

Active Travel and Health

Susan Handy

“Moving Active Transportation to Higher Ground: Opportunities for Accelerating the Assessment of Health Impacts”

Washington, DC - April 13, 2015



Travel and Health Concerns

Safety



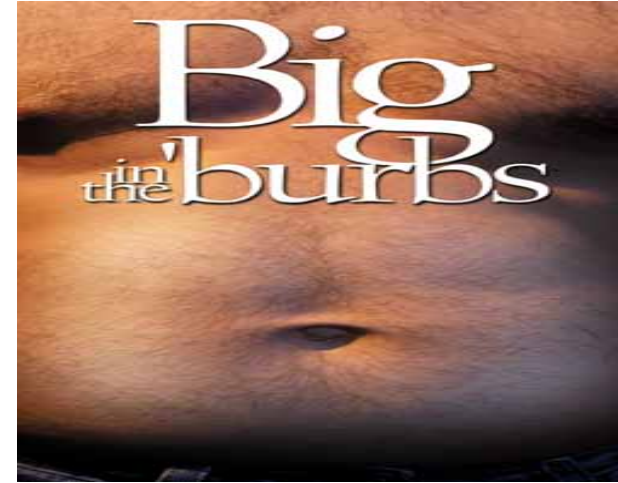
1920s +

Pollution



1960s +

Physical Activity



1990s +

Travel and Health Connections

Our daily travel choices...

- Whether to travel?
- What mode of travel?
- Where to travel?
- When to travel?



Our own health...

- Exposure to crashes
- Exposure to pollutants
- Levels of physical activity

Health of others...

- Risk of crashes
- Levels of pollutants
- Bike/ped environment

Equity Concerns

Populations more dependent on walking and bicycling are more at risk from drivers:

- The young and the elderly
 - Abilities more limited
- Lower income households
 - Environment more hazardous



Improving the Healthiness of Travel

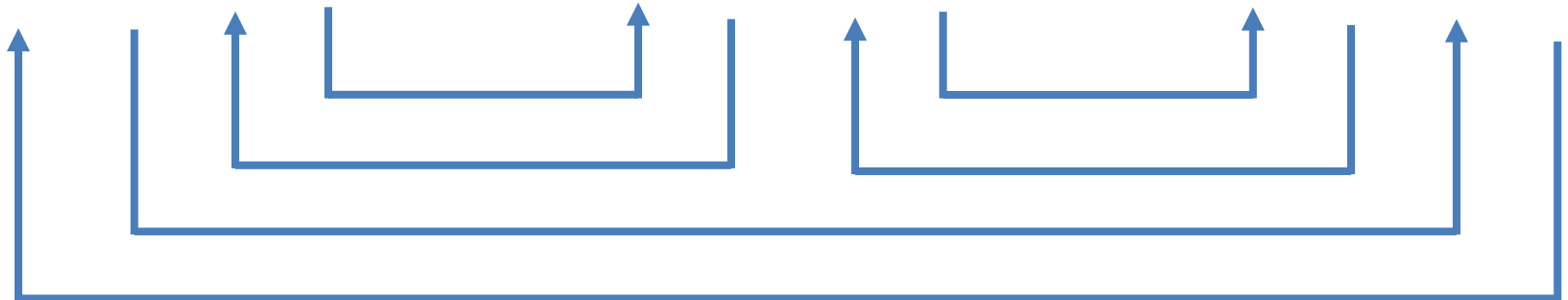
Reducing driving harms



Reducing driving



Increasing active travel



“Promoting healthy and sustainable transport alternatives prevents the negative effects of transport patterns on human health...”

- World Health Organization, 2012



Reducing the harms of driving



Vehicles



Drivers



Roads

Reduce harms for drivers versus harms for others...?

Road Design Conundrum



Crash risks minimized
but high speeds

Better for mobility!

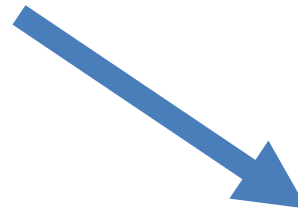
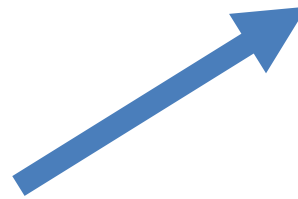


