

Bus Franchising in Greater Manchester Assessment September 2019

Financial Case Supporting Paper

Financial Case Supporting Document

Table of Contents

1	Do	cument overview	2
	1.1	Document purpose	2
	1.2	Document structure	2
2	Ref	ference Case baseline revenues	2
	2.2	Method	3
3	Ref	ference Case baseline costs	4
	3.2	Network supply volumes	4
	3.3	Unit costs	5
	3.4	Resulting operator margins	10
	3.5	Financial case outputs	11
4	Op	erator margins under Franchising	11
	4.2	Identifying benchmarks	11
	4.3	Derivation of appropriate margin for inclusion in franchising model	12
5	Bib	lliography	15
6	Ар	pendix A	16
7	Аp	pendix B	17
8	Ap	pendix C	18
Гabl	e 1: V	Tables ariability by Cost Category largin Vs Cost Mark Up	
Cha	rt 1: Fr	Charts anchising – TfGM Income and Expenditure	
		perator Proposed Partnership – TfGM Income and Expenditure	
_na	τ 3: Α	mbitious Partnership – TfGM Income and Expenditure	18

1 Document overview

1.1 Document purpose

1.1.1 This paper supports the analysis in the Financial Case of the Assessment. Due to the level of supporting detail, this material has been included as a supporting paper rather than in the body of the Assessment document.

1.2 Document structure

- 1.2.1 This document consists of 4 sections as follows:
 - Document overview this section sets out the purpose and structure of the document and what each section entails;
 - Reference Case baseline revenues this section explains how baseline revenue is arrived at, relating to Section 39 of the Assessment;
 - iii. Reference Case baseline costs this section provides detail on how network supply volumes and unit costs are calculated. In addition, it puts the resulting 10% margin that results in the Reference Case into context. This information relates to Section 40 of the Assessment; and
 - iv. Operator margins under Franchising this section provides support for the 7.5% operator margin assumed in the franchising model, relating to Section 41.2.5 of the Assessment.

2 Reference Case baseline revenues

- 2.1.1 The starting point for forecasting future revenue, cost and profit streams is to derive a set of initial baseline financial estimates to pivot from for forecasting purposes. The baseline values used in this Financial Case are estimated from 2016/17 data, which is the base year used in the model to forecast demand and revenue.
- 2.1.2 Accounting data does not cover all of the Greater Manchester market (in terms of coverage of relevant statutory entities). This is because some smaller operators may be exempt from reporting full sets of accounts, some larger operators (e.g. Arriva and Transdev) do not report results for Greater Manchester on a 'standalone' basis, and also because the level of disaggregation contained within accounts is generally not sufficiently detailed to establish revenues and costs by activity. For example, reported revenues typically do not distinguish between farebox revenues and revenues from concessionary reimbursements and tendered service contracts.

2.1.3 Therefore, in order to estimate financial flows at a total Greater Manchester level, and at a more disaggregated activity level for forecasting, the accounting data is supplemented with other data sources and a methodology to estimate financial flows for operators, where accounting data is not available, for instance using TfGM data and operator information provided to TfGM.

2.2 Method

- 2.2.1 Stagecoach Manchester (with Stagecoach Wigan incorporated into a single set of accounts from 2016/17) and First Manchester report total revenues in their respective financial statements. In order to derive more detailed estimates of the different components of total revenue, TfGM's 2016/17 records of payments to operators have been utilised to estimate component revenue values (within the overall reported accounting totals) for:
 - i. statutory concessionary revenues;
 - ii. local discretionary concessionary revenues;
 - iii. tendered service revenues; and
 - iv. Scholar's Concessionary Permit reimbursements.
- 2.2.2 The reported revenues are split for convenience by operator between Stagecoach Manchester, First Manchester and 'Other'. The underlying assumption is that the payments made in respect of these items would be recorded as revenue in operators' financial statements at the equivalent value as the payment outflow from TfGM.
- 2.2.3 Following estimation and allocation of the above revenue streams for First Manchester and Stagecoach Manchester, the value of multi-operator (GMTL) ticket revenue was derived from information provided following a request to bus operators under section 143A of the 2000 Act ('Operator Information'), with advertising and other commercial income taken from operator accounts and Operator Information. The proportion of each business inside Greater Manchester was estimated using TfGM-held kilometre data. The remaining revenue was then assigned as farebox revenue from operators' own tickets (on-bus and off-bus sales).
- 2.2.4 For 'other' Greater Manchester operators where accounting records are not available as a starting point, revenue has been estimated using the same approach of utilising TfGM's payment and Operator Information to estimate the non-farebox revenues. Payments from TfGM make up the majority of the revenue for the 'other operators' when considered together. Farebox revenues from operators' own tickets are estimated 'bottom-up' for other operators from Continuous Passenger Sampling (CPS) demand and fare paid data (number of trips multiplied by fares).

