



Helping drivers out of their cars

Integrating transport policy and social psychology for sustainable change

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Abstract

Which motorists are ready to reduce their car use and how should they be helped to change? Results are reported from a postal questionnaire survey study of English car drivers ($N = 791$). One third (33%) of car drivers indicated they would like to reduce their car use 'over the next 12 months', but only 7% thought they were likely to. One third (34%) of car drivers would like to use public transport (PT) more, but only 5% thought they were likely to. While over one third anticipated changes in their transport mode usage, and 1 in 5 (19%) would like to both decrease car use and increase PT use, only 3% thought this combination likely. Effectiveness ratings of pull and push policy measures showed motorists would rather be pulled than pushed from their cars; that the old, the poor and urban dwellers would be more susceptible to push measures; and that those residing out-of-town, driving medium and large cars, driving high annual mileage and required to drive as part of their work are less likely to be persuaded to reduce their car use by either type of measure. Other social psychological research suggests that sustainable changes by individuals that can be integrated into individual patterns of life will be more readily achieved by facilitation and support than by coercion. © 2000 Elsevier Science Ltd. All rights reserved.

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1. Introduction

The 'traffic problem' was recognised as early as 1930 in the final 'Report of the Royal Commission on Transport' which noted:

Speaking generally, there is no direction in which such a lack of vision has been evident as in the failure to cope with the great increase in the volume and speed of modern traffic in most of the great cities.

(Cited in Jones, 1999).

Thus the 'traffic problem' is not a new problem—though its range, reach and impact on both urban and rural quality of life is now so pervasive as to demand solution. Its nature and extent was summarised by Transport 2000 in their Blueprint For Quality Public Transport (Transport 2000 Trust, 1997).

Transport is in crisis. Current transport patterns have big environmental, social, and economic costs:

- road casualties;
- pollution;
- noise;
- congestion;
- social isolation;
- damage to wildlife and the countryside;
- resource depletion

are just some of those costs. The argument for a sustainable transport policy has gained in force and urgency as evidence of environmental damage and of people's concern has mounted.

The UK road system currently grinds towards gridlock, with car ownership in Britain having risen to 25.8 million cars in 1997—an average of one car for every 2.2 people (Lex Report on Motoring, 1998)—as both the number of journeys made by car, and the proportion of all journeys that are car journeys have been inexorably increasing. The amplifier effect of the car on personal mobility was noted by Begg (1998).

Most car journeys were never made by public transport. The car's flexibility has encouraged additional journeys to be made. Households with one car make

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more than two-and-a-half times as many journeys each week as those without a car. And households with two or more cars make three-and-a-half times as many journeys.

Changes in transport thinking have necessarily taken place.

Since the publication of the 1989 National Road Traffic Forecasts, with their predictions of exponential growth in traffic, there has been a shift in UK transport thinking away from a 'predict and provide' mentality, as the forecasts made it obvious that it would be impossible to build enough roads to satisfy demand. Instead, transport professionals have increasingly searched for ways to manage and reduce demand for private road transport.

(Rye, 1998).

But if demand for private road transport is to be reduced, some changes in private car use will be necessary. This will require either fewer trips to be made overall so the number of car journeys reduces, though their relative standing in the mix of transport modes for personal travel may remain the same; or both the number and proportion of traffic miles made by car trips must be reduced, either by substituting another mode of travel, or by meeting journey purposes by travelling to nearer destinations. Transport joins up the places where people lead their lives, so reduction in use will only be achieved by private car users changing the organisation and articulation of their current patterns of life.

The main alternative to the car, for other than short, unburdened, journeys for which self-propelled transport may suffice, is public transport (PT). But as the Transport 2000 Report noted (Transport 2000 Trust, 1997)

In contrast to a car journey, a trip by public transport needs virtually all the relevant information beforehand: routes, times, luggage-capacity, refreshments, carriage of small children and of animals, perhaps fares and smoking restrictions. In a car, some mistakes at least (like a wrong turning) may quickly be put right, but equivalent mistakes on public transport are hard—if not impossible—to put right once the trip has begun. Indeed, because they are out of the passenger's control, they may be sufficient to put him or her off travelling by public transport again.

