LONDONASSEMBLY

John Biggs AM, Chairman of the Budget and Performance Committee

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Leon Daniels
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Dear Leon,

On 2 September, the Budget and Performance Committee held a meeting on the New Routemaster bus (NRM) project. The purpose of the meeting was to examine the project in detail: to look at how the programme developed from concept through to design, development and manufacture; and to assess the various investment decisions taken by TfL between 2008 and now.

The meeting built on the Committee's work from its investigation into the *Viability of Sponsored Transport Schemes*[1], which questioned the process by which TfL went about making some of its investment decisions and the quality of analysis included in its business cases.

We would like to share with you the key findings from our work, which we hope will influence decision making over future bus orders and more broadly, how TfL could improve its investment decision-making process and make it more transparent.

I would like to thank you again for attending the meeting and for the providing the Committee with all the business cases and TfL papers on the NRM project, which we have published on our investigation page.[2]

Concept, design and development

Concept

The idea to design and build a new bus for London was driven by the Mayor rather than TfL. Prior to Boris Johnson becoming Mayor in 2008, TfL had not identified a need for a new bus or carried out any detailed analysis of the potential benefits or costs of developing a new bus for London. Boris Johnson made an election manifesto pledge to commission a 21st century Routemaster with conductors and to put them into operation by the end of his first term in 2012. As you told the Committee, it is TfL's job to deliver the elected Mayor's transport manifesto promises. We can conclude, that the robustness of the business case was therefore of little consequence.

[1] https://www.london.gov.uk/mayor-assembly/london-assembly/publications/investment-spending/the-viability-of-sponsored-transport-schemes
[2] https://www.london.gov.uk/mayor-assembly/london-assembly/investigations/is-the-new-routemaster-value-for-money

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A challenging timeframe

The Mayor set TfL a challenging task when he asked it to design and develop a new bus within four years. The original Routemaster took more than seven years to develop and went through several in-service modifications before it came to be regarded as both reliable and iconic. On this basis, TfL is right to be proud of what it has achieved in delivering a new bus for London on time and on budget.

There is evidence to suggest, however, that the short time frame for delivery had implications on the design and development of the project. First, the design competition was only open for two-and-a-half months, limiting both the quality and detail that designers could provide. Second, when bus manufactures were invited to bid for the contract to design and build the new bus, some pulled out on the basis that the timetable for delivery was not feasible. Third, there have been some technical issues - mostly relating to the bus's weight, battery and air circulation systems - that were not resolved prior to the bus going into service.

We are pleased to see that you have finally taken note of passengers' concerns and will be retrofitting all NRMs with windows that open. With over 500 complaints since 2013 about the lack of air flow on the upper-deck, it is disappointing that this solution was not reached sooner. We were surprised to hear as recently as September at our meeting that you believed the problem was purely one of passenger perception and that having windows that open could worsen the problem. The complicated air-chilling system has not worked and neither have TfL's attempts to improve it over the past two years. We are relieved to see that sense has prevailed and the over-engineered air-chilling system has been abandoned in favour of the old-fashioned but simple solution of having windows that open.

Achieving iconic status

Given the Mayor's requirement for the bus to be iconic, TfL should have carried out more work to determine both the value and cost of fulfilling this condition. We do not doubt there is value in having a bus which is hugely popular and immediately associable with London, but, given the extent to which the project is justified on the basis of the bus's iconic status, the business cases should have included some analysis on the value of London having an iconic bus.

Even more importantly, TfL failed to recognise that by developing an iconic bus, it was unlikely to have a market outside of London. For example, while the second staircase is an attractive feature in busy central London, the bus had to be made a metre longer to accommodate it making it difficult to navigate around routes with narrow roads and sharp turns. Similarly, while the third door at the rear of the bus adds passenger convenience, bus stops in many cities are not long enough to make use of this setup. As you told the Committee, "we cannot really have this both ways". We cannot expect to have an iconic bus, specifically designed to fulfil London's needs and expect it to have a market outside of the capital. As obvious as this now seems, the 2009 business case was based on TfL having it both ways – a bus designed to fulfil London's unique needs and a bus that would be bought and used by other cities around the world and thereby be more affordable to TfL.

<u>Benefits</u>

The NRM's unique selling points

Beyond the importance of having an iconic bus to replace the old Routemaster, the bus was sold by the Mayor and TfL on its passenger convenience and green credentials. We were told about the

substantial benefits that three doors, two staircases and an open rear platform with hop-on hop-off convenience would provide on busy central London routes – i.e. flexibility for passengers and lower dwell times at bus stops leading to shorter journey times. It was also alleged that the NRM would be more environmentally friendly than other options, and cheaper to run due to being more fuel efficient.

