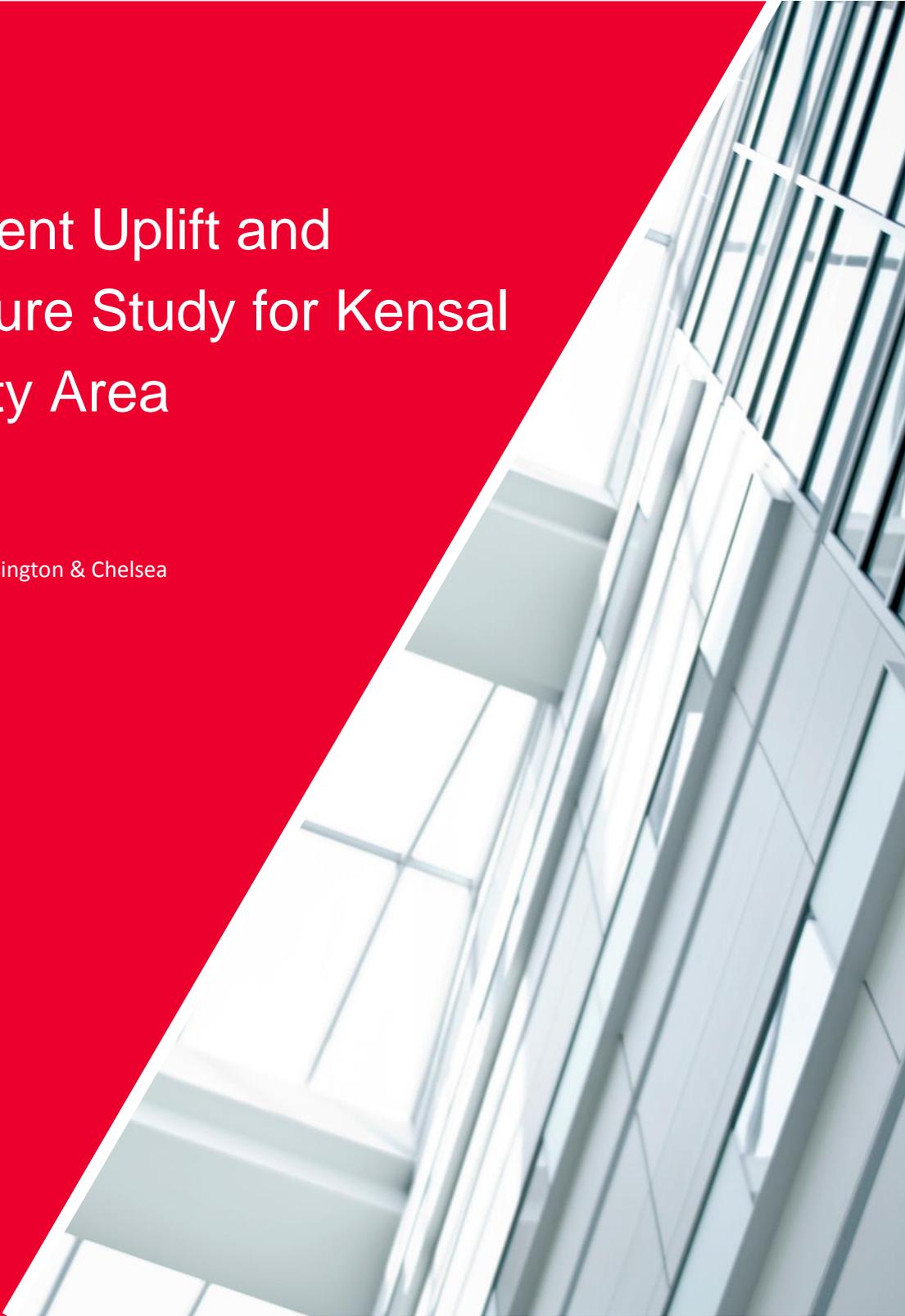


Development Uplift and Infrastructure Study for Kensal Opportunity Area

September 2015

Prepared for:

The Royal Borough of Kensington & Chelsea



Contents

Contents	2
1. Scope of Commission	4
1.1. Background	4
1.2. C&W's Brief & Scope of Work	6
1.3. Level of Analysis	6
1.4. Documentation	6
2. Development Densities	9
2.1. PTAL Impact	9
2.2. Scenario 1: The Site Without Crossrail	10
2.3. Scenario 2 - The Site With Crossrail (The Potential for 4,000 Homes)	16
2.4. Scenario 3 (i & ii) - The Site With Crossrail (Maximum Development Quantum)	17
2.5. Summary of Scenarios	18
3. Crossrail Impact	19
3.1. Development Densities – The Impact of Transport Infrastructure Upgrades	19
3.2. Development Values	25
3.3. Europe	28
3.4. Developer Perceptions & Response	34
4. Block Planning	36
4.1. Methodology & Assumptions	36
4.2. Scenario 1	38
4.3. Scenario 2	39
4.4. Scenario 3 (High)	40
5. Economic Impact Assessment	42
5.1. Methodology	42
5.2. Overall	42
5.3. Benefits from Employment Floorspace	43
5.3.1. Permanent Jobs from the Employment Floorspace	43
5.3.2. GVA from the Employment Floorspace	44
5.3.3. Construction Jobs	44
5.3.4. Construction GVA	44
5.4. GVA / Benefits from the Residential Units	45
5.4.1. Council Tax Revenues	45
5.4.2. New Homes Bonus	45
5.4.3. Increased Spend from the Additional Population	46
5.5. GVA Summary	47
6. Timescale of Delivery & Deliverability	48
6.1. Timescale	48
6.2. Deliverability	48
7. Cost & Requirements of a Station & Associated Infrastructure	50
7.1. Bridges Feasibility Cost Estimate	50
7.1.1. Road Bridge – Single Span	50
7.1.2. Road Bridge – Double Span	51
7.1.3. Pedestrian Bridge – Footbridge Over Canal	51