Thus PT trips are cognitively 'front-loaded' and planful (requiring expenditure of cognitive effort), and while they share the requirement for progress monitoring (more cognitive effort—to reduce uncertainty) with driving a car, instantaneous error correction is much more difficult on a journey with a scheduled route and timetable. If important aspects of travelling are perceived as being "out of the passenger's control" then worry (expending affective effort) will ensue, and the prospect of additional expenditure of

personal resource (effort) is likely to deter potential passengers (Stradling et al., 2000a; Wardman et al., 2000).

However, it may be that the imbalance in personal control between private car use and public transport use is already reducing as the traffic system grows daily more frustrating. There is much anecdotal evidence of the increasing necessity for planfulness in car trips—'to avoid the traffic'. As one respondent in the AA (1998) Report noted:

There used to be a time, years ago, when you could say it will take an hour to do that journey. Now, you say that journey takes an hour but it could take three [hours], or 50 minutes if you have a good run. There is no clear time-scale you can allow to do a certain journey, because of bottlenecks for no reason at all.

Having one's progress impeded is today the most common source of anger and frustration on the roads (Lajunen et al., 1998). Thus while cars are mechanically ever more reliable—and faster, and more comfortable—motorists are now faced with the increasing unreliability of car use. The conditions under which people have to operate in planning and executing journeys by car are changing.

For the 70% of UK households who own at least one car (AA, 1997), the car is now integrated into their daily lifestyles, enabling, supporting—and, increasingly, constraining—important life choices (such as where to live, where to work, which schools to send the children to) and patterns of life (what business, what leisure, what pleasure will car use facilitate?).

How then are motorists to change? Travel decisions are driven by the interaction of opportunity, obligation and inclination. In order to persuade individuals to reduce their private car use it will be helpful to know what they currently use their cars for, whether they would like to change their current level of car use, whether they think that circumstances will facilitate or impede any change, which policy measures they might find effective in encouraging or coercing change and, more generally, what behavioural change measures have proved effective in other areas.

This paper addresses those questions using findings from a study of English motorists. As part of a project for the UK Department of the Environment, Transport and the Regions of which motorists might reduce their car use, and under what conditions (Stradling et al., 1999) an extensive questionnaire was mailed to 3800 adults. Completed returns were received from 791 drivers (response rate 21%; 61% male; ages 17–83; 72% partnered; 30% with children in the household; SES A/B to D/E and Retired; annual household income from <£5K to >£50K; 67% full-time, part-time or self-employed; domiciled in city, town, suburb, village, semi-rural and rural locations).

Table 1
How often respondent is likely to use car over next 12 months

Likely to use car	Frequency	Valid percent
Less	64	8.1
The same	592	74.9
More	134	17.0
Total	790	100.0
Missing	1	
Total	791	

2. Current car use

For what purposes is the private car used? Analysis distinguished six main kinds of journeys for which our sample used their cars.

1. Driving as part of their work. Almost two-thirds of those in work (64%: 75% of males, 49% of females) said they drove a car 'as part of their work' at least some of the time (Stradling et al., 2000b).
2. Driving to and from work. 69% of car drivers in employment—78% of those in full-time employment—used their car to travel to and from work 'every working day'.
3. Child escort duties—ferrying children around, both to school and to other places.
4. Life and network maintenance tasks such as shopping, visiting friends and relations, and evenings out.
5. Driving for holidays and weekends away.
6. Life enhancement activities such as voluntary work, hobby support or just driving for pleasure.

These are ordered above in likely decreasing degree of time pressure—or obligation to others. One complicating factor is multi-purpose trips ('trip-chaining'), which are more common amongst (multi-tasking) female than (mono-tasking) male drivers—e.g. combining school run and travel to work, a trip to the tip with the supermarket run.

The Road Traffic Reduction (UK Targets) Bill, debated in

Table 2
Reasons for using car less

	N	Percentage of 'Less'
Cost of using a car ^a	24	38
Traffic congestion ^a	24	38
Fewer journeys to make ^a	24	38
Environmental concerns ^a	20	31
Change of occupation ^a	16	25
Health reasons ^a	13	20
Reduced access to car ^a	11	17
Change of address ^b	7	11
Dislike of driving ^a	6	9
Other ^b	5	8

^a Supplied reason.

