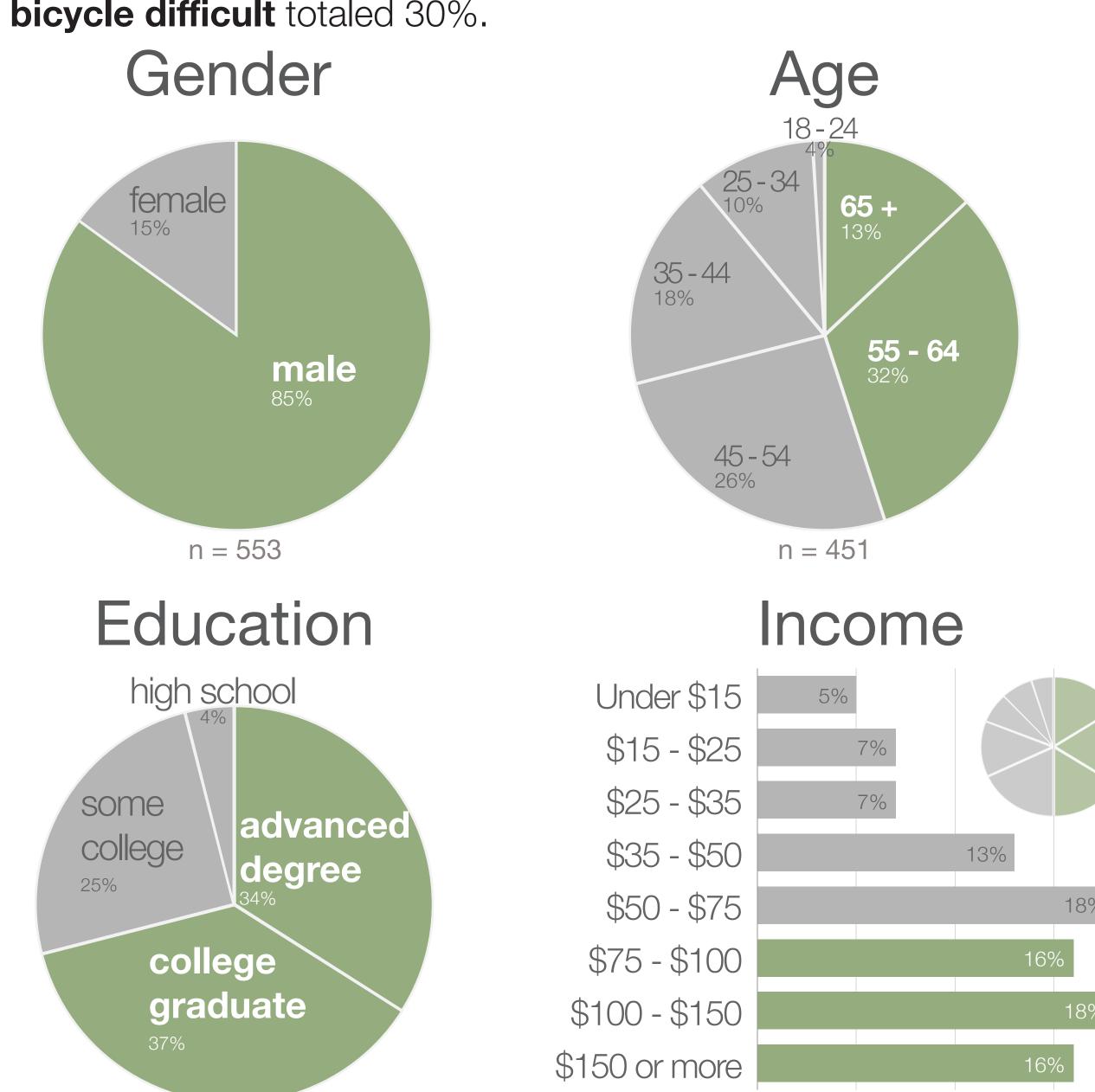
We **surveyed** 553 e-bike owners using an instrument adapted from Monash University. The survey was administered **online** starting March 7, 2013. Data for this poster shows results from 553 respondents through July 1, 2013. The survey was distributed through e-bike blogs, forums, Facebook pages, Twitter accounts, e-mails to manufacturers and retailers, and via postcards to retailers in the Portland region.

