

Crossrail 2

Funding and financing study

27 November 2014

Important notice

This document has been prepared for Transport for London (TfL) in accordance with the terms of Call-Off Contract Task 11 – Crossrail 2 Funding and Financing Study under Framework TfL 90440 dated 14 March 2014 and solely for the purpose and on the terms agreed with TfL. We accept no liability (including for negligence) to anyone else in connection with this document.

This document contains information obtained or derived from a variety of third party sources as indicated within the document. PwC has not sought to establish the reliability of those sources or verified the information so provided.

Should any person other than TfL obtain access to and read this document, such persons accepts and agrees to the following terms:

1. The reader of this document understands that the work performed by PwC was performed in accordance with instructions provided by our client, TfL, and was performed exclusively for their benefit and use. The document may therefore not include all matters relevant to the reader. The document is provided for general guidance only and does not constitute investment or any other advice.
2. The reader agrees that PwC accepts no liability (including for negligence) to them in connection with this document.

PwC was commissioned to analyse potential options to raise funds towards the cost of the Crossrail 2 scheme. We consider the financial position of each fund raising approach, experiences with their use elsewhere, comment on their feasibility and model their potential contribution, on the basis of a number of assumptions. The report does not recommend or support specific solutions. It aims to illustrate a range of funding and financing models that could be available to policy makers.

Contents

1	<i>Executive summary</i>	4
2	<i>The Crossrail 2 project</i>	8
2.1	Introduction	8
2.2	Background	8
2.3	Route options	9
2.4	Project modelling	11
2.5	Project timing	12
2.6	Project revenues	12
2.7	Project costs	13
3	<i>Funding – Introduction</i>	19
3.1	Funding	19
4	<i>Project generated revenues</i>	21
4.1	Introduction	21
4.2	Operating surplus	21
4.3	Project generated revenue sensitivities	22
4.4	Conclusion	23
5	<i>Using the funding package from Crossrail 1</i>	24
5.1	The Crossrail 1 funding model	24
5.2	Business rates supplement	25
5.3	Mayoral Community Infrastructure Levy	28
5.4	Resale of Land and Property	34
5.5	Results	36
5.6	Conclusion	36
5.7	Project scenarios	36
5.8	Macroeconomic sensitivities	38
6	<i>Additional options using Existing Mayoral Powers</i>	39
6.1	Introduction	39
6.2	Council Tax Crossrail 2 precept	39
6.3	Changes to Mayoral Community Infrastructure Levy	41

6.4	London-wide fare rise	41
6.5	Funding Package Scenarios	43
7	<i>Value capture from land and property value enhancement</i>	45
7.1	Introduction	45
7.2	Station Zone Value Capture	45
7.3	Negotiated Contributions	52
7.4	Intervention in development areas	54
7.5	Conclusion	56
8	<i>Alternative funding mechanisms</i>	57
9	<i>Financing</i>	58
9.1	Introduction	58
9.2	Funding and financing	58
9.3	Options for private financing	58
9.4	Which public sector entity should raise finance?	61
9.5	Crossrail 2 financing assumptions	63
10	<i>Appendices</i>	64

1 *Executive summary*

London's projected growth is going to put strain on its infrastructure. By 2036, London's population is projected by the Office for National Statistics (ONS) to have grown to 10.1 million, and by 2050, to 11.3 million. Over the next 20 years, the number of jobs in Central London is projected to grow by 700,000, the majority of which will be in the Central Activities Zone (CAZ). This will put pressure on key infrastructure such as housing and transport. Although capacity is being added to London's transport system – including Crossrail, the Thameslink Programme and the Tube upgrade - Transport for London (TfL) is forecasting that this new capacity will be insufficient to address the transport needs that London will face in the future.

It is in this context that the Crossrail 2 project is being considered. TfL is currently preparing a further strategic case for the project, but for the project to move forward a strong business and economic case is not sufficient: there must be a credible funding and financing strategy.

The Mayor of London was challenged by the Chief Secretary to the Treasury “*to determine how at least half of the cost of the scheme can be met through private sources, ensuring that it will be affordable to the UK taxpayer*”.

To develop a response to this challenge, TfL appointed PwC in March 2014 to carry out a Funding and Financing Feasibility Study for Crossrail 2.

The key objectives of this Funding and Financing Feasibility Study were to:

- identify a “menu” of Crossrail 2 funding options that attempts to capture the benefits that the project will generate, while highlighting the key challenges to their implementation;
- consider how the cashflows generated by these options could contribute to Crossrail 2's substantial funding requirement – and the extent to which private finance (i.e. borrowing) is viable; and
- consider lessons learned from previous experience in structuring, funding and delivering other UK major schemes, notably Crossrail 1 and High Speed 1 (HS1).

We have produced this report through a process of research, consultations and analysis. Specifically, we have:

- reviewed the existing analysis and reports commissioned by TfL;
- conducted a series of lessons learned meetings with stakeholders involved in other UK transport infrastructure projects;
- developed a financial model in order to quantify and assess the funding options available to finance the project;
- assessed the funding potential of those cashflows intrinsic to the Crossrail 2 project, i.e. the farebox revenue generated by passengers that TfL will receive net of the operating costs;
- considered the potential funding contribution to the project that could be made if it were possible to apply the equivalent local funding mechanisms that are being used for the Crossrail 1 project;
- considered the fundraising potential of other levies which are currently available to the Mayor;
- considered a range of value capture mechanisms related to property that could help fund the project; and
- researched UK and international case studies for examples of alternative funding mechanisms and local levies adopted in major cities around the world to fund transport and other infrastructure.

In the preparation of the report, we have worked closely with TfL officers, and reported to a Steering Committee that includes representatives from TfL, the Department for Transport (DfT), HM Treasury (HMT), Infrastructure UK (IUK) and Network Rail.

The report is structured as follows:

Section 2 provides background to the Crossrail 2 scheme, with specific focus on the issues which will influence funding and financing. It includes key underlying assumptions on construction cost (including optimism bias)

and construction timing for both the Regional and Metro Options of the scheme. It also summarises the cost benchmarking done by Crossrail Limited (CRL), which has concluded that Crossrail 2 should be deliverable within the overall estimated cost of £27.5 billion (for the Regional Option, including 66% optimism bias) under most scenarios. It should be noted that this cost captures rolling stock as well as certain additional Network Rail works which are likely to be required irrespective of Crossrail 2.

Section 3 describes the approach to funding, including the distinction between ‘funding’ and ‘financing’, and the approach to developing and appraising funding options.

Section 4 examines those cashflows directly generated by the operation of Crossrail 2, i.e. the farebox and ancillary revenues generated by passengers, net of the operating and maintenance costs. This analysis draws on work undertaken for TfL by CH2MHill and AECOM. The analysis shows that the project is relatively strong in terms of project generated revenue when compared with many other public transport projects.

However while the farebox and ancillary revenues generated by the project are estimated to provide about 20% of the funding requirement, this still leaves a significant funding requirement to be met from other sources.

Section 5 considers the contribution that could be made by applying, on an equivalent basis, the levies that are being used to fund the first Crossrail project (referred to in this report, for clarity, as ‘Crossrail 1’). This includes a continuation of the Business Rate Supplement (BRS) once the Crossrail 1 debt is repaid (now estimated to be in 2033), and applying Mayoral Community Infrastructure Levy (Mayoral CIL) revenues¹ to Crossrail 2 once the Crossrail 1 contributions from Mayoral CIL and the Section 106 scheme of £600 million have been made. The BRS and CIL are estimated to contribute an amount equivalent to 21% of the funding requirement of the Crossrail 2 project.

Whilst this proportion is lower than the proportion the same levies are expected to achieve on Crossrail 1 (approximately one third), it is expected that BRS revenues will only be available to Crossrail 2 from 2033, i.e. some 3 years after opening; whereas, in contrast, the BRS that helped finance Crossrail 1 was introduced some 8 years in advance of the opening of Crossrail 1. It is also important to stress that Crossrail 2 is a more costly project than Crossrail 1.

In addition, we have also considered the potential for the sale of development opportunities and sites required for the construction of Crossrail 2, after they are no longer needed for the scheme.

Section 6 considers additional powers that the Mayor already has to raise additional funds. These include increasing fares, replicating the Olympic precept for Council tax payers and increasing Mayoral CIL. These could each generate a useful contribution towards the costs of the project, but also have political challenges associated with them.

Section 7 considers the potential contribution to the funding of the scheme from property related developments and from land owners adjacent to the line.

First we consider the potential for capturing the uplift in business rates and Borough CIL that would be expected to arise from the enhanced investment activity and property values in the areas around Crossrail 2 stations. This is a form of ‘Tax Increment Financing’ (TIF), which draws on the experience of developing the funding package for the Northern Line Extension (NLE).

Our conclusion is that these funding streams taken together would raise a relatively small proportion of the funding needs of the project. With the assumptions used, value capture around Crossrail 2’s stations would only raise an estimated 1% of the project’s funding requirement.

This relatively low contribution reflects the broad purpose of the Crossrail 2 project, which would provide relief to existing lines and improved access across a significant area of London. The benefits of Crossrail 2 will be widely spread both within and outside the London boundaries, and there is expected to be relatively limited

¹ Generally at current rates, but with some changes as described in Figure 5-5.

scope for incremental development around the proposed Central London stations. In comparison, the NLE had a much lower funding requirement, was focused on improving access to a single, short corridor close to the centre of London and was able to draw upon and capture significant incremental property taxes from the transformational Nine Elms/Battersea development.

We have then considered the potential for the scheme to be partially funded by contributions from existing landowners along the route, drawing on the experience of Crossrail 1. Our conclusion from this is that there are fewer large landowners who are likely to contribute directly to the scheme, in the same way that for example Canary Wharf Group and BAA made direct contributions to Crossrail 1.

Finally, we have considered whether value generated from large scale transformational developments could be captured for Crossrail 2. Our conclusion is that only a small proportion of Crossrail 2 could be funded this way. We recognise that there are international examples of large contributions to the funding costs of transport projects being secured through capturing the value from large scale property development. However, the costs and risk associated with development in London make it risky to rely on the proceeds from developing land. Any value contributed by developments is likely to be extremely sensitive to house prices and land values. There are also potential legal issues relating to who should benefit from any uplift in land value following a change of use.

In summary, our conclusion is that the total funding that could be raised through this approach is relatively small in proportion to the scheme costs, and that there would be significant risks attached to it.

Section 8 discusses the findings from our research on how transport projects are funded internationally. Some of these approaches could be applied in London. However, there may be challenges in introducing such approaches, both politically and in their compatibility with UK tax structures.

As part of our consideration of alternative funding mechanisms, we have also considered the proposals made recently by the London Finance Commission (LFC) for fiscal devolution. These proposals do not involve the imposition of any new taxes or levies in London, but propose the transfer to the Greater London Authority (GLA) of future increases in overall property taxes generated in London to support investment in additional infrastructure. The desirability of these proposals, along with any wider consideration of a broader devolution of tax raising powers to London, are beyond the scope of this report and are outside the control of TfL or the Mayor. We would comment, however, that a greater degree of autonomy and devolution of powers to raise revenues locally could support TfL and the GLA in securing the funding streams necessary for both Crossrail 2 and other infrastructure required in the capital, and in managing the risks of borrowing used to fund construction.

Section 9 discusses financing options— i.e. how debt could be raised against the identified funding revenue streams, and in particular, whether there is any scope for some or all of the debt to be provided by the private sector.

It concludes that while there are opportunities to introduce private finance into elements of the Crossrail 2 project, the proportion of the project that could be privately financed is relatively small, as privately financing the core infrastructure project is unlikely to be feasible or to provide value for money. The scale of Crossrail 2 makes it too big for the financing market to handle as a single privately-financed project. It may be possible to fund smaller components of the works but these would have to be carefully selected, as it is difficult to break down a rail network into component assets without introducing interface risks that could increase costs. In addition, changes to accounting and classification rules make it less likely that structures will be considered “off balance sheet” in circumstances where the public sector is effectively the only customer for track access. The prime candidate for private financing would be the rolling stock and depot, as there are viable PFI/PPP options for such projects. Until recently, this was being considered for Crossrail 1 rolling stock, and it may be a viable option for Crossrail 2.

Alternative approaches such as selling Crossrail 2 after completion could be considered. However, Crossrail 2 is being planned as an integrated part of the London transport network and it would be challenging to create a separate Crossrail 2 business that would be available as a discrete and attractive asset for investors. It is likely

that if such an approach was viable that it would be tested first with Crossrail 1. The HS1 privatisation model is of limited relevance as the business models for the two railways are fundamentally different.

These conclusions on the use of private finance are consistent with the findings of the Montague report ahead of Crossrail 1 and the experience on Crossrail 1.

Lastly, some commentators cite that a “wall of money” from Sovereign Wealth Funds, Infrastructure Funds, Pension funds and other similar investors is available to invest in infrastructure, and that this provides evidence that projects such as Crossrail 2 could be privately financed. While there is no doubt that these investors are keen to invest in infrastructure, Crossrail 2 is unlikely to meet many of their investment requirements. The size of the project, the construction risk, the demand risk and the likely reliance on non-patronage revenues to pay the bulk of the project means that, without direct government guarantees, such investors are unlikely to invest in Crossrail 2. If such guarantees were to be put in place it is possible that the project’s borrowing costs could be treated as public debt, but would have a higher private sector level cost of finance.

Funding Challenge - We have presented a combination of local funding contributions to the project in Figure 1-1. This shows that there is the possibility for 50% of the funding requirement to be met through a combination of local funding sources. However, to do so will require new funding sources to be levied in addition to those used for Crossrail 1.

Figure 1-1: Funding mechanisms

	Percentage of funding target	Cumulative Total
Project Generated Revenue	20.0%	20.0%
BRS	15.2%	35.2%
Enhanced Mayoral CIL	5.8%	41.0%
Resale of Land and Property	1.9%	42.9%
Doubling of Mayoral CIL	5.8%	48.7%
Council Tax Precept	1.5%	50.2%

2 *The Crossrail 2 project*

2.1 *Introduction*

In this section we set out a brief description of the Crossrail 2 project, and describe in more detail the primary project attributes which affect funding and financing.

It should be noted that the case for the project itself is outside the scope of this report, and this paper does not attempt to carry out a business case analysis for project options.

2.2 *Background*

The 1989 Central London Rail Study originally proposed Crossrail 2 (Chelsea Hackney Line, or CHL) as a scheme to relieve crowding on the Victoria, Piccadilly, Northern, Central and District lines of the Underground. A route was safeguarded in 1991 (and subsequently refreshed in 2008), and forms the base alignment for a Crossrail 2 route across London.

In 2009 the DfT asked the Mayor of London to review the Crossrail 2 scheme, allowing a five year timeframe for the review.

The Mayor's Transport Strategy (MTS)² has identified the need for further rail capacity in London for the following reasons:

- London's population continues to grow. From the 8.2 million recorded in the 2011 Census, it is expected to rise to 10.1 million by 2036 and to more than 11 million by 2050³;
- overcrowding on the Underground network is evident today; it will be significantly relieved by the rail and Underground upgrades, including Crossrail 1, which are already committed to be operational by 2021; however, the forecast growth in demand by 2031 is such that significant overcrowding will be evident once again (particularly in the north east of central London) unless there is further provision;
- there is forecast by 2031 to be significant overcrowding on suburban and main line rail services, adding to congestion at London termini; and
- by 2026, the first phase of High Speed 2 (HS2) is expected to be in operation to the West Midlands, delivering significant numbers of additional passengers to Euston station, where the Underground station is already at capacity; the second phase of HS2, due to complete in 2033, would add further demand for access to and dispersal from Euston.

Separately, Network Rail has recently completed a Route Strategy for both the Wessex and Anglia Routes, into Waterloo and Liverpool Street, to identify the capacity and connectivity demands on the national rail network to 2043. Crossrail 2 meets the identified Wessex Route suburban capacity and connectivity requirements. Crossrail 2 also facilitates the provision of 36 trains per hour into Waterloo on the mainline network, against an identified target output of 37 trains per hour (current capacity is 24 trains per hour). The other identified options to meet the mainline target include the provision of an additional track into Waterloo, earlier roll out of ECTS technologies and double-deck rolling stock. None of the other identified options fully meet the capacity requirements and all of these would require significant capital investment by Network Rail.

The October 2013 consultation on Crossrail 2⁴ had 13,767 responses from individual members of the public with 96 percent of respondents strongly supporting or supporting the principle. 86 percent of 166 organisational stakeholders responded in the same manner. The majority of individuals who responded were from London (82 per cent) and the South East.

² The Mayor's Transport Strategy, Greater London Authority, 2010.

³ Draft Further Alterations to the London Plan, Greater London Authority, 2014.

⁴ Steer Davies Gleave for Transport for London, Crossrail 2 Consultation Report, October 2013.

2.3 Route options

2.3.1 Development of current options

An assessment of an original long-list of route options in 2011 allowed a decision to be reached on pursuing three shortlisted options:

- i. the original safeguarded alignment from Epping to Wimbledon;
- ii. a London-focused “Metro Option”. A standalone automatic underground railway operating between Wimbledon and Alexandra Palace, with a frequency of up to 40 trains per hour (tph); and
- iii. a “Regional Option”, following the same central corridor as the Metro Option but at national rail gauge, with an opening frequency of 30tph, and connecting to existing National Rail lines to the north and south west of London.

Figure 2-1: Metro Option Map

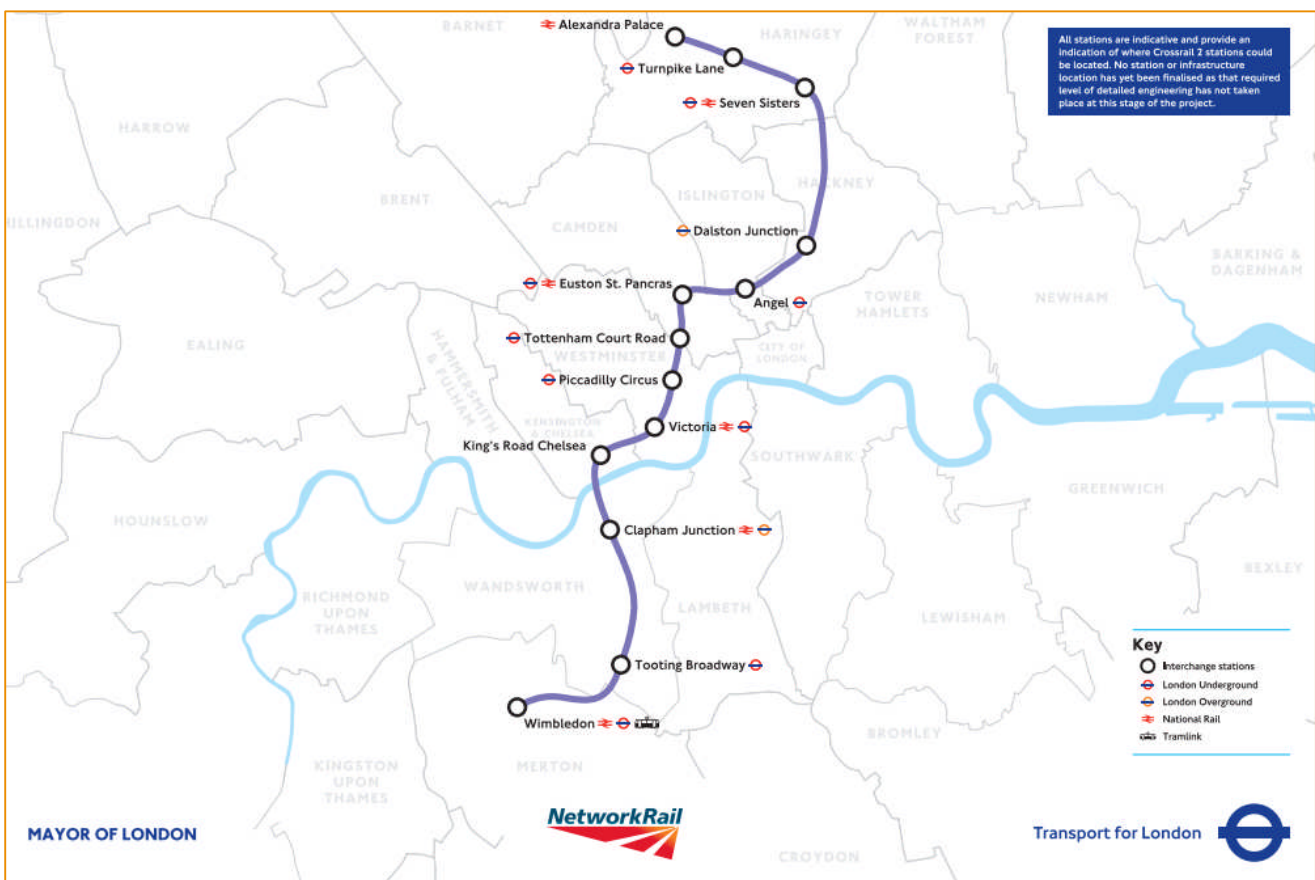
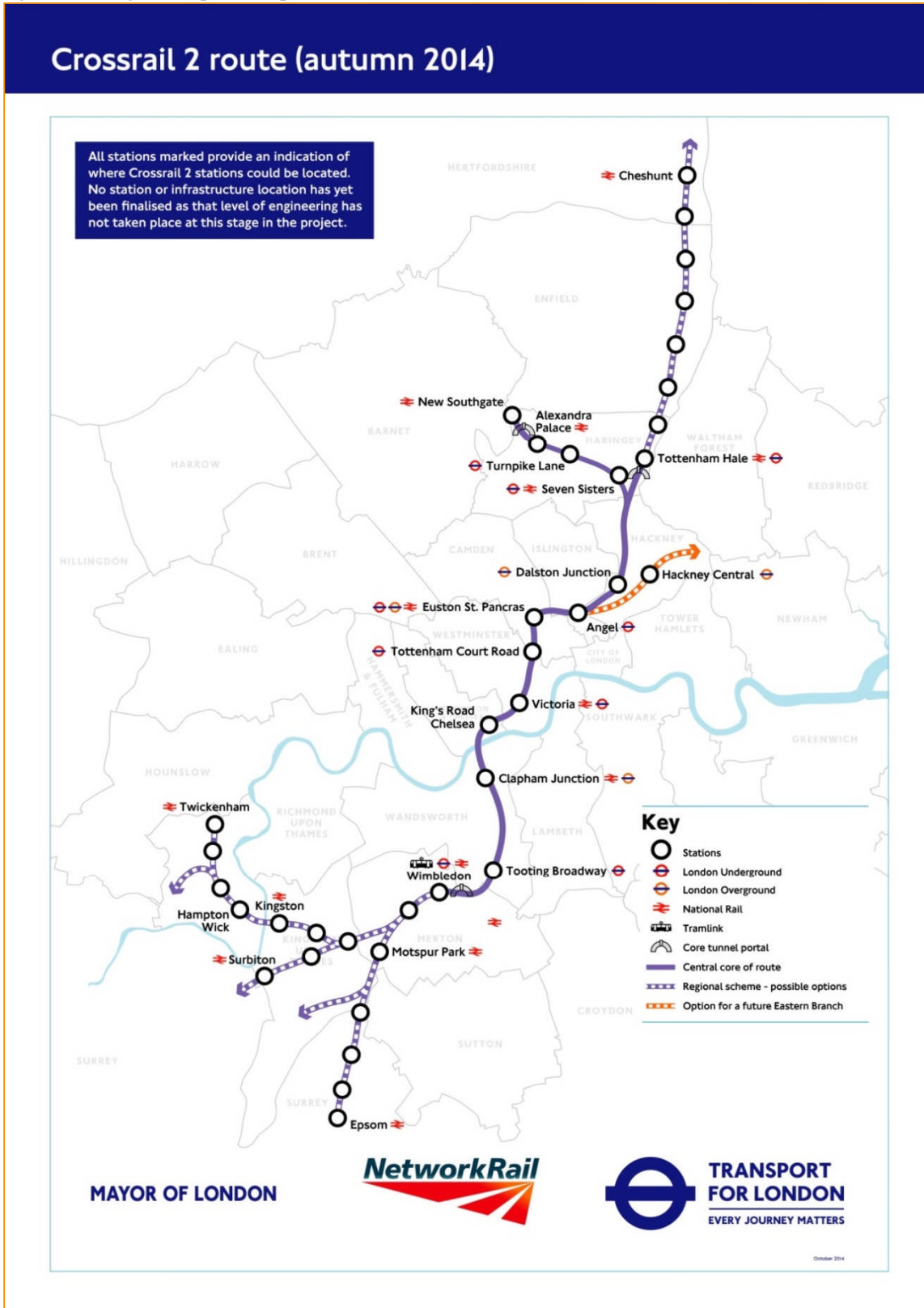


Figure 2-2: Regional Option Map



⁵ The above route map shows the latest alignment that is proposed to be safeguarded. The Mott MacDonald capital expenditure estimate is based upon the previous alignment for the Dalston/Hackney area, and will be reviewed once the final decision on the route is taken.

2.3.2 Differences between route options

The two options that TfL is considering are the Regional and Metro Options (the original Epping to Wimbledon route is no longer being considered because it does not provide sufficient relief to existing tube lines).

The Regional Option has been identified by the Mayor as the preferred scheme and forms the basis of the revised safeguarding application.⁶ It would include a new tunnel from Wimbledon to Tottenham and would be integrated with existing National Rail lines to the south west and north of London, linking South West London to the Lea Valley through Central London. The proposed Metro Option has shorter trains with a higher operating frequency. The Metro scheme does not link into the national rail network. It would not be possible to build the Regional Option onto the Metro Option at a later date because of differences between the options in terms of the infrastructure requirements for the core section and the associated stations. Information provided by TfL suggests that the Regional Option would provide better value for money. They identify the main reasons for this as:

- larger transport benefits in terms of time savings and congestion relief across the existing rail network;
- the potential to create much needed additional capacity on the main line network by releasing paths into Waterloo and Liverpool Street; and
- greater benefit to regeneration and development particularly in outer London and the Upper Lea Valley.

The Regional Option shows a benefit-cost ratio (BCR) without wider economic benefits of 1.8:1 compared to 1.3:1 for the Metro Option. When wider economic benefits are included, the Regional Option continues to offer better value for money with a BCR of 2.0:1⁷, compared to 1.6:1⁸ for the Metro Option. This is driven by the benefits of enhancing accessibility to employment, especially from areas of London such as the Upper Lea Valley.

In the TfL strategic consultation on these options in 2013 the results favoured the Regional Option.⁹

2.3.3 Use of Regional Option as base case

As this study explores the potential funding options available for Crossrail 2 the choice of route will affect both the amount that needs to be funded (the capital cost) and the potential sources of funding.

For the purposes of comparison, we have used the Regional Option as the base case for this report. Therefore all funding analysis is based on the Regional Option. This assumption was agreed with TfL and the Steering Committee. We have however considered the cost and funding impact of the Metro Option in Section 5.7 of the report.

2.4 Project modelling

In order to estimate the potential contribution of each funding source, we have developed a funding and financing model for the Crossrail 2 project.

This model brings together costs and revenues which were provided by TfL and sourced from other consultants employed by TfL.

In keeping with common practice, all of the funding and financing calculations are calculated on a nominal basis. The specific indices used to convert real figures to nominal figures for each element of cost and revenue are outlined in the sections pertaining to each element.

⁶ Mayoral Press Release, 28th October 2014, available at: <https://www.london.gov.uk/media/mayor-press-releases/2014/10/crossrail-2-vital-to-support-london-s-growth-says-mayor>

⁷ A range of 2.0 to 2.6 was provided by AECOM

⁸ Range of 1.6 to 2.2 was provided by AECOM

⁹ Steer Davies Gleave (2013) 'Crossrail 2, Consultation Report', available at: https://consultations.tfl.gov.uk/crossrail/2-2013/user_uploads/crossrail-2-consultation-report.pdf

The model estimates the total funding requirement of the project and can also be used to test the sensitivity of results to changes in key assumptions. The model can also estimate the contribution that each funding source can make to the project funding requirement.

The results from the model for Crossrail 2 are driven by key assumptions on project timing, revenues and costs. The remainder of this section describes the assumptions that have been used.

2.5 Project timing

Assumptions for the timing of Crossrail 2 construction are relevant to project cost, fare revenues and levies. These cashflows will all be greater in nominal terms if the project starts later, assuming inflation is positive.

Some of the potential cashflows that could be available to Crossrail 2 are currently being used to pay for Crossrail 1. We have assumed that the levies will only be available to Crossrail 2 after Crossrail 1 is fully funded. If the project is delayed, this would allow the Crossrail 2 project to utilise cashflows earlier in the project timeline.

After discussions with TfL and the Steering Committee, the base assumption that we have used for this study is that major construction works would begin in 2020 and last for approximately 10 years. Full operations are assumed to begin in 2030, with no prior phasing.

Two scenarios based on a 2025 and 2030 construction start have also been modelled, with the results shown in Section 5.7.

2.6 Project revenues

Passenger revenue will be a critical component of any funding package for Crossrail 2. This is the source of funding for the project that best targets those who directly benefit from service, given that it is comprised of the income generated from Crossrail 2 related passengers (on the basis described below).

After thorough consideration of the pros and cons of alternative approaches, it is planned that the fares regime for Crossrail 1 will be fully integrated with the rest of the TfL network, including London Overground. A similar assumption has been made for Crossrail 2 which is not expected to include premium or specific fares charges.

The assumption for fare escalation follows TfL's current business plan, which assumes fare rises of RPI+1% until March 2021. Beyond this, fares are assumed to rise at RPI+0.5%.

Forecasts for Crossrail 2 fare box revenue used in this study have been provided by the TfL planning team and reviewed by AECOM. The TfL RAILPLAN demand model has been run in order to produce revenue figures for both the Regional and Metro Options.

The revenue forecasts provided by TfL include:

- the revenue generated directly by Crossrail 2 services;
- secondary revenue effects of Crossrail 2 on both the London Underground and National Rail networks;
- revenue from new National Rail services that could be introduced using capacity released by building Crossrail 2; and
- additional revenue that would be generated through the sale of station and on-board advertising space across the Crossrail 2 route.

The different components of revenue are shown in Figure 10-1: Revenue Forecasts (Appendix A).

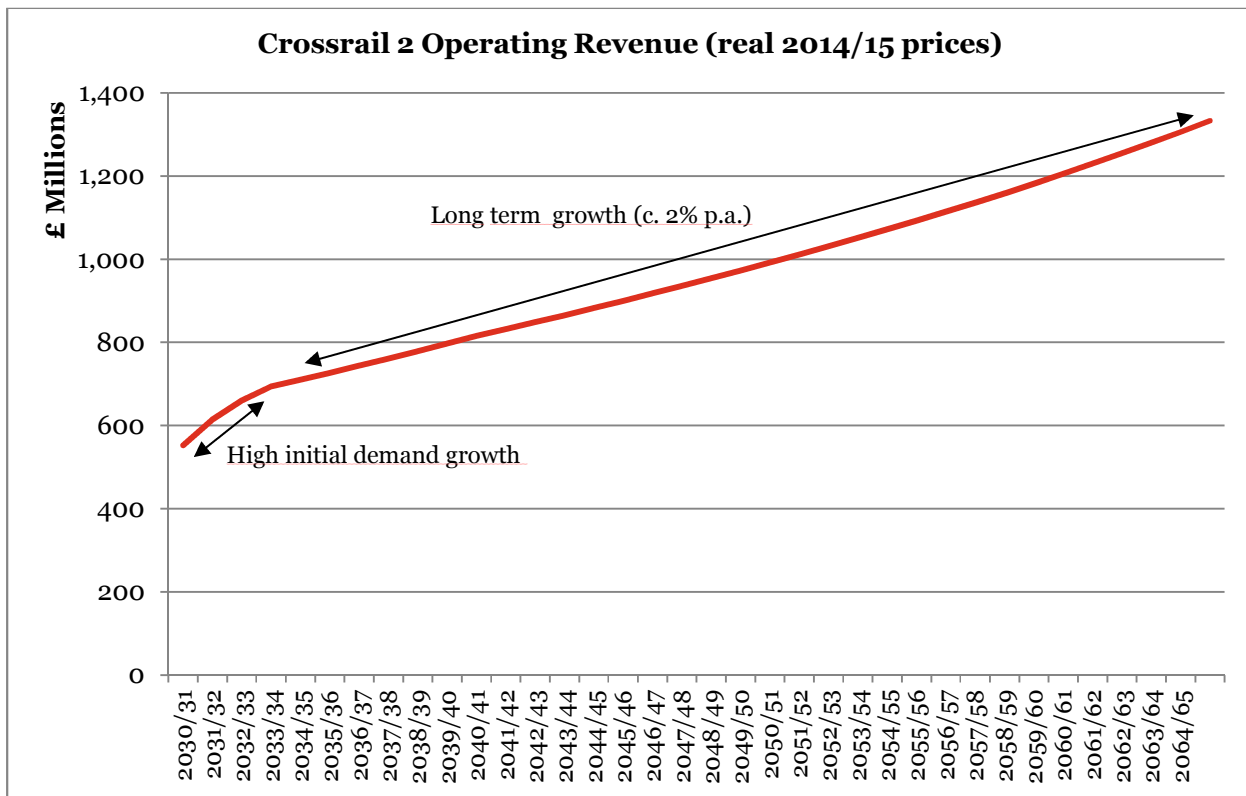
For the purposes of this study only the net revenue impact on TfL services and advertising revenues has been considered. The total real revenue from these components is forecast to be £27,316m for the Regional Option and £18,809m for the Metro Option between 2030 and 2065. The net revenue impact on the National Rail network (which in the case of Crossrail 2 is predicted by TfL and AECOM to be negative) is not reflected in our analysis. This approach is consistent with Crossrail 1 where DfT agreed to cover any potential loss of revenue to the National Rail network as a result of Crossrail 1 services.

The chart below shows Crossrail 2 revenues excluding abstraction to other TfL services. It illustrates that in the early years of Crossrail 2 operation TfL has assumed a high level of growth in demand as passengers and businesses start to change their behaviour, i.e. switch from other modes of transport, travel more frequently or relocate to be closer to a Crossrail 2 station to benefit from the new transport infrastructure.

Beyond this initial period TfL has incorporated growth in demand, linked to GDP, assumed to be in the region of 0.73% per annum. This represents the increase in economic activity in the London area including the increase in population and employment. In addition to this background growth, Crossrail 2 demand is forecast by TfL to grow at a faster rate during the initial 10 years of operation (2030-2040) due to the population growth that will be stimulated by the new railway within the catchments of its stations. This assumption adds an extra 0.44% annual demand growth in these years.

Throughout the period 2030-2065 Crossrail 2 fares are assumed to be increased by RPI+0.5% each year. When combined with the TfL passenger demand growth assumptions described above, Crossrail 2 passenger revenue is forecast to rise in real terms throughout the operational period at a rate of around 2% each year.

Figure 2-3: Crossrail 2 Operating Revenue (real 2014/15)



Source: CH2MHill

2.7 Project costs

2.7.1 Capital costs

Mott MacDonald was commissioned by TfL to undertake a full engineering feasibility and capital cost study for each of the Metro and Regional Options. Based on the Mott MacDonald analysis, TfL has provided us with a construction cost in 2012 prices along with a spending profile.

For the purposes of comparability, all of the real figures in this report are provided in 2014/15 prices. Therefore we have rebased the Mott MacDonald figures to 2014/15 prices, and these are shown in the table below.

The costs in Figure 2-4 below reflect the following issues:

- Additional capital expenditure that was not within the scope of the Mott MacDonald analysis has been included. This covers the cost of required upgrades to the existing surface network, such as making stations ‘step free’, level crossing works and extending platforms to accept longer Crossrail 2 trains (labelled ‘Surface Works’).
- Rolling stock costs have been included in the capital costs rather than as leasing charges within the operational costs. This reflects the position that was reached on Crossrail 1. The financing section of this report considers financing options for rolling stock for Crossrail 2.
- When appraising major projects at this stage of planning HMT guidance requires that 66% optimism bias is added to the capital cost estimates, which is factored into the cost breakdown below. This optimism bias is applied to reflect the potential for cost estimates to increase during the development of a project, both for changes in scope and unit costs.
- When applying this optimism bias, two thirds has been applied proportionally to planned construction spend over the 10 year period, with the remaining third evenly spread across the final 3 years of construction. This profiling is to reflect both the potential for cost to have been underestimated and for additional costs to emerge which can often be towards the end of construction.
- There has been no offset of any of the potential savings which might be made by Network Rail to meet capacity growth into London termini (which is discussed in more detail in Section 5.7).

