

Advocating For Transit

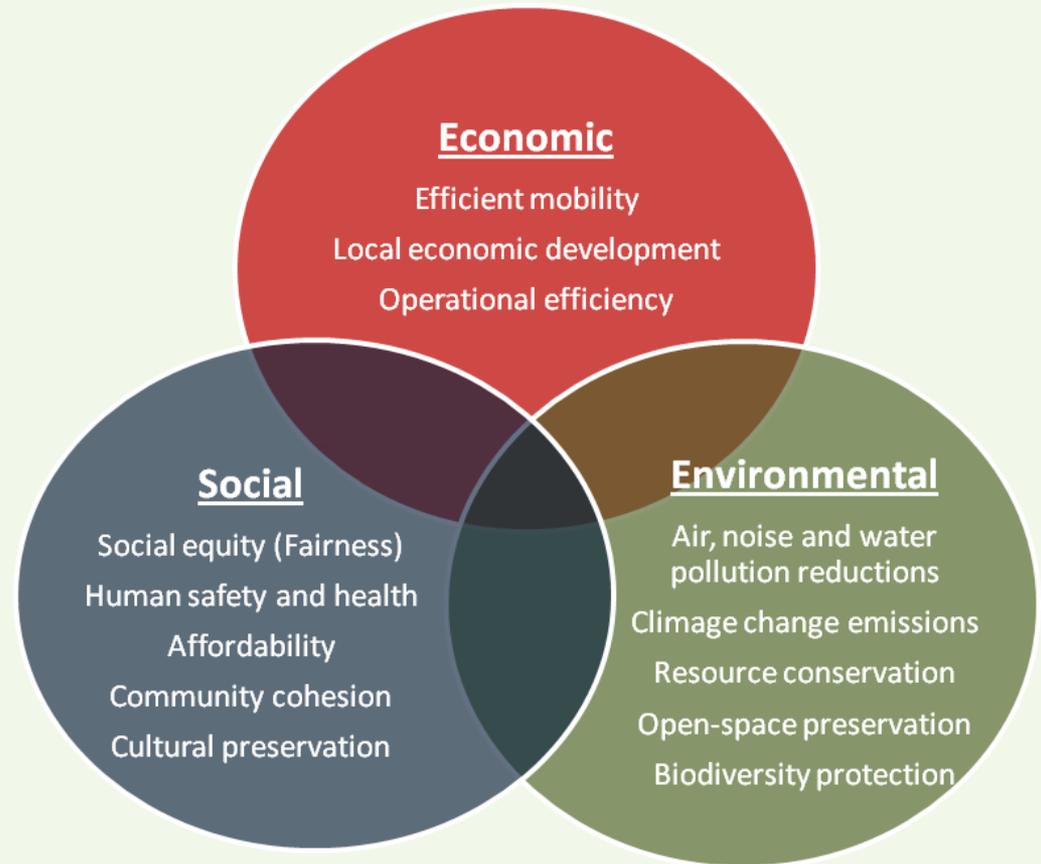
Stating Your Best Case

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Oregon Public Transit Conference
Bend, Oregon
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Sustainable Planning

Sustainability emphasizes the integrated nature of human activities and therefore the need to coordinate planning among different sectors, jurisdictions and groups.



Sustainable Transportation?

Is a transport system sustainable if all vehicles are electric powered?



Electric Power Does Not:

- Reduce traffic congestion
- Reduce accidents
- Reduce roadway costs
- Reduce parking facility costs
- Reduce vehicle purchase costs
- Improve mobility for non-drivers
- Improve social equity
- Improve public fitness and health
- Reduce sprawl
- Protect threatened habitat



