Fair and Efficient Transport Planning

Optimizing Policies and Infrastructure Investments

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Deliberative Form

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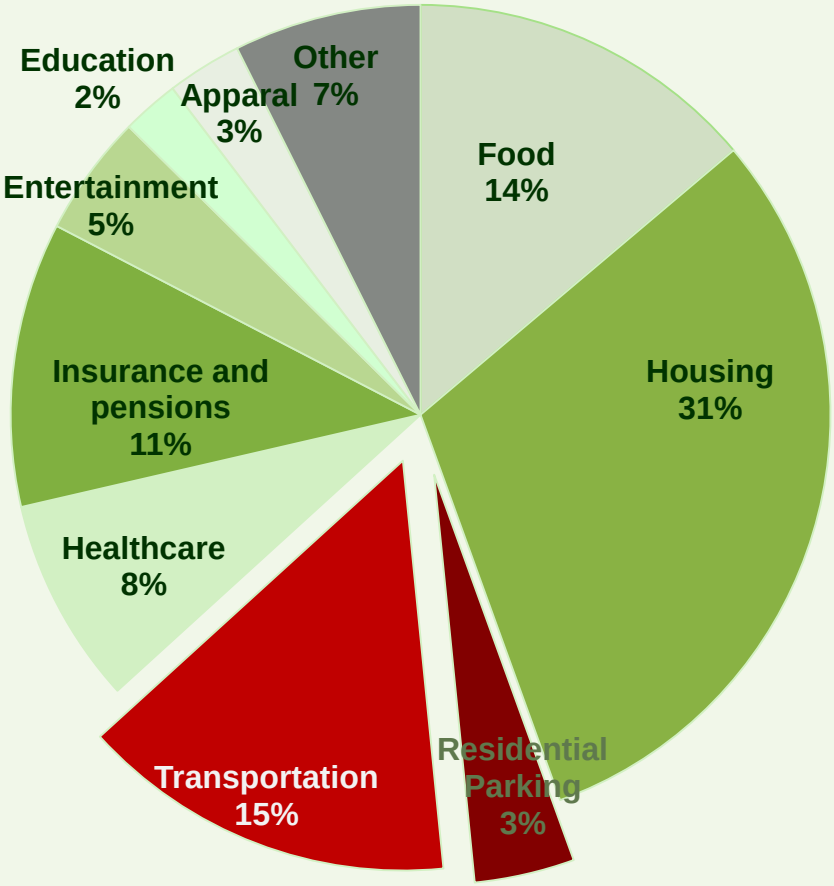
Transportation Affects People

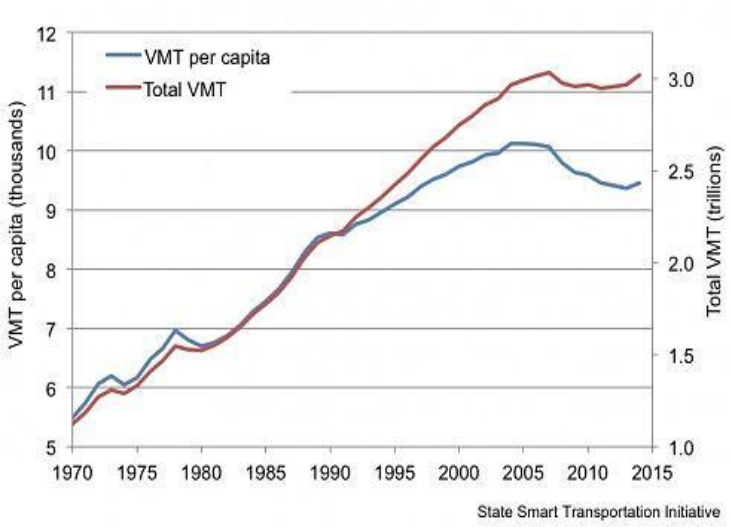
Transportation affects people and Communities in many ways

- 60-90 minutes of our day.
- 15-25% of household budgets.
- Affects economic opportunities.
- Housing affordability and location.
- Major health and safety impacts.
- Public realm and community livability.
- Affects local economic development.
- Public expenses and fairness.
- External costs (public infrastructure, congestion, crash risk and pollution).

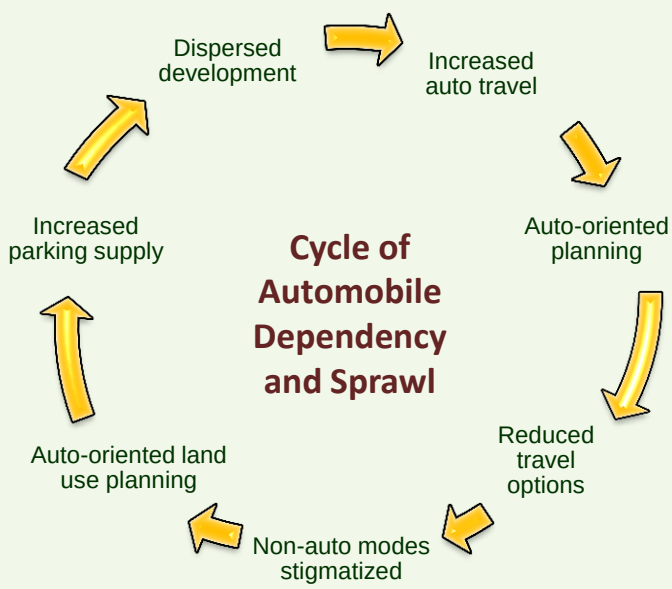


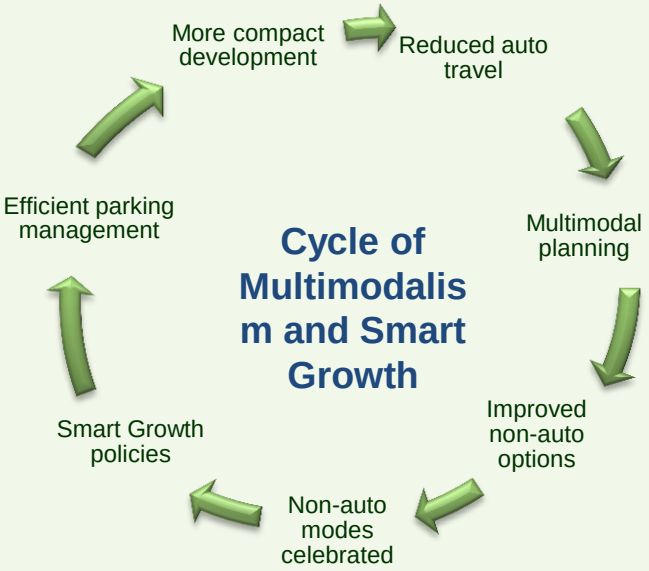
Changing Travel Demands

- Aging population.
- Vehicle travel saturation (“peak car”).
- Smaller families.
- Increased urbanization.
- Affordability concerns.
- Changing consumer preferences; more desire for non-auto modes.
- New services and technologies.
- Health and environmental concerns.



