

Reducing VMT through Land Use Policies: The Research Perspective

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SB375

Redesigning Communities to Reduce Greenhouse Gases

Targets for GHG emissions reduction from cars and trucks for metropolitan areas, by reducing vehicle-miles-travelled (VMT)

	2020	2035
Bay Area	7%	15%
Sacramento	7%	16%
LA region	8%	13%
San Diego	7%	13%

Elasticities for BE and VMT

	Weighted average	Range across studies
Job density	0	0 to 0.02
Jobs-housing balance	-0.02	-0.09 to 0.03
Household/population density	-0.04	-0.12 to 0
Job accessibility by transit	-0.05	-0.10 to -0.03
Proximity to nearest transit stop	-0.05	-0.19 to -0.01
Land use mix	-0.09	-0.27 to -0.01
Intersection/street density	-0.12	-0.29 to -0.04
Percent 4-way intersections	-0.12	-0.15 to 0
Job accessibility by auto	-0.20	-0.31 to -0.03
Distance to downtown	-0.22	-0.27 to -0.20

Research Briefs for Cal ARB

Boarnet, Handy, Spears, Tal

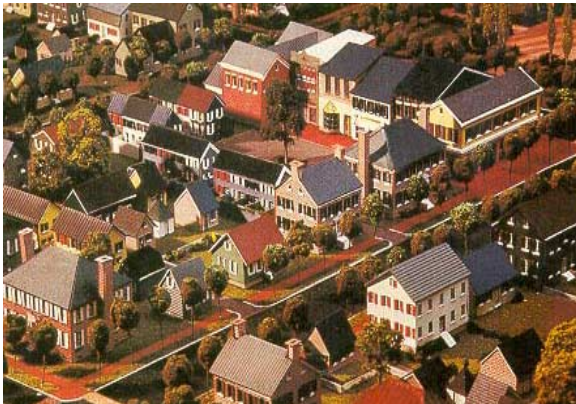
Land Use-Related Policies

- Residential Density
- Network Connectivity
- Land Use Mix
- Regional Accessibility
- Jobs-Housing Balance
- Distance to Transit

Transportation-Related Policies

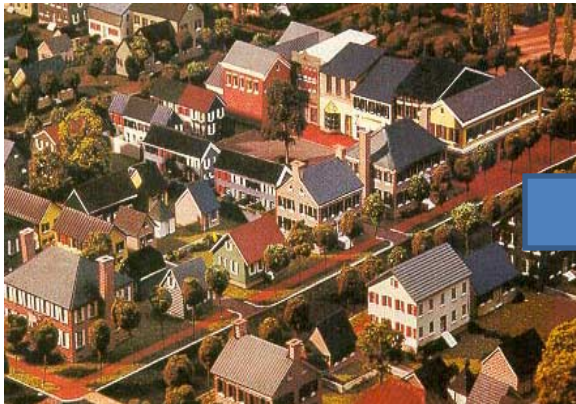
- Parking Pricing
- Employer-Based Trip Reduction
- Road User Pricing
- Telecommuting
- Transit Service
- Voluntary Travel Behavior Change Programs
- Pedestrian Strategies
- Traffic Incident Clearance Programs
- Bicycle Strategies

Association =
differences in land use associated with
differences in travel

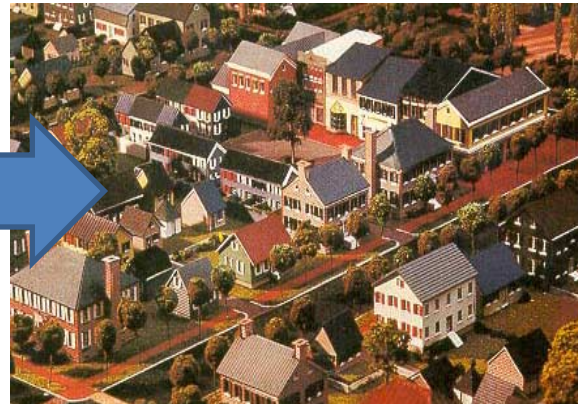


Causal Effect =

Changes in land use lead to changes in travel

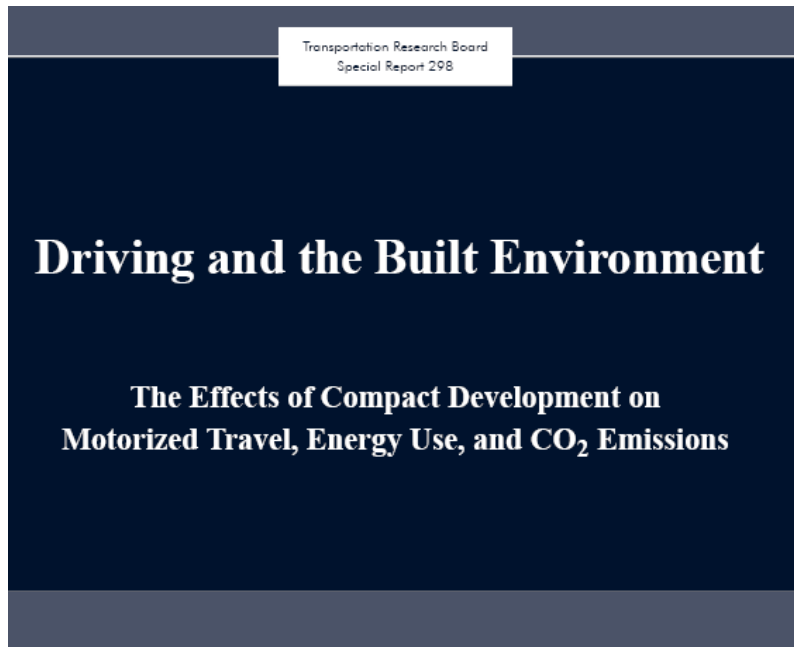


Self-Selection Effect =
Preferences for travel influence
type of neighborhood chosen