Crash risks remain
but low speeds

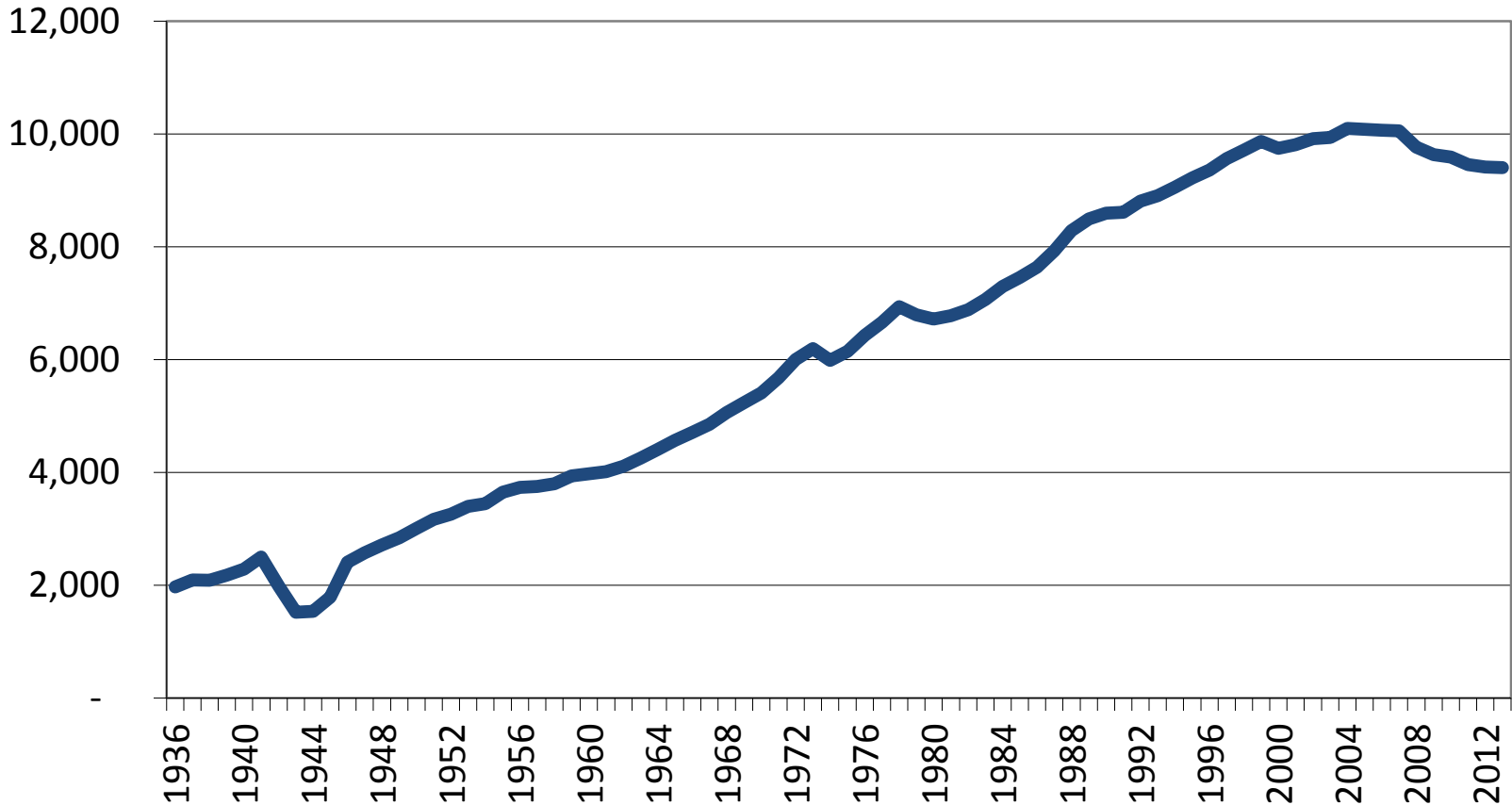
Better for AT!

Reducing Driving

Reduced driving



Annual VMT per Capita in U.S.



Source: Bureau of Transportation Statistics, U.S. Census

“Millennials”

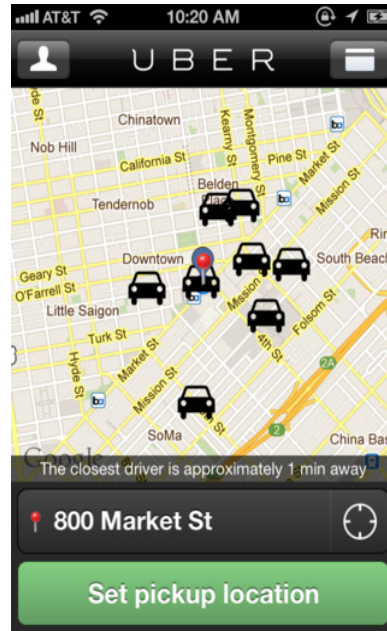


Example 1: Allison



Example 2: Hannah

Car Access without Ownership



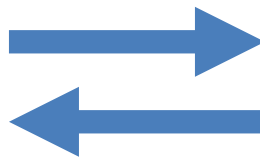
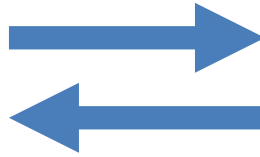
Zipcar, Über, Lyft, Sidecar, RelayRides, etc.

