Basic principles of people-centred, equitable and sustainable transport

There ARE ways to get off old vicious cycles of poor public transport, congestion and social and environmental destruction.

This guide emphasises approaches that are holistic, long-term and community-oriented. The approach here is always pro-poor and mindful of impacts on disadvantaged groups. Public participation is emphasised rather than treating transport as the realm of experts who cannot be questioned.

Ten Steps Towards More Sustainable and People-Centred Transport

The thrust of this book can be summed up under ten main points.

1. Accessibility for all

The purpose of transport is to provide access to the contacts, services and goods that we all need in an equitable, low-cost and low-impact way. Transport policy should not fall into the trap of seeing mobility as an end in its own right and of simply promoting more and more vehicle movement at higher and higher speeds. Accessibility planning aims to ensure that destinations remain within easy reach and seeks to maintain the viability of diverse and plentiful transport choices, particularly non-motorised transport, public transport and paratransit.

2. Social equity

Almost everywhere, transport priorities serve the poor badly and devote most investment to the mobility of affluent vehicle owners. The negative impacts of transport fall most heavily on disadvantaged people - those living in poverty, people with disabilities, women, the young, the frail elderly and people with insecure housing rights. Social equity demands that highest priority should go to public transport, walking and non-motorised vehicles that are accessible to almost everyone and which have low impacts.

3. Ecological sustainability

Both global sustainability and the local environment of settlements are seriously threatened by overuse of private motor vehicles. Local impacts of transport, such as noise and air pollution, are extreme in many large cities of Asia. But it is the highly automobile-oriented cities of the USA that contribute most per person to global sustainability problems, such as climate change. Places whose transport systems contribute least to environmental damage are those with lowest car and motorcycle use and highest use of public transport, cycling and walking.

4. Health and safety

Transport has a major impact on health and safety. Motor vehicles are responsible for around 70% of air pollution in many of the world's major cities. Worldwide more than 500,000 people are killed every year in road crashes and 50 million are seriously injured. In most developing countries, more than 60% of the victims are pedestrians and other vulnerable road users. Travel is safest in places that provide plentiful public transport and facilities for cyclists and pedestrians.

5. Public participation and transparency

Transport planning is always the better for involving the communities who are being planned for. Transparency and open information also help to prevent corrupt practices that hurt the whole society. Traditional transport planning distrusts community involvement and insists that it be left to the "experts". But around the world, more and more community organisations are realising that they can and must take action.

6. Economy and low-cost

Too many plans are dominated by expensive mega-projects. The most sustainable, people-centred and equitable transport policies are low-cost and include restraint of the highest-cost mode of transport - the private car. By restraining cars and motorcycles and charging them their full costs, cities can avoid or postpone the need for expensive roads while retaining high use of low-cost public transport, walking and bicycles.

7. Information and analysis

In this book information sources are highlighted with the symbols 🕮 for printed and 💻🖱 for internet resources.

To take action, communities need to understand the forces that are pushing transport priorities in the wrong directions. They need solid arguments and information to dispel the myths propounded in support of destructive projects and policies. Destructive proposals will not stand up to critical scrutiny. We can all learn from the successes and failures of other campaigns around the world.

8. Advocacy

Unless voices are raised from local communities (especially poor communities), pedestrians, bus riders, and non-motorised vehicle (NMV) users in transport planning, then only the voices of motorists, truckers and big business will be heard by decision-makers. People's advocacy has made a dramatic difference to transport plans in diverse places, including Tokyo, Karachi, London, Toronto, Mumbai, and Perth. Many trends are still in the wrong direction but the movement to promote alternatives to cars is rapidly becoming mainstream. NGOs have even had an impact on transport policies of the World Bank.

9. Capability building

There is an urgent need to build capacity and commitment among transport decision-makers to adapt to the new paradigms that are replacing car-oriented mobility planning. Community organisations also urgently need help to build their ability to assert their rights to speak up on transport issues, to understand the fundamental issues, and to know where to turn for help.

10. Networking

Useful contacts are highlighted with their name next to the symbol ✉. Their contact details can be found in the directory of key contacts at the end of the book.