^b Write in reason.

the Westminster Parliament on 30th January 1998, sought to propose targets for a reduction in total road traffic miles of 5% by 2005 and 10% by 2010—but for a government seeking transport policies to reduce car use, different targets may need to be set, and different strategies will need to be employed, for the reduction of private car traffic miles for each of these six different kinds of car use.

3. Preferred and anticipated changes in car and public transport use

The UK Government's July 1998 integrated transport White Paper 'A New Deal For Transport: Better For Everyone' (DETR, 1998) asserted that "The mood is for change" (1.3, p. 10). Are UK motorists ready to reduce their car use? Respondents in our study were asked to consider their intentions for future car and PT use over the coming year. They were invited to rate their likely use and their preferred use of both. Ratings were on 7-point scales, with end-points labelled 'A lot less' and 'A lot more' and the mid-point labelled 'About the same'. Responses here are recoded to three categories 'Less' (scale points 1, 2, 3), 'The same' (scale point 4) and 'More' (scale points 5, 6, 7).

3.1. I am likely to use the car...

Respondents first indicated their response to the prompt 'Over the next 12 months, I am likely to use the car...' (emphasis in original) (Table 1).

Three quarters (75%) indicated that they anticipated no change in their forthcoming car use, and twice as many respondents anticipated using their cars more (17%) as anticipated using them less (8%).

Those who indicated that they were likely to use their car less or more were invited to endorse as many of a number of supplied reasons as they thought applied to their anticipation, or to list others.

Table 2 shows that negative aspects of continued car use—cost, congestion, environmental concerns—were somewhat more frequently endorsed than changes of circumstances—fewer journeys to make, health reasons, change of occupation, change of address.

The most common reasons for anticipating using the car more 'over the next 12 months' (Table 3) were some change in their circumstances such that respondents would have more journeys to make or there being 'no satisfactory alternative' to making these journeys by car. They thus reported that—from their point of view—they were predominantly situationally dependent on the car. However, a substantial proportion cited 'Enjoyment of driving', attesting to some degree of psychological dependence on the car driving their anticipation of using the car more.

3.2. I would like to use the car...

Next respondents indicated their response to the prompt

Table 3
Reasons for using car more

	N	Percentage of 'More'
More journeys to make ^a	81	60
No satisfactory alternative transport ^a	67	50
Change of occupation ^a	42	31
Enjoyment of driving ^a	39	29
Health reasons ^a	14	10
Change in working routine ^b	6	5
Change of address ^b	4	3
Person at university ^b	2	2
Other ^b	7	5

^a Supplied reason.

^b Write in reason.

'Over the next 12 months, I would like to use the car...' (emphasis in original). Responses (Table 4) were again recoded to three values.

Half the sample (54%) showed themselves content with their present level of use, but a third of the sample (33%) indicated a wish to reduce their current level of car use, around 2.5 times as many as wished to increase it (13%).

Crosstabulation of responses to these two variables (Table 5) shows that while 33% of the sample would like to use the car less, only 7% see themselves as likely to (**bolded** figures). Thus 26% (23 + 3) of the sample—a quarter of these motorists—would like to reduce their car use 'over the next 12 months' but see themselves as unlikely to do so. In addition, a small number (1 + 1 = 2%) of the sample who are likely to reduce their car use would appear to be doing so unwillingly—or, at least, unwittingly and not seeking to do so ('I am likely to use the car less' but 'I would like to use it the same or more').

3.3. I am likely to use PT...

Respondents were next questioned about their likely and preferred use of PT 'over the next 12 months...'. Responses were again recoded into three groups.

Again three quarters (75%) of the sample anticipated no change, almost 1 in 5 (18%) anticipated using PT less often, and only 7% anticipated using PT more (Table 6).

By far the most common reason adduced for using PT less (Table 7) was the perceived unsatisfactory nature of the

Table 4
How often respondent would like to use car over next 12 months

Would like to use car	Frequency	Valid percent
Less	261	33.1
The same	424	53.7
More	104	13.2
Total	789	100.0
Missing	2	
Total	791	

Table 5
Crosstabulation of likelihood of and preference for car use 'Over the next 12 months' showing total percents

I am likely to use the car	I would like to use the car			Totals (%)
	Less	Same	More	
Less	7	1	1	8
Same	23	47	5	75
More	3	6	7	17
Totals	33%	54%	13%	N = 789

available service. This outnumbered 'change of circumstance' reasons—fewer journeys to make, health reasons, change of occupation.

