Department for Transport

Summary of changes to 2012/13 concessionary travel reimbursement guidance

1. This note outlines the main changes that have been made to the reimbursement guidance for concessionary travel schemes commencing on or after 1 April 2012.

Principles of Reimbursement

2. The word 'trip' has been replaced with the word 'journey' throughout the guidance for avoidance of doubt. A bus 'journey' is defined as a single bus boarding whereas a 'trip' can sometimes mean a collection of journeys (e.g. using different modes).

3. A simple worked example illustrating reimbursement calculations has been provided in Annex D.

4. The guidance reminds TCAs and operators of their rights and obligations with regards to data provision under the Mandatory Travel Concession (England) Regulations 2011. A list of data items required to use the guidance and Calculator is supplied in Annex F for ease of reference.

5. The guidance reaffirms the TCAs may wish to have regard to the regulations governing concessionary travel reimbursement. These recognise that the application of a standard method may prove unduly onerous to both the authority and the operator in the cases of small operators and that in this case the operator and authority may reach an ad hoc agreement as to the reimbursement to be paid through negotiation.

6. The guidance recognises that using a standard method may also be burdensome in the case of a small number of services going through a local authority for just a few stops, irrespective of the size of the operator operating this route. In this case the TCA and operator may wish to reach an agreement on the amount of reimbursement due without using the standard method, bearing in mind the need to comply with the principal that operators should be left no better no worse off as a result of the existence of the concessionary travel scheme.

7. The guidance stresses the importance of like-with-like comparisons when comparing data over time. The data should cover the same range of services and time periods (these should be selected to be representative of concessionary travel). Consideration should be given to the timing of Easter when using financial years.

Average fare

Calculator: changes to interpolation in Discount Fare Method

8.   The interpolation method in the workings of the Discount Fare Method in the Calculator has been improved (see Annex A of this note for details).

Use of local smartcard data

9.   The guidance recognises that local smartcard data on concessionary passholder journey making is beginning to become more widely available in a sufficiently comprehensive form to be directly drawn upon by individual TCAs. Where such data is available the guidance suggests that the NoWcard data in the model can be replaced with local smartcard data or smartcard data from another area which can be demonstrated to be representative.

10.   The guidance offers some advice in Annex G on the cleaning and processing of smartcard data into a lookup table suitable for use in the Discount Fare Method.

Tickets in scope in the Discount Fare Method

11.   The guidance explains more clearly that in the Discount Factor Basket of Fares methods, TCAs and operators should attempt to come to a shared understanding of the likely ticket mix that concessionary passengers would purchase in the absence of the scheme. The guidance also stresses more clearly that weekly tickets are assumed to be in scope. Child tickets are excluded.

Demand

Calculator: updating of National Bus Index (up to 2010/12)

12.   The National Bus Index used to estimate the change in average fares in the absence of operator-specific or TCA-wide data has been updated with the latest data up to 2010/11. Average fares were estimated to have increased by 25.8 per cent in PTEs and by 20.2 per cent in non PTEs between 2005/06 and 2010/11.

How to calculate a compound percentage changes in nominal fares

13.   The proposed methods to estimate the change in nominal fares between 2005/06 and the year of calculation (so that the reimbursement factor can be calculated) have not changed but the guidance explicitly recognises that there are many other combinations possible based on data availability and that TCAs and operators may end up having to use

combinations of years which are not operationalised in the calculator. The guidance therefore provides advice on how to combine percentage changes over different years to calculate a compound percentage change across the whole period.

Calculator: updating of CPI index and GDP deflator

14.   The CPI index and GDP deflator, which are used to calculate real changes in fares and to uprate additional costs, have been revised taking account of the latest published data.

15.   A facility has also been added in the Calculator for users who wish to update these two data series in the course of the year when more up-to-date data becomes available. The guidance strongly recommends that schemes should be clear at the outset about revision mechanisms, including whether reimbursement will be recalculated using the latest inflation forecasts, to avoid the introduction of a variation to reimbursement arrangements under the Transport Act 1985 or the Transport Act 2000.

Application of PTE and NPTE demand curve

16.   The guidance clarifies further that the single demand curve relates to the characteristics of the residents within an area. For instance, non-residents from a non-PTE area making a journey originating in the PTE-like area (for instance a return shopping trip) should be reimbursed using a non-PTE reimbursement rate. Similarly journeys made by residents of a PTE-like area originating in a non-PTE like area should be reimbursed using the PTE reimbursed rate.

Additional costs

Revisions to Marginal Operating Cost (MOC)

17.   Additional costs need to be adjusted to take account of the impact of the forthcoming 20 per cent reduction in BSOG in 2012/13. An adjustment has been made to the fuel component of the Marginal Operating Cost (MOC).