Networking involves actively making contacts and encouraging information exchange and collaboration while always respecting the independence of diverse participants. The active sharing involved in networking opens up creative opportunities for action and synergy. The Sustainable Transport Action Network for Asia and the Pacific is one such mechanism to encourage and facilitate networking on this issue. Through generous networking we can all gain ideas, information, lessons, encouragement, and solidarity to further our mutual goals.

Visions and Choices

Cities do have choices about their long term transport patterns and systems they want – they do not just have to follow the trends towards traffic chaos.

A slide into a traffic-saturated future would be all to easy but this can be avoided.

Most cities in Asia and the Pacific are not yet hopelessly addicted to private cars. They have mostly not yet built themselves around the needs and convenience of motorists.

Bangkok traffic.. Photo: Barter

It is easy to imagine a city that where roads and vehicles seem to be everywhere. A city where shops, schools and parks are far apart and require a car to reach them. Where roads act as barriers between communities. Where traffic dominates the streets making them difficult to cross. Where walking and cycling are unsafe and unpleasant. Where public transport is infrequent and hard to get to. Where air pollution is a visible, pungent health hazard. Where honking and road rage are the main forms of social exchange.

Traffic-saturated Asian cities are not difficult to find, especially in middle-income countries

Traffic-saturated cities are becoming reality in certain parts of Asia, including in countries with relatively low-incomes. Kuala Lumpur has massively invested in expressways while conditions for walking, cycling and buses have deteriorated. Bangkok, Jakarta, Surabaya and Manila have been quickly saturating with cars and motorcycles. High-density cities can quickly become traffic disasters with even a small rise in car and motorcycle ownership.

Wrong priorities hurt low-income cities as well as middle-income and high-income cities

An overemphasis on private vehicles plagues many low-income cities too. Some cities where the vast majority of the population cannot afford a motorcycle or a car are plunging large parts of their budgets and precious foreign assistance into infrastructure that will primarily benefit private car users. Meanwhile buses remain hopelessly overcrowded and facilities for pedestrians and cyclists are almost non-existent.

Visions of people-centred and sustainable urban transport

> *"I like to picture an imaginary city where children can go about safely, where smog is something of the past, and where, nonetheless commerce is thriving. A city that is quiet, but fully alive." By Gijs Kuneman, T&E*

Imagine your city as a place where it is pleasant and safe to walk to shops, parks and schools. Where streets are safe to cycle on, cross or even for children to play on. Where work is not far away or is easily reached by bus or light rail. Where it is safe to bicycle or take a pedicab to the nearest light rail station or bus interchange. Where buses move quickly in bus lanes and get priority at traffic lights. Where you do not have to shout over traffic noise to have a conversation.

Many real cities around the world are living examples of the benefits of making a clear decision to choose sustainable and people-centred transport.

Such cities are not theory. They are reality in many places and at various levels of wealth. Curitiba in Brazil is the most famous example from the South of a city that has had great success in taming cars, promoting public transport, pedestrianisation, integrating land-use patterns with public transport and in creating a livable urban environment.

Sustainable transport is not second-class transport for poor cities only.

In Asia, Singapore, Hong Kong, Tokyo and Seoul are cities that have had great success improving public transport and preventing private vehicles from taking over. Most cities in wealthy Japan have managed to create a pleasant and safe environment for walking and cycling.

Nor is it a luxury, for rich cities only.

And for the moment, many cities and towns in China and India are still good places for cycling and walking to meet everyday needs. Most Chinese cities have provided remarkable facilities for bicycles, which remain the number one mode of urban transport, despite gradually increasing motor traffic.

The Purpose of Transport: Mobility or Accessibility?

What is the purpose of urban transport planning? The answers to this question make a great difference to our whole approach to the issue.

Is the purpose of transport planning really simply to maximise the speed and amount of movement by vehicles? Perhaps it is to move people and goods as quickly and efficiently as possible? Or is the purpose of transport planning to help people gain access to goods, services, and contacts, even if this involves little or no travel?