7.1.4. General – Site Fill	52
7.1.5. Other Developments Costs & Exclusions & Assumptions	52
7.1.6. Inflation	52
7.2. Station Feasibility Stage Cost Estimate	53
7.3. Overall Costings	54
8. Development Uplift	56
8.1. Impact on Existing Assets	57
8.2. Impact on the Typical Development Pipeline	57
8.3. Long Term Planned Development	62
9. Funding Mechanisms	65
9.1. Funding from Development on ‘the site’	65
9.1.1. Forms of Funding	65
9.1.2. Pay Back Mechanisms	67
9.2. Funding from the 1km Study Area	69
9.3. Indicative Phasing Plan for Payments & Infrastructure Delivery	70
10. Conclusion	71
10.1. Part 1	71
10.2. Part 2	71

1. Scope of Commission

1.1. Background

The Royal Borough of Kensington & Chelsea (RBKC) commissioned Cushman & Wakefield (C&W) to provide a report on the financial appraisal of development scenarios in the Kensal Opportunity Area, 'the site', with specific emphasis on the land known as the North Pole Depot.

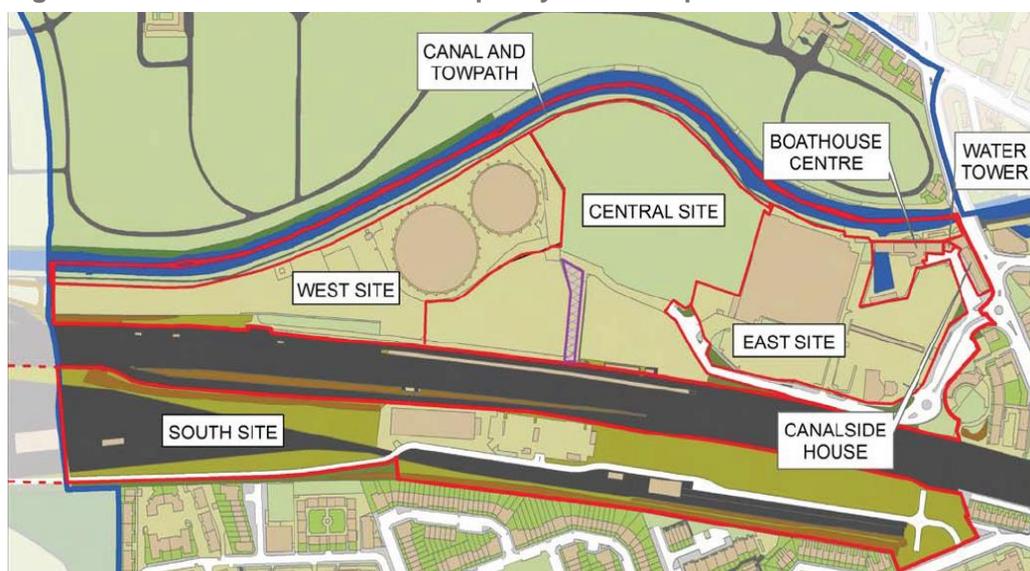
C&W understand (and has sought to check through the available mapping data) that the sites as shown in Figure 1 & 2, total circa 17.4 ha and consists of:

- Kensal North: Kensal Gasworks and adjacent land (circa 11.6 hectares)
- Kensal South: The portion of North Pole Depot which sits within the RBKC (circa 5.8 hectares)