It is therefore somewhat surprising to find out that, by the time a business case had been developed, the greatest benefit the bus was expected to bring was that it was really quiet. The 2013 business case puts a value of £4.9 million per annum on its noise reducing credentials compared to £4.6 million for its emission credentials and £2.6 million for journey time reduction benefits. Curiously, in calculating the noise reduction benefit of the NRM over other buses, TfL does not distinguish between the relative noise levels on diesel and standard hybrid buses.

Open platform benefits and disbenefits

In contrast to the Mayor, TfL does not appear to see that there is value in operating the NRM with an open platform and second crew member. The Mayor sees the conductors as a key element of what makes the Routemasters iconic and hence it was a requirement he committed to in his election manifesto pledge. TfL, however, suggested in its 2009 business case that even before the additional cost of employing conductors is considered, the benefits of operating the buses in open platform mode are more than negated by the dangers of doing so.

The Mayor and TfL appear to have reached a compromise whereby seven routes (240 of the fleet of 800 buses) will operate with an open platform and a conductor. There is no indication within the business cases or associated TfL papers as to why seven, and only seven, routes should be operated with open platforms and conductors. You have assured us that TfL does not currently have any plans to reduce the number of routes that operate in open platform mode. However, it is not clear whether this is because of a commitment TfL has made to the current Mayor, or because it believes there is a business case for continuing to operate these routes in open platform mode - perhaps to preserve the iconic value of the new bus.

Emission and fuel consumption benefits

As engine technology has advanced, the emission and fuel efficiency benefits seen in the early versions of the NRM compared to other hybrid buses have reduced to almost nothing. The first 306 NRMs were fitted with Euro 5 engines and evidence from Millbrook test track suggests that these are considerably greener than other Euro 5 hybrid double-decker buses. However, in 2014, buses began to be fitted with Euro 6 engines. A Euro 6 NRM is no more fuel efficient and only produces marginally lower levels of harmful emissions than a Euro 6 hybrid bus.

By 2020, the 306 Euro 5 NRMs will be the worst performing buses in terms of emissions in central London. With the Ultra Low Emission Zone (ULEZ) due to be introduced in 2020, all buses operating in the central zone will need to meet Euro 6 standards with the exception of the NRM. Testing at Millbrook shows that the Euro 5 NRM is much greener than other Euro 5 buses, but TfL cannot escape the fact that does not meet the Euro 6 standards required of all other vehicles. Unfortunately, TfL's hands are tied and, with no second-hand market for them outside London, TfL has little choice but to keep using them until 2026-28 when they reach the end of their useful life. TfL has told us that retrofitting Euro 5 NRM buses to Euro 6 standards is not currently a cost effective solution, but is hopeful that advances in the retrofitting industry may make this a viable option in the future. If this is

not possible before 2020, TfL should set an example, comply with ULEZ requirements, and deploy all Euro 5 NRMs to routes outside the ULEZ until they are retrofitted or replaced by Euro 6 compliant buses.

Assessing the NRM's actual benefits

NRMs have been in operation in London for more than three years, but TfL has not carried out any detailed analysis of whether they have delivered the expected benefits. Despite calls to reassess the benefits and costs of the NRM from both the Independent Investment Advisory Group and TfL's Surface Board, TfL took the decision to order a further 200 buses in November 2014 without doing this work. TfL justifies this on the basis that the November 2014 order helped TfL fulfil a pre-existing commitment to have 1,700 hybrid buses in operation by May 2016. This argument, however, is missing the point. We recognise that TfL may have needed to order 200 more hybrid buses for delivery by May 2016, but an updated business case would have allowed TfL to make a more informed decision as to whether to order 200 more NRMs or 200 other hybrid double-decker buses. It would appear that the option of ordering 200 hybrid double-decker buses instead of NRMs was never a serious consideration.

Costs

The 2013 business case suggested that the overall cost of a fleet of 600 NRM buses would be less than a fleet of comparable hybrid buses other than for the cost of additional crew members. It notes that prior to the inclusion of the extra costs of staffing 240 buses with conductors, TfL would save £32 million between 2013 and 2030 from using 600 NRMs instead of standard hybrid buses. Given that this calculation includes all development costs and the off-the-shelf cost of an NRM is £350,000 compared to £310,000 for a standard hybrid bus, this shows the scale of operational savings that TfL expected the NRMs to deliver. The majority of these forecast savings are due to TfL taking the risks of owning the buses off operators (see below). However, some savings were expected to come from TfL being able to operate routes at peak times with fewer buses, due to dwell time reductions (NRM buses were expected to complete routes more quickly as they would have to spend less time at bus stops). Unfortunately, TfL is unable to demonstrate whether these Peak Vehicle Requirement savings have materialised as increases in ridership and worsening of traffic conditions mean there has not been a steady state to carry out any meaningful tests.