Figure 2-4: Capital expenditure for the Regional and Metro Options

Cost category	Regional £m (real, 2014/15 ¹)	Metro £m (real, 2014/15 ¹)
Land & Property	1,164	1,069
Tunnels	2,299	1,826
Stations	5,664	5,323
Systems	1,430	1,153
Surface Works	2,617	490
Indirects	2,071	1,760
Rolling Stock	1,352	712
Optimism Bias at 66%	10,947	8,133
Total	27,544	20,466

Source: Mott MacDonald

¹The 2014/15 values have been calculated by indexing 2012 figures provided by TfL using Tender Price Index (TPI). However, any long term effect of construction price inflation is excluded.

2.7.1.1 Reconciliation of Capital Cost Estimates

The Mott MacDonald engineering feasibility and capital cost study provided a capital expenditure estimate for the Crossrail 2 Regional route option of £20.9 billion in 2012 prices. The difference between this figure and the £27.5 billion shown in Figure 2-4 is explained in the reconciliation in Figure 2-5.

Figure 2-5: Reconciliation of Capital Expenditure from Mott MacDonald study to value used in this study (Regional scheme)

	Price Base Year	Value (£000)
Mott Macdonald Capital Expenditure Estimate (including Optimism Bias)	2012	20,877,820
Adjustments:		
<i>Additional Capital Expenditure for Step-free Access & 4-tracking in Lea Valley</i>	2012	1,445,860
<i>Additional Capital Expenditure for Surface Works</i>	2012	964,727
<i>Purchase of Rolling Stock</i>	2012	2,067,601
Total Capital Expenditure	2012	25,356,008
<i>Convert to 2014 prices using TPI index</i>		2,188,023
Total Capital Expenditure	2014	27,544,031

2.7.1.2 Cost benchmarking against Crossrail 1

At this early stage, the final scope of Crossrail 2 is yet to be defined, and there exists a considerable degree of uncertainty in the estimated costs of delivering that scope. In line with HM Treasury guidance the current cost estimate therefore includes an allowance of 66% for that uncertainty around scope and cost, known as “optimism bias”.

In contrast, the Crossrail 1 scheme is now at a relatively advanced stage. The tunnelling is now 85% complete, and the overall project is over 55% complete, so much of the uncertainty and risk has passed (or been managed out by the delivery teams). Crossrail 1 therefore provides an important benchmark for Crossrail 2. Taking advantage of this, Crossrail Limited was asked to compare the Mott MacDonald Capital Expenditure Estimate (£20.88bn in 1Q2012 prices, including 66% optimism bias) with the actual and forecast costs of constructing Crossrail 1 as they are known to date.

The comparison process involved taking the latest forecast cost at completion for the component parts of Crossrail 1, splitting those components into common units (such as km, m2) and then reapplying those rates to the dimensions of Crossrail 2 (to reflect the fact that Crossrail 2 is a larger scheme than Crossrail 1). Although Crossrail Limited have suggested that their approach is relatively coarse, a similar exercise was completed on Crossrail 1 in 2006 that drew heavily on Jubilee Line and West Coast Mainline experience and helped validate the estimate of the time.

From the analysis, Crossrail Limited has confirmed its view that the Mott MacDonald estimate (including 66% optimism bias) represents a reasonable estimate for the construction cost of Crossrail 2, at this stage of scheme development. Within that estimate, Crossrail Limited views the 66% optimism bias as a prudent allowance for uncertainty, and would expect that Crossrail 2 could be delivered within that provision under most scenarios; indeed, as long as the scope is effectively controlled and risk is effectively managed, then there will be opportunity to reduce the overall allowance for uncertainty as the project progresses.

Crossrail Limited has not been asked to review the other elements of the £27.5bn estimate shown in Figure 2–5, the costs for which have been provided by Network Rail and by reference to the recent Crossrail 1 rolling stock procurement.

2.7.1.3 Construction sensitivities

We have considered the impact of different assumptions for optimism bias on the Regional Option capital expenditure.

The first of these sensitivities relates to the base values that optimism bias is applied to. The value for rolling stock provided by TfL is based on stage estimate costs for recent projects as well as historical cost data. If it

were possible to eliminate optimism bias on this element (through, for example further due diligence on costs) the forecast real capital expenditure would reduce by 3.2% to £26,651 million.

By way of comparison, if further due diligence was to be carried on costs to the extent that the entire project was considered to be that of a standard engineering project (as opposed to a non-standard civil engineering project) the level of optimism bias could be set at 44%¹⁰. At this level of optimism bias, the real capital expenditure would reduce by 13.2% to £23,895 million.

It should be stressed that at this stage TfL wish to continue to appraise the project on the basis of 66% optimism bias – these sensitivities have been shown to demonstrate the impact that further due diligence and value engineering could have on the cost of the scheme, and therefore its affordability.

Figure 2-6: Capital expenditure sensitivity results

Sensitivity Number	Description	Real Capex (£m, 2014/15 prices)	Difference from Base Case (Real)
Base Case	Capital Expenditure (Regional Option)	27,544	
1	Optimism Bias not applied to rolling stock	26,651	-3.2%
2	Optimism Bias set at 44%	23,895	-13.2%

Source: PwC model

2.7.2 Operating costs

We have been provided with figures for the operating costs of both the Regional Option and the Metro Option by CH2MHill who were commissioned to carry out this work by TfL. After consultation with CH2MHill and TfL this study assumes that the majority of operating costs will be indexed by RPI, assumed to be 2.7% on a long term-basis. The remainder of operating costs will be indexed at a higher rate than RPI. The indexation of operating costs is summarised in Figure 2-7. Total operating costs are presented in Figure 2-8, both in annual terms and over the whole operating period.

Figure 2-7: Operating Cost Indexation Assumptions

Operating Cost Category	% of total operating cost	Reference Index	Indexation Assumption
Staff Costs	32%	Average Earnings Growth	RPI+0.50%
Utilities & Electricity for Train Power	15%	Electricity Prices (DECC)	RPI+0.25%
Network Rail Charges (excluding Electricity for Train Power)	23%	RPI (November)	RPI
All other items	30%	RPI	RPI

¹⁰ See "Supplementary Green Book Guidance – Optimism Bias" at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191507/Optimism_bias.pdf

Figure 2-8: Total annual costs for the Regional Option (Real 2014/15 prices)

Cost Category	Annual Cost in 2030/31 (£m)	Total nominal cost April 2026 to March 2065 (£m)
Staff Costs	73	6,973
Station Costs	44	4,409
Rolling Stock Charges	33	3,188
Infrastructure Charges	54	4,873
Other Operating Costs	27	2,745
Train Operator Mobilisation Costs	0	50
Total	231	22,238

Source: CH2MHill

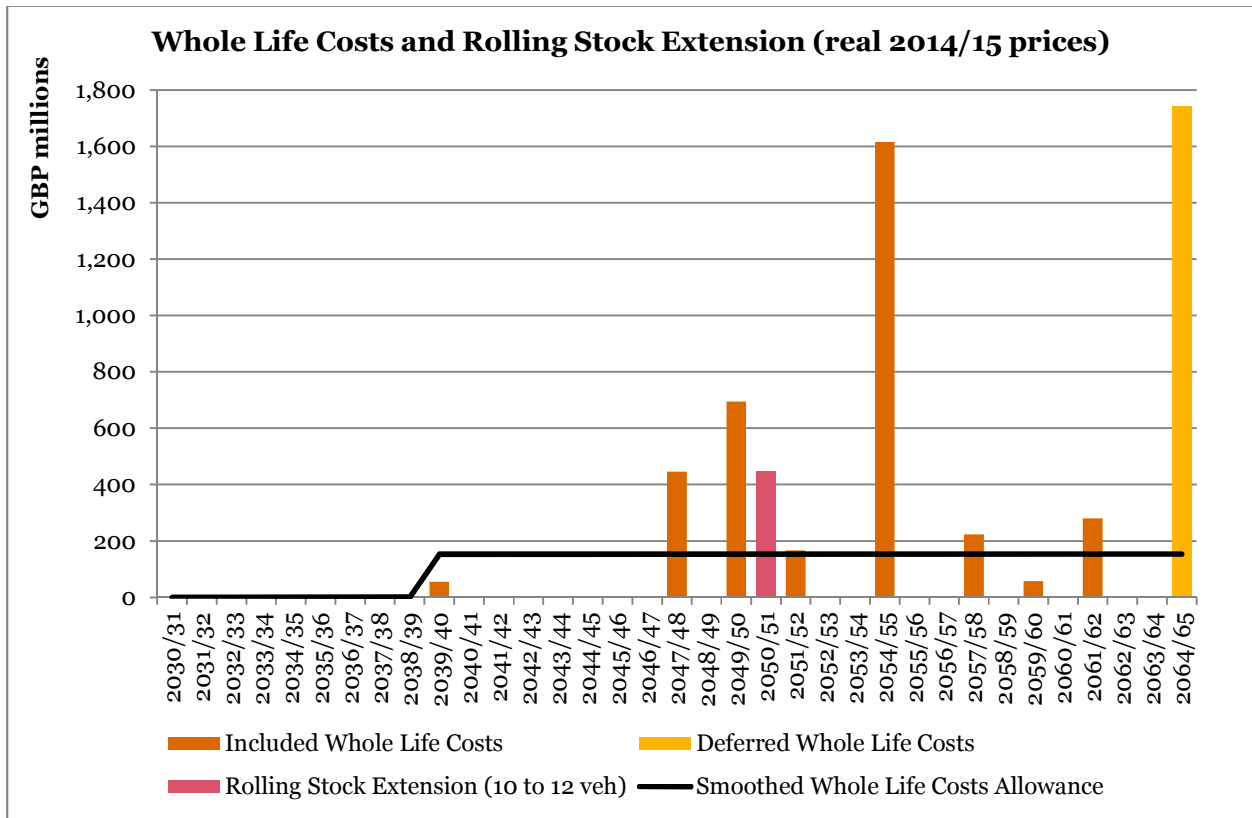
2.7.3 Whole life costs

We have been provided with figures for the whole life costs of both the Regional Option and the Metro Option by CH2MHill who were commissioned to carry out this work by TfL.

Whole life costs relate to major maintenance and overhaul of the Crossrail 2 infrastructure. As illustrated by the chart below, they are minimal in the early years of operations when the infrastructure is new. Also included is a £450 million allowance (including optimism bias) for the extension of trains from 10 to 12 vehicles in 2050 to accommodate forecast demand. The purchase of additional rolling stock will represent a significant one-off item of capital expenditure, so has been treated in the same way as similar whole life costs.

The whole life cost profile has been smoothed in the model, which reflects the uncertainty of the timing of expenditure. The cost has been levelled out by averaging the total over a period starting when the first whole life cost expenditure is expected, in April 2039, to the end of operations in March 2065 in order to obtain an annual figure of £153 million.

Figure 2-9: Whole Life Costs



Source: CH2MHill, PuC model

Note: The operating period runs from 2030-2065 with the whole life costs in the last year of operations assumed to be deferred

For the purposes of this study whole life costs are assumed to be indexed at TPI, with a long term assumption of 3.5% per annum. This is to reflect the fact that these costs are predominantly capital in nature and are expected to share the same cost escalation as the construction costs.

3 *Funding – Introduction*

3.1 *Funding*

In Sections 3 to 8 of this document we set out illustrative options for funding the Crossrail 2 project. Our aim is not to recommend the best approach to funding, but instead to illustrate and explain a range of options that are available to policy makers.

The question of how to fund new infrastructure spending in London is currently the subject of much examination and discussion. Both the LFC¹¹ and the London Infrastructure Plan 2050¹² make the case for alternatives to traditional central government spending that could help pay for the infrastructure that London needs to support a growing economy and population. This report draws on and develops many of the concepts and ideas that have been proposed, providing further analysis of benefits, challenges and how they might be implemented.

3.1.1 *The distinction between funding and financing*

Funding and financing are terms which are often used interchangeably. For the purposes of this report, it is important to clarify the distinction between the two terms.

Funding in this report comprises the sources of income to be used to meet the capital and revenue costs of a project over time. The potential funding options for Crossrail 2 are discussed in Sections 3 to 8 of this report.

Financing in this report comprises the set of financial arrangements put in place to provide committed capital to meet the costs of a project as they are incurred, to be repaid from funding sources. Financing is discussed in Section 9 of this report.

3.1.2 *A structured approach to funding options*

A robust and methodical approach has been followed in identifying options for funding Crossrail 2.

- We have consulted a number of the individuals involved in planning Crossrail 1, specifically seeking their views on how the funding and financing of that project was developed, what has worked well and what could be improved for subsequent projects.
- We have consulted individuals involved in other significant rail projects (including HS1 and HS2) on their views for funding and financing major projects, whose observations could be relevant for funding Crossrail 2.
- We have undertaken a review of other mechanisms used internationally for funding transport projects.

We have considered the potential contribution of a range of funding options individually, in the following order:

1. net passenger revenue for TfL arising from the new service (discussed in Section 4);
2. replicating the funding mechanisms used for Crossrail 1, and considering further variants (Section 5);
3. utilising additional powers available to the Mayor to raise funds which could be applied to the Crossrail 2 project (Section 6); and
4. considering approaches to further capturing land value and property development uplifts (Section 7).

In addition in Section 8 we have discussed some of the other potential mechanisms that could be used to raise funds that could be applied to the Crossrail 2 project, including the ideas discussed in the London First and London Finance Commission reports. However, because the powers envisaged in these reports are not

¹¹ London Finance Commission (2013) *Raising the Capital*, London: London Finance Commission

¹² Mayor of London (2014) *London Infrastructure Plan 2050: A Consultation*, London: Mayor of London

currently available to the Mayor, we have not included any estimates of the possible contribution that they could make to the project.

For each of the individual funding streams we have set out benefits and challenges, issues regarding implementation and assumptions for estimating the contribution which each funding option can make to the Crossrail 2 project. We then analyse the resulting funding contribution, and its sensitivity to key assumptions, for each funding option. The sensitivities have been selected to either present potential alternative ways to structure the mechanisms or to measure the risk/impact of changes in key assumptions on the level of funding contribution that could be provided.

None of the funding options that we have considered are likely to achieve a 50% local funding contribution in isolation. We have therefore considered a number of packages of options using combinations of mechanisms that seek to balance the sometimes conflicting interests of different stakeholders, while contributing to the project's funding requirements. These are discussed in Section 6.5.

4 Project generated revenues

4.1 Introduction

In this section we analyse the contribution that can be made to the funding costs of the Crossrail 2 project from the operating surplus generated by services.

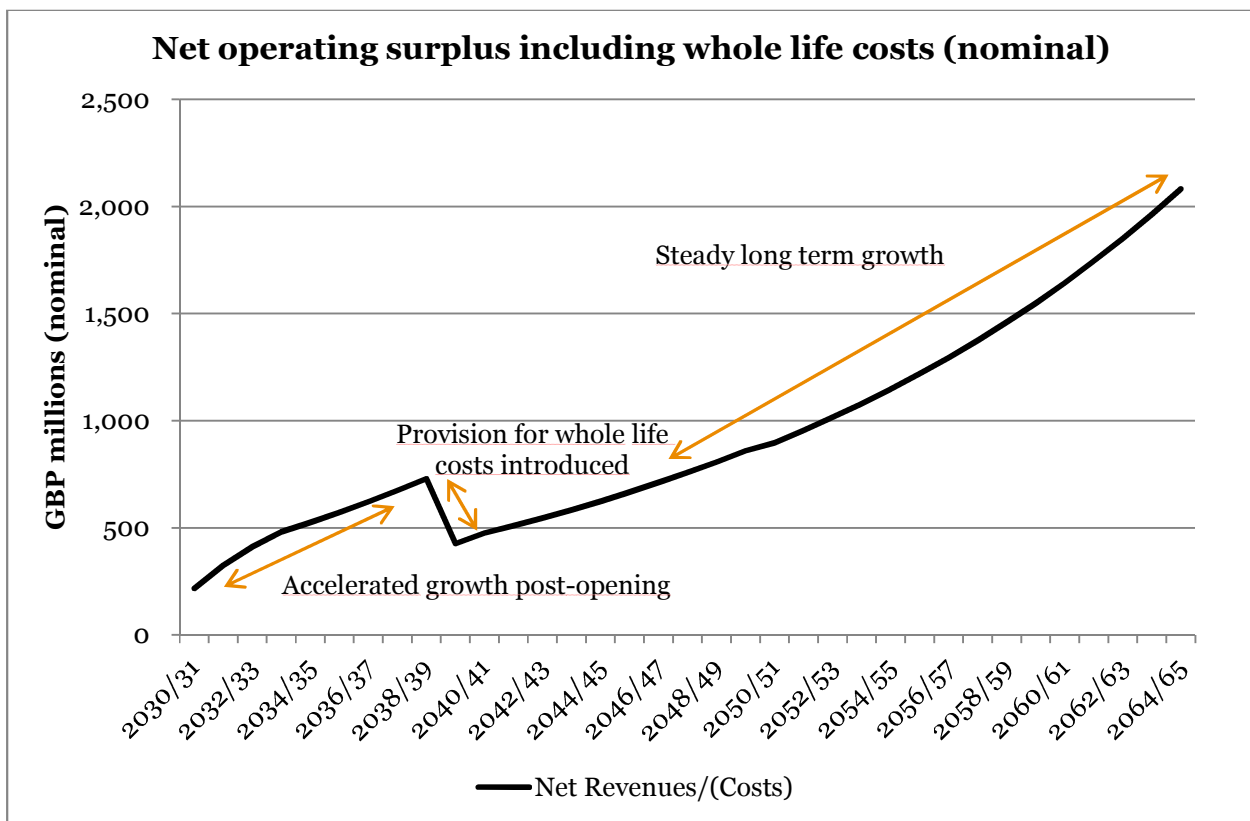
4.2 Operating surplus

The forecast operating surplus for Crossrail 2 brings together the revenues attributable to TfL, as broken down in Appendix A, less the operating and whole life cost forecasts described in Section 2.

These show that Crossrail 2 is forecast to provide an annual operating surplus of £308 million in 2034/35 (real 2014/15 prices). This would rise steadily to £622 million in 2064/65 (real 2014/15 prices).

When inflation is applied to these revenues and costs the following profile of operating surplus is produced (Figure 4-1). In nominal terms the operating surplus is estimated to be £525 million in 2034/35 rising to £2,082 million in 2064/65.

Figure 4-1: Net Operating Surplus including Whole Life Costs (nominal)



Source: CH2MHill, PwC model

The chart above reflects the following effects:

- In the early years of operation the operating surplus grows at faster rate due to the revenue ramp-up effect of passengers transferring to the new Crossrail 2 services from other parts of the transport network.

- The kink in the net operating surplus line in 2039/40 reflects where we have started to reserve income for whole life costs, in order to avoid very large costs in any single year as highlighted in Section 2.7.3.

The table in Figure 4-2 below summarises the total Net Operating Surplus over the modelled funding period of the project (2030/31 to 2064/65).

Figure 4-2: Project cashflows for the Regional Option (2030/31 to 2064/65)

Project Cashflow	£m nominal	£m real 2014/15
Operating Revenue	72,179	27,316
Operating Costs	(24,462)	(9,689)
Whole Life Costs ¹³	(14,978)	(3,989)
Net Operating Surplus	32,739	13,639

Source: Mott Macdonald, CH2MHill, PwC model

Using the financing assumptions set out in Section 9, we have calculated that the Operating Surplus of £32,739 million (nominal) for the Regional option could raise £8,078 million in PWLB loan funding for the project.

This would be able to meet around 20.0% of funding requirement of Crossrail 2.

For comparison, the equivalent Net Operating Surplus calculation for Crossrail 1 showed that it is planned to fund approximately 33% of the capital costs.

4.3 Project generated revenue sensitivities

A series of sensitivities were carried out on the project generated revenue forecasts and are summarised in Figure 4-3. The results show that changes in operating costs would have a much less significant effect on total operating surplus than changes in revenue:

- an increase in the rate of fare escalation post-2020/21 from RPI+0.5% to RPI+1% would allow an additional 4.5% of the project funding requirement to be funded from the operating surplus;
- alternatively, a reduction in the rate of fare escalation post-2020/21 from RPI+0.5% to RPI+0% would mean a reduction of 3.9% in the project funding requirement funded from the operating surplus;
- removing the 66% optimism bias from whole life costs would result in the operating surplus providing an additional 3.1% of the funding requirement;
- a 10% increase in nominal operating expenditure would reduce the proportion of the funding requirement that can be funded by the operating surplus by only 1.7%; and
- a 10% cut in total nominal revenue would reduce the funding requirement that can be funded by the operating surplus by 4.4%.

It should be noted that these sensitivities have been run in isolation and wider macroeconomic interdependencies have not been considered.

¹³ Whole Life costs are indexed at TPI.

Figure 4-3: Project cashflow sensitivities

Sensitivity Number	Description	Net Nominal Cashflow (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	Project Generated Revenue	32,803	20.0%	
1	Fare escalation at RPI +1% after 2020/21	41,472	24.5%	4.5%
2	Fare escalation at RPI +0% after 2020/21	25,122	16.1%	-3.9%
3	Remove optimism bias from Whole Life Costs	38,758	23.2%	3.1%
4	10% increase in operating expenditure	30,363	18.4%	-1.7%
5	10% cut in total revenue	25,585	15.6%	-4.4%

Source: PwC model

4.4 Conclusion

Our analysis shows that on the basis of the assumptions described above, passenger revenue would be able to cover the day-to-day operating costs of Crossrail 2, but the remaining operating surplus would only be sufficient to fund a minority of the capital costs of constructing the railway.

In the base case, it is estimated that 20% of the project funding requirement could be met using finance raised against the operating surplus. The analysis we have carried out suggests that changes in passenger revenue would have a greater effect on the size of the operating surplus than variations in either operating or whole life costs.

The equivalent funding contribution from passenger revenue for Crossrail 1 is approximately 33% of the total scheme requirement. This difference is related to a number of factors, including an RPI+1% fare rise assumption on Crossrail 1 and the fact that Crossrail 2 is a bigger scheme with more tunnelling and so has higher capital costs.

Historically TfL fares have risen between RPI +1% and RPI +2%, so the long term base case assumption of fare rises at RPI+0.5% can be considered to be conservative. An assumption of fare escalation at RPI +1%, as shown in sensitivity 1, demonstrates the potential for the operating surplus to make a more significant contribution to funding the construction of the railway.

TfL will have an element of control over the rate of fare rises, though any Crossrail 2 fare rise is highly likely to be linked to wider TfL fare rises, which are covered in Section 6.4 of this report.

5 Using the funding package from Crossrail 1

5.1 The Crossrail 1 funding model

Our analysis of project generated revenue showed that the project cannot recover all of its capital investment from net revenues generated from the project in the period until March 2065. We have therefore considered a range of other potential sources of funding for the project.

The first option considered is whether the funding mechanisms implemented for the Crossrail 1 project could be repeated, and how much they could contribute to the Crossrail 2 project's funding requirement.

The Crossrail 1 project funding structure includes a substantial contribution from two local sources. The **Business Rates Supplement (BRS)** was established in London specifically to fund Crossrail 1 and is generating a steady flow of income that is being used to repay debt raised to finance the project's construction. Along with BRS, the **Mayoral Community Infrastructure Levy (Mayoral CIL)** is a charge on all new development in London. Its purpose is to contribute to the cost of additional infrastructure required as a consequence of new homes, offices and other buildings. All Mayoral CIL revenues are currently being used to fund Crossrail 1.

Once Crossrail 1 is in operation, income from the BRS and Mayoral CIL will also be supplemented by proceeds from the **sale of land and property** purchased at the start of the project. This land and property was bought by Crossrail Limited (either voluntarily or using powers of compulsory purchase) in order to obtain the site access needed to build the railway. Evidently this is not a stand-alone source of funding, but it is important to account for the proportion of up-front capital expenditure on land and property that will be offset by the sale of these assets in the future. According to the 2013 TfL Business Plan, the sale of relevant surplus land is forecast to contribute a total of £445 million (nominal) towards TfL funding for Crossrail ¹⁴.

Replicating these mechanisms would be a reasonable place to start when considering how to fund the Crossrail 2 project. These mechanisms are operating effectively and have political support, while experience gained from their application to Crossrail 1 can be used to optimise their use for Crossrail 2.

In this section we describe the BRS, Mayoral CIL and land resale mechanisms and how they might contribute to the funding of Crossrail 2. For each mechanism, we consider the following:

- The mechanism and scope for implementation
- Benefits
- Challenges
- Examples of use
- Implementation
- Assumptions
- Estimated funding contribution

¹⁴ "Business Plan 2013" page 84, TfL, December 2013

5.1.1 Feedback from lessons learned on Crossrail 1

Part of our work in preparing this report was to consult a number of the individuals involved in planning Crossrail 1, specifically seeking their views on how the funding and financing of that project was developed, what has worked well and what could be improved for subsequent projects.

In summary, the views of those consulted were that:

- the levy elements of the funding package (BRS and Mayoral CIL) had worked well (in that the loans taken out for Crossrail 1 are forecast to be repaid on time or even early);
- the amounts raised by negotiating contributions from landowners on the route have generated only a small proportion of the value of the scheme; and
- many land and property owners who have benefited most from the project are not making a commensurate contribution to the project costs.

This feedback provided reassurance that the two Crossrail 1 levies (BRS and Mayoral CIL) are working effectively and are worthy of further consideration for Crossrail 2. We have set out below our analysis of BRS and Mayoral CIL's potential contribution to the Crossrail 2 project.

We have considered how to address the feedback received regarding contributions made from land and property owners in Section 7.

5.2 Business rates supplement

5.2.1 The mechanism and scope for implementation

A BRS is a compulsory charge added to all National Non-Domestic Rates (NNDR) that are levied on qualifying properties within a given local authority area.

The amount of NNDR payable is calculated on the basis of a rate defined in terms of pence per pound of rateable value¹⁵ – the 'business rates multiplier'. In England, the multiplier for 2014 is 48.2p in the pound¹⁶. Under the terms of the Business Rates Supplement Act 2009, a BRS can be levied up to a maximum of 2p in the pound of rateable value, increasing the total NNDR multiplier to a maximum of 50.2p in the pound (2014). The Crossrail 1 BRS is set at the maximum rate of 2p in the pound.

The levy only applies to properties with a rateable value of more than £55,000. This means that approximately 20% of non-domestic properties in London pay the Crossrail 1 BRS.

BRS is collected by the London Boroughs on the behalf of the GLA.

5.2.2 Benefits

From a project funding perspective, BRS has the advantage of generating a stable level of income through the economic cycle due to the below attributes:

- The rateable values upon which Business Rates liabilities are calculated are re-valued only every 5 years, reducing the impact of volatility in non-domestic property market on BRS income.
- In most cases unoccupied properties remain liable for Business Rates¹⁷, meaning that tax revenue is maintained even during economic downturns.
- The collection rate is high – for example in 2013-14, the London average in-year collection rate of Business Rates was 98.4%.¹⁸

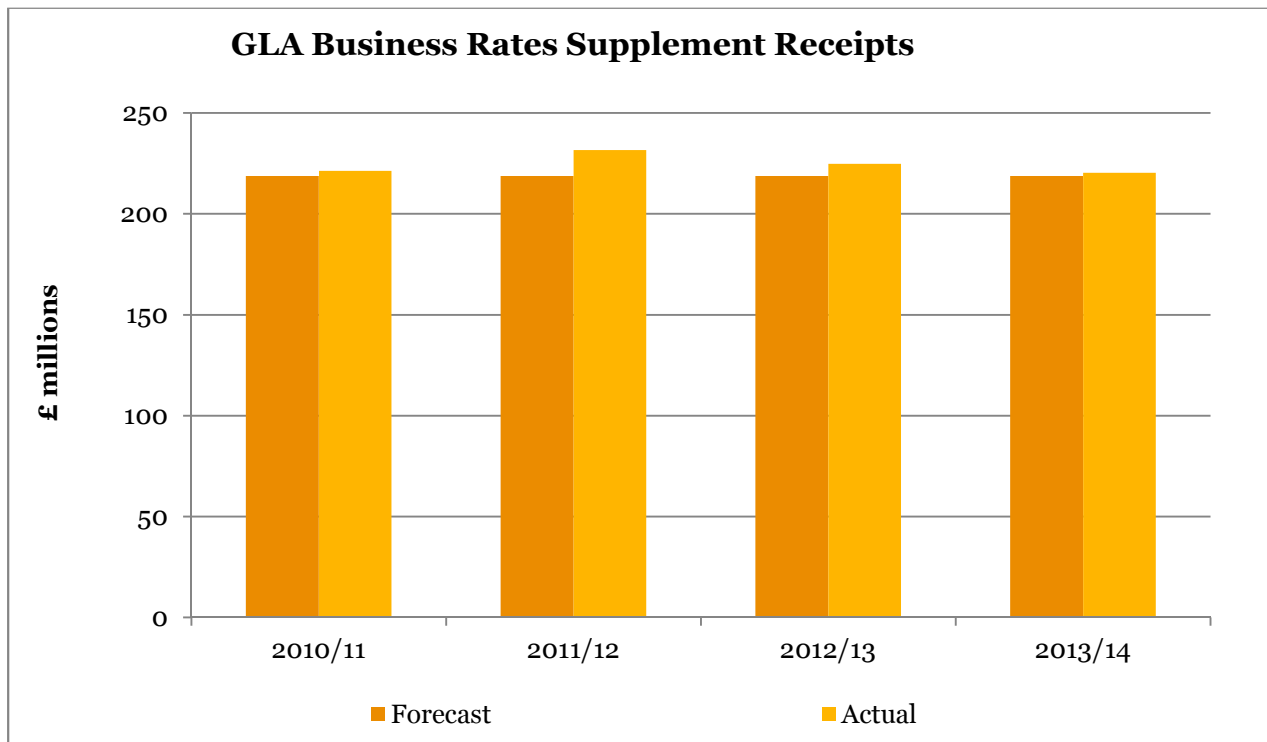
¹⁵ Rateable Value is an annual rental value that is assessed by the Valuation Office Agency (VOA). Re-valuations of Rateable Value should occur every five years. The next re-valuation was due in 2015, but has been postponed by the government until 2017.

¹⁶ A different rate of 47.1p in the pound applies to small businesses.

¹⁷ See DCLG (2013) 'Business Rates New Build Empty Property – Guidance' available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239343/Business_Rates_-_New_Build_Empty_Property_-_Guidance.pdf

Figure 5-1 below shows that the Crossrail 1 BRS revenues have remained robust throughout the recession. The chart also demonstrates that in each year that BRS has been collected, the forecasted level of receipts which were outlined in the Final Prospectus for BRS¹⁹ has been surpassed.

Figure 5-1: GLA business rate supplement receipts, 2010-11 – 2013-14, forecasts and actuals



Source: GLA

Although compulsory, the introduction of BRS has met little resistance, particularly because the rateable value threshold of £55,000 has ensured that around 80% of London non-domestic rate-payers are exempted.

5.2.3 Challenges

The existing BRS is levied at the maximum statutory rate of 2p in the pound, and when it was established all of its revenue was earmarked for Crossrail 1. Therefore, without a change in legislation, a BRS for Crossrail 2 could not be put in place until after the current BRS has ended.

If a BRS were to be used as part of the funding package a ballot of business ratepayers in London would need to be held in order to approve a new BRS to fund Crossrail 2, under current legislation.

5.2.4 Examples of use

As discussed, GLA has implemented a BRS for Crossrail 1.

¹⁸ DCLG (2014) ‘Collection rates and receipts of council tax and non-domestic rates in England 2013-14’ available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/327179/Council_tax_collection_rate_Statistics_Release_July_2014.pdf

¹⁹ GLA (2010), “Intention to levy a business rate supplement to finance the Greater London Authority’s contribution to the Crossrail 1 project - Final Prospectus”, available at <http://www.london.gov.uk/sites/default/files/finalprospectus.pdf>

The precedent set by the BRS for Crossrail 1 and proposed inclusion of a BRS in a funding package for Crossrail 2 in a recent London First report²⁰ on the Crossrail 2 proposal provides a degree of comfort that this funding mechanism could be achievable practically and politically.

5.2.5 Implementation

The BRS is levied on all qualifying non-domestic properties in London with a rateable value in excess of £55,000 at the maximum rate of 2p in the pound.

Income from the existing Crossrail 1 BRS is being used to:

- Directly fund £0.6 billion of the construction costs of Crossrail 1;
- Repay a loan of £3.5 billion, borrowed from the Public Works Loan Board (PWLB), which is used to fund part of the construction costs of Crossrail 1.

Originally GLA projected that this loan would be repaid by 2037. Due to lower than expected interest rates, latest projections suggest that it will be repaid by 2033, at which point the BRS will end. If revenues are further ahead of forecast, the repayment date for the loan (and the end of the BRS) could be earlier. The GLA forecasts that the BRS will generate £8.1 billion of revenue.

For the purposes of this study we have assumed that if a new BRS were to be established for Crossrail 2, then the revenues from it would commence in 2033, once the Crossrail 1 loan is paid and the current BRS has terminated.

5.2.6 Assumptions

We have used the following assumptions to calculate the possible contribution that BRS could make to Crossrail 2:

- BRS would be levied at the rate of 2p in the pound, the same level as applied for Crossrail 1.
- Crossrail 2 BRS would start in April 2033 and would be expected to continue to March 2063 (a similar duration to the original funding plan for Crossrail 1). In reality, BRS would actually continue until any loan that it was used for is repaid.
- The base value for BRS is the actual revenue receipts in 2012/13, £224.8 million.
- Rateable values are assumed to increase at RPI, which we assume grows at 2.7% per annum. We have assumed that between revaluations, values will be indexed at RPI, and that at each revaluation the average revaluation increase will reflect RPI.
- The base year for the start of revaluations is 2010/11, with the first revaluation in 2017 where an uplift equivalent to seven years RPI is assumed, reflecting that the last revaluation of relevant properties was in 2010.
- Thereafter, revaluations occur every five years.
- An additional 0.75% p.a. of real growth is applied cumulatively in each revaluation period to account for commercial property valuations increasing at a greater rate than RPI.
- A real annual growth factor of 0.25% is applied each year to reflect the growing stock of high value commercial properties which are required to pay BRS e.g. the Shard.
- The assumptions for the real growth factors are based on the assumptions used for Crossrail 1. This is assumed to be reasonable given that the actual BRS receipts collected so far have exceeded the forecasts outlined in the BRS prospectus.
- For the purposes of calculating the funding raised against BRS revenues a 10% contingency has been deducted from the available revenues.

5.2.7 Estimated funding contribution

On the basis of the above assumptions, it is estimated that BRS could provide **15% of the total Crossrail 2 funding requirement**.

²⁰ London First (2014), "Funding Crossrail 2", available at http://londonfirst.co.uk/wp-content/uploads/2014/02/LF_CROSSRAIL2_REPORT_2014_Single_Pages.pdf

We have considered the impact of changes to key assumptions for the BRS (see table in Figure 5-2). We have done this in two ways. First, we have shown the impact of changing the assumption on the amount that can be raised. This reflects whether a more cautious or aggressive approach is preferred when developing the funding package. The second type of change is to assume that the levy is implemented using the base assumptions, but that forecasts that drive BRS revenue are not met.

The first sensitivity shows the impact of bringing forward the revenue stream by 3 years and receiving the revenue for longer. This could be possible if Crossrail 1 debt is repaid earlier than assumed and would have a small effect on the amount of capital cost that the BRS could fund – an increase to 17%.

We have also shown sensitivities below for changes in the London effect and the real baseline growth rate in properties.

Figure 5-2: Business Rate Supplement sensitivities

Sensitivity Number	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	BRS	25,907	15.2%	
1	Crossrail 1 BRS revenues continue to be higher than expected and debt repaid by 2030. Bring forward revenue stream by 3 years (Apr-2030 – Mar-2063)	27,247	17.2%	2.1%
2	Take out 10% contingency on BRS	25,907	16.8%	1.7%
3	Commercial property rental growth at RPI only	19,651	11.9%	-3.3%
4	Remove the baseline growth effect of 0.25%	23,498	13.9%	-1.3%
5	Increase the baseline growth effect to 0.5%	28,569	16.5%	1.4%

Source: PwC model

5.2.8 Conclusion

BRS has to this point proved to be a stable funding source for raising finance. If its use for Crossrail 2 is agreed it is likely to contribute a substantial amount to the project's funding requirement, around 15%. This contribution is lower than that on Crossrail 1 as Crossrail 2 would only receive BRS income from 2033 onwards whereas Crossrail 1 is receiving BRS income before operations have commenced. Alternative structures where the rate of BRS is increased or the timing of the income is brought forward would significantly increase the potential funding contribution from BRS.