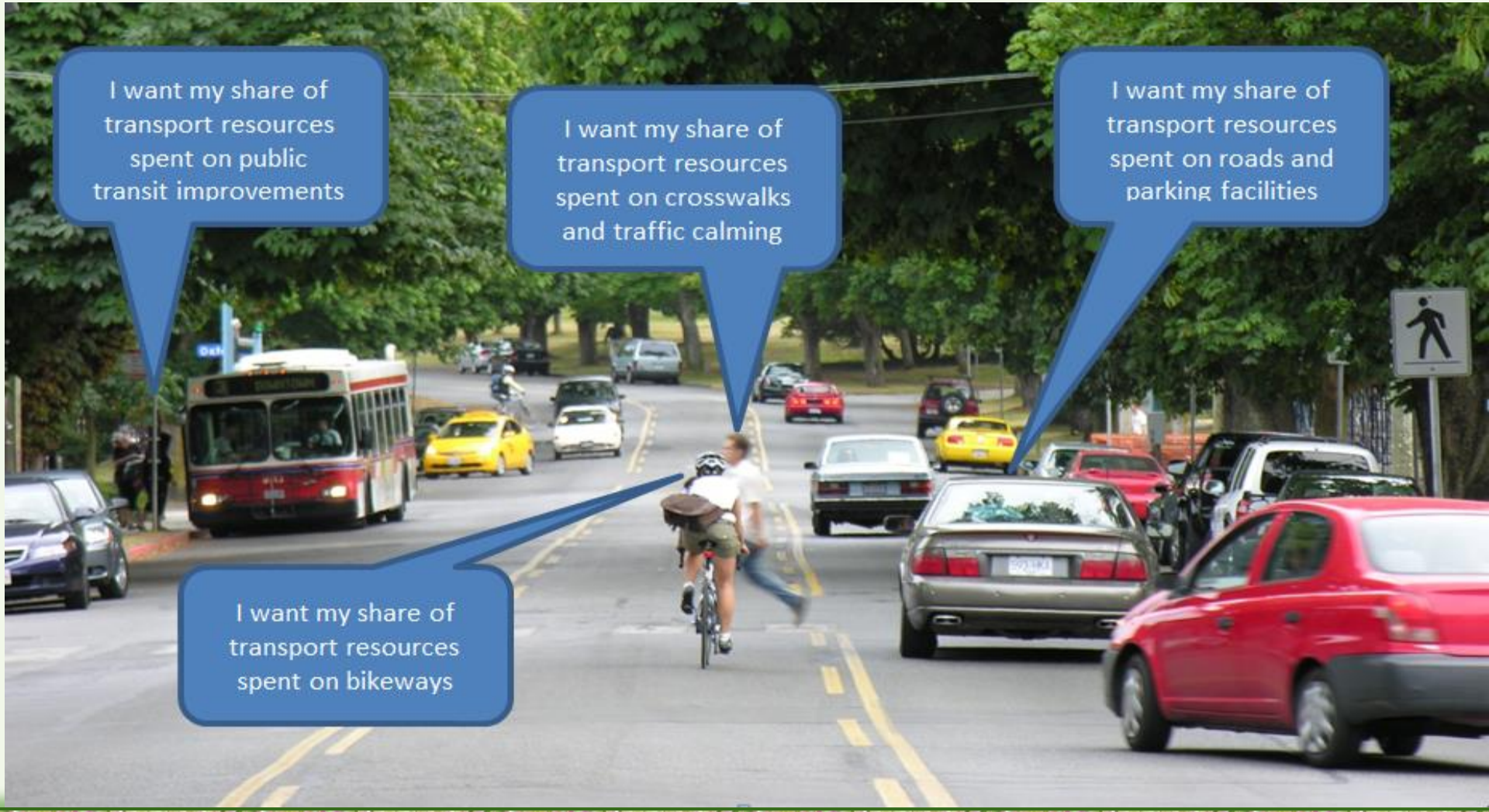
A New Planning Paradigm





"Predict and provide" transportation planning expanded roads and parking facilities in anticipation of future demands, creating a self-reinforcing cycle of automobile dependency and sprawl. "Decide and deliver" planning sets multimodal travel targets and implements policies to achieve them.

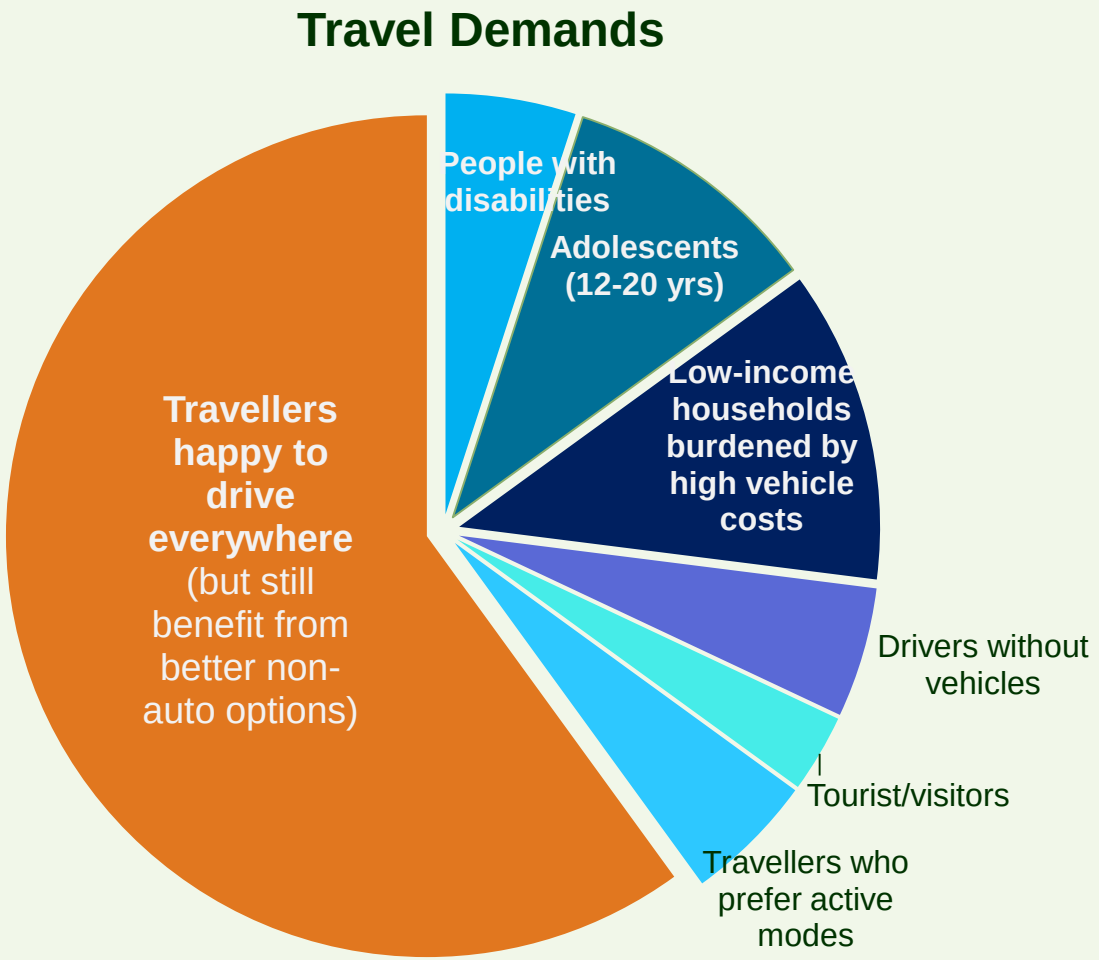
Fair Share Transportation Planning



Non-Drivers

In a typical community 20-40% of travellers cannot, should not or prefer not to drive.

Without suitable travel options non-drivers lack independent mobility, require chauffeuring, bear excessive costs, or move to another community that offers better mobility option.



