

# Re-launching the 10 Year Plan for Transport Fundamental Revision or Cosmetic Adjustment?

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**Transport Planning Society**  
**Annual Lecture**  
Institution of Civil Engineers  
22.7.2002

*(This is a working version of the lecture, formed from a transcript plus the powerpoint slides used. A properly corrected version with references will be published later: meanwhile, this version may be cited, with appropriate caution, as a draft text).*

When we decided on today's date for the Annual Lecture, we thought that Stephen Byers would have just published a revised version of the 10 Year Plan for Transport, and the lecture would be the first occasion on which the new plan could be assessed and discussed.

Events proceeded rather differently – the situation has been changed by three initiatives of varying, but very different, significance:

by the House of Commons Transport Committee;  
the RAC,  
and by the 28 Professors;

also one report, or putative report, by Lord Birt for Tony Blair, whose significance was the almost universal response of mockery it generated, though nobody has seen it; and a host of research studies by the Department for Transport, the Commission for Integrated Transport, and many other institutes which have started to put practical flesh on the bones of sustainable transport.

We have lost a Secretary for Transport and gained a new one, who has – I think with impeccable judgement – decided to hold his counsel over the summer, giving himself a breathing space to review and reconsider all this before issuing the revised 10 Year Plan, now expected, we are told, in 'Autumn', which the old hands will recognise as a civil service term of art not necessarily exactly corresponding with the seasons. I think this delay is unambiguously favourable.

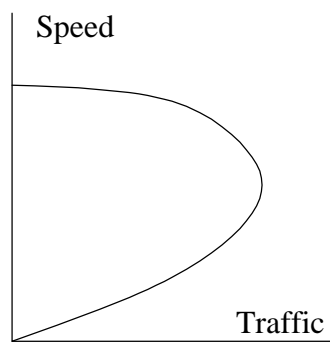
So the thrust of the lecture changes – not 'what does the new plan say?', but 'what *should* the new plan say?'

But before I get into that, I must spend a few minutes on the theory and policy background which will be very familiar to the TPS members and other transport professionals here, but less so to a wider audience, so please bear with me.

We have records of congestion, and public policy to combat it, right back to the Roman Empire, and possibly before. But the scale and characteristics and effects of personal movement by car in the second half of the 20<sup>th</sup> century was quite new – apparently liberating, from point of view of millions of individuals constructing their lives around it, but imposing great costs - of congestion, and environmental damage, and, as we are starting to understand, health and social exclusion and economic inefficiency.

And one effect in particular became part of the apparatus of our entire profession: the ‘speed flow curve’

## The fundamental law of traffic



The more traffic there is  
the slower it goes.

Traffic volumes near  
capacity are unstable...

*Essential to have safety  
margin of capacity,  
greater than traffic  
volume.*

which tell us that as traffic volume approaches road capacity, speeds become very unstable, and go down, and in the limit traffic flow stops. The words ‘gridlock’ or ‘grinds to a halt’ have appeared in a thousand newspaper headlines.

For many years – and led from this very Institution where we are now sitting – the solution was obvious: calculate how much traffic would grow, then provide enough road capacity to cope with it. We called it ‘predict-and-provide’, and though there were challenges – not least from some people who are sitting here tonight – those challenges were muted and ineffective by comparison with the dominant effect this approach had.

But the problem was that the arithmetic didn’t work: traffic can grow at 2% or 3% or 5% a year, and you just can’t increase road capacity at that rate, or anything close to it. Even Margaret Thatcher’s ‘Roads to Prosperity’, described in 1989 as the biggest

roads programme since the Romans, couldn't keep pace with the traffic forecasts, especially when you include the extra traffic induced by the road building itself.

So we were confronted with the problem: even the biggest road programme would, at best, just slow down the pace at which congestion got worse. And it is interesting that it was also the Institution of Civil Engineers which took a leading role in redefining, and eventually abandoning, 'predict and provide'.