The cost of having to purchase the fleet

TfL's usual operating model for buses is to require operators to purchase or lease buses from third parties. This model has been recognised both by IIPAG and the International Bus Benchmarking Group as delivering excellent value for money and TfL had intended to use it with the NRM. However, as there was no market for the bus outside of London, bus operators were unwilling to buy buses with a useful life of fourteen years, but with a contract to operate them for less than half that time without significantly raising their operator charges. TfL's usual operator-owned bus model was therefore not financially viable for NRMs and TfL had no choice but to purchase the entire fleet of NRMs.

The 2013 business case fails to recognise that while there are operational savings from TfL taking the risks of owning buses off operators, these risks come at a cost to TfL. The risk of owning the buses is usually borne by bus operators and costed into their operating contracts and so, it is not surprising that the business case showed that by buying the fleet, TfL would make operational savings.

However, one would have expected the business case to have attempted to put a price on the increased risk of owning the buses, and that lack of flexibility that comes from owing a fleet of buses that nobody else wants to buy.

The true cost of TfL owning the buses is starting to become clearer. By purchasing the buses, TfL has little choice but to use the buses for their full fourteen-year life. Without a second-hand market for NRMs, there is no financially viable way of replacing Euro 5 NRMs prior to the introduction of the ULEZ in 2020. Similarly, there will almost certainly become a point before 2030 when the performance of a Euro 6 NRM falls below other buses on the market. When that happens, TfL will not be able to replace its Euro 6 NRM fleet without significant financial loss.

Investment decision-making

Having reviewed the information which is available in the public domain, it is difficult to understand how the TfL Board justified its decision to invest in the NRM. We noted similar concerns with TfL's decisions to invest in the Cycle Hire and Thames Cable Car schemes in our investigation last year. Where business cases forecast a relatively modest benefit:cost ratio, it is the duty of TfL Board Members to question whether these schemes represent the best use of TfL's limited resources. Given the poor benefit:cost ratios for the NRM (-0.1:1 in 2009 and 0.7:1 in 2013 and 0.2:1 in 2014) we would have expected a far more detailed justification for the project either as part of the business case or included in the associated Board papers. Without this, the public is left with little option other than to conclude there was not a strong, objective case for investing in the NRM.

IIPAG has raised similar concerns to us about the quality of analysis included within the 2009 business case. IIPAG noted that there was a "political expedient" that came with the project, but it was very clear that it this should not lessen the requirement of the business case to justify the investment.

London's transport benefits hugely from the 'strong mayor' setup but this model can only work if there is transparency around decision-making. However, while this setup brings certain benefits, it means that at times the political decision to carry out a project has been made before TfL has conducted any detailed analysis. We think it is vital that TfL maintains some independence from the Mayor and presents an objective case to its Board. The Board is then free to accept or reject the advice of its officers and, likewise, the Mayor can direct the TfL Board if he does not agree with their decision. The strengths of this setup come from having a clear separation of roles and a reporting framework that allows the public to understand the basis for every decision.

Further bus orders

You confirmed that TfL is not looking to order any more NRMs before May 2016. The next Mayor will therefore have the freedom to decide, with the help of TfL, whether to order more NRMs or whether to limit the fleet to the 800 that will be in place at the start of their office.

From the information available to the public, the case for ordering more NRMs would seem to be as weak as it was when TfL took the decision to order 200 more in November 2014. As we have already noted, the business case and supporting documentation justifying the order in 2014 were not convincing and ultimately the decision appears to have been predicated on *"the popularity of NRMs*

with passengers and their impact in driving up overall customer satisfaction and brand momentum for buses".

As TfL upgrades the double-decker buses on its central London routes, the justification for ordering more NRMs or choosing to use other double-decker hybrid buses should be clearly set out and put in the public domain. Business cases for replacing buses on central London routes should include a detailed appraisal of the benefits and costs that the NRM has delivered in operation and how these compare to other hybrid alternatives. Where the benefits and costs are difficult to quantify and include in benfit:cost ratio analysis, sufficient explanation should be included within the business case to allow the public to understand how much weight has been given to these factors and ultimately why TfL has come to its business decision.

We trust that TfL will take note of our concerns as it looks to make further upgrades to London's bus fleet and, more broadly, as it looks to improve its investment decision-making process and make it more transparent. I would be grateful if you would respond to this letter by 20 November 2015, (copying in the Project Officer, as per the details below).

Yours sincerely

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Chair of Budget and Performance Committee

cc. Isabel Dedring, Deputy Mayor, Transport

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