The Old Mobility Approach

A fundamental problem with transport planning since the 1950s is the traditional view that mobility is an end in itself and that "the purpose of transport planning" is to maximise *mobility* – the ability to go anywhere, any time.

***The "traditional view" of transport as mobility** is increasingly being challenged and being replaced by a focus on "accessibility".*

Roads and automobiles are often seen as the obvious solution when mobility seems to be threatened by congestion. At first look, it seems obvious that expanded roads should solve the problem. Roads bring more destinations within reach. Ownership of cars and motorcycles offers drivers freedom to go anywhere, any time – or so the logic goes. Unfortunately, it has been taken too far. Promoting mobility, especially the *movement of traffic,* became the single-minded objective of traffic planners in many cities throughout the world, including Asia.

📖 Ewing, R. 1993. "Transportation Service Standards -- As If People Matter." Transportation Research Record (1400): 10-17.

Free movement of traffic is traditionally measured by *level of service (LOS)* on roadways, or the degree to which traffic flows without interruption. The higher the LOS and the higher the vehicle ownership levels, the greater the level of mobility. Most transport planners focused on increasing LOS and personal car ownership.

*Mobility-based transport not only makes travel by car possible, it also makes it **necessary** by cutting off the other options or making them very difficult.*

American cities have gone further than any others in trying to promote mobility. But ironically, anyone who does not have access to a car in many American cities is almost immobile.

Friends of the Earth UK

And American cities still face traffic jams at peak times despite enormous networks of multi-lane expressways. Increases in road capacity encourage more people to drive further and more often until roads are once again congested.

Furthermore, car ownership will likely never be universal even in rich countries, let alone in the South. This means that people without car access – such as many of the young, the old, the poor, women and the disabled – cannot meet their basic transport needs.

The Purpose of Cities

📖 Engwicht, David. 1993. Reclaiming Our Cities & Towns: Better Living with Less Traffic. Philadelphia, New Society. (also published by Envirobook, as "Towards an Eco-City: Calming the Traffic")

How we understand the purpose of cities and towns also makes a difference to transport planning. Urban centres are, by nature, centres of "exchange" – of goods, ideas, culture, skills, and also of psychological and spiritual support. It could even be said that their very purpose is to maximise opportunities for exchange. The mobility approach to transport planning threatens to destroy the very essence of cities.

On City Function and Transport

"The paradoxical result of this concentration on motorcars is a curbing of freedom of movement, a removal of alternate choices of transportation, the steady reduction of the speed of local travel, and the total defeat of the city itself as a place that offers the maximum possibilities for face-to-face meeting, social cooperation, and transactions of every kind" Lewis Mumford, 1953, The Highway and the City (p.222)

"The purpose of transportation is to bring people or goods to places where they are needed, and to concentrate the greatest variety of goods and people within a limited area, in order to widen the possibility of choice without making it necessary to travel. A good transportation system minimizes unnecessary transportation; and in any event, it offers a change of speed and mode to fit a diversity of human purposes" (p. 236)

The purpose of transport is inextricably linked to the purpose of the city.

The Accessibility Approach to Transport Planning

If transport is understood as a mechanism to maximise access and not as a mechanism to just move vehicles themselves, then transport planning becomes a much more holistic and responsive discipline. Access-based transport requires that none of the transport modes impacts too severely on the fabric of the city or on the viability of other transport modes.

***Exchange** – the fundamental purpose of the city. Transport should facilitate exchange opportunities.*

Paradoxically, too much mobility by cars can eventually reduce exchange because much of the potential "exchange space" (eg shops, homes, parks, and footpaths, public squares) must be devoted to "movement space" (eg roads, parking lots and freeways). The mere presence of this vast amount of movement space, the landforms that accompany it, and the noise and pollution from all of the vehicles, tends to destroy the public realm of the city and hurts all of the other, more exchange-friendly modes of transport.

Comparing Transport Modes

Each of the different kinds of transport has different characteristics for the user, different costs and benefits, different impacts on society and the environment, different infrastructure requirements.