The main reasons given for anticipating using PT more (Table 8) all concerned negative aspects of car use—congestion, cost, environmental concern—rather than perceived attractions of PT use.

3.4. I would like to use PT...

Next respondents indicated their response to the prompt 'Over the next 12 months, I would like to use public transport...' (emphasis in original) (Table 9).

Half the sample (49%) indicated that they would like to maintain their current level of usage (which was, of course, overall, low: 13% of these car drivers reported using the bus, and 7% the train, once a week or more often; 59% reported using the bus, and 43% the train, once a year or less often; Stradling et al., 1999), and while 1 in 6 (17%) wished to use PT less, double this figure, a full third of the sample of car drivers (34%) indicated a desire to use PT more.

However, while 34% would like to use PT more, crosstabulation (Table 10) shows that only 5% of the sample (**bolded** figures) believed they would see their preference met. 29% (3 + 26) of the sample would like to use PT more 'over the next 12 months' but did not think it likely that they would. This 29% of motorists represents a substantial potential market for PT providers.

For this sample, crosstabulation of likelihoods of car and PT use (Table 11) shows that 62% (**bolded** figure) indicated that both their car use and their PT use is likely to remain unchanged over the next 12 months. Thus 38%—over one third of these motorists—anticipate some change in their

Table 6
How often respondent is likely to use public transport over next 12 months

Likely to use public transport	Frequency	Valid percent
Less	137	17.9
The same	574	75.1
More	53	6.9
Total	764	100.0
Missing	27	
Total	791	

Table 7
Reasons for using public transport less

	N	Percentage of 'Less'
Unsatisfactory service ^a	70	51
Enjoyment of driving ^a	43	31
Fewer journeys to make ^a	21	15
Health reasons ^a	19	14
Change of occupation ^a	14	10
Dirty ^b	4	3
Expensive ^b	4	3
Other ^b	8	6

^a Supplied reason.

^b Write in reason.

transport mode usage. However only 8% of these persons ($3 \times 100/38 = 8$) anticipate that the change envisaged will be the UK Government's desired combination of a decrease in car use and an increase in PT use.

Crosstabulation of car and PT use preferences (Table 12) indicates that only one third of the sample (34%: **bolded** figure) are happy as they are—they wish to use both car and PT 'the same' as currently. Thus two-thirds of this sample would like some change in the balance of their transport mode selection—a high level of volatility. One in five (19%: **bolded** figure) of this sample of car users would like to use the car less and PT more, but, as noted above, only 3% anticipate they are likely to. Five out of six of those who would like to comply with current UK transport policy and switch from car use to PT use feel they are unlikely to do so.

4. Policy measures to reduce car use

Steg and Vlek (1997) identified a variety of possible policy-driven sticks and carrots that could be used to either 'push' or 'pull' motorists out of their cars. Table 13 draws on their work to enumerate some examples.

In our study we were interested in which of these inducements to reduce car use would be most and least favoured by

Table 8
Reasons for using public transport more

	N	Percentage of 'More'
Traffic congestion ^a	24	45
Cost of using a car ^a	22	42
Environmental concerns ^a	21	40
Reduced access to car ^a	18	34
Change of occupation ^a	14	26
More journeys to make ^a	9	17
Health reasons ^a	7	13
Dislike of driving ^a	6	11
Change of address ^b	4	8
Other ^b	2	4

^a Supplied reason.

^b Write in reason.

motorists, and in which motorists would be most and least affected by them.

5. Judged effectiveness of measures to reduce own car use

Respondents were asked to indicate how effective they thought a number of measures would be in respect of their own car use. The rubric for the set of items asked respondents to 'Please indicate from the list below how effective you think the following measures would be in getting you to reduce your use of the car.' (emphasis in original). Using a 3-point response scale, motorists rated 13 measures as 'Very effective', 'Fairly effective' or 'Not at all effective'.

The set of ratings was factor analysed using Principal Component Analysis. Two factors were extracted (Table 14), accounting for 53% of the variance.

The two factors clearly mirrored Steg and Vlek's (1997) distinction between 'pull' and 'push', or carrot and stick measures. The first factor grouped together all the measures which improved the attractiveness of the alternatives to car use; the second factor grouped those measures which penalised continuing car use.