Past Visions of Future Transport



1949 ConvAIRCAR Flying Car



Segways



Jet Pack



Audi Self-Driving Car



Supersonic Concorde

2001 A Space Odyssey

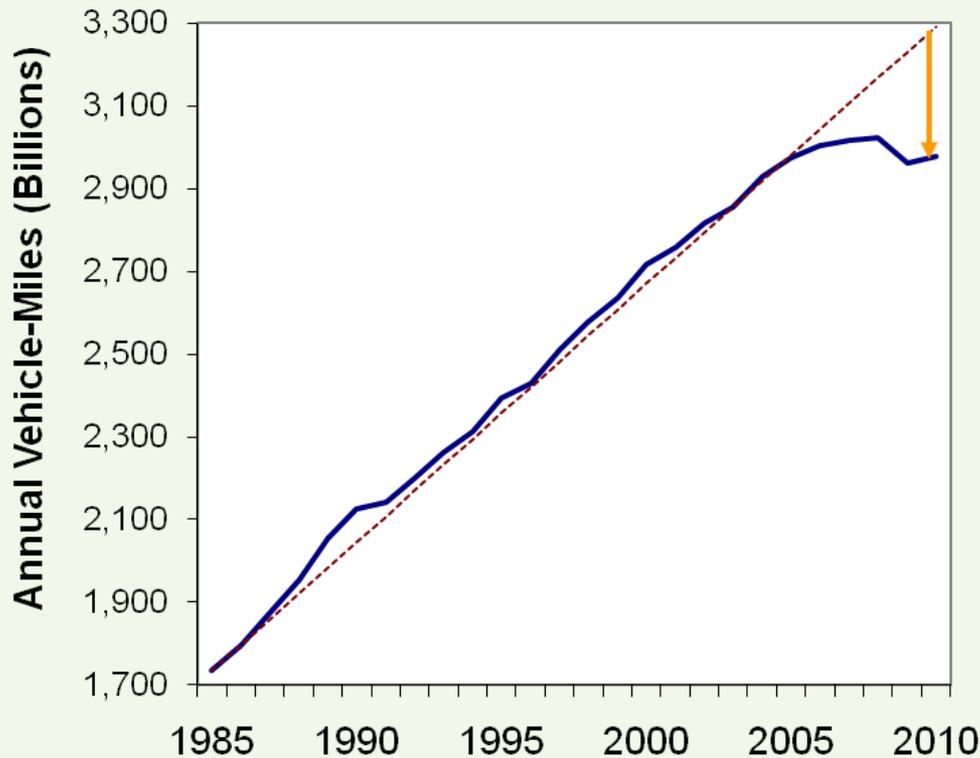


Wheeled Luggage



Trends Supporting Multi-Modalism

U.S. Annual Vehicle Mileage



U.S. vehicle travel grew steadily during the Twentieth Century but stopped about 2003.

- Motor vehicle saturation.
- Aging population.
- Rising fuel prices.
- Increased urbanization.
- Increased traffic and parking congestion
- Improved transport options
- Changing preferences
- Environmental concerns.
- Health Concerns

"The Economist"

22 Sept. 2012

“Governments may find that changes in driving habits force them to rethink infrastructure. Most forecasting models that governments employ assume that driving will continue to increase indefinitely. Urban planning, in particular, has for half a century focused on cars.

If policymakers are confident that car use is waning they can focus on improving lives and infrastructure in areas already blighted by traffic rather than catering for future growth.

By improving alternatives to driving, city authorities can try to lock in the benefits of declining car use.



The screenshot shows the top of a web page from The Economist. The header includes the logo, navigation links (Log in, Register, Subscribe), and a menu with categories like World politics, Business & finance, Economics, Science & technology, Culture, and Blogs. Below the header, the article title is "The future of driving: Seeing the back of the car". The sub-headline reads "In the rich world, people seem to be driving less than they used to". There are social media sharing icons for Facebook (1.7k likes) and Twitter (371 tweets). The date is "Sep 22nd 2012 | from the print edition". The main image is a close-up of the rear of a silver 1958 Chevrolet Impala, showing the trunk, taillights, and a license plate that reads "EXX 401". A small "Corbis" watermark is visible in the bottom right corner of the image.

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The future of driving
Seeing the back of the car

In the rich world, people seem to be driving less than they used to

Sep 22nd 2012 | from the print edition [Like](#) 1.7k [Tweet](#) 371

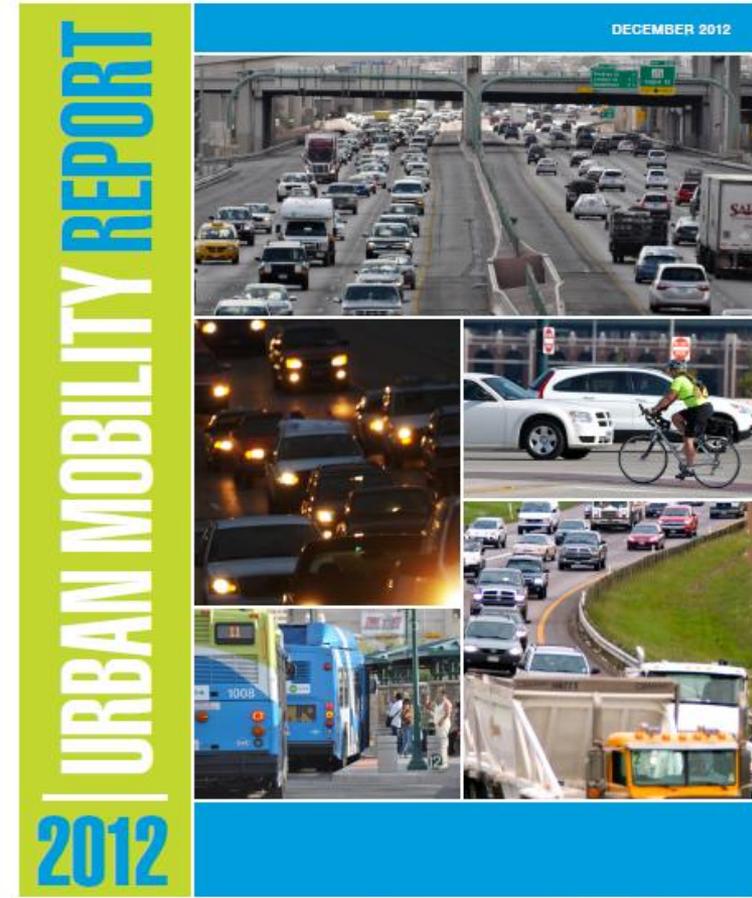


Corbis

"I'll love and protect this car until death do us part," says Toad, a 17-year-old loser whose life is briefly transformed by a "super fine" 1958 Chevy Impala in "American Graffiti". The film follows him, his friends and their vehicles through a late summer night in early 1960s California: cruising the main drag, racing on the back streets and necking in back seats of machines which embody not just speed, prosperity and freedom but also adulthood, status and sex.