	Characteristics in ASIAN Urban Conditions						Impacts				
	Ideal Distances & Destinations	**Speeds**	**Access to Centres**	**Equity**	**Livable Streets**	**Transport Diversity**	**Cost**	**Space consumed**	**Local environment**	**Global environment**	**Danger imposed**
Modes	*Range of distances and type of destinations*	*Average speeds in Asian urban context*	*Ability to penetrate dense centres of activity*	*Available to all social groups*	*Compatible with livable street environment*	*Compatible with diverse transport modes*	*cost for users, private, and public sectors*	*space use both in motion and for parking or storage*	*air, noise, water pollution and nuisance*	*contribution to climate change, resource use,*	*danger imposed on vulnerable road users*
Walking	0-2 km scattered	4-6 km/h	very high	very high	very high	very high	very low	very low	very low	very low	very low
Bicycle	2-5 km scattered	8-15 km/h	very high	very high	very high	very high	very low	low	very low	very low	very low
Pedicab	2-3 km scattered	6-12 km/h	high	Low to medium	very high	high	low	medium	very low	very low	very low
Light rail - on ground	5-20 km major corridors	20-35 km/h	high	low to medium	Medium to high	medium	high	low	low	low	low
Metro rail - elevated /subway	5-25 km major corridors	30-45 km/h	very high	low to medium	medium	low	very high	low	low	low	low
Suburban rail	10-40 km long corridors	30-50 km/h	high	low to medium	medium	low	high	low	medium	medium	low
Tram	5-15 km corridors	15-20 km/h	high	low to medium	medium to high	medium	high	low	low	medium	low
Bus on busway	5-20 km major corridors	20-35 km/h	medium	medium	low to medium	medium to high	high	low	high	medium	low
Bus	5-15 km multiple corridors	12-20 km/h	medium	medium	low to medium	medium to high	medium	medium	high	medium	medium
Jitneys (micro-bus)	4-8 km corridors/ scattered	12-20 km/h	high	medium	low	medium to high	medium	high	high	medium	high
Motor-cycle (small)	4-15 km scattered	20-40 km/h	medium	Low to medium	low	low	high	medium to high	very high	medium	medium
Private Car	6-30 km scattered	15-35 km/h	very low	very low	very low	very low	very high	very high	very high	very high	very high

Note: some of these assessments are subjective and open to debate. We welcome your feedback.

The table above shows that the car does indeed have benefits to its users such as potentially high speeds, long distances that can be covered and the ability to reach scattered destinations. However, the problems and costs of car use in cities are also very high. For short trips in congested cities it is often faster to bicycle or even to walk. For longer trips along dense and congested corridors, public transport is best suited, if it gets sufficient priority from the authorities.

"EGGS-PLANATION": How efficient is bicycling?

From the International Bicycle Fund:
http://www.ibike.org

*A **cyclist** can travel about five kilometres on the energy of one egg.*
***0** (symbol for one egg)*

*A person **walking** would require three eggs to go the same distance.*
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*A loaded **bus** requires the equivalent of about two dozen eggs for each person it carries five kilometres.*
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*A typical **car** requires the equivalent of seven dozen eggs to carry one person five kilometres.*
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Even if you double the fuel efficiency of the car and double the occupancy the car would still use the equivalent of twenty-one eggs to make the trip -- more than twenty times a bicycle.
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DID YOU KNOW?

Twelve bicycles can be stored in one car parking space.

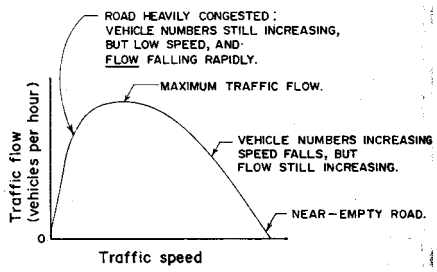
[C.R.O.W., 1993. "Sign up for the bike: design manual for a cycle-friendly infrastructure"]

How Urban Transport Works: An Introduction

Community organisations do not need to understand every technical detail of transport planning documents in order to participate in public debates. But there are a number of important principles that are useful to be aware of.