5.3 Mayoral Community Infrastructure Levy

5.3.1 The mechanism and scope for implementation

The Community Infrastructure Levy (CIL) is a compulsory per metre squared (m²) charge that local authorities in England can choose to levy upon new development as a condition of granting planning consent.

The purpose of the CIL is to raise money to fund infrastructure that a local authority deems necessary to support new development such as transport links, schools, healthcare, or other community facilities. This is an important feature of the CIL – its stated purpose is to pay for any costs that a new development may impose directly on a local community.

The CIL has been designed as a more predictable and transparent alternative to the negotiation of individual Section 106 (S106) obligations with developers. It is worth noting that S106 and a Mayoral CIL have both been

levied and have contributed to the funding requirement of Crossrail 1. The contribution of S106 is discussed further in Sections 5.3.4 and 0 where we discuss the potential to integrate Mayoral CIL and S106 into a single Mayoral CIL.

Local authorities must define CIL rates (in terms of £-per-m²) and how they apply to different types of developments, applying these rules consistently to all new development.

In London, the Mayor has powers (under the Planning Act 2008) to introduce a London-wide Mayoral CIL for the purpose of delivering local and sub-regional large-scale transport infrastructure. Crossrail 1 was explicitly recognised in the Act as a proper use of Mayoral CIL, therefore this study assumes that Crossrail 2 would similarly be a suitable beneficiary of Mayoral CIL income.

5.3.2 Benefits

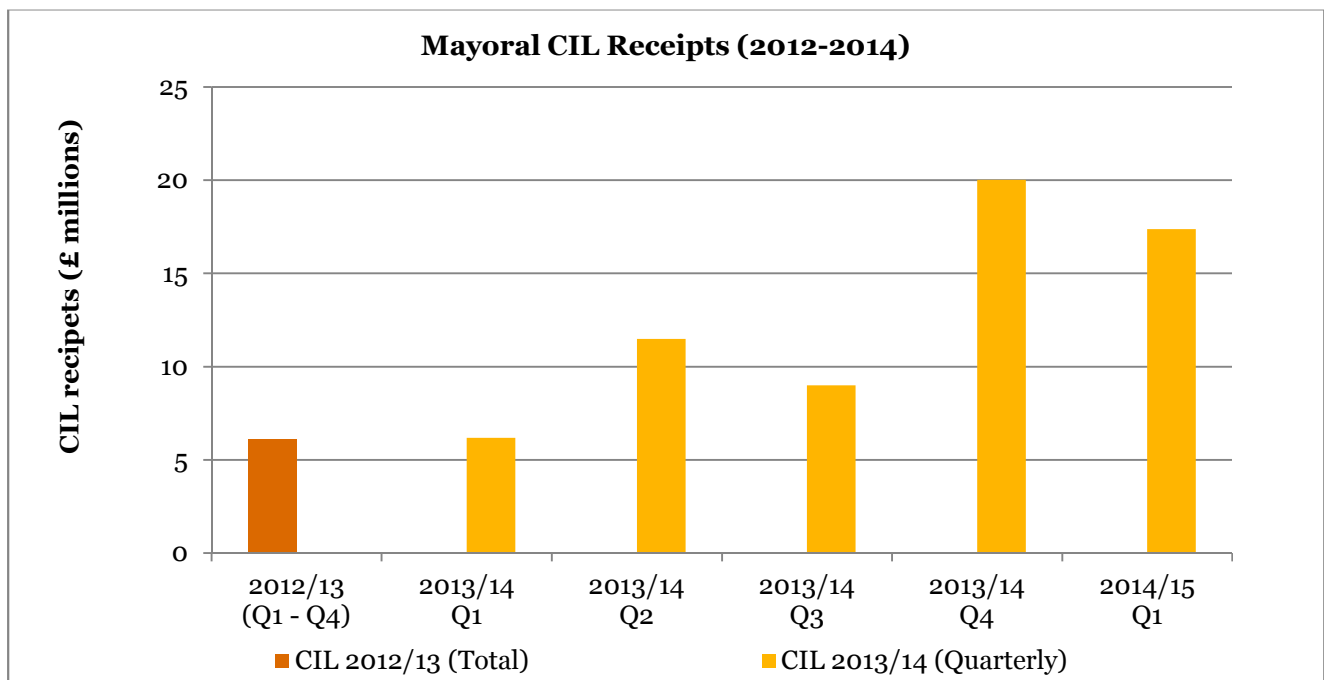
Mayoral CIL is a funding mechanism that is already in place. Mayoral CIL must be used for strategic transport and it is the Mayor’s policy to use the first £300 million for Crossrail 1. Unless a future Mayor chooses to bring the CIL to an end, the scheme will continue and the Mayor can choose where to direct the funds. Its use for Crossrail 2 would therefore be simple to arrange, as existing administrative processes would remain in place.

Mayoral CIL is a charge on new developments, whose residents and workers will use London’s transport infrastructure, and therefore the levy is consistent with the principle that beneficiaries from a project should make a contribution to its costs.

5.3.3 Challenges

The biggest challenge to using Mayoral CIL as a source of funding for Crossrail 2 is the potential volatility of its revenue. This is because it is linked to new developments in London, the volume of which will change with the economic cycle. Figure 5-3 demonstrates the volatility of the income stream from Mayoral CIL on a quarterly basis in 2013/14 versus the annual amount in 2012/13.

Figure 5-3: Mayoral CIL Receipts (2012 – 2014)



Source: TfL – Planning Obligations Team Mayoral CIL Returns – Quarterly Update (Q4-13/14), TfL – Planning Obligations Team Mayoral CIL Returns – Quarterly Update (Q1-14/15)

Because Mayoral CIL revenue is from new developments it is strongly linked to the economic cycle. This makes it difficult to predict in any specific year. However, the high level of growth forecast for London's population is likely to drive a continuing high underlying level of development activity.

Because of the volatility of Mayoral CIL, it would need to be combined with other more stable cashflows in order to raise debt against this income stream. Debt was not raised against Mayoral CIL on Crossrail 1.

Setting Mayoral CIL rates at an appropriate level could be a challenge. Applying even a very low Mayoral CIL rate will make certain marginal developments unviable; there is a risk that, by setting a rate too high, a significant number of development proposals may be made unviable, damaging economic growth in London to an unacceptable degree. A change in Mayoral CIL would require a review or an Examination in Public (EIP) process.

5.3.4 Examples of use

In 2012 the GLA formally adopted the Mayoral CIL to raise money from new developments in London to pay for a proportion of the costs of building Crossrail 1. The Mayoral CIL is applied on a zonal basis, with different rates charged by borough as shown in Figure 5-4 below. CIL rates are uplifted in line with inflation as defined by the National All-in Tender Price Index published by the Building Cost Information Service (BCIS) of the Royal Institution of Chartered Surveyors. Mayoral CIL is collected by the London Boroughs and remitted to TfL.

Figure 5-4: Current Mayoral CIL Rates

London Borough	Mayoral CIL Rate (£/m ² floor area)
Camden, City of London, Westminster, Hammersmith & Fulham, Islington, Kensington & Chelsea, Richmond-upon-Thames, Wandsworth	£50/m ²
Barnet, Brent, Bromley, Ealing, Greenwich, Hackney, Haringey, Harrow, Hillingdon, Hounslow, Kingston-upon-Thames, Lambeth, Lewisham, Merton, Redbridge, Southwark, Tower Hamlets	£35/m ²
Barking & Dagenham, Bexley, Croydon, Enfield, Havering, Newham, Sutton, Waltham Forest	£20/m ²

Source: Community Infrastructure Levy Charging Schedule – Mayor of London (2012)

The Mayoral CIL applies to both new residential and new non-residential development where total floor area exceeds 100m².

5.3.5 Implementation

As the Mayoral CIL has been adopted and is already in operation, once the target funding for Crossrail 1 has been achieved the cash flow from the mechanism in its current form could be switched to Crossrail 2.

For Crossrail 1, although S106 and Mayoral CIL are charged simultaneously (in Central London), they are not additive. The developer only pays an amount equivalent to the total S106 charge (as this is higher than the CIL charge). The amount paid reflects the total Mayoral CIL charge plus the difference between the Mayoral CIL charge and the S106 charge. The general S106 charging scheme only applies in the Central Activities Zone (CAZ), though there are a few areas within the CAZ that are not included. Canary Wharf and the Docklands have their own specific Crossrail 1 S106.

The GLA originally expected the Mayoral CIL to contribute around £300 million towards the costs of Crossrail 1 (2% of total costs), equating to around £40 million of income each year between the launch of the Mayoral CIL in 2012 and the opening of Crossrail 1. This was in addition to £300 million in projected S106 revenue over the same period, giving a projected total of around £600 million in development revenues. S106 charged on commercial developments in Central London and Docklands is remitted to Crossrail 1. As of July 2010, S106 rates were £140/m² (offices), £90/m² (retail) and £61/m² (hotels) (the office rate for the Isle of Dogs is £190/m²).

S106 revenues have not so far materialised at the predicted levels. However, based on Mayoral CIL income to date TfL notes that; “there is an increasing confidence of reaching the combined MCIL and S106 target of £600m by 2019, primarily as a result of strong MCIL revenues which have offset or replaced weaker S106 revenues.”²¹ A key reason for the rise in expected CIL receipts is that commercial developments covered by the S106 policy can deduct CIL from their S106 total (i.e. Mayoral CIL replaces S106 for some developments), thus resulting in higher than expected Mayoral CIL revenues.

For Crossrail 2, Mayoral CIL and S106 could be merged. An enhanced Mayoral CIL charging schedule could then be altered to incorporate S106 into Mayoral CIL at a level consistent with historic S106 charges. A possible charging structure for an enhanced Mayoral CIL is shown in Figure 5-5 below. This includes the creation of an additional zone with a specific rate of Mayoral CIL covering the CAZ and Docklands.

For the purposes of modelling, TfL has provided an estimate of the proportion of each borough’s development activity that is in the CAZ. Average Borough CIL rates for boroughs in each of the zones are also given in Figure 5-5 for comparison. Borough CIL is paid in addition to Mayoral CIL and is discussed in Section 7.2.4. In the majority of boroughs, proposed rates of enhanced Mayoral CIL are substantially lower.

Figure 5-5: Potential Enhanced Mayoral CIL charging schedule

London Borough	Proposed / Adopted Borough CIL	Existing Mayoral CIL Rate (£/m ² floor area) Base Date: Apr-2012	Enhanced Mayoral CIL Rate (£/m ² floor area) Base Date: Apr-2012	Average Borough CIL Rate (£/m ² floor area)
Proposed CAZ				
City of London (100% of borough)	Adopted	50	140	123
Westminster (80%)	Proposed	50	140	383
Camden (60%)	Proposed	50	140	300
Hackney (60%)	Proposed	35	140	94*
Islington (60%)	Adopted	50	140	275
Southwark (60%)	Proposed	35	140	233
Mayoral CIL Zone 1				
Camden (remaining 40%)	Proposed	50	50	300
Westminster (remaining 20%)	Proposed	50	50	383
Hammersmith & Fulham	Proposed	50	50	225
Islington (remaining 40%)	Adopted	50	50	275
Kensington & Chelsea	Proposed	50	50	390
Richmond-upon-Thames	Adopted	50	50	220
Wandsworth	Adopted	50	50	363
Mayoral CIL Zone 2				
Barnet	Adopted	35	35	135
Brent	Adopted	35	35	200

²¹ “Mayoral CIL Returns – Quarterly Update No. 4 (Q4-13/14)”, TfL – Planning Obligations Team

Crossrail 2

Bromley	n/a	35	35	n/a
Ealing	Proposed	35	35	75
Greenwich	Proposed	35	35	70
Hackney (remaining 40%)	Proposed	35	35	94
Haringey	Proposed	35	35	148
Harrow	Adopted	35	35	110
Hillingdon	Adopted	35	35	95
Hounslow	Proposed	35	35	127
Kingston upon Thames	Proposed	35	35	119
Lambeth	Adopted	35	35	155
Lewisham	Proposed	35	35	90
Merton	Adopted	35	35	168
Redbridge	Adopted	35	35	70
Southwark (remaining 40%)	Proposed	35	35	233
Tower Hamlets	Proposed	35	35	100
Mayoral CIL Zone 3				
Barking & Dagenham	Proposed	20	20	48
Bexley	Proposed	20	20	50
Croydon	Adopted	20	20	120
Enfield	Proposed	20	20	73
Havering	n/a	20	20	n/a
Newham	Adopted	20	20	60
Sutton	Adopted	20	20	100
Waltham Forest	Adopted	20	20	68
LLDC	Proposed	20	20	60

**The average borough CIL rate for Hackney is low due to the rates charged in areas of the borough outside of the CAZ*

Any restructuring of the Mayoral CIL which changes CIL rates would require an Examination in Public (EIP) by an independent examiner. For the current Mayoral CIL, the length of time between the start of the first consultation period and the CIL entering into force was approximately 14 months²².

5.3.6 Assumptions

As the Mayoral CIL is expected to reach its Crossrail 1 funding target by 2018, it is assumed that Mayoral CIL income received between 2019 and 2035 could be applied to Crossrail 2.

²² Greater London Authority 'Mayoral Community Infrastructure Levy', available at www.london.gov.uk/priorities/planning/mayoral-community-infrastructure-levy

- TfL has estimated that given current Mayoral CIL receipts, adjusting for the fact some developments currently being built will have been through the planning process prior to Mayoral CIL being introduced, total Mayoral CIL revenue in 2019 will reach £100 million per annum using the existing rates (Figure 5-4).
- If s106 were phased out, this would justify a higher rate of CIL in the CAZ to replace this revenue stream. The new proposed charging structure is shown in Figure 5-5.
- The equivalent total annual Mayoral CIL revenue under the enhanced Mayoral CIL charging structure is £159m in 2019/20.
- In practice, Mayoral CIL is indexed at the National All-in Tender Price Index published by BCIS of the Royal Institution of Chartered Surveyors. For modelling purposes, this revenue stream will be indexed at TPI which we have assumed to be 3.5% per annum.
- For the purposes of calculating the funding raised against CIL revenues, a 20% contingency has been deducted from the available revenues.

Using the proportion of total Mayoral CIL generated in each borough, and the estimated proportion of each borough in the CAZ, it is possible to calculate how much income the enhanced charging schedule will generate.

5.3.7 Estimated funding contribution

On the basis of the above assumptions, it is estimated that:

- The existing Mayoral CIL could provide 3.7% of the total Crossrail 2 funding requirement.
- An enhanced Mayoral CIL could provide 5.8% of the total Crossrail 2 funding requirement.

We have also considered a number of other alternative structures for Mayoral CIL rates. These are shown in the table below. These show that the zone 1 rate is the primary driver for the overall take (30% of total Mayoral CIL income received to date has been earned in Zone 1). A higher Zone 1 rate could be justified on the basis of the large increase in Central London property values since Mayoral CIL rates were originally set in February 2012.

- If the existing Crossrail 1 zone structure was retained, but rates increased in Zones 1, 2 and 3 to £150/m², £50/m² and £35/m² respectively, the Mayoral CIL levy could raise 7.8% of the total Crossrail 2 funding requirement.
- Alternatively if the rate charged in Zone 1 was raised to £200, but rates for Zones 2 and 3 were maintained at their Crossrail 1 levels, this could increase revenues to 8.4% of the funding requirement.
- We have considered the exogenous factors that could affect Mayoral CIL income. These include changes in the level of development activity and delays to the achievement of target Mayoral CIL for Crossrail 1. We have shown the sensitivity of the project to each of these in the table below.
- If development were to decrease by 10%, this would reduce the amount of capital cost able to be funded by Mayoral CIL to 5.3%.
- In the base case it has been assumed that the end date of Crossrail 1 requirement for Mayoral CIL is 31 March 2019. If this was delayed by a year, consequently delaying receipts to Crossrail 2 to 2020, this would reduce the funding requirement percentage to 5.7%.

Figure 5-6: Mayoral CIL sensitivities

Sensitivity Number	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	Existing Mayoral CIL with increased rate within the CAZ (Enhanced CIL)	3,329	5.8%	
1	Existing Mayoral CIL	2,097	3.7%	-2.2%
2	Higher charging schedule for existing zones (£150, £50, £35)	4,434	7.7%	1.9%
3	Increase in existing Zone 1 rate to £200 per sq. m (£200, £35, £20)	4,765	8.3%	2.5%
4	10% lower development	2,996	5.2%	-0.6%
5	Income received a year later (Apr-2020 to Mar-2036)	3,445	5.7%	-0.1%

Source: PwC model

5.3.8 Conclusion

Mayoral CIL is now an established funding source for Crossrail 1, though there is a level of volatility in the income stream which makes borrowing against it challenging. If its use for Crossrail 2 is agreed it is likely to contribute a substantial amount to the project's funding requirement, around 5.8%. This contribution would be higher than that on Crossrail 1 as a new CAZ CIL zone would be introduced to take into account the loss of S106 from developments in Central London, which is a separate funding source on Crossrail 1.

5.4 Resale of Land and Property

5.4.1 The mechanism and scope for implementation

During the construction of major infrastructure projects it is often necessary to take ownership of certain pieces of land or property to allow access to work sites for plant, machinery, materials and workers. Although some of this land and property will become part of the finished infrastructure (e.g. land used to build railway tracks on), other land and property will only be used temporarily and can be resold once construction has finished. When considering the funding of a project, the proceeds from the sale of such land and property can be treated as an income source that will become available once construction is complete.

There are few barriers to the use of this mechanism for Crossrail 2 as the project company will have a strong incentive to dispose of any surplus land and property assets that can be sold in the market.

5.4.2 Benefits

The sale of surplus land and property will ensure that project funds are used efficiently. It will also mean that less income will need to be raised from other funding mechanisms that rely on levies or charges.

5.4.3 Challenges

The principal challenge to this mechanism is the difficulty of forecasting how much income the sale of land and property will raise in the context of a highly cyclical property market. It will be important to allow flexibility in the timing of asset sales to maximise proceeds. Depending on the position of the market, this may require delaying sales for a number of years.

5.4.4 Examples of use

The funding and financing structure used for Crossrail 1 assumes that proceeds from the sale of surplus land will form part of overall TfL funding for the project. Current TfL forecasts suggest that proceeds from the sale of surplus land on Crossrail 1 will cover between 60% and 70% of the land's original cost in nominal terms.

5.4.5 Assumptions

- It is assumed that 50% (pre-inflation) of the initial capital expenditure on land and property can be recovered once construction is complete;
- The value of land and property is assumed to rise in line with House Price Inflation (HPI – 4.7% per year) while owned by the Crossrail 2 company;
- Land and property will be sold during 2019/20 (last construction year) and 2020/21 (first year of operation), with the sale proceeds shared equally between these two years in real terms.

5.4.6 Estimated funding contribution

On the basis of the above assumptions, it is estimated that **the resale of land and property could provide 1.9% of the total Crossrail 2 funding requirement.**

We have also considered how the funding capacity of this mechanism would be affected by changes in underlying assumptions:

- If 75% of the initial capital expenditure on land and property can be recovered, the value of the mechanism increases to 2.8% of the funding requirement.
- If only 25% of the initial capital expenditure on land and property can be recovered, the value of the mechanism falls to 0.9% of the funding requirement.
- If annual House Price Inflation is assumed to be 3.7% rather than 4.7%, the value of the mechanism would fall to 1.6% of the funding requirement.
- If the sale of land and property were to be delayed by 5 years (for example, to await recovery of the property market after a downturn), the mechanism would contribute 1.8% of the funding requirement.

Figure 5-7: Resale of land and property sensitivities

Sensitivity Number	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	Existing Resale of Land and Property assumptions	1,187	1.9%	
1	75% cost recovery rate	1,780	2.8%	0.9%
1	25% cost recovery rate	593	0.9%	-1.0%
2	Annual House Price Inflation (HPI) 3.7%	1,003	1.6%	-0.3%
3	5 year delay in resale	1,493	1.8%	-0.1%

Source: PwC model

5.4.7 Conclusion

The resale of surplus land and property is currently being used effectively on the Crossrail 1 project to offset some of the up-front costs. It can be expected that a similar approach could be taken for Crossrail 2. It is estimated that income from the sale of land and property would be equivalent to around 1.9% of the project's funding requirement. However, it should be stressed that the amounts received from such transactions can be highly volatile.

5.5 Results

The table below shows that none of project generated revenue, BRS, Mayoral CIL, and resale of land and property generate the required 50% of funding requirement on their own, and together can only provide some 43% of the funding requirement.

Figure 5-8: Crossrail 1 Mechanisms

	Percentage of funding target
Project Generated Revenue	20.0%
BRS	15.2%
Enhanced Mayoral CIL	5.8%
Resale of Land and Property	1.9%
Total	42.9%

Source: PwC model

5.6 Conclusion

The analysis in this section shows that even with enhancements to the levies used for Crossrail 1, the amount that they can raise, taken together with the project generated revenue, is insufficient to provide 50% of the funding requirement for Crossrail 2.

In Section 5.7 we consider alternative project scenarios such as the Metro scheme and different project timescales in order to provide an indication of their impact on the potential level of funding contribution using the same package of funding options.

In Section 5.8 we present the results of macroeconomic sensitivities on the same package of funding options in order to demonstrate the impact of different interest and inflation rates on the potential level of funding contribution.

In the Section 6 we then consider using additional funding streams based on the Mayor's existing powers to bridge the gap.

5.7 Project scenarios

Analysis was also carried out to test whether the 50% level can be met under other project scenarios. The following table shows the potential funding contribution from operating surplus, BRS and enhanced MCIL and resale of land and property under a range of different project scenarios.

Figure 5-9: Project Scenarios

Scenario Number	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base	Project Generated Revenue + Crossrail 1 Mechanisms	63,226	42.9%	
1	5 year delay	67,223	44.3%	1.4%
2	10 year delay	71,662	46.1%	3.2%
3	Metro Option	48,244	44.3%	1.4%

Source: PwC model

5.7.1 Impact of later start date on funding and financing

Scenarios 1 and 2 in the above table demonstrate that delaying the scheme is estimated to increase the capital value that can be funded by the selected funding mechanisms by 1.4% with a 5 year delay and by 3.2% with a 10 year delay. This is primarily as a result of the fact that GLA currently estimate that Crossrail 1 BRS will only be repaid by 2033, 13 years after planned Crossrail 2 construction start. This means that a later construction start would allow any extension of the BRS to make a greater contribution to the funding of Crossrail 2.

However, it should be noted that a later start has the potential to create a number of issues for London:

- When HS2 phase 2 becomes operational in 2033 current TfL projections suggest that the existing London Underground capacity at Euston will not be able to cope with the increased volume of passengers. TfL has projected that the opening Crossrail 2 in 2030 is likely to solve this problem, providing the extra crowding relief required.
- One of the major stated benefits of Crossrail 2 is that it will provide crowding relief for the Northern and Victoria lines as well as at Waterloo, Victoria and Liverpool Street. Delaying this benefit for a number of years may mean that alternative work would be required on these lines and at these stations.
- The 2013 Network Rail Market study identified forecast growth on the South West mainline and main suburban lines of 40% from 2011 until 2043²³. Crossrail 2 has the potential to mitigate this problem by reducing the number of local services travelling into Waterloo. If construction on Crossrail 2 were not to go ahead or be delayed then an alternative solution, with associated costs, would be required. Network Rail has suggested that without Crossrail 2, £1.7 billion would need to be spent on the fifth track from Surbiton to Waterloo. If Crossrail 2 is built, £700 million will still need to be spent on the sixth track option and changes to Waterloo station but there would be a £1 billion cost saving relating to avoiding the cost of the fifth track between Wimbledon and Waterloo.

These issues do not directly affect the funding and financing of the project, but should be considered as part of the overall benefits of an earlier or later project commencement.

5.7.2 Impact of differences between route options on funding and financing

Scenario 3 in the above table demonstrates that the selected funding mechanisms would raise a slightly higher percentage of the capital value under a Metro Option (44.3%) than they would under the Regional Option (42.9%).

BRS and MCIL are assumed to raise the same level of funding under both the Regional and Metro Option, as they are both London wide levies which are not strictly bound by the geography of the route. Therefore the difference is explained by the relative variance in capital costs and operating surpluses between the two options. The real (2014/15 prices) capital costs are estimated to be considerably lower for the Metro Option (£7.1 billion lower), while the estimated reduction in the real operating surplus (£6.0 billion lower) is not as great. This has the effect of increasing the value of the operating surplus relative to the capital cost of the project.

There are a number of other characteristics of the Metro Option which could impact its ability to fund its capital costs if other funding mechanisms are considered:

- it accesses fewer areas, allowing fewer opportunities for development that could contribute to the scheme;
- it offers fewer cross London journey opportunities than the Regional Option, thereby weakening the link with more general levies for beneficiaries across London; and
- it does not relieve the congested lines into Waterloo, and therefore does not provide the same opportunity for Network Rail to avoid the costs of additional investment to meet passenger demand as the Regional Option.

²³ See “Long Term Planning Process: London and South East Market Study October 2013”, page 42

5.8 Macroeconomic sensitivities

Under current plans Crossrail 2 is to be built between 2020 and 2030, with borrowing for the capital costs of the scheme over the same period. Many of the potential funding streams are predicted to come online from 2030 onwards. Given that the costs and the revenues are forecast long into the future it is difficult to predict the impact macroeconomic factors will have on them with certainty.

Appendix C.1 of the report sets out the long term macroeconomic assumptions that have been used in the analysis, which are predominantly based on long term trends. However it is prudent to consider the impact on the level of funding contribution if these assumptions were to change. The following table shows the results of a range of macroeconomic sensitivities including different levels of inflation (RPI, TPI and HPI) and interest rates.

Figure 5-10: Macroeconomic sensitivities

Scenario Number	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base	Project Generated Revenue + Crossrail 1 Mechanisms	63,226	42.9%	
1	Increase in PWLB Interest Rate of 1%	63,226	36.2%	-6.7%
2	Decrease in PWLB Interest Rate of 1%	63,226	51.4%	8.5%
3	Increase in inflation (RPI, TPI, HPI) of 1%	90,241	51.5%	8.6%
4	Decrease in inflation (RPI, TPI, HPI) of 1%	44,693	36.2%	-6.7%
5	Increase in TPI of 1%	56,548	36.2%	-6.7%
6	Decrease in TPI of 1%	67,709	49.5%	6.6%

Source: PwC model

Scenarios 1 and 2 in the table above demonstrate that the funding requirement percentages are highly sensitive to changes in PWLB interest rates. Given the long term interest rate risk, TfL, GLA and the Mayor will need to have contingency plans in the event that Crossrail 2 borrowing is carried out at a higher average interest rate than assumed in this study. Such contingency mechanisms could include the potential funding streams analysed in Section 6 of this report such as an increase to London-wide fares. Greater fiscal devolution for London may also be a way of managing the interest rate risk.

6 *Additional options using Existing Mayoral Powers*

6.1 *Introduction*

The analysis set out in the sections above concludes that if all of the funding sources are considered at current rates of application there is a 7.5% shortfall in the funding requirement against the target of 50% being achieved through local sources.

In this section we have considered other funding mechanisms which are available to the Mayor to bridge the shortfall. These are:

- a Council Tax Crossrail 2 Precept;
- changes to the Mayoral CIL; and
- an increase in fares across the TfL network.

For each of these we have considered how they would have to be designed in order to bridge the gap in funding.

6.2 *Council Tax Crossrail 2 precept*

6.2.1 *The basis of the precept*

The Business Rates Supplement being used to fund Crossrail 1 is a property levy that is paid only by businesses. For Crossrail 2, the Mayor could obtain revenue from all types of properties by exercising his power to levy a Council Tax Precept on homes. This is an established mechanism used in the UK to provide funding for entities ('precepting authorities') that carry out activities separately from the local council that levies and collects Council Tax. For example, a precept may be levied to cover the costs of a fire authority that provides fire and rescue services to a group of local authorities, or to fund the functions of the highest tier of local government such as a county council or metropolitan authority. Precepts may also be levied for specific and time bound purposes - an example being the Olympic Games Council Tax Precept in London (see below). Council Tax Precepts are collected by the local council and remitted to the relevant precepting authority. Using a Council Tax Precept as a source of funding for Crossrail 2 would be broadly consistent with the principle that beneficiaries should contribute to the project. It would place some of the costs of the project upon the existing residents of London who would benefit directly from the enhancement to London's transport network. Whilst the case could be made that the primary beneficiaries would be those who live in the Crossrail 2 corridor, the beneficial effects would be felt on other rail lines across London.

6.2.2 *Practicality of the precept*

A Council Tax Precept would generate a predictable flow of revenue that would not fluctuate significantly from year to year, and therefore allow a defined sum of money to be raised with a high degree of certainty.

However, the introduction of such a precept could be challenging. It could be subject to opposition from Council Tax payers, which was the case for the Olympics Levy, where there were certain cases of principled non-payment that received press coverage²⁴. Council Tax payers may also be less accepting of a precept measure for a transport project, as they may view provision of transport as a basic and ongoing role of the city government, in contrast to the hosting of a special event such as the Olympic Games.

In addition, many who will use the new services will reside outside the London boundary, and therefore would not contribute through the precept.

²⁴ "Couple Fight Olympics Council Tax", BBC News website, 19 October 2006
<http://news.bbc.co.uk/1/hi/england/london/6066474.stm>

6.2.3 Implementing a precept

Our understanding is that the existing Olympic precept can be continued and reallocated to Crossrail 2, but that any increase over the expected final level of the Olympic precept (of £8 per annum) would have to follow a similar process to implementing a new precept.

A new Council Tax precept would have to be approved by the London Assembly in full session as part of the annual budget-setting process for the GLA as a whole. A two-thirds majority in the London Assembly can overrule the Mayor's proposed GLA budget. It is therefore likely that a political consensus would have to be reached in order to obtain majority support for this mechanism, although this would depend on the political composition of the Assembly at the time. In addition, under the terms of the Localism Act 2011, any proposed annual increase in the total Mayoral Precept (i.e. the total GLA charge applied to Council Tax bills in London) that exceeds 2% in any London local authority would trigger a London-wide referendum.

All the processes necessary to operate such a funding mechanism are already well established, so little additional administrative burden would be created by introducing a Crossrail 2 Council Tax Precept.

6.2.4 Estimated funding contribution

Using the assumptions set out in Appendix 0, we have forecast the nominal income that could be raised from this funding mechanism. As per the final year of the Olympic precept, a Band D rate of £8 would apply for the period April 2017 to March 2025. Between April 2025 and March 2037 a higher Band D rate of £13.33 would apply. The difference between the two rates represents RPI inflation between 2017 and 2025.

The analysis shows that 1.5% of the capital funding requirement of the project could be raised. 61% of this total would be generated from precept receipts from Outer London boroughs. Combining this with the project generated revenue and the Crossrail 1 mechanisms, 44% of the capital cost can be met.

Given the challenges of putting in place a Council Tax Crossrail 2 Precept described above, the following sensitivities have been tested to quantify the possible impact on funding capacity:

- If a reduction in the level of the precept were necessary to achieve political support for the precept (in this test a 50% reduction), the funding requirement percentage raised would fall from 1.5% to 0.8%.
- Another conceivable means of increasing political support for the precept could be to apply different precept rates in Inner and Outer London, placing a greater burden on 'prime' Central London residents. If the rate charged in Inner London were to be doubled (i.e. initially £16 rather than £8 for Band D properties, then £26.66 rather than £13.33) – the amount raised would rise from 1.5% to 2.1% of the capital funding requirement.
- A criticism of using a London-wide precept to fund Crossrail 2 could be that residents living far from the route will not benefit to the same extent as those living close to a Crossrail 2 station. This issue could be addressed by charging a higher precept rate in boroughs that contain Crossrail 2 stations. If rates of £16/£26.66 (Band D) were to be applied only to these boroughs, with the lower rate of £8/£13.33 (Band D) applied to non-Crossrail 2 boroughs, the amount raised would rise to 2.1% of capital cost.
- If the precept rates were to be indexed in line with RPI, rather than held constant, the capital value percentage raised would increase to 1.7%.

Figure 6-1: Council Tax Precept sensitivities

Sensitivity Number	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	Council Tax Crossrail 2 Precept	808	1.5%	
1	50% reduction in Precept	404	0.8%	-0.8%
2	Inner London: £16 and £26.66 Outer London: £8 and £13.33	1,122	2.1%	0.6%
3*	Boroughs with a station: £16 and £26.66 Boroughs without a station: £8 and £13.33	1,083	2.1%	0.5%
4	Precept rates inflated at RPI annually	928	1.7%	0.2%

Source: PwC model

*Boroughs with a proposed station on the Regional Option: Enfield, Haringey, Hackney, Islington, Camden, Westminster, Kensington and Chelsea, Wandsworth, Richmond upon Thames, Kingston upon Thames, Merton

6.2.5 Conclusion

A Council Tax Precept specific to London has the potential to make a small contribution towards funding the capital costs of Crossrail 2. On the basis of the illustrative assumptions we have used, this is estimated to be 1.5%. This contribution can be increased by raising the level of the precept or its time span. However, this is likely to be politically challenging, and could potentially face substantial opposition from Council Tax payers.

6.3 Changes to Mayoral Community Infrastructure Levy

As explained in Section 5.3, an enhanced version of the Mayoral CIL put in place to fund Crossrail 1 could make a contribution towards the Crossrail 2 funding requirement of 5.8%. However, it would be within the power of the Mayor to significantly change the Mayoral CIL mechanism in order to increase the income it could generate.

To illustrate the effects of changing Mayoral CIL on its value as a funding source, the following adjustments were made to how the mechanism would operate:

- Mayoral CIL rates doubled for all zones – CAZ: £280, Zone 1: £100, Zone 2: £70, Zone 3: £40;
- The higher Mayoral CIL rates would continue to be indexed by Construction Price inflation, but every 10 years the rates would be reset to ensure that the Mayoral CIL rates do not diverge from growth in house prices.

Applying these changes increases the proportion of the Crossrail 2 funding requirement that can be met from Mayoral CIL from 5.8% to 12.1%.

6.4 London-wide fare rise

Much of TfL revenue comes from ticket sales²⁵. A London-wide above-inflation fares rise could raise substantial additional revenue for TfL, which could be available to fund transport projects such as Crossrail 2. This mechanism would not only increase TfL income during the years when the additional rises occur, but it would also generate higher revenues indefinitely (on the assumption that the fare rises are not reversed).

The current TfL business planning assumption is that fares will increase annually at RPI+1% until March 2021. We have estimated the level of fare rise that would bridge the gap between the 50% target and amount raised

²⁵ 79.5% of TfL Gross Income came from fares during 2013/14 (see 'Transport for London Annual Report and Statement of Accounts 2013/14' available at <https://www.tfl.gov.uk/cdn/static/cms/documents/annual-report-2013-14.pdf>)

through existing mechanisms if increases in fares were to be applied after 2030, which is the assumed opening date for the Crossrail 2 project.

We have estimated that an additional 1% annual fares increase above the fare growth already assumed, repeated annually for 4 years from 2030, would raise 8.0% of the project funding requirement. This raises enough extra money to fund at least 50% of the funding requirement when combined with income from the mechanisms described in Sections 4 and 5.

This estimate is based on the following assumptions:

- Additional fare rises only apply to London Underground and TfL Rail;
- Fares are assumed to rise in line with the TfL 2013 Business Plan revenue forecasts for the period 2014/15 to 2020/21 at RPI+1%;
- In the period 2021/22 to 2064/65, TfL fares are assumed to grow at an underlying rate of RPI+0.5% per year before any additional fares rises are applied;
- Adding the additional fares changes to underlying fares increases would result in total real-terms fares rises of RPI+1.5% in 2030/31, 2031/32, 2032/33 and 2033/34. Thereafter fares rises would revert to RPI+0.5%;
- In the period 2021/22 to 2064/65, annual revenue growth not attributable to fares changes is assumed to be 0.82% per year for Underground revenue and 1.63% per year for TfL Rail revenue;
- The fares elasticity is assumed to be -0.25. Therefore when fares rise by 1%, demand drops by 0.25%, resulting in a net 0.75% increase in revenue.
- For the purposes of calculating the funding raised against London-wide fares rise revenues a 10% contingency has been deducted from the available revenues.

Such a rise has the potential to generate significant revenues to fund Crossrail 2, but implementation could be difficult given the likely opposition from passengers to additional fare increases and the political sensitivity surrounding this issue.

6.5 Funding Package Scenarios

The mechanisms used to fund Crossrail 1 and those described above based on existing Mayoral powers could be combined in a number of ways to achieve an optimal funding package for Crossrail 2.