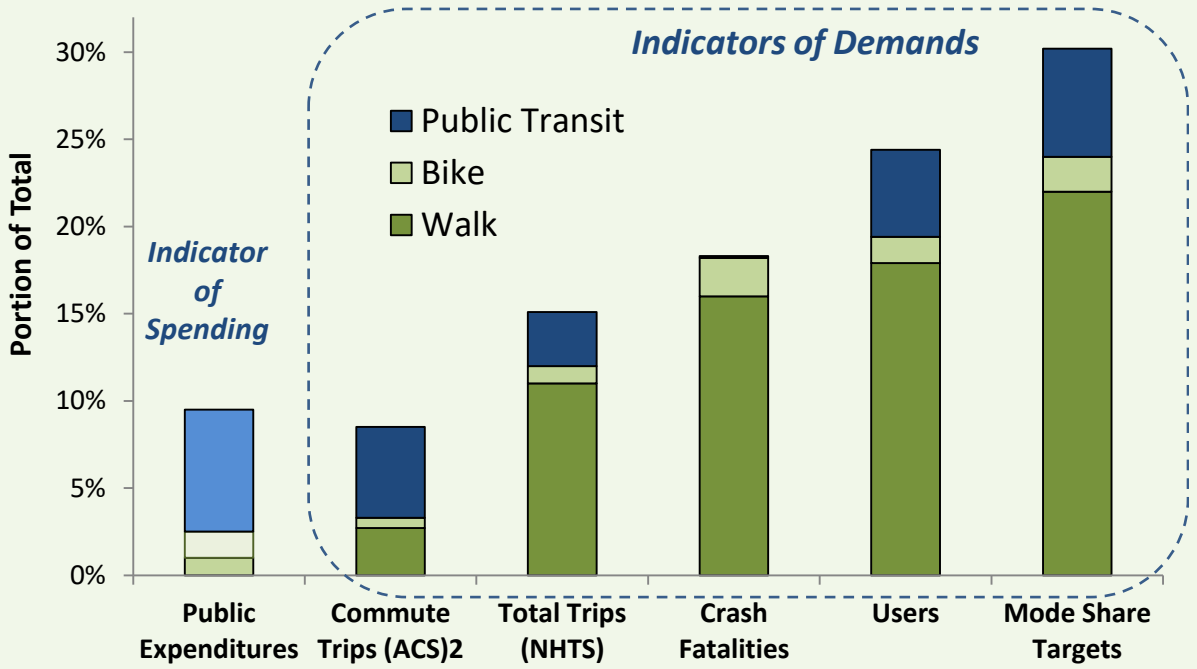
Investments Verses Demands

Non-auto modes typically receive less than 10% of infrastructure investments.

But represent:

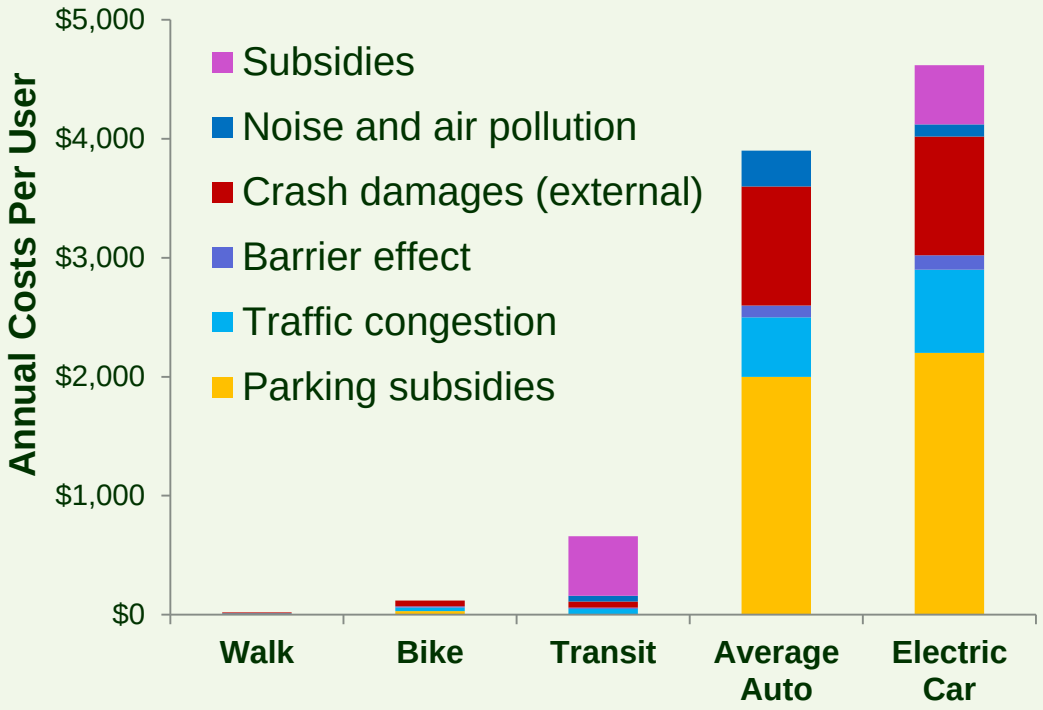
- 10-15% of current trips.
- 15-25% of traffic deaths.
- 25-35% of travellers.
- 20-40% of future targets.

This is unfair and inefficient – if fails to respond to non-drivers' travel demands, creating automobile-dependent transport systems.



External Costs

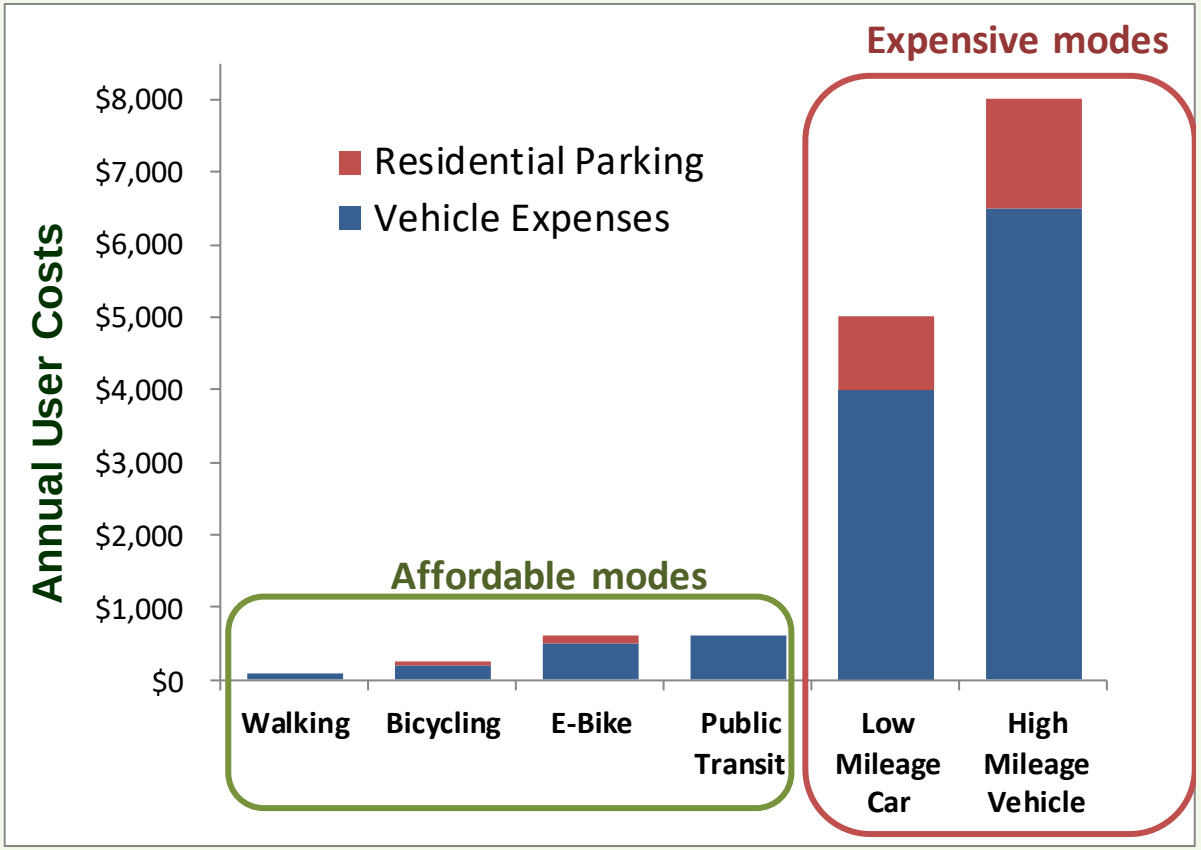
- Because they are large, fast and resource intensive, automobiles impose more facility, congestion, risk and pollution costs than other modes.
- People who drive more than average impose net external costs on people who drive less than average.
- Since vehicle travel tends to increase with income, these external costs tend to be regressive.