The problem is that in these circumstances, the second best policy is *not* necessarily 'well, let's build as much as we can'. The reason for this is that if traffic demand is continually growing faster than capacity, capacity itself becomes the constraint on further growth, and the network becomes dominated by bottlenecks, hot spots, apparently quite specific in time and space. So the natural tendency is continually to focus building on these bottlenecks.

The more successful this policy is, the more the network *as a whole* is operating very close to its maximum capacity, and indeed this was one of the objectives of improving 'efficiency' by one way systems, traffic signals, junction design, all designed specifically to *maximise* the throughput of traffic.

But

Any system continually operating  
close to its maximum capacity,  
on several different dimensions,  
*and subject to random variation,*

is inherently **unstable**.

Any failure can become system-  
wide. Minor problems cause  
chaos.

Any system operating very close to its maximum capacity, and which is subject to random variations for any reason, is unstable. So the more successful you are in this strategy, the worse become the effects if anything goes wrong. It does not mean 'permanent gridlock by 2015' – that is a misleading simplification. It means an increasing frequency of shorter outbreaks of gridlock, lasting for a few hours, and triggered by smaller and smaller hiccups. Minor problems become major problems –

and sooner or later, it is statistically nearly certain that the accidental combination of a few major problems at the same time will have disproportionately damaging effects.

A 'just-in-time' economy just cannot afford to live on the knife edge of breakdown at any time.

## BUT - *cannot* build 'enough' roads - so manage demand

- Pedestrianisation, traffic calming, control
- reallocation of road capacity
- public transport, walking, cycling
- land use planning
- prices which reflect full costs including congestion and environmental damage
- *then* can judge useful (reduced) role for road building

So 'build to match demand' is impossible, and 'build less than this, but as much as we can' is unstable.

The workable alternative strategy is – if the supply of road capacity is not going to keep pace with unrestricted traffic increases – and it will not – then we must manage demand in such a way as always to keep it at that level, *below* maximum capacity, which is consistent with efficient operation.

We may in fact want to reduce traffic in some circumstances much more than that, for reasons of environment or equity or attractive shopping conditions or enjoyable leisure and quality of life. But even without those considerations, economic efficiency requires this reduced traffic level.

And that meant, in turn, that what you do about

public transport, walking, cycling, prices, speeds, pedestrianisation of town centres, traffic calming in residential areas, the physical allocation of scarce road space among its competing claimants – bus lanes, lorry lanes, cycle lanes, pavements – the charges that are levied on fuel or on movement or on parking, the extra roads you build – or close – the arrangements for rail investment and operations, the developments that are permitted and the ones that are refused:

all these have to make sense, they all have to pull in the same direction, and ‘integrated’ transport policy actually does mean something real –

a long term, calculated, deliberate, clever and *necessary* intervention to shift the underlying strong, but ultimately self-defeating, social trends which cause car dependence.

Those are not quite the words of the 1998 White paper, but the sense is the same.

So to the 10 Year Plan for Transport, published in 2000, which was intended to do two things, which have turned out not to be entirely consistent, or at all easy.

## The Ten Year Plan 2000 to 2010

‘Traffic up, congestion down’ (?)

	<b>Total</b>	<b>Big cities</b>	<b>Interurban Trunk</b>
<b>Traffic</b>	<b>+17%</b>	<b>+10%</b>	<b>+26%</b>
<b>Congestion</b>	<b>-6%</b>	<b>-8%</b>	<b>-5%</b>

And motorways, congestion **up** by 13%, rural roads **up** by 16-20%

They were

first to convert the promises and aspirations of the White Paper into deliverable – and more important, delivered – improvements;

and second, to counter what the Government saw as a public perception that they were ‘anti-car’ which was, or would be, a threat to its electoral base.

I think from the beginning there were professional doubts about this plan, but they were softened, because of the sheer pleasure of actually having a government which would talk about planning with a ten year horizon. But that was a short-lived fools paradise, partly because it was rapidly overwhelmed by the immediacy of the short term headlines: Hatfield, the fuel price protests, the fall, or assisted fall, of Railtrack.

And partly because internal, technical, inconsistencies will always, in the end, reassert themselves.