Current Evaluation Favors Automobiles

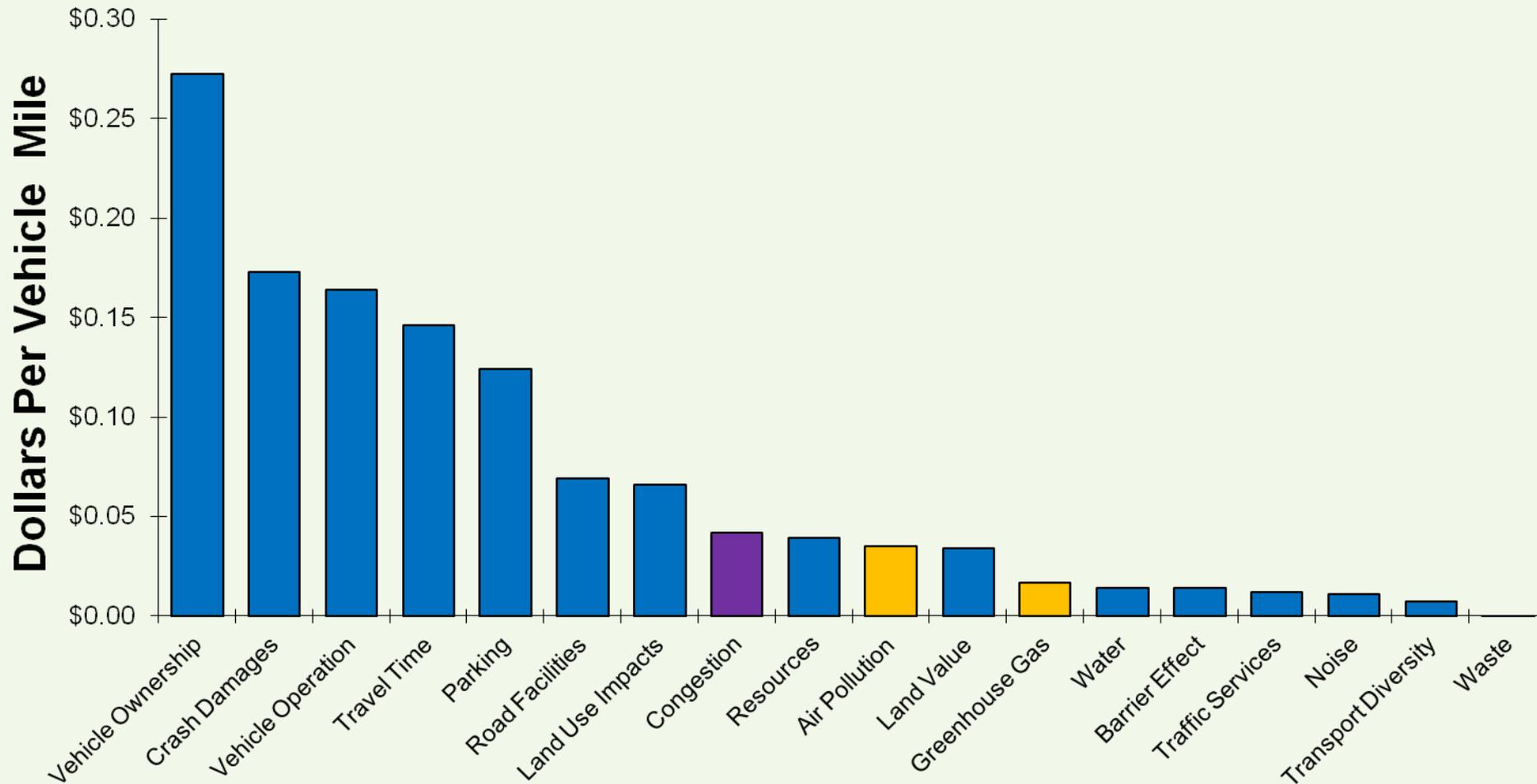
Current planning tends to evaluate transportation system performance based largely on automobile travel conditions such as traffic speed, vehicle operating costs and crash rates. Alternative modes are only valued to the degree that they improve driving conditions. This exaggerates roadway expansion benefits and undervalues walking, cycling and public transit improvements.



Comparing Benefits

Planning Objectives	Expand Roadways	Efficient and Alt. Fuel Vehicles	Improve Alt. Modes and Smart Growth
<i>Vehicle Travel Impacts</i>	<i>Increased VMT</i>	<i>Increased VMT</i>	<i>Reduced VMT</i>
Reduce traffic congestion	✓		✓
Improved travel experience	✓		✓
Roadway cost savings			✓
Parking cost savings			✓
Consumer cost savings			✓
Improve mobility options			✓
Improve traffic safety			✓
Energy conservation		✓	✓
Pollution reduction		✓	✓
Land use objectives			✓
Public fitness & health			✓

Comparing Costs



Valuing Transport Diversity

An efficient transportation system is diverse and has suitable incentives for users to choose the best mode for each trip, considering all impacts (benefits and costs). Current planning does a poor job of accounting for many of benefits of this diversity.