Congested traffic moves slowly

There is a simple relationship between the speed of traffic moving along a road and volume of traffic on the road – a graph of this relationship is called the *speed-flow curve*.



Source: Gallagher, 1992

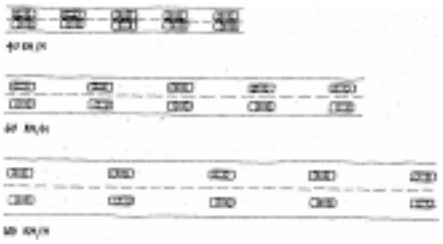
The speed-flow curve describes what we all know - that the more traffic that uses a road, the slower it moves. The effect is hardly noticeable when traffic is very light but as the road becomes more saturated the speed can drop drastically as a result of even a small further increase in vehicles on the road. Finally overload is so extreme that all vehicles are unable to move and we have total gridlock.

Note that there is only a small difference between the number of vehicles on a road that is nearly at saturation point (but with traffic flowing quite smoothly) and a road which is severely jammed. When a road has heavy traffic it does not take much to trigger a traffic jam. You may have experienced this. Sometimes traffic on a busy road will grind to a halt for no apparent reason.

Fast moving traffic requires more space than slow traffic

When travelling at high speeds each vehicle needs a bigger buffer zone (or safety zone) in front, behind and to the sides.

This has a connection with the speed-traffic curve, since when a road becomes congested the buffer zones around each vehicle must shrink and the vehicles must slow down accordingly.



Source: David Engwicht (1992) Towards an Eco-City: Calming the Traffic (Envirobook, Sydney)

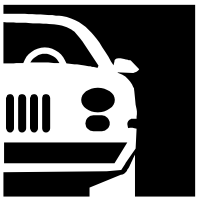
The space saving from slowing traffic down is also used in traffic calming efforts. One way that we can win back street space for pedestrians, cyclists and for street-life is to deliberately slow the traffic down. This allows us to have narrower traffic lanes for the same amount of traffic. In fact, narrowing the traffic lanes and the "perceived width" of a street is one way to persuade drivers to go more slowly.

So, if we slow the traffic down we can save road space and give some back to pedestrians. This principle is used in Traffic Calming.

A Congestion Paradox

If all car users in a congested city switched to buses then the buses could go faster than the cars do now.

📖 P B Goodwin, "Solving Congestion", Inaugural Lecture for the Professorship of Transport Policy University College London, 23rd OCTOBER 1997. URL: http://www.ucl.ac.uk/transport-studies/



In the early 1960s, Smeed and Wardrup found a paradox. The number of cars required to move a given number of people is much greater than the number of buses needed to move the same number of people. Therefore a transfer of commuters from car to bus would enable the traffic to go faster. So much so that it turns out that if everybody were to travel by the "slow" method of transport, bus, then they could actually all travel faster than if they had all used the "fast" method, cars.

But there is a catch! Each individual's most rational choice does NOT match with what would be best for everyone. For each individual it seems that it would be faster if they switched to going by car. And there is normally little or no incentive to stay on the bus.

Since each individual has no incentive to make the shift, the potential social benefit of a transfer of people from private transport to public transport can only be delivered by some kind of public policy intervention, either in the allocation of road space - bus lanes and so on - or by pricing.

"Build it and they will come": traffic quickly fills new road capacity

Transport planners are increasingly becoming more aware that traffic tends to increase over time to fill the space provided for it.

📖 Goodwin, P.B. 1996. Empirical Evidence on Induced Traffic. Transportation 23 (1):35-54.

📖 Hansen, Mark. 1995. Do New Highways Generate Traffic? Access 7:16-22.

📖 SACTRA, (Standing Advisory Committee on Trunk Road Assessment). 1994. Trunk Roads and the Generation of Traffic. London: HMSO.

There is now much evidence that road improvements actually cause greater demand for vehicle travel. In other words, they "generate" or "induce" additional amounts of traffic in the short and long term. There is 'latent demand' for automobile travel in most urban areas (constrained in many cases by congestion), any short-term improvements in congestion conditions are eroded by new (induced) travel over the long term.