The Plan proposed that traffic would increase, and congestion would reduce. A lot of us did not believe this, especially when we discovered what ‘congestion will reduce’ meant:

## ‘Change in Congestion’

A machine for turning invisibly small changes in travel time into worthwhile-sounding changes in congestion

$$\bar{\Delta C} = 1 - \sum_{art} \left[ \frac{\frac{q_{art}^{2010}}{\sum_{art} q_{art}^{2010}} \left( \frac{1}{\tilde{v}_{art}^{2010}} - \frac{1}{v_{art}^{2010}} \right)}{\frac{q_{art}^{2000}}{\sum_{art} q_{art}^{2000}} \left( \frac{1}{\tilde{v}_{art}^{2000}} - \frac{1}{v_{art}^{2000}} \right)} \right] \times 100$$

(a ‘hostage to fortune’ which should be abandoned)

I won’t dwell on this more at the moment. Anyway, you all understand what it means, I’m sure.

The issue simmered for two years. The House of Commons Select Committee report on the 10 Year Plan, in May of this year, was very important – partly because it was multi-party, partly because its timing was so closely associated with the departure of a Secretary of State, giving a policy dimension to what would otherwise have been seen almost entirely in personal terms,

but mainly because it brought out into the open what was already being said behind the scenes. The Plan didn’t add up.

# House of Commons Transport, Local Government and the Regions Committee

## 8th Report, May 2002

‘The Department must be congratulated for bringing the Plan forward...’

- **‘However, the Plan has failed to provide a vision for a more equitable, safer and more efficient transport system.’**

Detailed critique, harsh language, 48 specific recommendations, ‘last straw’ for S Byers.

The Committee’s argument, in summary, went like this:

- The Plan has failed to tackle the increasing cost of public transport and the falling cost of car use, which would – must – run counter to the longer term objectives of shifting in the opposite direction;
- It backed away from any significant restraint on car use;
- It focussed on congestion – and a peculiarly limited definition of congestion at that – at the expense of improving local access to facilities, urban regeneration, safety, social exclusion, health and quality of life
- even the focus on congestion gave too much attention to capital infrastructure and not enough to operations, management, finance, education and other supportive measures,
- with the result that the Plan – even if it could have been fully delivered, which was doubted – would be, the Committee said, ‘in complete contradiction..to the Government’s aims to promote equity and social inclusion.
- The proposed action in the Plan had no serious time scale and detail against which delivery could be monitored and assessed

There was a long list of conclusions and recommendations – they ran out of letters of the alphabet, and had to start again, getting eventually to ‘vv’. Nobody will agree with every single one of them, of course, but they all, without exception, need to be taken absolutely seriously, and I would commend the DfT officials to draft the revised plan with pages 53 to 59 of the report open in front of them, ticking the 48 articles off one

by one, as each of them is answered, taken on board – or, as they may decide, explicitly rejected. But not ignored or glossed over: that would be a real error of judgement.

[Now I wrote that sentence at 10 o'clock this morning, and at 11 I heard that the Government had just published its response to the Transport Committee's report – it's now on the web, and none of us have yet had time to study it properly. My initial impression is that the response does indeed check the 48 points one by one. The responses do not say 'Sorry, the Government got it wrong, thanks for putting us right', and they do not say 'What a load of rubbish the Committee is talking'. Nor are they exactly bland: there is a defence, albeit brief, of what the Government is doing, and why – including a number of important statements that other initiatives, not formally written into the Plan, nevertheless are a key part of its underpinning. Bringing these into the revised version may be the key to a politically acceptable method of responding to some of the criticisms. I sense that these are responses of a Government which just doesn't want to pick a fight, or at least, not just now. I guess the Committee will be disappointed, but I do see some doors opening.]

I am glad that the civil servants and ministers did not over-react to the language in the report, which was designed to be uncompromising and absolutely impossible to spin, and was drafted in the context of a very widespread impatience with the difficulty of getting straight answers to straight questions.