Geography of survey respondents

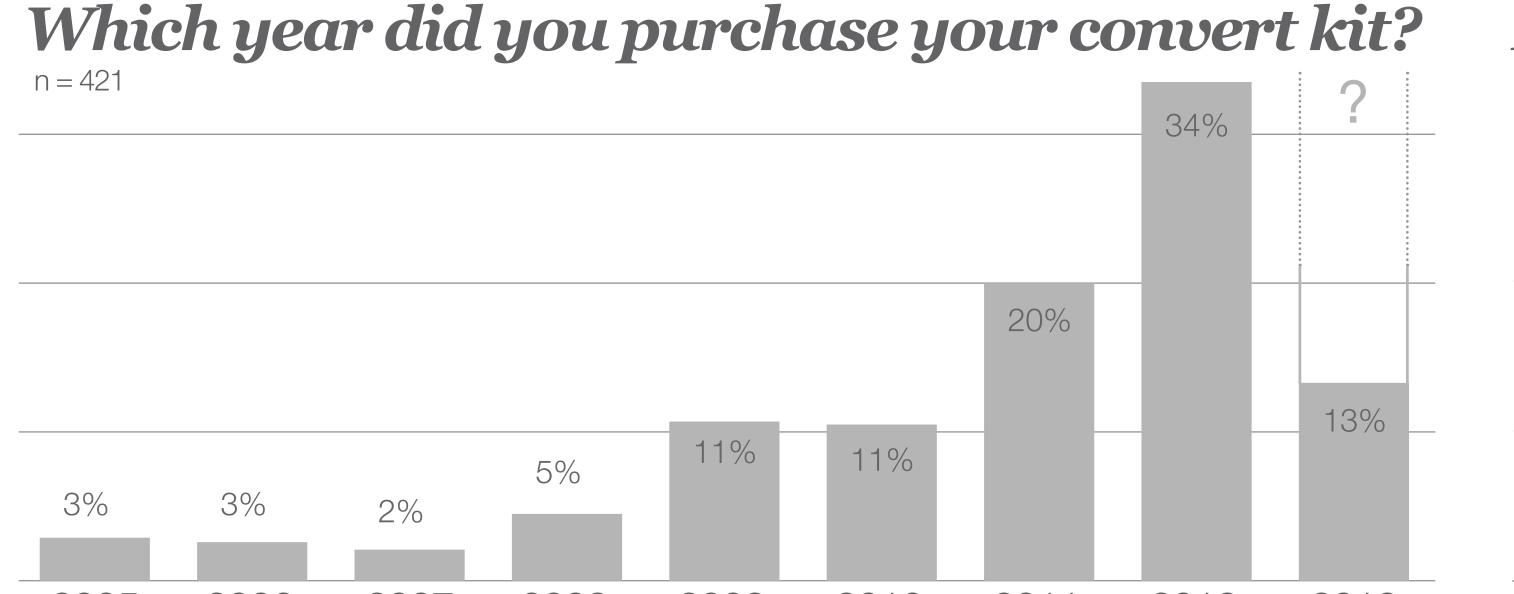




above average income. About half made \$75 thousand per year or more. This reflects their **high level of education**, with nearly three-quarters having at least graduated from college. Most (90%) had access to a motor vehicle. Those who indicated they had a condition that made riding a standard bicycle difficult totaled 30%.