Figure 1 - Red Line Plan of the Site



Figure 2 - Red Line Plan of the Site Split by Ownership

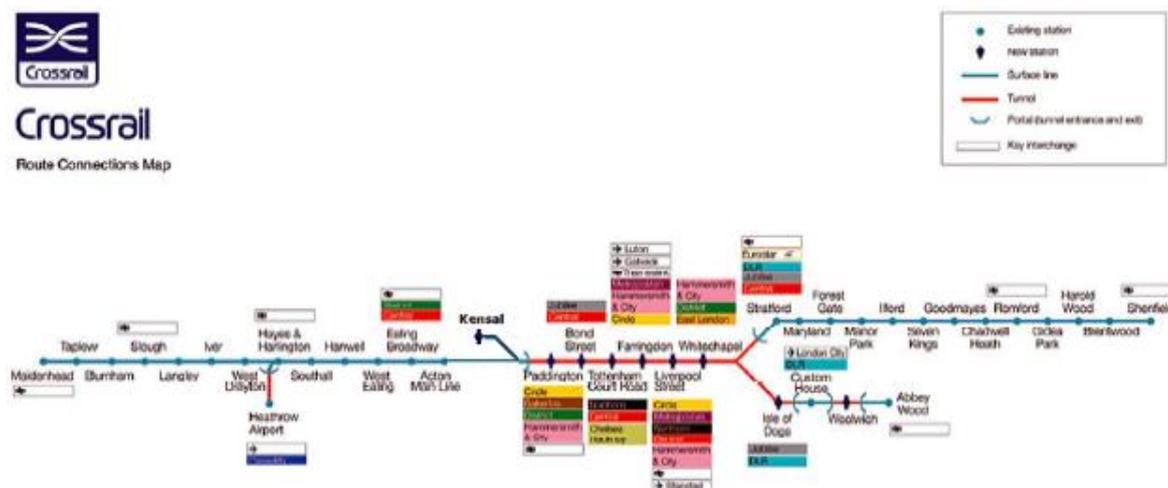


The purpose of the analysis is ultimately to inform the RBKC’s ongoing efforts to secure a Kensal Portobello Crossrail station and to help provide further evidence to Transport for London (TfL) that a Crossrail station in this location is beneficial for both the borough and the surrounding authorities. This station would be a ‘turn back’ station in the north part of the borough near to the boundaries with the London Borough of Brent (LBB), City of Westminster and the London Borough of Hammersmith & Fulham (LBHF). The location of the proposed Crossrail station is illustrated on Figure 3 and in the context of the full, planned Crossrail route in Figure 4.

Figure 3 - Location of the Proposed Kensal Crossrail Station



Figure 4 - Proposed Kensal Crossrail Station in the Context of the Crossrail Line



The site is relatively isolated and subject to significant infrastructure constraints. The North Pole Depot area which falls within the southern site area has been identified as essential for the development of High Speed 2 (HS2) (although this has been the subject of examination as part of the RBKC’s response to the HS2 Bill in July 2015) whilst part of the area is hoped to be the location for a potential Kensal Portobello Crossrail Station. To this end, the development of the site will need to link with the surrounding communities so that residents on both sides of the existing railway line can access and benefit from a new Crossrail station.

1.2. C&W's Brief & Scope of Work

C&W's brief was to model 2 to 3 development scenarios in order to analyse development uplift and development value uplift both with and without a Crossrail station. Each scenario is to assume that the existing 295 bus service would be extended by one stop further along Canal Way. The development scenarios are:

- 1) A development of a reasonable number of units that the market could expect without a Crossrail station on the site (but with the improvements and extensions to bus services).
- 2) 4,000 homes with a Crossrail station on the site.
- 3) If C&W's calculations suggest 4,000 homes is unlikely to come forward or that 4,000 plus units is a reasonable assumption, C&W will also model the maximum quantum of development that the market would comfortably expect on a site like this with a Crossrail station.

1.3. Level of Analysis

This assessment is based on scenarios which are at a very early stage of development and would require detailed due diligence and viability testing prior to coming forward; importantly, they would also require agreement between various landowners as the RBKC has very limited land ownership within the site. However, we consider the scenarios are advanced enough for this level of assessment and in order to understand the scale of the difference in outputs between the various scenarios and relationship to the development of the proposed station.

It should be noted that, in particular, the costings utilised in this assessment are high level with significant potential for change in areas such as infrastructure and site servicing.

For the avoidance of doubt, no advice within this report is to be taken as C&W's formal opinion of value. The commentary relates to scenarios and analysis which is based on information provided by third parties and high level, hypothetical scenarios (although, we consider these to be broadly deliverable in planning terms). No values referred to in this report are covered by the RICS Valuation – Professional Standards January 2014 (Red Book).

1.4. Documentation

In completing this report, as well as utilising general property databases and information sources, we have relied upon the following:

- London's Top Property Growth Areas. January 2013. <http://www.homesandproperty.co.uk/property-news/new-homes/londons-top-property-growth-areas>
- Property Prices near London Crossrail Set to Outperform Local Markets. April 2015. <http://www.propertywire.com/news/europe/uk-crossrail-property-prices-2015040810359.html>
- GVA Property Impact Report
- GVA Crossrail Property Impact Study, October 2012.
- Mayor of London, The London Plan. The Spatial Development Strategy for London Consolidated with Alterations Since 2011. March 2015.
- London Plan Density Matrix Review, June 2006.
- Mayor of London, The London Plan. Spatial Development Strategy for Greater London. July 2011.

