Speed Versus Affordability

Social Equity Implications of Current Transportation Planning Practices

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Mobility Versus Accessibility

- Planning decisions often involve trade-offs between **accessibility** (multimodal and close together) and **mobility** (maximizing speed and therefore the distances that people can travel within a given time budget).

Planning Trade-off Examples

- Transportation spending between faster and slower modes
- Road space allocation between modes.
- Roadway design speed
- Parking requirments (favors faster modes)
- Development policies (compact versus sprawled)
- Location of public facilities (schools, shops, offices, etc.)

Mobility Versus Accessibility

Mobility (physical movement)

- Favors faster modes and longer trips
- Ignores land use impacts
- Supports highway expansion and sprawl

Accessibility (ability to reach desired services and activities)

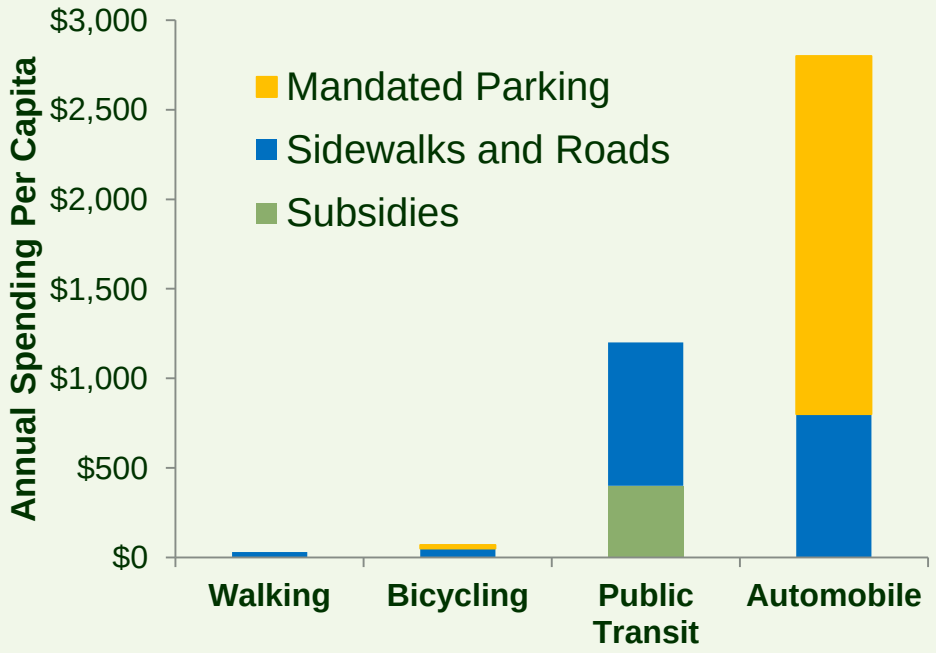
- Favors multi-modalism. Recognizes the roles of non-motorized and public transport.
- Recognizes land use impacts on accessibility
- Supports comprehensive, integrated planning and smart growth development

Policies Favor Faster Travel

Common Policies that Favor Faster Modes

- Transportation planning that prioritizes speed over other goals, and therefore automobile travel over slower but more affordable and inclusive modes.
- Dedicated roadway funding that cannot be used for other modes or TDM strategies, even if they are more cost effective and beneficial overall.
- Speed-maximizing roadway design (reducing safety for active modes).
- Zoning codes that limit infill and encourage more sprawled development.
- Unpriced or low-priced roads and parking facilities.
- Travel models that ignore induced travel impacts, which exaggerates roadway expansion benefits.

