

## **The Personal Affordability Sub-Objective**

### **TAG Unit 3.6.4**

**IN DRAFT**

January 2010

Department for Transport

Transport Analysis Guidance (TAG)

# Contents

<b>1</b>	<b>Personal Affordability</b>	<b>3</b>
1.1	Why is personal affordability important?	3
1.2	Which groups of people are particularly vulnerable to the effects of the costs of travel?	3
1.3	When should personal affordability be considered in the transport strategy and option development process?	4
<b>2</b>	<b>Principles in the Analysis of Personal Affordability</b>	<b>4</b>
2.1	Introduction	4
2.2	Scope of the Strategic Personal Affordability Review	5
<b>3</b>	<b>The Personal Affordability Analysis Process</b>	<b>7</b>
3.1	Introduction	7
3.2	Personal Affordability: Core Analysis (Step 4)	8
3.3	Outputs from Appraisal (Step 5)	13
<b>4</b>	<b>Further Information</b>	<b>18</b>
<b>5</b>	<b>References</b>	<b>18</b>
<b>6</b>	<b>Document provenance</b>	<b>18</b>

# 1 Personal Affordability

## 1.1 Why is personal affordability important?

- 1.1.1 The concept of 'personal affordability' and the costs of travel borne by different groups of people have not previously been addressed in detail in Transport Analysis Guidance (TAG). There is a substantial body of research to demonstrate that the monetary costs of travel can in some cases be a major barrier to mobility for certain groups of people, and increases in travel costs can have particularly acute effects on their ability to access key destinations. This new TAG Unit provides guidance to the analyst on the process to be followed in considering the potential personal affordability impacts of transport interventions.
- 1.1.2 Although poorer people spend less money on travel in absolute terms than the rest of the population, this often accounts for a far greater proportion of their income (**'Making the Connections'** (Social Exclusion Unit, 2003)). Their low absolute spend reflects low average rates of car ownership, and low car running and depreciation costs where a car is owned, but where budgets are very constrained, even these costs and public transport costs can account for a high proportion of that budget. Accordingly changes to the transport network that involve changes in user charges can have a particularly strong impact on people in low income groups.
- 1.1.3 The analysis in this section should be used to inform the social and distributional impacts on the 'improve affordability' challenge, which is described in **Appraisal** (TAG units 3.2). The analyst should also make reference to **Detailed Guidance on Social and Distributional Impacts of Transport Interventions** (TAG Unit 3.17) in the conduct of these analyses.

## 1.2 Which groups of people are particularly vulnerable to the effects of the costs of travel?

- 1.2.1 The most significant impacts of the costs of travel are on young and old people, and low-income households, particularly when travelling to employment or education. People with disabilities may also suffer significant dis-benefits when faced with higher costs, due to limited transport choices, whilst unemployed adults also have difficulties in accessing services (including training), again due to low incomes.
- 1.2.2 Changes in transport costs could have disproportionate effects where there are few or no travel alternatives, especially where income levels preclude car ownership and use. In such cases and where budgets are constrained, a step change in public transport costs might affect travel to, for example, work, further education or access to fresh, affordable food. The latter is particularly pertinent for households with low income, non-car owning and / or elderly members. Food and travel are both discretionary components of household expenditure and increases in travel costs may have a substantial effect on the budget available for food or the destinations that can be accessed within the available travel budget.
- 1.2.3 Consideration should therefore be given to the social impacts of changes in transport costs, resulting from transport interventions, experienced by younger and older people, people with disabilities and low income households. Information about such groups is likely to originate from Census data, and it may be assumed, if no further information is available, that the proportions of the population within each group remains unchanged from the year of Census. The fact that lower income households are likely to suffer more from increases in transport costs also implies that there is a strong distributional element.

- 1.2.4 Guidance on the social and distributional impacts of transport interventions (including changes in the personal affordability of travel) is provided in TAG Unit 3.17.

### **1.3 When should personal affordability be considered in the transport strategy and option development process?**

- 1.3.1 Consideration of personal affordability issues should take place throughout the appraisal process. Affordability may be a central issue and accordingly it would be good practice to set one or more objectives relating to making travel more affordable. In considering whether affordability should be an objective, the analyst should make reference to existing policy documents and evidence to identify personal affordability challenges for different groups of people within the local area. This could include, for example, the Accessibility Strategy contained within the Local Transport Plan for the area under consideration.
- 1.3.2 Where affordability is one of the objectives, it would be an explicitly distributional objective. In such cases the appraisal would apply this guidance, commencing with the consideration of current and future transport challenges, in which the opportunity should be taken to consider options to tackle identified personal affordability problems. In these cases, options will be developed with the intention of delivering positive outcomes, and therefore the options must be tested against the objectives for the intervention, which could be expected to include an affordability objective.
- 1.3.3 In most cases some affordability impacts will be a consequence of an intervention rather than central to the objectives, and these impacts may be positive or negative. The process of screening and appraisal as set out in TAG Unit 3.17 should be followed in these cases.