- 2.2.5 Commercial BSOG (£13.1 million) has not been included in the baseline revenues as it has been confirmed by operators that this inflow is accounted for as a cost credit rather than a revenue stream.
- 2.2.6 Tendered services BSOG (£3 million) is retained by TfGM and is not passed to the operators, instead the cost for running the tendered services is charged to TfGM exclusive of BSOG.

3 Reference Case baseline costs

3.1.1 This section explains how network supply volumes are calculated, provides support for the unit costs used in the Reference Case, and puts the 5.3% operator margin for 2016/17 that results in the Reference Case into context.

3.2 Network supply volumes

3.2.1 Network supply volumes (i.e., the size of the network in terms of operating distances, fleet and operating hours) are input into the financial model from the demand and revenue model (DRM) and these estimates are described further below. This section details how information is obtained on operating hours, bus kilometres and fleet information. This information has been used to estimate the future network costs, or more specifically, a 'cost per kilometre', 'cost per hour' and 'cost per vehicle' (referred to collectively as unit costs in the Assessment) that can account for the financial impact of factors such as congestion (as, for example, it costs more to operate a bus service when the road is congested).

Bus kilometres

3.2.2 Operated in-service kilometres for First Manchester and Stagecoach Manchester in 2016/17 was taken from BSOG claims provided as part of the Operator Information. This was limited to kilometres within Greater Manchester using TfGM's Enhanced Geographic Information System (EGIS) method, which takes bus kilometres from the AS400 database of bus registrations (TfGM, 2015) and matches route information to the road network, thereby correcting for road curvature. The EGIS method was also used to derive an estimate of kilometres for 'other' operators, and to split the kilometres by operator group between commercial and tendered services.

Operating hours

3.2.3 Operated in-service hours for 2016/17 were also derived from Operator Information for First Manchester and Stagecoach Manchester, with a figure for 'other' operators derived by applying the average speed across the two large operators to the 'other' operator kilometres figure referred to above.

Fleet size

- 3.2.4 Data on fleet size by operator was obtained from a combination of operator fleet list submissions to TfGM and Operator Information. The fleet figures included some vehicles which are used on services outside Greater Manchester. They were therefore adjusted down based on an assessment of the fleet required to operate the cross-boundary element of affected services.

 Usage of bus kilometres / operating hours / fleet
- 3.2.5 Baseline kilometres, hours and fleet numbers are passed into the financial model from the demand and revenue model to be used in the calculation of operating costs.
- 3.2.6 From a forecasting perspective, bus kilometres is viewed as the variable by which the size of the network can be measured. Bus hours and fleet size are forecast to increase to account for congestion. This means that annual bus hours and fleet size are forecast to increase over time in line with forecast increases in congestion. For example, if bus journey times are forecast to increase by 5% due to congestion, then increases in bus hours and fleet size are also forecast to increase by 5% in any given time period. This reflects the fact that operators would need to provide additional resource (and cost) to maintain an equivalent level of service if journey times increase.
- 3.2.7 The congestion assumptions in the central case forecasts are derived from the Greater Manchester Variable Demand Model (GMVDM) by extracting average highway speeds from a number of forecast years. These speeds are adjusted for buses to reflect the fact that buses are slightly less affected by congestion due to the presence of bus priority measures, and the fact that they spend a proportion of their time stationary, for example to load / unload passengers.
- 3.2.8 The impact of the forecast congestion factors is an increase in fleet size of approximately 12% over the duration of the model to 2051, and in increase in operating hours of approximately 10%.
- 3.2.9 A higher number of fleet are forecast due to overall fleet levels being driven by peak vehicle requirement in the most congested peak periods of the day, whereas operating hours reflect total hours with peak and off-peak time periods (congestion has less of an impact on off-peak time periods).

