# 5.1 Development of Fare Formula

## 5.1 General

Following the review undertaken for Aberdeen City Council it is clear that any fare formula derived for Aberdeen City Council should be:

- Easy to use;
- Transparent;
- Directly rated to the costs of operating a taxi; and
- Use easily obtainable data.

The existing formula has been used for a number of years to provide regular fare reviews. The review of local authorities has highlighted that a number of other local authorities measure fare increases through determining vehicle running costs year on year. Although Aberdeen does currently incorporate vehicle running costs in its calculation, we feel that amendments do need to be made to the existing formula. This is because the existing formula as it stands:

- double counts insurance;
- is only based on 'live' mileage not total mileage; and
- the formula uses the 'Aberdeen' earnings value, not the UK value which is most commonly used by other authorities.

The review of local authorities conducted demonstrated that as there is no one recommended approach to increasing fare tariffs there are a range of methodologies used. However we do feel that the current formula does need to be amended. We are proposing that the current formula is amended to be more in line with the authorities reviewed and reduce inaccuracies with double counting the cost of insurance. We don't propose to include the additional elements incorporated by the London model as we don't feel that London is comparable to Aberdeen. A major element of running costs for London drivers is the cost of the Knowledge test – this is not applicable to Aberdeen.

The index developed for use in Aberdeen based on the principles applied by other local authorities, involves calculating the sum of two component parts, operating costs and UK average national earnings, in a formula as follows:

CHANGE Index = CHANGE Costs + CHANGE Earnings

For the purposes of this report data has been obtained from December 2011 and December 2012 in order to demonstrate how the formula works. The baseline data may need to be changed to an earlier date should the authority wish to amend the tariff i.e. the data could be changed to the date of the last review. We would recommend that the review was conducted on an annual basis as this is generally when the component data is produced.

The index is based on a simple spreadsheet and is easily updateable by the authority. The output of the model is a percentage change between the two years running costs – it is this percentage which could be applied to the fare tariff.

## 5.2 Summary of Findings

We believe that the model for assessing the cost changes should reflect owner-driver operation, which is the type of operation that is predominant in Aberdeen. The reviewed index proposed for Aberdeen City Council should include the following elements:

- Vehicle Costs (inc. Vehicle Excise Duty);
- Parts;
- Tyres;
- Insurance;
- Servicing costs;
- Fuel;
- Licence fees; and
- Average Earnings (inc NI).

We have excluded social costs and the cost of the knowledge in this index in line with other authorities outside of London including Manchester, Glasgow and Edinburgh. There however remains a certain degree of difficulty in obtaining accurate data for the component parts of the index due to the complex nature of assessing a 'typical' case with regards to taxi operation in the local market.

## 5.3 Ownership Issues

The main difficulty in assessing the costs associated with operating a taxi is selecting what constitutes a "typical case". There are a number of different ownership/operator permutations. Each permutation affects the underlying economics of taxicab operation.

The majority of taxi operators are self-employed owner-drivers i.e. they own and operate the cab as a business from which they draw income, or salary, although this is by no means the only way in which a taxi can be operated.

There are other possibilities that have different cost structures depending on the number of drivers and the number of taxis operated, although the scope for economies of scale is not great. We understand however that in Aberdeen the majority is for owner/driver operation and thus in line with best practice we have built up costs on this basis.

## 5.4 Cost Breakdown

Discussions with the Trade indicate that the annual mileage for a taxi driver in Aberdeen is 48,000 miles. In order to qualify this fleet services were contacted and asked to provide annual mileage figures based upon a random sample of vehicles. This resulted in a figure of 28,000 miles per annum. Further consultation with the trade has suggested that this value is too low. They are of the view that 35,000 miles may be more representative of the average annual mileage. However, best practice is to provide a fair and accurate figure for the average annual mileage based on statistical evidence. Therefore, I recommend that a sample of 10% of taxis should be used to work out an accurate average annual mileage to be included in the formula. Should a higher mileage value be applied to the model this may have a negative

impact to the overall percentage change as the running costs will be spread over a larger value, thereby reducing the cost per mile.