This combination of factor structure and response distribution suggests two conclusions. First that it is not just the theorists but also the travelling public who clearly distinguish measures intended to pull them out of their cars by providing attractive alternatives from measures intended to push them from their cars by decreasing access or increasing costs.

Second, it is plain that they prefer the former to the latter, judging pull measures substantially more likely than push measures to be effective in reducing their own car usage. Ratings are summarised and presented in Table 15 in descending order of percentage of respondents nominating measures as 'Very effective' within each factor.

Responses to the item 'Public information campaigns about negative effects of car use' proved illuminating. Not only was this technique rated ineffective, but the factor analysis—unlike Steg and Vlek (1997)—grouped this item with the 'push' measures. It would seem that motorists react negatively to being dubbed polluters, to being told that they are part of the problem.

5.1. Who would be moved by pull and push measures?

A number of demographic variables—age, sex, social class, annual household income, and domicile (from city dwelling through town and suburb to village and rural dwelling)—and vehicle and vehicle use measures—size of engine, age of car, annual mileage driven and extent to which respondent drove as part of their work (from 'Every working day' to 'Never or almost never')—were held for these respondents, allowing examination of their effects on respondents' pull and push factor scores. Findings are

Table 9
How often respondent would like to use public transport over next 12 months

Would like to use public transport	Frequency	Valid percent
Less	132	17.2
The same	372	48.6
More	262	34.2
Total	766	100.0
Missing	25	
Total	791	

summarised in Table 16 (and fuller detail is given in Stradling et al., 1999).

'Pull' measures were deemed as more effective by the young (17–21 years) and by drivers of smaller engined cars (<1.4 l), as less effective by the (economically) retired and by rural and semi-rural dwellers, as much less effective by drivers doing a high annual mileage (>20,000 miles pa) and as less effective for those who drove as part of their work 'once a week' or more often.

'Push' measures were rated as least effective by 42–55-year olds, as more effective by younger drivers, and as most effective by the over 55 age group; as more effective by those from households with an annual income of below £10,000 pa; and as more effective by city or town dwellers. Drivers of cars with capacity below 1.4 l rated 'push' measures as most effective and those driving cars of 1.8 l or above rated them least effective. New car drivers (<4 years old) rated them less effective, as did those reporting a high annual mileage (>14,000 miles pa). Those who drove as part of their work once a month or more rated them as less effective.

Thus 'push' measures look more likely to achieve a reduction in car use for older drivers, the poor and urban dwellers; and for low mileage drivers, drivers of smaller cars, drivers of older cars, and those not obliged to drive as part of their work.

Sex of respondent and the presence of children in the household made no systematic difference to judged effectiveness of pull or push measures. Some variables affected both ratings, and in similar ways. Thus those residing out-of-town, driving medium and large cars, doing high mileage

Table 10
Crosstabulation of likelihood of and preference for public transport (PT) use 'Over the next 12 months' showing total percents

I am likely to use PT	I would like to use PT			Totals (%)
	Less	Same	More	
Less	11	3	3	18
Same	5	44	26	75
More	1	1	5	7
Totals	17%	49%	34%	N = 760

Table 11
Crosstabulation of likelihoods for car and public transport use

I am likely to use PT	I am likely to use the car			Totals (%)
	Less	Same	More	
Less	1	10	7	18
Same	5	62	9	75
More	3	3	1	7
Totals	8%	75%	17%	N = 763

and required to drive as part of their work are less likely to be persuaded to reduce their car use by either type of measure.

Age of respondent had an effect on rated effectiveness of both types of measures, but with a differing emphasis: the youngest drivers (17–21) are particularly likely to be swayed by improvements to PT and pulled from their vehicles, older drivers (55 +) rate themselves as more likely to be pushed from their cars by the introduction of punitive measures.

And some variables only had systematic effects on one set of ratings. Retired respondents rated pull measures as less effective than did others, but differences in social class made no difference to the pattern of push ratings. However, those from low-income households indicated that push measures—such as charges for road use, petrol or parking—would likely be effective in reducing their car use. And owners of older cars are more likely to reduce car use in the face of increased charges and reduced access.