## **2 Principles in the Analysis of Personal Affordability**

### **2.1 Introduction**

- 2.1.1 The Personal Affordability assessment is concerned with changes in the monetary cost of travel that form part of the decision making processes for travellers. It mirrors the user benefit appraisal component and can be based on the user charge assessment as considered in the Transport Economic Efficiency analysis, but requires a further qualitative analysis to ensure that all key monetary impacts can be considered by impact group irrespective of their inclusion in formal modelling processes.
- 2.1.2 As the principles are similar to the derivation of transport user benefits and transport user changes, the basic Personal Affordability assessment can be captured as an output from TUBA, in this case only for 'non-working time' (which includes travel to and from work). 'Working time' (i.e. travel undertaken in the course of paid employment, but not travel to and from work) benefits or disbenefits are experienced by businesses. Some affordability issues, such as season ticket costs, may apply specifically to commuters: if people are excluded from work by affordability issues then this is an important issue – on a large scale it could actually impact on income distribution in an area.
- 2.1.3 Whilst all Personal Affordability impacts would ideally be fully reflected in user charges, it is possible that the subtleties of charging systems, both public and private transport, may result in some impacts being neglected in the formal approach underpinning user charge analysis produced by TUBA, principally due to simplifications in the representation of charges in transport models.

2.1.4 In keeping with the process set out in TAG Unit 3.17, the analyst should identify if an intervention is likely to lead to negative or positive affordability outcomes for low income groups or for vulnerable groups. This can be undertaken by means of a strategic Personal Affordability review of potential changes in modal cost that could occur as a result of the policy, strategy or specific intervention. At the initial stage of the process, this review should be sufficiently comprehensive to ensure that all potential impacts on Personal Affordability are considered. This is required irrespective of whether these have been fully or partially considered in any available TUBA output. In some cases such outputs may not be available at this stage, which takes place prior to option development. In addition to confirming that the assessment is sufficiently comprehensive, where TUBA outputs are available the review can be used to confirm that the TUBA assessment does not include spurious benefits or disbenefits generated by the simplicity of, for example, public transport fares modelling.

## 2.2 Scope of the Strategic Personal Affordability Review

2.2.1 This initial review should consider all relevant monetary transport charges, assisted by the Personal Affordability Worksheet. Key areas for consideration include:

- Parking charges (including where changes in the allocation of free or reduced fee spaces may occur);
- Car fuel and non-fuel operating costs (where, for example, rerouting or changes in journey speeds and congestion occur resulting in changes in costs);
- Road user charges (including discounts and exemptions for different groups of travellers);
- Public transport fare changes (where, for example premium fares are set on new or existing modes or where multi-modal discounted travel tickets become available due to new ticketing technologies); and
- Public transport concession availability (where, for example concession arrangements vary as a result of a move in service provision from bus to light rail or heavy rail, where such concession entitlement is not maintained by the local authority<sup>1</sup>).

2.2.2 The approach set out in this guidance is based on a pragmatic methodology which seeks to identify where an intervention might result in a material change to the cost of travel for particular groups of travellers. At the initial review, the aim is either to provide robust evidence that there will be no positive affordability effects and that any negative effects can be eliminated at the design / option development stage, or that there are potential positive or negative impacts that will require SDI appraisal.

2.2.3 This approach uses a 'checklist' approach to identify where aspects of the intervention may have positive or adverse consequences. The checklist first provides a means of screening as required in TAG Unit 3.17. It is quite feasible that none of the potential impacts on the checklist will be a feature of the interventions being appraised, or that any possible negative impacts can be eliminated, in which case there is no need to undertake further analysis. However, there is a need to provide robust evidence to demonstrate that this is the case. For an intervention where potential positive impacts are identified or where potential negative impacts cannot be eliminated, the analyst is then required to undertake further analysis to estimate the likely scale of the impact on users.

---

<sup>1</sup> Note – light rail (and heavy rail) are currently outside the scope of the national concessions funding arrangements.