Transport Diversity Benefits Categories

Improved Transport Options	Increased Use of Alt. Modes	Reduced Automobile Travel	More Compact Development
<ul style="list-style-type: none"> • Improved user convenience and comfort • Improved travel options, particularly for non-drivers • Improved local property values 	<ul style="list-style-type: none"> • User cost savings • User enjoyment • Economic development benefits from increased access to education and employment • Increased public fitness and health 	<ul style="list-style-type: none"> • Reduced traffic and parking congestion • Road and parking cost savings • Consumer cost savings • Reduced crash risk to others • Air and noise pollution reductions • Energy conservation • Economic development benefits 	<ul style="list-style-type: none"> • More livable communities • Reduced land consumption, heritage and openspace preservation, and public service cost savings • Improved accessibility, particularly for non-drivers • Reduced vehicle ownership

Often Overlooked Benefits

- Basic mobility for non-drivers
- Overall affordability (including vehicle ownership cost savings)
- Reduced traffic and parking congestion
- Parking cost savings
- Consumer preferences for alternative modes
- Accident, fuel and pollution reductions from reduced vehicle travel
- Increased public fitness and health
- Community livability and cohesion impacts, and associated increases in property values and business activity
- Land use impacts (reduced sprawl)



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)

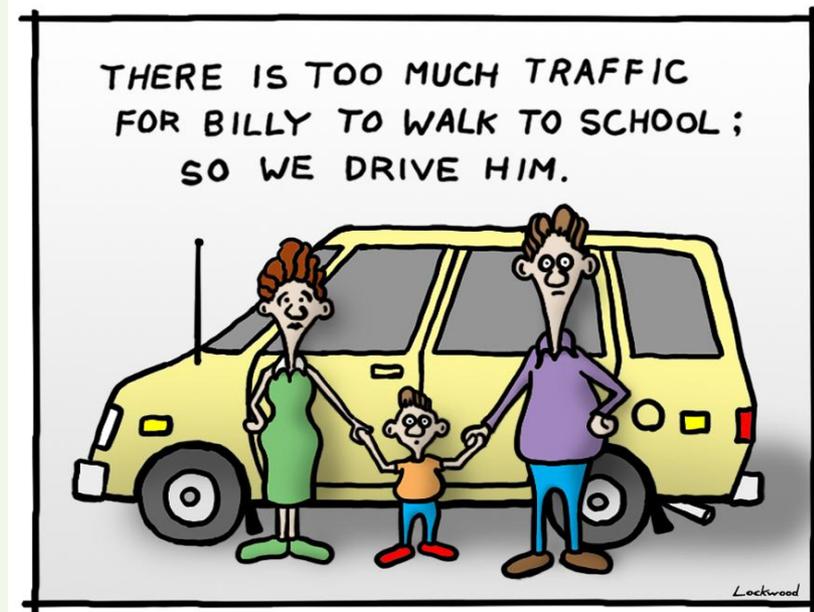
- Favors multi-modalism. Recognizes the roles of non-motorized and public transport.
- Recognizes land use impacts on accessibility
- Supports comprehensive, integrated planning and smart growth development



Mobility Vs. Accessibility Trade-Offs

Planning decisions often involve trade-offs between different forms of access:

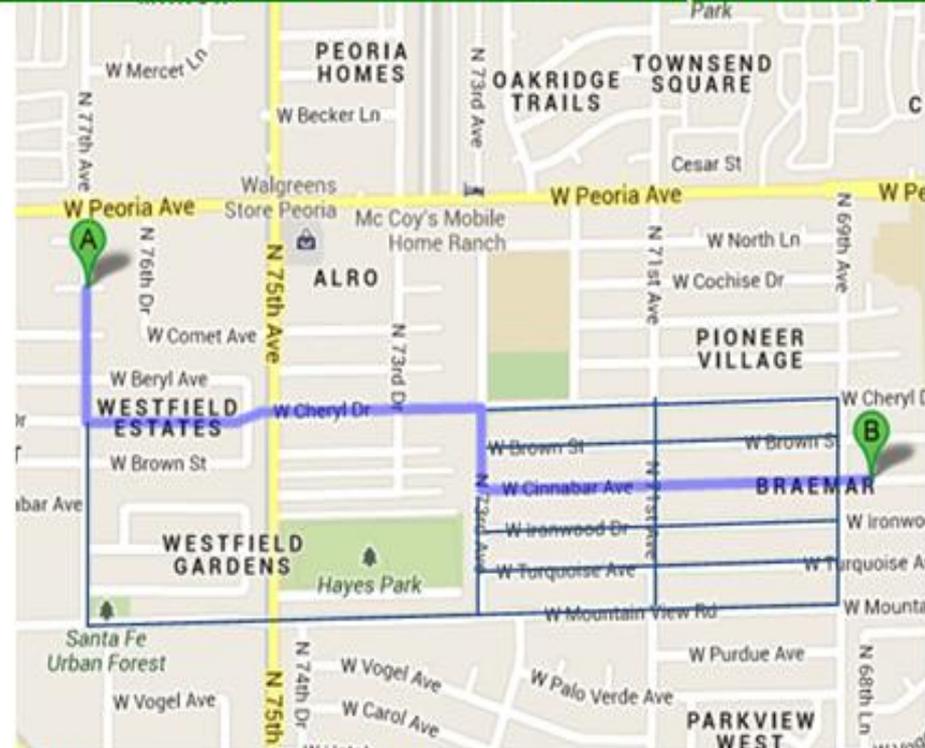
- Wider roads and increased traffic speeds to create barriers to pedestrian travel. Since most public transit trips including walking and cycling links, this reduces public transit travel.
- Money and road space allocated for automobile traffic leaves less money and space for sidewalks, bike-lanes and bus-lanes.
- Hierarchical roads, in which traffic is channeled from local streets to arterials, increases traffic speeds but also increases travel distances and concentrates traffic which increases congestion compared with more connected street networks.
- Generous parking requirements lead to more dispersed development which increases travel distances.