6. Social psychology and transport policy

Attitudes combine beliefs about consequences with evaluations of those consequences (Stradling and Parker, 1997). Knowing a person's attitudes provides a useful, though not infallible, guide to their likely behaviour because attitudes influence intentions to act (Ajzen, 1985) and their expression in behaviour may be constrained by circumstances. Thus a driver holding pro-speeding attitudes may not speed if circumstances preclude it—congested road space, the presence of disapproving significant others in the car (partner) or on the road (police). There is considerable psychological literature on methods and mechanisms

Table 12
Crosstabulation of preferences for car and public transport use

I would like to use PT	I would like to use the car			Totals (%)
	Less	Same	More	
Less	4	8	6	17
Same	10	34	4	49
More	19	12	3	34
Totals	33%	54%	13%	N = 765

Table 13
Push and pull measures for encouraging motorists to reduce car use

'Push' measures	'Pull' measures
<i>Increase costs:</i>	<i>Persuasive communications:</i>
Raise fuel prices	Anti-car use propaganda
Raise parking charges	<i>Spread or reduce demand:</i>
Tolls by place	Stimulate flexi-time and teleworking
(e.g. motorways) or time	
(e.g. peak hours)	
<i>Decrease availability:</i>	<i>Reduce procedural uncertainty:</i>
No city centre car access	Improve availability of information
Reduce or eliminate city	Well publicised role modelling
centre parking	
No new road building	<i>Improve alternatives:</i>
Lower speed limits	More and better cycle tracks, car pool lanes 'Better' public transport vehicles and interchanges—cheap, clean, comfortable, convenient, fast, frequent, reliable, safe, weatherproof

for changing attitudes and behaviour (e.g. Eagly and Chaiken, 1993; Petty et al., 1997). These contain a number of typical features which, we believe, are applicable to the 'traffic problem'—the problem of reducing car use. For example:

- Generally—though not invariably—effecting and maintaining an enduring change in either attitude or behaviour will bring with it a change in the other to reduce dissonance between the two.
- Generally, some expenditure of resources—of time and effort—will be required of all the parties desirous of the change.
- To change a person's behaviour you may either change the person (usually their interpretation of the situation) or change the conditions under which they are having to operate.

6.1. Behaviour change

Behavioural change strategies have worked in other domains. A brief consideration of successful behavioural change strategies may help identify, by analogy, procedures that might prove appropriate and effective in addressing the 'traffic problem'.

Probably the most efficacious circumstances for changing another person's behaviour are in a counselling or therapeutic setting, when the following conditions typically apply (see e.g. Prochaska and DiClemente, 1984; Fergusson et al., 1999):

1. Current behaviour is causing problems in living for an individual and their significant others.
2. The client accepts ownership of the problem and shows

Table 14
Pattern matrix: rated effectiveness of measures in reducing own use of car

	F1	F2
Shorter overall journey times on public transport	0.86	
Shorter interchange times on public transport	0.85	
More reliable public transport services	0.82	
Much cheaper public transport	0.79	
More readily available information about public transport	0.75	
A ticketing policy so that 1 ticket covers different forms of transport	0.64	
Vouchers from employers to subsidise the cost of season tickets	0.54	
Better cycling facilities	0.48	
More expensive petrol		0.80
Fewer places to park the car		0.78
Road tolls		0.76
The closure of city centres to cars		0.68
Public information campaigns about negative effects of car use		0.41

'readiness for change'.

3. They receive regular and graded help from a qualified and experienced counsellor with whom they can form a therapeutic alliance involving mutual respect and regard in a non-threatening setting.
4. Jointly the therapist and client can agree a series of small, manageable steps to bridge the gap between start state and desired end-state.
5. The counsellor can monitor progress and give fast feedback to modify aspirations and techniques.
6. Once change is achieved, mechanisms to assist maintenance and prevent relapse can be put in place.

Currently, in respect of travel behaviour, Condition 1 is widely recognised, and 33% of our sample of English motorists show the 'readiness for change' of Condition 2. The other conditions are not however in place, though 'Travel blending' schemes (Ampt, 1997, 1999) where households keep travel diaries and discuss with a facilitator ways of reducing car use through trip elimination, mode substitution or trip-chaining typically demonstrate the first five features to some extent. However, infrastructure changes, such as increasing the attractiveness and availability of other modes, will be necessary for the vital task of maintaining change and preventing relapse (Condition 6).

