Greater London Authority
Royal Docks Enterprise Zone

Technical Note

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Draft

1 Introduction

The DLR fare revenue model has been developed by Transport for London (TfL) mainly for internal purposes. However, the Enterprise Zone model scenarios (see Section 5 for further information) have been run through the model to provide an initial view of the contribution net fare revenue could generate.

The spreadsheet consists of four separate worksheets. Three of these worksheets feed the remaining worksheet where the main calculations are undertaken. Each of these worksheets is described in the following sections.

2 Yield Worksheet

A yield in terms of pounds per passenger journey has been calculated for each assessment year using DLR journey yields for 2013 (Quarter 2) as a basis. To be conservative a yield estimate on the lower side has been used to ensure the assessment is robust.

In calculating the yield value for each year it has been assumed that the yield tracks average journey lengths. These average journey lengths have been sourced from TfL's public transport model that has been run to determine the impact of the proposed DLR service enhancement. Between the modelled years average journey lengths have been interpolated.

The DLR yield has been assumed to grow in line with RPI. Bus yields are assumed to remain constant in real terms throughout the assessment period.

3 Demand Worksheet

The demand worksheet is fed with data that has been output from the TfL LUTE model for the AM peak hour. The LUTE model has been run using the land use assumptions identified for each of the Enterprise Zone scenarios (see Section 5) to provide a number of passenger journeys that will be generated by the developments. The mode share splits identified in the individual transport assessments (TAs) for each of the developments have been used to identify how many of these trips will utilise the DLR. This approach has been adopted to

avoid the need to run TfL's public transport model which would be very time consuming. Once the development is occupied travel demand is assumed to remain stable.

Annualisation factors of 800 for the ABP development and 1500 for the Silvertown Quays development have been used in order to calculate the number of trips generated by the developments on the DLR each year from the AM peak information from the LUTE model. These are felt to be appropriate given the nature of the developments.

Separately, assignment modelling has been carried out previously by TfL to calculate the number of trips that are generated by the service enhancement that are unrelated to the development proposals. The annualisation factors assumed for these trips is 500, as these service enhancements will generally only have an impact in the peaks – at off-peak times, changes will be limited to train lengthening which only has a small trip generation effect.

Of the new DLR trips that are generated it has been assumed that a certain percentage will have been abstracted from bus services to allow TfL to understand the impact on their overall revenue position. The percentage is calculated for each assessment year utilising a base figure of 66.8%.This comes from a comparison of two scenarios in the previous assignment modelling – one with the service enhancements and one without. The change in bus usage between the scenarios forms the basis of the abstraction calculation.

Finally, this assignment modelling also allows a comparison of a "crowding-constrained" scenario of how many people would travel to the development, versus the assumptions made in the TAs, which are effectively unconstrained. The difference between the two equates to the demand that can travel to the development by DLR only if services are enhanced.

4 Costs Worksheet

Operating parameters for the preferred service enhancement scenario being pursued by TfL have been estimated by TfL and include the number of train kilometres, vehicle kilometres and train staff hours required. These have been set out in the cost worksheet where the number of staff required to fulfil the train staff hours identified has been calculated assuming staff work 10 hours per day, 230 shifts per year and there is 90% staff availability. The operating costs are assumed to occur from 2021 onwards when the service enhancement is due to be commence.

5 Calculator Worksheet

The Calculator Worksheet draws together all of the information from the other worksheets and calculates a series of financial metrics for each of the development and service scenarios as selected from a drop down menu. For the purposes of the assessing the Enterprise Zone the service scenario selected in each case assumes that the development and DLR service enhancements will take place concurrently over the assessment period.

The development scenarios are as presented in the main report and summarised in Table 1.

Table 1: Assessment Scenarios

Scenarios
Scenario 1 – Development Agreement profile (Base Case)
1a – All phases
1b – 50% take up
1c – optimism bias
1d – break even
Scenario 2 – DTZ profile
Scenario 3 – Developer profile

Note: For the DLR revenue modelling the land use assumptions and therefore travel demand for Scenario 1a and 1c are the same.

To ensure consistency with the business rate modelling undertaken by DTZ an assessment period of 25 years has been set within the spreadsheet with a start date of 2013.