The table below sets out the total level of potential nominal income and proportion of funding requirement met for a series of funding scenarios based on the mechanisms described in this section – a London-wide fares rise, a modified Mayoral CIL and a Council Tax precept.

Figure 6-2: Funding Scenarios

Scenario No	Description	Nominal Income (£m)	Funding Requirement Percentage	Increment over Base Scenario
1 (Base)	Project Generated Revenue + Crossrail 1 Mechanisms (BRS, enhanced Mayoral CIL & sale of land and property)	63,226	42.9%	
2	Project Generated Revenue + Crossrail 1 Mechanisms but with a doubling of Mayoral CIL	66,555	48.7%	+5.8%
3	Project Generated Revenue + Crossrail 1 Mechanisms + Council Tax Precept	64,033	44.4%	+1.5%
4	Project Generated Revenue + Crossrail 1 Mechanisms but with a doubling of Mayoral CIL + Council Tax Precept	67,362	50.2%	+7.4%
5	Project Generated Revenue + Crossrail 1 Mechanisms + London-wide Fares Rise	75,366	50.8%	+8.0%
6	Project Generated Revenue + Crossrail 1 Mechanisms + BRS from 2030-2079*	95,474	50.0%	+7.1%

Source: PwC model

* If the Crossrail 1 BRS revenues are higher than expected and the debt is repaid by 2030, BRS receipts could be used for Crossrail 2 from 2030 onwards. In order to reach 50% of the funding requirement, BRS receipts could be used until the debt is repaid. This sensitivity indicates using current projections this would require BRS to continue for 49 years until 2079.

Scenario 1 in the table of results above shows that applying the existing Crossrail 1 funding package to Crossrail 2 is estimated to cover only some 43% of the funding requirement. This compares to an equivalent figure of approximately 66% on Crossrail 1. The main reasons for the difference are lower Crossrail 2 operating surplus, BRS income available later and an absence of direct contributions from corporations such as Canary Wharf and BAA.

In **Scenario 2** the Mayoral CIL rates charged are doubled, resulting in a significant increase in the funding provided by the mechanism. This would raise the total funding requirement met to 48.7%.

In **Scenario 3** the base Crossrail 1 mechanisms are retained, but the Council Tax Precept is added as another funding mechanism. This would raise the total funding requirement met to 44.4%.

In **Scenario 4** the base Crossrail 1 mechanisms are retained however the Mayoral CIL rates charged are doubled and the Council Tax Precept is added as another funding mechanism. This would raise the total funding requirement met to 50.2%.

In **Scenario 5** the base Crossrail 1 mechanisms are retained, but the London-wide fares rise is added as another funding mechanism. This would raise the total funding requirement met to 50.8%, exceeding the 50% target.

In **Scenario 6** the base Crossrail 1 mechanisms are retained, but with the BRS running from 2030-2079. This would raise the total funding requirement met to 50.0%.

7 Value capture from land and property value enhancement

7.1 Introduction

During our lessons learned exercise there was significant discussion regarding the considerable increases in property values near stations along the Crossrail 1 route, which are attributed to the anticipated new services being introduced. We received feedback that more value could have been captured from this perceived benefit to support the funding of Crossrail 1.

Therefore we have considered three possible ways of capturing value from increased development and improved land values along the line of the route. These are:

1. Station zone value capture mechanisms, which focus on identifying the increase to local property taxes as a consequence of Crossrail 2 being introduced;
2. Contributions from significant local landowners; and
3. Raising funds for the project through direct intervention in developments.

7.2 Station Zone Value Capture

7.2.1 Principle of Station Zone Value Capture

Station zone value capture is a form of tax increment financing (TIF). TIF attempts to isolate the increase in certain specific tax revenues which arise as a consequence of a project. This additional tax can be captured and used to make a funding contribution to the project.

TIF has been used extensively for a wide range of infrastructure projects internationally and recently within the UK. Notable examples of its use for funding transport infrastructure and developments around stations include the Transbay Redevelopment Project, a \$4.4 billion capital investment project in Downtown San Francisco, and the Atlanta BeltLine, a transformative \$4.75 billion project in Atlanta, Georgia (see Appendix F). TIF is also used extensively in Chicago, a city which had 167 operating TIF districts at the end of 2009 (last available data)²⁶, and has been used to fund rail and station improvements in the Chicago 'Loop'.

TIF is also emerging as a prominent mechanism for funding infrastructure in UK. A key benefit of station zone value capture is that it uses sources of taxation that already exist: it would neither require tax rate increases to be made, nor new taxes to be levied. By harnessing the uplift in value created around stations (and hence the increase in property taxes), it would also ensure that some of the cost of Crossrail 2 is borne by the direct beneficiaries of the scheme.

However, station zone value capture's dependence on increases in property value means that it could be vulnerable to economic downturns. Similarly, station zones which are already built up might also fail to generate material revenues from value increases. Station zone value capture's reliance on at least some fiscal devolution also makes it politically and administratively challenging: depending on the form of value capture mechanism, HMT revenue could be affected, as could Borough CIL revenue.

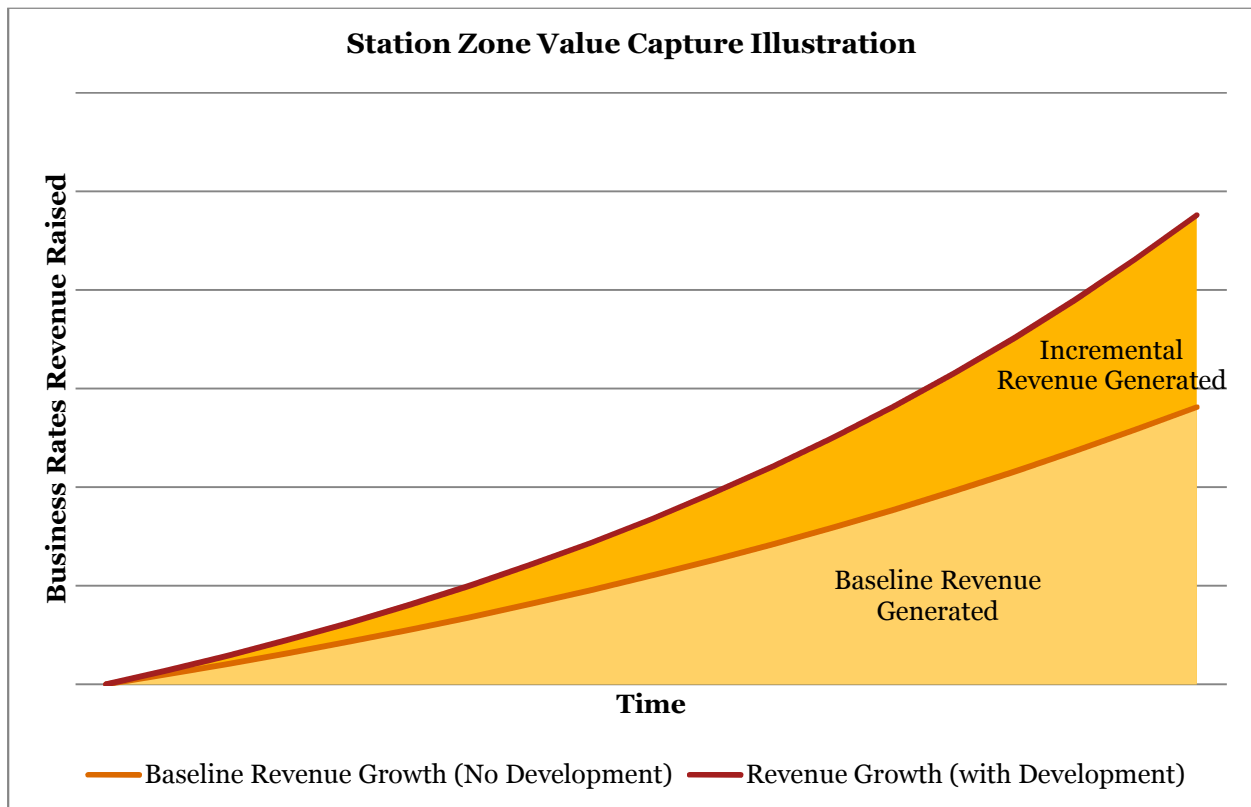
For each element of station zone value capture, a 'baseline' needs to be established. This baseline would be an estimation of what income from the specific levy would be if the project did not go ahead,²⁷ over the project

²⁶ City of Chicago (2014) 'TIF Balance Sheets' CityofChicago.org, available at http://www.cityofchicago.org/content/city/en/depts/dcd/dataset/tif_balance_sheets.html.

²⁷ Institute of Revenues, Rating and Valuation (2013) 'The Localisation of Business Rates' available at http://www.irrv.net/forums_webinar/2013/01/2013_01_07_01/webinar_slides.pdf

period. This will clearly involve a degree of judgement. The 'baseline' is illustrated in Figure 7-1 below. Once a baseline has been established, any tax income above this level would be set aside as an additional source of funding.

Figure 7-1: Illustration of the incremental growth harnessed by station zone value capture



Source: PwC

A relevant example of station zone value capture is the funding package for the recent Northern Line Extension (NLE) project. This mechanism is focussed on the redevelopment of Battersea Power Station and covers the Vauxhall, Nine Elms and Battersea Enterprise Zone (VNEB). The station zone value capture mechanisms include incremental business rates income (IBRI) and a proportion of Borough CIL and S106 contributions arising from new developments.

The NLE project demonstrates that in the right circumstances, a substantial part of the cost of transport infrastructure can be funded through these types of levy. Calculating the baseline growth for the NLE was not a major issue as the majority of the VNEB had little or no existing commercial activity. The same would not be the case for the majority of sites around stations along the proposed Crossrail 2 route.

It is important to stress the difference between the station zone value capture mechanism and the recent proposals by the London Finance Commission (the 'LFC'). The LFC has recently proposed that the GLA be given a degree of fiscal devolution, and initially be allowed to capture incremental growth in property taxes. Station zone value capture mechanisms differ from the LFC proposals because they will only apply to zones around stations (which are expected to be experiencing specific, Crossrail 2 related growth in value), whereas the LFC proposals attempt to capture incremental growth across London.

7.2.2 Station Zone Value Capture Mechanisms

Two mechanisms have been considered for station zone value capture model. These are:

- Incremental Business Rate Income (IBRI); and

- Borough Community Infrastructure Levy (Borough CIL) (which is a separate levy from Mayoral CIL which is discussed in Section 5.3).

It is also possible that other forms of property tax such as Stamp Duty Land Tax (SDLT) could be included in value capture mechanisms, but as this would require further fiscal devolution powers, which are by no means guaranteed to be delivered to the GLA, we have excluded them from our analysis.

The amounts generated under these two mechanisms have been calculated by Quod, Steer Davies Gleave and Carter Jonas (TfL's property consultants) on the basis that the zones cover an 800 metre radius around each exit of the 14 Crossrail 2 stations in Greater London. Where part of the zone is cut off by a barrier (for example, the Thames) the area cut off would not be part of the zone.

As part of their analysis Quod, Steer Davies Gleave and Carter Jonas considered site capacity around 35 stations on the route, excluding sites already in the planning system. They looked at three different planning scenarios:

- current/emerging planning policy;
- flexible planning policy (mainly relating to the release of industrial land and some Metropolitan Open Land); and
- flexible planning policy combined with high densities of 405 dwellings per hectare, a similar level of density to the Battersea Power Station site.

The results in the Borough CIL section use the figures provided for the current/emerging planning policy scenario but the impact of other planning scenarios is shown in sensitivities.

7.2.3 Incremental Business Rate Income

7.2.3.1 *The mechanism and scope for implementation*

An Incremental Business Rate Income (IBRI) mechanism would capture the future increases in business rates that occur within station zones as a consequence of Crossrail 2 and put these funds towards the project. As the IBRI mechanism only extracts 'incremental' business rates, in theory HMT would suffer no 'real' loss of business rate income.

Currently London only retains 50% (split 20% boroughs, 30% GLA) of its business rate receipts (the remainder is remitted to HMT). In order to retain 100% of IBRI revenue within station zones, approval from HMT would be required.

We recognise that there is a possibility that Crossrail 2 could attract some development that would otherwise have simply occurred elsewhere, meaning that IBRI would abstract from other business rate income.²⁸ However, Quod have solely looked at commercial development which would be directly enabled by Crossrail 2 infrastructure and have confirmed that they do not believe this would be abstractive to development in the rest of London.

7.2.3.2 *Examples of use*

IBRI is being used to fund the £1 billion NLE from Kennington to Nine Elms and Battersea. Other examples of IBRI being used in the UK include Newcastle's Accelerated Development Zone and Sheffield's New Development District. The use of IBRI to fund projects is therefore established and the principles are well understood by government.

7.2.3.3 *Implementation*

There is already a precedent for using IBRI in London for the purpose of funding rail infrastructure (NLE). The required legislative frameworks for allocating IBRI between public sector stakeholders are already in place.

²⁸ English Partnerships (2003) 'Additionality Guide' available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191511/Additionality_Guide_o.pdf.

7.2.3.4 Assumptions

Quod, Carter Jonas and Steer Davies Gleave (TfL's property consultants) have identified potential commercial developments – within existing planning constraints – in station zones which could be enabled by the construction of Crossrail 2. These are restricted to four key stations where there is the potential for substantial uplift in commercial development/activity. These include Tottenham Court Road, Victoria, Wimbledon and Kingston, but not Euston, as it is assumed that the HS2 project would utilise any IBRI from that station zone.

Using this analysis, rateable values of forecast new commercial developments have been calculated and the current NNDR rate of 48.2p in the pound has been applied to calculate the IBRI revenue. It is assumed that all of this IBRI between 2025 and 2050 would be available to the project. This assumption is consistent with use of IBRI on the NLE.

Business rate valuation growth assumptions are identical to those used for the calculation of BRS income (which are set out in Section 5.2.6). The full suite of assumptions is set out in Appendix C.6

7.2.3.5 Estimated funding contribution

The table below shows the forecast total nominal IBRI between 2025 and 2050 for each station zone. The profile of this income is shown in Figure 7-3.

Figure 7-2: Total nominal IBRI income by station zone

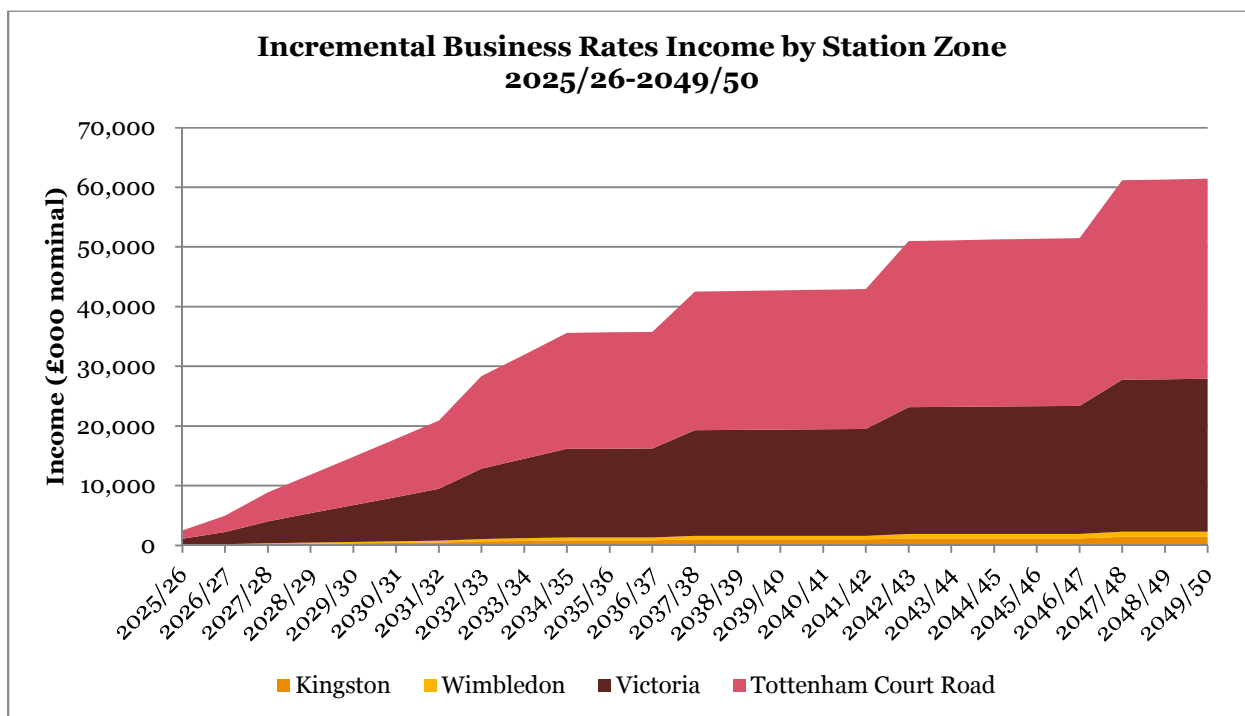
Station Zone	Total Nominal IBRI Income (£m) 2025-2050
Kingston	20.7
Wimbledon	13.0
Victoria	376.1
Tottenham Court Road	492.8
Total	902.6

Source: PwC model

A large majority of IBRI is forecast to be generated by station zones in the London CAZ, with only a limited contribution from commercial development elsewhere on the Crossrail 2 route.

The graph below shows how the revenues from IBRI grow over time as new development occurs (during the period 2025/26-2034/35) and revaluations of rateable value take place (in five year intervals).

Figure 7-3: Incremental business rates income by station zone 2025/26-2049/50 (nominal)



Source: PwC model

Using this cashflow, our analysis estimates that **IBRI could provide 0.7% of the total Crossrail 2 funding requirement.**

This is relatively small (compared with other levies previously discussed) because IBRI would only apply to new developments in a small proportion of Greater London. The value created in these zones represents a small proportion of the total benefits of the Crossrail 2 project.

The level of IBRI for Crossrail 2 is approximately one third of that generated by the NLE (between 2016 and 2041). This is because there is little or no existing commercial development on the Battersea Power Station site, whereas all four selected station zones on Crossrail 2 have a high level of existing commercial development (and therefore higher 'base line' business rate income and fewer opportunities for new commercial sites).

Some modifications to the design of the IBRI mechanism have been tested (see Figure 7-4), but the overall effects of such changes are marginal.

Figure 7-4: Station Zone Value Capture (Incremental Business Rates Income)

Sensitivity No	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	IBRI (Kingston, Wimbledon, Victoria, Tottenham Court Road)	903	0.7%	
1	Extend revenue stream until 2060	1,659	0.9%	0.2%
2	Increase annual rental yield by 1%	1,093	0.8%	0.1%
3	Reduce retention rate of income for Crossrail 2 use from 100% to 50%	451	0.3%	-0.3%

Source: PwC model

7.2.3.6 Conclusion

IBRI is forecast to contribute a relatively small amount to the project's funding requirement, in the region of 0.7%. Given the complexities of defining a baseline level of business rate income, it is questionable whether it is worth separately identifying and gathering it, unless there is a significant increase in forecast commercial development around the Crossrail 2 stations.

7.2.4 Borough Community Infrastructure Levy

7.2.4.1 The mechanism and scope for implementation

Borough CIL follows the same principles as Mayoral CIL (Section 5.3), albeit that rates for Borough CIL are set at the borough level and revenues do not need to be applied to strategic transport infrastructure. The purpose of Borough CIL is to fund infrastructure improvements that are needed as a consequence of new developments.

Borough CIL rates vary between London boroughs and can vary within boroughs for certain types of development and specific charging zones within the borough. Borough CIL rates can be up to £750 per m² (residential development in Kensington and Chelsea) and as low as £10 (in Barking and Dagenham).

The current Borough CIL charges are designed to reflect the infrastructure and service delivery requirements that result from development. There is a potential justification for Borough CIL receipts from new developments within station zones to be used towards funding Crossrail 2. These developments could be regarded as 'additional' in that they would not happen without Crossrail 2. However it is clear that some of the Borough CIL funding would still be needed by boroughs in order to meet the additional infrastructure costs of these new developments.

7.2.4.2 Examples of use

Development charges are a common source of funding for infrastructure in cities around the globe. One particular example is in Toronto, where development charges are an important source of funding for Metrolinx, the regional transportation authority.

Following the Planning Act 2008 and ensuing Community Infrastructure Levy Regulations, Borough CIL has been introduced in most London boroughs. Although the legislation has gone through a number of iterations since 2008, Borough CIL is now an accepted funding mechanism for local infrastructure projects. Of more specific relevance is the way that Borough CIL has been used in the funding of the NLE. An agreement was made between GLA and the London Boroughs of Wandsworth and Lambeth that a proportion of the Borough CIL collected on specific planned developments directly attributable to the NLE will be transferred to GLA and used to fund the project's capital costs. An agreement between the boroughs and GLA sets the maximum proportion which could be used to fund the NLE at 72.2%.

7.2.4.3 Implementation

The collection mechanisms for Borough CIL are already in place. Agreement would need to be reached between the boroughs which contain Crossrail 2 stations and the GLA as to the percentage of Borough CIL that would be transferred to GLA in order to fund the project.

Borough CIL rates are charged according to development location, meaning it would be straightforward to identify which receipts originate from the station zones.

7.2.4.4 Assumptions

As part of the work for TfL Quod, Carter Jonas and Steer Davies Gleave have identified potential developments – within existing planning constraints – in station zones which could be enabled by the construction of Crossrail 2. They have identified the value of these developments and the associated Borough CIL which would result from them.

For the purposes of this study we have assumed that 50% of this Borough CIL from Crossrail 2 related development would be provided by the boroughs to GLA in order to help fund construction of the scheme. The remainder would be retained by the relevant borough.

The 50% assumption is lower than the maximum level of 72.2% agreed on the NLE. In practice, Borough CIL would only be applied to the Crossrail 2 project in instances where increases in Borough CIL receipts (resulting from new development in the station zone) outstrip the requirements of local service delivery, meaning that there could be further uncertainty about revenues arising from Borough CIL.

The Borough CIL rates which are currently applied are shown in Appendix C.7 in Figure 10-10: Borough CIL rates.

7.2.4.5 Estimated funding contribution

On the basis of the above assumptions, it is estimated that Borough CIL could **provide 0.3% of the total Crossrail 2 funding requirement.**

This estimated amount of Borough CIL income is lower than the combined Borough CIL and s106 income on the NLE project, with £203 million of estimated nominal income for Crossrail 2 and £352 million of planned nominal income for the NLE. This is primarily driven by the fact that the NLE benefits from a very substantial anchor development at Battersea Power Station with a high density of units. Applying similar densities and flexible planning in the Crossrail 2 station zones would produce nominal income of £639 million.

While £203 million is a substantial sum of money, it would only cover 0.3% of the funding requirement of the Crossrail 2 scheme. In contrast the £352m of nominal income on the NLE is estimated to cover over 25% of the capital costs of the scheme once finance costs are taken into account. This highlights the difference in the relative size of the two projects.

The following sensitivities have been run to show the potential funding capacity under a range of different assumptions.

Figure 7-5: Station Zone Value Capture (Borough CIL)

Sensitivity No	Description	Nominal Income (£m)	Funding Requirement Percentage	Difference from Base Case
Base Case	Borough CIL capture (existing planning restrictions, 50% capture rate, 30% affordable homes)	203	0.3%	
1	Flexible planning	416	0.5%	0.3%
2	Flexible planning + very high density development	639	0.8%	0.6%
3	Capture Rate 72.2%	292	0.4%	0.1%
4	Affordable homes 50%	145	0.2%	-0.1%
5	Affordable homes 10%	260	0.3%	0.1%

Source: PwC model

Note: The base case assumes 30% of developments are affordable homes and are exempt from CIL

7.2.4.6 Conclusion

A 50% share of Borough CIL in zones around the stations could raise significant amounts in absolute terms. However, in terms of the funding requirement of Crossrail 2, the amounts are relatively minor, in the region of 0.3%. If the developments were to have a higher level of density, similar to the anticipated level for the Battersea site on the NLE, this contribution could almost treble.

7.3 Negotiated Contributions

7.3.1 Background

During our consultation on lessons learned from Crossrail 1 we were advised to consider further whether there could be a more successful approach to gathering voluntary or negotiated contributions. We were also advised to consider whether lessons learned from other countries (e.g. Hong Kong) - which have been more successful in using land and property gain to fund transport projects - could be applied in the specific environment of Crossrail 2.

We have therefore considered:

- the amounts that Crossrail 1 was able to raise through negotiated contributions;
- the differences between the two projects that would affect the potential to raise negotiated contributions; and
- whether a different approach to negotiations would make a substantial difference to the amount raised.

7.3.2 Crossrail 1's experience with negotiated contributions

Negotiated contributions were actively pursued for Crossrail 1. A substantial amount of time and effort went into identifying and negotiating potential contributions.

However, relative to the overall cost of the scheme, the contributions secured from landowners by Crossrail 1 are relatively small. We have listed the principle contributions below:²⁹

- Canary Wharf agreed to build the station box in exchange for the right to develop above the station. The Canary Wharf Group contributed a total of £150 million (1.03% of the total cost of Crossrail 1 – £14.5 billion). This is a useful contribution to the project but it needs to be considered in the context of the potential benefits arising from having a Crossrail 1 station.
- Heathrow Airport had proposed a substantial contribution to the project but this was curtailed after a change to its regulatory settlement meant it was no longer affordable. Heathrow Airport's total contribution was therefore reduced from £230 million to £70 million (0.48% of the total cost).
- The City of London committed to a £250 million contribution (1.72% of the total cost). A further £100 million is being sought from voluntary contributions (0.69% of the total cost).
- Berkeley Homes agreed to construct the station box at Woolwich for a fixed public contribution, and will make a fixed contribution to the station fit-out.

Because of the different conditions applied to the above contributions, it is difficult to state the exact percentage of funding from negotiated contributions, but it is in the order of 3-4%.

7.3.3 Comparison of Crossrails 1 and 2

The potential for contributions from land owners on Crossrail 2 depends on the nature of property and land value gains that arise as a consequence of Crossrail 2. We have compared the development potential for Crossrail 1 and Crossrail 2.

Crossrail 1 connects Heathrow Airport, Canary Wharf and the City of London. These large existing centres of economic activity are expected to gain substantial commercial benefit from improved access and connectivity provided by Crossrail 1. In addition, Crossrail 1 stations in Central London are close to sites with the potential for major, high value property development. Station locations identified as key property development locations for Crossrail 1 include Canary Wharf, Tottenham Court Road, Farringdon and Whitechapel (Central London),

²⁹ See National Audit Office (2014) 'Crossrail 1' available at <http://www.nao.org.uk/wp-content/uploads/2014/01/Crossrail-1.pdf>. Also see House of Commons Library (2014) 'Railways: Crossrail 1 and 2', available at <http://www.parliament.uk/business/publications/research/briefing-papers/SN00876/railways-Crossrail-1-1-and-2>.

Ealing Broadway, Slough and Southall (West London) and Custom House, Abbey Wood and Woolwich (East London).³⁰

In contrast, Crossrail 2 has relatively few stations in Central London with significant potential for development. Planned Central London stations for Crossrail 2 include:

- Euston/Kings Cross;
- Tottenham Court Road;
- Victoria; and
- Angel.

For these stations, there are specific challenges to capturing development gains for the purpose of funding Crossrail 2.

We have been advised by TfL that Euston/Kings Cross is already being considered for development by HS2 and that the majority of value capture would be utilised by the HS2 project. Similarly, Tottenham Court Road has already had a significant amount of development generated from its position on the Crossrail 1 route, thus reducing the potential for capturing any further value created by Crossrail 2. For Victoria station, we have been advised that there are limited opportunities for development in the area due to constraints on further high-rise buildings imposed by protected viewing corridors. For Angel station, the opportunities for significant new development are also limited by the density of existing development and the residential nature of the surrounding area.

Quod have provided a total GDV ('Gross Development Value' – the total uplift in property value) arising from potential development at these 4 stations of £4.5 billion.

While we do not have a comparable figure for Crossrail 1, it would appear that Crossrail 2 has less opportunity for capturing value from Central London property development, and therefore is likely to raise less through negotiated contributions.

Of potentially greater interest for the Crossrail 2 project are areas on the route that are within the London boundary, but have significant development potential. The possibility of developing these suburban greenfield and brownfield sites into large new residential sites could create value that could be captured and put towards the costs of the project. The options for this are discussed in Section 7.4.

7.3.4 Different approaches to negotiated contributions

The relatively small contribution to the Crossrail 1 project is not unexpected. Other UK transport projects that we have seen have similar proportional contributions. This is probably because the benefits of the Crossrail 1 project are spread widely among landowners and travellers. Even the largest beneficiaries would receive a relatively small amount of the benefits, and these benefits may not be fully understood when the contribution is being sought. In addition, large infrastructure projects such as these are unlikely to be seen as low-risk investment opportunities by most private companies. The benefits that a private company may receive in return for making a contribution are likely to be uncertain and may arise many years in the future.

However, during our discussions on the lessons learned from Crossrail 1, we had feedback that the funding negotiation process for Crossrail 2 could be started earlier, to help the public sector's negotiating position.

A view was expressed that the public sector's negotiation leverage was constrained by project timing, as they were being completed as the project was being finalised, and there was no real possibility of materially changing the configuration of the project.

We have considered whether an earlier start to negotiations would improve the level of funding contribution for Crossrail 2. However, we believe this is unlikely because:

³⁰ GVA (2012) 'Crossrail Property Impact Study' available at <http://www.Crossrail 1.co.uk/benefits/changing-spaces-building-communities/55-billion-boost-to-property-values>.

1. Starting negotiations earlier would mean that the scheme is unlikely to have been committed to by the public sector (or commitment is not imminent), and therefore it could be difficult to get landowners to engage; and
2. The route and station configuration for the Crossrail 2 project (like most public transport investments) is primarily driven by strategic and economic needs. Suggesting that this can be changed as a consequence of contributions may lack credibility in negotiations.

7.3.5 Conclusion

Given the differences in development opportunity between Crossrail 1 and Crossrail 2 and the level of negotiated contributions achieved by Crossrail 1, we have concluded that negotiation of individual arrangements with property owners on Crossrail 2 is unlikely to make a substantial contribution to the cost of the scheme. However if such opportunities were to arise there would be no reason not to pursue them.

In Section 7.4, we discuss a further approach which may be more suitable for the types of development expected to be associated with Crossrail 2.

7.4 Intervention in development areas

7.4.1 Options for capturing land value increases

Crossrail 2 will provide improved access to Central London from areas of London and the Home Counties which could absorb further development. For areas that would undergo transformational developments, we have considered the potential for some of the profits from developments in such areas to make a contribution to the cost of the Crossrail 2 project.

There are three different ways that value could be extracted from such developments to make a contribution to the Crossrail 2 project. These are:

1. Negotiated contributions with landowners (discussed above in Section 7.3);
2. Specific levies applied in designated development areas (which would be significantly larger than the station zones discussed in Section 7.2); or
3. The public sector could take a stake in developing land and apply the forecast surpluses from sales to the Crossrail 2 project.

Of these, the first option is potentially the most difficult. There may be many different landowners within a development area, and they may have different views on the developments they would wish to take forward.

The second and third options could be achieved by a more interventionist approach. We have considered how they could be implemented through the establishment of Mayoral Development Corporation (MDCs) for the specific areas.

7.4.2 Using the MDC as a vehicle

The ability of the Mayor of London to establish MDCs was enshrined in the Localism Act 2011, which defined the purpose of MDCs as to ensure the regeneration of an area. An MDC would have powers to:

- Purchase land;
- Apply development levies to land;
- Reclassify land for residential and commercial purposes; and
- Allow levels of densification which can help maximize the value of developments.

An example of an MDC is the Olympic Park Legacy Corporation (OPLC) at the Queen Elizabeth Park at Stratford. Although the OPLC preceded the Act, it was transformed into an MDC in 2012 in order to ensure the regeneration, development and sustainability of the Olympic Park.³¹ The OPLC plans to use its MDC powers to

³¹ Greater London Authority (2011) 'Olympic Park Legacy Corporation: Proposals by the Mayor of London for public consultation', available at <http://www.london.gov.uk/sites/default/files/oplc-mayor-proposals.pdf>.

transform and reopen the Olympic Park (which is now open) and Olympic Stadium (by 2016), deliver 2,500 new homes and create 13,000 new jobs by 2023.³²

An MDC (or MDCs) for the Crossrail 2 route could develop a master plan for each MDC area. The MDC could also ensure that utility, transport and social infrastructure was provided to the MDC developments as appropriate.

However establishing a viable MDC could face significant obstacles.

- Finding suitably large parcels of land represents a significant challenge.
- Landowners and boroughs bordering the MDC sites may have concerns about density of development, which will need to be addressed. Part of any value captured from developments in an MDC may need to be used to address these concerns.
- The investment in the sites by the MDC would be a long-term and substantial commitment. The cost of land purchase and remediation of building the essential infrastructure would need to be found from public sources, and this investment would have a long pay-back period. This is especially true for brownfield sites.

If areas can be identified and agreed for development as MDCs, then it is likely that the value of land in these areas will increase significantly, and the MDC could potentially make a contribution to the Crossrail 2 project.

In the following sections we set out some of the key issues with trying to capture value from developments by using MDCs. Specifically, we have considered two methods

1. applying an MDC specific CIL to MDC areas; and
2. an active role in development of land by the MDC in the MDC areas.

An MDC has planning and CIL-levying powers which are similar to a borough's. Therefore Borough CIL would not apply in an MDC. Instead the MDC can apply an MDC- specific CIL ('MDC CIL'). This could have two purposes:

- To pay for necessary local infrastructure: in the same way as Borough CIL, MDC CIL income would contribute to local infrastructure costs (which are likely to be significant in an MDC area – access roads, medical facilities etc.);
- To capture the uplift in land values: because of the change in the value of land due to changes in planning status and density within an MDC area, MDC CIL could be set at a higher rate than typical Borough CIL, and this additional amount could make a contribution to the cost of the Crossrail 2 project.

Charging a high rate of MDC CIL to extract value from a rise in land values would be a relatively simple way of capturing value. However, setting such a rate for MDC CIL has risks – if it is too high it could discourage development, and if it is too low it could lead to super profits for landowners.

This is less of a problem with existing CILs as they are typically set at a lower level, minimising any effect on development activity.

An alternative option which is available to an MDC is a more interventionist approach, where the MDC would purchase the land, and take risk on its disposal value. The concept is similar to the precedent set by the Olympic Park Legacy Company (OPLC).

The benefit of this approach compared with MDC CIL is that the value captured is related to the specific rise in the value of specific land areas within the MDC. However, this approach has the additional challenges of funding land purchase and the potential risk of claims for additional compensation from previous landowners.

³² London Legacy Development Corporation (2014) 'Ten Year Plan', available at <http://queenelizabetholympicpark.co.uk/our-story/the-legacy-corporation/business-plan>.

Forecasting the amount that could be raised by such developments requires a significant number of assumptions, many of which are highly volatile – for example the annual rate of house price increases in London.

We have done some preliminary modelling for brownfield schemes, and this indicates that achieving a contribution from development is possible, but is especially sensitive to:

- the level of house price increases;
- cost of land purchase (which will depend on its current use); and
- cost of land remediation (which can be significant for brownfield sites).

Therefore, while there is the potential for a contribution from MDC developments to the cost of a scheme, there are substantial risks attached to any such contributions. However, MDCs could be a part of the delivery mechanism for the large number of dwellings that may be required to serve London's growing population, and the developments that deliver these dwellings could utilise the additional transport capacity provided by Crossrail 2.

7.5 Conclusion

Our primary conclusions from this section are:

- The value that can be derived from capturing incremental business rate and Borough CIL in station zones is substantial, but will not fund a large proportion of the costs of Crossrail 2. This is not surprising given that there are no significant 'anchor' developments which are driving the need for the scheme.
- Property owners on the Crossrail 2 route are unlikely to make contributions which will fund a large proportion of the costs of the project.
- Where more transformational developments are taking place around Crossrail 2 stations, an active intervention by an MDC could generate a contribution to the costs of the project, but that there is significant risk associated with such developments.

Therefore, while extra funds from developments can make a contribution to the scheme we do not believe that they are sufficiently large or robust enough to replace the existing mechanisms discussed in Sections 3-6.

8 *Alternative funding mechanisms*

As part of our analysis we have considered a broad range of levies and funding approaches used to fund infrastructure projects in the UK and internationally.

We have summarised some of our key findings in Appendix F. -Comparative analysis.

We have also considered some of the recent reports written on funding infrastructure for London, including the London First report on Crossrail 2, the London Finance Commission (the “LFC”) report “Raising the Capital”, and the London Infrastructure Plan 2050.