Transport funding favors faster modes:



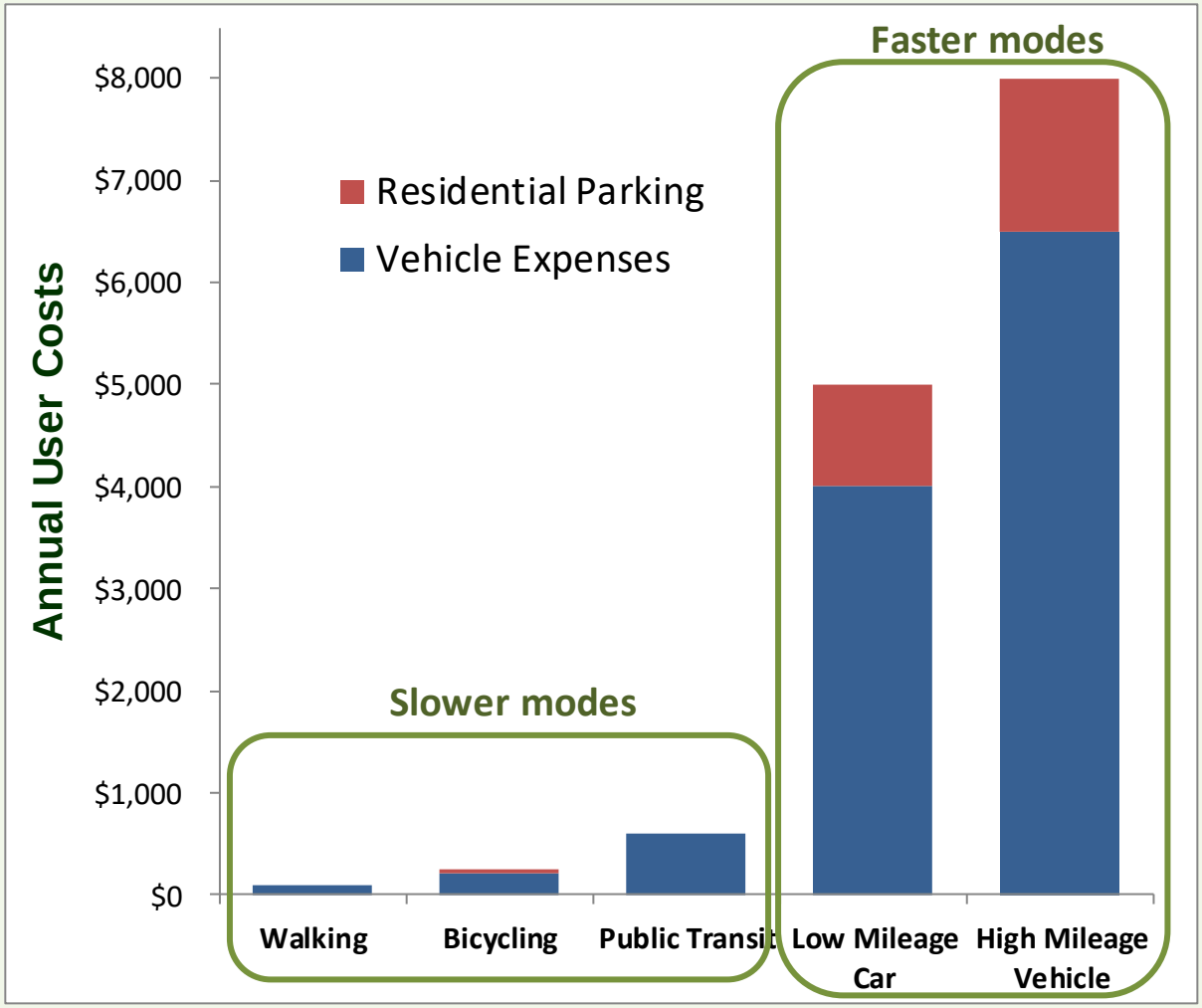
Costs of Speed

Benefits	Costs
• People sometimes enjoy the experience of speed. • Short-term travel time savings. • Expands the destinations that motorists can reach.	• Reduced traveller comfort and increased driver stress. • Increased user costs and reduced affordability. • Increased road and parking facility cost. • Increased traffic congestion and barrier effects. • Increased crash costs. • Increased energy consumption and pollution emissions. • Reduced community livability and cohesion. • More automobile dependency and sprawl. • Reduced accessibility by slower modes. • Inequity imposed on disadvantaged groups.

Typical User Costs

Slower modes are much more affordable than faster modes.