3.3 Unit costs

3.3.1 The unit costs have been derived by taking information on the costs incurred by bus operators for the financial year 2016/17 and dividing those costs by

- their associated number of kilometres, hours and fleet for that same time period, using the information described above.
- 3.3.2 The cost information was obtained from Operator Information, adjusted on a pro-rata basis when financial reporting periods did not coincide with the year ending 31 March 2017. In addition, where there was a lack of cost categorisation granularity, assumptions were made based on TfGM's advisors' bus industry experience concerning the breakdown of overall cost values between the unit cost categories.
- 3.3.3 From this analysis, an estimate was made as to what proportion of those revenues and costs were for local bus services within Greater Manchester, based on a combination of kilometres from the EGIS method, Operator Information and discussions with operators. Finally, an extrapolation was made to gross up the dataset provided (based on share of kilometres) to account for the small number of operators missing from the dataset, accounting for c1.5% of kilometres.
- 3.3.4 This process resulted in an estimate of revenue in Greater Manchester that was 1.2% higher than the figure obtained in section 2. It was considered that this small variance was likely to have occurred because of the requirement to estimate the proportion of each business attributable to local bus services in Greater Manchester, as described above. Therefore, the lower figure obtained in section 2 was deemed to be more accurate (and more conservative), with costs also factored down to maintain the calculated profit margin.

Large operators

- 3.3.5 In deriving unit costs, the categories used were as follows:
 - i. Driving staff cost per driving hour the payroll cost of bus drivers is largely driven by the number of hours they work. The unit cost takes the total drivers payroll cost and divides this by the number of in-service driving hours i.e. not hours associated with dead kilometres or non-driving activities.
 - ii. **Maintenance staff per vehicle** the number of maintenance staff required to maintain, clean and refuel the buses is dependent on the size of the fleet which in turn is driven by the fleet numbers.
 - iii. Admin staff payroll costs as a % of other payroll cost the number of admin staff will flex as a result of both the size of the business unit and the local depot / company structure. The approach of expressing this cost as a % of the other two payroll categories

- (driving and maintenance) was seen as an appropriate method of reflecting the admin resources required.
- iv. **Depreciation and leasing per vehicle** this cost is driven by the number of buses and the ownership/financing model for a bus operator. The unit cost has been derived by taking this cost and dividing by the number of buses in the fleet. The cost in their financial results will also in practice reflect the average age and therefore the average capital costs of the fleet.
- v. **Insurance cost per vehicle** the cost for insurance premiums and claims has been expressed on a per vehicle basis which reflects a relationship where fleet numbers provide an indication of the volume of buses on the road and the risk of an incident resulting in a claim.
- vi. **Engineering Parts per km** this category includes all engineering costs other than payroll costs incurred in operating the fleet and is based on the in-service network kilometres only.
- vii. Fuel per km this unit cost reflects the net cost to bus operators, after deducting their BSOG entitlement from the cost of fuel. It is then divided by the in-service network kilometres. It is noted that BSOG is paid to operators on their eligible bus services on a per litre basis, with additional grant payable on a per kilometre basis where operators qualify for having smartcard, automatic vehicle location and / or low carbon emission equipped vehicles. BSOG on tendered services is not paid to the operators as this has been given directly to TfGM and therefore operator costs include the gross fuel cost on tendered services.
- viii. **Overheads per vehicle** all remaining costs (excluding interest, tax, exceptional items and the amortisation of goodwill) of operating a fleet have been considered to be overheads and have been aggregated and then divided by the number of fleet.

Other operators

- 3.3.6 To calculate the unit cost rates for all other operators the 2016/17 unit costs calculated for First Manchester and Stagecoach Manchester were grouped into the following categories:
 - i. Fuel (fuel);
 - ii. Payroll (driving staff, maintenance staff and admin staff);
 - iii. Depreciation (depreciation and leasing); and
 - iv. Other non-fuel (engineering parts, insurance claims and overheads).