- WebCAT, TfL. <https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-with-webcat/webcat?lat=51.52801&lon=-0.2168&type=Ptal&locationId=ChIJffW5YjwQdkgRxHOeEfR49S0&input=W10+4RA&scenario=2011+%28B+ase+year%29>
- The RBCK Core Strategy, Strategic Sites Allocations, Adopted 8 December 2010: Section 2, Delivery Strategy.
- Nine Elms and North East Battersea. Outline Feasibility Studies and Business Cases for Tram and Tube Options. Steer Davies Gleave. February 2008. http://persona.uk.com/NLE/B-Core_docs/C/NLE_C1.pdf
- Taylor Wimpey plans mixed-use Battersea Park East scheme. Out-Law.com. February 2014. <http://www.out-law.com/en/articles/2014/february/taylor-wimpey-plans-mixed-use-battersea-park-east-scheme/>
- Evening Standard. Homes within Walking Distance of Crossrail Stations 'see value boosted by up to £170,000' (based on Groundsure Crossrail Report, 2015). June 2015. <http://www.standard.co.uk/news/london/homes-in-walking-distance-of-crossrail-stations-see-value-boosted-by-up-to-170000-10346840.html>
- Knight Frank. Residential Research. Crossrail – Analysing Property Market Performance from Reading to Sheffield. 2015.
- Estates Gazette. Transport Must Drive Regeneration. July 2015. <http://www.egi.co.uk/news/transport-must-drive-regeneration/>
- London's Infrastructure: Investing for Growth. London First. March 2015.
- Additionality Guide: Fourth Edition, HCA, 2014.
- Employment Densities Guide, Drivers Jonas Deloitte & HCA, Second Edition, 2010.
- Construction Jobs Guidance Note, OffPAT, 2009.
- Economic Impact of a Crossrail Station in North Kensington. A Report Note by Regeneris Consulting.
- James Buckley. Crossrail 2 Could Add £32bn to Resi Values. <http://www.costar.co.uk/en/assets/news/2014/June/Crossrail-2-could-add-32bn-to-resi-values/>
- Track to the Future. 2014. Carter Jonas. <http://www.carterjonas.co.uk/~media/Publications/Track%20to%20the%20Future%20REPORT%20June%202014.ashx>
- TfL. July 2004. Jubilee line raises land value by estimated £2.8 billion (bn) at Canary Wharf and Southwark Tube stations. <http://www.labourland.org/downloads/articles/jle-land-value-press-release.pdf>
- Response of Residential Property Values to the Replacement of Limited-stop Bus Service with Bus Rapid Transit- An Analysis of New York City's BX12 Select Bus Service. Curley, M. May 2012.
- Local Government in England: Capital Finance. April 2014. SN/PC/05797. <http://researchbriefings.files.parliament.uk/documents/SN05797/SN05797.pdf>
- Brent Council Approves Plans to Convert Kensal Rise Library into Flats. July 2014. Myron Jobson. http://www.kilburntimes.co.uk/news/heritage/brent_council_approves_plans_to_convert_kensal_rise_library_into_flats_1_3689204
- Kensington and Chelsea Adopted Core Strategy 2010 (Strategic Site Allocations)

- Community Infrastructure Levy Charging Schedule – Mayor of London. Agreed by the Mayor 29 February 2012, Takes Effect from 1st April 2012.
<http://www.london.gov.uk/sites/default/files/CIL%20charging%20schedule%20April%202012.pdf>
- Mayoral CIL. London.gov.uk. <http://www.london.gov.uk/priorities/planning/mayoral-community-infrastructure-levy>
- Housing Zones: Prospectus. <https://www.gov.uk/government/publications/housing-zones-prospectus>
- Housing Zones. <https://www.london.gov.uk/priorities/housing-land/increasing-housing-supply/housing-zones>
- Bedford Sets Out to Accelerate Growth. February 2006.
<http://www.planningresource.co.uk/article/542912/bedford-sets-accelerate-growth>
- http://www.wandsworth.gov.uk/news/article/12088/northern_line_extension_inquiry_begins
- NLE: EZ and borough s106/CIL contribution. 4 March.
<http://modern.gov.lambeth.gov.uk/documents/s54296/Borough%20NLE%20contribution%20v12%20Lambeth%20clean.pdf>
- LIF. Prospectus. DCLG. February 2013:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/88479/20130220_-_Local_Infrastructure_Fund.pdf
- Housing Review – Estate Comparison Document – 20140424 (Treverton)
- RBCK CIL Instalments Policy February 2015
- The Mayor of London CIL Instalments Policy
- RBKC CIL Regulation 123 List (April 2015)

2. Development Densities

2.1. PTAL Impact

TfL's 'Public Transport Access Level' (PTAL) scorings provide a benchmark for public transport site accessibility. PTAL scorings are typically used across London in order to help determine site densities and allocations. Development becomes progressively more viable with rises in the PTAL score (with other conditions remaining the same).

The PTAL value combines information about how close public transport services are to a site and how frequent these services are. The highest level of connectivity has a PTAL of 6b and the lowest has a PTAL of 0.

The PTAL score takes into account:

- Walk times to bus stops within 640 metres of the point of interest and to stations within 1 km;
- The number of separate PT services available at each PT access point (e.g. different bus services at a given bus stop);
- A mode-specific factor for the reliability of each of the PT services available; and
- The service frequency for each PT mode, and hence average waiting time at the PT access point.

However, PTALs do not measure or reflect the following:

- The journey times offered by PT services, influencing the number of employment or shopping opportunities available within defined isochrones;
- The need for, and ease of, changing modes and services; interchange incurs delays and other penalties which will reduce the attractiveness of the PT services available at any given PT access point;
- The capacity/crowding of the PT available services, either in terms of boarding at the PT access point or along the whole route;
- The different attractiveness of different PT modes for different types of journey; and
- The spatial and over-time distribution and purpose (work, shopping, leisure etc.) of potential travel demand from the point of interest.

The London Plan and various other policy documents refer to accessibility indicators in relation to optimising housing output and potential development sites; the London Plan states that higher density provision should be focused on areas with good PTALs. It emphasises that sites with better connectivity provide opportunities for development at higher range of densities and sustainable development reducing the need to use private transport. As such the 2006 London Plan Density Matrix Review includes density guidelines in habitable rooms per hectare (hr/ha) and units per hectare (u/ha), see Figure 5. Note that the 2011 London Plan states that residential density figures should be based

Central – areas with very dense development, a mix of different uses, large building footprints and typically buildings of four to six storeys, located within 800 metres walking distance of an International, Metropolitan or Major town centre.