There is also current consensus over how best to deal with unwished, antisocial or 'delinquent' behaviours in children, whether momentary or persistent, in a manner consistent with the rubric 'Love the child, hate the behaviour'

Table 15
Rated effectiveness of pull and push measures in reducing own car use

Please indicate how effective you think each of the following measures would be in getting <i>you</i> to reduce your use of the car	Very effective	Fairly effective	Not at all effective
More reliable public transport services	59	23	18
Much cheaper transport	42	29	29
Shorter overall journey times on public transport	41	35	24
Shorter interchange times on public transport	37	36	27
A ticketing policy so that 1 ticket covers different forms of transport	37	33	30
More readily available information about public transport	27	41	33
Vouchers from employers to subsidise the cost of season tickets	27	27	47
Better cycling facilities	19	24	58
The closure of city centres to cars	29	28	43
Fewer places to park the car	14	33	53
More expensive petrol	13	25	62
Road tolls	10	31	59
Public information campaigns about negative effects of car use	5	21	74

(or, in this context ‘Love the motorist, hate the car use’) (e.g. Forehand and King, 1977; Stimpson et al., 1999).

1. Don’t just say ‘Stop it!’ or smack, say ‘Don’t do that, because... (set of plausible and compelling reasons involving encroachments on the reasonable rights and expectations of others, and consequent lack of equity)’.
2. Suggest alternative behaviours, saying ‘Why not do this instead, because... (set of achievable, laudable and pleasant consequences for self and others)’.
3. Give procedural assistance, ‘Here’s how you can do (wished alternative)’.
4. Indicate that a competent authority will expend resource, time and effort in establishment and maintenance of new behaviour ‘(parent, teacher, probation officer, government, etc.) will help you’, signalling that successful adoption of new behaviour is actually of concern to those in a position to facilitate its adoption.

This is not to suggest that private car use is an emotional disorder or a juvenile behaviour, only to note that carefully structured procedures have been successful in effecting change in other entrenched behaviours.

Table 16
Comparison of influence of demographic and vehicle variables on rated effectiveness of pull and push measures to reduce car use

Factor	Influence of pull measures	Influence of push measures
Age band	17–21: more effective	42–55: less effective, 55+: more effective
Sex	No effect	No effect
Children	No effect	No effect
SES	Retired: less effective	No effect
Income	No effect	<£10K: more effective
Domicile	Rural, semi-rural: less effective	City, town: more effective
Engine size	<1.4 l: more effective	<1.4 l: more effective, >1.8 l less effective
Age of car	No effect	>3 years: more effective
Annual mileage	>20Kpa: (much) less effective	>14K: less effective
Drive as work	>Once per week: less effective	>Once per month: less effective

7. Conclusions

People use their cars for a variety of different purposes. Measures aiming to assist reduction in private car use will need to be carefully targeted at these purposes, providing viable alternatives to meeting those individual patterns of obligation.

Is there ‘a mood for change’ amongst motorists? The answer must be a qualified ‘Yes’. Whilst ours was a volunteer sample with respondents electing to complete and return their unsolicited postal questionnaires, our finding that one third wished to reduce their car use was in line with other recent studies of English motorists (Goodwin, 1997; Transport 2000 Trust, 1997).

Indeed 1 in 5 English car drivers would like to both reduce their car use and increase their PT use so there is a substantial minority ready for just that change that current UK government policy seeks to promote. However, only 3 in 100 motorists believe they are likely to be able to make that change, feeling constrained by circumstances. As one of our respondents plaintively noted “The whole country’s geared for the car.”

The analyses reported here identify the characteristics of

those likely to prove susceptible to pull and push transport policy measures (the old and the poor to push measures; the young and those driving small cars to pull measures; those residing out-of-town, driving medium and large cars, doing high mileage and required to drive as part of their work to neither). But their responses, and the body of social psychological literature on attitude and behaviour change, strongly suggest that sustainable changes that may be integrated into people's patterns of life will ensue if people are helped to change, not forced to change. As the Transport 2000 Report noted:

...exhorting people to change the way they live will achieve little. Car users must have any change in the way they travel...made easy for them."

(Transport 2000 Trust, 1997).

Hypothecation of revenues from 'push' measures to finance 'pull' measures would help achieve that end, by putting in place measures that would help drivers out of their cars.

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