Affordability

Walking, bicycling, micromodes and public transit are far more affordable than automobile travel.

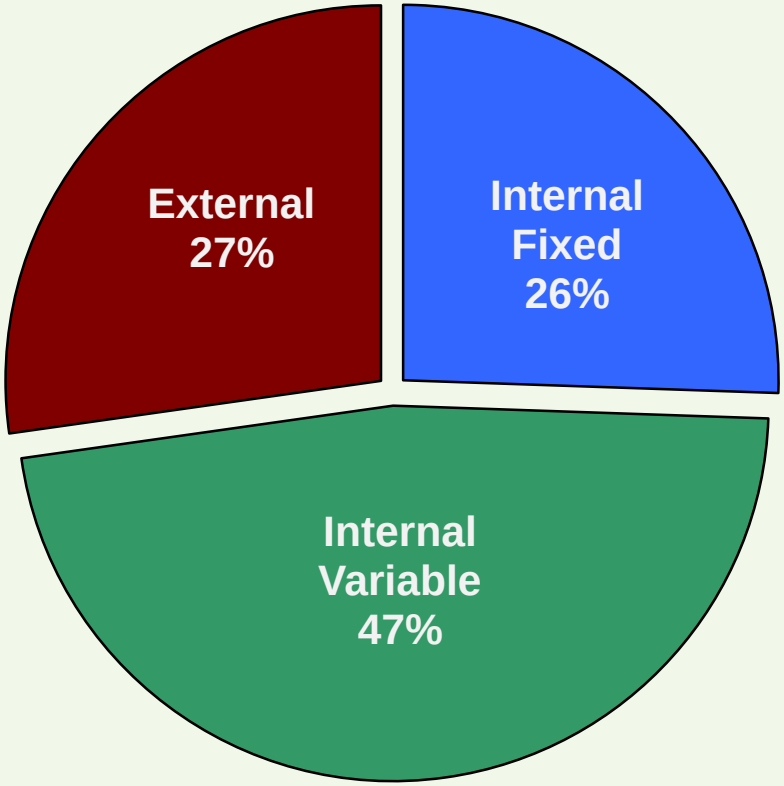
Favoring automobile travel is regressive (it harms lower-income households).



Total Vehicle Costs

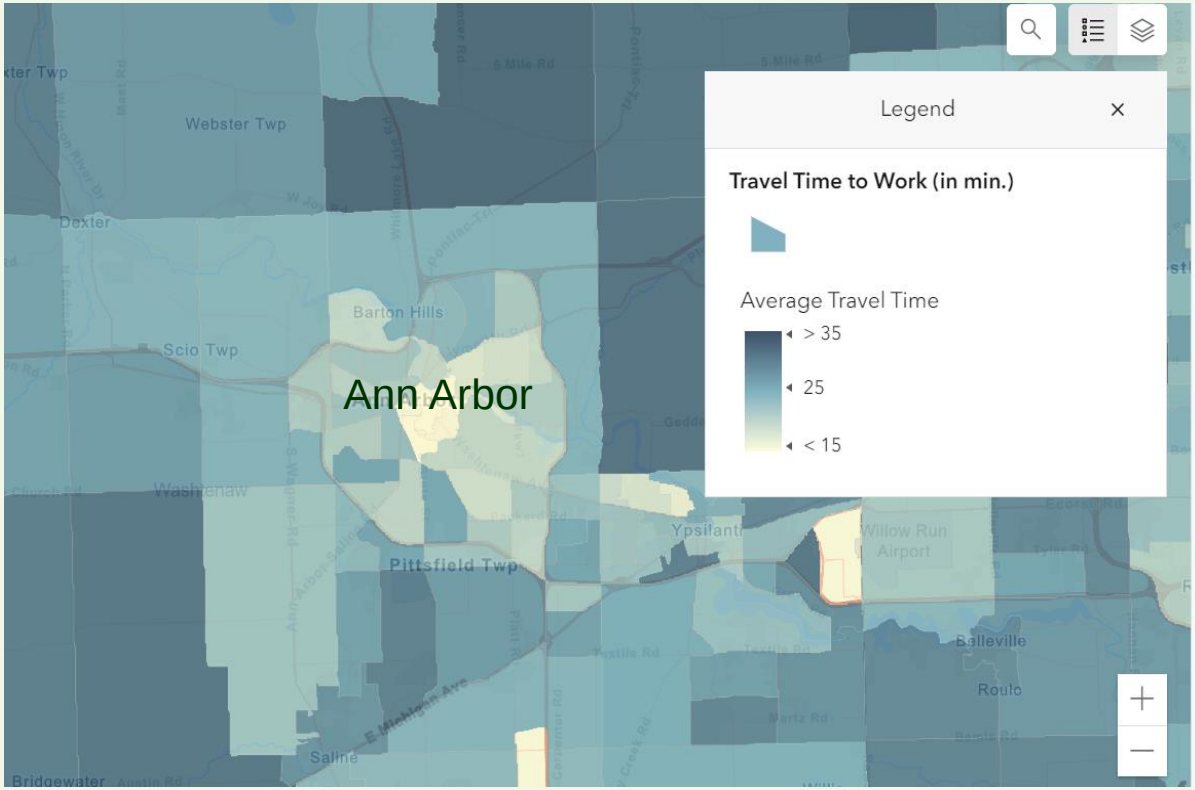
About a quarter of vehicle costs are external (road and parking costs not paid by user fees, plus congestion, risk and pollution costs imposed on other people), and about a quarter are internal-fixed (vehicle financing, insurance, taxes and registration fees). This price structure is inefficient and unfair; it forces people who drive less than average to subsidize others who drive more than average.

More efficient pricing typically reduces automobile travel by 30-50%, consisting of lower-value trips that users value less than the total costs they impose.