The London First report specifically proposes the use of fiscal devolution to increase the local funding contribution towards the Crossrail 2 project. We have also considered the specific proposal for fiscal devolution proposed in the LFC report, which proposes the hypothecation to the GLA of future growth in property tax income across London. While greater devolution and the hypothecation of property tax revenues to London would increase the capacity to finance infrastructure projects in London, there are some challenges to utilising this approach for Crossrail 2.

First the proposed devolution described in the LFC report proposes that future increase in property tax revenues would be devolved in exchange for a cut in support for London from Central Government. London’s net revenue would be the growth in tax income compared with the grant foregone. Therefore, because the additional revenue is purely growth related, the additional cashflow created by this first stage of fiscal devolution will start at zero and will take time to grow to a level where it can be used to fund large amounts of locally raised debt. Therefore if this form of fiscal devolution were to make a substantial contribution to the funding cost of Crossrail 2, the powers would need to be transferred several years in advance of Crossrail 2 commencing construction.

The second issue, but perhaps the biggest challenge with the LFC proposals is that Crossrail 2 would be one of many projects likely to be seeking funding from any fiscal devolution surplus. The recent London Infrastructure Plan 2050 highlighted a large number of investment projects which will be required to support infrastructure upgrades and population growth across the capital, and many of these are currently unfunded. Crossrail 2 would be competing with these other projects for a proportion of the fiscal devolution surplus, and we would not expect all or the majority of any surplus to be allocated to one project.

Fiscal devolution would not necessarily be restricted to property taxes. Our review of funding approaches used internationally shows that many other cities use a range of property and other taxes to fund transport infrastructure. On the face of it, similar levies implemented in London would be capable of funding a substantial part of the funding requirement for Crossrail 2.

However when we have looked at how such levies have been implemented, many appear to rely on enforcement systems that have evolved over time and in part rely on there being a general level of fiscal devolution across all local or regional authorities. This is several steps away from where London is now in terms of progress towards the first steps of fiscal devolution.

9 *Financing*

9.1 *Introduction*

In previous sections, this paper has looked at the sources of funding available to the Crossrail 2 project. This section considers how the project could be financed, and in particular:

- the distinction between financing and funding;
- the possible ways that private financing could be introduced into the project;
- where finance raising could be done within the public sector; and
- the financing assumptions used in this report.

9.2 *Funding and financing*

9.2.1 *The distinction between funding and financing*

Funding and financing are terms which are often used interchangeably. For the purposes of this report, it is important to clarify the distinction between the two terms.

Funding in this report comprises the sources of income to be used to meet the capital and operating costs of a project over time. We have described the options for this in Sections 3 to 8 of this document. This has been done at a strategic level, which is appropriate for the current level of development of the project.

Financing in this report comprises the set of financial arrangements put in place to provide committed capital to meet the costs of a project as they are incurred. Financing is discussed in this section of the report.

9.2.2 *Timing of decisions for funding and financing*

In Sections 3 to 8 we have set out a range of options for funding for the project. Many of these would require significant consultation, and in some cases legislation, before being implemented. This would require a substantial period of work, and a degree of commitment to specific funding options is likely to be necessary in order to advance the legislative framework required for the Crossrail 2 project.

In comparison, determining whether a specific financing approach is optimal or even viable can be affected by relatively short term market changes and other factors, such as changes to accounting standards and regulations.

Therefore we would recommend that it is not necessary or appropriate to determine a specific financing approach for Crossrail 2 at this stage, several years before works commence. The specific financing approach can and should be reappraised at a later date.

9.3 *Options for private financing*

9.3.1 *Key Impacts of Private Financing*

The promise of private finance is that it can reduce the pressure on the public purse by avoiding the need to raise extra public sector debt, and can be an element of achieving more efficient delivery, by transferring risk to a private partner.

However, whether private finance is appropriate will vary from project to project. The primary issues which drive the choice of whether to use private financing are:

Cost of Debt – The cost to the private sector of borrowing from banks and financial institutions has always been higher than for the government or TfL. This gap has widened in the last seven years, and although the premium paid by the private sector is now reducing, there will always be a substantial difference in cost of finance.

Requirement for Equity – For private entities to lend (whether they are banks, bond investors or pension funds) they require an element of risk capital to be injected into the project that will carry first loss risks before their repayments are affected. The cost of this risk capital is typically in excess of 10% per annum, and can be significantly more. By way of comparison, the UK government can currently borrow for 30 years at just over 3%, and the assumption used for TfL borrowing in this analysis is 5.8%.

Scale of Funding – Large scale private financings have become more difficult to do since the global financial crisis. The largest project being privately financed in the UK at present has a funding requirement of approximately £4bn, which is a fraction of the funding requirement of Crossrail 2.

Balance Sheet and Budget Treatment – Even if the private sector is raising a loan for a project, it may still be treated as public sector debt for accounting purposes and by rating agencies. The accounting treatment will depend on the nature of the contract between public and private sector. Structuring a project to ensure off balance sheet accounting treatment for the public sector may not in itself provide value for money.

Risk Transfer – A properly structured private financing can transfer project risks to private partners who are better able to manage these risks, and therefore can improve the robustness and value for money of the project.

For a private financing to be viable, there would need to be sufficient capacity in the private debt market to fund it, and any such debt would need to be deemed to be off the public sector balance sheet. For it to be desirable to proceed with the private financing, the benefit of any risk transfer would need to outweigh the additional costs of private sector debt and equity.

We have reviewed the analysis of the viability of private financing for the Crossrail 1 project which was presented in the Montague report of 2004.

In summary, this concluded that a private financing solution for the core infrastructure of the project would only be able to fund a minority of the Crossrail 1 project costs, would cost more and only very limited risk transfer would be possible.

The availability of private financing has reduced since 2007, and its cost has increased. In comparison with Crossrail 1, Crossrail 2's funding requirement is greater. Therefore, there is no apparent reason why Crossrail 2 would be any more suitable for private financing than Crossrail 1.

Some commentators cite that a “wall of money” from sovereign wealth funds, infrastructure funds, pension funds and other similar investors is available to invest in infrastructure, and that this provides evidence that projects such as Crossrail 2 can be privately financed. While these investors are keen to invest in infrastructure, Crossrail 2 does not meet many of their investment requirements. The size of the project, the construction risk, the demand risk and the likely reliance on non-patronage revenues to pay the bulk of the project means that without direct government guarantees, such investors are unlikely to invest in Crossrail 2 unless the project is substantially de-risked.

Aside from the funding of the core infrastructure project, we have considered in more detail the suitability of other approaches to raising private finance for the Crossrail 2 project. Of these, we believe that only the rolling stock financing option is likely to be viable.

9.3.2 Options to introduce private finance

9.3.2.1 Debt raising franchise

The analysis presented in Section 4 of this report shows that the Crossrail 2 project is forecast to provide a strong operating margin. In theory this substantial revenue stream could be transferred to the private sector, in exchange for a funding contribution to the project.

However, raising private finance against this revenue stream has significant practical challenges.

- The basis of current rail franchising policy in the UK is that private sector operators provide their premium payments over the life of the franchise and expect to fund this from their revenue. There are

some examples of private operators taking revenue risk, but this is usually as part of a broader set of responsibilities, such as the Nottingham Express Transit concession.

- Private rail operators typically take over functioning services, with existing revenue streams. Therefore they are likely to require a significant premium if asked to take risk on forecasting the demand for a new railway line, with no previous revenue history.
- London's transport network is complex, and TfL are committed to shared ticketing through the Oyster scheme. Typically operators who are willing to take revenue risk would want to have the powers to set their own fares and develop their own revenue management strategy.
- TfL will benefit from the overall revenue impact of Crossrail 2, including any revenue benefits that arise on other lines as a consequence of Crossrail 2 services being introduced. In comparison, a franchisee would benefit only from the specific revenues earned on the Crossrail 2 services and therefore is exposed to greater risk that forecasts will not be met.
- The degree of contractual complexity required to make such a franchise work would make it more difficult for TfL to make changes to services. TfL may wish to change service patterns as it gets a better understanding of how passengers are using services on Crossrail 2.

The above challenges suggest that it is unlikely that a finance raising franchise for Crossrail 2 could be structured in a way that offered good value for money.

9.3.2.2 Rolling stock financing

Until 2013, the Crossrail 1 rolling stock and depot were to be privately financed, in a similar way to the Thameslink and Intercity Express rolling stock projects, which have been let with private sector partners.

However, for Crossrail 1, the process of raising private finance was stopped, predominantly due to concerns that completing a privately financed deal may not have been possible within the necessary timeframe in order to allow train delivery in advance of the planned service start date. For Crossrail 2 there is a longer lead time before the trains need to be delivered, and therefore a private financing could be reconsidered.

Making a choice of whether to buy or finance trains depends on a wide variety of project factors, many of which are not yet specified for Crossrail 2. However, given that the lead time is so long, we believe that the decision on this can be made following the procurement of the main civils works, which are still several years away.

However, it is important to stress that any such use of private finance will require the payment of availability and performance payments associated with the rolling stock provision contract. These payments are likely to be greater than the debt service that would arise from having a public sector financing.

Using private finance for a rolling stock leasing or private finance arrangement would be beneficial if TfL believe that the additional risk transfer achieved would outweigh the additional cost involved.

9.3.3 Alternative private financing approaches

In recent years alternative financing models other than pure PFI have been considered for new assets in the UK.

A good example of this is the Thames Tideway Tunnel which is being financed using a regulated asset base model similar to mechanisms used elsewhere in the water industry, but with bespoke features. We have considered the viability of applying this model to all or part of the Crossrail 2 project.

To deliver the Crossrail 2 project in this way would probably require a structure analogous to the existing UK utilities. This would involve an independent regulator considering investment plans and setting the pricing charged by the utility. Such an approach is being used on the privately financed HS1 project (although it should be noted that this project required public financing during its construction period).

It should be noted that using such an approach for Crossrail 2 would involve significantly more money being raised than is the case for Thames Tideway. The regulated utility model is normally used to deal with the maintenance and renewal of an established network (which Thames Tideway will be part of) rather than a wholly new asset.

In the past, new rail infrastructure could have been privately financed through having Network Rail provide finance, as how Network Rail was financed had similarities to regulated private utilities. However, since the reclassification of Network Rail, this is no longer possible.

Therefore to use such an approach for Crossrail 2 would require the establishment of a specific regulated vehicle for Crossrail 2. The primary issue with this is that it would increase the financing cost compared with the default approach of financing using public borrowing.

9.4 Which public sector entity should raise finance?

9.4.1 Financing structure for Crossrail 1

The basic principle of Crossrail 1's financing structure has been that the entity which receives funds is also the entity which raises finance.

The funding requirement for Crossrail 1 is being met using finance arranged by three entities; TfL, the GLA and the DfT. The finance raised by each is described in Figure 9-1.

Figure 9-1: The financing structure of Crossrail 1

Responsible Entity	Funding Source	Total Finance Raised	% of Total Funding	Description
TfL	Crossrail 1 Revenue	£1.9 bn	12.9%	£1.0 bn EIB loan £0.9 bn PWLB loan
GLA	Business Rates Supplement	£4.1 bn	27.7%	£3.5 bn PWLB loan £0.6 bn as a direct contribution to TfL
DfT	Departmental Capital Budget (C-DEL)	£4.96 bn	33.6%	Central government grant to Crossrail 1
	Network Rail Track Access Charges	£2.3 bn	15.6%	Financed through Network Rail's Regulatory Asset Base (RAB)
	Private Contributions	£0.6 bn	4.9%	Negotiated agreements with various private companies, and the City of London

Source: National Audit Office

TfL has obtained a £1.0 billion loan from the European Investment Bank (EIB) and a £0.9 billion loan from the PWLB, to be repaid using passenger revenue generated by Crossrail 1. The risks in this arrangement are that passenger revenue turns out to be lower than expected or operating costs are higher than expected. TfL is in a position to manage these risks because it will be in control of both fare levels on Crossrail 1 (and the rest of the London transport network) and operating costs so would have potential scope to increase revenues or cut operating costs in order to ensure that debt is serviced.

GLA has obtained a £3.5 billion loan from the PWLB to be repaid using income from the BRS levied in London. The BRS has been set at the highest rate permissible by law (2 pence in the pound of rateable value), so the GLA would not be able to charge a higher rate if BRS income is insufficient to cover debt repayments. Instead, the legislation enacting the BRS allows it to be levied for as long as is necessary to repay the debt.

DfT is not issuing any debt directly to finance Crossrail 1, but has taken on responsibility for putting in place finance from a range of sources. The most important of these is the central government grant of £4.96 billion that is being paid for from the DfT capital expenditure budget (C-DEL³³). The DfT also ultimately stands behind the funding commitments made by Network Rail to the Crossrail 1 project. This relates to the cost (£2.3 billion) of adapting and upgrading the existing railway network to accept the new Crossrail 1 services. Network Rail will

³³ C-DEL: Capital Departmental Expenditure Limit

use their Regulatory Asset Base (RAB) to finance these works so that the costs can be recovered in the future through supplementary track access charges specific to Crossrail 1 payable by TfL. Debt issued by Network Rail is backed by a UK government guarantee, transferring risk to central government. Due to the reclassification of Network Rail to the public sector on 1 September 2014, Network Rail will not issue any new debt in future but will borrow directly from the Government. The remaining finance arranged by the DfT is contributions from a range of entities, such as developers, Heathrow Airport and the City of London. The DfT has been able to manage the risk of these sources not delivering planned amounts of funding by filling any gap with additional central government grant.

9.4.2 Feedback from Lessons Learned on Crossrail 1

When the financing of Crossrail 1 was discussed in the lessons learned exercise, on balance, most participants saw no specific reason why the principles of who should raise finance should change from Crossrail 1.

Therefore Crossrail 2 could follow the principle in the Crossrail 1 financing structure of allocating finance raising responsibility to the entity that receives revenues from levies or other sources.

One of the points raised was that Crossrail 1 has been holding large cash balances which may be inefficient (it was noted that the Crossrail 1 Limited has mitigated this by effectively loaning some of these balances to other entities providing elements of the Crossrail 1 project).

In future it could make sense for the Crossrail 2 entity to deposit its funds with the Government Banking Service which would allow the public sector generally to benefit if high levels of cash balances occur in future.

9.5 Crossrail 2 financing assumptions

It has been necessary to make a number of financing assumptions in order to model how each of the possible sources of funding described in this report might be used to borrow the money needed to build Crossrail 2.

Financing terms

- Borrowing is assumed to be on the terms of debt issued by the PWLB.
- Annual interest rate of 5.8% made up of a reference rate of 5.0% plus a PWLB margin of 0.8%.
- Repayments that include both an interest and principal repayment element are sculpted to match cash flow from mechanisms. Interest-only repayments are not sculpted.
- The tenor of debt (from first drawdown to last repayment) would vary depending on the size of cash flows from mechanisms.

Timing

The following assumptions have been made regarding project timing:

- Construction: Preparatory Works April 2018 – March 2020, Full Construction Works April 2020 – March 2030
- Operation: April 2030 onwards

Contingency

To model the risk associated with each funding mechanism, a pro-rata reduction has been applied to forecast generated revenues. The size of this reduction varies between mechanisms, acknowledging that some funding sources would be more volatile and/or uncertain than others. The reductions applied are shown in Figure 9-2.

Figure 9-2: Contingency reductions to nominal income

Funding Mechanism	Reduction Applied
Crossrail 2 Passenger Revenue	0%
Business Rates Supplement	-10%
Mayoral Community Infrastructure Levy	-20%
Station Zone Value Capture (IBRI and Borough CIL)	-30%
Council Tax Crossrail 2 Precept	-10%

Source: PwC

10 Appendices

Appendix A. - Revenues

A.1. Detailed revenue impacts on new and existing rail services

The below table details the different components of revenue of new and existing rail services which would be impacted by Crossrail 2. Components in italics and marked with an asterisk (*) are excluded from the definition of Crossrail 2 revenue, which only includes the net revenue impact on TfL and advertising revenue, excluding the impact on Network Rail.

Figure 10-1: Revenue Forecasts

Revenue Component	Regional Option		Metro Option	
	Abstractive/ Neutral/ Generative	Total Revenue Gain/(Loss) 2030-2065 (£m real 2014/15)	Abstractive/ Neutral/ Generative	Total Revenue Gain/(Loss) 2030-2065 (£m real 2014/15)
Crossrail 2 Services	Generative	33,098	Generative	28,234
TfL-Operated Services (Total)	Abstractive	(6,883)	Abstractive	(10,183)
Underground	Abstractive	(6,375)	Abstractive	(10,008)
DLR	Generative	14	Generative	1
Overground (existing)	Abstractive	(290)	Abstractive	(294)
Overground (WAML)	Abstractive	(759)	Abstractive	(373)
Crossrail 1	Generative	526	Generative	491
Total non-TfL Revenue Impacts	Abstractive	(4,529)	Abstractive	(4,728)
South West Mainline Services(Total)	Generative	4	Abstractive	(2,916)
<i>Unchanged & Modified Services*</i>	<i>Abstractive</i>	<i>(3,836)</i>	<i>Abstractive</i>	<i>(2,916)</i>
<i>Deleted Services*</i>	<i>Abstractive</i>	<i>(7,930)</i>	<i>Neutral</i>	<i>-</i>
<i>New Services*</i>	<i>Generative</i>	<i>11,770</i>	<i>Neutral</i>	<i>-</i>
West Anglia Services(Total)	Abstractive	(712)	Abstractive	(275)
<i>Unchanged & Modified Services*</i>	<i>Generative</i>	<i>1,090</i>	<i>Abstractive</i>	<i>(275)</i>
<i>Deleted Services*</i>	<i>Abstractive</i>	<i>(7,598)</i>	<i>Neutral</i>	<i>-</i>
<i>New Services*</i>	<i>Generative</i>	<i>5,796</i>	<i>Neutral</i>	<i>-</i>
Other National Rail Services*	Abstractive	(3,822)	Abstractive	(1,536)
Advertising	Generative	1,101	Generative	758
Net Revenue (Crossrail 2 + Other TfL)	Generative	26,215	Generative	18,051
Net Revenue (Total)	Generative	22,786	Generative	14,081

Appendix B. - Capital expenditure

The table below outlines the Mott MacDonald capital expenditure figures in 2014/15 prices together with nominal figures for each of the Regional and Metro projects.

Nominal figures are based on the profile using a 2020 start date for construction. The effect of construction price inflation up to and during the construction period is included in these nominal values, but is not included in the real values presented. A long term assumption of construction price inflation of 3.5% per year has been applied to capital costs. The only exception is Land and Property costs, where the long term assumption for house price inflation of 4.7% per year has been used instead.

Figure 10-2: Capital expenditure for the Regional and Metro Options

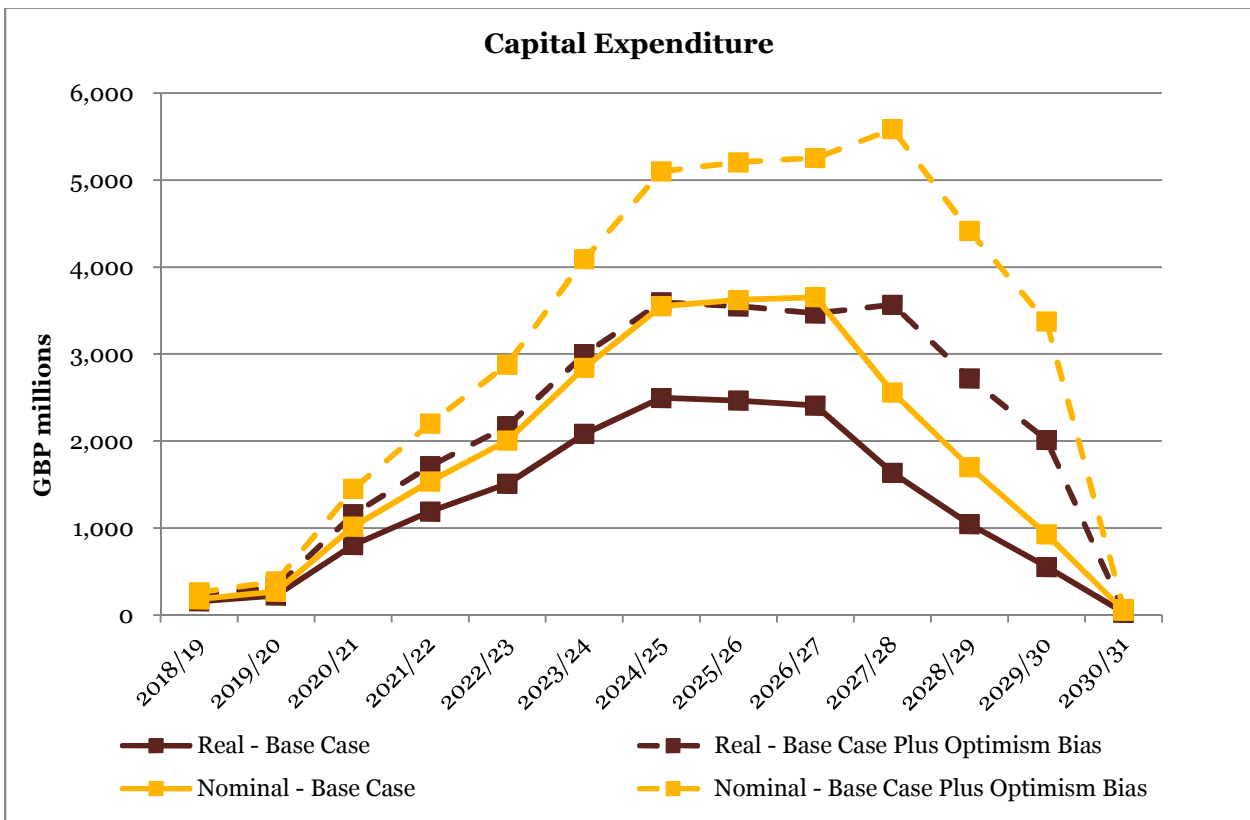
Cost category	Regional £m (real, 2014/15 [*])	Metro £m (real, 2014/15 [*])	Regional £m (nominal, TPI)	Metro £m (nominal, TPI)
Land & Property	1,164	1,069	1,713	1,573
Tunnels	2,299	1,826	3,194	2,538
Stations	5,664	5,323	8,002	7,520
Systems	1,430	1,153	2,068	1,668
Surface Works	2,617	490	3,920	734
Indirects	2,071	1,760	2,901	2,466
Rolling Stock	1,352	712	2,118	1,115
<i>Optimism Bias</i>	10,947	8,133	16,355	12,069
Total	27,544	20,466	40,272	29,682

Source: Mott MacDonald

**The 2014/15 values have been calculated by indexing 2012 figures provided by TfL using Tender Price Index (TPI). However, any long term effect of construction price inflation is excluded.*

The profile of capital expenditure is shown in Figure 10-3.

Figure 10-3: Capital Expenditure Profile



Source: Mott MacDonald, PwC model

Appendix C. - Assumptions

C.1. Macroeconomic assumptions

There are three key inflation assumptions used in this analysis. The inflation forecasts used in the analysis have been discussed with TfL and have been estimated as a long term assumption for the duration of the project.

Figure 10-4: Inflation Indices

Index	Rate	Commentary
Retail Price Index (RPI)	2.70%	Agreed assumption with TfL- the basis is the Bank of England's long-term CPI target of 2.00% plus 0.70% to reflect the differential between CPI and RPI
Tender Price Index (TPI)	3.50%	Estimate based on the long term average of the BCIS TPI All in Price Index (3.38% p.a. from Feb-1985 - Nov-2013)
House Price Index (HPI)	4.70%	This assumption was agreed based on discussions with Carter Jonas and TfL

C.2. Methodology for sensitivity tables

There are two measures of the income generated from each funding mechanism in the sensitivity tables; 'Nominal income' and 'Funding Requirement Percentage'. This section outlines a short explanation as to what each of these represents.

Nominal income

Nominal income is the income generated from the mechanism over the collection period in nominal terms, without applying the contingency reductions outlined on page 63.

Funding Requirement Percentage

The funding requirement percentage that can be raised through each funding mechanism is calculated by taking the nominal income after applying the contingency reductions and calculating the Net Present Value of these cashflows, using the discount rate of 5.80% outlined in Section 9.5. To get the percentage value, the sum of the discounted cashflow is divided by the nominal capital expenditure discounted at the 5.80%. Both the nominal capital expenditure and nominal income are discounted to the start of full construction in April 2020 so that the NPVs are on the same basis.

In the tables, all base case numbers refer to the Regional Option.

C.3. Project generated revenues

The proceeds from the net operating cashflow are considered under the banner of project generated revenues. The net operating cashflow is defined as operating revenues less operating costs and whole life cost expenditure. The assumptions used to generate this nominal cashflow are outlined in the table below.

Figure 10-5: Assumptions applied to project generated revenues

Input	Assumption	Commentary
Revenue Start Date	1-Apr-30	
Revenue End Date	31-Mar-65	
Baseline Fares Rise Assumption	RPI+1% until 31-Mar-21, RPI+0.5% afterwards	
Baseline Growth Base Date	1-Apr-14	
Indexation (Revenues and Operating Cost)	RPI	
Indexation (Whole life cost)	TPI	
Indexation Base Date	1-Apr-14	
Contingency Applied	0%	

C.4. Business rates supplement

This funding mechanism has been modelled to mirror the current BRS in place for Crossrail 1. The baseline is based on current receipts, and the revaluations are modelled using the existing assumption that rateable values will be revalued every five years, with an uplift of the cumulative RPI for the preceding five years. The full suite of assumptions is outlined in the table below.

Figure 10-6: Assumptions applied to the Business Rates Supplement

Input	Assumption	Commentary
Revenue Start Date	1-Apr-33	Follows end of Crossrail 1 requirement for BRS income (TfL estimate)
Revenue End Date	31-Mar-63	
Baseline	£224,848	Source: GLA
Baseline Growth	0.25%	Source: TfL
Baseline Base Date	1-Apr-12	Source: GLA
Revaluation Indexation	RPI	
London Growth Effect	0.75%	This is added to RPI in the revaluation index. Source: TfL
Revaluation Base Date	1-Apr-10	
First Revaluation	1-Apr-17	
Revaluation frequency following 1 st revaluation	5 years	
Contingency Applied	10%	

C.5. Mayoral Community Infrastructure Levy

The modelling of Mayoral CIL has used the baseline of the existing Mayoral CIL with an additional charging rate for the CAZ. It is assumed that this income stream can be used following the end of the Crossrail 1 requirement for this revenue. The table below outlines each assumption in further detail.

Figure 10-7: Assumptions used to model Mayoral CIL

Input	Assumption	Commentary
Revenue Start Date	1-Apr-19	Follows end of Crossrail 1 requirement for CIL income (TfL estimate)
Revenue End Date	31-Mar-35	
CAZ Rate	£140 per sq. m	As suggested by TfL (Current s106 rate for offices for Crossrail 1), applied to the proportions of boroughs as suggested by TfL
Zone 1 Rate	£50 per sq. m	Existing Mayoral CIL Rate
Zone 2 Rate	£35 per sq. m	Existing Mayoral CIL Rate
Zone 3 Rate	£20 per sq. m	Existing Mayoral CIL Rate
CIL Rates Base Date	1-Apr-12	
Baseline (exc. CAZ rate)	£100,000k	TfL estimate
Baseline (inc. CAZ rate)	£158,739k	Calculated based on current Mayoral CIL rates with a CAZ rate charged on 100% of City of London, 80% of Westminster, 60% of Camden, 60% of Hackney, 60% of Islington, 60% of Southwark.
Baseline Base Date	1-Apr-19	
Indexation	TPI	As per The Community Infrastructure Levy Regulations 2010
Contingency Applied	20%	

C.6. Incremental Business Rate Income

The table below outlines the assumptions for IBRI as part of Station Zone Value Capture. The stations included for the purposes of IBRI are Kingston, Wimbledon, Victoria and Tottenham Court Road. As part of their work for TfL, Quod, Carter Jonas and Steer Davies Gleave have identified potential commercial developments – within existing planning constraints – in station zones which could be enabled by the construction of Crossrail 2. From the forecast GDV uplift, rateable values of the new commercial developments have been calculated using the estimated rental yield. The business rates multiplier of 48.2p in the pound has then been applied.

Figure 10-8: Assumptions for Incremental Business Rates

Input	Assumption	Commentary
Revenue Start Date	1-Apr-25	
Revenue End Date	31-Mar-50	This replicates the 25 year timeframe for IBRI on the NLE
Annual Rental Yield	4.75%	Average of long term historic rental yield for West End office and retail (50/50 split)
Business Rates Multiplier	48.20 pence in the pound	Valuation Office Agency website
Business Rates Multiplier Base Year	1-Apr-14	Valuation Office Agency website
Business Rates Recovery Rate	100%	
Contingency Applied	30%	

C.7. Borough Community Infrastructure Levy

As part of the work for TfL Quod, Carter Jonas and Steer Davies Gleave have identified potential developments – within existing planning constraints – in station zones which could be enabled by the construction of Crossrail 2. They have identified the value of these developments and the associated Borough CIL which would result from them.

For the purposes of this study we have assumed that 50% of this Borough CIL from Crossrail 2 related development would be provided by the boroughs to GLA in order to help fund construction of the scheme. The remainder would be retained by the relevant borough.

The 50% assumption is lower than the maximum level of 72.2% agreed on the NLE. In practice, Borough CIL would only be applied to the Crossrail 2 project in instances where increases in Borough CIL receipts (resulting from new development in the station zone) outstrip the requirements of local service delivery, meaning that there could be further uncertainty about revenues arising from Borough CIL.

To calculate the Borough CIL contributions, the model uses the number of dwellings provided by Quod, Carter Jonas and Steer Davies Gleave, multiplied by the average sq. m. per unit/ dwelling deducting from this the affordable homes proportion. This becomes the chargeable square metre area on which the Borough CIL is calculated.

Figure 10-9: Borough CIL modelling assumptions

Input	Assumption	Commentary
Revenue Start Date	1-Apr-25	
Revenue End Date	31-Mar-35	
Indexation	TPI	As in Figure 10-4 with actual TPI to Feb-13
Indexation Base Date	1-Apr-10	
Average sq. m. per unit/ dwelling	72 sq. m.	
Affordable homes factor	30.0%	
Proportion of borough CIL obtained for Crossrail 2	50%	
Contingency Applied	30%	

The Borough CIL rates used for the above analysis are outlined in Figure 10-10 below.

Figure 10-10: Borough CIL rates

Station	Borough	Borough CIL Rate	Commentary
Twickenham	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Teddington	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Kingston	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
New Malden	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Surbiton	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Chessington South	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Tolworth	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Raynes Park	Merton	£170	B-CIL: Average residential rate across all zones
Wimbledon	Merton	£170	B-CIL: Average residential rate across all zones
Tooting Broadway	Wandsworth	£250	B-CIL: Residential rate
Clapham Junction	Wandsworth	£250	B-CIL: Residential rate
King's Road Chelsea	Kensington and Chelsea	£270	B-CIL: Residential rate in Zone D
Victoria	Westminster	£250	B-CIL: Estimate (no CIL adopted)
Piccadilly Circus	Westminster	£250	B-CIL: Estimate (no CIL adopted)
Tottenham Court Road	Camden	£300	B-CIL: Average residential rate across all zones
Euston St. Pancras	Camden	£300	B-CIL: Average residential rate across all zones

Station	Borough	Borough CIL Rate	Commentary
Angel	Islington	£300	B-CIL: Residential rate
Dalston Junction	Hackney	£190	B-CIL: Residential rate in Zone A
Seven Sisters	Haringey	£15	B-CIL: Residential rate in East Zone
Turnpike Lane	Haringey	£165	B-CIL: Residential rate in Central Zone
Alexandra Palace	Haringey	£265	B-CIL: Residential rate in West Zone
Hackney	Hackney	£190	B-CIL: Residential rate in Zone A
Tottenham Hale	Haringey	£15	B-CIL: Residential rate in East Zone
Northumberland Park	Haringey	£15	B-CIL: Residential rate in East Zone
Angel Road	Enfield	£40	B-CIL: Residential rate in Lower Rate Zone
Ponders End	Enfield	£40	B-CIL: Residential rate in Lower Rate Zone
Brimmsdown	Enfield	£40	B-CIL: Residential rate in Lower Rate Zone
Enfield Lock	Enfield	£40	B-CIL: Residential rate in Lower Rate Zone
Waltham Cross	Hertfordshire	£0	B-CIL: None
Motspur Park	Kingston-upon-Thames	£120	B-CIL: Average residential rate across all zones
Chelsea World's End	Kensington and Chelsea	£270	B-CIL: Residential rate in Zone D
New Southgate	Enfield	£120	B-CIL: Residential rate in Higher Rate Zone
Stoke Newington	Hackney	£190	B-CIL: Residential rate in Zone A
Clapton	Hackney	£190	B-CIL: Residential rate in Zone A
Broxbourne	Hertfordshire	£0	B-CIL: none

C.8. London-wide fare rise

The funding contribution from a London-wide fare rise is based on a five year increase in fares in addition to planned fare rises, on both the London Underground and TfL Rail. The assumptions used to calculate the contribution from this mechanism are outlined below.

Figure 10-11: London-wide fare rise modelling assumptions

Input	Assumption	Commentary
Start Date for Fares Change	1-Apr-30	
End Date for Fares Change	31-Mar-35	
Revenue End Date	31-Mar-60	
Baseline Fares Rise Assumption	RPI+1% until 31-Mar-21, RPI+0.5% afterwards	Source: TfL
Baseline Fares Income – Rail	£307m	Source: TfL Business Plan 2013
Baseline Fares Income – Underground	£2,286m	Source: TfL Business Plan 2013
Baseline Fares Base Year	1-Apr-13	Source: TfL Business Plan 2013
Fares Change Increment	1% above baseline fares rise	
Fare Elasticity	0.75	Source: TfL
Contingency	10%	

In addition to fare rises, real growth factors are also applied to revenues. These are outlined in Figure 10-12 below.

Figure 10-12: Non-fare factor growth rates

Year	Rail	Underground	Commentary
2014/15	3.89%	3.12%	Source: TfL Business Plan 2013
2015/16	28.86%	4.41%	Source: TfL Business Plan 2013
2016/17	7.63%	3.58%	Source: TfL Business Plan 2013
2017/18	7.69%	2.74%	Source: TfL Business Plan 2013
2018/19	31.52%	2.51%	Source: TfL Business Plan 2013
2019/20	43.86%	0.56%	Source: TfL Business Plan 2013
2020/21	12.90%	1.64%	Source: TfL Business Plan 2013
2021/22 – 2059/60	1.63%	0.82%	Source: TfL

C.9. Council Tax Crossrail 2 Precept

We have used the following illustrative assumptions for estimating the potential contribution to the funding costs of the Crossrail 2 project.

- It is assumed that the Olympic precept would not end after 2016/17 but would continue to be levied for a further 20 years to generate income for Crossrail 2. Income from the precept would therefore be available for the project from April 2017 to March 2037.
- A Band D rate of £8 (the same as the final year of the Olympic precept) would apply for the period April 2017 to March 2025. Between April 2025 and March 2037 a higher Band D rate of £13.33 would apply. The difference between the two rates represents RPI inflation between 2017 and 2025. The Band D rate is then reduced or increased by the factors shown in Figure 10 11 to determine the amounts to be added to Council Tax bills for all other property bands.
- Apart from the change in the rate explained above, there would be no application of RPI to the rates (as was the case with the Olympic precept). This change in rate would need to be approved by the London Assembly.
- The Council Tax base (i.e. number of properties liable for Council Tax) by band and borough has been sourced from the Department for Communities and Local Government (DCLG), “Council Tax base local authority level data 2013”.
- A 0.8% growth rate per annum has been assumed for the number of dwellings liable for Council Tax (for the period from 2013 to 2065)³⁴.
- For the purposes of calculating the funding raised against Council tax precept revenues a 10% contingency has been deducted from the available revenues.

Figure 10-13: Council Tax Precept Multipliers

Band	Factor	Precept Multiplier
Band A	6 / 9	67%
Band B	7 / 9	78%
Band C	8 / 9	89%
Band D	9 / 9	100%
Band E	11 / 9	122%
Band F	13 / 9	144%
Band G	15 / 9	167%
Band H	18 / 9	200%

Source: www.londoncouncils.gov.uk

These assumptions result in the charging structure shown in Figure 10-14. The precept is assumed to apply at the same rate across all London boroughs.