- 3.3.7 Fuel unit costs were taken to be the same for smaller operators as for larger operators and no adjustments were therefore made.
- 3.3.8 However for the other three cost categories percentage reductions have been applied to the unit rates calculated for the two larger operators. On average the reduction in costs is 28% across the three categories and is to account for a number of factors, including for example, lower employee costs due to smaller operators not having defined benefit pension schemes and also to reflect their lower overhead bases. The reduction in unit rates are based on an analysis of operator information provided to TfGM.

Variable / semi-variable costs

- 3.3.9 The differing variability of costs with changes in supply volumes has also been accounted for in the Financial Model, such that costs do not all change proportionally as supply volumes change. For example, while removal of a service might be expected to save the cost of the driver hours associated with this service, a full proportional reduction in overheads is unlikely to be achieved.
- 3.3.10 The approach taken to modelling variability by cost category is detailed in the table below.

Table 1: Variability by Cost Category

Cost category	Unit	Treatment in model	Percent applied	Justification
Driving staff	Per hour	Variable	100%	Driver costs are directly impacted based on the required number of hours. Reductions in hours will reduce costs through number of drivers required and level of overtime if less than a FTE.
Maintenance staff	Per vehicle	Semi-variable	75%	A series of different scenarios were modelled and the scale of the reduction is the key issue, with lower reductions resulting in ratios of less than 100% when reflecting FTE manpower reductions. Whilst, for a reduction in excess of 20%, a figure of 100% appears to be appropriate, industry experience suggests that, in practice, 100% is unlikely to be achieved, especially as there will be a degree of lag in reduction of staff. Therefore, a figure of 75% has been used in order to be prudent.
Admin staff	% of other payroll cost	Semi-variable	25%	As above, there will be an element of 'fixed' staff costs, with industry experience suggesting that this will be c25%.
Depreciation and leasing	Per vehicle	Variable	100%	Assumed decreases in line with number of fleet, and assumptions that unused vehicles can be transferred to another cost centre or sold.
Insurance claims	Per vehicle	Semi-variable	50%	Claims costs is dependent on a combination of severity and frequency. Whilst a reduction in fleet and therefore on-road kilometres should result in a reduction in the quantity of claims, the resulting cost per claim can vary considerably depending on the specifics of the injuries/damages. In addition the expenditure charge will be affected by prior year claims which can take time before they are finally settled and could result in an over or under provision from those historical years (i.e. these costs don't apply to current year on-road performance). Therefore a 1-1 basis would not be appropriate for this category of cost and a 50% rate was therefore considered appropriate.
Engineering parts	Per km	Variable	100%	Changes in kilometres will impact the wear and tear of parts and therefore the costs for replacements.
Fuel (net of BSOG)	Per km	Variable	100%	Changes in kilometres will directly impact the amount of fuel required.
Overheads	Per vehicle	Semi-variable	25%	Overhead costs will vary based on the number of fleet available but not on a 1-1 basis. A percentage is therefore to be applied to the movement in fleet to allow for the 'fixed' cost element. The overall percentage was derived by applying individual percentages (based on industry experience) to cost line data obtained from Operator Information. For each cost line, an upper and lower percentage was selected and while industry experience suggested that the upper figures might be achieved, a central estimate between the upper and lower figures was used in order to be prudent.

3.3.11 The column headed 'percent applied' indicates the level of cost variability relative to a change in the associated unit volume, such that with (for example) maintenance staff, a 1% cut in fleet would result in a 0.75% cut in associated costs.