Autonomous Vehicles

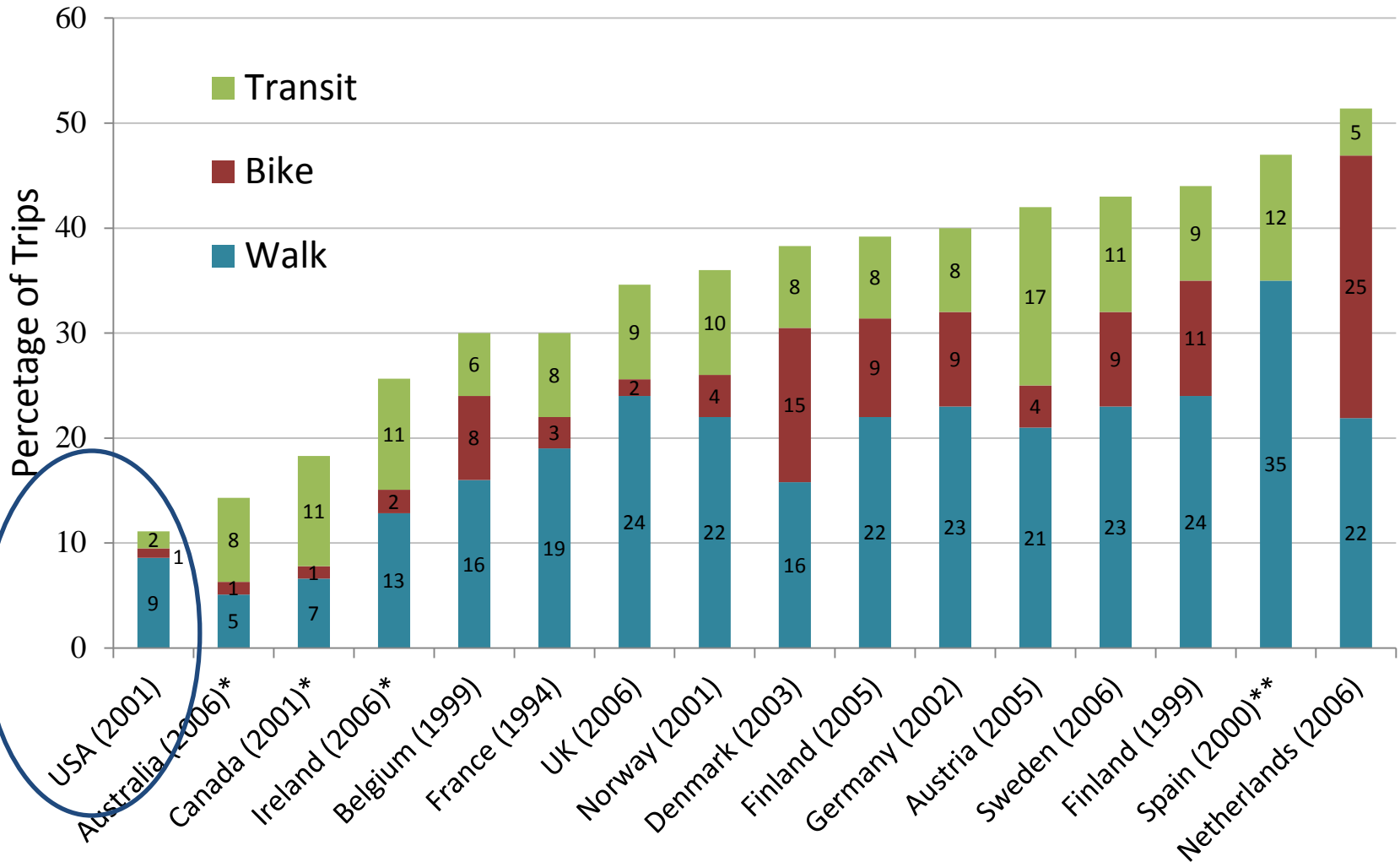


Increasing Active Travel

Increased AT



Active Travel



IMPORTANT NOTES: *Work trips only, **Walk and bike combined for Spain

Walking vs. Biking Potential

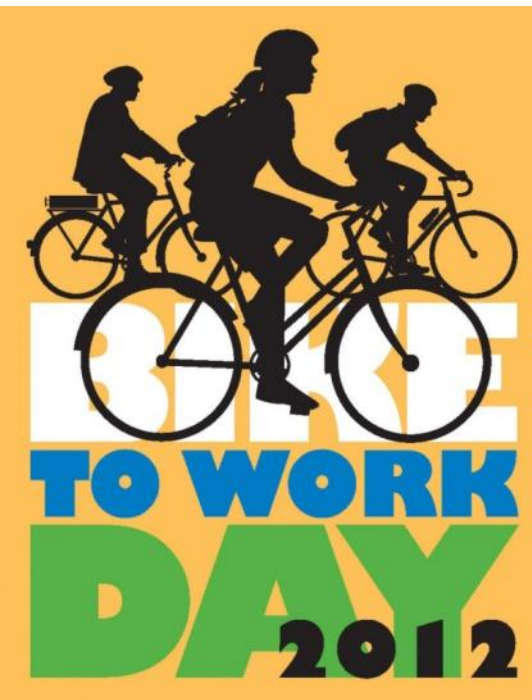
	People Potential	Trip Potential
Walking	No equipment needed Almost everyone does it some	Only 2-5 mph so not many destinations within time available
Bicycling	Bicycle needed Many people don't have skills or confidence to do it	Faster at 5-15 mph so more destinations within time available