The MPs description of the Plan – 'astonishing', 'incomprehensible' 'fuzzy' 'confusion' 'lack of clarity' - took us all aback.

(I should explain that I was one of the technical advisers to the committee, so my role included some suggested drafting. But all the parliamentary committees are proud of their own control over their own text, and while of course I'm pleased that some of my technical arguments did find reflection in the report, I can understand that the language of a professor may have been too nuanced!)

The nuances of professors...we move to the Professors' Letter.

## Dear Secretary of State...

‘our concerns about some unrealistic expectations..’

**28 Professors, 16 UK Universities, 6 disciplines**

<b>Allsop, Bannister,</b>	<b>Lyons, Maher, May,</b>
<b>Bell, Bielefeldt,</b>	<b>McDonald, Metz,</b>
<b>Cole, Goodwin,</b>	<b>Nash, Smyth,</b>
<b>Grieco, Hamilton,</b>	<b>Stradling, Urry,</b>
<b>Hills, Hine,</b>	<b>Vickerman,</b>
<b>Jeffery, Jones,</b>	<b>White, Wigan,</b>
<b>Kirby, Lesley,</b>	<b>Wright.</b>
<b>Lowson,</b>	

The letter, which we sent last week, was inspired by a similar initiative in the Netherlands, floated in an article I wrote in Local Transport Today, taken up by Glenn Lyons and his colleagues in the Transport Planning Society,. The original idea was that we might seek a statement that would be representative of all branches of the profession, not just one segment of the academics, but we decided to start with this rather small constituency essentially for practical reasons of co-ordinating the drafting and approaches, with the idea that this could be an initial trigger which would be followed by supporting responses (or indeed, not supporting) from the institutions, the consultants, local government, the operators, the campaigning groups and so on.

Anyway, with something like a hundred helpful drafting suggestions just from the professors, that kept us busy enough. (Incidentally, we didn't get this quite right, I think: another drafting round would have probably got another 3 or 4 supporters without losing any. On the other hand, a couple of 'supporters in principle' suggested amendments which we did include, then they didn't sign anyway. Funny business).

The core of the argument was straightforward.

## The core advice

politicians would like to be advised that selective road building and improvements to alternative methods of transport, will improve travel conditions without the need for traffic restraint, but

**“The evidence is that if traffic growth continues at the rates of recent decades, such a package will not in practice achieve its intended effects”**

I would like to dwell on, deconstruct, a couple of propositions, where there is a reason for the exact words used.

‘...Investment in public transport infrastructure, and provisions for walking and cycling, are indeed necessary, but in congested conditions they will also need priority allocation of road space, without which a genuinely attractive service will not be possible...’

‘...*We have a range of different views about the scale of road building* that should be undertaken – some of us advocating more, and others less, than is currently planned. But *we all agree that efficient road planning depends strongly on a clear understanding that there will have to be active policy intervention to manage the demand for road space* at congested times and places. Without this, the benefits of any infrastructure expansion would be substantially eroded by extra traffic, *disappointing car drivers and non-drivers alike*’

Let me take two sentences

‘Investment in public transport infrastructure, and provisions for walking and cycling, are indeed necessary, but in congested conditions they will also need priority

allocation of road space, without which a genuinely attractive service will not be possible’

The interesting thing about that sentence was that it was not controversial among the potential signatories. All were happy to sign up, with little if any dispute over wording. That would have been unthinkable 10, possibly even 5, years ago.

But the next sentence was quite different.

*‘We have a range of different views about the scale of road building that should be undertaken – some of us advocating more, and others less, than is currently planned. But we all agree that efficient road planning depends strongly on a clear understanding that there will have to be active policy intervention to manage the demand for road space at congested times and places. Without this, the benefits of any infrastructure expansion would be substantially eroded by extra traffic, disappointing car drivers and non-drivers alike’*

The important point here is that it would have been quite, quite impossible to develop a significantly large constituency without that first clause. Some would have signed happily for a moratorium on new construction, or close to it; others would like to see a fairly substantial road building programme,

and we are not, I think, within sight of a professional agreement on how much. Road building is, and will remain for the near future, controversial, at least for the interurban network. There is much more agreement about major road building in towns, which is not on anybody’s agenda.