Hanson (1995) estimates in the Californian context that every 1% increase in lane miles induces a 0.9% increase in vehicle travel within 5 years - almost wiping out all of the expected benefit! In Asian situations with more latent demand, the effect may be even stronger.

As travel is made easier, vehicle users react by driving more often and further They also make other choices which contribute to the induced traffic. For example, the additional road capacity causes longer term changes in land use, public transport viability and parking demand which have effects well into the future.

"If you want to add lanes and add lanes, that's like loosening your belt to cure obesity," said James Corless of the Surface Transportation Policy Project. "And if you really want to look at the end of that road, it's called Los Angeles."

Most transportation models do not consider the long run implications of generated traffic and do not generally incorporate generated traffic costs, particularly "external" ones, into economic analysis of projects. They count the time savings from the expected reductions in congestion as part of the benefits of the project. These time savings are temporary and soon wiped out by induced traffic. Therefore most cost-benefit studies are over-emphasising the benefits of road projects.

"Now you see it, now you don't": traffic evaporation

📖 Sally Cairns, Carmen Hass-Klau and Phil Goodwin (1998) "Traffic Impact Of Highway Capacity Reduction: Assessment of the Evidence" (Landor Publishing, London).

The converse of induced traffic is "traffic evaporation" when road capacity is reduced. A new study led by Phil Goodwin of University College London suggests that on average 20 per cent of the traffic that used a road seems to "evaporate" completely after the road has been closed - it does not reappear elsewhere in the road system. In some cases up to 60 per cent of the traffic vanishes. The examples studied by Goodwin's team were mostly in urban areas. In many cases, intolerable congestion on neighbouring routes was feared but never occurred.

But where did the traffic go? The report suggests that individuals often have flexibility in their transport choices (such as the mode of travel, when to travel, and even whether to travel at all). These results imply that there could be much greater scope for traffic restraint than has previously been assumed, since travellers apparently have more flexibility in their travel behaviour than had previously been imagined.

Peak period congestion is inevitable… unless…

📖 Downs, A. (1962) "The Law of Peak-Hour Expressway Congestion" Traffic Quarterly, Vol. 16, July, 393-409.

"My city has TERRIBLE traffic congestion!" Really?

"The underlying cause of congestion is NOT road-works or taxis or accidents: it is trying to operate with traffic flows too close to the capacity of the network, when any of these transient incidents will have a disproportionate effect." Phil Goodwin, 1997.

Peak period congestion is almost inevitable (except in the smallest and most prosperous cities) unless there is some kind of traffic restraint. This is because traffic converges on the most desirable routes and times. The main question is how long is the "rush hour" and how widespread is the area that becomes congested.

If an expressway has new higher capacity and thus faster travel, some traffic from other routes will tend to converge upon it. Furthermore, some travellers who previously made their trip just before or just after the peak period (to avoid congestion) will now travel during the peak time. These processes tend to work until the travel time on the new expressway becomes no better than the alternative routes, including ordinary streets. (Of course, induced demand then also operates until the entire network is almost as congested as before.)

Drivers almost everywhere complain about traffic congestion. They do so even in a middle-sized Australian city like Adelaide where the roads are only congested for around 15 minutes each morning and evening. Bangkok's or Manila's residents can only dream about such congestion-free conditions.

Next time you hear complaints about congestion remember that (unless there is traffic restraint or congestion pricing) all cities will experience some congestion at peak periods. The main variation

experience some congestion at peak periods. The main variation between cities is in how long the peak period lasts and in how extensive are the areas in which congestion appears.

"Running to stand still": transport and the shape of cities

Land-use patterns influence transport AND vice versa

Low density ***→ high private vehicle use; poor potential for walking, bicycles and public transport***

High density ***→ low private vehicle use; high potential for walking, bicycles and public transport***

There is an intimate connection between the transport and the land-use characteristics of any city. Firstly, land-use patterns influence transport patterns.