TRB Special Report 298

“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”

California SR2S Study – UC Irvine

Work Type	Schools
Sidewalk improvements	Sheldon Elementary, West Randall Elementary (primarily sidewalks) Murrieta Elementary, Valley Elementary, La Gloria Elementary (includes other work types) Juan Cabrillo Elementary, Ocean Knoll Elementary
Traffic calming & speed reduction	La Gloria Elementary, Hawthorne Elementary
Pedestrian/bicycle crossing	Mt. Vernon Elementary, Jasper Elementary, Valley Elementary, Glenoaks Elementary
Bicycle facilities (on-street or off-street)	La Gloria Elementary, Murrieta Elementary
Traffic control devices	Cesar Chavez Elementary, Newman Elementary
Traffic diversion improvements	La Gloria Elementary, Sulphur Springs Elementary

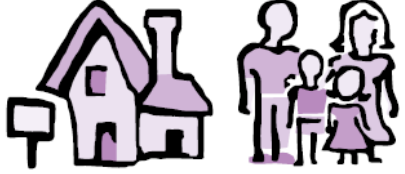
Note: Most projects with multiple work types are shown in multiple categories.



- Parents of 3rd and 5th graders surveyed before and after improvements
- Traffic counts and driver behavior before and after improvements
- *Increases in walking/bicycling at 5 out of 10 schools*

RESIDE Study – UWA, Perth

- 2003-2008
- 5000 new home builders invited to participate
- Surveys before move, one year after, two years after
- Environmental audits for BE characteristics
- *Steps per day did not change*



THE UNIVERSITY OF
WESTERN AUSTRALIA

The RESIDE Project

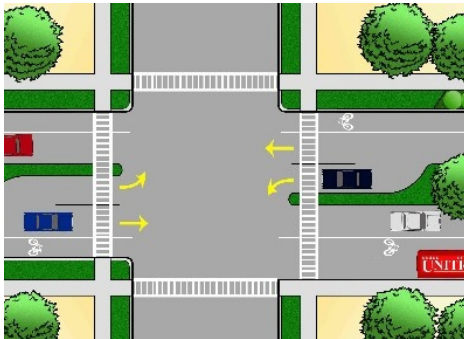
RESIDential ENVironments Project

How the design of local communities affects people's leisure-time activities, transport patterns, health and sense of community.