3.4 Resulting operator margins

3.4.1 Operator margins¹ in the Reference Case are derived from the excess of forecasted revenue over forecasted costs.

1 Refer to Bibliography

1. EY (2018). Operator Profit Margin.

- 3.4.2 The reference case includes assumptions about how operators will respond in a declining market. Following a decade or more of relatively stable patronage in Greater Manchester, the bus market has entered another period of decline. In a declining bus market, operators have two principal levers for protecting their profitability. They can cut kilometres or increase fares or apply a combination of the two levers. Both responses will cut patronage further and the transport model forecasts the impact on patronage.
- 3.4.3 The reference case for the appraisal includes assumptions for fares growth and bus kilometres reductions developed in an iterative process, guided by three principles:
 - i. Fixed year-on-year fares growth of RPI + 1.4% based on analysis of historic fares and forecast operating cost changes;
 - ii. Kilometres set year-by-year to return EBIT to within a range of 10% to 15% to match long-term average; and
 - iii. Outturn long term kilometres and patronage reductions are correlated in a roughly 1 to 1 relationship.
- 3.4.4 As the current level is below this the operators will need to take action in terms of reducing network kilometres and/or increasing fares. This is supported by recent trends in Greater Manchester, which showed:
 - i. EBIT margins for the FY 2017/18 of 14.86% for Stagecoach Manchester and -6.69% for First Manchester;
 - ii. 2018 and recent trends up to January 2019 show significant kilometre reductions, including on competitive corridors, with First also closing their Rusholme depot;

- iii. The January 2019 fares increases for First Manchester and Stagecoach Manchester included rises for day and week tickets of 7%, with many other fares and ticket prices also increasing above inflation, although some of the area based period ticket prices and most Stagecoach Manchester single fares did not increase; and
- iv. Over and above the fares and network actions operators have also:
 - Reformed their Defined Benefit pension schemes;
 - Continued with cost reduction programmes;
 - Sold depot capacity; and
 - Lowered rates of fleet investment.
- 3.4.5 The approach to estimating what the likely margin the operators would be targeting in a deregulated market was to review the current market trends, operator information and also to look at other experiences and sources available. Based on the review of information this resulted in an average operator EBIT margin over the appraisal period of approximately 10%. The 10% EBIT margin is the estimated most likely average target margin for operators. The basis for achieving the EBIT margin was through a reduction of kilometres. It was agreed that the operators would need to get to this level of EBIT margin by circa 2022 to ensure the sustainability of their businesses.

3.5 Financial case outputs

3.5.1 Using the forecast revenues, unit cost rates and volumes the outputs from the financial model for franchising and partnerships are summarised in Appendix B and Appendix C. These show the year by year total forecasts for TfGM income and expenditure. The net position is reported in the Assessment.

4 Operator margins under Franchising

4.1.1 In order to determine an appropriate operator EBIT margin for inclusion in the franchising financial model, a review of operator profit margin has been undertaken.

4.2 Identifying benchmarks

- 4.2.1 The London bus market is the most appropriate comparator for the following reasons:
 - i. the TfL bus contracting model is closely aligned with current assumptions of the future TfGM franchise model, including particularly in terms of the balance of risk between operator and

- authority and the length and specification of franchises (refer to the *Bus Franchising Margin Report* (EY, 2018) and;
- ii. the operators in the London market are likely to be prospective bidders in a franchised market in Greater Manchester. In addition the three largest operators in GM either are, or have been, major players in the London market. Therefore, the commercial environment in London, and the approach to earning a return from it, are well understood by the likely players in GM.
- 4.2.2 Nexus used benchmark data from the London market to inform its margin assumption as part of its proposals to introduce a QCS in Tyne and Wear. The QCS Board concluded that Nexus' assumption of an 8% EBIT margin was "not unreasonable", and recognised that there was a lack of comparable benchmarks available. However, it cautioned that there were significant structural differences between the London market and the proposed QCS and concluded that Nexus had not sufficiently considered the premium on margin that would be reasonable for QCS-specific risks versus the London market.
- 4.2.3 Analysis by TfGM's advisors considers that, despite the conclusions of the QCS Board with respect to the Nexus QCS, the London market represents an appropriate benchmark for the proposed TfGM franchise model because unlike the case in the Nexus QCS proposal for Tyne and Wear, the TfL bus franchise model is closely aligned with current assumptions of the future TfGM franchise model. Including, in particular in relation to the creation of a dynamic and enduring franchising market with greater certainty of a rolling programme of franchise competitions in the future, franchise length and risk profile. Refer to the *Bus Franchising Margin Report* (EY, 2018) for detail.
- 4.2.4 The benchmarking data has been used as a basis for calculating the margin assumption by considering any differences between the TfGM franchise model and the London market and if this is likely to increase, decrease or have no impact to the GM margin.