Infrastructure Investments



Odense, Denmark

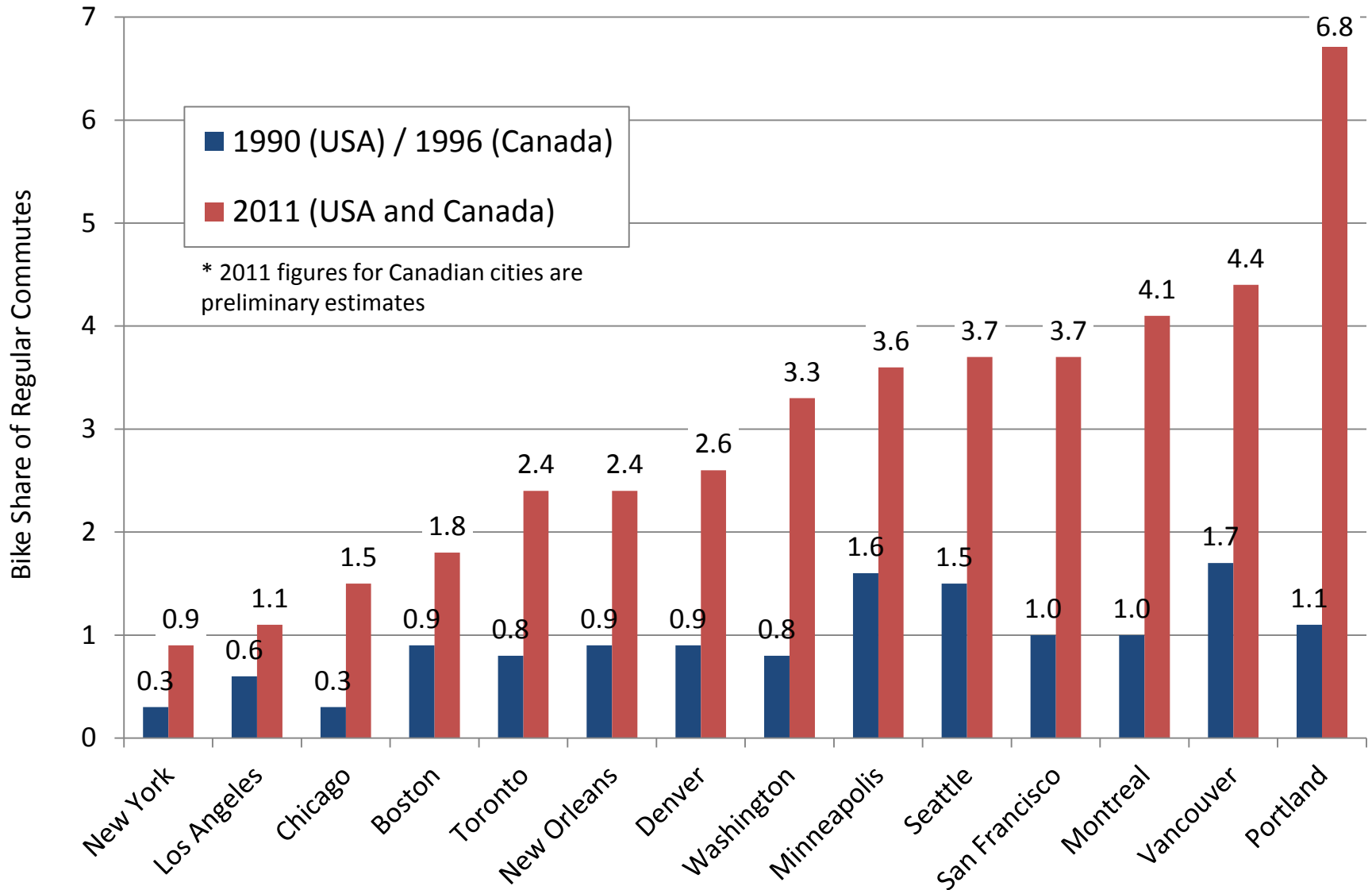
Promotional Programs



Educational Programs



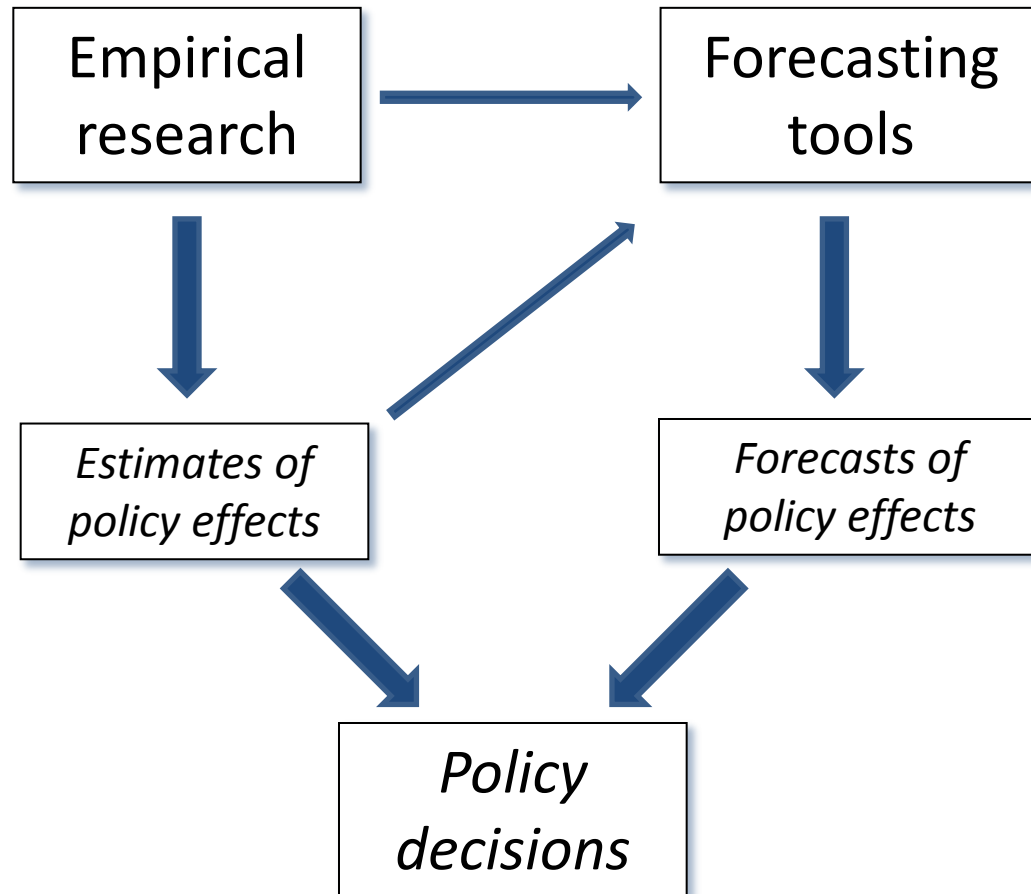
Boom in Cycling to Work



How do we know what works?



Two Basic Approaches



Challenge 1: Substitution

Increased AT



Replaced driving



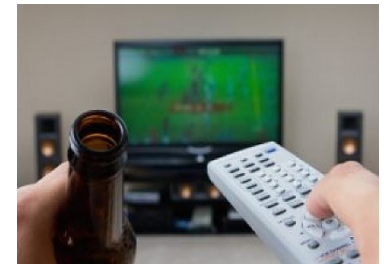
New trips



New exercise



Replaced exercise



Challenge 1: Substitution

Last time you walked to the store:
if you had been unable to walk, would you have...?

Alternative	Share of Respondents
Driven to same place	64%
Drive to different place	8%
Stayed at home	13%
Other	6%
Not sure	10%

2.5 walks per month x 0.6 miles to nearest store x 2 x 0.64
= 2.1 miles per month

Challenge 2: Multiple Steps



We also need research on the effects of policies on built environment characteristics

We have lots of evidence on how the built environment affects travel behavior

Challenge 2: Multiple Steps



We also need research on the effects of program design on program participation

We have at least some evidence on how program participation affects travel behavior

Challenge 3: Establishing Causality

Cross-Sectional: diffs in land use associated with diffs in travel



Challenge 3: Establishing Causality

Causal Effect = land use patterns cause travel patterns?



Challenge 3: Establishing Causality

Self-Selection Effect = travel preferences influence nbhd choice?