Davis Studies



Target Store opening:
Shopping patterns before
and after

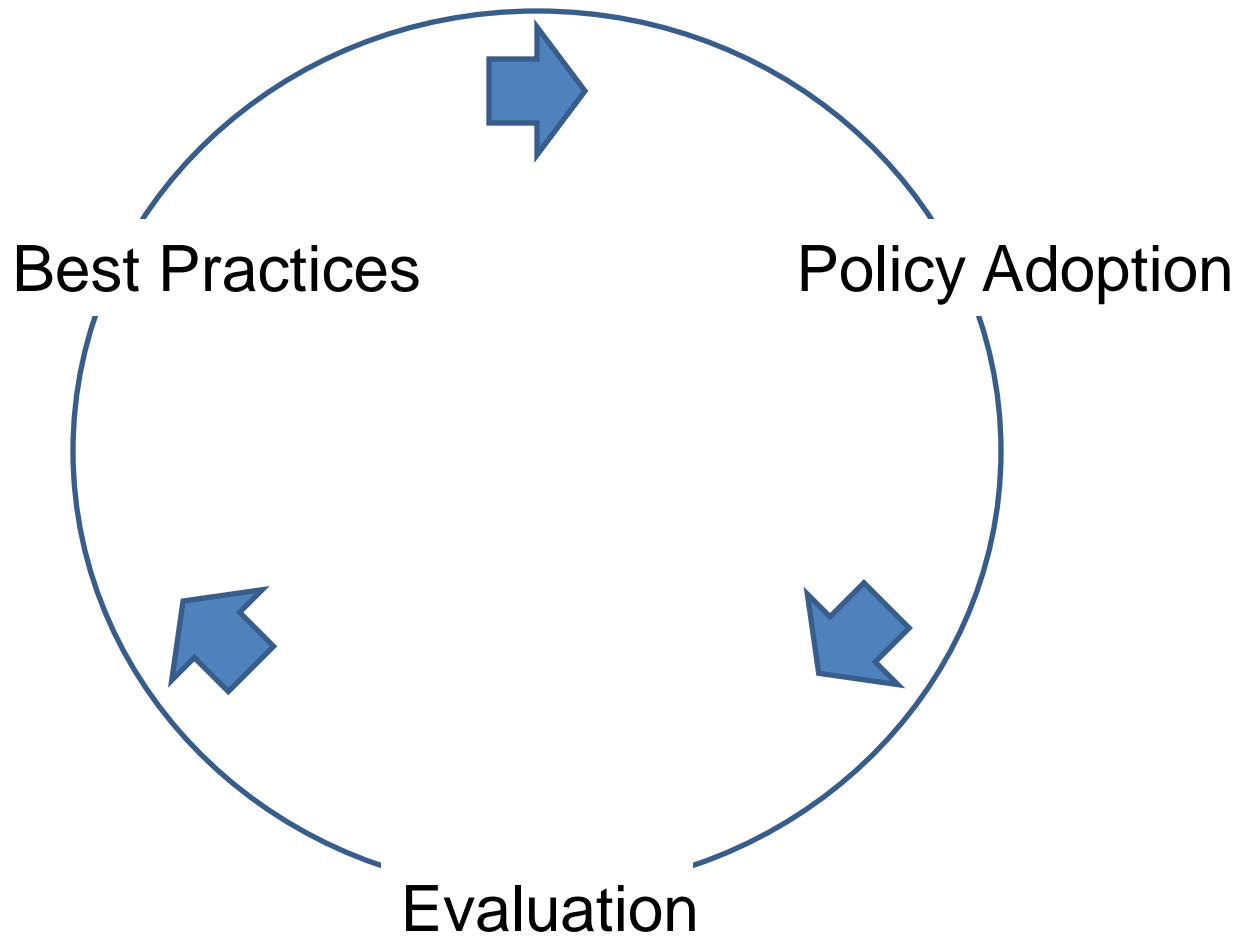


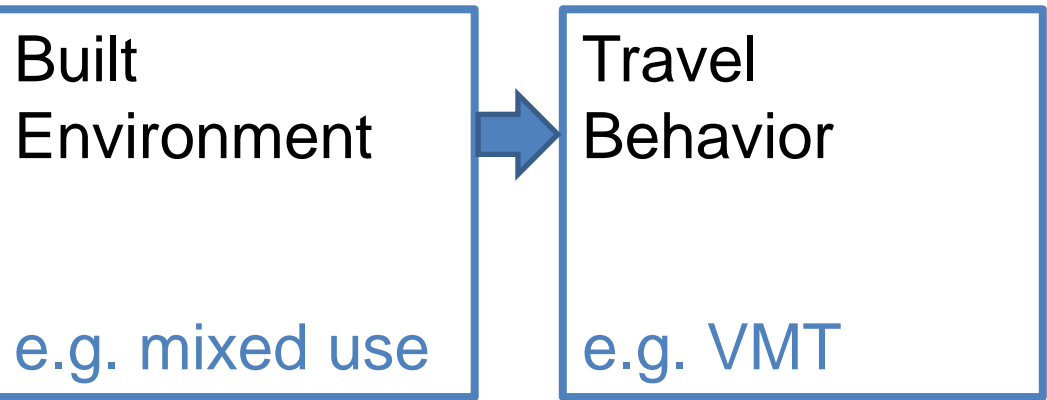
Fifth Street Road Diet:
Mode split to downtown
and bike/ped safety before
and after