4.3 Derivation of appropriate margin for inclusion in franchising model

- 4.3.1 Analysis carried out by TfGM's advisors indicates that under franchising, it would be appropriate to assume an EBIT margin in the range of 6%-9% based on the currently understood specification and likely risk allocation as explained above.
- 4.3.2 The range is principally benchmarked against outturn margins earned by London operators from financial statements data; with the London comparator benchmark data sample having been adjusted to exclude

- "outliers" that have not been consistently profitable for at least three of the last five years. This results in an average margin of 7.1%
- 4.3.3 As stated above the following differences have been considered in TfGM franchise model to the London market which overall forecast a neutral / slight increase in the expected operator margin:
 - Operational and quality (increase) Although TfGM's approach is consistent with the London market the new performance regimes together with a lack of benchmark data will add risk to operators who are likely to price this risk, particularly in the first round of franchising.
 - ii. Fuel (decrease) TfGM's approach will reduce operator fuel price risk compared to London. This is because TfGM will take fuel price risk by indexing subsidy payments by outturn fuel prices. Whereas TfL applies a fuel price index to only c. 7% of costs, whilst fuel represents c. 16% of costs.
 - iii. Fleet (increase) TfGM will introduce a residual value mechanism to limit risk to outgoing operators and potentially make fleet available to new operators, which could lower a barrier to entry. Residual value mechanism is likely to lower the expected margin due to lowering barriers to entry and eliminating residual value risk.
 - iv. However it is understand that many London operators lease significant portions of their fleet (potentially more than in GM) allowing them to bid at lower EBIT margins than if the fleet were owned, as the accountancy treatment of interest and operational leasing charges is different.
 - v. Depots (decrease) TfGM will own large depots and lease them to operators at market rates which removes a barrier to entry which could lead to a more competitive bidding environment in GM in the longer term. Note it is assumed the costs are re-charged to TfGM with a nil net impact. There would therefore be no incentive to bid aggressively to fill spare depot capacity which is understand to be a feature of the London market, which may decrease this effect for some contracts.
- 4.3.4 The above considerations inform a financial assumption for the EBIT margin that operators can be expected to incorporate into their financial bids of approximately 7.5% on average over the longer term (i.e. in the middle of the 6%-9% EBIT range). This is after taking the average London market margin of 7.1% and the overall slight increase in risk in the TfGM franchise model.

- 4.3.5 This assumed margin of 7.5% is below the resulting margin in the Reference Case (described in Section 3.4) because TfGM would take on some of the risks that operators current face, meaning that operators would require a lower return under a franchised model. This is considered in detail in the *Bus Franchising Margin Report* (EY, 2018). Note that a sensitivity test is presented where the EBIT margin is varied from the central case assumption of 7.5% to 9%.
- 4.3.6 TfGM has considered whether margins are likely to change between first and subsequent franchise periods. This possibility is accounted for through the Quantified Risk Assessment (refer to Financial Case in the Assessment). The QRA reflects a number of commercial risks around the transitional and first round of franchising phase which are quantified in terms of margin type parameters and hence the risk allowance reflects the chance of additional costs or adverse revenue impacts in the transitional and first round of franchising phases.

