Raad voor Verkeer en Waterstaat

Permanent mobility in the Randstad

Synopsis

Investing in construction, utilisation and road pricing will not be enough to improve mobility in the Randstad, the highly urbanised western part of the Netherlands. Extra capacity on roads and railways may eliminate or relieve well-known bottlenecks, but will not automatically make the traffic and transport network less vulnerable to disruptions. That is why the Advisory Council for Transport, Public Works and Water Management advocates making road and rail networks more robust so that they can cope with disruptions. This is achievable by such means as buffers, diversions, faster accident cleanups and provision of alternative modes of transport. This document puts forward recommendations for robust networks and suggestions for policy and governance with a view to tackling sensitivity to incidents.

Background: mobility in the Randstad under pressure
The Cabinet wants the Randstad to become a sustainable and competitive top region in Europe. Good mobility is one of the key challenges for achieving that goal. The Randstad (and indeed the Netherlands as a whole) must be connected efficiently with other countries via nodes like Amsterdam Schiphol Airport and the Port of Rotterdam and also within the Randstad there must be good connections between economic centres. The Randstad's polycentric structure, with numerous small and medium-sized centres, calls for a good mix of travel by car and public transport. If cars, lorries, trains, trams and buses can move around swiftly it will be possible to enhance utilisation of our country's economic potential, while internationally the Randstad will be a match for other metropolitan areas.

Problem: vulnerable traffic and transport networks
Many road and rail bottlenecks have been tackled in recent years. Locally this has helped to ease the shortage of capacity at the busiest hours. The approach to bottlenecks focuses on persistent traffic congestion, i.e. the jams that are predictable. You know where and when they occur so it is easy to estimate the delay. Provided that the delay is not excessive, people generally accept these hold-ups as a fact of life, much like standing in line at a supermarket cash desk around public holidays.

Greater inconvenience is caused by sporadic traffic congestion, i.e. unanticipated jams that happen at unexpected places and times. More and more of these hold-ups are now occurring. It is estimated that sporadic congestion causes 20% of all lost vehicle hours (a measure for delay). This percentage is growing rapidly[1] because the infrastructure is already being used so intensively. A relatively minor local disruption -- caused by heavy rain or a broken-down lorry, for example - can easily trigger considerable delays in major parts of the network. So the problem is the network's vulnerability rather than its bottlenecks. There is no more elasticity.

Question: how can we make the Randstad permanently mobile?
Present policy has not so far succeeded sufficiently in reducing the vulnerability of the infrastructure network. What's more, the improved utilisation of the infrastructure by means of dynamic traffic management will actually make the network more vulnerable. After all, utilisation will further increase average occupancy and thus reduce spare capacity. The same goes for road pricing: imposing a charge per

[1] Figures of 60% have been measured in some American conurbations. Downs, Anthony, *Still Stuck in Traffic: Coping with Peak-Hour Traffic Congestion*, Washington, D.C.: Brookings Institution Press, 2004

kilometre will stagger traffic over a bigger period. In itself this is fine, but it will reduce spare capacity over a larger part of the day. Construction will create more capacity. But this will not automatically improve robustness: in this respect it is better to build a good parallel road than to add an extra lane on the main road. If a major incident occurs on the main artery, all capacity will simultaneously be lost, while a parallel road will still be able to absorb traffic. Basically, the 'robustness' concept requires a turnaround in thinking.

Extra capacity is not the solution to all problems. The key question is whether the infrastructure network will become more robust. Unless we shift the emphasis towards robustness, the costs caused by sporadic disruptions in the Randstad will increase from an estimated €1 billion in 2008 to €4 billion in 2030. Therefore, the Advisory Council for Transport, Public Works and Water Management recommends improving mobility in the Randstad permanently by making the infrastructure network more resistant to disruptions like accidents and extreme weather. The network must continue to function in a reasonably predictable and reliable way under greatly varying conditions. In other words: it must be resilient. This can be accomplished by (1) adapting the infrastructure networks, (2) reducing vulnerability through a policy of guidelines and checks, and (3) promoting governmentally the efforts parties make to achieve robustness.