- 2.2.4 In most cases, affordability impacts may arise as indirect consequences of an intervention. This is because transport interventions are usually conceived to improve transport efficiency, accessibility and/or safety, but there may nonetheless be cases where the overall effects are positive but where some groups suffer adverse affordability impacts. Similarly, if among the other benefits such as highway time savings some low income or vulnerable groups enjoy positive affordability impacts, this should also be reported in the appraisal. Through the use of this Guidance, the analyst is encouraged to consider potential impacts of the intervention and, where appropriate, take steps to mitigate the impact especially at the option development and design stage, where good planning may be able to eliminate potentially adverse impacts.
- 2.2.5 An example is useful to illustrate this. Consider what might happen when a new high capacity light rail system is being considered as an option, and where it would effectively replace an existing bus service. Senior Citizens who currently use the bus service will be entitled to free travel on the bus services under current concessionary arrangements, but an equivalent scheme is not automatically going to be available on the light rail system, as such systems are not covered by the national concession scheme, unless separate arrangements are put in place by the scheme promoter. In such cases, this group would face a material increase in the cost of using public transport at their existing location, or a walk to a more distant stop where buses still operate. This is a case where mitigation measures could be developed and put in place by the promoter; it is important to identify potential impacts as early as possible so that the option design and development process can take these measures on board, rather than implementing them as an afterthought.
- 2.2.6 These types of impact are not generally identifiable from transport models. For sensible and practical reasons, transport models tend to use average travel costs and do not include social group segmentation. This is, nevertheless, a material impact that currently tends to be overlooked. Therefore, consideration should be given to issues such as concessionary fares and parking charge discounts, the availability of children's and family/group fares, purchase channel and means (e.g. cheapest fares are often only available online or to owners of bank cards who must therefore have a bank account). As noted, consideration of this might take place before any model is available; this should not deter an early screening to inform the option design and development stage.
- 2.2.7 The primary area of interest is the change in cost of using each mode, as is the case throughout the appraisal process. However, one aspect that also needs to be considered is the Personal Affordability impact of shifting between transport modes, in particular if the price of using a new mode is preventing or promoting mode shift, or passengers are in effect forced either to use a different, more expensive mode due to changes in supply, or to discontinue or significantly change their travel, for example where no other affordable travel option exists.
- 2.2.8 To use another example, measures to reduce car use, for example through pricing of car parking, will tend to have most impact on low income motorists: society as a whole benefits through reduced congestion and emissions, but those whose travel is reduced suffer a welfare loss. This should be reported in the appraisal of car parking measures. However, the analyst should consider whether there are feasible options such as public transport, in which case the welfare loss may be small, or whether the only options are to continue driving (with a potentially large financial impact on a household budget) or to travel to another destination, where the welfare loss may be greater. Consideration needs to be given to the circumstances in which affordability changes take place, as this will help to determine the level of appraisal at Step 3 (as shown in TAG Unit 3.17).
- 2.2.9 Outputs from the User Benefit analysis, described in **Transport User Benefit Computation** (TAG Unit 3.5.3), may also provide evidence of changes in user

charges, but will need to be treated with some caution by the practitioner, given the aggregate nature of models and simplification in modelling of fares and charges.

- 2.2.10 The analyst should make specific reference to the potential impacts on different groups of people (Social and Distributional Impacts) when considering the Personal Affordability impacts of the intervention. Guidance on Social and Distributional Impacts is provided in **Detailed Guidance on Social and Distributional Impacts of Transport Interventions** (TAG Unit 3.17).

## **3 The Personal Affordability Analysis Process**

### **3.1 Introduction**

- 3.1.1 The approach to the assessment of the social and distributional impacts should follow the process described in TAG Unit 3.17. In terms of personal affordability, this follows the following steps:

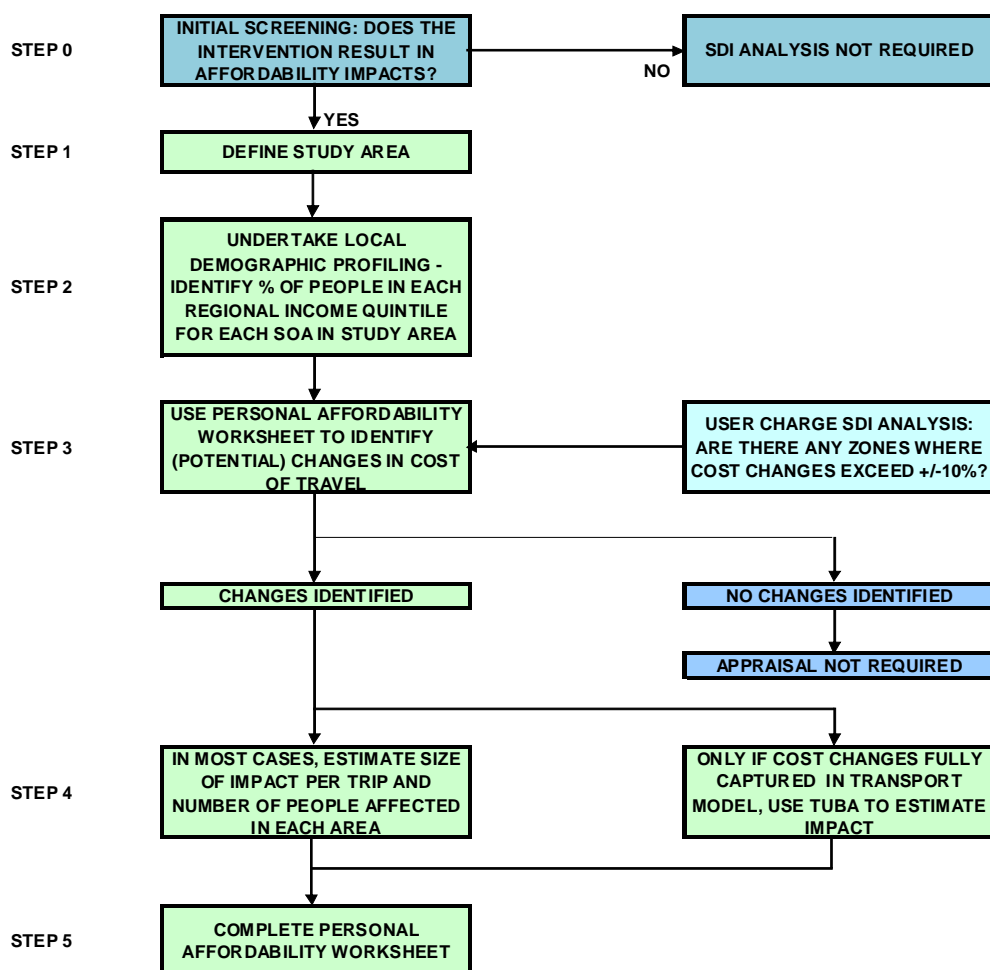
- Step 0: initial screening – SDI appraisal is required where there are positive affordability impacts or negative impacts that cannot be eliminated through option design or mitigation;
- Step 1: confirmation of the area impacted by changes in personal affordability in the use of transport;
- Step 2: analysis of the demographic profile in the area impacted by changes in personal affordability;
- Step 3: a screening process, to determine if it is appropriate to undertake further analysis of the changes in personal affordability;
- Step 4: the core personal affordability analysis; and
- Step 5: the collation and presentation of the outputs from the personal affordability analysis process.

- 3.1.2 The process to be followed for Steps 0-3 is described in TAG Unit 3.17.

- 3.1.3 Step 3 involves a screening exercise to determine whether a full appraisal of impacts is required, or if a more qualitative and proportionate appraisal can be undertaken. Promoters should agree all aspects of both full and proportionate appraisal with the Department (or equivalent) prior to commencing the appraisal. The guidance here is for the full SDI appraisal; TAG Unit 3.17 sets out the principles that should be applied when proposing a more qualitative appraisal.

- 3.1.4 In the event of personal affordability impacts being identified from the screening process at Step 3, either through use of the affordability checklist or user charges impacts from a TUBA analysis, the sections below should be used to guide the technical analyses required in Steps 4 and 5 of this process.

**Figure 1 – Personal Affordability Analysis Process**



### 3.2 Personal Affordability: Core Analysis (Step 4)

3.2.1 Where changes in the cost of travel have been identified through the screening process, these need to be quantified as far as possible for each Lower Super Output Area (LSOA) in the study area, although if information is not available at this refined level it might be necessary to use the larger Mid Level Super Output Areas (MSOA). In some cases specific monetary impacts may have been fully captured by the transport model, in which case the 'Detailed Outputs' feature in TUBA can be used to provide a quantification of impacts. However, in many cases the range of transport price and cost impacts will not be fully captured by the transport model, and in these cases an indicative estimate of the level of impact will be required instead.

3.2.2 The first part of the analysis is therefore to determine which, if any, of the impacts are captured using TUBA. Table 1 below shows a worked example of this assessment based on the potential cost changes identified in Table 4 in Unit 3.17, demonstrating how this could work for a particular intervention. This checklist is not exhaustive, but should cover the majority of changes that are likely to occur.

<b>Table 1 – Example of the Scope of Potential Changes in the Costs of Travel</b>				
<b>Mode</b>	<b>Cost Change</b>	<b>Step 3: Cost change expected?</b>	<b>Step 4: Change Captured in TUBA?</b>	<b>Step 4: Quantified Impact</b>
Car	Car fuel and non-fuel cost	No		
	Road user charges	No		
	Public parking charges – management	Yes	Yes	PV £2.3m
	Other car charge/costs	No		
Public Transport	Bus fares	No		
	Rail fares	No		
	Rapid transit fares	No		
	Mode shift between public transport modes due to change in supply	No		
	Ticket / interchange discounts	Yes	No	11m journeys per annum affected. Typical cost penalty 80p/trip.
	Concessionary fares	Yes	No	16m journey per annum affected. Typical cost £1.50 per trip.
	Other public transport charges/costs	No		
Non-motorised Modes	Walking costs (in the vast majority of cases, nil)	No		
	Cycling costs	No		