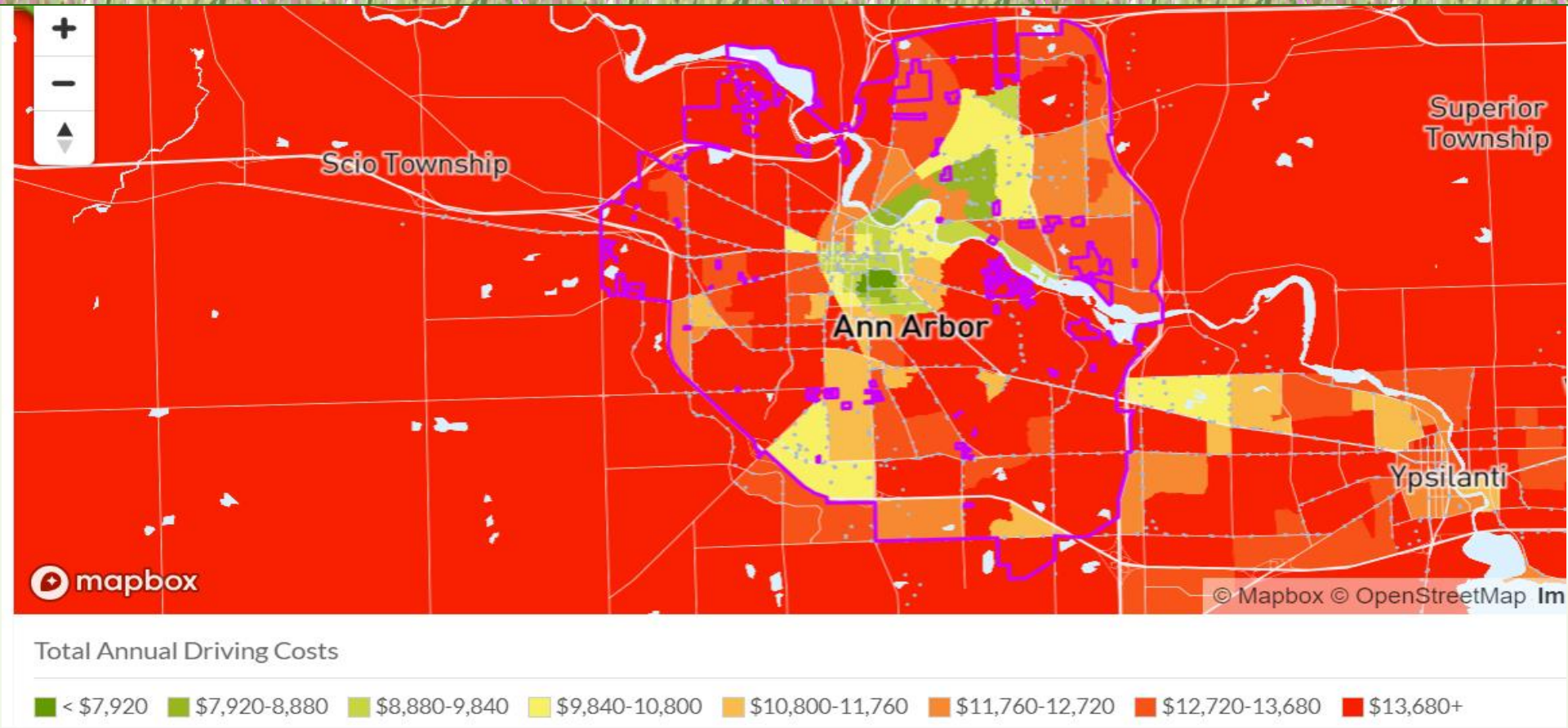
Commute Duration

Residents of compact, multimodal neighborhoods have much shorter commute duration than in automobile-dependent, urban-fringe areas.



Mineta Institute Commute Duration Dashboard
https://transweb.sjsu.edu/research/2064-Commute-Duration-Dashboard-Guide

Transportation Costs



Households in compact, central neighborhoods spend far less on transportation than in outlying, automobile-dependent areas. (*H&T Affordability Index*)

Analysis Scope

Usually Considered	Often Overlooked
• Travel speeds and congestion delays • Parking convenience • Vehicle operating costs • Crash rates • Pollution emission	• Traveller comfort and enjoyment • Affordability (savings to lower-income households) • Parking facility costs • Independent mobility for non-drivers • Chauffeuring costs • Public fitness and health • Stormwater management and heat island costs. • Neighborhood livability • Barrier effects (delay to non-drivers) • Sprawl costs (infrastructure costs, habitat loss, etc.)

Valuing Multi-Modalism

An efficient and equitable transportation 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

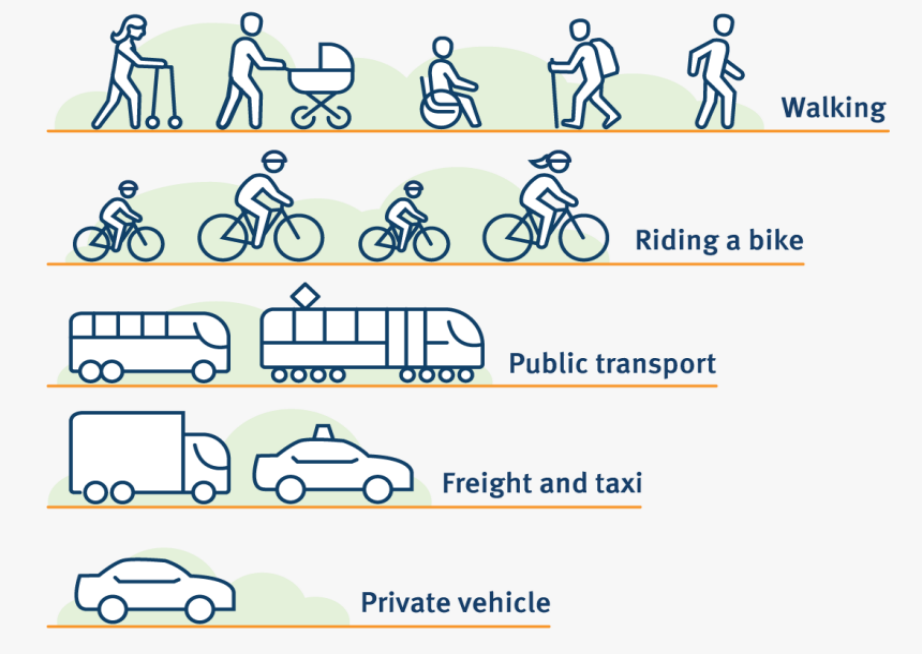
Current planning does a poor job of valuing this diversity.

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

- Enrique Peñalosa, Bogota Mayor

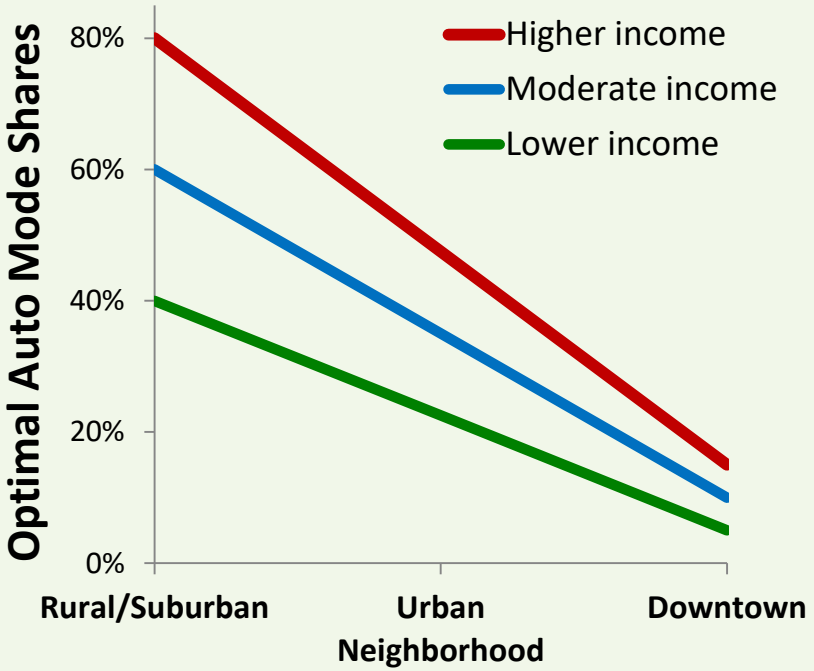
Sustainable Transportation Hierarchy

An equitable transportation hierarchy favors inclusive, affordable, low-external-cost modes such as walking, bicycling, micromodes (e-bikes) and public transportation over expensive, exclusive and higher-cost modes in planning and funding decisions.



Sustainable Transportation Hierarchy

In affluent rural and suburban areas it may be appropriate to plan for high levels of automobile travel, but optimal auto mode shares decline as densities increase and incomes decline, and should be less than 30% in most urban neighborhoods. Conventional planning ignores these factors, resulting in more auto-oriented planning than is efficient and fair.