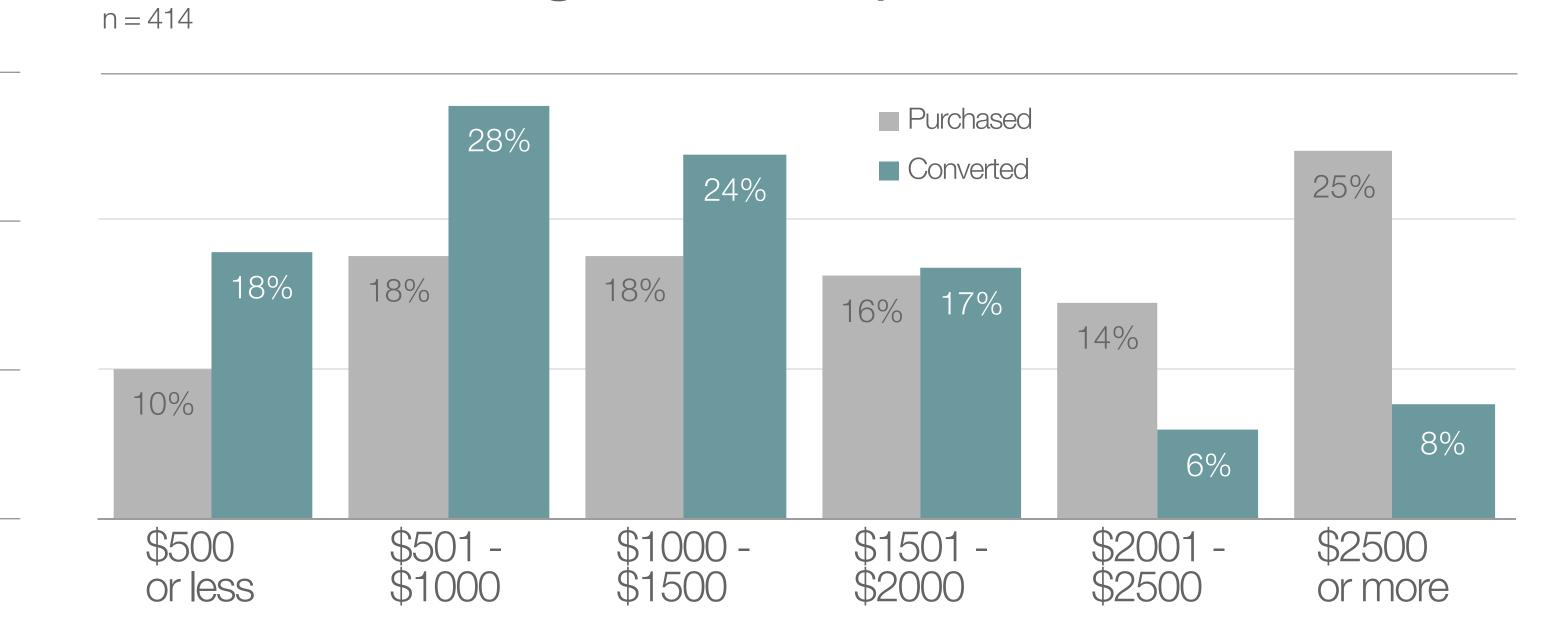


The survey concluded on July 1, 2013. Total e-bike sales in 2012 were estimated at 100,000 units; 2013 is expected to have doubled to 200,000.



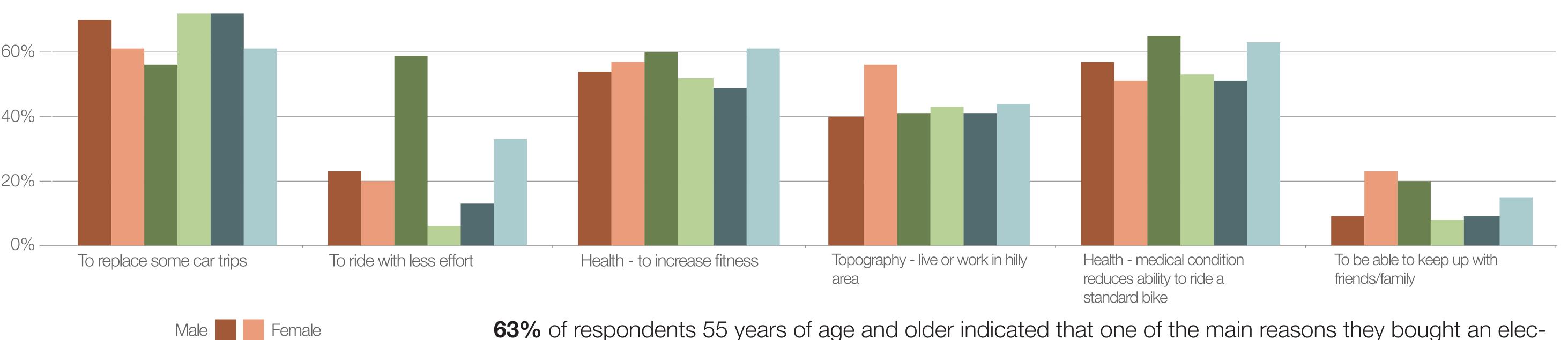
Respondents who converted their standard bicycle spent between \$500 and \$1500 on average. Purchased ebikes show a less clear pattern.

How much did your e-bike/conversion kit cost?