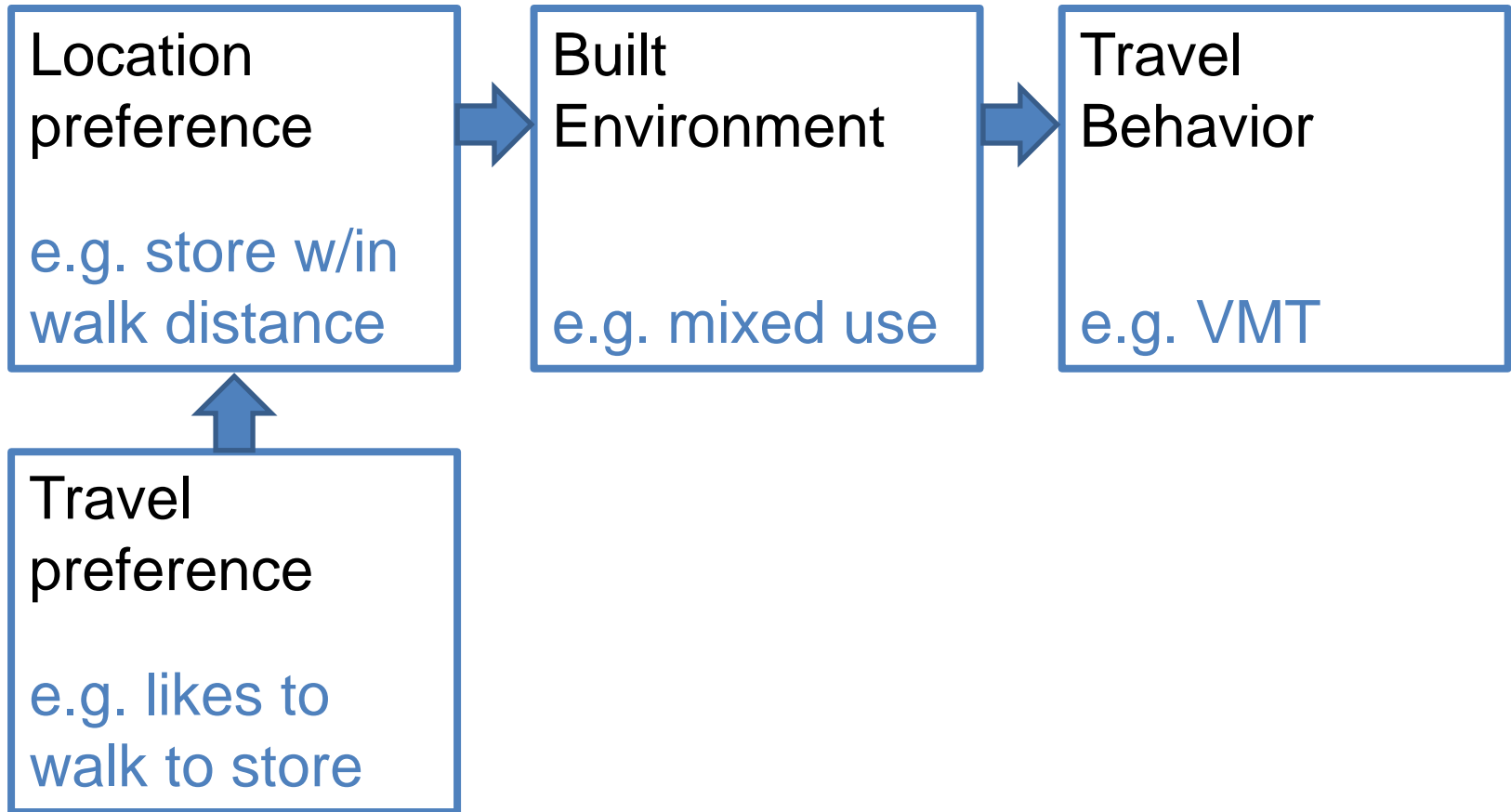
West Village Project:
Travel patterns before-
and-after moving in