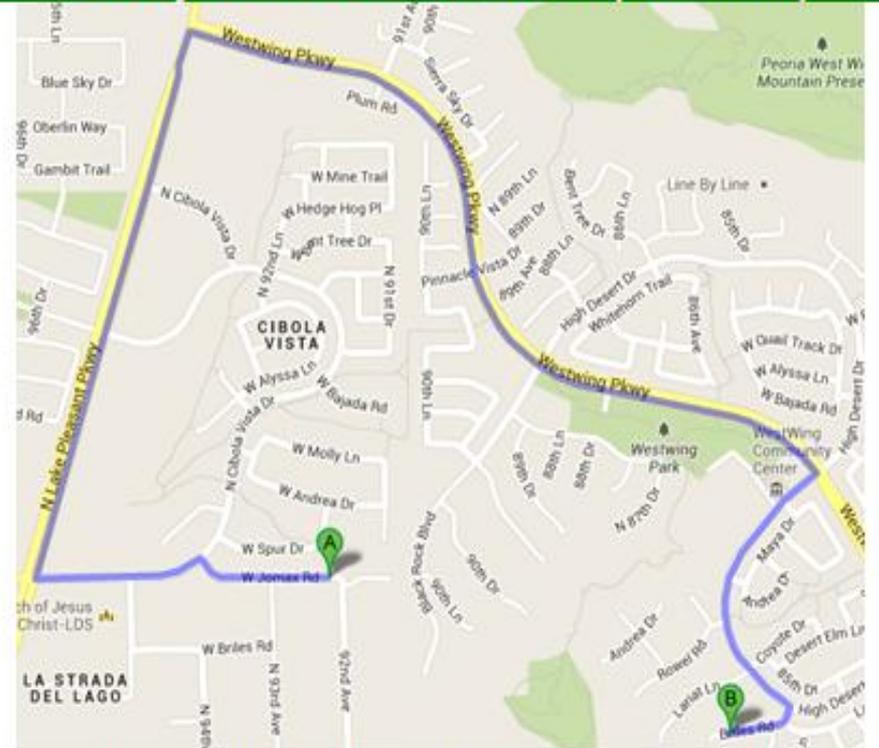
Traffic Inducing Traffic

Street Connectivity

Well-Connected Road Network (1.3 miles)



Poorly Connected Network (3.6 miles)



*Although points **A** and **B** are approximately a mile apart in both maps, the well-connected road network offers many more route options and has much shorter travel distances, which increases the feasibility of walking and cycling for more trips. The poorly-connected hierarchical network forces most trips onto major arterials, which increases total vehicle travel, traffic congestion and accident risk.*

New Understanding of Accessibility

- Levine, et al. (2012) found that development density has about ten times as much influence on the number of destinations that can be reached in a given time period as the same percentage increase in traffic speeds.
- Kuzmyak (2012) found that central neighborhood residents make substantially shorter trips, drive significantly fewer daily miles and experience less congestion delays than suburban residents due to their improved travel options, more connected streets and greater proximity to destinations.
- Handy, Tal and Boarnet (2010) conclude that increasing urban intersection density 10% reduces vehicle travel an average of 1.2%.
- According to the *Urban Mobility Report*, commuters in dense urban regions such as Washington DC and Los Angeles bear on average **34** hours of delay and 16.5 gallons of fuel annually, which is much smaller than the additional **104** hours of travel time and 183 gallons of fuel consumed annually by residents in sprawled, automobile-dependent regions such as Jacksonville, Nashville and Houston.

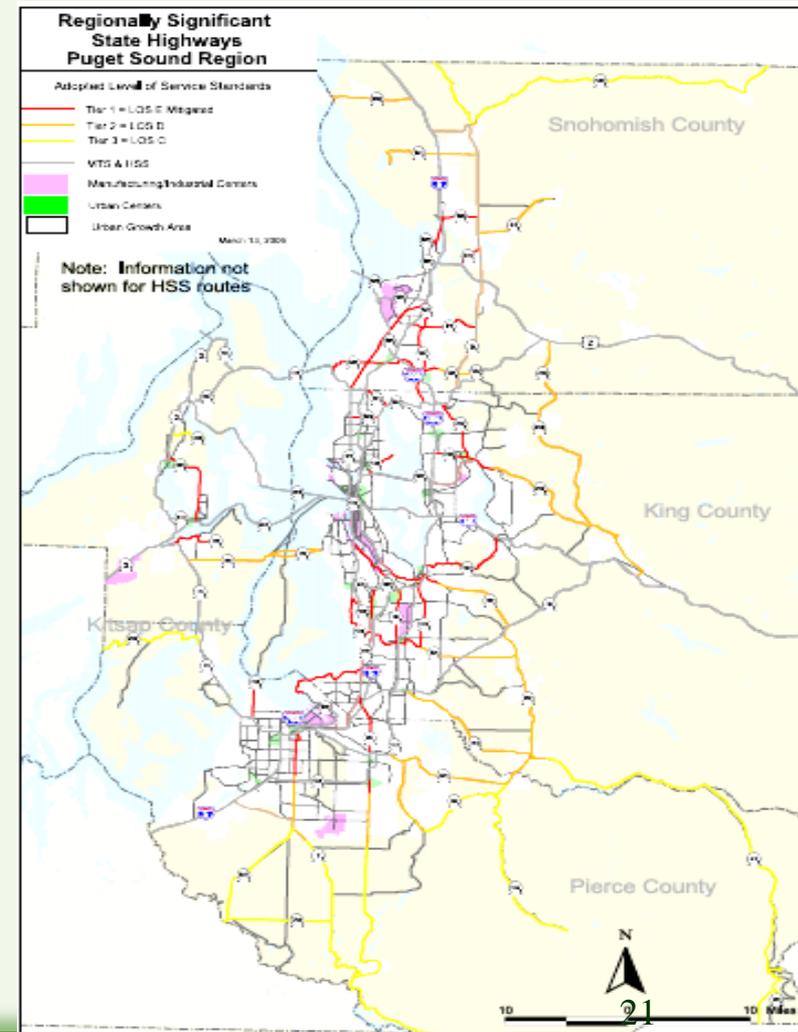
Comprehensive Multi-Modal Planning

- Evaluation and planning based on *accessibility* instead of *mobility*.
- Consider all modes
- Consider all impacts and objectives
- Least-cost funding (invest in the most cost effective solution, considering all impacts and objectives)



