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To:	All City Development staff
From:	Adrian Davis
Date:	02/01/09
Subject:	Essential Evidence on a page: No.5: Impact of highway traffic capacity reductions

A recurring concern among both officers and Members is that road traffic capacity reductions such as the 'loss' of a primary network link will lead to traffic 'chaos' and gridlock. On occasion, this expectation has been so strong that it has prevented a scheme to reduce road capacity or reallocation of road capacity from cars to other classes of traffic from being implemented. By 1997 there was, however, a growing body of evidence that such fears may be exaggerated. One of the thoughts further supporting this was that the 1994 SACTRA report[1] which had re-examined the issue for the case of new or widened roads concluded that increases in road capacity in congested conditions were likely to induce extra motorised traffic to the extent that it did materially affect appraisal. Therefore, by symmetry, it might be expected that a reduction in capacity could lead to some overall *reduction* in traffic volume, so that traffic impacts of capacity reductions would be less severe than expected. For this reason a major study was conducted in 1997-98 by Cairns et al.[2] Evidence from over 100 places from across the world was studied.

Capacity reduction cases varied and included bridge closures due to structural weakness, new bus lanes, essential maintenance work on major roads, pedestrianisation, vehicle restrictions around centres… While the effects of a particular capacity reduction is substantially influenced by the circumstances of the case the size of the changes in traffic flows, and individual response choices can vary considerably. Three situations were defined:

- No reduction in capacity, because any reductions on the treated road were offset by capacity increases elsewhere, or by changes in traffic management, or by spontaneous changes in driving styles - packing more vehicles into the same space
- A real reduction in capacity but no negative effect because there is still spare capacity on alternative routes, or other times of the day, or there are no measures to discourage people using this. Congestion spreads out over time and space, but the overall number or pattern of trips, and vehicle mileage, are less affected
- Significant reduction in capacity where there are no alternative routes or at acceptable other times, and in these situations (as well as rerouting and retiming) a proportion of traffic does 'disappear', due to a very extensive set of behavioural responses. These include but are not confined to mode choice changes, destination and trip frequency.

In sum, traffic does 'disappear' in response to reductions in road capacity, but only to the extent that it needs to do so. A proportion of drivers take action to avoid what they consider to be unacceptable conditions. The impact of capacity reduction is rarely more intense than the already endemically bad levels of congestion that many towns experience. In addition, wider policies which tilt the balance in lifestyle decisions that many people will be making anyway will be important and so the authors stress the need for an integrated transport policy which takes account of interactions between transport and other activities.

[1] Standing Advisory Committee on Trunk Road Assessment, 1994 Trunk roads and the generation of traffic. London: TSO

[2] Cairns, S., Hass-Klau, C., Goodwin, P. 1998 *Traffic impact of highway capacity reductions: assessment of the evidence*. London: Landor Publishing.