### Quantification of impacts

- 3.2.3 Monetary ('out of pocket') costs are often simplified within transport models. In particular the complexities of discount fares, concessionary fares, season tickets, and stage/fare boundaries often have to be simplified for modelling purposes. Likewise for the highway network, many models do not include parking charges at some car parks and rarely take account of nuances such as variation in charge by time of day or availability of season tickets. Only where impacts are fully captured in TUBA should this tool be used in isolation for the assessment of personal affordability impacts. This is addressed in the following section.
- 3.2.4 In the majority of cases, the quantification of impacts will be limited to an indicative assessment of the number of people affected by a cost change, and the typical magnitude of that cost change.
- 3.2.5 It is first necessary to understand the likely per-trip change in the cost of travel. Taking the example of replacing bus services where free concessionary travel is available with an alternative mode where they are not, the change in cost will be the average fare charged on the new system in the affected area.
- 3.2.6 Having determined the size of the per-trip impact, it is necessary to determine the number of people likely to be affected.
- 3.2.7 In many cases, a dataset may be available that can allow direct quantification: data on the number of trips made on concession passes within the affected area is likely to be available from the local administering authority. Where such data

are not available, it should be possible to make an estimate using demographic data to determine the population in each SOA in the affected area that are in the particular social group affected by the change. For example, for a change in the concessionary fares regime, the number of people could be estimated as the number of people in the relevant age range in the affected area.

- 3.2.8 The results from both methods of quantification feed through to the Personal Affordability worksheet, described in the next Section.

### **TUBA Analysis**

- 3.2.9 Where a specific affordability impact is fully captured by the transport model, TUBA can be used to provide an estimate of impacts in an extension of the User Benefit SDI analysis, which isolates the specific element of User Benefits relating to User Charges, and is described in Section 7 of TAG Unit 3.5.3.
- 3.2.10 The calculation of transport user benefits conventionally uses demand and costs between origin and destinations. However, production and attraction based data could similarly be used, allowing more straightforward assessment of the social and distributional impacts of the scheme, as the benefits can be assigned to place of residence. Where data can not be sensibly assigned to place of residence, it may not be feasible to undertake detailed affordability analysis.
- 3.2.11 Income segmentation is increasingly a feature within transport models, and if available, should be used for the Personal Affordability analysis. Where no income segmentation data is available, alternative data should be used to disaggregate the user charge data spatially and then assigned to different social groups. Appropriate data sources, with their merits and shortcomings, are described in TAG Unit 3.17.
- 3.2.12 If disaggregate income data are not available, it is recommended that the regional Indices of Multiple Deprivation (IMD) income domain data are used to illustrate the potential distribution of User Charges amongst different income groups. IMD data is provided at the Lower Super Output Area (LSOA) level and a procedure to assign the transport user charges to the LSOA place of residence level must be developed, as described in section 7.4 of TAG Unit 3.5.3.
- 3.2.13 IMD income deprivation data is based on the percentage of resident population receiving means tested benefit and is therefore only a proxy for actual household income in an area. The IMD data does not contain distributional information and it is possible that pockets of deprivation can be hidden when occurring in LSOAs with less deprived areas.
- 3.2.14 In some cases, the modelled area may contain new developments that would lead to a net change in the socio-economic profile of the LSOA. In these cases, sensitivity testing should be undertaken to ascertain the potential impact from assuming different income characteristics for the area. The analysis should give an indication of the user charges that can be attributed between groups with a significant difference in their socio-economic characteristics, within a small area.
- 3.2.15 The output from this process will be a distributional analysis of User Charge impacts of the format shown in the table below. In this example the intervention has led to a beneficial net reduction in user charges of £40.5m (£9.8m plus - £50.3m). All reductions in user charges should be expressed as negatives, and increases in user charges should be expressed as positives. The highest income quintile has seen an increase in user charges of £9.8m. As benefits and disbenefits are summed across all SOAs in that quintile, a group can only have one entry in either the Total Increase in User Charge or Total Decrease in User Charge rows.

3.2.16 The assessment for each group is based on whether the intervention generates an overall benefit or disbenefit and the share of that benefit / disbenefit that a group receives in relation to its proportion of the population.