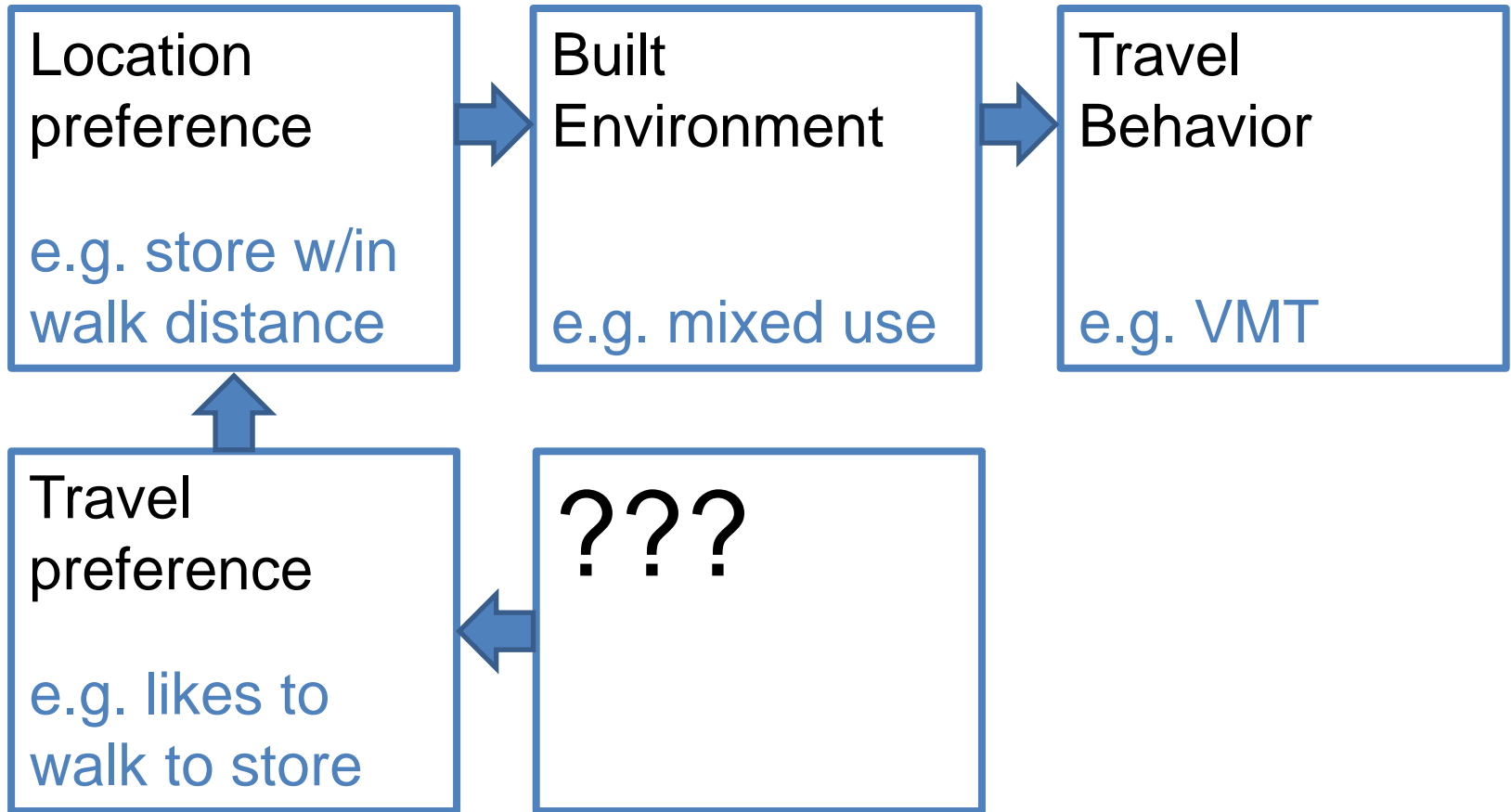
Evidence Cycle



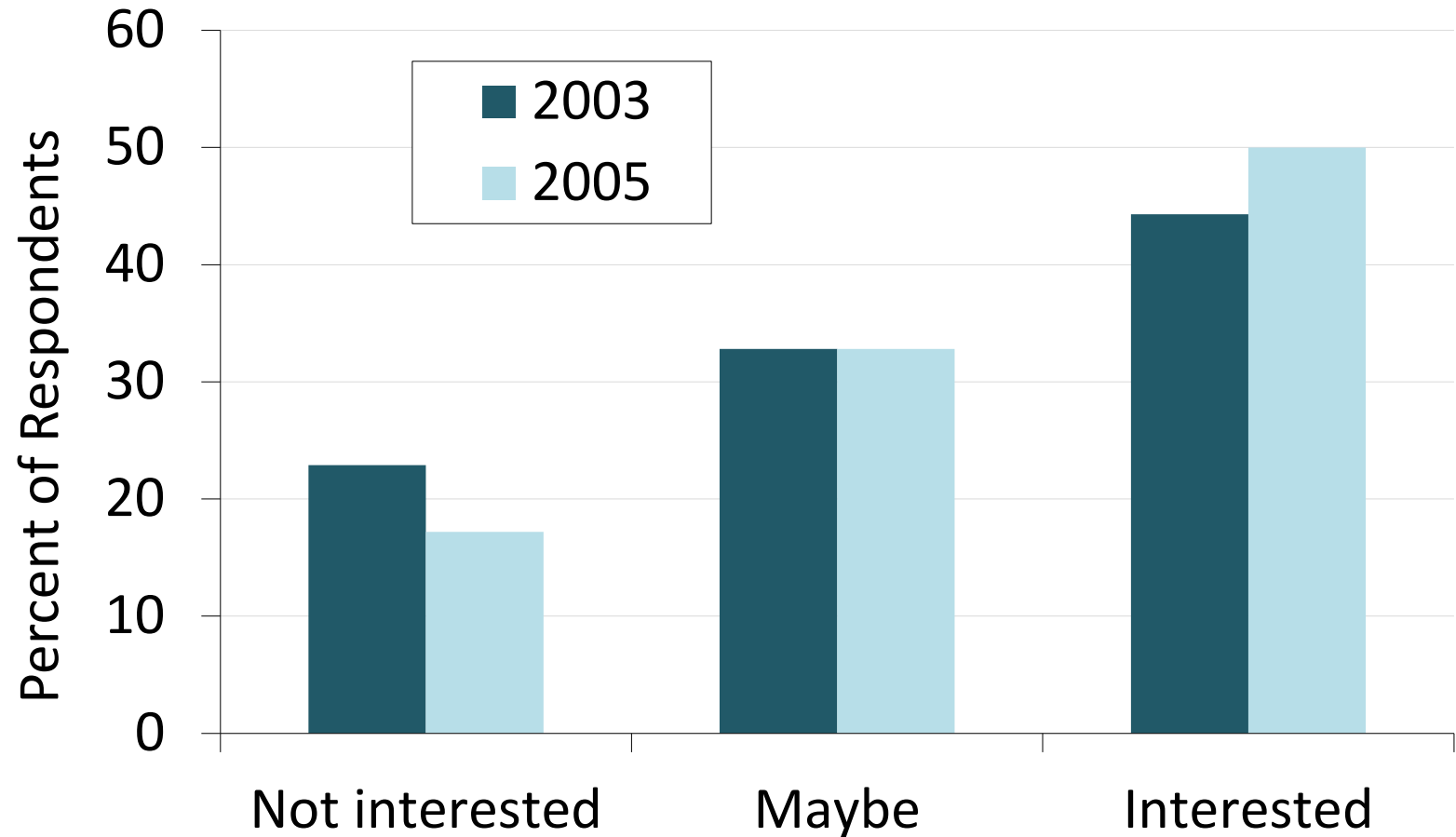