5 Bibliography

1. EY (2018). Operator Profit Margin.

6 Appendix A

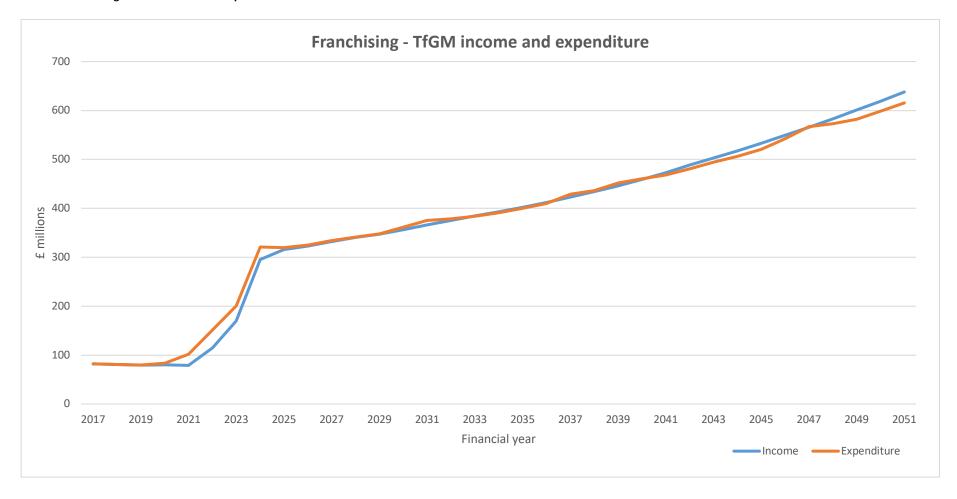
- 6.1.1 This section provides a definition of operator margin referred to throughout this document.
- 6.1.2 For the purposes of the Assessment, the terms 'operator margin' and the equivalent 'EBIT margin' (and the corresponding figure) is used to reference the profit the franchised operator is expected to earn. EBIT stands for 'Earnings Before Interest and Tax'. The profit figure quoted is therefore prior to the deduction of interest charges on any outstanding debt (relating to the purchase of the bus fleet, for example) and any tax charge.
- 6.1.3 This profit element is referred to as the 'operator mark-up' when expressed as a proportion of the total costs, and is referred to as the 'operator margin' when expressed as a proportion of the total bid price. For clarity, Table 1 provides an illustrative example of the definition of EBIT margin / operator margin versus a cost mark up.

Table 2: Margin Vs Cost Mark Up

'MARK UP' VERSUS 'MARGIN' EXAMPLE	£	CALCULATION	%
Total operator costs (before interest and tax)	100,000	Α	
Operator mark up (e.g. 10% on costs)	10,000	(A * 10%) = B	10%
Bid price / turnover	110,000	(A + B) = C	
EBIT margin	=10,000/110,000	(B/C) = D	9.1%

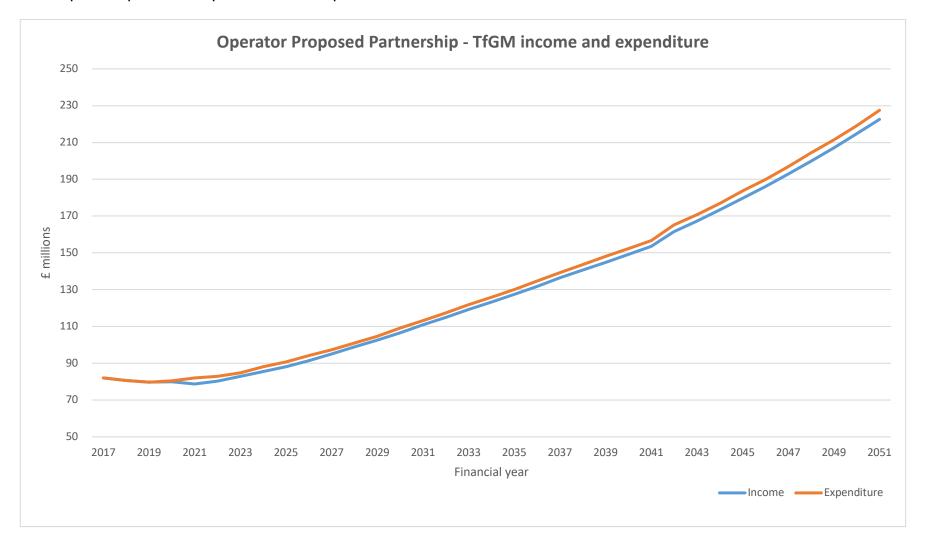
7 Appendix B

Chart 1: Franchising - TfGM Income and Expenditure



8 Appendix C

Chart 2: Operator Proposed Partnership – TfGM Income and Expenditure



03 Financial Case Supporting Paper WEB 19

Chart 3: Ambitious Partnership – TfGM Income and Expenditure