<b>Table 2 – Example Output from User Charge Distributional Analysis</b>						
£m	IMD Income Domain					Total
	Most deprived areas		Least deprived areas			
	0-20%	20%-40%	40%-60%	60%-80%	80%-100%	
SOA 1					0.6	0.6
SOA 2			-0.7			-0.7
SOA 3				-0.3		-0.3
.....						...
SOA N		-1.3				-1.3
Total Increase in User Charges (ΣSOAs)	-	-	-	-	9.8	9.8
Total Decrease in User Charges (ΣSOAs)	-13.2	-22.4	-7.2	-7.5	-	-50.3
Share of User Charge Increase	-	-	-	-	100%	100%
Share of User Charge Decrease	26%	45%	14%	15%	0%	100%
Share of Pop'n	22%	25%	15%	28%	10%	100%
<b>Assessment</b>	✓✓	✓✓✓	✓✓	✓	***	

3.2.17 This table is identical in format and is completed using the same scoring criteria as those used to report the distribution of User Benefits, but is restricted in this case to a particular type of User Charge. Separate tables should be generated for charges relating to different modes, to enable these to be reported separately in the Personal Affordability Worksheet. The Table(s) can be used to identify the distribution of user charge changes relative to the population distribution, thereby identifying any disproportionate impacts by income segment.

3.2.18 In the example shown in Table 2, it can be seen that, in absolute terms, the bottom four quintiles all experience reductions in this type of User Charge. However, the top quintile experiences an increase in the User Charge. Where there is a net beneficial impact from the intervention, but an adverse impact to one or more income groups, then the impact to this group should be recorded as a \*\*\* rating, because this group is affected both adversely and disproportionately. Similarly, if the intervention produces an overall disbenefit in terms of the User Charge, then any group experiencing a benefit would receive a ✓✓✓ rating.

3.2.19 The share of the User Charge reduction is only allocated amongst those who are receiving the benefit from the intervention, ie a reduction in monetary costs.

Where the benefits accruing to a group are in line with the proportion of that group in the population to within +/- 5%, the distributional assessment is ✓✓ indicating that the share of benefits this group receives is broadly in line with the proportion of total population they represent. If they are more than 5% greater, a ✓✓✓ rating is assigned indicating that the share of benefits that this group receives is proportionally high compared to the proportion of total population they represent. Where they are more than 5% smaller, a ✓ rating is assigned, and the share of benefits they receive is low compared to the proportion of total population.

3.2.20 In cases where a scheme has an adverse effect overall, i.e. where the User Charge increases for the entire population, then individual income groups should be scored on a x, xx, or xxx rating using the same thresholds described for the beneficial scale in paragraph 3.2.19, and any group that receives a net benefit (reduction in the User Charge) should be assigned a ✓✓✓ rating, because this group is affected both beneficially and disproportionately through a reduction in monetary costs.

3.2.21 The scoring system where User Charges can be quantified (as illustrated in Table 2) is summarised in Table 3.

<b>Table 3 – System for Grading of Personal Affordability SDIs for each of the social groups</b>		
<b>Overall Impact</b>	<b>Consideration of each social group</b>	<b>Assessment</b>
There is an <b>overall decrease in the user charge</b> and the impact for the group as a proportion of the total is....	Beneficial, with a decrease which is 5% greater (or more) than the proportion of the group in the total population	✓✓✓
	Beneficial, with a decrease which is in line (+/-5%) with the proportion of the group in the total population	✓✓
	Beneficial, with a decrease which is (-)5% smaller (or less) than the proportion of the group in the total population	✓
	An increase	xxx
There are no personal affordability impacts experienced by the group		<b>Neutral</b>
There is an <b>overall increase in the user charge</b> and the impact for the group as a proportion of the total is....	A disbenefit with an increase that is (-)5% smaller (or less) than the proportion of the group in the total population	x
	A disbenefit, with an increase which is in line (+/-5%) with the proportion of the group in the total population	xx
	A disbenefit, with an increase which is 5% greater (or more) than the proportion of the group in the total population	xxx
	A decrease	✓✓✓

**Report to the Project Manager**

3.2.22 As already noted, Personal Affordability impacts tend to be indirect effects of transport interventions. As such, many of the impacts, especially the adverse impacts, will be to some extent unintentional.

- 3.2.23 It is therefore important that the analyst discusses any significant affordability issues that the analysis identifies, so that the project manager can seek means to mitigate these issues where they are considered undesirable.

### **3.3 Outputs from Appraisal (Step 5)**

- 3.3.1 The output from the process is created through the Personal Affordability Worksheet, an example of which is provided in Table 4 below. It combines more readily quantifiable output from analysis such as that illustrated in Table 2 with more qualitative analysis by the analyst. All significant affordability issues should be highlighted, even if the User Charge output from TUBA cannot be analysed in a disaggregate manner.
- 3.3.2 In the Overall Personal Affordability Score a net benefit from distributional analysis undertaken in Step 4 is reported as ✓✓ and a net disbenefit as ✖✖. Individual scores for each group are simply transferred over with the percentage of the benefits / disbenefits into the appropriate column.
- 3.3.3 In Table 4, the quantification of benefits by groups has been supplemented by qualitative analysis for a number of User Charges by providing a ✓, ✖, or ○ in the Overall Personal Affordability Score. A ✓ indicates a beneficial overall impact and a ✖ an adverse overall impact, where quantifiable impacts cannot be disaggregated across the individual groups. A ○ indicates negligible overall impact. For a ✓ or a ✖, the analyst should highlight which individual groups are affected beneficially or adversely, or not at all using a ○. For example an intervention which provides discounted public transport season tickets to low income groups would produce a ✓ for the bottom two quintiles. A ○ would be reported for the highest three quintiles.