Urban – areas with predominantly dense development such as, for example, terraced houses, mansion blocks, a mix of different uses, medium building footprints and typically buildings of two to four storeys, located within 800 metres walking distance of a District centre or, along main arterial routes

Suburban – areas with predominantly lower density development such as, for example, detached and semi-detached houses, predominantly residential, small building footprints and typically buildings of two to three storeys.

on net residential area, which includes internal roads and ancillary open spaces. The recommended densities shown in Figure 5 are reflective of the type of development that surrounds the site in question and are related to setting, existing building form and massing and the PTAL index. The settings are defined as follows in the 2011 London Plan:

Figure 5 - Recommended Revised Density Matrix, London Plan Density Matrix Review June 2006.

<i>Density, Setting and Accessibility Matrix</i>			
Setting	Public Transport Accessibility Level (PTAL)		
	0 to 1	2 to 3	4 to 6
Suburban	150-200 hr/ha	150-250 hr/ha	200-350 hr/ha
Urban	150-250 hr/ha	200-450 hr/ha	200-700 hr/ha
Central	150-300 hr/ha	300-650 hr/ha	650-1100 hr/ha

<i>Density and Dwelling Size Matrix</i>				
Dwelling Size Requirement	Public Transport Accessibility Level (PTAL)			
	0 to 1	2 to 3	4 to 6	
Suburban	3.8-4.6 hr/unit	35-55 u/ha	35-65 u/ha	45-90 u/ha
	3.1-3.7 hr/unit	40-65 u/ha	40-80 u/ha	55-115 u/ha
	2.7-3.0 hr/unit	50-75 u/ha	50-95 u/ha	70-130 u/ha
Urban	3.8-4.6 hr/unit	35-65 u/ha	45-120 u/ha	45-185 u/ha
	3.1-3.7 hr/unit	40-80 u/ha	55-145 u/ha	55-225 u/ha
	2.7-3.0 hr/unit	50-95 u/ha	70-170 u/ha	70-260 u/ha
Central	3.8-4.6 hr/unit	35-80 u/ha	65-170 u/ha	140-290 u/ha
	3.1-3.7 hr/unit	40-100 u/ha	80-210 u/ha	175-355 u/ha
	2.7-3.0 hr/unit	50-110 u/ha	100-240 u/ha	215-405 u/ha

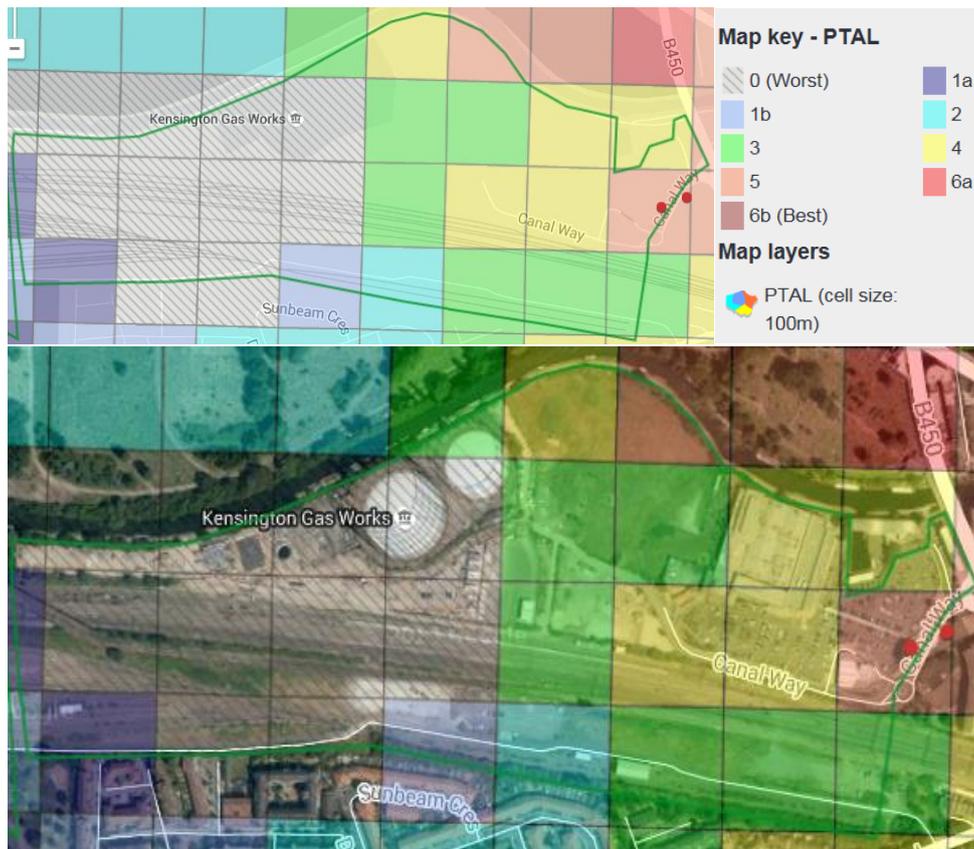
2.2. Scenario 1: The Site Without Crossrail

PTAL Areas

C&W has reviewed the PTAL scorings for the site using the Connectivity Assessment Toolkit, WebCAT, which provides PTAL maps calculated using a grid of points at 100m intervals across Greater London. The 2011 (base year) PTAL output map is provided in Figure 6. It shows that the PTAL score for the site ranges between 0 and 5. The high PTALs on the eastern edge of the site are due to the access provided by bus services along Ladbrooke Grove. PTAL calculations use a maximum walk distance of 640m for bus stops and 960m for rail station; this methodology combined with the physical barriers that constrain the Kensal Canalside OA (rail infrastructure and canal), leads to varied and low PTALs across parts of the Kensal Canalside OA.