18.   The method used to incorporate the BSOG change consists in adjusting upward the fuel component of the MOC by the percentage change in fuel cost resulting from the reduction in BSOG. This is described in more detail in the Technical Note being published alongside the revised guidance. In the process making an adjustment for the reduction in BSOG a few arithmetic miscalculations were uncovered in the bottom-up estimation of the MOC per generated journey in the ITS research (further details can also be found in the Technical Note) The following issues were identified in the calculations:

- Fuel cost component of MOC – (i) the impact of an additional concessionary passenger on the rate of fuel consumption was incorrectly applied; (ii) the fuel price in the calculations did not include non-recoverable duty; and (iii) an incorrect average journey length was used (for Great Britain and measuring overall trip length rather than bus boarding length).

- Maintenance and cleaning cost components – (i) an incorrect average journey length was used; and (ii) the mathematical calculations implied that the ITS figure presented was an average cost and not a marginal cost.

- Additional time cost component – (i) the calculation of costs due to additional vehicle time was based on the original ITS estimate of vehicle hour costs of £14.90 which was subsequently changed in the guidance to £13.30 and has now been used to estimate the additional time cost component; and (ii) the reimbursement factor used in the calculation was based on a previous version of the Single Demand Curve and has been revised using a reimbursement factor consistent with the demand curve in the guidance.

19. The table below illustrates the changes to the bottom-up estimate of the MOC and individual components resulting from correcting for the issues outlined above, and including the adjustment to the fuel cost component to reflect a reduction in BSOG.

Revisions to components of MOC bottom-up estimate, pence (2009/10 prices)		
Component	**Original value**	**Revised value**
Fuel, tyre and oil	1.6	0.4*
Of which fuel	*1.5*	*0.3***
Maintenance and cleaning	1.2	0.1
Insurance	2.7	2.7
Information	0.5	0.5
Time	0.7	1.3
Bottom-up estimate of MOC	**6.7**	**5.0***

Note: All figures rounded to 1 decimal place

* This figure is 0.3p when the revision to reflect a reduction in BSOG is excluded

** This figure is 0.2p when the revision to reflect a reduction in BSOG is excluded

*** This figure is 4.9 when the revision to reflect a reduction in BSOG is excluded

20. The resulting total bottom-up estimate is therefore 5.0p (revised down from 6.7p). In making a recommendation about the overall MOC, the ITS

research team decided to use a weighted average of the estimates from the bottom-up approach and the econometric approach. Maintaining the same weightings but using the revised estimated figure for the bottom-up approach yields an overall MOC estimate of **6.1p (at 2009/10 prices) per generated journey** (compared to the previous figure of 7.2p).

21.   The formula for adjusting MOC by journey length, taking account the BSOG adjustment and revision to the MOC value, has been revised to:

> 5.5 + 0.6 x [AverageJourneyLength (in miles) / 3.9]   (2009/10 prices)

Revisions to vehicle mile unit cost in Marginal Capacity Cost (MCC) model

22.   An adjustment has also been to the vehicle miles unit costs used in the Marginal Capacity Costs (MCC) Calculator to take account of the impact of the forthcoming 20 per cent reduction in BSOG in 2012/13.

23.   The vehicle mile unit cost, which is used in the MCC Calculator, was £0.61 per vehicle mile (2009/10 prices) in the 2011/12 guidance. The estimate was derived from data provided by operators. To adjust for BSOG, the fuel element of these estimates has been isolated using assumptions in the ITS research about the fuel component (92 per cent) and the fuel element was adjusted upward by the percentage change in fuel cost resulting from the reduction in BSOG. This results in an increase to the vehicle mile unit cost from £0.61 to **£0.70 per vehicle mile**. Further detail can be found in the Technical Note published alongside the 2012/13 guidance.

Clarifications on the use of the MCC Calculator

24.   Practitioners have raised various issues relating to the use of the MCC Calculator. The MCC Calculator is one method recommended by the guidance to estimate marginal capacity costs but the guidance does not preclude the use of other methods if available. The revised guidance provides further advice/clarification on the following points:

Network approach to the MCC Calculator

25.   Last year's guidance recognised that it may be more practical for users to calculate MCCs route by route because the data inputs required in the MCC Calculator are likely to be available at route level. However, this may lead to spurious results because the MCC Calculator is based on a network model (for instance some of the fixed parameters used such as the Mohring power and the service elasticity are network averages).

26.   The revised guidance therefore recommends that MCCs should be calculated at network level rather than route by route. This means that

the route-level data will need to be aggregated into a network average. The guidance provides advice on how this should be done in Annex J. However, TCAs and operators may wish to identify subsets of networks of routes/services with similar characteristics rather than calculating an MCC for one single network.

Use of local and default values

27.   Default values provided in the guidance can be used for most inputs to the MCC Calculator should local data not be available. The revised guidance emphasises more strongly the need to either use all local values or all default values. This is because mixing local and default values may distort the relationships between variables and lead to spurious results.

28.   Local authorities and operators have explained the difficulties they have faced in trying to estimate average journey length. The current guidance provides a rule of thumb on the relationship between journey length and route length (the former being 50 per cent of the latter on average). The revised guidance will emphasise this is a rule of thumb and suggest that TCAs and operators may wish to make assumptions about how this relationship varies depending on the nature of the routes.