Transport Demand Management

Improves Transport Options	Incentives to Use Efficient Options	Smart Growth Policies	Implementation Programs
Active transport (walking and bicycling) improvements	Commuter financial incentives (parking cash out, transit subsidies, etc.)	Complete streets	Commute trip reduction programs
Public transit improvements	Efficient parking pricing	Smart Growth/New Urbanism	Freight transport management
Rideshare programs	Parking regulations	Transit Oriented Development (TOD)	Mobility management marketing
High occupancy vehicle (HOV)	Efficient road pricing	Location-efficient development	School and campus transport management
Taxi & ridehailing improvements	Fuel and carbon taxes	Reduced parking requirements and efficient parking management	Tourist transport management
Car- and bikesharing	Vehicle taxes and fees	Streetscaping	Transport planning reforms
Guaranteed ride home	Distance-based pricing	Traffic calming	
Telework and flextime			

Completing Sidewalk Networks

Typical communities spend $50 to $100 annually per capita on sidewalks and bikeway, and would need to double or triple these levels to complete their networks. This is a large increase compared with current pedestrian spending but small compared with automobile infrastructure expenditures. Sidewalk funding increases are justified to satisfy ethical and legal requirements, and to achieve various economic, social and environmental goals. These usually repay their costs through savings and benefits.

Serving PwD

Many people with disabilities (PwDs) have mobility impairments plus low to moderate incomes. They can gain independence, opportunity and dignity, by living in a compact urban village with the following features:

- An accessible sidewalk network.
- Complete streets with low traffic speeds.
- 70 or higher Walk Score.
- Frequent public transit services with accessible buses, trains and stations.
- Affordable and accessible housing.

Few North American neighborhoods have these attributes.

Urban Villages for People with Disabilities

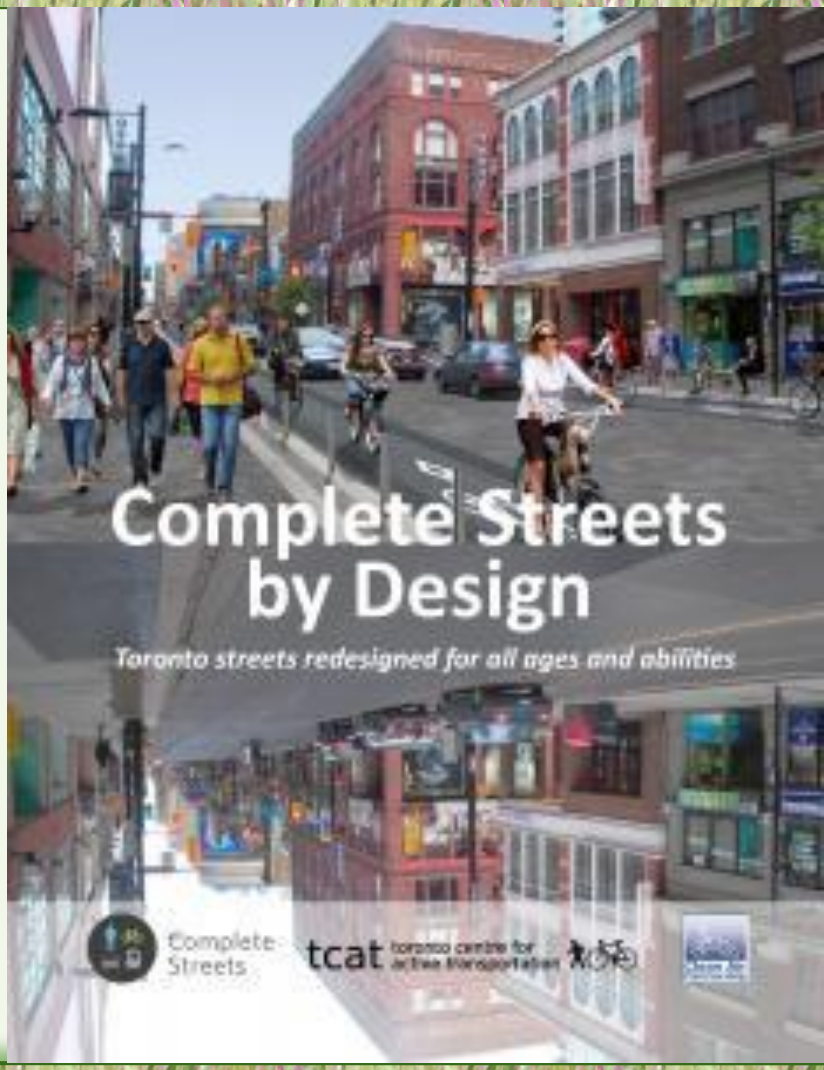
www.planetizen.com/blogs/117156-urban-villages-people-disabilities .

Attracting Discretionary Riders

- Quality service (convenient, fast, comfortable).
- Attractive vehicles and stations.
- Convenient information and payment systems.
- Affordable fares.
- Support (walkable communities, bike-share, park & ride facilities, etc.).
- Incentives (efficient parking and road pricing, commute trip reduction programs, etc.)
- Integrated with special events.
- Positive image, effective marketing.

Complete Streets

A Complete Street is designed for all activities, abilities, and travel modes. Complete Streets provide safe and comfortable access for pedestrians, cyclists, transit users and motorists, and a livable environment for visitors, customers, employees and residents in the area.



Efficient Transportation Pricing

- Motorists assume that they want free roads and parking, but these facilities are never really free: the choice is between paying directly through fees and tolls or indirectly through higher taxes and development costs.
- Paying directly is more efficient and equitable because it rations use, preventing congestion, and avoids forcing households that drive less than average subsidizing the infrastructure costs of those that drive more than average.

Overpricing - Underpricing

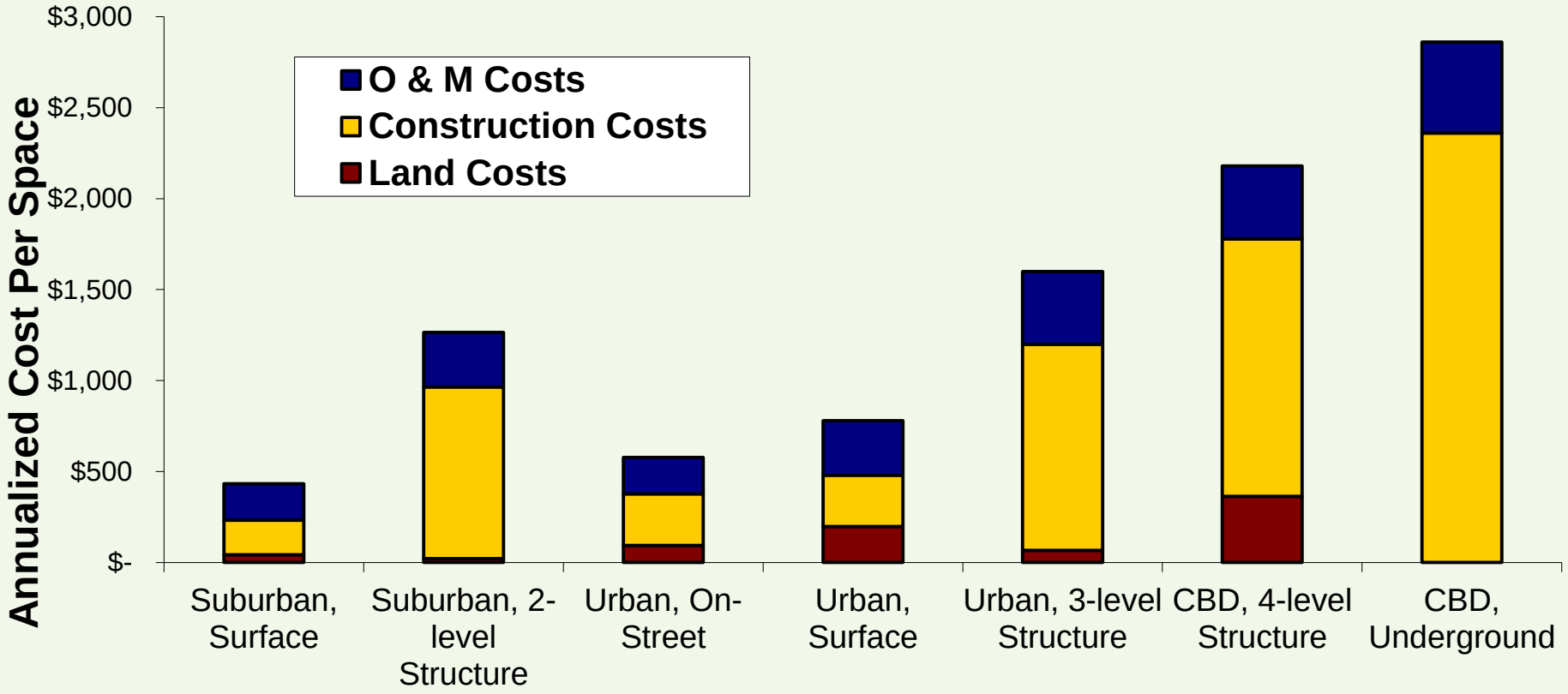
There is a rich vocabulary for describing overpricing: *gouged, gypped, cheated,* and *fleeced*.

