A Definition of Sustainable Mobility

Summary

One definition of sustainable mobility is that used by the World Business Council for Sustainable Development as part of that organization's *Mobility Project 2030*:

> ...mobility that meets the needs of society to move freely, gain access, communicate, trade and establish relationships without sacrificing other essential human or ecological requirements today or in the future.

There is a need to unpack this definition in order to identify appropriate transport planning strategies. This can be done by establishing a set of principles that provide a framework for policy goals that will change over time, in response to the changing status quo and political priorities. The strategies derived from these principles would not only be about the modes people are using, nor only about transportation. They would require a multi-sector, inclusive approach to planning.

The principles are the following:

1. Preserve the natural environment
The environment should not be degraded by transport-related activity.
2. Maintain human health and safety
Transport systems can have a direct impact on health and safety.
3. Meet the travel needs of the population
People need reliability and choice of modes in an integrated system that provides for those of all abilities and financial means.
4. Support a good economy
Transport needs to support an economy that improves the well-being of all people, with due regard to social equity.
5. Minimize transport costs for access and mobility
Reducing the cost of mobility and access will improve the ability of transport-disadvantaged people to make use of available social, cultural and economic opportunities.
6. Minimize infrastructure costs
Transport systems need to be planned in a manner that their infrastructure and services can be funded in the long term, and that best use is made of investments.
7. Maintain energy security
Transport can play a significant role in helping to decouple support of a good economy from increasing demand for fossil fuels.
8. Ensure long-term viability of the transport system
Transport infrastructure and services need to be continuously maintained; and as an integrated system, all components must work together for optimum effectiveness.

Full Definition

There is a tendency to frame definitions of sustainable mobility in terms of current shortcomings in any particular transport system. Depending on who is framing the definition, it can be encapsulated in political slogans ranging from "public transport first" to "take back the streets". Sometimes attempts to redress imbalances in the transport system are not evaluated at all, but are claimed to be "sustainable" on the assumption that it is generally understood what this means.

Rather than frame our efforts in terms of what might be wrong now, I suggest we need an approach that will lead us to strive for continuous improvement in the transport system. Ten years from now, there may be millions more people walking, cycling and riding buses; but we must still be able to answer the questions, "What is still wrong with the system?" and "How can we make it better?"

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> ...mobility that meets the needs of society to move freely, gain access, communicate, trade and establish relationships without sacrificing other essential human or ecological requirements today or in the future.

That definition, in turn, borrows heavily from the Brundtland definition of sustainable development, as published in the 1987 UN report *Our Common Future*:

> ...development that satisfies the needs of the present generation without endangering the needs of future generations.

There is a need to unpack this definition in order to identify appropriate transport planning strategies. This can be done by establishing a set of principles that provide a framework for policy goals that will change over time, in response to the changing status quo and political priorities. The strategies derived from these principles would not only be about the modes people are using, nor only about transportation. They would involve a range of institutions, services and infrastructure.

When we plan sustainable transport systems, we cannot avoid a coordinated process involving other planning disciplines and stakeholders; otherwise we would not be considering the full range of potential impacts and benefits.

This approach requires measurability, partly because the most sustainable solutions may involve compromise. This brief document does not offer a set of measures of effectiveness, but here is why measurability is necessary.

A bus rapid transit system may be chosen as a project to reduce the impact of car travel, by reducing emissions and energy consumption for each person-trip, even though its diesel engines may produce more pollution than electric transit systems. Or supporting car-based access where transit vehicles are unable to command sufficiently high patronages to reach their potential advantages.

In each of these cases there are more detailed decisions to be made, which require careful assessment. Having decided on a BRT system that uses internal combustion engines, we may feel that biodiesel or a petrol-ethanol mix would be appropriate. These options may not reduce carbon emissions, but they may support other sustainability objectives like improved energy security (reduced

reliance on fossil fuels) and local job creation. These benefits would need to be assessed against potential negatives such as displacement of food crops and reduced biodiversity on marginal agricultural lands.

From this it should be clear that when we talk about the sustainability of transport systems, we cannot avoid talking about principles that have far-reaching consequences. The strategies derived from these principles are not just about the modes people are using, nor even just about transportation. At the very least, they involve processes, services, infrastructure and funding; and a range of stakeholders at all levels in the private and public sectors.

Putting together "sustainable" and "mobility", and coming up with a succinct phrase to define the term is fraught with peril; I am not going to attempt it. I would rather go straight to proposing a set of planning principles, as already suggested. These could, I hope, point us in the direction of sustainable mobility and lead to the identification of suitable projects and a programme of action.

Under each of the principles below, are listed three transport strategies. Some strategies appear under more than one principle, showing how individual strategies can have multiple benefits. These sample strategies would be tailored to specific circumstances.

The strategies deal with the movement of people and their ability to access transportation systems, but this is a narrow interpretation of mobility. Mobility could arguably include the movement of goods and services, which also compete for resources. And the scope of transport planning is wider still, but this document has kept the narrower focus to keep things simpler.