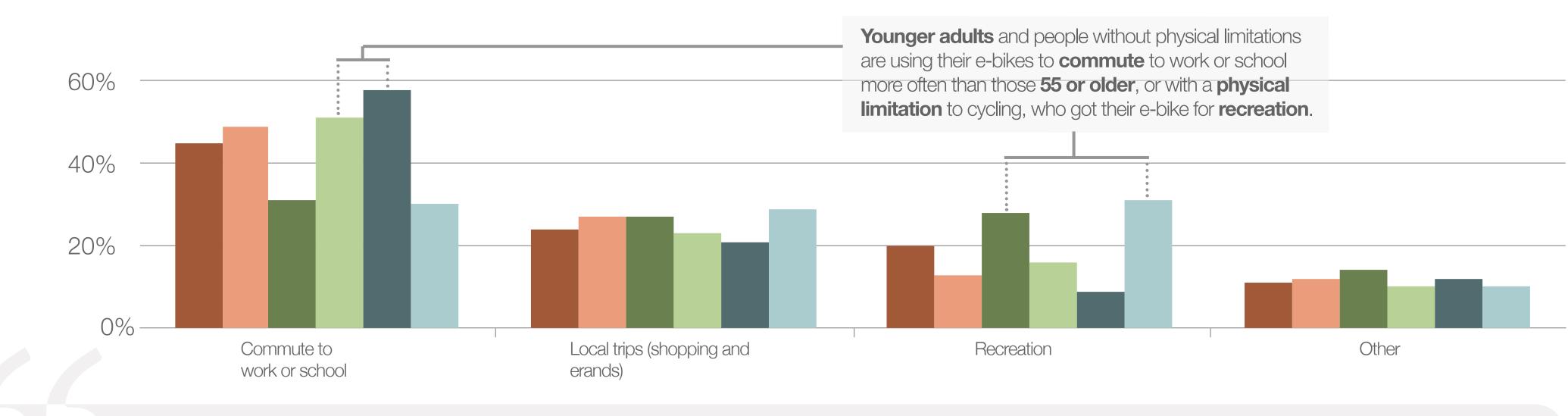
FOR PURCHASING MOTIVATIONS

What were the main reasons you bought an e-bike or converted a standard bike? (mark all)



63% of respondents 55 years of age and older indicated that one of the main reasons they bought an electric bike was to ride with less effort compared to 50% of those under 55.

What is the main reason you use your electric bike (purpose of trip)?



I cannot drive due to epilepsy. I cannot bus due to severe motion sickness. Biking is my only way to work, other than getting a ride. Bike commuting maintains my fitness level. I can ride even when I don't feel physically well or am overtired. I get to work faster than it takes when I get a car ride. I love the time outdoors, seeing the city and feeling like part of the bike community. Survey respondent

USE OF E-BIKE

06% did not ride a bike as an adult until purchasing an e-bike

of those who did not ride a bike as an adult (6%), 89% now ride weekly or daily

55% of those who owned a bike as an adult, 55% rode daily or weekly **before** purchasing their e-bike

93% use their e-bikes weekly or daily after purchasing an e-bike 93%

73% ride to different destinations on their e-bike than they did on a standard bike

52% reported that the **battery has run out** while they were riding **52%**

66% agreed (or strongly agreed) their top speed was higher on an e-bike

75% agreed(or strongly agreed) their average 75% speed was higher on an e-bike

52% take a different route on an e-bike than standard one

82% ride to different destinations on e-bikes than on standard bicycles

59% one main reason for buying an e-bike was to ride with less effort

CONCLUSIONS

E-bikes have potential to get more people on bicycles. E-bikes are especially appealing to older adults, people with physical limitations, and perhaps women. These vehicles are encouraging a wider range of people to bike more often and to more distant locations. For commuters, the benefits come with an easier ride with less sweat while not avoiding trips or locations.

Our current research is working with Kaiser Permanente at three employment campuses on an 18-month-long study. By lending 30 e-bikes to employees, we hope to see if electric bicycles have a role in first/last mile commuting.

EDGEMENTS

We gratefully acknowledge and thank NITC for funding this project; Geoff Rose and Marilyn Johnson at the Institute of Transport Studies, Monash University in Australia for letting us adapt their survey instrument; **Nicholas** Kobel for his adaptation of the poster; and all participants in the survey.



For a copy of this paper, visit http://bit.ly/ebikesNA





Survey respondent

With physical limitation Without physical limitation

Younger than 55 55 or older

I have bad knees

(I'm retired, 68

years old). If I

pedal a bike, my

range is limited

by pain to about

The e-bike has a

range per charge

of 30 to 35 miles.

5 to 6 miles.