Conventional Transport Indicators

- Roadway Level-of-Service (LOS)
- Average traffic speeds.
- Per capita congestion delay.
- Parking occupancy rates.
- Traffic fatalities per billion vehicle-miles.
- Traffic fatalities per 100,000 population.



Multi-Modal Level-Of-Service (LOS)

Mode	Level of Service Factors
Walking	Sidewalk/path quality, street crossing conditions, land use conditions, safety and security
Cycling	Bike paths and lanes, street riding conditions, bike parking
Ridesharing	Ridematching services, chances of finding matches, HOV priority
Public transit	Service coverage, frequency, speed (relative to driving), vehicle and waiting area comfort, user information, price, safety and security
Automobile	Speed, congestion delay, roadway conditions, parking convenience, safety
Telework	Employer acceptance/support of telecommuting, Internet access
Delivery services	Coverage, speed, convenience, affordability

Multi-Modal LOS (Jacksonville)

Cycling LOS



Pedestrian LOS



The BRT Standard

The BRT Standard, being developed by the Institute for Transportation and Development Policy, is a scoring system that defines world-class bus rapid transit (BRT) systems. It allows transit planners to evaluate BRT system performance and set targets for improvement.



BRT Standard Scorecard

This scorecard shows the criteria and point values that make up the BRT Standard, followed by a detailed description for each.

CATEGORY	MAX SCORE	CATEGORY	MAX SCORE
SERVICE PLANNING		STATION DESIGN AND STATION-BUS INTERFACE	
Off-board fare collection	7	Platform-level boarding	6
Multiple routes	4	Safe and comfortable stations	3
Peak frequency	4	Number of doors on bus	3
Off-peak frequency	3	Docking bays and sub-stops	2
Express, limited, and local services	3	Sliding doors in BRT stations	1
Control center	3		
Located in top ten corridors	2	QUALITY OF SERVICE AND PASSENGER INFORMATION SYSTEMS	
Hours of operations	2	Branding	3
Multi-corridor network	2	Passenger information	2
INFRASTRUCTURE			
Busway alignment	7		
Segregated right-of-way	7	INTEGRATION AND ACCESS	
Intersection treatments	6	Universal access	3
Passing lanes at stations	4	Integration with other public transport	3
Minimizing bus emissions	4	Pedestrian access	3
Stations set back from intersections	3	Secure bicycle parking	2
Center stations	3	Bicycle lanes	2
Pavement quality	2	Bicycle-sharing integration	1
		TOTAL	100

Walkscore

Walkscore and its variants indicate local accessibility: the number of services and activities located within walking distances of a location.

This information can be presented in various ways, such as a rating for a particular location, and heat maps.

This information can help households and businesses choose more accessible, multi-modal locations. Property values tend to increase with improved walkability.