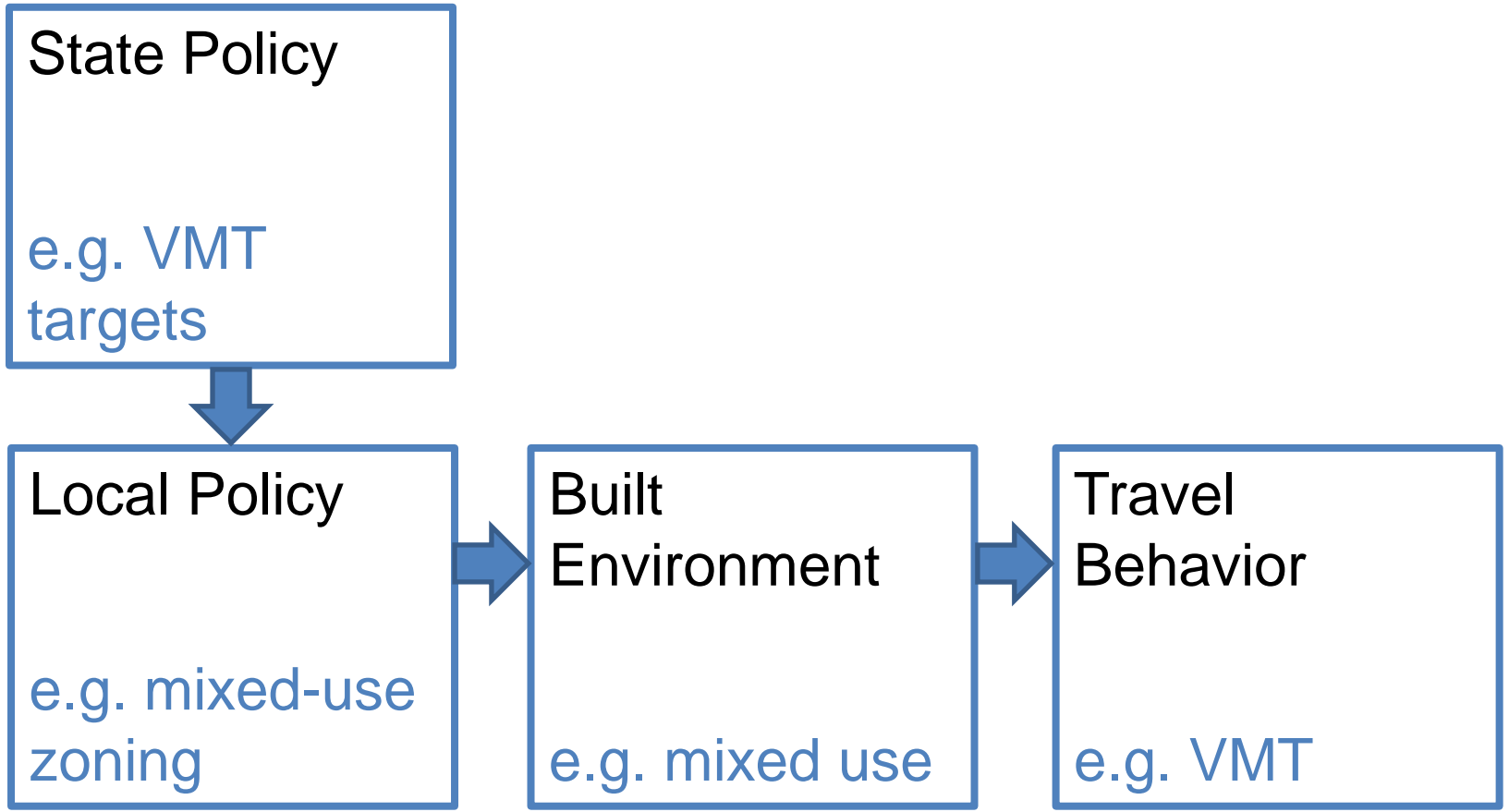


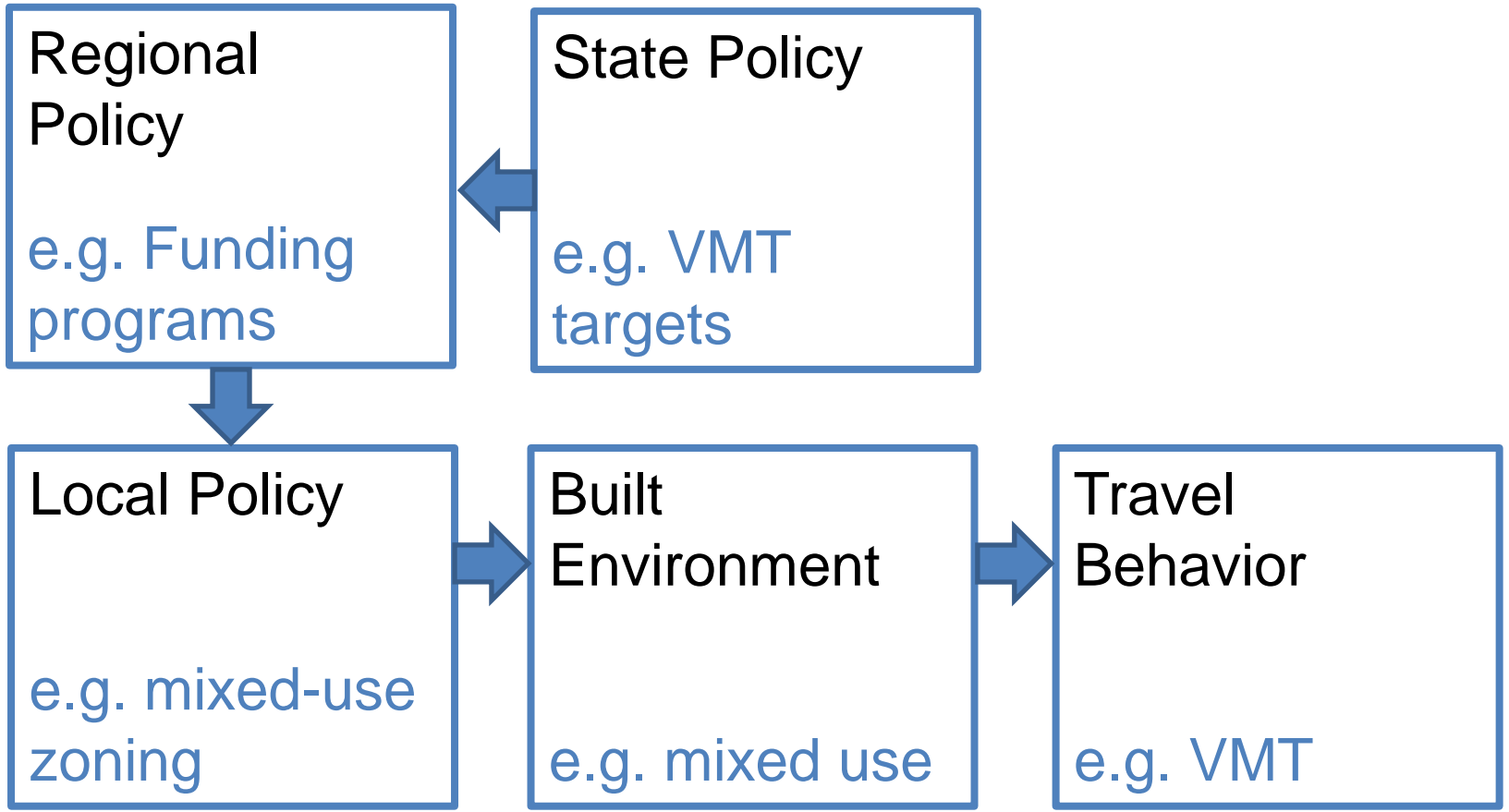