Indeed, the range of opinions is wider than expressed in these words, since there are many situations when an important policy instrument is about *reducing* road capacity, not freezing it at its current level. And of course, there are other reasons for policy intervention to reduce traffic besides congestion, so ‘in congested times and places’ should not, I think, be interpreted to mean ‘only in’ those places, and the drafting should have been a bit better on this point – my fault, I think, and apologies to John Adams, who pointed this out.

But the important point is that *all* options – a large or small road building programme, or none at all – all of them require traffic restraint or management of some sort, and this is the central element of the professional consensus, that has not yet been converted into a political one.

It also needs to be said that there is a degree of convergence, but not yet consensus, on the most suitable balance of the instruments of demand management. Some argue strongly for the central importance of pricing, and others for the central importance of physical planning and control of the network: both views are reflected in the letter. It is true that most people would have signed up for ‘well, it should be both’, but that’s one of those cases where the appearance of consensus would not have been enlightening: there *are* differences about the relative importance, and that will result in different decisions in different places, which I think is fine.

So the subtext is:

we agree in principle on the need for improvements in public transport, walking and cycling, for goodness sake let's get on with it;  
we agree in principle on the need for direct and deliberate management of traffic levels, and want to see Government being much more open about this, albeit with a range of different views about the best balance of sticks and carrots, pricing and planning;  
we don't agree on trunk road capacity, and don't expect to in the near future;

we do agree that the limiting case of road capacity – build enough to outpace *unrestricted* traffic growth – cannot be implemented.

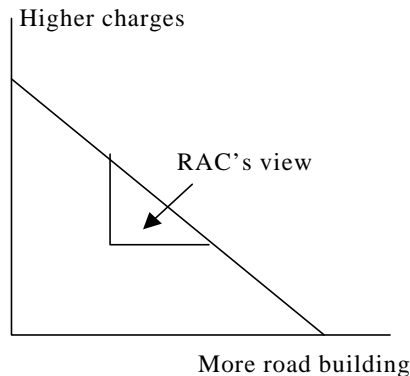
Whether that expresses the wider views of the profession as a whole – well, we'll have a chance to test that in the discussion shortly.

But I want to make some comments about the contribution of two particularly active voices in the debate who are in a sense vested interests, stakeholders, but whose current role, in some respects, is transcending their own interests. These are the RAC, and also what I'll call the 'green coalition', though it's not really a coalition – the voices of Transport 2000, Living Streets, CPRE, Sustrans, Slower Speeds, and all the others.

The RAC has been developing a distinctive and quite subtle voice in transport policy discussion in recent years – I appreciated having a particularly rewarding relationship with them in a research project on Car Dependence I and my colleagues did for them in the mid 1990s, and to which the RAC responded by an important recognition on their part that reducing car dependence – and, concretely, reducing a certain proportion of car journeys – was in the interests of car users just as much as everybody else. Two conservative ministers attended the launch, I remember, which was pretty good.

The RAC's latest report is called 'Motoring towards 2050' (It's a slightly provocative title, but I can understand they couldn't resist such a telling phrase). The report says some things which are a serious professional contribution to understanding the policy debate, and taking it forward.

# The RAC Trade-Off



Its central argument is that there is a trade-off between road building and increasing the price of travel, and that the Government has to get this balance right. They say, for example, that projecting the road programme outlined in the 10 Year Plan would require *also* an annual increase in the real cost of motoring of about 4% a year, if congestion is not to increase<sup>1</sup>. Or, you could do it with 6% a year and no more road building after 2010, or a much bigger road building programme and 2% a year extra charges, and so on.

Now I think this concept is very useful, as a way of managing the debate. (I should say, I don't think the numbers are necessarily right, because they have broadly adopted the DfT's demand elasticities, which is a separate issue. Neither the RAC nor the DfT nor anybody else will get it right if the mounting, overwhelming, evidence on demand responsiveness is not incorporated into practice).