No comparable vocabulary describes underpricing, although it is equally unfair, since it forces other people to bear costs.

Types of Transportation Pricing

Type	Impacts
Fuel tax increases.	Reduces vehicle travel and encourages motorists to choose efficient and alternative fuel vehicles.
Efficient parking fees. Charge motorists directly for parking with higher prices at times and places with higher demands.	Reduces vehicle ownership and use. Reduces parking congestion, the number of spaces needed, and therefore facility costs.
Efficient road tolls. Charge motorists for using roads, with prices that increase with congestion intensity.	Reduces roadway congestion, roadway needs, and therefore facility costs. Favors space-efficient modes (rideshare and buses)
Distance-based vehicle insurance premiums and registration fees. Converts fixed costs into variable costs.	Reduces vehicle travel, particularly by higher risk drivers (for insurance) and more expensive vehicles (for registration fees).

Parking Facility Costs



An urban parking space must typically earn $1,000-3,000 annually to recover its land, construction and operating costs.

Pricing

- Parking facilities are never really free, we either pay directly through user fees, or indirectly through higher taxes (for municipal parking), higher housing costs (for residential parking), lower wages (for commuter parking), and higher prices for retail goods (for unpriced parking at stores and restaurants).
- Paying directly is more fair and efficient, and typically reduces parking demand 10-30%.
- In other words, the common practice of subsidizing parking increases parking facility costs, traffic congestion, crashes and vehicle pollution problems about 20%.

The Highway Cost Paradox

Motorists often advocate highway expansions, but if users are charged cost-recovery tolls, demand declines significantly.

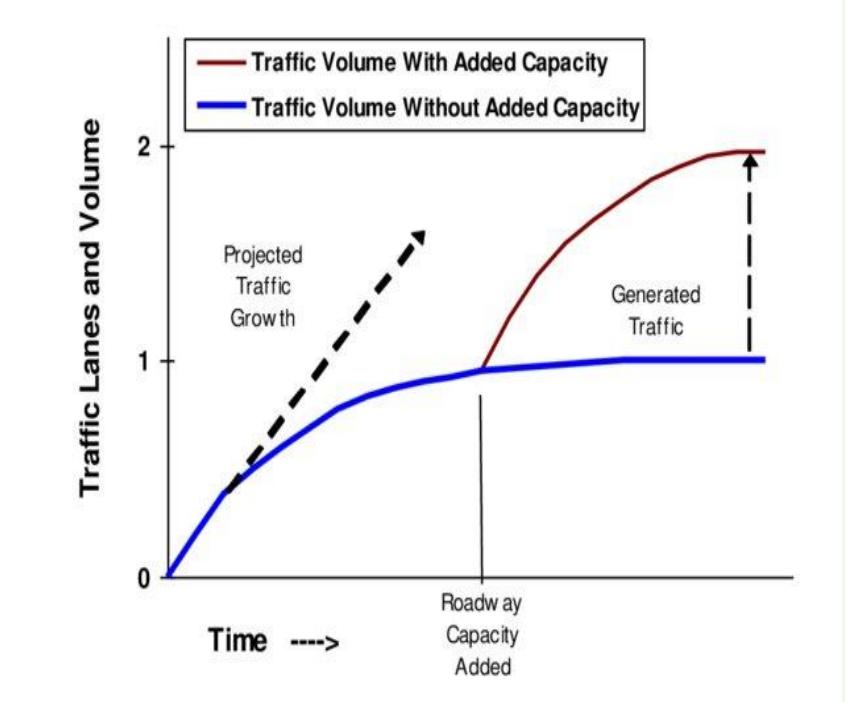
In other words, motorists want roadway expansions provided somebody else pays for them, but if charged the full cost, they often choose alternatives.

Generated Traffic

Traffic volumes increase until a road experiences congestion. At that point, delays discourage additional peak-period trips. Travellers shift:

- When they travel
- How they travel
- Where they travel

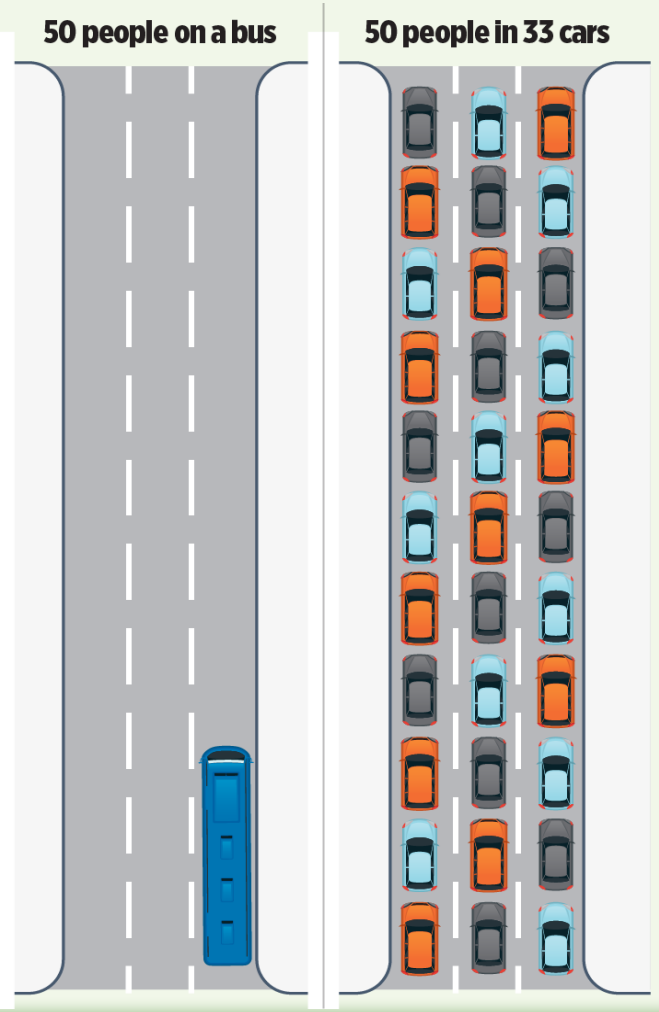
If roads expand, traffic volumes grow to reach a higher equilibrium. The additional peak-period trips on that roadway are called ***generated traffic***. Increases in total vehicle mileage are called ***induced travel***.



Unmanaged Lanes are Unfair

Unmanaged lanes are unfair. Travellers in high-occupancy vehicles, such as carpools and buses, use far less road space, and so impose less congestion, than single-occupant automobiles, but are still delayed by congestion.

Efficient management rewards travellers who use HOVs.