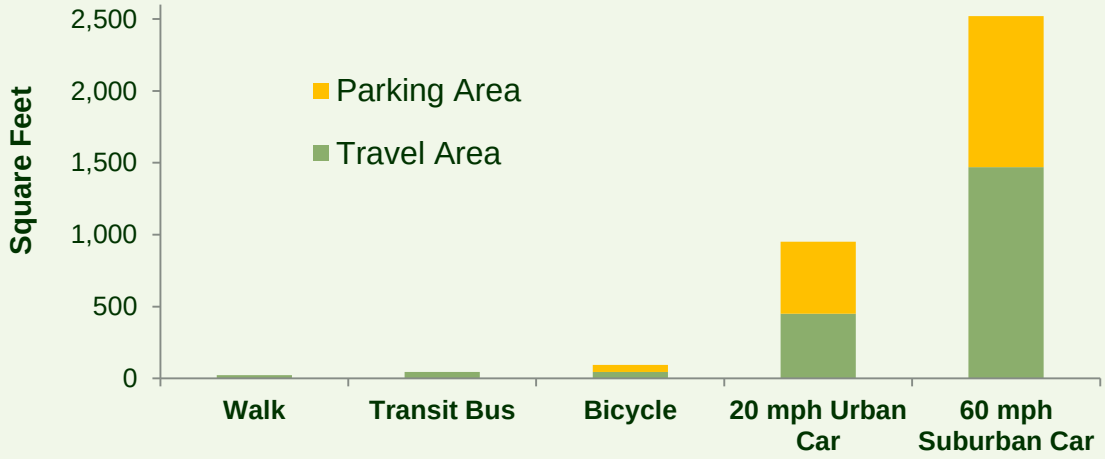
As a result, transportation planning that favors faster modes tends to be unfair to people with low incomes or who want to reduce their transportation costs so they can spend more on other goods.



Road Space and Congestion Impacts

MPH	Road Space Required	
20		15' x 3 x 11' = **490** sf
40		15' x 5 x 12' = **900** sf
60		15' x 7 x 14' = **1,470** sf

As traffic speeds increase vehicles require more shy distance (clearance from other objects), including space ahead and to the side. Assuming one 15-foot car length for each 10 miles per hour (mph), an increase from 20 to 60 mph approximately triples a vehicle's road space requirements and associated roadway costs.



Crash Risk

Higher traffic speeds increase crash risk and severity, particularly for vulnerable road users (pedestrians, bicyclists and motorcyclists)

(NACTO “City Limits” 2020)

Commute Duration

Suburban areas with higher traffic speeds tend to have much longer commute durations than more compact areas with lower traffic speeds but shorter travel distances.

Speed is less important than land use accessibility.

SJSU Commute Duration Mapping System

Nashville area

Who Needs New Mobility Options?

- Youths 8-18 (about 20% of total population).
- Seniors who do not or should not drive (about 10% of total population and increasing).
- Adults with certain disabilities (3-5%).
- Law-abiding drinkers.
- Lower income households that want to minimize automobile expenses.
- People who walk or bike for enjoyment and health.
- Pets who walk or bike for enjoyment and health.
- Motorists who want to avoid chauffeuring non-drivers.