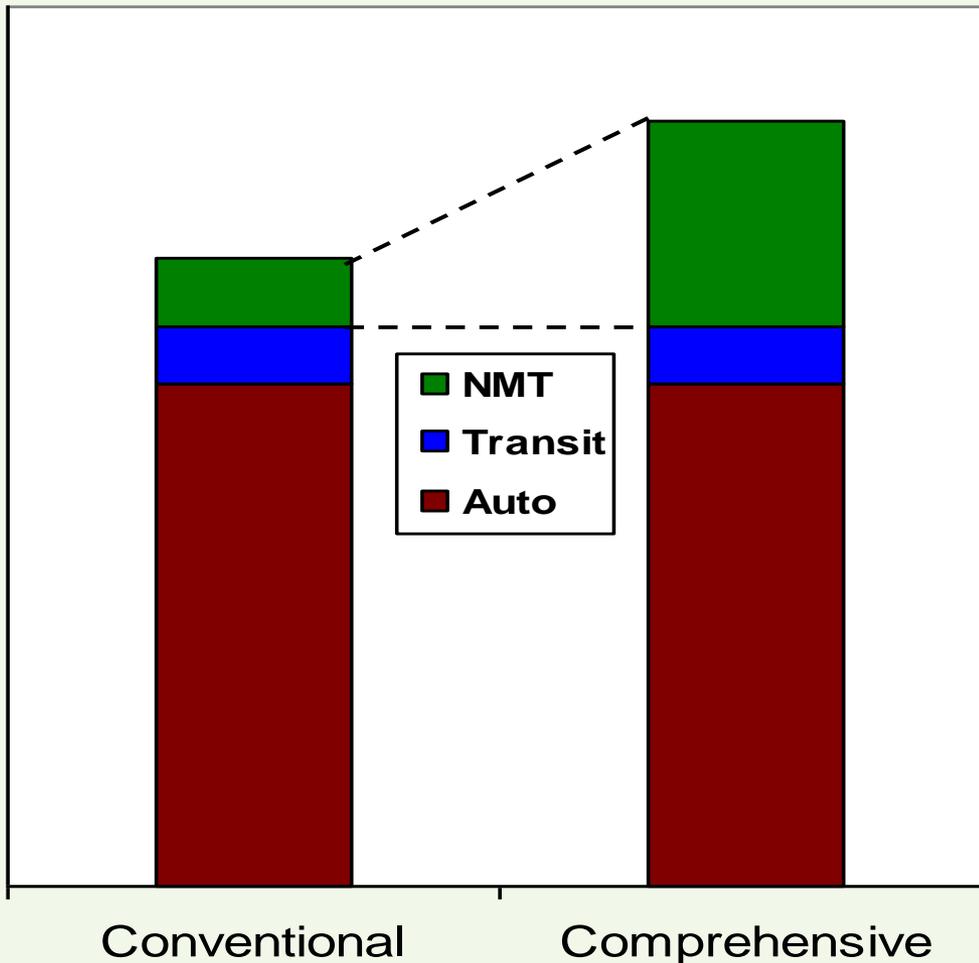


Very Walkable

Most errands can be accomplished on foot.

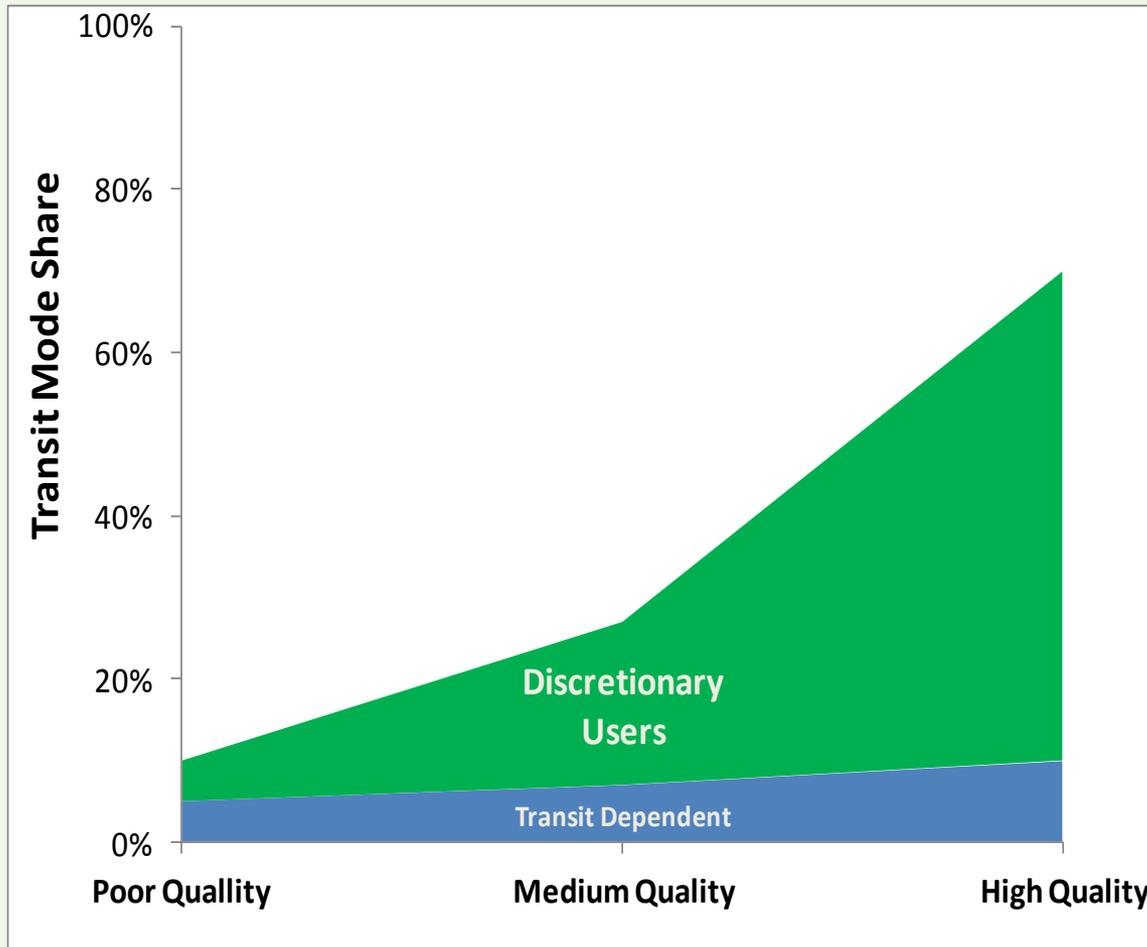


Counting All Walking



More comprehensive travel surveys typically increase the portion of nonmotorized travel 2-6 times by counting currently overlooked walking and cycling trips.