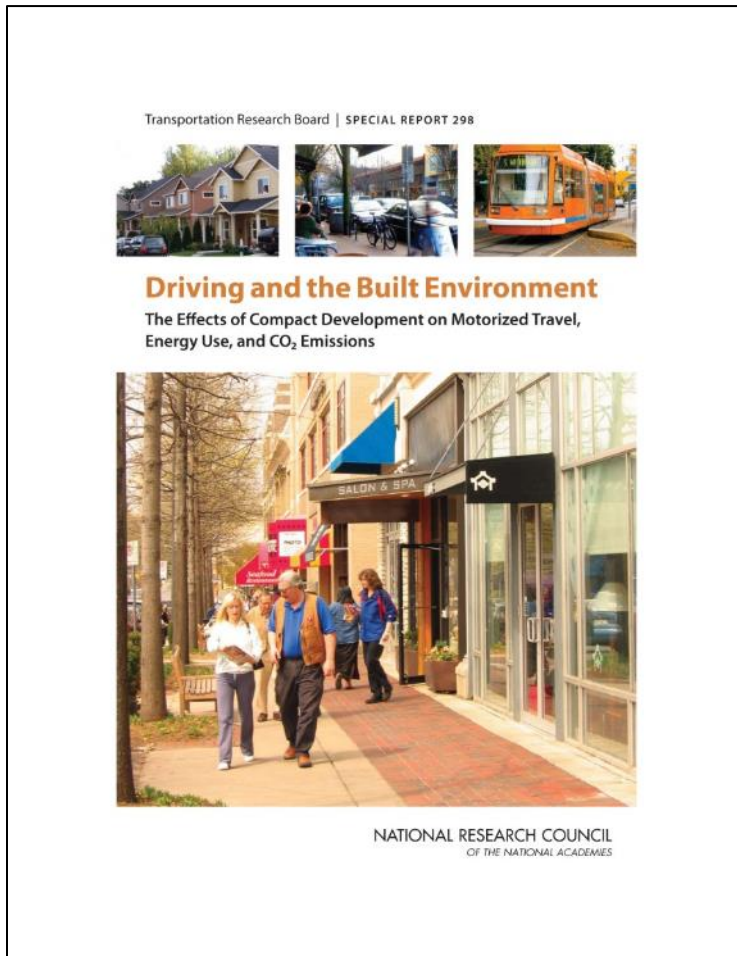


Challenge 3: Establishing Causality

Longitudinal Studies = changes in land use lead to changes in travel



Need for Experimental Studies



“careful before-and-after studies of policy interventions to promote more compact, mixed-used development to help determine what works and what does not”

“Natural experiments”

“Intervention studies”

“Policy evaluation”