Yearly revenue figures are calculated using the yield and demand figures set out in the other worksheets. The DLR revenue is calculated by multiplying the yearly yield (£/passenger) by the additional annual journeys that are estimated to take place on the DLR. This provides DLR revenue per year. However, a further step is introduced in the spreadsheet to account for the abstraction of TfL revenue from bus journeys as a result of the introduction of the enhanced DLR service. The yearly abstraction percentages calculated in the demand worksheet are used to calculate how much revenue will be abstracted from buses and this is taken away from the overall DLR revenue to provide an overall net TfL revenue figure per annum.

The operating costs of introducing the enhanced DLR service are calculated using the information on train kilometres, vehicle kilometres and numbers of staff required (as set out in the cost worksheet) together with fixed costs for 2-car and 3-car train kilometres and annual staff salaries. These fixed costs are based on the most recent franchise costs (for the year 2022). Due to commercial sensitivities these fixed costs cannot be directly reported within this technical note. They are calculated by the DLR franchisee operator primarily based on maintenance and energy costs.

No real annual train operating cost inflation is assumed to take place on the assumption that the train operating costs last until the end of the new franchise in 2021 and the new trains to be introduced as part of the service enhancement will be more efficient and

could offset any increase in energy costs. Staff salaries do not grow in real terms until after 2023, when a 0.8% real staff salary inflation is assumed in line with TfL business case methodology.

The remaining elements of the worksheet calculate the DLR and TfL operating surplus for the scenario being assessed. As inflation has been accounted for the calculation of the fare revenue and operating costs a TfL operating surplus in real terms has been calculated by taking the operating costs away from the net TfL revenue estimates for each assessment year. These annual operating surplus figures have then been discounted using HM Treasury Green Book values (3.5% for period up to 30 years).

6 Results

Table 2 overleaf summarises the results of the fare revenue model. The table includes the discounted annual TfL operating surplus for the 25 assessment period starting in 2013 for each of the Enterprise Zone modelling scenarios assuming the introduction of TfL's preferred service enhancement package for the DLR.

These results are considered suitable to include within the overall viability assessment prepared by DTZ.

Table 2: TfL Discounted Operating Surplus (£) by Scenario and Year

Year	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 1d	Scenario 2	Scenario 3
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	-	-	-	-	-	-
2016	-	-	-	-	489,498	958,357
2017	-	-	-	-	953,961	1,867,701
2018	-	-	-	-	1,336,956	2,617,542
2019	213,651	204,382	213,651	400,596	1,689,595	2,991,937
2020	408,055	390,353	408,055	765,103	2,055,134	3,832,248
2021	(90,501)	(326,705)	(90,501)	29,644	1,178,168	3,042,662
2022	370,583	(69,092)	370,583	324,679	1,365,845	3,246,865
2023	778,639	152,516	778,639	571,359	1,520,025	3,414,271
2024	1,074,008	318,933	1,074,008	771,388	1,727,470	3,609,207
2025	1,212,547	363,471	1,212,547	730,879	2,130,058	3,806,464
2026	1,383,251	486,342	1,383,251	727,191	2,495,083	3,808,146
2027	1,390,971	543,843	1,390,971	684,247	2,760,082	3,740,244
2028	1,394,975	594,783	1,394,975	643,883	3,166,600	3,716,572
2029	1,560,343	604,731	1,560,343	602,972	3,483,462	3,655,146
2030	1,710,235	612,971	1,710,235	564,426	3,559,295	3,552,555
2031	1,762,404	596,790	1,762,404	520,948	3,476,319	3,445,927
2032	1,837,198	602,051	1,837,198	500,501	3,434,893	3,382,415
2033	1,891,098	690,297	1,891,098	480,819	3,319,235	3,319,235
2034	1,948,707	789,634	1,948,707	461,874	3,222,075	3,222,075
2035	2,000,237	881,442	2,000,237	443,640	3,127,670	3,127,670
2036	2,046,033	966,119	2,046,033	426,091	3,035,946	3,035,946
2037	1,974,363	930,968	1,974,363	409,202	2,930,800	2,930,800
25 Year NPV	**£24,866,798**	**£9,333,828**	**£24,866,798**	**£10,059,442**	**£52,458,171**	**£70,323,984**