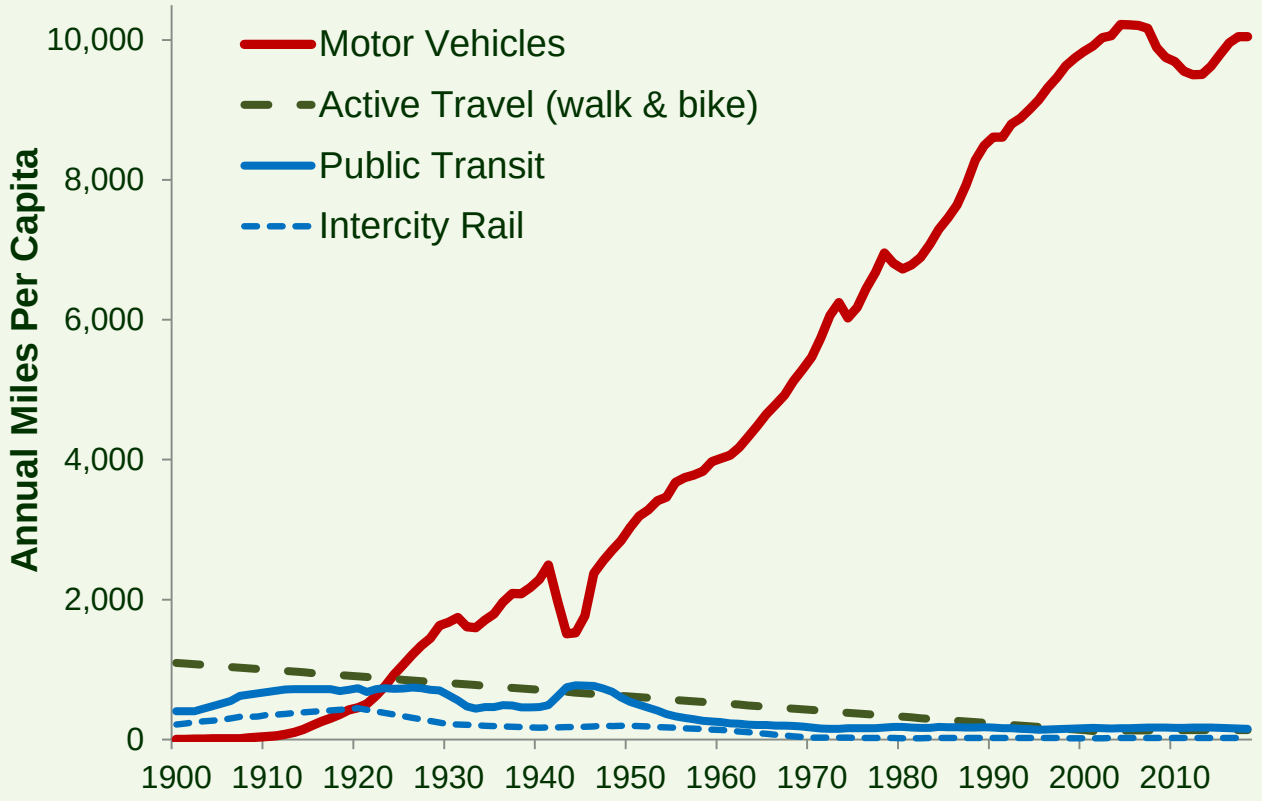
Rural areas tend to have high rates of:

- Seniors
- Poverty
- Isolation
- Ill health

Travel Trends

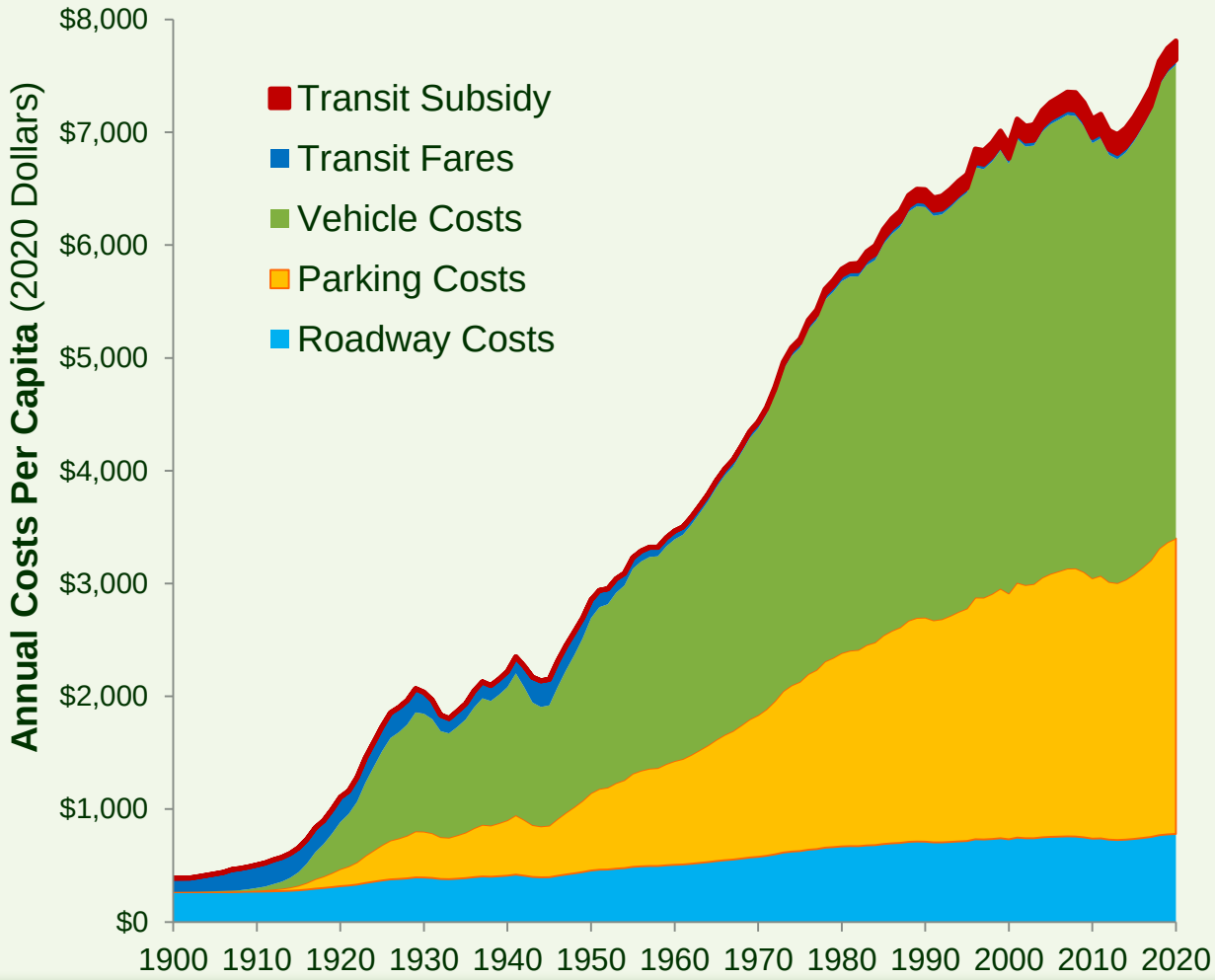
Before 1900 people relied primarily on walking, averaging about 1,000 annual miles, with occasional bicycle and rail trips.

Motor vehicle travel grew steadily during the Twentieth Century. It now averages about 10,000 annual miles per adult.



Estimated Vehicle and Infrastructure Costs

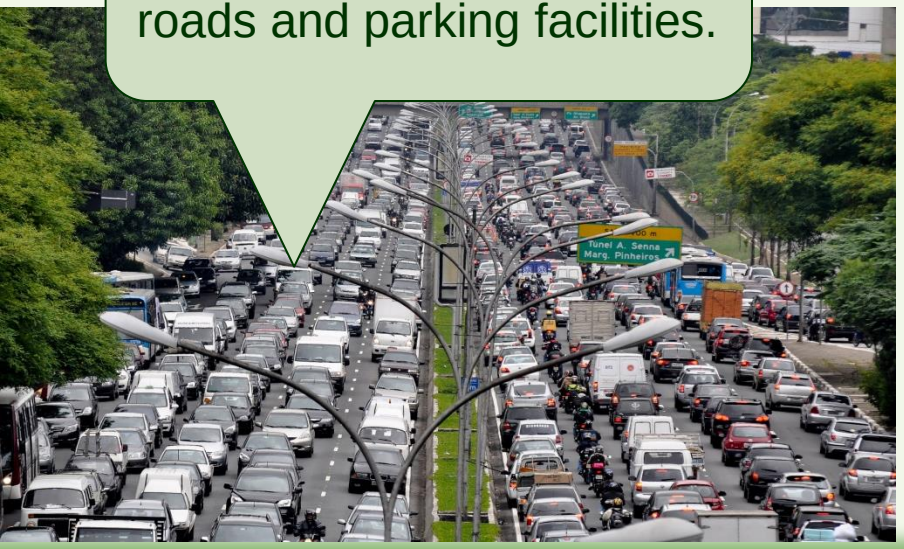
As automobile travel grew during the last 120 years, per capita vehicle, road and parking facility costs increased significantly.