The WebCAT tool also provides a 2021 and 2031 PTAL forecast which indicate in the case of the Kensal Site that there is no change envisioned in terms of PTAL scores based on major public transport network improvements including schemes held in TfL's committed and funded transport investment programme as well as improvements in bus services based on the base year network with 3% uplift. The forecast scenarios do not include the impact of an extended and improved bus service into the site or any significant improvement in transport provision through new stations/ lines such as a Crossrail.

Figure 6 - WebCAT PTAL Map (2011 Base Year) & Scores Calculated



C&W has calculated the PTAL areas at the site based on Figure 5 above (see Table 1).

Table 1 - C&W's Calculations of Areas & PTAL Scores Excluding the Bus Route Extension / Improvements

PTAL areas based on WebCAT (excluding bus service extension)*	
PTAL Scoring Range	Area ha
0-1	c. 7.0
2-3	c. 5.5
4-6	c. 4.9
TOTAL	c. 17.4

*This area calculation is based on our interpretation and manual measurement of the WebCAT PTAL Output Map, Figure 6, and so is not exact.

A more up to date PTAL map is included in the Steer Davies Gleave (SDG) February 2015 Report which also has the benefit of additional maps which incorporate the impact of bus service improvements and extension. However, the difficulty in interpretation and manual measurement of the maps is heightened for the SDG maps which lack guidelines.

Figure 7 shows a similar outcome to the map above produced by C&W using WebCAT with current PTALs varying from a high of 4 on the eastern edge of the site to a low of 0, with the majority of the site between 0 and 3. However, it shows a significantly smaller proportion of the site as within the 4-6 PTAL scoring range.

Figure 7 - SDG Report Current Year PTAL Map



As before C&W has calculated the PTAL areas at the site based on Figure 5 (see Table 2).

Table 2 - C&W's Calculations of Areas & PTAL Scores Excluding the Bus Route Extension / Improvements

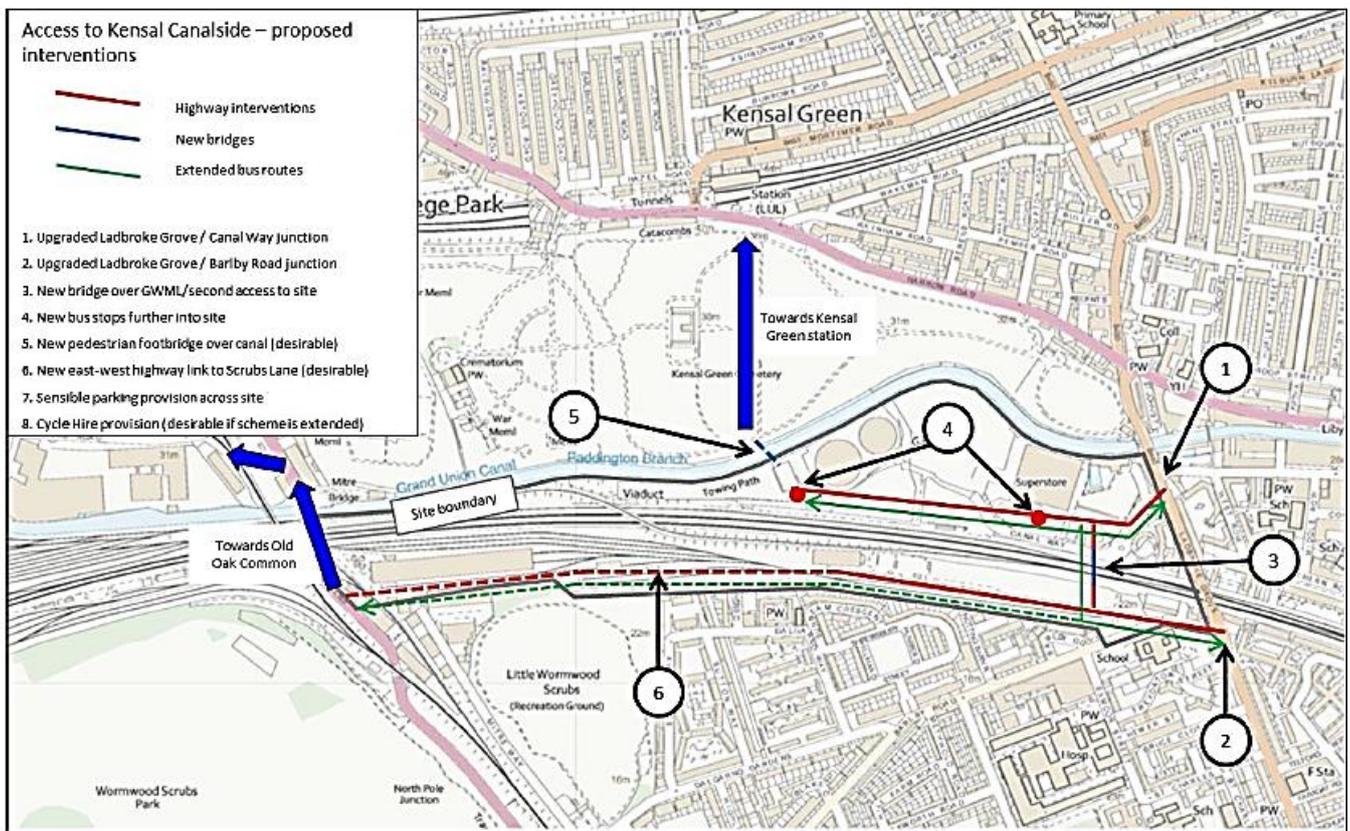
PTAL areas based on SDG map (excluding bus service extension)*	
PTAL Scoring Range	Area ha
0-1	c. 7.0
2-3	c. 8.7
4-6	c. 1.5
TOTAL	17.4