But this diagram is a way of locating the different voices in the debate, and I find this a most useful contribution, not just intellectually, but practically: it is of genuine significance that the RAC should itself argue for the necessity of charging, not as a reluctant compromise, but in the best interests of effective policy.

I don't want to be entirely uncritical about it though. What the RAC is suggesting that the little triangle is the preferred space within which the policy argument is conducted. This says, really, as much road capacity as seems achievable, and make up

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<sup>1</sup> During the lecture, Chris Foster intervened to correct this statement, saying that the report said 6% cost increases, not 4% , for this scenario, presumably with equivalent adjustments then for the other scenarios. I have checked the text again (fig 12.1 and table 12.2 on pp130-131), and I still interpret its figures as above. On the other hand, he was the chair of the team which produced the report, so he should know! I may have misunderstood the calculations. The principle is unaffected, and since the actual figures would be different with different elasticities, speed-flow curves, and other assumptions, it's not crucial to my argument. Readers wanting to cite the RAC report should check its text for themselves, not rely on my reading.

the difference with higher prices, or, equivalently, as much cost increase as would be acceptable, and make up the difference with road building. That's very helpful as a way of expressing a position, but the experience of the Professors' letter, and my reading of the current opinions of many stakeholders, suggests that it is not realistic to see this position as the specification of a professional consensus: there are just not enough people or institutions who will constrain their own position to fall within that space. Reduction of capacity also needs to be allowed for, and we must recognise that there are voices – including the Government - which still see the future as being reduced motoring costs.

By the way, the way it is drawn the RAC's own preferred position appears in the middle of the screen. However, that is for convenience: if the assumed scope of the debate is changed other positions will appear to occupy the 'middle ground'. [The diagram is one quadrant dealing with more road capacity and higher charges, other quadrants dealing with less capacity or lower charges which would be interesting to apply to specific circumstances, eg reducing road capacity in congested city centres or reducing costs in low income rural areas, etc.]

I want to acknowledge that the RAC have proposed more than a pretty diagram, and on another occasion I'd debate some of the specifics:

the steps that would be necessary to make their favourable 50-year environmental assessment really happen in the near future;

and what, to me, is a discrepancy between their conception of a very high level of traffic restraint with little road building in towns, but substantial road building and less restraint between towns. I can see that with charges on the whole network, there must be some price structure which would correspond with this concept, but I can't see what the behavioural underpinning is that would make sense of the implied travel patterns at the edge of the towns.

But that's for another day.

Now I want to move to the Green coalition, and – as in the case of the RAC - comment NOT on their campaigning and political arguments, but on their new evolving role as part of the professional implementation of policy, especially in encouraging local practical initiatives undertaken by the 'best-practice' local authorities, about practical ways of intervening in traffic levels. There are interesting things really happening which somehow just haven't had a look in when it comes to the big national policy statements and programmes. This is actually happening – and being encouraged by Government – and knitting these initiatives into the 10 Year Plan may turn out to be the basis for reconciling at least some of the divisions about it.

# Scope for influencing demand: the evidence

## Received wisdom

- rather stable traffic levels, small deterioration or improvement over time
- limited effect of *any* policy on traffic volume
- 'soft' measures only worth a couple of years of growth

## But research shows

- volatile travel choices
- big effects seen in many small studies
- major international policy interest

I propose to surf swiftly through the emerging evidence to try to understand what is going on<sup>2</sup>.

## Some research evidence

### **20%+ of car trips not dependent**

- Personalised inf. - car use down 10 %-20%
- Park-and-ride attracts up to 30% of drivers (but also PT users!). Car sharing - up to 50% achieved.
- PT improvements get 10%-25% of extra demand from car:
- Travel plans - reduce car trips by %.
- School travel - 12%-60% car use down

My starting point is the outcome of the car dependence work, that we may say that in the order of 20% (or more, depending on definition) of car trips are not car dependent. The other results are not inconsistent with this order of magnitude.

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<sup>2</sup> This section in particular will be augmented by proper citations to the reports and research studies underpinning the outline figures quoted.