Very low urban densities and dispersed employment and services can practically force people to use private transport for most trips. Public transport is difficult and expensive to supply in low-density cities and walking and cycling cannot cope with the long distances. In low density cities, cars and motorcycles are the only really convenient modes of transport (as in American or Australian cities).

On the other hand, very high densities of population and high concentrations of jobs and services into commercial districts help public transport to be profitable, make walking and cycling more viable. Dense urban areas actually have great trouble squeezing cars in. In such a situation, mobility can only be achieved if public transport plays a very large role (as in Hong Kong, Mumbai or Seoul, which are very dense cities).

"Time pollution" and the illusion of speed

📖 Whitelegg, J. 1993. Time Pollution. The Ecologist 23 (4):131-134.

Bike Culture Quarterly

Over many centuries in cities of all cultures, shapes and sizes the average time for the trip to work has remained constant at around 30 to 40 minutes.

The connection between transport and land-use also works the other way - transport patterns and infrastructure shape the future of the city. If no road or public transport service can be provided to a location, then no one will want to live there or build anything there. Changes in transport, such as increased vehicle ownership, expansion of roads or the building of mass transit systems, can have a dramatic influence on the pattern of urban development.

So paradoxically, promoting fast transport has not saved time in cities. Cities with high-speed transport have simply spread out further to take advantage of the speed bonus. In the end many trips end up much longer and overall, the average person still tends to spend a similar amount of time moving around. And disadvantaged people who don't have access to fast transport are actually worse off in the "fast" city because now so few useful destinations are left within their reach.

John Whitelegg has labelled these and other related issues "**time pollution**".

For example, **at one extreme**, in a city (such as Dhaka) with a low level of transport infrastructure and with few motorised vehicles, movement is necessarily slow, so new development cannot locate in far-flung locations. Therefore as the city grows, density increases to rather high levels.

At the other extreme, in the USA and Australia cities could afford to build extremely high levels of transport infrastructure over the last 80 years or so and achieve very high mobility (initially with public transport, then with roads and high car ownership) at high speeds.

Therefore such cities were able to spread out rapidly by adding new, low density developments far from the city centres.

Newman and Kenworthy (1989) say that "walking cities" usually had densities above 100 people per hectare, "transit cities" then spread out to densities of between 50 and 100 pph and "automobile cities" since 1950 could sprawl to very low densities between 10 and 20 pph.

And in any case, as Ivan Illich pointed out, if the time spent on earning the money to own and drive a car and on maintaining it is counted, then the overall speed of cars should be considered to be hardly better than walking speed.

Transport modelling and predictions

Most transport planning since the 1950s has been based on a land-use/transport modelling process which involves predicting the levels of travel by different modes that will result from future situation.

Failures of the models used to predict traffic

It turns out that modelling and predicting the short-run transport outcomes of a given changed set of transport infrastructure, land-use patterns is reasonably easy. It is done using computers and some basic assumptions about how people travel. Unfortunately, short-term changes are irrelevant. It is much more important to know what will happen over a period of years or decades.

And why it is OK to question the predictions of transport modelling and cost-benefit analysis

But it is MUCH harder to model land-use changes and the long-term transport changes that result from transport infrastructure or policy change and such modelling is not yet standard practice. The failure to take adequate account of induced traffic and land-use changes have undermined the legitimacy of much transport planning. Traffic predictions and the associated infrastructure plans have increasingly come under attack as “self-fulfilling prophecies”. Traffic forecasts used to justify transport infrastructure need to be treated with great caution.

📖 Hook, Walter (1994) “Counting on Cars, Counting Out People: A Critique of the World Bank’s Economic Assessment Procedures for the Transport Sector and their Environmental Implications” Institute for Transportation and Development Policy (ITDP), Paper No. I-0194.

Another problematic modelling process often occurs when an infrastructure project that has already been proposed is assessed for its costs and benefits, using computer models such as the Highway Design Maintenance Model (HDM) - in its various updates.

First, it is much better to plan transport systems in an integrated inter-modal way, rather than project-by-project. Then many options can be compared rather than just one or two.