**Table 4 – Example of a completed Personal Affordability Worksheet**

Mode	Monetary Modal Cost Change	SOA group	area 1	area 2	area 3	area n...	wider areas	Impacts considered in aggregate TUBA assessment ?	O/all Pers. Aff. Score (cross = inc, tick = dec.)	Proportion of population by IMD income quintile				
		SOA group population	2500	2500	3000					22%	25%	15%	28%	10%
		IMD income quintile	0-20%	0-20%	40-60%					Quantifiable impacts by IMD income quintile				
		Core Impact								0-20%	20-40%	40-60%	60-80%	80-100%
Car	Car fuel and non fuel cost	change due to congestion relief	no impact	no impact	no impact		negligible mon. impacts	yes	O					
	Road user charges	no RUC scheme	no impact	no impact	no impact			n/a	O					
	Public parking charges - absolute charges	increases in long-stay public charges as part of strategy	adverse impact on low income motorists	adverse impact on low income motorists	adverse impact on low income motorists			yes	**	30% ***	18% *	37% ***	12% *	0% ✓✓✓
	Public parking charges - management	smarter choice measures to encourage more equitable workplace parking allocation	as core impact. minor beneficial impact	as core impact. minor beneficial impact	as core impact. minor beneficial impact		as core impact	no	✓	✓	✓	O	O	O
	Other car costs	None	n/a	n/a	n/a			n/a	O					

Public Transport	Bus fares	no change in bus fares	no impact	no impact	no impact		n/a	O						
	Rail fares	no change in rail fares	no impact	service n/a	service n/a		n/a	O						
	Rapid transit fares	New system charges premium fares (in return for faster journey times and higher quality). Reduced bus services will force some users to pay higher fares on rapid transit	premium fare has adverse impact on user charges	premium fare has adverse impact on user charges	service n/a	premium fares on rest of network have limited dist. impacts	yes	**	24% **	15% *	41% ***	16% *	4% *	
	Ticket / interchange discounts	improved ticketing arrangement result in reduced fares for interchange to area 1 and new rapid transit service	reduced impact of fares for journeys involving bus/rail/rapid transit services	reduced impact of fares for journeys involving bus/rail/rapid transit services	n/a	benefits across network due to improved ticketing arrangements but no specific distributional impacts	no, only part represented	✓	✓	✓	✓	✓	✓	
	Concessionary fares	eligibility of concessions on rapid transit service confirmed by scheme promoters	no impact - concessions remain valid on new service with conditions retained	no impact - concessions remain valid on new service with conditions retained	no impact - concessions remain valid on new service with conditions retained	significant disbenefits if new rapid transit service is not included in conc. fares arrangements	n/a	O						
	Other public transport charges/costs	smarter choice measures to provide discounted season ticket loans for those on income support	as core impact. minor beneficial impact	as core impact. minor beneficial impact	as core impact. minor beneficial impact	as core impact	no	✓	✓	✓	O	O	O	

Non-Motorised Modes	Walking	no monetary impacts	n/a	n/a	n/a			n/a	O					
	Cycling	smarter choice measures to encourage Cycle To Work scheme to provide discounted cycle purchase costs	no discernable impact on low income groups	no discernable impact on low income groups	no discernable impact on low income groups		no discernable impact on low income groups	n/a	O					
					Overall Analyst Assessment				*	**	*	**	✓	✓✓