Managing Lanes for Fairness

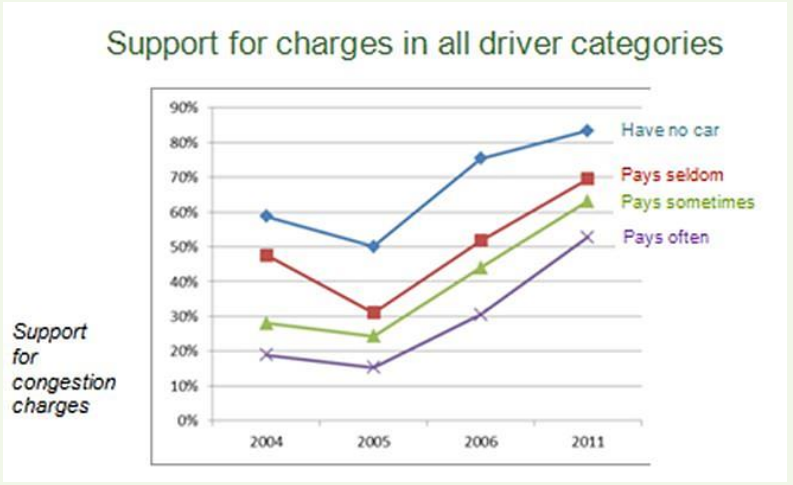
Managed lanes makes public transit more efficient and attractive. With priority lanes, buses operate faster and carry more passengers, which drives down their unit costs. Investing a portion of toll revenues into transit improvements benefits transit passengers directly, and motorists indirectly by reducing the toll needed to achieve a given reduction in traffic volumes and therefore congestion delay.

If transit service is inconvenient and uncomfortable, a $4 toll might be needed to reduce traffic volumes 20%, but with improved service, a $2 toll achieves the same impact, because more travellers will shift to buses.

Decongestion Pricing

Congestion pricing (or *decongestion pricing*) applies higher during peak periods to reduce congestion.

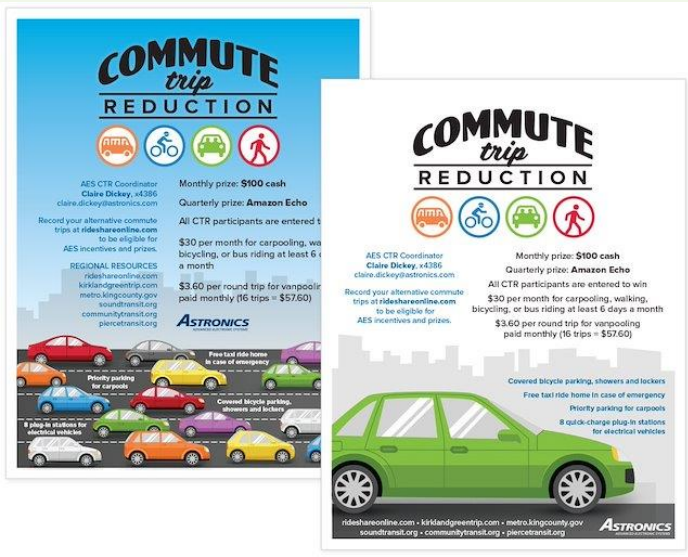
- I-10 Metro ExpressLanes, Los Angeles, CA
- 95 Express, Miami, FL
- I-405 Express Toll Lanes, Puget Sound, WA
- I-635 East TEXpress Lanes, Dallas, TX
- I-77 Express Lanes in Charlotte, NC
- Singapore
- London
- Stockholm
- Oslo
- Soon in New York



Integrated Solutions

The most effective and cost effective solution is generally an integrated package with:

- Roadway management that favors high-occupant vehicles.
- Efficient pricing, with higher rates during peak periods.
- Public transit service improvements.
- Transportation demand management (TDM), such as *commute trip reduction programs* and *parking cash out*, to encourage use of high-occupant vehicles.



Responding to Criticisms

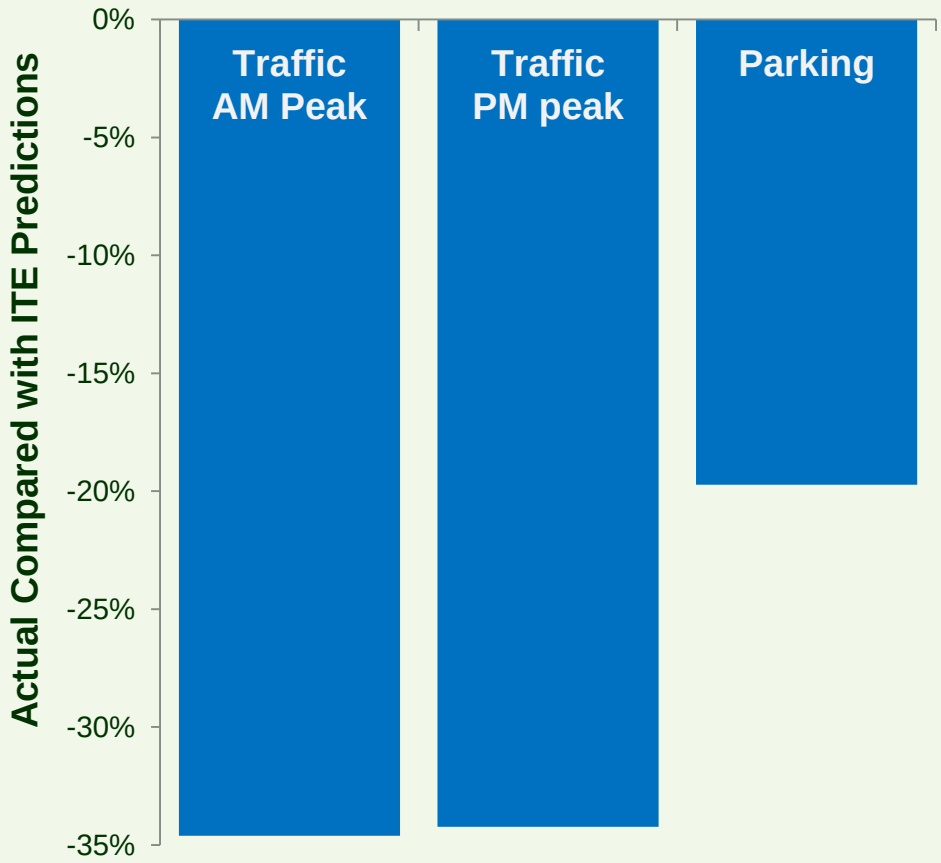
- Many people assume that decongestion pricing is unfair and regressive. However, because low-income people drive less under urban-peak conditions and often use other modes, they tend to benefit overall from decongestion pricing if a portion of revenues are invested in public transit improvements. Tolls are generally less regressive than other roadway funding sources.

- Decongestion pricing and public transit improvements are complementary – transit service improvements reduce the price needed to achieve a given congestion reduction target.

- Pricing can include a limited number of free trips or discounts for lower-income households.

Success Stories

Office buildings with TDM programs actually generate a third fewer trips and require 20% fewer parking spaces than predicted by Institute of Transportation Engineers' models. This indicates that TDM programs can significantly reduce traffic impact fees and parking facility costs, and indirect traffic impacts such as congestion, crash risk and pollution emissions.



Mike Spack and Jonah Finkelstein (2014), *Travel Demand Management: Analysis of the Effectiveness of TDM Plans*, Spack Consulting (www.spackconsulting.com); at https://bit.ly/2K97eTj.

“Comprehensive Transportation Emission Reduction Planning”

“Are Vehicle Travel Reduction Targets Justified?”

“Evaluating Public Transit Benefits and Costs”

“Fair Share Transportation Planning”

“Evaluating Transportation Equity”

“Completing Sidewalk Networks”

“Transportation Affordability ”

“Online TDM Encyclopedia”

and more...

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