³⁴ For the period 2001 to 2011, the average annual growth rate in the number of dwellings liable for Council Tax in London was 0.8% (calculated from the dataset “Dwelling Stock by Council Tax Band”, Valuation Office Agency). Between 1951 and 2012 the total number of dwellings in Great Britain grew at a compound annual rate of 1.11% (calculated from the dataset “Dwelling stock: by tenure, Great Britain (historical series)”, Table 102, DCLG).

Figure 10-14: Proposed Crossrail 2 Council Tax Precept

Band	Precept Rate (2017/18-2024/25)	Precept Rate (2025/26-2036/37)	% of Band D Rate
Band A	£5.33	£8.89	67%
Band B	£6.22	£10.37	78%
Band C	£7.11	£11.85	89%
Band D	£8.00	£13.33	100%
Band E	£9.78	£16.29	122%
Band F	£11.56	£19.25	144%
Band G	£13.33	£22.22	167%
Band H	£16.00	£26.66	200%

Source: PwC model

The Council Tax base (i.e. number of properties liable for Council Tax) by band and borough has been sourced from the DCLG, “Council Tax base local authority level data 2013” and the data is set out in Figure 10-15.

Figure 10-15: Council Tax Base by Band

Band	Number of Council Tax Properties
Band A	94,767
Band B	382,303
Band C	808,625
Band D	783,484
Band E	466,548
Band F	233,789
Band G	183,930
Band H	51,998
Total	3,005,444

Source: Council Taxbase local authority level data 2013, DCLG

Appendix D. - Glossary

Brownfield

Land is considered to be 'brownfield' when it has been previously developed in any way. The term 'brownfield' is not a formal designation under planning law. To prepare such land for re-use any existing users may need to be relocated and existing structures removed. Depending on how the land has been used in the past, de-contamination may also be necessary. The risk and uncertainty involved in preparing brownfield sites means they are generally more expensive to develop than greenfield sites (i.e. not previously developed – see definition below).

Building Cost Information Service (BCIS)

BCIS is a leading provider of cost and price information for the UK construction industry and is part of the Royal Institute of Chartered Surveyors (RICS).

Business Rates Supplement (BRS)

A BRS is a compulsory charge added to all National Non-Domestic Rates (NNDR) that are levied on qualifying properties within a given local authority area. BRS was established in London specifically to fund Crossrail 1 and is generating a steady flow of income that is being used to repay debt raised to finance the project's construction.

Central Activities Zone (CAZ)

As defined in the London Plan, the CAZ contains a unique cluster of vitally important activities including central government offices, headquarters and embassies, the largest concentration of London's financial and business services sector and the offices of trade, professional bodies, institutions, associations, communications, publishing, advertising and the media.

Community Infrastructure Levy (CIL)

The CIL is a new levy which local authorities and the Mayor of London can charge on developments to fund infrastructure needed in the local area. The CIL is a planning charge, introduced by the Planning Act 2008, which came into force on 6 April 2010 through the Community Infrastructure Levy Regulations 2010. Development may be liable for a charge under the CIL if a government body or local planning authority has chosen to set a charge in its area.

Crossrail 1

Crossrail is the new high frequency, high capacity railway for London and the South East. The new Crossrail route will link commuters in the east and west with Central London and Heathrow Airport. The railway will cover over 100km of track including 21km of new twin-bore rail tunnels and ten new stations.

Crossrail 2

The study considers two short-listed route options for Crossrail 2; a London-focused Metro Option operating between Wimbledon and Alexandra Palace and a Regional Option, following the same central corridor as the Metro Option but at national rail gauge connecting to existing National Rail lines to the north (West Anglia Main Line) and south west of London (South West Main Line).

Crossrail 2 Funding and Financing Study Steering Committee

The Steering Committee has been overseeing this study and has been meeting with PwC on a monthly basis. It consists of representatives of Transport for London (TfL), Department for Transport (DfT), HM Treasury (HMT), Infrastructure UK (IUK) and Network Rail.

Crossrail Limited (CRL)

Crossrail Limited has been a fully owned subsidiary of TfL since 2008, originally established as a 50/50 joint venture between TfL and DfT in 2001. Since 2001, the company has been the driving force behind promoting and developing the Crossrail railway to meet the transport needs of London and the South East.

European Investment Bank (EIB)

The EIB is the European Union's bank, representing the interests of EU Member States. The EIB provides finance and expertise for viable and sustainable investment projects which are aligned to EU policy objectives.

Enterprise Zone (EZ)

An EZ is a geographically defined area which is agreed between a local enterprise partnership and Government. The idea behind EZs is to help support additional growth which would not have occurred otherwise, creating new businesses and new jobs. The EZs will primarily be based on existing sites with little or no business occupants to start with.

Examination in Public (EIP)

The Greater London Authority Act 1999 requires that, before publishing or altering his Spatial Development Strategy (the London Plan), the Mayor of London must, unless the Secretary of State directs otherwise, cause an EIP to be held. The EIP is a form of public inquiry where an independent planning inspector, appointed by the Secretary of State, will test a proposal to see if it meets the requirements of the relevant legislation and to see if it is 'sound'. Soundness is tested by considering whether the document is justified, effective and consistent with national policy.

Greenfield

Land that has never previously been developed is considered to be 'greenfield'. The term 'greenfield' is not a formal designation under planning law. It should not be confused with land designated in law as 'green belt' on which almost all types of development is illegal.

Gross Development Value (GDV)

Gross Development Value is the expected total uplift in property value following development.

High Speed 1 (HS1)

HS1 is Britain's existing high speed rail line which connects St. Pancras International station in London with Kent, the Channel Tunnel and Europe. It was built in two stages: the first carried trains from the Channel Tunnel to Fawkham Junction in Kent and the second connected the brand new Ebbsfleet station with St. Pancras. The full HS1 service was launched in December 2009.

High Speed 2 (HS2)

HS2 will be a high capacity railway, designed to standard European high speed specifications and making use of technology successfully developed in countries like France and Germany. It is proposed that Phase 1 of the route will run from Euston Station in London to a Birmingham terminus at Curzon Street and will open in 2026.

HM Treasury (HMT)

HMT is the government's economic and finance ministry, maintaining control over taxation and public spending and setting the direction of the UK's economic policy. HMT is a ministerial department, supported by seven agencies and public bodies.

Incremental Business Rates Income (IBRI)

An IBRI mechanism is a form of tax increment financing (TIF). Within a defined geographical area, future increases in business rates that occur would be retained at the local level and used to fund infrastructure.

Infrastructure UK (IUK)

Infrastructure UK is a unit within HMT whose primary focus is establishing the UK's long-term infrastructure needs and securing private sector investment. The unit is responsible for co-ordinating the planning and prioritisation of investment in UK infrastructure whilst ensuring the government achieves value for money on these projects.

London Finance Commission (LFC)

The London Finance Commission was established by the Mayor in May 2012 in order to determine whether the tax and public spending arrangements for London could be improved, in order to promote jobs and growth. The

Commission examined the potential for greater fiscal devolution and developed recommendations about the financing of London government. Its final report, titled 'Raising the capital', was published in May 2013.

Mayoral Community Infrastructure Levy (Mayoral CIL)

Mayoral CIL is a per-square-metre charge on all new development in London. Its purpose is to contribute to the cost of additional infrastructure required as a consequence of new homes, offices and other buildings. All Mayoral CIL revenues are currently being used to fund Crossrail 1.

Mayoral Development Corporation (MDC)

The purpose of an MDC is to ensure the regeneration of an area. The Localism Act 2011 outlined a range of powers that could be adopted by MDCs, including the power to acquire and develop land, to provide infrastructure, and to undertake commercial activities. An example of an MDC is the Olympic Park Legacy Corporation (OPLC) at the Queen Elizabeth Park at Stratford.

Mayor's Transport Strategy (MTS)

The Mayor's Transport Strategy is part of a strategic policy framework to support and shape London's social and economic development which sets out his transport vision for London over the next twenty years and how TfL and partners will deliver this.

National Non-Domestic Rates (NNDR)

National Non-Domestic Rates, otherwise known as business rates, are a tax on properties not used for domestic purposes, such as offices and retail facilities.

Network Rail

Network Rail is the owner and operator of Britain's railway infrastructure who is responsible for running, maintaining and developing Britain's rail tracks, signalling, bridges, tunnels, level crossings, viaducts and 19 key stations.

Northern Line Extension (NLE)

The NLE is a project to extend the Charing Cross branch of London Underground's Northern Line from Kennington Station to Battersea Power Station (BPS), with an intermediate stop at Nine Elms.

Public Works Loan Board (PWLB)

The primary function of the PWLB is to lend money from the National Loans Fund to local authorities and similar bodies, at rates of interest determined by the Treasury. It is also responsible for collecting repayments. The United Kingdom Debt Management Office has operated the PWLB since July 2002.

Section 106 agreement (S106)

A section 106 agreement is a legal agreement between a local planning authority and a developer formed as part of the planning process in order for any adverse impacts of a development to be offset by financial contributions from the developer. The agreement is the delivery mechanism to ensure a development is acceptable in planning terms, through contributions towards local facilities and infrastructure. The legislative basis for planning obligations is Section 106 of the Town and Country Planning Act 1990. The CIL was introduced to replace S106 agreements.

Stamp Duty Land Tax (SDLT)

Stamp Duty Land Tax (SDLT) is a tax on the transfer of property or land and is levied as a percentage of the value of the property at the point of sale. SDLT is levied at varying rates depending on a property's type and value. The specific value against which SDLT is levied is known as the 'chargeable consideration', which includes 'everything of economic value given in exchange for the property'. SDLT is payable by the purchaser and currently all receipts are remitted to HMT.

Strategic Industrial Land

Sites designated as 'Strategic Industrial Land' are key areas of industrial and warehouse units which are seen as having strategic importance to London's economy. These areas are designated by the Mayor of London in the London Plan.

Tax increment financing (TIF)

TIF, of which IBRI is a variant, has been used extensively for a wide range of infrastructure projects internationally. A TIF is created by the generation of additional tax revenues based on an increase in the tax base, not an increase in the tax rate or a new tax. A TIF is collected within the area directly affected by the new infrastructure which is the catalyst for the increase in the tax base.

Tender Price Index (TPI)

National All-in Tender Price Index (TPI) is a combined index of changes in the prices of inputs to construction projects. The TPI is published by the BCIS of the Royal Institution of Chartered Surveyors.

The Department for Transport (DfT)

DfT is the central government department responsible for transport (except areas of transport which are devolved). It is also responsible for a range of executive agencies.

The Greater London Authority (GLA)

The GLA is the top-tier administrative body for Greater London. It was established by the GLA Act 1999. Its employees are appointed by the Head of Paid Service, the GLA's most senior official, and serve both the Mayor and the London Assembly.

Transport for London (TfL)

TfL is the local government organisation responsible for most aspects of transport in London. TfL's responsibilities include operating and maintaining the London Underground, specifying and letting contracts to operate bus services, operating and maintaining trunk routes within London, providing integrated ticketing on public transport and regulating the taxi and private hire trade. In the area of rail, TfL has direct responsibility for specifying and letting the concessions to operate London Overground and Docklands Light Railway (DLR) services, but all other railway services within London are operated by franchises that are specified and let by the DfT.

Vauxhall, Nine Elms and Battersea Enterprise Zone (VNEB)

VNEB is the Enterprise Zone which has been created as one of a number of Opportunity Areas (OAs) for development referred to in the London Plan. OAs are areas of brownfield land with significant capacity for new housing and jobs.

Appendix E. - References

City of Chicago (2014) ‘TIF Balance Sheets’ CityofChicago.org, available at http://www.cityofchicago.org/content/city/en/depts/dcd/dataset/tif_balance_sheets.html

Couple Fight Olympics Council Tax”, BBC News website, 19 October 2006, available at <http://news.bbc.co.uk/1/hi/england/london/6066474.stm>

DCLG (2013) ‘Business Rates New Build Empty Property – Guidance’ available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239343/Business_Rates_-_New_Build_Empty_Property_-_Guidance.pdf

DCLG (2014) ‘Collection rates and receipts of council tax and non-domestic rates in England 2013-14’ available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/327179/Council_tax_collection_rate_Statistics_Release_July_2014.pdf

English Partnerships (2003) ‘Additionality Guide’ available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191511/Additionality_Guide_o.pdf

Greater London Authority (2010), “Intention to levy a business rate supplement to finance the Greater London Authority’s contribution to the Crossrail 1 project - Final Prospectus”, available at <http://www.london.gov.uk/sites/default/files/finalprospectus.pdf>

Greater London Authority (2011) ‘Olympic Park Legacy Corporation: Proposals by the Mayor of London for public consultation’, available at <http://www.london.gov.uk/sites/default/files/ople-mayor-proposals.pdf>

GVA (2012) ‘Crossrail Property Impact Study’ available at <http://www.Crossrail1.co.uk/benefits/changing-spaces-building-communities/55-billion-boost-to-property-values>

House of Commons Library (2014) ‘Railways: Crossrail 1 and 2’, available at <http://www.parliament.uk/business/publications/research/briefing-papers/SNO0876/railways-Crossrail-1-1-and-2>

Institute of Revenues, Rating and Valuation (2013) ‘The Localisation of Business Rates’ available at http://www.irrv.net/forums_webinar/2013/01/2013_01_07_01/webinar_slides.pdf

Localism Act (2011) ‘Chapter 2: Mayoral Development Corporations’ available at <http://www.legislation.gov.uk/ukpga/2011/20/part/8/chapter/2/enacted>

London Finance Commission (2013) ‘Raising the Capital, London: London Finance Commission’, available at http://www.london.gov.uk/sites/default/files/Raising%20the%20capital_o.pdf

London First (2014), ‘Funding Crossrail 2’, available at http://londonfirst.co.uk/wp-content/uploads/2014/02/LF_CROSSRAIL2_REPORT_2014_Single_Pages.pdf

London Legacy Development Corporation (2014) ‘Ten Year Plan’, available at <http://queenelizabetholympicpark.co.uk/our-story/the-legacy-corporation/business-plan>

Mayor of London (2014) ‘London Infrastructure Plan 2050: A Consultation’, London: Mayor of London, available at <https://www.london.gov.uk/sites/default/files/London%20Infrastructure%20Plan%202050%20Consultation.pdf>

National Audit Office (2014) 'Crossrail 1' available at http://www.nao.org.uk/wp-content/uploads/2014/01/Crossrail_1.pdf

Network Rail (2013) 'Long Term Planning Process: London and South East Market Study', available at <http://www.networkrail.co.uk/publications/market-studies/london-and-south-east-market-study.pdf>

Steer Davies Gleave (2013) 'Crossrail 2, Consultation Report', available at https://consultations.tfl.gov.uk/Crossrail_1/2/user_uploads/Crossrail_1-2-consultation-report.pdf

'Supplementary Green Book Guidance – Optimism Bias' at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191507/Optimism_bias.pdf

TfL – Planning Obligations Team (2014), 'Mayoral CIL Returns – Quarterly Update No. 4 (Q4-13/14)'

TfL – Planning Obligations Team (2014) 'Mayoral CIL Returns – Quarterly Update (Q1-14/15)'

Appendix F. - Comparative analysis

Comparative analytical framework

The primary reason for considering precedents is to learn from the experience of other cities that have implemented funding instruments which are relevant in the context of London and Crossrail 2.

The case study examples here do not aim so much to understand the political or stakeholder management issues associated with specific funding routes but, instead, aim to shed light on the mechanical and economic impacts of introducing new levies and taxes. Crucially, comparative examples ensure an evidence-based approach to the design and implementation of potential new funding mechanisms for Crossrail 2.

In contrast to the comparative studies made in a range of other reports, which focus either on a wide range of funding mechanisms³⁵ or a wide selection of project examples³⁶, this report takes a hybrid approach which incorporates three different levels of analysis:

1. *Transport infrastructure projects.* This level of analysis includes the funding packages that have been adopted in specific urban rail projects that are similar in size, type and cost to Crossrail 2. These examples help make a direct comparison between Crossrail 2 and the funding of similar projects.
2. *City-wide funding models and systems of taxation.* It is essential to recognise the ways in which transport funding is structured and implemented in relation to systems of governance and taxation in global cities and financial centres that can be regarded as London's competitors. These examples help to create an understanding of the overall funding environment within a city and, for example, to illustrate why a tax which is acceptable in New York may not be acceptable in London.
3. *Individual funding mechanisms.* These examples include a range of innovative and cutting edge funding mechanisms used in cities around the globe that contribute to transport funding or similar activities. This evidence might indicate whether there are specific opportunities and pitfalls in any of the potential funding mechanisms for Crossrail 2.

In some cases, all three layers of analysis are relevant. For example, the Paris case study includes key information about a large-scale urban rail system, a series of innovative and novel funding mechanisms, and the taxation arrangements within a competitor global city. In others, however, it is most appropriate to focus more specifically on an individual level of analysis.

Selecting comparator examples

As part of a robust methodological framework, it is essential to justify why each comparative example has been chosen.

Rather than ranking a large list of potential case studies according to a broad set of criteria, we have focused on specific case studies which exhibit the characteristics that are most relevant to key aspects of Crossrail 2 and to the ongoing decision-making process.

Whilst the list of comparative examples is not comprehensive, the chosen cases provide a sound evidence base from which to inform debate around the Crossrail 2 funding proposals. The information has been collected through a review of publicly available data from a variety of third party sources in order to show the different ways in which other cities fund their transport infrastructure.

The following considerations have been important in the selection of the examples used in this report:

³⁵ For example, see AECOM Canada Limited (2012) *Detailed Case Studies of Selected Revenue Tools*, Markham, ON: AECOM Canada Limited

³⁶ For example, see RTPi (2014) *Transport Infrastructure Investment: Capturing the Wider Benefits of Investment in Transport Infrastructure*, London, RTPi.

- *Transport infrastructure projects.* A key reason for comparing the funding arrangements used in other transport projects is to develop an understanding of precedent and best-practice in projects that are similar in size, type and cost to Crossrail 2. Projects of a similar size, type and cost to Crossrail 2 are also likely to provide examples of the key challenges and opportunities around the design and implementation of the mechanisms required to fund such a scheme.³⁷ Because this report aims to develop proposals for funding the 50% of Crossrail 2 that will originate from local sources, projects that are fully funded by traditional government grants (and similar funding) are not included.
- *Cities and City-Wide Funding Models.* The purpose of including city comparators in the analysis is to develop an understanding of how other global cities – London’s competitors³⁸ – fund transport infrastructure. More specifically, a comparison of other cities aims to highlight where gaps exist in London’s funding model, to draw out the contextual factors (such as the existing system of taxation) that enable alternative funding mechanisms to be used in other cities, and to inform whether or not it is feasible to implement new funding mechanisms within the political, economic and systemic constraints of London.
- *Individual funding mechanisms.* The selection of other funding mechanisms (those not covered in the city or project case studies) is based on a consideration of the mechanisms that could help to deliver Crossrail 2 in a way that adheres to the core objectives of the stakeholders concerned. For example, funding mechanisms are considered only if they have significant revenue-generating potential and/or if they promote efficiency, fairness and value capture. These examples provide further opportunities for learning, adaptation and innovation.

The Comparator Examples

1. Paris, Grand Paris Express
2. San Francisco, Transbay Redevelopment Project
3. Atlanta, BeltLine
4. Copenhagen, Copenhagen Metro System
5. New York, Metropolitan Transportation Authority and the Metropolitan Commuter Transportation Mobility Tax
6. Greater Toronto and Hamilton Area, the ‘Big Move’
7. Chicago, Real Estate Transfer Tax and the Chicago Transport Authority (CTA) funding model
8. Melbourne, Gold Coast and Sydney, Betterment Levies

The below table summarises the types of funding mechanisms that each case study addresses:

³⁷ Where possible, only urban rail or metro systems with over £1 billion in capital costs are considered.

³⁸ For the purpose of the case study selection process, London’s competitors are defined as being in the top 20 of globally competitive cities. Rankings are based on Citigroup (2013) ‘Hotspots 2025 Benchmarking the future competitiveness of cities’ available at <http://www.citigroup.com/citi/citiforcities/pdfs/hotspots2025.pdf>.

Figure 10-16: Summary of funding mechanisms addressed in each case study

	1) Paris	2) San Francisco	3) Atlanta	4) Copenhagen	5) New York	6) Greater Toronto and Hamilton Area	7) Chicago	8) Melbourne, Gold Coast and Sydney
Additional Sales Tax		Implemented	Rejected		Implemented	Under consideration	Implemented	
Charges on development			Under consideration			Under consideration		Implemented then abandoned
Fuel Tax			Under consideration		Implemented	Under consideration		
Land Sales/ Development Corporation		Implemented		Implemented				
Levy on parking			Under consideration			Under consideration		
Payroll Levy	Implemented		Under consideration		Implemented			Under consideration
Property tax	Implemented					Implemented	Implemented	Implemented
Revenues from Tolls		Implemented			Implemented			
Tax Increment Financing		Implemented	Implemented					Under consideration
Tax on non-domestic property/ business rates	Implemented							Under consideration
Transient Visitor Levy	Implemented		Under consideration					

F.1. Greater Paris and the Grand Paris Express

F.1.1. Versement Transport (Transport Tax: Payroll Levy)

The 'versement transport' (VT), introduced by legislation in 1971, is a municipal tax that is levied against employers based on a percentage of their gross payroll. VT receipts are ring-fenced for transport investment and are used for both revenue and capital expenditure. The VT is widely considered to be a highly successful mechanism for funding the development of public transport infrastructure.³⁹

The VT is levied by Local Transport Authorities (TOAs) and can be imposed by TOAs in any municipal jurisdiction with a population of over 10,000. In Île-de-France, the region in which Paris is situated, the VT is charged by the Regional Urban Transport Authority (*Syndicat des transports d'Île-de-France* or 'STIF').

The VT is levied against companies which employ 10 or more employees that are situated within a TOA's jurisdiction⁴⁰. Employers which provide their own transport or which provide accommodation at their place of work can be reimbursed, while non-profit entities are totally exempt.

A company is liable to the VT according to the gross payroll of employees that are located within the particular TOA's jurisdiction only. As such, the tax does not take a company's total national payroll into account. As a result, a company that is located across a number of different TOA areas might be liable to several different VT levies. Equally, strategic decisions about the location and size of company hereditaments may influence the company's total exposure to VT.

Implementation Note:⁴¹

The Employee Location Problem:

- The number of employees located with a specific tax zone is calculated by the number of employees holding a contract of employment on the last day of each month at a particular place of work, including absent employees, in accordance with the provisions of articles L. 1111-2, L. 1111-3 and L. 1251-54 of the labour code.
- The employer's total tax liability is determined by the total number of employees across all combined offices within the tax zone.
- Employers/employees within temporary buildings that are in place for less than one month are excluded from the VT.

Employees included:

- Full-time employees (including those who work at home);
- Part-time employees;
- Temporary employees (recorded as a proportion of the time worked in the last 12 months);
- Contractors or workers on secondment who have worked within the host organisation for over 12 months;
- Permanent and temporary employees of a 'temporary company'.

Employees excluded:

- Contractors or temporary employees who are replacing an absent employee or whose contract is suspended (e.g. maternity leave);
- Apprentices.

Roaming employees

Roaming employees (e.g. delivery drivers, representatives, airline crews), whose work cannot be

³⁹ Doherty, M. (2004) *Funding public transport development through land value capture programs*, Sydney: Institute for Sustainable Futures.

⁴⁰ KPMG and AECOM (2012) *Big Move Implementation Economics: Revenue Tool Profiles*, Markham, ON: AECOM.

⁴¹ L'Atelier Fiscal (2014) 'Rappel concernant le versement transport (VT)', available at <http://support.atelier-fiscal.fr/knowledgebase/articles/343896-rappel-concernant-le-versement-transport-vt>.

determined precisely, are considered to be located in the place where stakeholders operate in all or most of their working time. If employees are mostly located outside of the tax zone, then they are exempt.

F.1.2. Tax Rates

The VT tax rate varies across France according to the population levels within a TOA’s municipal jurisdiction. A TOA has the freedom to set the tax rate, although there is an upper limit which is determined by population size. The upper limits can be increased during the strategic improvement of public transport infrastructure and if the TOA is located within a designated tourist area. Across France the upper limit tax rate ranges 0.55% to 1.75% of gross payroll (see Figure 10-17).

In order to cater for the unique transport requirements in Île-de-France, the region has a unique settlement which ensures that its basic VT rates are higher than elsewhere in France. In Île-de-France, VT rates increased by 0.1% as of 1 July 2013 and currently range from 1.5% in the outer suburbs to 2.7% in Paris and Hauts-de-Seine (see Figure 10-17)⁴².

Figure 10-17: Versement Transport tax rates in France and Île-de-France

Transport Authority Jurisdiction	Versement Transport Tax Rate (% of gross payroll)
France	
Population: 10,000 – 50,000	0.55%
Population: 50,000 – 100,000	0.85%
Population: 100,000+	1%
Significant public transport investment and population of 100,000+	1.75%
Île-de-France	
Outer suburbs (Grande couronne)	1.5%
Inner suburbs (Petite couronne)	1.8%
Paris and Hauts-de-Seine	2.7%

Source: Adapted from AECOM Canada Limited, 2012, and Group S, 2013.

F.1.3. Collection

The VT is collected by the URSSAF (*Unions de Recouvrement des Cotisations de Sécurité Sociale et d'Allocations Familiales*), the organisation that also collects social security contributions.⁴³ URSSAF retains 1% of total VT receipts in order to cover administrative costs⁴⁴.

Implementation Note:

Collection of the VT:

⁴² Group S (2013) 'Augmentation du taux de versement transport en Ile de France au 1er juillet 2013', available at http://www.groupsfrance.fr/37_341.htm.

⁴³ AECOM Canada Limited (2012) *Detailed Case Studies of Selected Revenue Tools*, Markham, ON: AECOM Canada Limited.

⁴⁴ KPMG and AECOM (2012).

The URSSAF collects VT on top of other existing social security contributions. The charge of 1% of total VT receipts helps covers the costs of interacting with the Local Transport Authorities (TOAs).

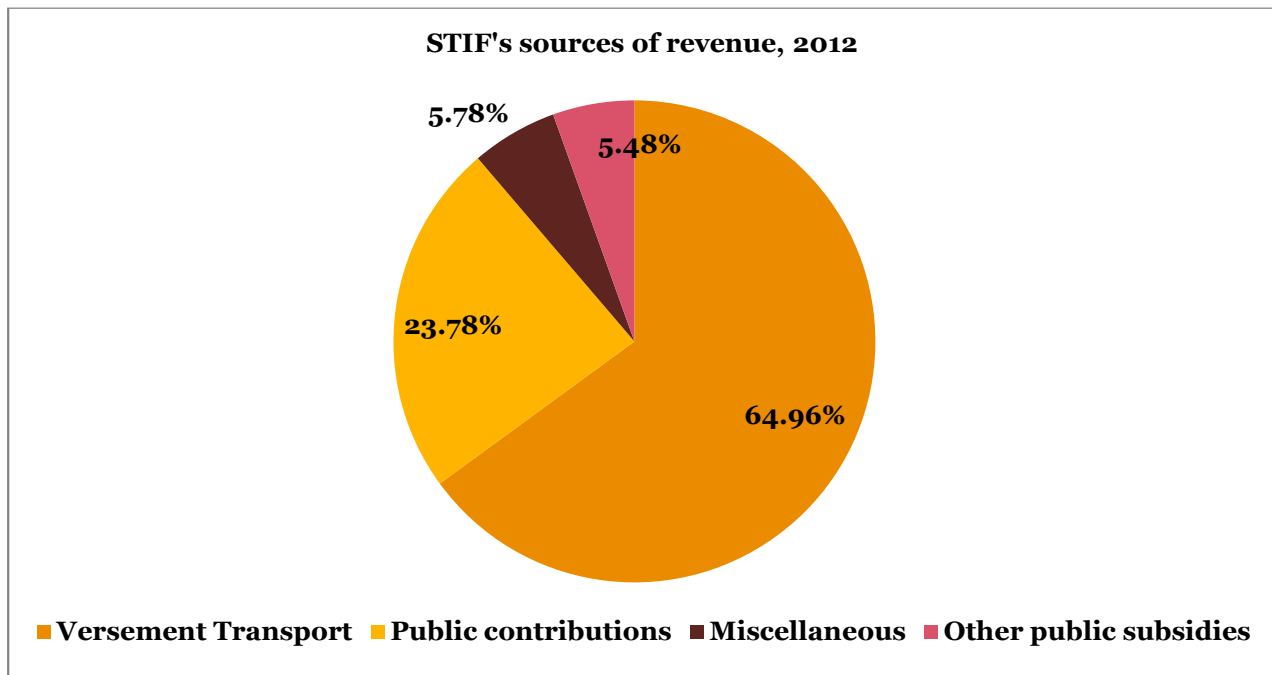
In the past, the URSSAF has been accused of making it difficult for TOAs to obtain key information required for forecasting revenues.

F.1.4. Revenues and Expenditures

VT revenues are an extremely important source of funding for transport funding within Île-de-France, accounting for approximately 40% of all transport funding within the region⁴⁵. VT can be used for both revenue and capital expenditures. Other funding sources include operating revenues (approximately 40%) and public subsidies (20%).

In 2012, STIF, the TOA for Île-de-France, raised €3.2 billion through the VT, equating to 65% of its total income (Figure 10-18)⁴⁶. STIF then has the authority to determine the share of VT funds allocated to the City of Paris, the Île-de-France region, and the other counties within Île-de-France⁴⁷.

Figure 10-18: STIF's sources of revenue, 2012.



Source: STIF, 2012.

F.1.5. Evaluating the Versement Transport

According to research carried out by PwC in Montreal, the existing French literature indicates that the VT 'does not have a significant effect on labour costs, or company location'. However, it is arguable that the exclusion of companies with fewer than 10 employees could create 'economic distortions'⁴⁸.

Because companies with higher payroll costs have larger VT liabilities, the tax can be regarded as mildly equitable. However, the fact that all payroll is taxable, regardless of employees' earnings, means that the tax

⁴⁵ Ibid.

⁴⁶ STIF (2012) *Rapport d'activité*, Paris, STIF.

⁴⁷ AECOM Canada Limited (2012).

⁴⁸ AECOM Canada Limited (2012).

burden remains high for companies that employ large numbers of lower paid employees. Nevertheless, the VT is still a relatively equitable form of taxation due to its geographical variation and the correlation between higher tax rates and higher levels of investment in transport⁴⁹. The VT also aligns to a certain degree with the ‘benefit principle’, in which the user of public transport also bears the cost.

As a revenue-raising tool, the VT is directly linked to levels of economic activity and employment, making it vulnerable to economic downturns. Although the City of Paris is required by law to fill any gaps in years when VT revenues fall below required levels⁵⁰, and thus ensures that any transport funding deficit can be closed, this requirement places additional strain on the City’s budget during downturns.

A further consideration is the impact that the VT has on businesses’ perceptions of public transport investments. There has been evidence of employer hostility towards new transport projects in a number of French cities, including Brest, Reims, and Rennes.

F.1.6. Other Payroll Taxes in France

French employers are exposed to a number of taxes and contributions based on the employees’ gross earnings. The main contributions are:

- Social security: approximately 27 – 29% of the gross salary;
- Unemployment insurance: approximately 5%;
- Retirement contribution: approximately 5 - 12% depending on the salary amount and the category of employee; and
- Other contributions (including VT): 3 – 4%.

On average, total contributions paid by the employer amount to about 42% of the gross salaries.

F.1.7. Taxe de Séjour (Visitor and Tourism Tax)

The ‘*taxe de séjour*’ is a form of municipal transient occupancy tax on tourists or other visitors that stay in hotels and other similar accommodations in France. Currently, the *taxe de séjour* is levied by municipalities and is set at a fixed rate per room per night, which varies according to the star rating of the hotel or accommodation. Municipalities have a degree of autonomy in setting the tax rate, although the rates must lie within specific bands as set out in the General Municipal Code (‘*Code général des collectivités territoriales*’)⁵¹. The current charges are outlined in Figure 10-19, which also includes the rates charged in Paris⁵². It should be noted that there are different tax rates for staying at a campsite.

Figure 10-19: Taxe de séjour: tax rates

Hotel Rating	Tax Rate Bands	Tax Rate in Paris
1 Star	€0.20 - €0.75	€0.42
2 Star	€0.30 - €0.90	€0.78
3 Star	€0.50 - €1.00	€1.00
4 Star	€0.65 - €1.50	€1.50

⁴⁹ KPMG and AECOM (2012).

⁵⁰ AECOM Canada Limited (2012).

⁵¹ Legifrance (2014) ‘Code général des collectivités territoriales, Article D2333-45’ available at <http://www.legifrance.gouv.fr/affichCode.do?idSectionTA=LEGISCTA000006197733&cidTexte=LEGITEXT000006070633&dateTexte=20140728>.

⁵² City of Paris (2014) ‘Taxe de séjour forfaitaire 2014’, available at http://www.paris.fr/pro/df-fiscalite-des-entreprises/taxe-de-sejour/rub_9536_stand_88121_port_23422

Source: Legifrance (2014) and City of Paris (2014)

In addition to the municipal *taxe de séjour*, there is a national value added tax (VAT) on hotels and accommodation set at a discounted rate of 10% (the standard rate of VAT is 20%)⁵³.

F.1.8. Legislation and Potential Changes

On 25 June 2014, the French government proposed to increase *taxe de séjour* tax rates by changing the tax bands. Most importantly, the proposals included a rise in the upper limit for 4 star and 5 star hotels from the current limit of €1.50 to a limit of €8 per night⁵⁴.

An additional tax of €2 per night on hotels and accommodation in Île-de-France was also proposed. Forecasts estimated that the €2 supplement in Île-de-France could generate approximately €140 million euros per year⁵⁵. Crucially, the revenues from the additional *taxe de séjour* in Île-de-France would be specifically ring-fenced for transport in the Paris region.

However, on 15 July 2014, the National Assembly voted to reject both taxes. As such, any reform of the *taxe de séjour* has been pushed back to 2015⁵⁶. The proposed tax increases were widely criticised due to their potentially damaging implications for the hotel and tourism industries in Paris and France more broadly. In particular, the dangers of repelling tourists by adding to the cost of hotels in Paris, which are already high in relation to other European destinations (see Figure 10-20), has been sighted as a key reason for rejecting the proposals. Nevertheless, the government has confirmed it will consult further on the proposals to use a supplementary *taxe de séjour* to fund the Grand Paris Express (see below)⁵⁷.

Figure 10-20: Average overnight accommodation prices in 15 European cities

City	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	2014 - 7 month average
Venice	£101	£128	£135	£187	£231	£210	£171	£166
London	£136	£142	£154	£165	£179	£192	£189	£165
Paris	£134	£129	£135	£147	£164	£177	£141	£147
Amsterdam	£92	£97	£111	£143	£166	£146	£119	£125
Florence	£101	£80	£96	£136	£159	£151	£123	£121
Rome	£83	£79	£100	£140	£146	£127	£99	£111
Munich	£107	£98	£99	£102	£128	£118	£108	£109

⁵³ Ernst and Young (2014) '2014 Worldwide VAT, GST and Sales Tax Guide: France' available at <http://www.ey.com/GL/en/Services/Tax/Worldwide-VAT--GST-and-Sales-Tax-Guide---XMLQS?preview&XmlUrl=/ec1images/taxguides/VAT-2014/VAT-FR.xml>.

⁵⁴ The Telegraph (2014) 'Sinful' tax rise proposed for French hotels' available at <http://www.telegraph.co.uk/travel/destinations/europe/france/10936055/Sinful-tax-rise-proposed-for-French-hotels.html>.

⁵⁵ Le Figaro (2014) 'Une taxe de séjour spécifique à l'Île-de-France?' available at <http://www.lefigaro.fr/flash-eco/2014/06/24/97002-20140624FILWWW00255-une-taxe-de-sejour-specifique-a-l-le-de-france.php>.

⁵⁶ France 24 (2014) 'France scraps 'unthinkable' five-fold hotel tax hike' available at http://www.france24.com/en/20140716-tourists-won-pay-france-debt-after-mps-scrap-hotel-tax-hike/#./?&_suid=14065640374200983776315369049

⁵⁷ Portail du Gouvernement (2014) 'Financement du Grand Paris des transports: le Gouvernement confirme ses engagements' available at <http://www.gouvernement.fr/presse/financement-du-grand-paris-des-transports-le-gouvernement-confirme-ses-engagements>.