*This area calculation is based on our interpretation and manual measurement of the SDG Map, Figure 7, and so is not exact.

The SDG Report identifies that demand for bus services is likely to increase in line with current trends and that this will be kept under review through TfL’s bus service planning process. However in line with the WebCAT output for its medium to short term scenario (up to 2021), the 2015 report says that in the short to medium term (to 2026) PTALs are expected to remain similar to today given that no significant transport interventions are planned for completion in this period.

Nonetheless, the SDG Report includes recommended interventions in its longer term (post 2026) analysis (the impact of these recommended transport interventions are not included in the WebCAT calculations). It found that the existing highway access into the site is not sufficient to serve a 4,000 homes development with an extended Sainsbury’s store and that whilst the rail and Underground networks could accommodate some new demand, improvements to bus services would be required to serve the new development (including the extension of existing services as shown in green in Figure 8). This finding is on the assumption that a Crossrail station as Kensal would not be realised, although the report states that these findings would still likely apply (but would need to be reviewed accordingly) in this scenario. The report also highlights that the redevelopment of Old Oak Common (OOC), to the west of Kensal Canalside, will make necessary significant transport infrastructure improvements including a major new interchange, between HS2 (when complete), Crossrail 1 and other National Rail services which are not included at this stage of analysis.

Figure 8 - Map Illustrating the SDG Report Recommended Transport Service Interventions



The SDG Report recognises that in the long term (post 2026) bus service provision to the site could be enhanced by increasing frequencies on routes that serve the area and by extending a route or routes further into the site (the report

recommends that the extension to the 295 service further west into the site as the development progresses is essential, and that the provision of a new service to OOC should a new east-west route be implemented is desirable).

The report finds that the implementation of the interventions shown in Figure 8 would have a notable overall positive impact on PTALs across the site. The current year PTAL map is reproduced in Figure 9 to show the potential future year PTAL map assuming an extension of bus route 295 further into the site (and the provision of two new bus stops), and including the proposed pedestrian footbridge over the canal, as well as the proposed bus route to OOC along the new east-west link road (and two new bus stops). This shows a marked improvement in PTALs compared to the current situation, with the majority of the site having a PTAL of between 3 and 6a. This increase is due to the additional public transport provision within the site. It also shows a further improvement in PTALs in the area south of the site. Whilst some areas at the western end of the site continue to have a low PTAL, these areas include the largest concentration of railway uses (i.e. tracks and depots) with the least potential for development.

Figure 9 - SDG Future Year PTAL Map Including the Extended Bus Service and 2 Additional Stops, as well as a New Footbridge and the Bus Service along East-West Link



As before C&W has calculated the PTAL areas at the site based on Figure 5 (see Table 3).

Table 3 - C&W's Calculations of Area & PTAL Scores Including the Bus Service Extension / Improvements

PTAL areas based on SDG map (including bus service extension)	
PTAL Scoring Range	Area ha
0-1	c. 4.1
2-3	c. 5.0
4-6	c. 8.3
TOTAL	c. 17.4

**This area calculation is based on our interpretation and manual measurement of the SDG Map, Figure 9, and so is not exact.*

Density Calculations

As stated above, C&W has made interpretations on appropriate densities based on the 2011 London Plan and the calculations of PTAL scorings and areas.

Calculations are on the assumption of a 'Suburban' setting with dwelling size requirements at the lower end of dwelling size range (2.7 – 3.0 habitable rooms per unit) for the site without Crossrail. We have utilised this lower end dwelling size given the site's relatively central London location but recognise that this could be subject to change (which would reduce the number of units which is deliverable). However, we do not consider that the bus service improvements would be of the scale to allow for the site to move to an 'urban' categorisation and therefore improve densities.

Table 4 indicates that the site could achieve between 968 and 1,685 units without Crossrail based on the WebCAT PTAL areas (which exclude the bus line extension/improvements).

Table 4 - C&W's Calculations on Reasonable Densities Excluding Bus Service Extension / Improvements

Without Crossrail (using WebCAT areas excluding bus service extension)					
PTAL	Area ha	unit per ha		Units	
		min	max	min	max
0-1	c. 7.0	50	75	350	525
2-3	c. 5.5	50	95	275	523
4-6	c. 4.9	70	130	343	637
TOTAL	c. 17.4			968	1,685

Table 5 indicates that the number of units than can be expected without Crossrail and excluding the bus service improvements / extension based on the SDG areas is in the range of 894 to 1,553 units. This is similar to the outcome based on the WebCAT areas above.