A Fair Share for Everyone

For **horizontal equity**, people with similar needs and abilities should receive similar public resources. For **vertical equity** people with greater needs should receive more resources.

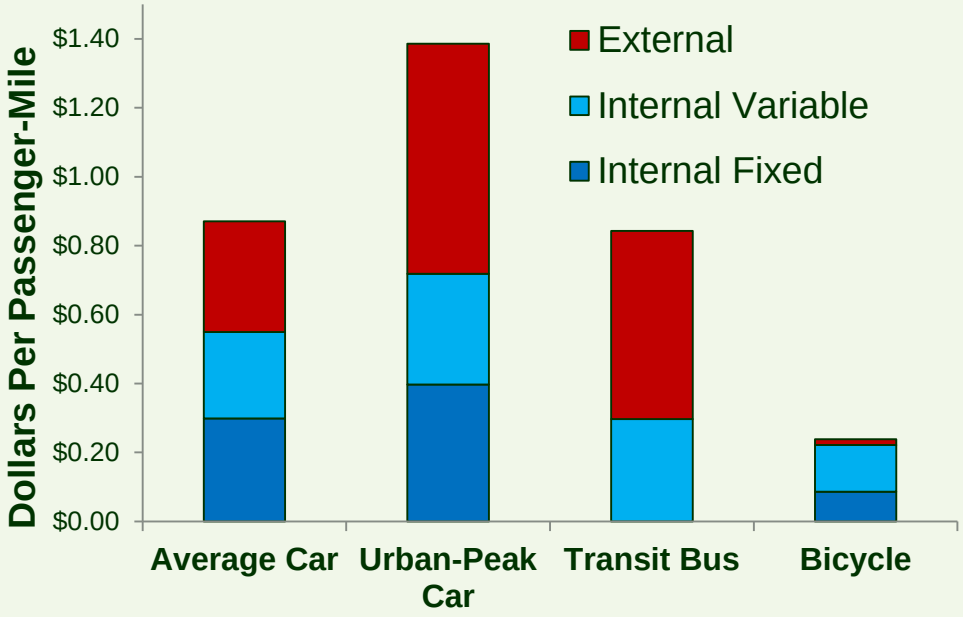
I want my infrastructure dollars spent on more roads and parking facilities.



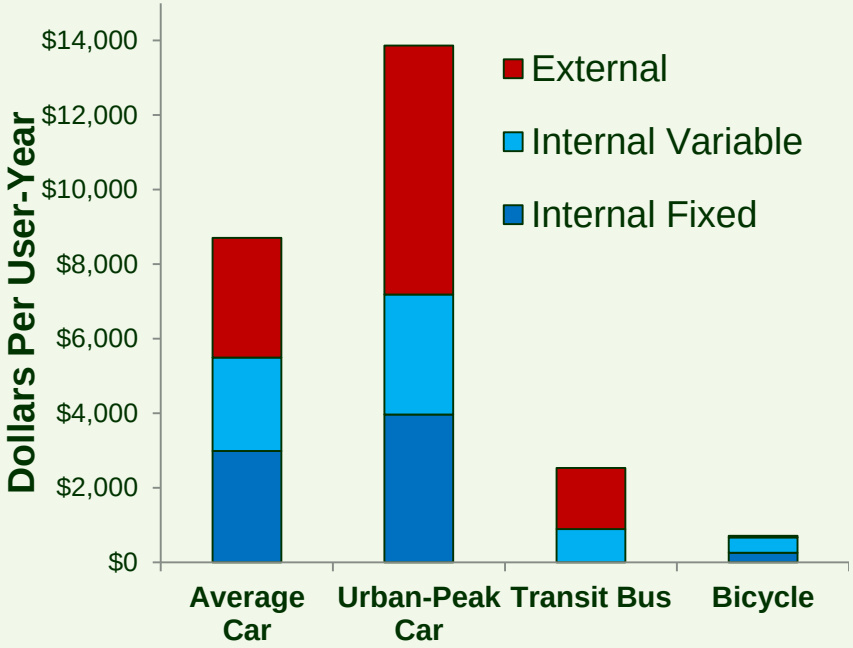
I want my infrastructure dollars spent on increased public transit services, better vehicles and stations, and improved walking and bicycling conditions.