The following text analyses the assumptions and trends behind each of the operating costs, and the way in which the data was obtained.

## 5.5 Vehicle Cost

Taxi buying behaviour is complex and influenced by a number of factors, all of which make any objective assessment of the annual cost hard to achieve. There are a number of permutations for the cost of ownership which produce significantly different results. For example, a vehicle may be purchased under a hire-purchase deal, a lease arrangement or a straight loan repayment. Moreover, there exists a choice of different vehicles for use as taxis in Aberdeen, with different cost implications that apply to different makes and models. For simplicity and due to the range of vehicle types in Aberdeen we have simply included the cost of vehicle purchase based on a life span of five years. It was felt that eight years as used by other authorities was not reflective of the fleet in Aberdeen. Glasgow, Edinburgh and Manchester have used eight years as a benchmark for a 100% purpose built fleet. We recognise that the lifecycle for saloon vehicles and conversions is less than eight years and as such have used a value of five years. This also represents the standard term of lease or hire purchase of a vehicle from Cab Direct.

Drivers may choose to operate any vehicle that complies with Aberdeen City Council's specifications, as set out in its licensing policy, in terms of height, length and seating capacity. The authority requires that all taxis are wheelchair accessible by June 2017. At present some 48% of the fleet is comprised of fully accessible vehicles. The remaining 52% comprise standard saloon, hatchback or estate cars (as opposed to purpose-built hackney carriage vehicles, such as EuroTaxi or TX models).

In line with best practice the cost of the most prevalent vehicles in the fleet have been used to derive costs. Basic models have been used in the costing as there is no requirement for taxis to be 'luxury' models by Aberdeen City Council.

Analysis of the vehicle fleet has highlighted that the most popular saloon vehicle used by the trade is a Ford Mondeo. This has therefore been assumed as a vehicle 'typical' of local market operation. For the purposes of the index the basic diesel model has been assumed, with a value at new of £20,195 (on the road price advised by Ford). Consultation with the trade has indicated that drivers are most likely obtain their saloon vehicles from Cab Direct rather than the local Ford Dealership. Therefore for an accurate reflection of the cost to the trade we feel that all vehicle cost data should be derived from Cab Direct year on year.

Analysis of the accessible fleet has identified the Fiat Doblo to be the most popular accessible vehicle. However it is our understanding that the latest Doblo model is not suitable as a wheelchair accessible taxi. Therefore we have chosen the second most popular vehicle – Peugeot Partner/Premier. The model meeting Aberdeen City Council's vehicle specification has been priced by Cab Direct at £17,900.

In line with other authorities we have calculated the cost of purchasing both vehicles and for depreciation purposes assumed a lifecycle of 5 years. This figure is applied to both the Edinburgh and Glasgow indexes and has therefore been applied to Aberdeen. It is our understanding that Aberdeen are moving to a 100% accessible

fleet by 2017. We would recommend that the formula is reviewed in 2017 in line with the change of policy as this will have implications for the lifecycle of vehicles.

## 5.6 Parts

As with vehicle costs, quantification of precise figures for the replacement of parts is difficult to estimate, since the parts required over the course of a year may be expected to be dependent on the mileage covered, general wear and tear, the age of the vehicle, the make and model of the vehicle, and general upkeep. Both Edinburgh and Glasgow price a sample of parts on an annual basis. However given the wide range of vehicles in Aberdeen this is a time consuming task for the authority.

To simplify this process and make it robust, we have examined motoring running cost tables produced annually by the Automobile Association (the AA). These tables are based on information sourced on the 60 top-selling vehicle models in each year, representative of the wider UK market. A breakdown of motoring running costs is provided in pence per mile, broken down by fuel type and the purchase price of the vehicle when new. The figures may be used for a guide as to how much it is likely to cost the average driver to run a car over the preceding 12 month period.