## Some more research evidence

- Reallocating road capacity - ‘disappearing’ traffic average 25%;
- Road user charging brings x5 to x10 more congestion relief than (successful) 10YP;
- Pedestrianisation with good P.T. can increase footfall by ~100%; Cycling up by 30-50% at some sites;
- Time-shifting major response

(Note: the road user charging bullet point is too brief – it is a comparison of the CfIT work which was based on implementing network-wide congestion charging in present conditions, with fiscal neutrality and no other transport improvements at all, and some technical assumptions all of which erred on the side of caution. It probably underestimates rather than overestimates the potential impact, and produced reductions in congestion – using the DfT measure of congestion – which were very much greater than were forecast for the effects of the 10 Year Plan over the period 2000-2010, assuming 100% successful implementation and perfectly correct forecasts, but whose treatment of traffic growth and other changes was different. I suspect that an exact like-for-like comparison would show a smaller difference on DfT assumptions, but still a very substantial effect – and a bigger effect if the technical methods were adapted in the way I would recommend, which is not developed here).

## Underlying these changes

- Day-to-day variability in traffic is much greater than projected changes in average,
- and year-to-year variability in individual choices is much greater than aggregate.
- Long run (5-10 years) price and other elasticities x2 to x3 short run (1 year)
- and higher than DfT assumes.

## Why are achieved changes in individual choice bigger than changes in traffic?

- Individual behaviour is *much* more variable and responsive than assumed, but
- ‘churn’ tends to offset this - *displaced traffic is replaced by new traffic*, because
- until now, initiatives have been inconsistent
- So: synergetic effects of consistent sticks-plus-carrots *must logically be much greater* than is inferred from observation so far.

These effects are *big*, and it is therefore of great importance to understand why – as yet – they do not seem to correspond with revealed, or forecast, effects on traffic and speeds. Taking this into account the implications are both practical and methodological.

## Implications of the evidence

- Currently we *underestimate* contribution of coherent package applied over a large area, but *overestimate* effects of implementing a uncoordinated separate initiatives
- Must assess dynamic *build-up* (5 year time scale), *synergy*, *double-counting*, and *churn* (PS. DfT measure of congestion is no *more* misleading for these policies than for 10YP).

One intriguing dilemma is what will happen when the DfT procedure for calculating ‘change of congestion’ – is applied to these policy instruments – which it must be, for reasons of a level playing field. It will not be more misleading than its current use.

## Conclusions

- Very sensible pause to review and revise the 10 Year Plan for Transport. Use the time!
- Unless the Government seriously tackles the growth in traffic, all the other plans will have disappointing results. It is not technically possible to build enough roads to keep pace with unrestricted traffic levels.

....

## Conclusions cont.

- No sense to plan to raise rail fares at the same time as bringing car costs down.
- Buses must be improved enough to attract more passengers throughout the country, not just in London.
- Stop being coy about longer term plans for congestion or parking charging: target of 20 cities requires stronger and visible support.

## Conclusions cont.

- Any trunk charging after 2010 must be factored in to all road appraisal before then, as all the traffic flows and congestion hot-spots would be changed.
- Reducing traffic by 20% would be easier and less disruptive than is currently thought. (How and whether to achieve a greater reduction than this is not yet well supported by professional knowledge).

...

## Conclusions - finally

- Revise the elasticities, sensitivities and technical assumptions in line with research
- Double and treble check that the model outputs correspond with these...
- and publish the technical appendix at the same time as the revised plan.
- And you really would benefit from advice from SACTRA, for 10YP, MM studies...

Acknowledgements: Thanks to the Transport Planning Society, and its supporting institutions CIT/ILT, ICE, IHT, RTPI; Kate Davies, Glenn Lyons, Ann Scannell; colleagues at UCL particularly Sally Cairns, Joyce Dargay, Mark Hanly and Graham Parkhurst. The work forms part of the research programme of the ESRC Transport Studies Unit, University College London, with the support of the Economic and Social Research Council. All mistakes are mine.