Local variation in unit costs

29.   It is recommended that the default values for unit costs provided by the guidance are used in the Calculator even when adopting a local data approach as described above. Although data on vehicle hour costs may be readily available from operators' accounts, it is not straightforward to estimate a marginal cost. Accounting models typically attribute elements of costs that may not necessarily be 'marginal' (i.e. costs that change as a result of one additional driver hour or one additional km of bus use) such as staff overheads and materials, vehicle maintenance and administrative staff.

30.   However, if TCAs can satisfy themselves that locally derived values are an accurate measure of the marginal costs and can be validated, then a local value may be used.

Definition of commercial journeys and average commercial fare

31.   In last year's guidance, commercial journeys as a percentage of total journeys and the average commercial fare used to estimate the commercial revenue generated from commercial journeys that arise from increased frequency in the MCC Calculator were defined as including adults only. In the revised 2012/13 guidance, both these definitions have been changed to include full-fare paying children undertaking commercial journeys. It is important to ensure that the definition of the

commercial fare and percentage of commercial journeys are consistent with one another.

Explanation of how the MCC model works

32. There is an improved explanation of how the MCC Calculator works in Annex I of the guidance and the worked example in the Calculator and Annex H has been revised to improve clarity.

Annex A – Change to the interpolation in the Discount Fare Method

A.1   A small change has been made to the way in which the average fare forgone is calculated in the reimbursement calculator, specifically to the interpolation technique.

A.2   On the 'AF workings' sheet (to see this use Format>Sheet>Unhide), steps (2) and (5) are titled 'Interpolation'. Interpolation is required whenever the ticket prices entered into the calculator are such that the resulting price ratios are decimal numbers rather than integers. In such cases an estimate of the number of journeys associated with that particular price structure is made by interpolating values between the lower and upper bands of the price ratio. This is necessary as the lookup table is based on price ratios that are integers only (e.g. weekly price ratios are 1, 2, 3…).

A.3   The interpolation formulae used to calculate the number of tickets and journeys for daily tickets, daily tickets and cash fares have been amended slightly. This is best illustrated through the use of an example. With a price ratio of 9.9:1.8:1 (based on a pricing structure of weekly tickets priced on average at £15.84, daily tickets priced at £2.88 and an average cash fare of £1.60), the existing version of the calculator performs the following interpolation:

	Input values	Interpolation			Int'lated value
		Lower band	Upper band	Factor	
Weekly ticket price	9.9	9.00	10.00	0.90	
Daily Ticket Price	1.8	1.00	2.00	0.80	
Weekly Tickets		16,612	13,431	0.90	13,749
Weekly Trips		223,132	193,200	0.90	196,193
Daily Tickets		196,746	121,673	0.80	136,688
Daily trips		367,931	297,313	0.80	311,436
Single trips		0	100,551	0.80	80,441
Check trip total		591,063	591,063		588,070
Discount factor		41.4%	19.1%		21.3%

A.4   Consider the case of daily tickets. As the table indicates, the relevant area of the lookup table is between 9 and 10 for the weekly ticket price ratio, and between 1 and 2 of the daily ticket price ratio:

Weekly ticket price as multiple of cash fare per trip	Daily ticket price as multiple of cash fare per trip					
	1			2		
	Daily tickets	Daily trips	Cash fare trips	Daily tickets	Daily trips	Cash fare trips
9	196,746	367,931	0	111,818	271,316	96,615
10	210,133	397,863	0	121,673	297,313	100,551

A.5 The current interpolation formula for daily tickets only picks up the two ends of the distribution (shaded) and goes 80% of the way between them. However, this ignores the two other data points provided in the table, i.e. 210,133 and 111,818.

A.6 The revised version of the calculator performs the following interpolation:

	Input values	Interpolation			
		Lower band	Upper band	Factor	Int'lated value
Weekly ticket price	9.9	9.00	10.00	0.90	
Daily Ticket Price	1.8	1.00	2.00	0.80	
Weekly Tickets		16,612	13,431	0.90	13,749
Weekly Trips		223,132	193,200	0.90	196,193
Daily Tickets		208,794	120,688	0.80	138,309
Daily trips		394,870	294,713	0.80	314,744
Cash Fare trips		0	100,157	0.80	80,126
Check trip total		618,002	588,070		591,063

A.7 Given the weekly ticket price ratio of 9.9, for a daily ticket price ratio of 1, we must be 0.9 of the way between 196,746 and 210,133, i.e. the number of daily tickets will be 196,746 + 0.9*(210,133 – 196,746) = 208,794. Similarly, for a daily ticket price ratio of 2, the number of daily tickets will be 111,818 + 0.9*(121,673 – 111,818) = 120,688.

A.8 Interpolating between these two values, given the daily ticket price ratio of 1.8, the number of daily tickets must be 208,794 + 0.8*(120,688 – 208,794) = 138,309.

A.9 A similar process is used to estimate daily journeys and cash fare journeys. The change in the interpolation method does not lead to significant changes in the discount factor, but has the advantage of ensuring that the total number of journeys after interpolation is always constant.