The replacement parts component of the motoring running cost tables includes the cost of replacing those parts likely to need periodic replacement under normal driving conditions, such as brake materials, oils, filters, bulbs, wipers and hoses. Equivalent values in 2011 and 2012 were obtained (based on the vehicle type and mileage assumptions previously presented), with the percentage change over the course of the year calculated.

Since this methodology does not take into account the life of original parts, costs may be assumed to be slightly overestimated when presented over the lifetime of the vehicle. This may increase the fares. However, it is good practice as it reflects running costs to the trade.

## 5.7 Tyres

The AA state that tyres should expect to last a minimum of 20,000 miles and therefore we have assumed a life of 20,000 per tyre. The change in cost for replacement of tyres has also been calculated using the AA's motoring running cost tables for 2011 and 2012. [1]Both Edinburgh and Glasgow indexes take tyres into consideration as part of the 'parts' component. However due to the wide range of vehicles licensed in Aberdeen this simplified method has been used.

As before, since this methodology does not take into account the life of the original tyres, costs may be assumed to be slightly overestimated when presented over the lifetime of the vehicle. This may increase the fares. However, it is good practice as it reflects running costs to the trade.

## 5.8 Garage & Servicing – Premises

This component of the index represents the labour cost of undertaking any repair work on the vehicle, including the replacement of parts. In line with best practice

[1] http://www.theaa.com/motoring_advice/running_costs/index.html

pence per mile costs have again been obtained for 2011 and 2012 from review of the respective motoring running cost tables produced by the AA[2]. Labour costs cover normal servicing and parts replacement at a dealer, assuming average UK labour rates. This data is readily available and transparent and therefore we propose it should be used in Aberdeen.

## 5.9 Fuel

In line with best practice, fuel costs are also sourced from the AA's motoring running cost tables[3]. The values obtained are based on an average cost for diesel fuel throughout the year. This makes the value less susceptible to periodic dramatic changes in fuel prices that may occur on a week-by-week or month-by-month basis.

## 5.10 Insurance

The cost of insurance previously has been derived from information provided by the trade. The 2011 data has been obtained from data provided in a 2011 committee report. However for the purposes of future fare reviews we suggest that three actual quotes are obtained with a 'typical' driver agreed upon with the trade. This will produce more accurate quotations and be more representative of the Aberdeen trade. This method is applied in other authorities and as insurance costs vary according to geographic location and age of driver, we propose it be applied in Aberdeen. Analysis of the driver database identified that the current average driver is a 53 year old male. It is recommended that best practice is to calculate the average driver age using the age of all drivers. This calculation should be made at each fare review. Discussion with the trade has suggested that 4 years no claims discount should be applied to the quotes. We recommend that 4 years no claims discount is agreed as the information was provided by a local taxi insurance agent.

## 5.11 Miscellaneous

Within this category we have included the cost of licences necessary to operate a taxi in Aberdeen as advised by Aberdeen City Council.

We have also included the annual cost of vehicle excise duty[4], assuming vehicle type as per the previous assumptions. We have not chosen to include the cost of obtaining a permit at the airport or the station – this is not a general cost incurred to all the trade and therefore is excluded from the model.

## 5.12 Average National Earnings

Average national earnings in both 2011 and 2012 have been derived from figures published by the Office of National Statistics in their Annual Survey of Hours and Earnings statistical bulletin. The authorities reviewed identified that authorities differ in their approach to measuring earnings. Glasgow uses the Scottish mean,

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[2] http://www.theaa.com/motoring_advice/running_costs/index.html

[3] http://www.theaa.com/motoring_advice/running_costs/index.html

[4] https://www.gov.uk/calculate-vehicle-tax-rates

Edinburgh uses the UK mean and Manchester uses the UK median[5]. We would recommend that the UK annual mean figures are applied to the formula in Aberdeen. This has been applied successfully in Edinburgh and Manchester over a number of years and uses publicly published data.