Costs and Subsidies

Costs Per Passenger Mile



Costs Per Passenger Year

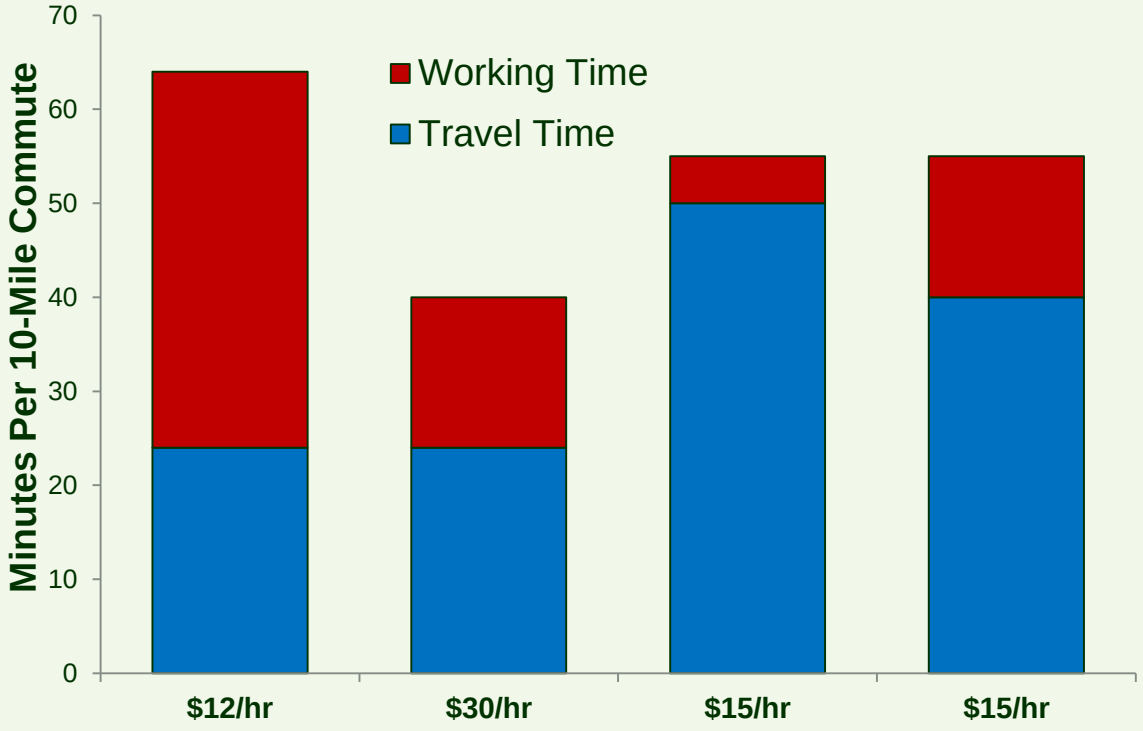


Automobile travel total and external costs (infrastructure subsidies, congestion, crash and pollution costs per passenger mile) tend to be lower than transit travel, on average, but higher under urban-peak conditions. Bicycling has the lowest costs. Because motorists travel five times more annual miles than transit users or bicyclists, their annual costs and subsidies are much higher.