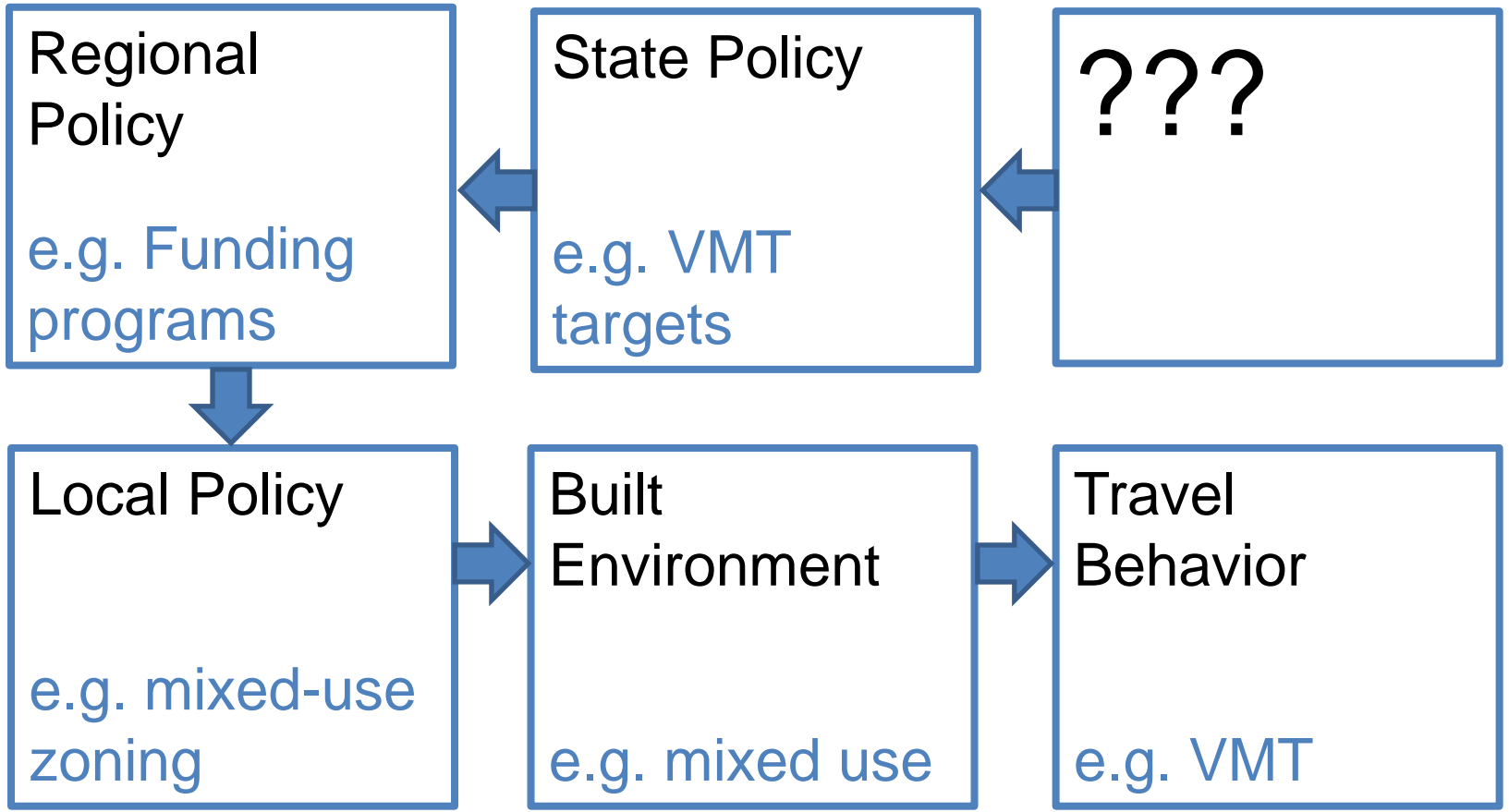
Interest in Living in Walkable Community