Barcelona	£77	£100	£93	£111	£131	£116	£111	£106
Brussels	£86	£95	£103	£98	£115	£100	£79	£97
Istanbul	£78	£71	£89	£108	£113	£98	£78	£91
Lisbon	£66	£65	£72	£90	£121	£89	£83	£84
Prague	£76	£60	£67	£96	£109	£88	£72	£81
Berlin	£72	£76	£79	£77	£90	£81	£74	£78
Madrid	£71	£70	£74	£77	£83	£76	£66	£74
Athens	£57	£58	£59	£69	£87	£97	£76	£72

Source: Adapted from trivago Hotel Price Index (2014) available at <http://www.trivago.co.uk/hotelprices>

F.1.9. Grand Paris Express

The Grand Paris Express (GPE) is a proposed automated metro line that will encircle Greater Paris and is forecast to cost €22.6 billion. The proposals include the construction of 205km of network, the creation of 4 new lines (lines 15, 16, 17, 18), the extension of 2 existing lines (lines 11 and 14) and the construction of 57 new stations and the improvement of 15 others⁵⁸. The GPE, which is due for completion in 2030, will provide essential connections between Paris, its airports and key areas of economic activity in the surrounding Greater Paris region. It is part of a broader €32 billion public transport investment package being rolled out within the Île-de-France region.

F.1.9.1. Governance

In 2010, a new contracting authority, the Société du Grand Paris (SGP), was created in order to deliver the GPE. With the exception of the GPE, STIF will retain its former responsibilities as the transport authority for Île-de-France. Alongside the SGP, a new inter-municipal metropolitan institution, the Métropole du Grand Paris (MGP), is being formed and will come into force in 2016. Crucially, the MGP will have new tax-levying powers in order to facilitate the funding of the GPE⁵⁹.

The GPE is also a key lever for economic development within the Greater Paris region and is interwoven with a broader multilevel economic development strategy. As such, seven strategic areas have been identified, in which a series of Territorial Development Contracts (TDCs) are being drawn up between municipalities and the regional and national governments. In total, 22 TDCs are currently being negotiated.

F.1.9.2. Funding

The budget for the GPE is €22.6 billion. This funding envelope will secure the delivery of Lines 15, 16, 17, 18 in addition to extensions to two other existing lines. Total costs, however, for all infrastructure and development work (including financing costs) are forecast to reach €26 billion. Accordingly, the SGP will be responsible for approximately €25.5 billion of investment.

Sources of funding include tax revenues, government subsidies, and local authority subsidies. To date, three sources of taxation have already been agreed, including Local Office Tax (TLB), Special Infrastructure Tax

⁵⁸ Jones Lang LaSalle (2014) 'Grand Paris Project' available at <http://www.grand-paris.jll.fr/grand-paris-project/other-transport-lines/id/185>.

⁵⁹ Jones Lang LaSalle (2014) 'Grand Paris Project' available at <http://www.grand-paris.jll.fr/grand-paris-project/overview/id/40>.

(TSE) and Flat-Rate Tax on Network Businesses (IFER)⁶⁰. In total, the SGP will receive over €500 million in tax revenues per year from these sources.

F.1.9.2.1. Local Office Tax (TLB) (taxe locale sur les bureaux)

The TLB is a tax on the owners of non-domestic property. TLB is a locally variable tax that is paid to the state (*Centre des Impôts*) and remitted to SGP. Prior to 2014, the SGP received only a portion of this tax revenue: in 2013 receipts amounted to €168 million. As of 2014, however, in order to fill a funding gap of €2.5 billion, the SGP has had more access to the TLB tax revenues, and is forecast to obtain €350 million in receipts in 2014⁶¹.

In addition, the GPE legislation has created a series of new TLB tax rates. The new rates range from €4.51/m² for offices in the outer suburbs and €15.91/m² for offices in central Paris, which represents an increase in the tax rate from previous levels of 41%⁶².

F.1.9.2.2. Special Infrastructure Tax (TSE) (taxe spéciale d'équipement)

The SGP will receive a proportion of TSE, a supplementary tax on residential property that is expected to generate €117 million per year. Like TLB, the TSE is a local tax that is collected by the state on behalf of localities and regions. The TSE is payable by all taxpayers that are currently subject to other property taxes known as the 'taxes foncières sur les propriétés bâties et non bâties' (TFPB and TFPNB) the 'taxe d'habitation' (TH) and the 'cotisation foncière des entreprises' (CFE). The new TSE represents additional rates of 0.5%, 0.14%, and 0.17% on the TFPB and TFPNB, the TH and the CFE respectively⁶³.

F.1.9.2.3. Flat-Rate Tax on Network Businesses (IFER) (l'Imposition Forfaitaire sur les Entreprises de Réseaux)

The IFER is levied on the rolling stock used by the RATP, and is expected to generate €61 million per year. The tax is collected by the state and transmitted to the SGP. The tax is payable by STIF as it is the owner of the rolling stock used by the RATP.

F.1.9.2.4. Other Funding Sources

Additional funding sources include a potential grant of €1 billion from the state government and €225 million from municipal governments.

The SGP might also benefit from a part of the proceeds from other taxes: namely, the *taxe de séjour* and the 'taxe sur la création de bureau' (see above). The tax on new office spaces is specific to Paris and to the Paris region. It is payable by the developer of new or renovated office spaces. The tax rate depends on the exact location of the offices being built – the aim being to foster the construction of office spaces in less developed areas of the Paris region – and currently ranges between €92 and €371 per sq. m.

⁶⁰ Jones Lang LaSalle (2014) 'Grand Paris Project' available at <http://www.grand-paris.jll.fr/grand-paris-project/overview/id/40>. Also see Auzannet, P. (2012) 'Rapport de la mission sur le calendrier pluriannuel de réalisation et de financement du projet de Grand Paris Express', available at http://www.territoires.gouv.fr/IMG/pdf/Rapport_C_Dufлот_Version_Finallex.pdf

⁶¹ SGP (2014) 'Un financement établi', available at <http://www.societedugrandparis.fr/projet/les-couts-financements/financement-etabli>.

⁶² OIRE (2011) 'Note de l'ORIE n°27', available at http://www.orie.asso.fr/note_orie27.html.

⁶³ OIRE (2011).

F.2. San Francisco, Transbay Redevelopment Project

The Transbay Redevelopment Project is a \$4.4 billion (nominal) capital investment project in downtown San Francisco. The project is split into two phases: Phase 1 consists of replacing the former Transbay Terminal at First Street and Mission Street with a new Transbay Transit Center; and Phase 2 consists of extending the Caltrain and California High Speed Rail underground from the current terminus at 4th St and King St into a new Transit Center.

F.2.1. Funding Overview

The Transbay Redevelopment Project is being funded through local, state and federal funds. Particularly important funding mechanisms and sources include:

- Tax increment financing;
- Local sales tax increases;
- Joint development of commercially viable projects;
- Funds from State-owned toll bridges;
- State land sales; and
- A range of federal grants.

F.2.2. Local Funding

F.2.2.1. Tax Increment Financing

The Transbay Joint Powers Authority (TJPA) received a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan from the Federal government. The TIFIA loan is expected to total \$268 million for Phase 1 and \$134 million for Phase 2 (nominal)⁶⁴.

The majority of the TIFIA loan will be repaid using tax increment financing (TIF) revenues. Forecasts indicate that TIF revenues could produce \$1.4 billion for debt service and loan repayment for Phase 1 (nominal) from the base year of 2005^{65, 66}. Because the State of California owns a portion of the land around the Transbay Terminal, the base value of which is zero due to an exemption of State property tax, there is considerable potential for uplift in property tax generation (in addition to financial returns) if the State sells its parcels of property. Properties in California are taxed at 1% of assessed value.

In addition to TIF, fees paid by transit operators for their use of the Transbay Terminal ('passenger facility charges') will also contribute \$35.4 million towards servicing the TIFIA loan⁶⁷.

F.2.2.2. Sales Tax

An additional 0.5% sales tax within the San Francisco was approved by voters in 2003 ('Proposition K'). When Proposition K was passed, it was forecast to generate a total of \$2.35 billion (real 2003 prices) in receipts over a 30 year period⁶⁸. The expected Proposition K revenues for FY2013/14 are \$88.3 million⁶⁹. However,

⁶⁴ San Francisco Municipal Transportation Agency (SFMTA) (2013) 'Appendix D. Prop K Major Capital Projects – Summary Update – 06.13.2013' available at

<http://www.sfcta.org/sites/default/files/content/Programming/propk/2013update/2013Baseline/Appendix%20D.pdf>.

⁶⁵ Transbay Centre (2010) 'Summary of the TTC Program Financial Plan' available at

http://transbaycenter.org/uploads/2008/10/Financial_Plan_Summary_Report_Mar-10.pdf.

⁶⁶ The components of the estimated tax increment growth include general inflation capped at two percent per year, the statutory maximum rate, and no annual increases in reassessments until the end of FY 2018, with a one-half percent per year reassessment increase thereafter.

⁶⁷ Transbay Centre (2010).

⁶⁸ San Francisco County Transportation Authority (2014) 'Proposition K' available at <http://www.sfcta.org/funding-opportunities/proposition-k>.

Proposition K will only contribute a total of \$219 million (nominal) to Transbay over the life of the project, due to its use for other purposes as well.

In addition to Proposition K there are also plans to generate up to \$350 million through further sales tax increases⁷⁰.

Implementation Note:

Composition of sales tax

The total sales tax rate in San Francisco is 8.75%⁷¹. This comprises of a California State Sales Tax of 6.50%, a San Francisco County Sales Tax of 1.00%, and a range of Special Sales Taxes totalling 1.25%. The City of San Francisco does not levy a local sales tax. The Special Sales Tax of 1.25% includes Proposition K (0.5%).

Collection of sales tax:

Sales tax is collected on all qualifying goods and services by merchants at the point of sale and is remitted to the relevant taxing authority. Proposition K is administered and allocated by the San Francisco County Transportation Authority.⁷²

F.2.2.3. Joint Development

A joint development programme during the construction of the Transbay Transit Centre, including 3000 units of residential, 2 million sq. ft. of office, 325,000 sq. ft. of retail and a 1000-room hotel⁷³, is expected to generate \$400 million in revenues for the rail extension in Phase 2 of the Transbay Project⁷⁴.

F.2.3. State Funding

F.2.3.1. Land Sales

Following the demolition of structures that were damaged by an earthquake in 1998, the State of California transferred 12 acres of state-owned land to the Transbay project⁷⁵. Since 2007, the land parcels have been ready for sale and are expected to generate approximately \$570 million which is to be dedicated to covering construction costs⁷⁶.

F.2.3.2. Funds from State-Owned Toll Bridges

Regional funds from State-owned toll bridges – ‘Regional Measure 1’ (RM1) and ‘Regional Measure 2’ (RM2) – are expected to contribute \$197 million to Phase 1 of the Transbay Project. RM2 funds and other toll funds are expected to contribute \$307 million to Phase 2 (nominal)⁷⁷. RM1 (1988) is a voter-approved measure to impose

⁶⁹ San Francisco County Transportation Authority (2013) ‘Memorandum’ available at <http://www.sfcta.org/sites/default/files/content/Executive/Meetings/pnp/2013/07jul/Prop%20K%202013%20SP%20Baseline%20-%20with%20ATT1-4.pdf>.

⁷⁰ SFCTA (2013).

⁷¹ California State Board of Equalization (2014) ‘California City & County Sales & Use Tax Rates’, available at <http://www.boe.ca.gov/cgi-bin/rates.cgi?LETTER=S&LIST=CITY>.

⁷² SFCTA (2014) ‘who we are’, available at <http://www.sfcta.org/about-authority/who-we-are>.

⁷³ Metropolitan Transit Commission (2003) Transbay Terminal Improvement Plan available at <http://www.mtc.ca.gov/library/transbay/transbay.pdf>.

⁷⁴ SFCTA (2013).

⁷⁵ Transbay Centre (2010).

⁷⁶ SFCTA (2013).

⁷⁷ SFCTA (2013).

a toll of \$1 for the seven state-owned Bay Area toll bridges, and RM2 (2004) is a voter-approved measure to impose an additional \$1 charge. Other regional grants include Assembly Bill No. 1171 funds (\$150 million) that were initially designated for seismic retrofitting Bay Area bridges.

F.2.4. Federal Funding

In addition to the TIFIA loan (above), Phase 1 of the Transbay Redevelopment Project has also been awarded \$400 million Federal Stimulus American Recovery and Reinvestment Act (ARRA) funds and \$71 million (nominal) in other grants. There is also the potential to tap into over \$1.2 billion of grant funding for high speed rail links and as part of the Federal Transit Administration's New Starts programme⁷⁸.

⁷⁸ SFCTA (2013).

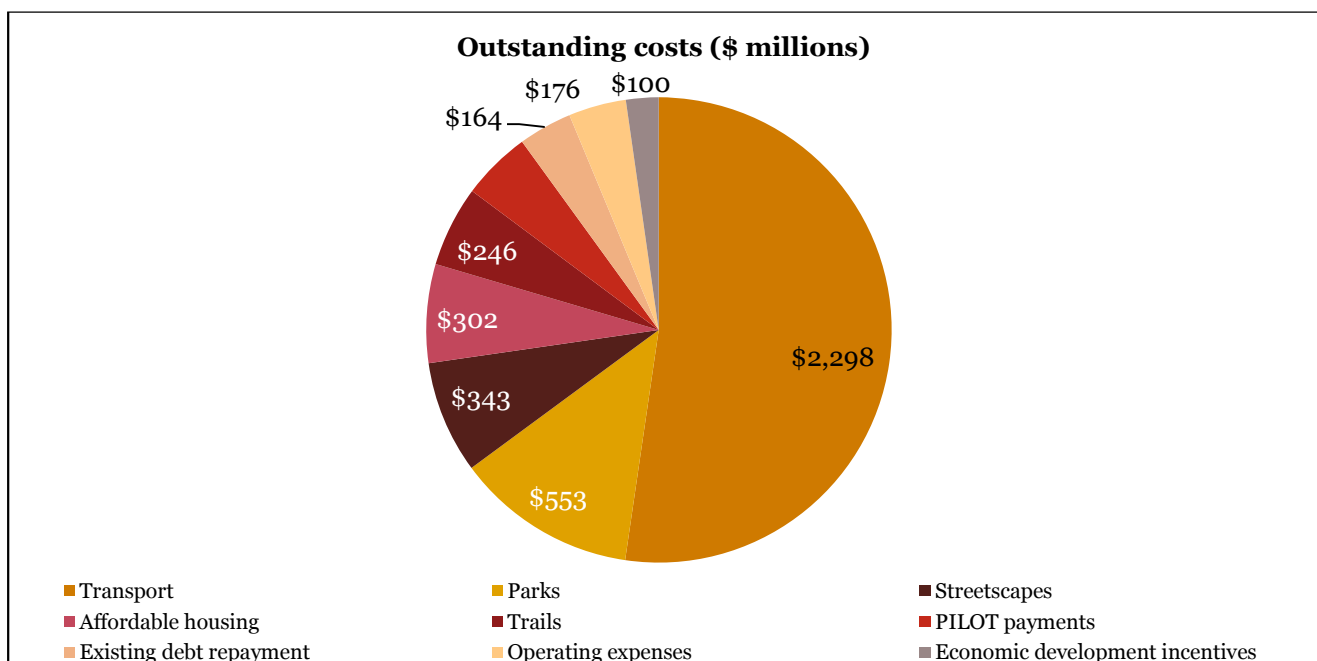
F.3. Atlanta, the Atlanta BeltLine

F.3.1. Overview of the Atlanta BeltLine

The Atlanta BeltLine is a transformational economic development project in Atlanta, Georgia, due for completion in 2030. It will include a new 22-mile metro system which will complement and interlink with the existing Metropolitan Atlanta Rapid Transit Authority (MARTA) system.

Total capital costs are \$4.75 billion (2013 prices indexed to inflation at 2.0%), of which \$2.3 billion will be spent on transport (Figure 10-21)⁷⁹. At least \$337 million (real 2013 prices) has already been invested in the project, which started in 2005. The project still requires \$4.39 billion in investment in order to complete its remaining components⁸⁰.

Figure 10-21: Atlanta Beltline Remaining Costs in \$ Millions, as at December 2013 (real 2013 prices)



Source: Adapted from Atlanta BeltLine (2013)

F.3.2. The BeltLine Governance Structure

The BeltLine Redevelopment Plan has been adopted by the City of Atlanta. However, the lead organisation in planning and delivering the BeltLine project is an organisation called Atlanta BeltLine, Inc. (ABI), created by Atlanta's Development Authority (known as 'Invest Atlanta'). ABI is also the lead organisation in securing funds for the project from the federal, state, and local levels.

MARTA is the organisation responsible for operating and maintaining the transport infrastructure that results from the BeltLine project.

The State of Georgia also has a direct role in the project. The inactive rail corridors in the BeltLine project area, for instance, are mostly owned by the Georgia Department of Transportation (GDOT).

⁷⁹ Atlanta BeltLine (2013) '2030 Strategic Implementation Plan, Final Report' available at <http://beltline.org/progress/planning/foundational-studies/>.

⁸⁰ Atlanta BeltLine (2013).

F.3.3. Funding the BeltLine

Tax increment financing is the primary source of funding for the Beltline scheme, and will cover approximately a third of the BeltLine's total costs.

Other potential sources of funding include federal grants, private sources, and a range of local taxes. The tables below summarise the funding already delivered in the Beltline's first 5 years, and the proposed sources of funding for the rest of the project. Notably, the project currently faces a funding gap of \$891 million (Figure 10-23).

Figure 10-22: Source of funds for the first 5 years of project costs (2011 prices)

Sources	\$ Millions	Percentage
Tax Increment	120	35%
Federal Funds	23	7%
City Funds	146	44%
Philanthropic Donations	37	1%
Other (lease revenue, management fee)	11	3%
Total	337	100%

Source: Atlanta Beltline (2013)

Figure 10-23: Source of funds for the remaining project costs (2011 prices)

Sources	\$ Millions	Percentage
Tax Increment	1,455	33%
Federal Funds	1,272	29%
Federal, State, Regional or Local Funding for Streetscapes	343	8%
Local Funding for Parks	257	4%
Private Funds	275	6%
Unidentified	891	20%
Total	4,393	100%

Source: Atlanta Beltline (2013)

F.3.3.1. Tax Allocation District (TAD) (Tax Increment Financing)

The latest available estimates suggest that a total of \$1.575 billion (2011 prices indexed at 2% inflation) will be raised through tax increment financing over a 25-year period within the Atlanta Beltline Tax Allocation District (TAD)⁸¹.

The BeltLine TAD was established in 2005. It covers 6,500 acres of the city and captures the increase property taxes (the tax increment) generated within the administrative areas of the City of Atlanta, Fulton County, and Atlanta Public Schools⁸². Any TAD receipts are remitted to ABI and placed in a BeltLine special fund. Primarily, the tax increment is securitised and used to underpin the issuance of debt, which helps to forward fund the infrastructure improvements.

Fulton County and Atlanta Public Schools are eligible for a payment in lieu of taxes (PILOT), due to the loss of tax revenue that results from the BeltLine TAD. PILOT funds also cover the cost of new investments in services and facilities that are necessitated by the BeltLine development⁸³.

There are a number of options for financing the TAD component of the scheme. To date, a total of \$ 78.1 million (2012 \$) in TAD bonds have been issued on the capital markets, and it is expected that there will be additional bond issuances in the coming years⁸⁴. TAD bonds are issued by Invest Atlanta, but must first be approved by the City of Atlanta. An alternative option to issuing TAD bonds is to use a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan from the Federal Government. TIFIA loans are available at an interest rate 2.8% (in 2013), which is more favourable than the interest rates on the TAD bonds issued so far (6.7%-7.5%)⁸⁵. Importantly, TAD revenues can also be spent on a pay-as-you-go basis.

F.3.3.2. Federal Grants

It is anticipated that funding from the Federal Government will provide 29% (\$1.3 billion, 2011 real prices) of remaining project costs (Figure 10-23). Indeed, the BeltLine Strategic Implementation Plan outlines the objective of obtaining as much funding as possible through federal transportation and grant funding initiatives. However, as of July 2013, ABI had only received over \$24 million in federal funds that had been channelled through the Atlanta Regional Commission (ARC) and Georgia Department of Transportation (GDOT)⁸⁶.

The Beltline Strategic Implementation Plan acknowledged that additional funding from the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) is needed to complete the project. The Plan estimates that 50% of transport capital costs will be covered by federal funds⁸⁷.

F.3.3.3. Local Taxation: Rejection of Local Sales Tax Increase

A range of local sources of taxation have been identified as potential funding mechanisms for the BeltLine. Whilst the City of Atlanta currently levies a wide range of taxes (as indicated in Figure 10-24), the BeltLine Strategic Investment Plan suggests that existing sources of taxation would not be made available for the BeltLine project. Rather, the objective is to levy a new tax to fill the existing funding gap.

Figure 10-24: City of Atlanta General Fund Revenue, 2012

Revenue Source	FY 2012 actuals
----------------	-----------------

⁸¹ Atlanta BeltLine (2013).

⁸² Atlanta Development Authority (2005).

⁸³ Atlanta BeltLine (2013).

⁸⁴ Invest Atlanta (2012) 'Annual Redevelopment Agent Report 2012' available at <http://static.investatlanta.com/wp-content/uploads/Annual-Redevelopment-Agent-Report-2012.pdf>.

⁸⁵ Atlanta BeltLine (2013).

⁸⁶ Atlanta BeltLine (2013).

⁸⁷ Atlanta BeltLine (2013).

Property Tax	\$175,753,660
Local Option Sales Tax	\$97,399,863
Hotel/Motel Tax	\$12,686,137
Public Utility Franchise	\$63,327,346
Indirect Costs	\$32,052,668
Business License	\$41,755,682
Insurance Premium	\$19,699,905
Other License/Permits	\$17,811,319
Alcohol Revenue	\$15,325,631
Fines/Forfeitures	\$22,090,730
Land and Building Rentals	\$6,687,711
Intangible Recording Revenue	\$3,620,015
Real Estate Transfer Revenue	\$1,317,399
Other Revenue	\$46,136,070
Total Revenues	\$555,664,135

Source: City of Atlanta (2014) Adopted Budget FY 2014, Atlanta, City of Atlanta

In 2012, voters in the Atlanta metropolitan region rejected a special-purpose local-option sales tax (“T-SPLOST”). The measure proposed to increase local sales tax by 1% and had been expected to fund \$7.2 billion of transport improvements, including 157 regional projects worth \$6.14 billion and \$1 billion of smaller local projects⁸⁸. It would have contributed over \$600 million to the BeltLine project⁸⁹.

In wake of this setback for the BeltLine project, the BeltLine Strategic Investment Plan considers a wide range of other possible taxes and funding sources that could be implemented in future (Figure 10-25).

Figure 10-25: Potential sources of funding for BeltLine

Source	Description
Utility Users Tax	Tax imposed on utility services to be used for a specific or general purpose
Business (Payroll) Tax	A local payroll tax imposed through employer withholding
Parcel Tax	Flat tax on each parcel of real property
Employer Sponsored Transit	Employers participate financially in the transit service serving their business
Local Gas Tax	Tax imposed on each gallon of gas sold in local community
Regional Gas Tax	Tax imposed on each gallon of gas sold in the region
Parking Fees and Surcharges	Local government imposed fee or surcharge on on-street and garage parking,

⁸⁸ Hart, A. (2012) ‘Voters reject transportation tax’, available at <http://www.ajc.com/news/news/state-regional-govt-politics/voters-reject-transportation-tax/nQXfq/>.

⁸⁹ Atlanta Business Chronicle (2012) ‘TSPLOST: Beltline’s father sees positives despite defeat’ available at <http://www.bizjournals.com/atlanta/print-edition/2012/08/03/beltilines-father-sees-positives.html>.

usually metered

Transient Occupancy (Hotel) Tax	Tax imposed on hotel users by local government
Vehicle Miles Travelled Tax	Tax on automobile miles travelled
Development Impact Fee	One-time fee charged on new development
Benefit Assessment Districts	An assessment on properties within a defined area; the assessment is related to the amount of benefit that the property receives
Business Improvement Districts	Assessment district in which business owners choose to be assessed for a fee, which is collected on their behalf by the City, for use in improving the business in the area
Rental Car Tax	Tax on automobiles rented within a given jurisdiction
Naming Rights/Sponsorship	Authority to name public projects for a specified period of time for a fee

Source: Atlanta BeltLine (2013)

F.3.3.4. Private sources

To date, approximately \$41 million has been contributed through private donations.

F.3.3.5. Other funding sources already in place (but not hypothecated for BeltLine)

In addition to the funding sources illustrated in Figure 10-24, which contribute to the City of Atlanta's general fund, there are some other sources of local and state funding which contribute to a range of transport projects in Atlanta.

F.3.3.5.1. State Fuel Taxes

The State of Georgia has two motor fuel taxes which together contribute to over 96% of State level funding for the Georgia Department of Transport (FY 2009)⁹⁰.

- The 'State Motor Fuel Excise Tax' is a tax on gasoline at a flat rate of 7.5 cents per gallon⁹¹. This tax was introduced in 1971 and is not indexed for inflation.
- The 'Prepaid Motor Fuel Sales Tax' is a tax on the average retail price of fuel at a rate of 4%⁹². This tax is 'collected on a cent-per-gallon rate that is set using a weighted average indexed retail sales price for each type of fuel'. Of the 4% tax rate, 3% is ring-fenced for transport.

In FY2013, these taxes generated \$1 billion⁹³. However, transport-dedicated revenues from both taxes can only be used for roads and bridges, thus currently preventing them from being used to fund the Atlanta BeltLine.

F.3.3.5.2. MARTA Sales and Use Tax

MARTA, Atlanta's transport authority, retains the revenues from an additional 1% sales and use tax in the City of Atlanta and the Counties of Fulton and DeKalb⁹⁴. The MARTA tax takes the total sales and use tax rate in

⁹⁰ Atlanta Regional Commission (2010) 'Bridging the Gap 2010: Investigating Solutions for Transportation Funding Alternatives in the Atlanta Region' available at http://documents.atlantaregional.com/plan2040/bg/tp_finance_alternatives_report_030510.pdf

⁹¹ Atlanta Regional Commission (2010).

⁹² Atlanta Regional Commission (2010).

⁹³ State of Georgia (2013) 'Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 2013' available at http://sao.georgia.gov/sites/sao.georgia.gov/files/related_files/site_page/2013%20CAFR%20Final.pdf.

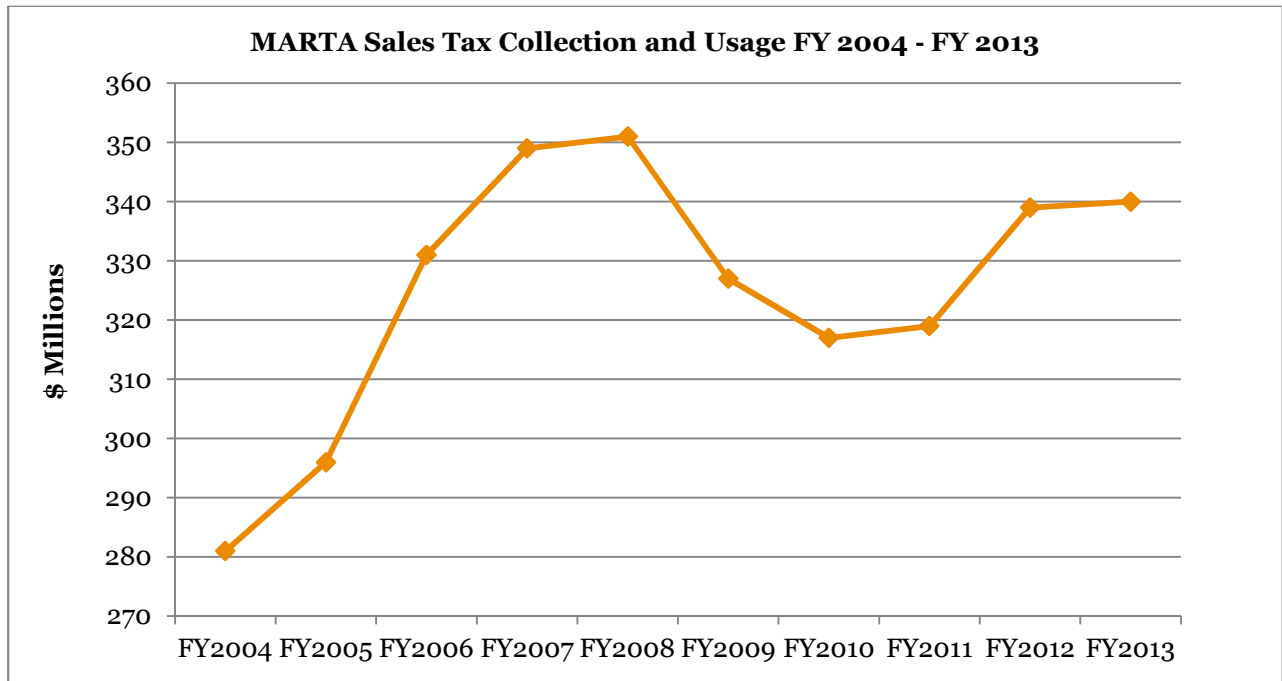
⁹⁴ Atlanta Regional Commission (2010).

Atlanta to 8% and to 7% in both Fulton and DeKalb Counties⁹⁵. In FY 2013, MARTA received \$340 million in sales and use tax receipts⁹⁶.

MARTA can use up to 50% its sales tax receipts for operating costs, and must use the rest for capital investment⁹⁷.

Figure 10-26 illustrates the challenges of this type of revenue source, which is highly correlated with economic activity. The fall in receipts from 2008 placed increasing strain on MARTA's budget.

Figure 10-26: MARTA Sales Tax Collection and Usage FY 2004 - FY 2013



Source: MARTA (2013)

⁹⁵ Metro Atlanta Transport Vote (2012) 'Sales Tax Rate By County'

http://www.metroatlantatransportationvote.com/documents/county_sales_tax_status.pdf.

⁹⁶ MARTA (2013) 'Comprehensive Annual Financial Report, 2013', available at <http://itsmarta.com/reports.aspx>.

⁹⁷ Atlanta Regional Commission (2010).

F.4. Copenhagen, Copenhagen Metro System

The Copenhagen metro system was launched by the Ørestad Act in 1992. The first phase of the metro, a link to Ørestad (line M1), was designed to complement the development Ørestad, a 'new town' that would facilitate the growth and development of Copenhagen, as initially set out in the 1947 'Finger Plan'⁹⁸. Ørestad is strategically located between Copenhagen's centre and the city's airport, as well as on a major rail link to Malmö in Sweden⁹⁹.

A key aim of the Ørestad project was to use the metro line to stimulate demand for commercial and residential development. Simultaneously, Ørestad Development Corporation would fund the metro by capturing the value of the uplift in land values by selling and leasing the newly situated land (previously government owned). Initial projections estimated that the metro system would unlock a total of 3.1 million squares metres of development¹⁰⁰.

A further 3 phases of metro (M2 – to Copenhagen Airport; M3 – the 'Cityring'; and M4 – the Nordhavn extension) have been planned or developed using the same model.

Prior to construction, the cost of phases 1 and 2 was forecast to be DKK 5.2 billion (real 1996 prices). However, by 2005, costs had escalated to DKK 12.3 billion (real 2005 prices)¹⁰¹.

The 'Cityring' (M3) is expected to be completed by 2018 at a cost of DKK 22.4 billion and the 'Extension to Nordhavn' by 2019 at a cost of DKK 2.5 billion (2013 prices). A further line from Copenhagen Central Station to Ny Ellebjerg (costing between DKK 6.6 and 10.2 billion) is currently being negotiated¹⁰².

F.4.1. Governance

The 1992 Ørestad Act created the Ørestad Development Corporation (ODC), a joint venture between the City of Copenhagen (55% ownership) and the Danish Government (45% ownership)¹⁰³. The ODC was charged with funding, delivering and operating the metro system as well as developing the Ørestad new town¹⁰⁴.

In June 2007, an Act of parliament split the ODC into two separate companies. CPH City and Port Development (BY&HAVN) became responsible for the development of land in Ørestad and the Copenhagen area, Metro Corporation (Metroselskabet) was charged with continuing to deliver and operate the metro system. The ownership structure for CPH City and Port Development remained identical (55% City of Copenhagen, 45% Danish Government) while Metro Corporation incorporated a new stakeholder (8% Frederiksberg Council, 50% City of Copenhagen, 42% Danish Government).

F.4.2. Funding

In the early 1990s, an impending fiscal crisis at the City of Copenhagen and an unwillingness to fund large infrastructure projects on balance sheet at the national level forced the City to consider alternative funding models for the Ørestad project¹⁰⁵. Because of the potential for capturing value uplift through the development of

⁹⁸ Knowles, R. D. (2012) 'Transit Oriented Development in Copenhagen, Denmark: from the Finger Plan to Ørestad', *Journal of Transport Geography*, 22, 251-261.

⁹⁹ Knowles (2012).

¹⁰⁰ Majoor, S. (2008) 'Progressive planning ideals in a neo-liberal context, the case of Ørestad Copenhagen', *International Planning Studies*, 13, 2, 101-117.

¹⁰¹ Majoor (2008).

¹⁰² Metroselskabet I/S (2013) 'Annual Report 2013' available at

http://intl.m.dk/~media/Metro/PDF/PDF%202014/Metro_AR_2013_UK_Web.pdf

¹⁰³ Book, K., Eskilsson, L. and Kahn, J. (2010) 'Governing the Balance between Sustainability and

Competitiveness in Urban Planning: the Case of the Ørestad Model', *Environmental Policy and Governance*, 20, 382-396.

¹⁰⁴ Knowles (2012).

¹⁰⁵ Majoor (2008).

Ørestad New Town, the ODC adopted a ‘development corporation’ model similar to that used in the context of the Hong Kong MTR¹⁰⁶.

The land in Ørestad was almost entirely owned by the city (55%) and the Danish Government (45%) as it had been ‘reclaimed from the sea in the 1930s and 1940s’¹⁰⁷. As a result, the ODC was able to borrow against the revenues that would be generated from future land sales which would take place after the completion of the metro line. The metro farebox provided an additional source of revenue. Due to a lack of revenues from land sales during the 2000s, tax revenues have also been used to service the debt¹⁰⁸.

The equivalent of approximately US\$2 billion (real 2002 prices) was borrowed from the Municipality of Copenhagen and the Danish Government of Denmark for M1 and M2 and was initially forecast to be repaid by 2038¹⁰⁹.

After the Act of 2007, CPH City & Port Development incurred new debt in order to make a one-off payment to the Metro Company, thus enabling CPH City & Port Development and the Metro Company to be entirely independent of one another¹¹⁰. In FY2007, CPH City & Port Development had a net interest-bearing debt of DKK 12.8 billion (2007 prices)¹¹¹. Crucially, despite the change in governance, the sale of land proximal to the metro line continues to be the primary source of revenues for debt repayment.

In FY 2012, CPH City & Port Development’s net interest-bearing debt had actually risen to DKK 16.6 billion (2012 prices).¹¹² This is largely due to the challenging economic environment during the late 2000s, and because new phases of the metro – the Cityring and Nordhavn projects – continue to be funded and financed using the original Ørestad model¹¹³.

Under the 2007 Act, an agreement with Danmarks Nationalbank and the Danish Ministry of Transport enabled CPH City & Port Development to access new government loans at a rate of less than 3%¹¹⁴. CPH City & Port Development has the ability to enter into derivative contracts to manage interest rate risk.

Key performance metrics and revenue sources for CPH City & Port Development and the Metro Company are displayed in Figure 10-27 and Figure 10-28.

Figure 10-27: CPH City & Port Development, financial information, 2012

	Area Development (DKK Millions)	Leasing (DKK Millions)	Parking (DKK Millions)	Port Operation (DKK Millions)
Net turnover	58	177	39	48
Value adjustment of investment properties	-401	122	0	-
Other income	0	0	0	0

¹⁰⁶ Olsen, H. P. (2012) ‘Financing and organizing the Copenhagen Metro’, available at <http://www.sundogbaelt.dk/uk/menu/press/conference-on-financing-and-organising-large-transport-infrastructure-projects/24-may-01-morning-session-03-henrik-plougmann-olsen.pdf>.

¹⁰⁷ Knowles (2012).

¹⁰⁸ Knowles (2012).

¹⁰⁹ Davis, L. (2007) ‘Copenhagen’s Metro: The City’s Horizontal Elevator’ available at <http://www.metro-magazine.com/article/story/2007/02/copenhagens-metro-the-citys-horizontal-elevator.aspx>. Also see World Economic Forum (2014) ‘Accelerating Infrastructure Delivery New Evidence from International Financial Institutions’ available at http://www3.weforum.org/docs/WEF_AcceleratingInfrastructureDelivery_2014.pdf.