Natural experiments for programs



**Educational
programs**



**Promotional
programs**



**Bike give-away
programs**

Natural Experiments for Infrastructure

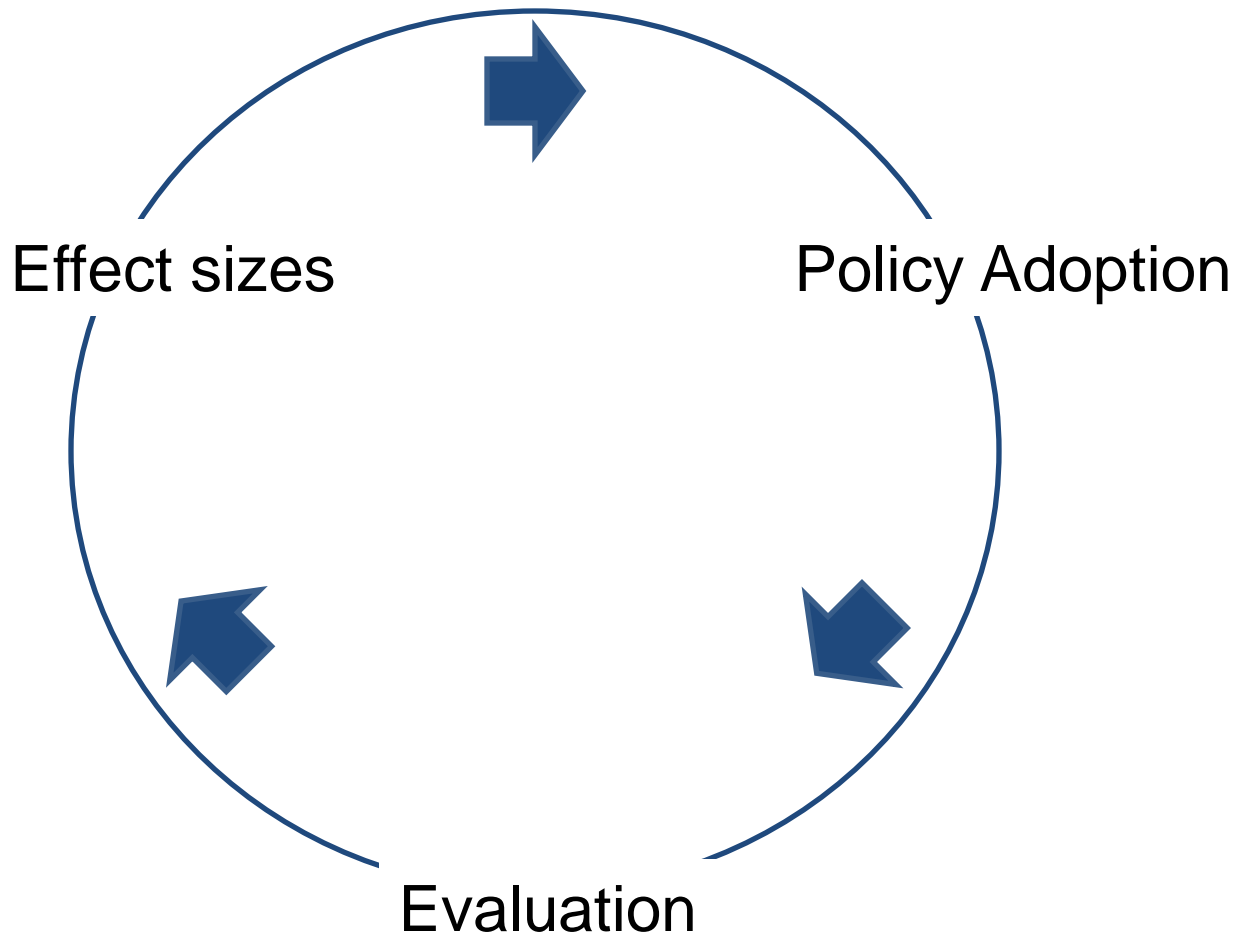


Green Lane Project
Portland State
University
5 cities

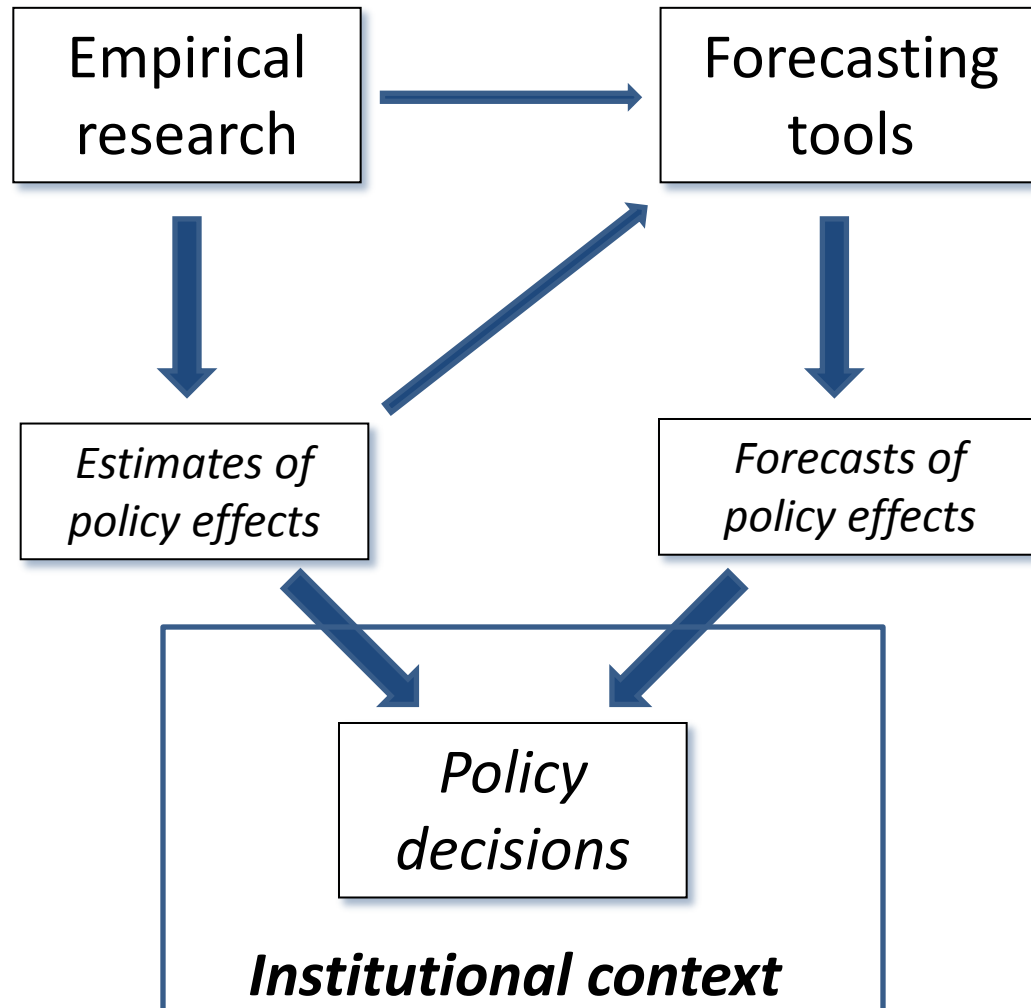


Expo Line Opening
UC Irvine, USC
1 line

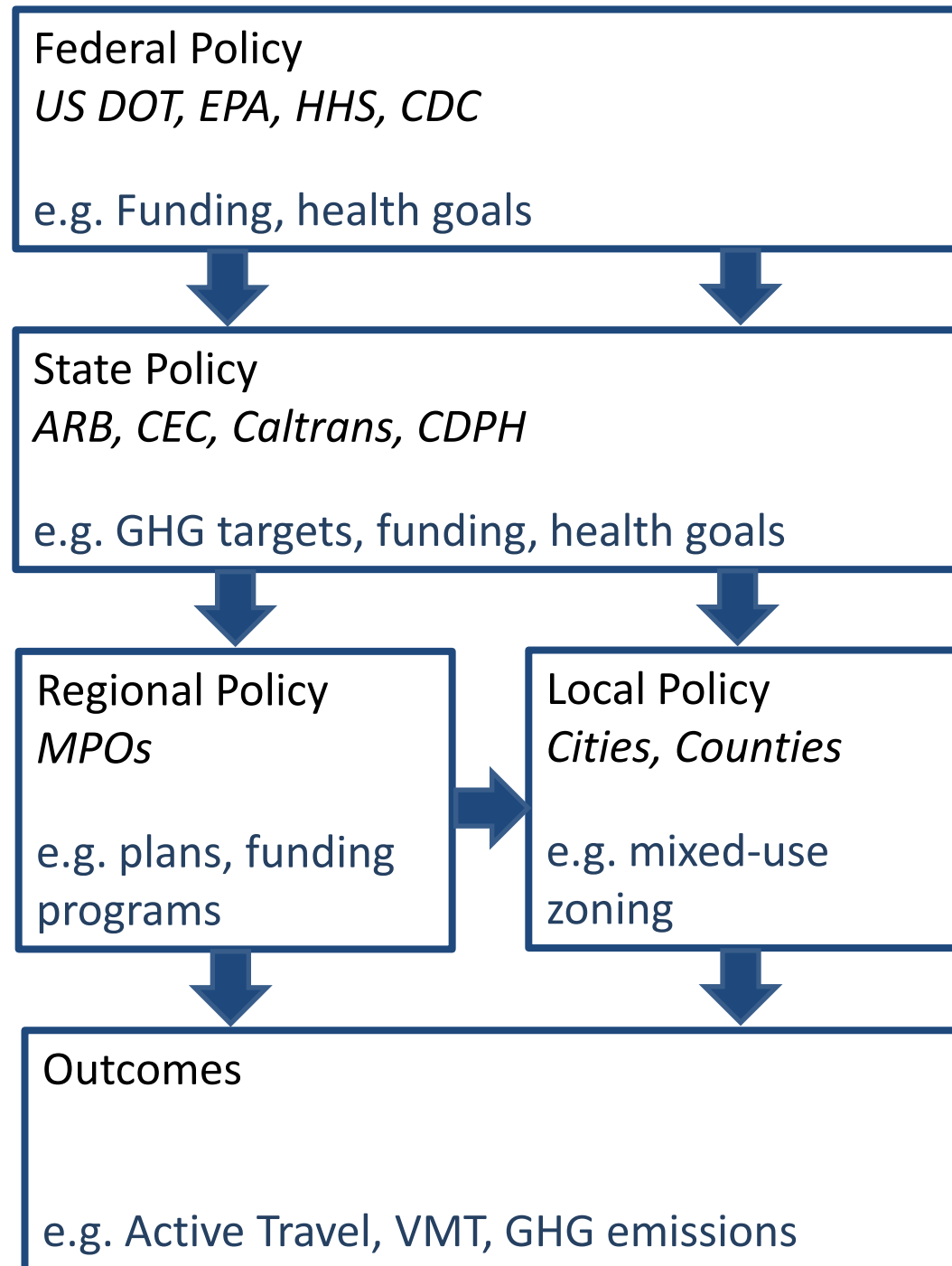
Building the Evidence Base



Another Important Area of Work



Action at
all levels of
government



Paradigm Shift in Transport Planning

The Old Way:

Make it easier to drive



Focus on “level of service”
Planning for mobility

The New Way:

Make it easier to NOT drive



Focus on “livability”
Planning for accessibility

Thanks!

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