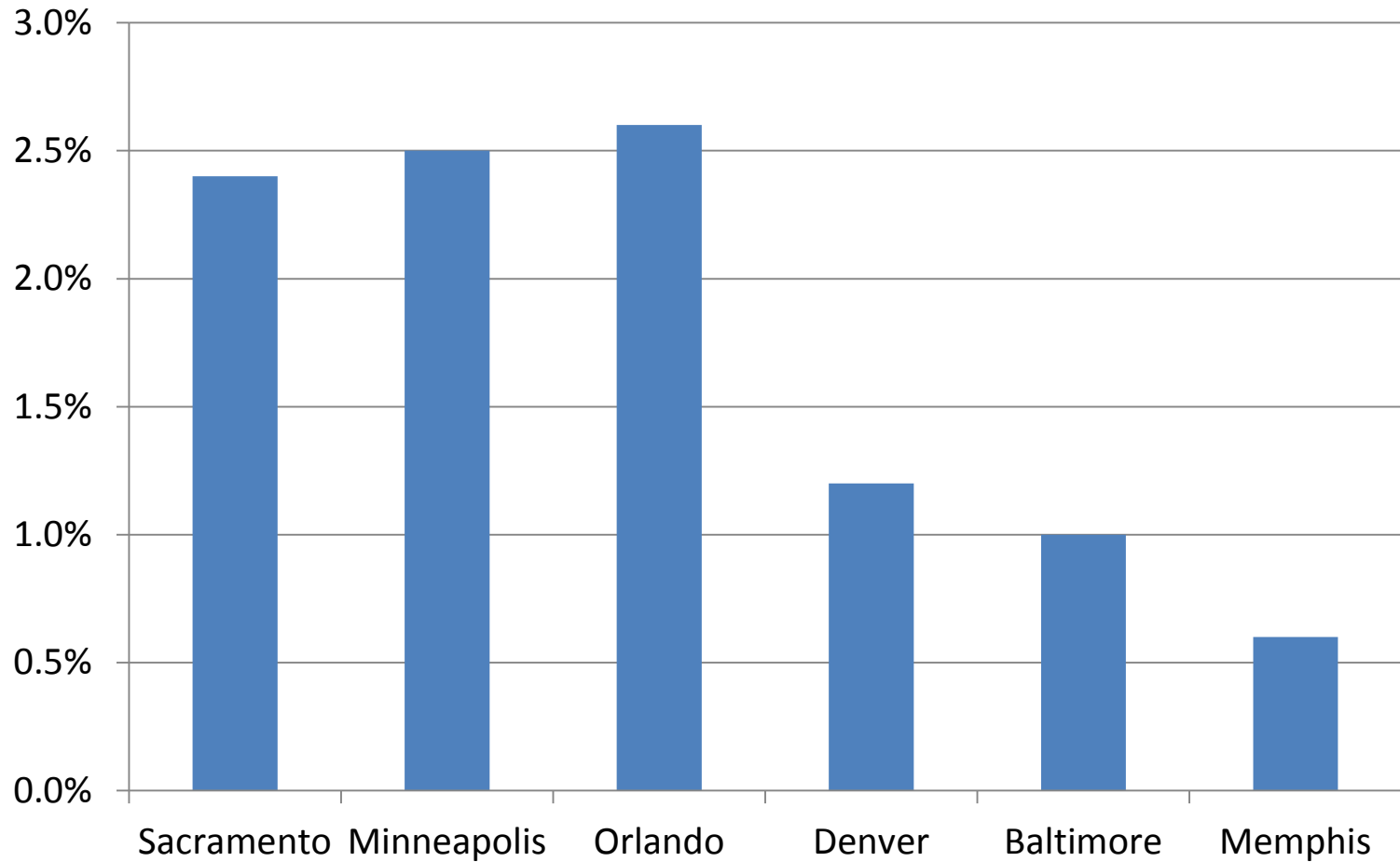








Share of Federal \$ for Bike/Ped



“the capacity to understand things, and... the closely related capacity to make things happen”

- David Albert, NYT Book Review, 8/12/11



Immediate Questions

- How do we most effectively get the available evidence that we do have into the hands of policy makers?
- We can't afford to wait for all the evidence... but how can we ensure that we're evaluating the policies that are adopted, to build an evidence base?



Thanks!

Questions? slhandy@ucdavis.edu