Increasing Transit Mode Share

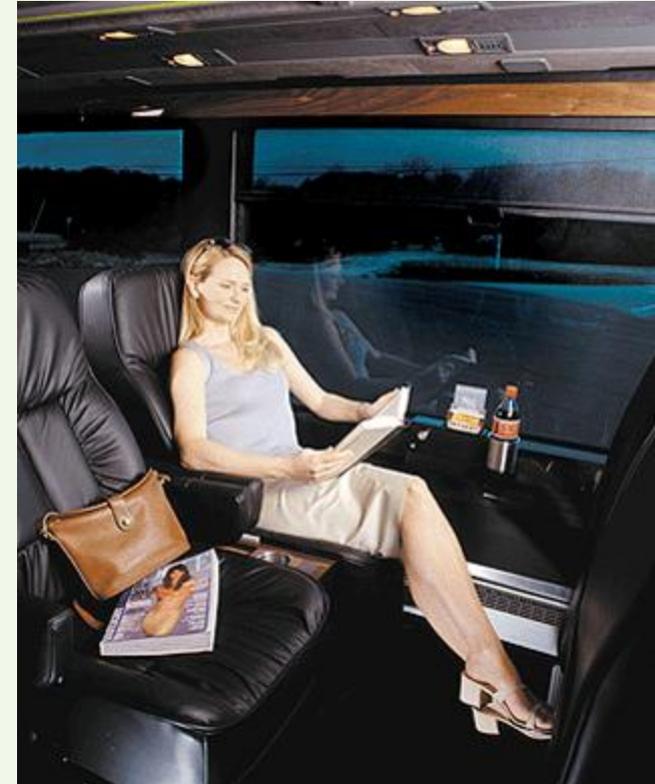


A portion of the population is *transit dependent* and will use transit services even if poor quality.

As public transit service quality improves it will attract an increasing portion of *discretionary travelers* (people who can travel by automobile).

Attracting Discretionary Riders

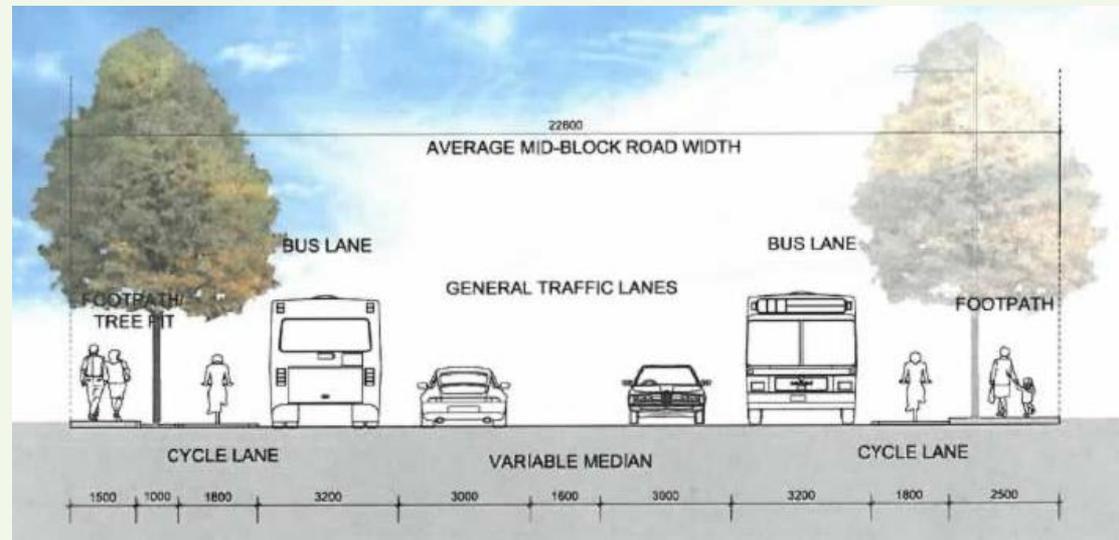
- Quality service (convenient, fast, comfortable)
- Affordable
- Support and incentives (commute trip reduction programs, parking cash out, etc.)
- Integrated (good connections, walking and cycling access to stops and stations, transit-oriented development)
- Convenient information
- Integrated with special events
- Positive Image



Transit Priority

Transit travel requires less road space than automobile travel. A bus lane that carries 20 buses or more during peak hours carries more people than a general traffic lane.

It is therefore more efficient and fair to give buses priority in traffic with special lanes and signal controls. This reduces transit operating costs and attract discretionary travelers who would otherwise drive. As a result, overall congestion does not increase.



Transit Station Level-Of-Service

- Clean
- Comfort (seating, temperature, quiet)
- Convenience (real-time user information, easy fare payment)
- Accessible (walkability, bike parking, nearby housing, employment, nearby shops)
- Services (refreshments, periodicals, etc.)
- Security



User Information

Provide information when and where users need it:

- Transit route, schedule and fares
- Discounts and incentives.
- Real-time arrival.
- Navigation to bus stops, train stations and destinations.
- Travel times for various modes (e.g., transit vs. driving).
- Special problems (warnings of delays).
- On-board wifi services.
- Parking availability and price.

Delivering real-time public transit information when and where you need it. 28 Filibong 7:45n & 12:45n

NEXTbus

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View Real-Time Arrivals

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Eric P. San Francisco

News: Toronto TTC approves \$9.9M award to NextBus/Grey Island

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Wait times for connecting lines at stop 48th Ave & Point Lobos Ave:

- 38AX-Geary A Express Outbound: 9 minute wait time
- 38L-Geary Limited Outbound: 2 minute wait time

18-46th Avenue

Map showing transit routes and landmarks like Golden Gate Park and Sausalito.





“Transportation Affordability: Evaluation and Improvement Strategies”

“Toward More Comprehensive and Multi-modal Transport Evaluation”

“Evaluating Non-Motorized Transportation Benefits and Costs”

“Safer Than You Think! The New Transit Safety Narrative”

“Evaluating Public Transit Benefits and Costs”

“Evaluating Transportation Equity”

“Evaluating Complete Streets”

“Online TDM Encyclopedia”

and more...

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