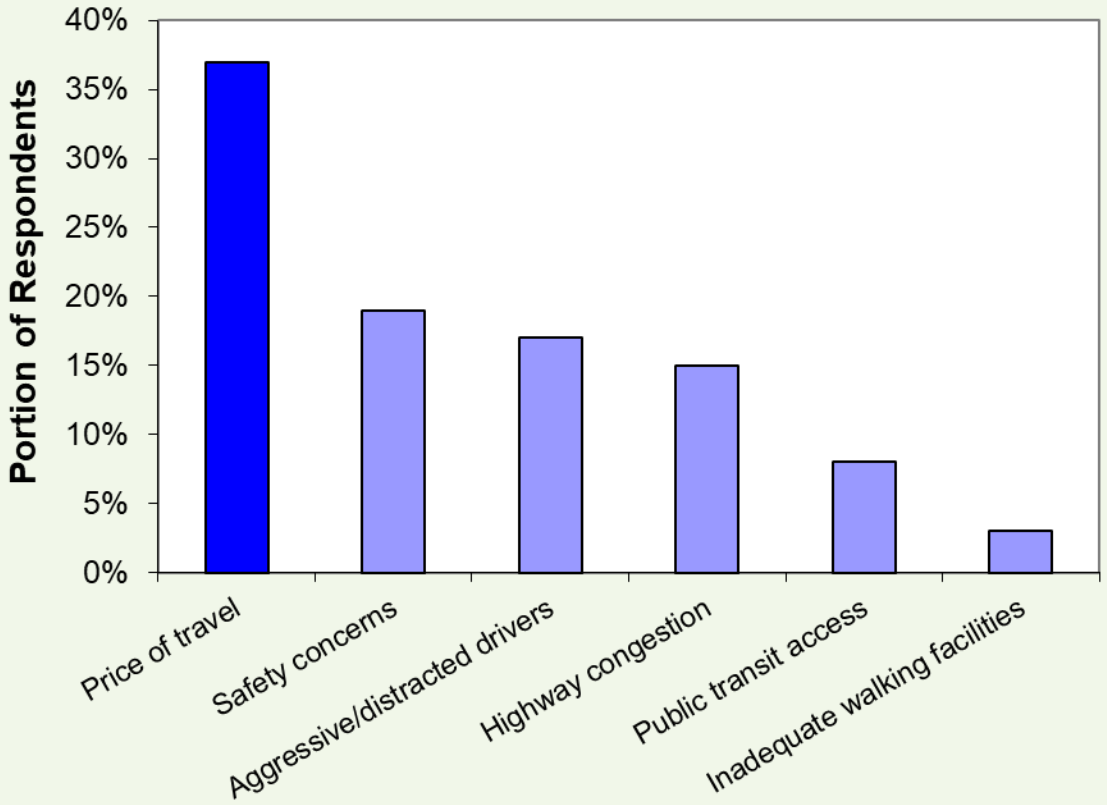
Nominal Versus Effective Speed

Nominal speed refers to travel distance divided by time spent travelling.

Effective speed considers travel time plus time spent earning money to pay travel expenses. Measured this way, automobile travel is slow for lower-income workers and therefore regressive.



Affordability as a Planning Issue



2009 National Household Travel Survey respondents ranked the "Price of Travel" most important of the six transport issues considered.

Valuing Multi-Modalism

An efficient and equitable transport system is diverse so users to choose the best mode for each trip:

- Walking and cycling for local errands
- High quality public transit when travelling on busy corridors
- Automobile travel when it is truly most efficient, considering all impacts

"A developed country is not where the poor drive cars, it is where the rich use public transportation"

- Enrique Peñalosa, Bogota Mayor

Evaluation

Overvalued	Often Overlooked or Undervalued
• Short-term travel time savings. • Expands the destinations that motorists can reach.	• Reduced traveller comfort and increased driver stress. • Increased user costs and reduced affordability. • Increased road and parking facility cost. • Increased traffic congestion and barrier effects. • Increased energy consumption and pollution emissions. • Reduced community livability and cohesion. • More automobile dependency and sprawl over the long run. • Reduced accessibility by slower modes. • Inequity imposed on disadvantaged groups.

“Not So Fast: Better Speed Valuation for Transport Planning”

“Evaluating Equity for Transportation Planning”

“A New Transportation Planning Paradigm”

“Evaluating Transportation Diversity”

“A New Traffic Safety Paradigm”

“Our World Accelerated”

“Selling Smart Growth”

and more...

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