💻🖱 Institute for Transportation and Development Policy (ITDP), New York. http://www.itdp.org/

In addition, the models that are generally used to assess infrastructure tend to have many deficiencies. Over and above failure to take account of induced traffic and land-use change, these models tend to be inherently biased against non-motorised transport. In fact, such modes are often COMPLETELY IGNORED. The models generally fail to take account at all of the costs and benefits of the project for non-motorised transport users. They also fail to include a range of social and environmental impacts, including the social costs of displacing people for the road.

Models are biased against the poor!

Thus **the common methods of evaluating transport projects are fundamentally and systematically biased against the poor and against the modes most used by the poor**, especially by failing to assess impacts on the poor and on other disadvantaged groups. Major studies usually fail to provide adequate disaggregated data on these groups. Conventional cost-benefit analysis does not take distributive impacts into account and hence does not inform decision-makers of which groups stand to gain and lose.

The end of the "predict and build" approach

There is now a heightened awareness of induced traffic and land-use impacts and interactions from transport infrastructure over the medium and longer terms. This awareness has led to a move away from the traditional "predict and build" approach to transport planning. Many cities no longer rely on computer models alone. Instead they keep the models in their proper place - as tools to help us to implement the planning and vision of the future that the community has decided upon.

Market Failures in Transport

A number of transport problems can be looked at from an economist's point of view. For example, congestion is the result of a failure to set a market price on a scarce good (namely road space) to bring demand for road space into balance with the supply. The use of roads is often free or very cheap and therefore road users are prone to use road space inefficiently. The answer suggested to this particular "market failure" is congestion pricing.

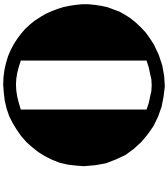
Private vehicle use is underpriced

📖 Maddison, D., Pearce, D., Johansson, O., Calthrop, E., Litman, T. and Verhoef, E. (1996). "Blueprint 5: The True Costs of Road Transport." London: Earthscan Publications.

There are many other market failures in the transport arena, including a failure to include the cost of "externalities" in transport prices. There is considerable evidence that in almost every country of the world, private vehicles do not pay their way, even if we only count costs within a narrow financial approach. The opportunity cost of the land occupied by roads is not generally accounted for in the cost assessments of most countries. Vehicle parking is often heavily subsidised, whether by employers, shops or governments.

Car use is SUBSIDISED!!

📖 Newman, P. and Kenworthy, J. (1999) Sustainability and Cities: Overcoming Automobile Dependence (Island Press, Washington, D.C.).



If the various social and environmental external costs are considered then private cars can be seen to be heavily subsided almost everywhere. Health costs from transport are far from fully covered by the insurance or fees of road users. The cost of traffic policing is also subsidised from general revenue. Various studies have found figures for the annual subsidy to each car of US$3,000 to $4,000, according to studies compared by Newman and Kenworthy (1999).

The widespread perception that public transport is always subsidised and that cars pay their way is absolutely wrong. It is especially wrong in the Asian context. In fact, in Asia, many of the public transport services are financially very successful by world standards and many of them are not subsidised at all.

Car owners have spent so much money just to own their cars that they have an incentive to use them a lot just to "get their money's worth".

If the up-front cost was lower but the price for every kilometre driven was higher then drivers would have a better incentive to drive less, even if the total costs remained the same.

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There is another way in which vehicle users get misleading price signals that encourage inefficient behaviour. This is that most vehicle owners' costs are "sunk costs" which they have already paid up front. For example, the cost of the vehicle itself and the cost of yearly fees and insurance are fixed and have to be paid whether the vehicle is used a lot or only a little. The usage costs that the car user perceives when making daily trips are only part of the total. In fact, having already spent so much money, the proud owner of a motor vehicle has a very big incentive to use the vehicle as much as possible, to make the large up-front payment seem worthwhile.

This can be remedied by reducing the up-front cost but at the same time increasing the cost of driving per kilometre. This makes car users more aware of the cost of each trip as they make the trip. Promising examples include "car-sharing" and distance-based vehicle insurance. Others include higher parking fees, road pricing, higher fuel taxes and congestion pricing.