- 3.3.4 This summarises different affordability impacts by mode against the checklist, both at an overall level, and in particular geographic areas. To consider the impact, these geographic areas are identified in terms of their IMD income domain score. The purpose of this analysis is to identify those areas where there is low average income, and therefore greater vulnerability from the impacts of price rises.
- 3.3.5 The 'wider areas' column provides scope for specific qualitative comments to be made, such as possible mitigation measures.
- 3.3.6 As previously mentioned, a column is provided to identify where these changes in the price of travel that individuals must pay have been included in TUBA User Benefit appraisal. Where possible, the monetary impact of the change should be estimated, so that if not included in the TUBA analysis, appropriate adjustments can be made to include the effect.
- 3.3.7 Case study work has identified the complexities around generalised cost behavioural issues. Generalised cost models (considering both time and money) will forecast behaviour that minimises individuals' overall generalised costs. This may include changes in behaviour that result in an increase in monetary cost, if this is offset by sufficient savings in time. In reality, individuals in low income groups are likely to be especially price sensitive and much less likely to make such trade-offs, so ideally models need to be segmented in such a way that this price sensitivity can be captured<sup>2</sup>. However, apart from those models required to consider income disaggregation (those including charging proposals) many models will not segment by income but may use other segmentations instead. A fully income segmented model would avoid this but may not be proportionate in resource terms.
- 3.3.8 The assessment of Personal Affordability also needs to be mindful of the fact that whilst infrastructure and service performance may well be relatively tightly defined during the development of options, charging regimes for transport services are generally not committed in advance and are largely set by the commercial market, in particular for non-rail based public transport services outside London. There can therefore be a risk that distributional issues could emerge following implementation that were not expected during the development process.
- 3.3.9 However, the SDI appraisal process encourages promoters to consider risks of adverse affordability impacts and identify mitigation measures to reduce the likelihood of these occurring following the completion of an intervention.
- 3.3.10 The assessment within the Personal Affordability worksheet should be carried out for each of the IMD Income Domain Groups and will be used to inform the analysis passed to the Matrix of Social and Distributional Impacts (step 5 in Unit 3.17).
- 3.3.11 In determining the grading for the Personal Affordability SDI the analyst will need to make a judgement on the balance on affordability impacts across the travel modes and User Charges for each of the groups considered in the analysis. This judgement should take into account the magnitude of change and modal usage and can be assisted by the User Charge Distributional Analysis generated from TUBA, as shown in the example in Table 2.
- 3.3.12 The assessment will involve distilling and weighing up a number of impacts identified at the detailed level but the analyst should consider whether impacts are widespread or more limited within the social or IMD Income Domain group.

---

<sup>2</sup> Minimising generalised costs necessarily assumes a range of travel options: further analysis is required where the lack of transport options gives rise to wider changes, for example in changes in destinations or enforced changes in household activities.

For example, car park charging may affect all road users accessing a town centre, whereas integrated ticketing discounts on the bus network could offer benefits to significantly fewer users.

- 3.3.13 The grading of the overall impacts should be allocated to the seven point scale, as described in Table 3 above, translated into the Personal Affordability worksheet with up to three ticks or crosses as appropriate. A worked example of the worksheet is shown in Table 4 above.
- 3.3.14 The scores for each of the groups under consideration should then be reported in the matrix of social and distributional impacts, described in Step 5 of **Detailed Guidance on Social and Distributional Impacts of Transport Interventions** (TAG Unit 3.17).
- 3.3.15 In some limited circumstances, for example major mixed mode packages involving both investment and charging proposals, it may be appropriate for both major adverse and beneficial impacts to be identified and taken forward to the Matrix of Social and Distributional Impacts. In this case, a qualitative commentary should be added to explain the basis for the scoring.

## 4 Further Information

The following documents provide information that follows on directly from the key topics covered in this Unit.

For information on:	See:	TAG Unit number:
Assessment of user benefits, including user charges	<b>Transport User Benefit Computation</b>	TAG Unit 3.5.3
The background and overall approach to the Social and Distributional Impacts of transport interventions	<b>Summary Guidance on Social and Distributional Impacts of Transport Interventions</b>	TAG Unit 2.13
The detailed process for the analysis of Social and Distributional Impacts	<b>Detailed Guidance on Social and Distributional Impacts of Transport Interventions</b>	TAG Unit 3.17

## 5 References

- Highways Agency Design Manual for Roads and Bridges (DMRB)
- ODPM (previously DETR) Regional Planning Guidance, Planning Policy Guidance Note 11 (PPG11)
- Social Exclusion Unit (February 2003) Making the Connections: Final Report on Transport and Social Exclusion
- DfT (October 2007) Towards a Sustainable Transport System: Supporting Economic Growth in a Low Carbon World
- DfT (November 2008) Delivering a Sustainable Transport System
- Atkins and MVA (Forthcoming) Assessing Social and Distributional Impacts in Transport Intervention Appraisal

## 6 Document provenance

This Transport Analysis Guidance (TAG) Unit is based on research undertaken by DfT on the social and distributional impacts of transport interventions.

This TAG Unit has been revised to 'In-Draft' status in January 2010, following consultation.

Technical queries and comments on this Unit should be referred to:

Integrated Transport Economic Appraisal (ITEA) Division

Department for Transport  
Zone 3/04 Great Minster House  
76 Marsham Street  
London SW1P 4DR  
itea@dft.gsi.gov.uk  
Tel 020 7944 6176  
Fax 020 7944 2198