Data has been derived using the tables for Mean Annual Gross Earnings for the UK[6]. This was used as the trade felt that Aberdeen was unique from other Scottish cities having a much higher level of average earnings. This is clear when reviewing earnings – Aberdeen's mean annual earnings are significantly higher than other Scottish authorities. Using the UK average as opposed to the Scottish average will take this into account, as will using the mean as opposed to the median. Although as long as the same dataset is used every year any relevant earnings dataset could be used. However are recommendation is to use the UK annual earnings for full time employees.

In line with both Edinburgh and Glasgow we also recommend the need to include Annual National Insurance costs. This is based on a Class 2 weekly worker

[5] Manchester used the 'mean' value until the latest fare review in late 2012

[6] ONS, ASHE 2012 Table 8.7a Annual pay

# 6 Cost Calculations and Conclusion

## 6.1 Calculating the Index

Example index cost calculations, shown in Table 6.1 below, outline sample annual costs for each component in December 2011 and December 2012. Example values have been used purely to give an indication of how the formula works. Also shown is the percentage change over the course of the year and the contribution of each component to the total increase. All values are based on an average mileage of xx,xxx miles per year. This example has been used as best practice as to use the average annual mileage derived from a sample of 10% of Aberdeen taxis' annual mileage from fleet services records.

## 6.2 Conclusions

Having reviewed the existing formula and undertaken the review of other authorities it is clear that amendments to the existing formula is required. The existing formula is somewhat outdated and does not accurately reflect the true running costs to the trade.

The review of Scottish city authorities and English authorities of Manchester and London has identified that it is best practice to calculate taxi fare reviews using either the Retail Price Index or by an index attributed to the costs of running a taxi.

It is proposed that Aberdeen City Council adopts an index based formula to calculate fare reviews. This is based upon best practice (Edinburgh, London, Glasgow and Manchester), the data accurately reflects the actual costs of running a taxi and the data is readily available thereby creating a much more transparent process. We recommend that all of the datasets should be from fixed official sources, such as ONS, AA, Cab Direct[7] and averages from data recorded by the local authority. Figures should not be based on estimates from the trade on a year by year basis as this may lead to fare increases that do not accurately reflect the costs and which will undermine the purpose of creating an equitable fare formula that can be relied upon year on year to produce an accurate taxi fare based on running costs.

## 6.3 Recommendations

We recommend that Aberdeen City Council introduce an index based formula to review taxi fares as set out in this report. This is based upon Halcrow's review of best practice and consultation with the trade and officers. We also recommend that this review is carried out on an annual basis, which is in line with Manchester, Glasgow and Dundee. This is also in line with the time requirements of Section 17 of the Civil Government Act. The fare review can be carried out annually as the ONS and AA data is produced annually. The fare review process should be simpler as the formula can be fixed as agreed by the trade and the licensing authority and used each year with the current datasets input to the formula. There should be no requirement for

[7] Cab Direct is a supplier of taxis to the Aberdeen trade

negotiation of figures between the authority and the trade. For illustrative purposes Table 6.1 sets out how the index would work in practice.

Table 6.1 Example Index Cost Calculations

| Component in Index | Annual Cost December 2011 | Annual Cost December 2012 | % Change 2011-2012 |
|---|---|---|---|
| Vehicle cost | £2,300 | £2,500 | 8.7% |
| Replacement parts | £619 | £703 | 13.57% |
| Tyres | £375 | £456 | 21.64% |
| Garaging & servicing – labour | £1,002 | £944 | -5.87% |
| Fuel | £3,220 | £3,640 | 13.04% |
| Insurance | £900 | £1,100 | 22.2% |
| Miscellaneous | £305 | £320 | 4.92% |
| **Total operating costs** | **£8,721** | **£9,663** | **9.74%** |
| Average national earnings | £27,976 | £29,403 | 5.10% |
| National Insurance | £350 | £450 | 1.29% |
| **Total index costs** | **£37,047** | **£39,516** | **6.7%** |

As the last fare review was conducted in 2011 we recommend that data from 2011 is accepted as the baseline for the initial application of the formula. Given that the existing formula used AA motoring costs data from 2011 to determine the fare increase we propose that the change index can be directly applied to the current fare tariff.