Recommendation 1: adapt traffic and transport networks
Robust networks typically exhibit redundancy (spare capacity and diversions), compartmentalisation (preventing traffic jams from spreading out like an oil slick, for example because of queuing lanes at motorway exits), flexibility (by such means as reversible lanes) and resilience (fast restoration, including the repair of overhead lines). The present infrastructure networks could be better in these respects.

1a. Get the authorities collectively to build robust, multimodal networks
Get each authority to reduce the vulnerability (in the above respects) of its own road and rail networks and interconnect the networks. The ancillary road network could provide a diversion in the event of a disruption on the main road network, for example. Public transport might also be an alternative if the timetable were to be geared to the road network’s performance.

1b. Support this approach by addressing the needs of users
Make the needs of the traveller and goods carrier ('from door to door') the central consideration and encourage self-organisation by means of information, road pricing and demand management. Real-time information systems are necessary to inform travellers quickly of delays and alternative connections or other measures.

1c. Let operators of traffic and transport networks operate the system jointly
Pursue operational cooperation in road management (by harmonising roadworks), dynamic traffic management and transport management. There should be more frequent experimentation with this approach, not only by the central, provincial and municipal governments, but also with ProRail and transport companies like Netherlands Railways and bus company Connexxion. Offer possibilities and freedom of policy for managing roads, traffic and mobility so as to guarantee reliable handling as a joint effort by network operators.

Recommendation 2: develop standards and guidelines to reduce vulnerability through policy
Robustness must be embedded in policy. Through guidelines and checks central government can help to ensure that traffic and transport networks become less

vulnerable to disruptions.

2a. Let central government develop frameworks and guidelines for robust networks
This could include a vision of the desired robustness (how quickly must emergency services be able to reach an incident?) and guidelines for planning roads robustly (how can a traffic tailback on another road section be avoided?). Perform a systematic scan to identify the projects necessary for a robust network in the Randstad.

2b. Get the Netherlands Institute for Transport Policy Analysis to report annually on robustness
Include data on robustness (of infrastructure networks in the Randstad and in other regions) in the measuring programme of the National Data Warehouse for Traffic Information.

2c. Make robustness one of the criteria for projects
Consider making a robustness test part of large spatial projects and building locations. Robustness could be made one of the effects to be determined in an environmental impact assessment and examined in social cost/benefit analyses.

Recommendation 3: encourage a 'robustness mindset' governmentally by embedding it in the approach to networks in distinct areas and through cooperation between policy sectors and different levels of government
The governmental organisation can contribute to more robust traffic and transport networks and should be adapted with this goal in mind. An effective policy on robustness requires governmental innovation.

3a. Improve and formalise cooperation between policy fields and governmental layers
Policies for spatial planning and mobility need to be harmonised, for example as regards the periods allowed by law for reviewing different spatial plans. A lack of engagement can be redressed by developing a governmental division of roles, with central government setting frameworks and promoting developments, officials of central government and the region making binding agreements with each other for a cohesive programme of measures to improve networks, and local and regional operational collaborative ventures taking responsibility for day-to-day management of traffic streams.

3b. Stimulate and develop area-dedicated cooperation between policy sectors and governmental layers at regional level
Ensure central government supports the emerging regional approach to mobility policy. There are already numerous initiatives in which central government, provincial government, metropolitan regions, municipalities and private/semi-private parties work together on mobility. In the southern corridor of the Randstad, for example, these parties have united in an organisation called BEREIK! Support this area-dedicated approach and make the agendas of the areas the central consideration in regional agreements for a reciprocal and mutual form of mandatory cooperation between central, provincial and municipal governments and non-governmental partners.

3c. Embed responsibility for innovation and the development of robustness policy at central government and the regions at the politico-governmental level
Embed this responsibility at central government level in an integrated Cabinet subcommittee, make sure that regions have a form of mutual commitment to counter a lack of engagement and opt for a long-term orientation towards robust governance

of vulnerable networks and an orientation towards adaptive governance principles.