¹¹⁰ BY&HAVN (2014) ‘We create vibrant neighbourhoods’, available at <http://www.byoghavn.dk/english/about/vision-mission-uk/background-uk.aspx>.

¹¹¹ BY&HAVN (2008) ‘Annual Report 2007’ available at <http://byoghavn.devboh.dk/~media/byoghavn/pdf/ukannualreport.pdf>.

¹¹² BY&HAVN (2012) ‘Annual Report 2012’ available at http://www.byoghavn.dk/~media/udvikling/annualreport_2012.pdf.

¹¹³ Olsen (2012).

¹¹⁴ BY&HAVN (2012).

Total income	-342	299	39	48
Costs	90	104	18	31
Result for primary operation	-432	195	21	17
Income from capital shares	-21	0	0	34
Result before interest	-414	195	20	51
Balance				
Total balance	9,125	2,594	492	970
Investments	54	397	0	0
Tangible fixed assets	8,429	2,533	466	755
Liabilities	14,793	1,703	499	365

Source: BY&HAVN, 2012

Figure 10-28: Metro Corporation financial information, 2012

2012 (DKK thousands)

2012 (DKK thousands)	
Cashflows from operating activities	
Metro fare revenue	676,878
Metro operating income	276,242
Other operating income	19,206
Metro operating expenses	(704,557)
Staff costs	(128,076)
Other external costs	(32,430)
Total cashflows from operating activities	107,263
Cashflows from investment activities	
Investment in the construction of the Metro	(2,205,692)
Investment in buildings, operating equipment and fixtures and fittings	(13,637)
Investment in securities (excluding market value adjustment)	0
Total cashflows from investment activities	(2,219,330)

Cashflows from financing activities	
Loans raised, net (excluding market value adjustment)	1,648,123
Contributions from owners	0
Accounts receivable	(42,209)
Short-term debts	333,782
Net financing expenses (excluding market value adjustment)	(123,231)
Total cashflows from financing activities	1,816,465

Source: Metroselskabet I/S, 2013

F.4.3. Development Outcomes

During a booming property market in Copenhagen in the early 2000s, Ørestad experienced its first major developments, including a 178,000 m² shopping centre called Field's¹¹⁵. By 2009, despite having suffered from low levels of investment following completion of the M1 line and during the economic downturn of the late 2000s, Ørestad had grown to a population size of 5,000 and was sustaining almost 10,000 jobs.

Three out of the four districts designated for development in Ørestad are still being developed. However, the fourth has been put on hold. Indeed, the challenging economic conditions of the late 2000s meant that 2012 was the first year since the economic downturn in which a number of major project sales were concluded¹¹⁶.

As of 2012, CPH City & Port Development owned approximately 5 million square metres of land targeted for development and sale, with a current value of DKK 10.4 billion¹¹⁷. The process of developing out and selling the land is not expected to be completed for another 70-80 years¹¹⁸. The long timescales involved mean that future phases of the metro can continue to be funded by using the current Ørestad model, but also serve to illustrate that there are challenges to ensuring that development keeps pace with debt service requirements.

Major ongoing projects include the 'UN City Campus 1', the reinvigoration of Ørestad Down Town, and the Arena District in Ørestad South. CPH City & Port Development continues to be responsible for delivering any other infrastructure required by the new developments – one reason for higher than expected development costs¹¹⁹.

¹¹⁵ Majoor (2008).

¹¹⁶ BY&HAVN (2012).

¹¹⁷ BY&HAVN (2012).

¹¹⁸ BY&HAVN (2012).

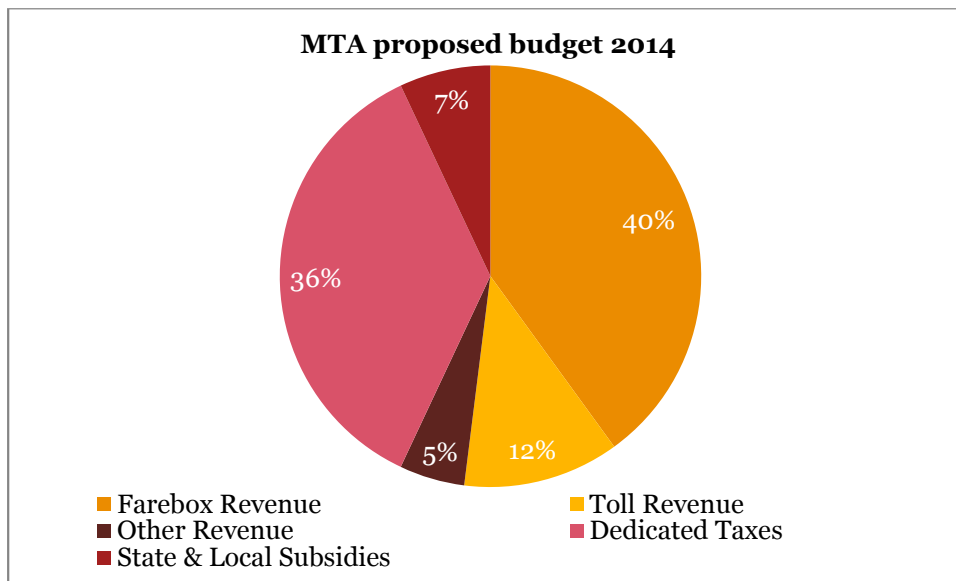
¹¹⁹ Knowles (2012).

F.5. New York, Metropolitan Transportation Authority and the Metropolitan Commuter Transportation Mobility Tax

F.5.1. MTA Funding Model

The funding model for New York City’s Metropolitan Transportation Authority (MTA) is based on two main sources of income. Farebox revenues comprise 40% of revenues while dedicated taxes contribute 36% (Figure 10-29)¹²⁰. Other revenues include toll revenue (12%) and state and local subsidies (7%).¹²¹

Figure 10-29: MTA proposed budget 2014 (\$13.99 billion)



Source: MTA, 2013

Figure 10-29 indicates that dedicated taxes form a significant component of the MTA’s funding model. Indeed, the MTA has access to a wide range of tax revenues, which can be broken down into five main categories: Metropolitan Mass Transportation Operating Assist (MMTOA); Petroleum Business Tax (PBT); Mortgage Recording Tax (MRT); Urban Tax; and the Payroll Mobility Tax (MCTMT). Each of these categories comprises of one or more sources of tax revenue, as highlighted in Figure 10-30.

Although the MTA has access to a wide range of dedicated taxes, it does not have its own taxing powers. Rather, the taxes are administered by either the New York State Tax Department or New York City and then distributed or assigned to the MTA.

Figure 10-30: Selected sources of MTA funding: dedicated taxes, tax rates and revenue raised (2012)

Dedicated Taxes	Sub-components and rates	2012 Actual (\$ Millions)
Metropolitan Mass Transportation	- Sales Tax: 0.375% levy on certain goods and services. - Corporate Franchise Taxes: 7.1% levy on the entire net income of certain transportation and transmission companies	1,354.2

¹²⁰ MTA (2013) ‘Final Proposed Budget November Financial Plan 2014-2017’ available at <http://web.mta.info/mta/budget/nov2013/2013-November-Financial-Plan-Volume1.pdf>.

¹²¹ MTA (2013).

Operating Assist (MMTOA)	- Temporary Corporate Surcharges: 17% levy on the portion of the franchise taxes and other taxes of certain businesses. - Petroleum business taxes: 55% of PBT collected within the Statewide Mass Transportation Operating Assistance Fund.	
Petroleum Business Tax (PBT) Receipts	- MTA retains a 34% of funds in New York State's PBT Dedicated Tax Funds Pool. This pool includes motor fuel taxes, motor vehicle fees and taxes on petroleum businesses operating in New York State.	600.2
Mortgage Recording Tax (MRT)	- MRT-1: 0.3% levy on the debt secured by certain real estate mortgages. - MRT-2: 0.25% levy on certain mortgages.	271.0
Urban Tax	- MRT: 0.625% levy on mortgages exceeding \$500,000 on New York City commercial properties. - Real Property Transfer Tax: 1% levy on the transfer of New York City commercial real properties valued over \$500,000.	439.1
Payroll Mobility Tax (MCTMT)	- Up to 0.34% employers' payroll expense (see below).	1,265.3
Payroll Mobility Tax Replacement Funds	- State payment to MTA because of recent reductions in the MCTMT rate for companies with lower payroll.	254.9

Source: Adapted from MTA (2013) 'Final Proposed Budget November Financial Plan 2014 – 2017' available at <http://web.mta.info/mta/budget/nov2013/2013-November-Financial-Plan-Volume2.pdf>.

F.5.2. Metropolitan Commuter Transportation Mobility Tax (MCTMT)

The MCTMT is a tax levied on the payroll of businesses within the Metropolitan Commuter Transportation District, which includes New York (Manhattan), Bronx, Kings (Brooklyn), Queens, Richmond (Staten Island), Rockland, Nassau, Suffolk, Orange, Putnam, Dutchess, and Westchester¹²². The MCTMT is a significant fund-raising tool and is forecasted to generate \$1.3 billion for the MTA in 2014.

The MCTMT was introduced in 2009 at a rate of 0.34% on all companies' payroll expenses. The rate has since been modified (as of April 2012) and is now levied at a rate of between 0.11% and 0.34% depending on an employer's quarterly payroll expense (see Figure 10-31). Companies are liable for the MCTMT if their payroll expense exceeds \$312,500 and they withhold New York State income tax from their employees' wages. Payroll is defined as all wages and compensation as defined in section 3121 of the Internal Revenue Code¹²³. The MCTMT is payable by the employer.

Figure 10-31: Metropolitan Commuter Transportation Mobility Tax rates, 2014

Payroll expense (per calendar quarter)	MCTMT Rate
Over \$312,500 but not over \$375,000	0.11%
Over \$375,000 but not over \$437,500	0.23%
Over \$437,500	0.34%

Source: The New York State Department of Taxation and Finance (2014) 'Employers – metropolitan commuter transportation mobility tax (MCTMT)' available at <http://www.tax.ny.gov/bus/mctmt/emp.htm>.

¹²² The New York State Department of Taxation and Finance (2014) 'Metropolitan commuter transportation mobility tax' <http://www.tax.ny.gov/bus/mctmt/>.

¹²³ The New York State Department of Taxation and Finance (2014) 'Guide to the Metropolitan Commuter Transportation Mobility Tax', available at <http://www.tax.ny.gov/pdf/publications/mctmt/pub420.pdf>.

There are a number of employers which remain exempt from the tax. These include: ‘an agency or instrumentality of the United States; the United Nations; an interstate agency or public corporation created pursuant to an agreement or compact with another state or Canada; or an eligible educational institution’¹²⁴.

Implementation Note:

Defining payroll expenses

Payroll expenses are regarded as wages that are defined under section 3121 of the Internal Revenue Code, which defines wages as ‘all remuneration for employment, including the cash value of all remuneration (including benefits) paid in any medium other than cash’.

Typically, taxable payroll expenses are equal to the amount of wages subject to the Medicare social security taxes.

Collection of MCTMT

MCTMT is paid quarterly through a paper or online tax return.

For employers that use the ‘PromptTax’ program to file New York State withholding tax, this mechanism can also be used to file an MCTMT return.

F.5.2.1. ‘Covered’ employees

There are four tests carried out to ascertain whether an employee’s salary is included in an employer’s taxable payroll expense (Figure 10-32). Eligible employees are referred to as ‘covered employees’. Only one of the four tests must be passed for the employee to be considered a covered employee. Determining whether an employee is covered is the responsibility of the employer.

Figure 10-32: Determining if an employee is a covered employee

Localisation	An employee’s services are allocated to the Metropolitan Commuter Transportation District (MCTD) if those services are either performed (1) entirely within the MCTD or (2) performed both in and outside of the MCTD, but the services performed outside the MCTD are incidental to the employee’s services performed in the MCTD (for example, are temporary or transitory in nature or consist of isolated transactions).
Base of operations	An employee’s services are allocated to the MCTD if the employee’s base of operations is in the MCTD. However, this test cannot be applied if the employee has no base of operations, or has more than one base of operations. <i>Base of operations</i> means the place where the employee is not continuously located, but from which the employee customarily starts out to perform his or her functions in or outside the MCTD. The base of operations is where the employee customarily returns in order to receive instructions from his or her employer, communications from other persons, or to replenish stock and materials, repair equipment used, or to perform any other function necessary in the exercise of his or her trade or profession.
Place of direction and control	An employee’s services are allocated to the MCTD if the employee’s direction and control emanates only from within the MCTD, and the employee performs some services within the MCTD. Direction and control means the place from which the employer directs and controls the activities of the employees. It is not necessarily the location of the principal office, but rather the point from which basic authority over the supervision of services emanates (for example,

¹²⁴ The New York State Department of Taxation and Finance (2014).

the place from which job assignments are made and/or instructions are issued, or the place at which personnel and payroll records are maintained).

Residence

If none of the preceding tests results in a clear allocation of services to the MCTD, the employee's services are allocated to the MCTD if the employee resides in the MCTD and performs some services in the MCTD. If the employee either does not reside in the MCTD, or resides there but performs no services in the MCTD, the employee is not a covered employee.

Source: *The New York State Department of Taxation and Finance (2014)*

If an employee is a 'leased employee' and is also considered 'covered', the MCTMT should be filed by whichever employer pays the social security tax¹²⁵.

If an employee works in more than one location, and they are considered to be a covered employee, then all of the employee's salary is included in the MCTMT (i.e. the payroll expense would not be halved for an employee working in two locations)¹²⁶.

Implementation Note:

Covered employees

There are four tests independent tests which can determine if an employee is 'covered', including:

- Test to identify the employees primary location ('localisation');
- Test to identify the base of a roaming employee ('base of operations');
- Test to identify the location of the persons directing the employees work ('place of direction and control');
- Test to identify the residence of an employee ('residence').

F.5.2.2. Exemptions

Some employees are exempt, even if they are covered according to the tests outlined above. Exempt employees include: students; individuals subject to foreign social security tax; non-resident aliens performing services declared on admission to the United States; individuals performing services on or in connection with a foreign vessel or aircraft; individuals whose income is liable to federal Self Employment Tax (however, MCTMT is imposed on net earnings from self-employment at a rate of 0.34%)¹²⁷.

F.5.2.3. Other Payroll Taxes: New Jersey- New York Waterfront Commission Payroll Tax

In addition to the MCTMT, a payroll tax is also levied by the New Jersey-New York Waterfront Commission on employers within the Port of New York District who employ 'longshoremen, pier superintendents, hiring agents, and port watchmen' a rate of up to 2.0%¹²⁸.

¹²⁵ The New York State Department of Taxation and Finance (2014).

¹²⁶ The New York State Department of Taxation and Finance (2014).

¹²⁷ The New York State Department of Taxation and Finance (2014).

¹²⁸ Ohio Department of Taxation (2004) 'Local taxes: municipal income tax', available at http://www.tax.ohio.gov/portals/o/communications/publications/brief_summaries/2004_brief_summary/municipal_income_tax.pdf. Also see Waterfront Commission of New York Harbour (2012) 'Annual Report 2011-12' available at http://www.waterfrontcommission.org/docs/WCNYH_2012_Annual_Report.pdf.

F.6. Greater Toronto and Hamilton Area, The Big Move

F.6.1. The Big Move

The Big Move is a 25-year integrated transport investment plan for the Greater Toronto and Hamilton Area (GTHA). It was unanimously approved in 2008. Its objective is to improve the city-region's congestion problem and to create an efficient and sustainable transport network that can support economic growth and job creation into the future.

The Big Move has been split into two phases: the First Wave, a CAD16 billion investment package that has already commenced; and the Next Wave, a further CAD34 billion of proposed investments¹²⁹.

The CAD16 billion First Wave, which received funding from government at the local, provincial and national levels, includes investments in the follow projects in the GTHA¹³⁰:

- Toronto-York Spadina Subway Extension;
- Eglinton Crosstown LRT;
- Scarborough RT;
- Finch West LRT;
- Sheppard East LRT; Mississauga BRT;
- York Region VivaNext Rapidways;
- the Union Pearson Express;
- Union Station Upgrades; and
- Go Transit Rail Service Expansion.

The proposed Next Wave, totalling CAD34 billion of investment, includes an equally wide array of projects¹³¹:

- *Underground rail*: Relief Line (CAD7.4 billion); Yonge North Subway Extension (CAD3.4 billion).
- *Light rail and bus rapid transit*: Brampton Queen Street Rapid Transit (CAD600 million); Dundas Street Bus Rapid Transit (CAD600 million); Durham-Scarborough Bus Rapid Transit (CAD500 million); Hamilton Light Rail Transit (CAD1 billion); Hurontario-Main Light Rail Transit (CAD1.6 billion).
- *Main line rail*: GO Rail Expansion (CAD4.9 billion); GO Lakeshore Express Rail Service - Phase 1 (including Electrification) (CAD1.7 billion); Electrification of GO Kitchener line and Union Pearson Express (CAD900 million).
- *Other*: Local transit; roads and highways; active transportation and integration.

F.6.2. Funding

Crucially, the Next Wave currently has a funding gap of approximately CAD2 billion per year¹³².

In order to close this gap, Metrolinx has proposed the creation of a Transportation Trust Fund which includes the implementation of four new funding mechanisms. Metrolinx's current revenue sources are outlined in Figure 10-33 alongside the revenue sources for the City of Toronto (Figure 10-34) and the State of Ontario (Figure 10-35), which also play important roles in funding capital investments and are discussed in more detail below.

¹²⁹ Metrolinx (2013) *Investing in our Region, Investing in our Future*, Toronto: Metrolinx.

¹³⁰ Ibid.

¹³¹ Ibid.

¹³² Ibid.

F.6.2.1. Revenue Tables: Metrolinx, City of Toronto and State of Ontario

Figure 10-33: Metrolinx revenue accounts 2013

	2013 (CAD thousands)	2013 (%)
Operating revenue	385,157	50.4%
Contribution from the Province of Ontario	120,538	15.8%
Investment income	6,602	0.9%
Amortization of deferred capital contributions	251,697	32.9%
Gain on disposal of capital assets	417	0.1%
Total	764,393	100.0%

Source: Metrolinx (2013) 'Annual Report 2012-13: Transforming Transportation' available at http://www.metrolinx.com/en/aboutus/publications/Annual_Report_2012-2013_EN.pdf

Figure 10-34: City of Toronto revenue accounts 2014

	2014 (CAD billions)	2014 (%)
Federal Grants & Subsidies	0.189	2.0%
Provincial Grants & Subsidies	1.866	19.3%
Other Subsidies	0.1	1.0%
Property Taxes	3.762	38.9%
User Fees	1.636	16.9%
Fines & Penalties	0.133	1.4%
Interest & Investment Income	0.206	2.1%
Reserves / Reserve Funds	0.453	4.7%
MLTT	0.356	3.7%
Other Revenues	0.823	8.5%
Transfers from Capital	0.139	1.4%
Prior Year Surplus	0	0.0%
Total	9.662	100.0%

Source: City of Toronto (2014) '2014 Tax Supported Operating and Capital Budget Summary of Council Approvals', available at <http://www1.toronto.ca/City%20Of%20Toronto/Strategic%20Communications/City%20Budget/2014/PDFs/Presentations/2014%20Council%20Operating%20and%20Capital%20Budget%20->

Figure 10-35: State of Ontario revenue accounts 2012-13

	2012-13 (CAD Millions)	2012-13 (%)
Personal Income Tax	25,574	22.6%
Sales Tax	20,957	18.5%
Corporations Tax	12,093	10.7%
Education Property Tax	5,511	4.9%
Employer Health Tax	5,137	4.5%
Gasoline and Fuel Taxes	3,100	2.7%
Ontario Health Premium	3,067	2.7%
Other Taxes	3,979	3.5%
Total Taxation	79,418	70.1%
Transfers from Government of Canada	21,661	19.1%
Income from Investment in Government Business Enterprises (Schedule 9)	4,469	3.9%
Other	7,821	6.9%
Total	113,369	100.0%

Source: State of Ontario (2013) 'Ministry of Finance Public Accounts of Ontario 2012-2013' available at http://www.fin.gov.on.ca/en/budget/paccts/2013/13_cfs.html#operations

The proposed new funding mechanisms are as follows: a 1% increase to the Harmonized Sales Tax; a five cent per litre increase to the Fuel and Gasoline Tax; a Business Parking Levy; and updated and amended development charges.

F.6.2.2. Harmonized Sales Tax

A 1% increase in the harmonized sales tax would generate an estimated CAD1.3 billion (real 2014 prices) per year (this figure is net of a proposed Mobility Tax Credit which would be imposed alongside the tax increase and would provide an estimated CAD105 million per year tax relief for low income groups)¹³³.

Currently the sales tax in Toronto is 13%, of which 5% is levied by the federal government and 8% is levied by the Province of Ontario. The additional 1% would take the total tax rate up to 14%, in line with the current rates in Prince Edward Island (14%) and below the rates levied in Nova Scotia and Quebec (both 14.975%)¹³⁴.

F.6.2.3. Fuel and Gasoline Tax

A new local fuel and gasoline tax of 5¢/litre within the GTHA is forecast to raise CAD330 million (real 2014 prices) per year by 2021¹³⁵. This tax would apply in addition to any increase in sales tax (as described above)

¹³³ Ibid.

¹³⁴ Ibid.

which is also payable on fuel and gasoline. In combination, the rise in fuel prices would be equivalent to 5.7¢/litre¹³⁶.

Currently, the GTHA does not have a local fuel tax. Instead, a national fuel tax of 10¢/litre is payable to the federal government and a provincial tax of 14.7¢/litre is payable to the Province of Ontario (Figure 10-36)¹³⁷. The 5¢/litre local fuel tax would exist on top of these other taxes.

Other Canadian cities like Vancouver and Montreal currently levy local fuel taxes. Even if the tax increase occurs in the GTHA, total rates of fuel tax payable at the pumps would remain lower in the GTHA.

The existing collection mechanism for the Province of Ontario’s fuel tax could be used to collect the local GTHA fuel tax.

Figure 10-36: Comparison of Canadian fuel prices and taxes

	Vancouver	Montreal	GTHA
Average Regular Gas Price – April 2012 to April 2013 (cents/L)	134.9	136.6	126.1
Federal Fuel and Gasoline Tax (cents/L)	10	10	10
Provincial Fuel and Gasoline Tax (cents/L)	8.5	17.2	14.7
Local Fuel and Gasoline Tax (cents/L)	17	3	5
Provincial Carbon Tax on Fuel (cents/L)	6.67	-	-
Total Excise Fuel and Gasoline Tax (cents/L)	42.2	30.2	29.7
Sales Tax (HST, GST or GST + QST)	5%*	14.975	14%**
Total impact of Fuel and Gasoline tax (cents/L)	44.3	34.7	33.9
Sales Tax (excluding impact on fuel and gasoline tax) (cents/L)	4.3	13.2	12.2
Total taxes on fuel and gasoline (cents/L)	48.6	48	46**

* The B.C. HST is 12 percent but the 7 percent Provincial portion is refunded at the point of sale and replaced with the carbon tax on fuel.

** Includes proposed Investment Strategy investment tools.

Source: Metrolinx (2013).

F.6.2.4. Business Parking Levy

A business parking levy on off-street, non-residential parking spaces is forecast to raise CAD350 per year¹³⁸. The estimated average cost of the levy would be 25¢ per day, although the specific charge would be based on the relative market value of the parking space at hand. The levy would be paid by owners of commercial parking (i.e. businesses)¹³⁹.

¹³⁵ Ibid.

¹³⁶ Ibid.

¹³⁷ Ibid.

¹³⁸ Ibid.

¹³⁹ Ibid.

F.6.2.5. Development Charges

In 2011, approximately CAD870 billion in development charges were collected in the GTHA¹⁴⁰. Increasing in the existing development charge rates in the GTHA by an average of 15% would raise an additional CAD100 million (real 2014 prices) per year by 2021¹⁴¹.

The change would require amendments to the 1997 Development Charges Act which imposes a cap on current development charges.

The 15% increase is not expected to affect the levels of development in the GTHA or have any other negative economic impacts.

F.6.3. The challenges of implementing changes to Toronto's tax system

Although the Metrolinx proposals for funding the Next Wave gained initial support, the Premier of Ontario has recently suggested that the creation of a local fuel tax in the GTHA and an increase in the harmonized sales tax would not go ahead¹⁴².

This decision reflects the pressure on politicians within the GTHA to relieve the pressure on middle income groups. While there has been no announcement on what other funding mechanisms would be used to fill the Next Wave's annual funding gap of CAD2 billion, the Premier's decision to oppose tax highlights the challenges of implementing new funding mechanisms and tax increases.

F.6.4. Other revenue sources: Metrolinx, City of Toronto and State of Ontario

Currently, the main revenue source of the City of Toronto is property tax, which is forecast to generate CAD3.8 billion in revenues for the City in 2014 (38.9% of total revenue). It also has access to user fees (16.9% of revenues) and a Municipal Land Transfer Tax (MLTT) (3.7%) (see Figure 10-34). The proposed fuel tax would provide a further source of local taxation.

F.6.4.1. City of Toronto Municipal Land Transfer Tax (MLTT)

The MLTT is a property transfer tax that is levied on the purchaser of a property within the City of Toronto and is charged a tiered rate that depending on the value of the property at the point of sale.¹⁴³

If a property is worth CAD500,000, the purchaser must pay MLTT at a rate of 0.5% on the first CAD55,000, 1.0% on the next CAD345,000 and 2.0% on the last CAD100,000. In 2014, the MLTT is expected to generate CAD356 million for the City of Toronto.

Figure 10-37: Toronto's Municipal Land Transfer Tax rates (properties containing at least one and not more than two single family residences)

Property Value	MLTT Rate
Up to CAD55,000	0.5%

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² Brennan, R. J. (2014) 'Kathleen Wynne vows no increase to HST, gas tax for transit plans', available at http://www.thestar.com/news/queenspark/2014/03/13/wynne_vows_no_increase_to_hst_gas_tax_for_transit_expansion.html.

¹⁴³ KPMG and AECOM (2012) *Big Move Implementation Economics: Revenue Tool Profiles*, Markham, ON: AECOM.

Between CAD55,000 – CAD400,000	1.0%
Over CAD400,000	2.0%

Source: KPMG and AECOM, 2012.

F.6.4.2. City of Toronto's Capital Budget

The City of Toronto's 2014 capital investment budget CAD2.212 billion. Of this, CAD916 million goes directly to the Toronto Transit Commission, CAD306 million to other transportation services, CAD201 million to the Spadina Subway Extension, CAD15 million to Scarborough Subway Extension¹⁴⁴.

¹⁴⁴ City of Toronto (2014) '2014 Tax Supported Operating and Capital Budget Summary of Council Approvals', available at <http://www1.toronto.ca/City%20Of%20Toronto/Strategic%20Communications/City%20Budget/2014/PDFs/Presentations/2014%20Council%20Operating%20and%20Capital%20Budget%20->.

F.7. Chicago, the Chicago Transit Authority

F.7.1. The Chicago Transit Authority Funding Model

The Chicago Transit Authority (CTA) is funded through a combination of system-generated revenue, including fares, advertising and investment income, and public funding which is made available through the Regional Transportation Authority (RTA), the regional authority for north eastern Illinois. For 2013, system generated revenue accounts for 49.8% of the CTA's total revenue and public funding accounts for 50.2%¹⁴⁵.

The RTA – whose own funding for 2014 is made up of 39.9% operating revenue and 60.1% public funding (from a range of sources)¹⁴⁶ – distributes funds to the three main service boards in the region (CTA, Metra, Pace and ADA Paratransit). The exact distribution of revenues to the service boards depends on the revenue generated by each specific source of public funding, and on any formula or percentage allocation within each source of funding (Figure 10-38). Public funding available through the RTA is budgeted to be \$708.9 million in 2014.

Figure 10-38: RTA Public Funding Sources and distribution to service boards, 2014

	Tax rate/ Funding	Retained by RTA	CTA	Metra	Pace and ADA Paratransit
RTA Sales Tax Part I	1.0% (Cook County) and 0.25% (DuPage, Kane, Lake, McHenry, and Will Counties)	15% of total	(Of remaining 85%) 100% collected in the City of Chicago; 30% collected in Suburban Cook County	(Of remaining 85%) 55% collected in Suburban Cook County; 70% collected in Collar Counties	(Of remaining 85%) 15% collected in Suburban Cook County; 30% collected in Collar Counties
RTA Sales Tax Part II (2008 legislation)	0.25% all six counties	Some special uses	48% (after special uses)	39% (after special uses)	13% (after special uses)
Real Estate Transfer Tax (RETT)	\$1.50 per \$500 of property transferred in Chicago	0%	100%	0%	0%
Public Transportation Fund (PTF) Part I	State of IL provides 25% match funding of Sales Tax I receipts	100%	0%	0%	0%
Public Transportation Fund (PTF) Part II	State of IL provides 5% match funding of Sales Tax I receipts and provides 30% match funding of Sales Tax II receipts	0%	48%	39%	13%
State Financial Assistance	State of IL provides assistance for RTA debt service	100%	N/A	N/A	N/A

¹⁴⁵ CTA (2014) 'Modernizing Transit for the Future, President's 2014 Budget Recommendations', available at http://www.transitchicago.com/assets/1/finance_budget/2014_Budget_Book_Final_Web_Version.pdf.

¹⁴⁶ Regional Transportation Authority (2014) 'Operating Budget, Two-Year Financial Plan and Five-Year Capital Program' available at <http://www.rtachicago.com/images/stories/2014%20Budget%20Book.pdf>.

State Reduced Fare Reimbursement	State of IL reimburses the cost of reduced fare and free ride programs	N/A	Allocation to meet funding needs	Allocation to meet funding needs	Allocation to meet funding needs
---	--	-----	----------------------------------	----------------------------------	----------------------------------

Source: RTA, 2014

Figure 10-38 illustrates that the key locally raised sources of funding for the CTA are: 100% of sales tax (I) collected in the City of Chicago and 30% collected in Suburban Cook County (after a 15% RTA allocation); 48% of sales tax (II); and 100% of Chicago Real Estate Transfer Tax (RETT). The revenues generated by the CTA from these funding sources are highlighted in Table 2.

Figure 10-39: Selected locally raised sources of funding for the CTA, 2014

	2014 proposed funding (\$ thousands)
RTA Sales Tax Part I	335,566
RTA Sales Tax Part II (2008 legislation)	117,256
Real Estate Transfer Tax (RETT)	47,859

Source: CTA (2014)

F.7.2. Other taxes in Chicago

It should be noted that the taxes remitted to the CTA (via the RTA) are often hypothecated components of other taxes and/or exist alongside separate levies from other levels of government.

For example, in addition to the CTA’s RETT (\$1.50 per \$500 of the transfer price), a RETT is also levied by the City of Chicago (\$3.75 per US\$500), the State of Illinois (\$0.5 per US\$500), and Cook County (\$0.25 per US\$500), taking the total RETT tax rate in Chicago to \$6 per US\$500 (1.2%)¹⁴⁷.

Similarly, the total rate of sales tax in Chicago is 9.25% (State of Illinois - 5.00%; Cook County 0.75%; City of Chicago ‘Municipal’ - 1.00%; City of Chicago ‘Home Rule’ - 1.25%; RTA - 1.25%)¹⁴⁸.

¹⁴⁷ City of Chicago (2014) “Real Property Transfer Tax (7551)” available at http://www.cityofchicago.org/city/en/depts/fin/supp_info/revenue/tax_list/real_property_transfertax.html. Also see Civic Federation (2014) ‘Selected Consumer Taxes in the City of Chicago,’ http://www.civicfed.org/sites/default/files/SelectedConsumerTaxes_2014.pdf.

¹⁴⁸ Civic Federation (2014).

F.8. Melbourne, Gold Coast and Sydney Betterment Levies

F.8.1. Melbourne, Benefited Area Levy

F.8.1.1. Benefited Area Levies (BALs)

The purpose of a BAL (also referred to as a ‘benefit assessment district’ or ‘betterment levy’) is to ensure that the property owners and businesses which benefit from a new public investment in infrastructure bear some of the cost of that investment. Rather than taxing a proportion of any uplift in property value caused by the infrastructure development, BALs impose a supplementary levy on top of the property taxes already payable within a geographically defined area that is expected to directly benefit from the infrastructure investment.

F.8.1.2. The Melbourne Underground Rail Link BAL

Melbourne Underground Rail Link (MURL or ‘City Loop’), completed in 1981, received 25% of its funding from a BAL. The BAL funding mechanism collected supplementary property tax payments from businesses in Melbourne’s central business district (CBD) over a period of 32 years between 1963 and 1995.

The MURLs other funding sources included a public transport ticket levy imposed by the Victorian Government (which contributed 50% of total funding) and a grant from the Melbourne Metropolitan Board of Works (25%).

F.8.1.3. New Melbourne Rail Link

The new Melbourne Rail Link is a proposed AUD11 billion transport infrastructure project that could use a BAL as part of the funding package¹⁴⁹. Melbourne City Council has drawn up plans to use one of three different funding variations of BAL to fund the Metro project. First, like the MURL, the BAL could operate as a supplement – either on a flat rate or on a sliding scale – on business rates for properties based in the CBD. Second, the BAL could impose a levy on the taxable value of both residential and business properties located within geographically defined areas around the new Rail Link’s stations. Third, the BAL could include a payroll tax supplement for businesses in the CBD, calculate using a progressive tax rate depending on a company’s payroll value. Using the first option (supplementary business rate), forecasts indicate that a BAL could generate 26% the cost of project delivery¹⁵⁰. Other proposed funding mechanisms include ticket surcharges, development right sales and tax increment financing.

F.8.2. Gold Coast, Broad-Based Transport Improvement Levy

Gold Coast Rapid Transit Light Rail Line is a transformative tram line in the City of Gold Coast in Queensland, Australia. Stage 1 of the project is worth AUD1 billion and will contribute 13km of new line which will include new 16 stations¹⁵¹. If rolled out, further stages would create a transit corridor totalling 40km in length.

F.8.2.1. Funding

To date, Gold Coast Rapid Transit Rail Line has secured AUD949 million from three different funding sources.

¹⁴⁹ Victorian Department of Treasury and Finance (2014) *Victorian Budget 2014-15: Building a Better Victoria*, Melbourne: Department of Treasury and Finance.

¹⁵⁰ Hale, C. (2014) ‘City Rail Infrastructure Funding: International background and policy options for funding transit’ available at http://www.melbourne.vic.gov.au/BuildingandPlanning/FutureGrowth/ExternalProjects/Documents/City_rail_infrastructure_funding_Dr_Chris_Hale.pdf.

¹⁵¹ Committee for Melbourne (2012) ‘Moving Melbourne: a transport funding and financing discussion paper’, available at <http://www.melbourne.org.au/docs/moving-melbourne--a-transport-funding-and-financing-discussion-paper.pdf>.

First, the Queensland State Government has committed AUD464 million of grant funding. Second, the project has also been granted AUD365 million by the national government. The third source of funding is from a BAL levied by Gold Coast City Council. The BAL, referred to as a 'broad-based transport improvement levy' (BBTIL), is charged at a flat rate of AUD111 per year (real 2012 prices) and is expected to generate AUD120 million.¹⁵²

Unlike the BAL proposed by Melbourne City Council above, Gold Coast's BBTIL is charged on a city-wide basis, rather than within a specified benefit district.

F.8.3. Sydney, Betterment Levy

In 1970 the New South Wales government passed two Acts that enabled the New South Wales State Planning Authority to implement a betterment levy within the Sydney metropolitan area. The levy was imposed on land that was rezoned from rural land use to a range of urban land uses and was levied at a rate of 30% of any land value increases that resulted from the land rezoning process.¹⁵³ Revenues were ring-fenced for spending on infrastructure within 'new urban areas' in order to facilitate and support the city's expansion.

In FY 1972/3, the betterment levy raised AUD9 million (nominal). However, the levy also placed pressure on land values and further squeezed the supply of affordable land and housing in Sydney at the time. As a result, the levy was abandoned on the back of growing political pressure in the lead up to the 1973 state election.¹⁵⁴

Although the Sydney example provides evidence to suggest that it is possible to generate revenues through the taxation of uplifts in property values, it also demonstrates the political and economic challenges of implementing a funding mechanism which has relatively limited fund-raising potential.

¹⁵² Committee for Melbourne (2012).

¹⁵³ Australian Railways Association (2014) 'Innovative Funding and Financing for Public Transport Report' available at <http://www.ara.net.au/publications-list?task=track&id=716&url=%2FUserFiles%2Ffile%2FPublications%2F14-02-14+REPORT-Innovative-Funding-and-Financing-for-Public-Transport-FINAL+%281%29.pdf>.

¹⁵⁴ Ibid.