1. Preserve the natural environment
Motivation: A functioning ecosystem is needed to sustain life, and also to meet community needs related to recreation, enjoyment of the outdoors and a range of practical considerations. The primary consideration for transport planning is that the environment should not be degraded by transport-related activity. There are also less direct, but no less significant, considerations. For example, many transport decisions are related to land use planning, which in turn has environmental impacts.
Transport strategies:

- Reduce the need to travel, as a strategy to reduce noise and air pollution and the need for land required for transport-related activities such as parking and driving.
- Encourage use of public and non-motorized transport, to reduce carbon emissions.
- Develop energy sources and transport technologies that reduce carbon emissions.

2. Maintain human health and safety
Motivation: Health and safety are related to the environment in the sense that a degraded ecosystem will impact on human health, but there are other potential impacts and benefits related to health and safety that can be affected by transport planning decisions. For example, conflict between people and vehicles, or design of pedestrian systems that don't follow principles of crime prevention through environmental design (CPTED).
Transport strategies:

- Reduce conflict between different modes of transport through appropriate design, considering all users.
- Encourage transport modes that require physical exercise.
- Design infrastructure and services to minimize personal security risks.

3. Meet the travel needs of the population
Motivation: People who travel, by whatever means, generally value journey time, journey time reliability, cost, network coverage, comfort, safety and security. [Ref: The Eddington Transport Study, December 2006] Transport strategies need to be considered in light of the needs of all users, particularly those who cannot travel by car because of age, cost or ability. It is also important to consider that travel takes place for many reasons. Planning of roads is often focused on commuter needs, but there must be support of trips for leisure, sport, shopping, health, education and social purposes.
Transport Strategies:

- Ensure adequate choice of travel modes by ensuring that all modes are reliable, convenient, safe and connected.
- Enhance cross-modal integration to improve effectiveness of modes and increase user choice.
- Ensure that investment in various components of the transport system is equitable, reflecting the diversity of user needs and trip purposes.

4. Support a good economy
Motivation: One definition of a good economy has been provided by the Cambridge Programme for Industry in *The Sustainable Economy Dialogue: Report and Reflections*. The transport system should support this:

> "The fundamental goal or purpose of a good economy is to steadily improve the wellbeing of all people, now and in the future, with due regard to equity, within the constraints of nature, through the active engagement of all its participants."

Transport strategies:

- Reduce the need to travel, as a strategy to reduce infrastructure budgets.
- Ensure access to economic opportunities by supporting the full range of transport needs of the population, in order to increase labour market flexibility.
- Release specific transport bottlenecks that constrain the economy, in order to effect time savings, travel reliability and economic integration.

5. Minimize transport costs for access and mobility
Motivation: Transport is a means to an end; a support for activities. Reducing the cost (in time and money) of mobility and access will improve the ability of transport-disadvantaged people to make use of opportunities in the economy and other aspects of life. In some cases this will entail reducing travel distances or eliminating the need to travel altogether.
Transport strategies:

- Reduce the need to travel, as a strategy to reduce transport costs for individuals.
- Increase spatial and functional integration by planning land use and mobility systems to be mutually supportive.
- Improve integration of services and infrastructure across modes to increase effectiveness and reduce time of travel.

6. Minimize infrastructure costs
Motivation: At a basic level, sustainability is about being able to maintain a course of action indefinitely, and the limits to developing and maintaining transport infrastructure are often related to cost. Countries and cities sometimes go through periods of rapid expansion of transport infrastructure in support of population and economic growth, only to find that the funding to sustain these systems is not secure in the long term. This applies as much to public transport facilities as to roads and bridges, and should be achieved in part by making best use of available infrastructure.

Transport Strategies:

- Support public transport through political commitment and secure funding streams.
- Encourage growth of public transport as a strategy to reduce the need to expand road infrastructure.
- Apply travel demand management strategies to ensure efficient use of infrastructure and reduce the need for expansion.

7. Maintain energy security

Motivation: While energy has leapt into public consciousness and up the list of political priorities relatively recently, security of energy supply has for a long time been a fundamental prerequisite for the path that global economic growth has taken. Transport can play a significant role in helping to decouple support of a good economy from increasing demand for fossil fuels.

Transport Strategies:

- Encourage the use of alternatives to fossil fuels, through development of biofuels and new vehicle technologies.
- Reduce the need to travel, as a strategy to reduce fuel consumption.
- Encourage public transport and non-motorized transport as strategies to reduce fuel consumption.

8. Ensure long-term viability of the transport system

Transport infrastructure needs to be continuously maintained; and as an integrated system, all components must work together for optimum effectiveness. This requires a viable operating environment for all modes, and integrated land use and transport planning.

Transport Strategies:

- Ensure secure funding streams for the long term.
- Ensure institutional capability to plan and implement projects.
- Maintain a regulatory and planning framework supportive of transport service providers.

The transport strategies identified above can be developed into more specific and targeted projects to achieve current goals while adhering to the principles of sustainable mobility. Within this framework, we can return later to reinterpret political priorities as circumstances change.

However, the standard kit of planners' tools will not always do the trick. One of the key challenges of achieving sustainable mobility is to adapt the institutions, processes, guidelines, regulations and legislation that shape not only transport planning, but other planning spheres as well. The measures that we use to assess potential projects also need to be agreed upon.