Table 5 - C&W's Calculations on Reasonable Densities Excluding Bus Service Extension / Improvements

Without Crossrail (using SDG areas excluding bus service extension)					
PTAL	Area ha	unit per ha		Units	
		min	max	min	max
0-1	7.0	50	75	350	525
2-3	8.7	50	95	436	827
4-6	1.5	70	130	108	201
TOTAL	17.4			894	1,553

As we would expect maximum densities increase slightly if these calculations are based on the PTAL maps provided in the SDG Report which include the impact of improvements / extension to bus services. Table 6 shows that the number of units than can be expected without Crossrail and including the bus service extension / improvements is 1,036-1,862 units.

Table 6 - C&W's Calculations on Reasonable Densities Including Bus Service Extension / Improvements

Without Crossrail (using SDG areas including bus service extension)					
PTAL	Area ha	unit per ha		Units	
		min	max	min	max
0-1	4.1	50	75	205	307.5
2-3	5.0	50	95	250	475
4-6	8.3	70	130	581	1079
TOTAL	17.4			1,036	1,862

Unit Numbers

This scenario is based on a development on both sides of the railway line; the 1,449 units modelled differs from the figure of 2,500 units identified as achievable in C&W's 2014 study as:

- C&W was provided with the previous figure of 2,500 units by the RBKC and did not undertake any analysis as part of the 2014 study on whether these supplied unit numbers were achievable.
- C&W/ RBKC have revised the assumptions on site areas which impacts the number of units that are achievable at the site.
- Prior to commencing the 2015 study, C&W has been provided with the SDG report on forecast PTALs at the site (with an extended bus route, new footbridge only, but without Crossrail and without a new road bridge). C&W has therefore been able to develop interpretations on appropriate densities and therefore achievable unit numbers without Crossrail, using the London Plan and PTAL scorings.
- The 2,500 units was based on the assumption that both a road and pedestrian bridge would be built to enable development on both sides of the rail line (although C&W consider that a new pedestrian/ road bridge would have minimal impact on PTAL levels).

It should be noted that historically (led by the RBKC), a circa 700 unit scheme has been masterplanned on the Kensal North site only.

2.3. Scenario 2 - The Site With Crossrail (The Potential for 4,000 Homes)

C&W's experience is that build out rates are typically accelerated by the introduction of significant transport infrastructure improvements such as Crossrail. This has been observed at locations nearby to secured Crossrail stations and developers have been attracted by the reduced risk of lower demand for the units at less accessible or connected sites and the developer's concern of 'flooding' the market is significantly reduced. In addition C&W considers that this perception among developers goes beyond accessibility / connectivity and is related to the perceptions on the influence and strength of significance of Crossrail in terms of its value and demand impact. Section 3.3 provides further analysis into developer perceptions and responses to transport infrastructure investment.

Density Calculations

C&W has made interpretations on appropriate densities using the density guidelines in the 2011 London Plan and the assumption of an 'Urban' setting with dwelling size requirements at the lower end of the dwelling size range (2.7 – 3.0 habitable rooms per unit) for the site with Crossrail. We consider that the relatively central location of the site within London and the type of occupiers which a new station is likely to correspond best with this average unit size.

C&W has assumed a PTAL scoring range of 4 to 6 based on the case studies in Section 3.1 of this report as to what we would anticipate from the example of other major sites in London given their transport connections. Table 6 illustrates the various unit numbers which can typically be delivered given different levels of u/ha; as already noted in the 'without Crossrail' scenario, we consider that the 70-260 u/ha range is most appropriate for the site (based on the site being appropriate for units at the lower end of the dwelling size range). This range has been applied to the area of the site to give a total number of units of 1,218-4,524; this is obviously a wide range with room for interpretation.

Unit Numbers

In order to test the point in relation to whether 4,000 units are deliverable on this site, a figure previously used by the RBKC and supplied by the Council for the purpose of this analysis, we have 'goal seeked' the u/ha level that would need to be seen in order to achieve this number of units on the site. Table 7 also shows this to be 230 u/ha.

Table 7 - C&W's Calculations on Appropriate Densities with Crossrail and Required Density to Bring Forward 4,000 Units

With Crossrail (including bus service extension)					
PTAL Scoring Range	Area ha	u/ha		No. of Units	
		Min	Max	Min	Max
4-6	17.4	45	185	783	3,219
		55	225	957	3,915
		70	260	1,218	4,524
		230		4,000	

Table 7 in Section 3.1 of this report reviews the impact of new significant transport infrastructure improvements on residential density and benchmarks this 230 dwellings per hectare against other comparable sites. The findings supports the case that a density of 230 u/ha and therefore 4,000 units is achievable at the site.

2.4. Scenario 3 (i & ii) - The Site With Crossrail (Maximum Development Quantum)

Without masterplanning the site it is not possible for C&W to physically illustrate that higher densities above the 230 u/ha calculated above are achievable at the site. However, there are comparable examples which could support the development of higher densities. C&W has based its assumptions on the most comparable high density developments/ examples from Table 8 (in Section 3). These comparable high density schemes which are adjacent to major infrastructure improvements could support the following assumptions for a high density scheme.

- i) 260 u/ha (4,524 homes)**
Based on the example of Vauxhall Nine Elms Battersea (VNEB) which as an Opportunity Area (with previously mid to low rise densities), is comparable in a number of respects and provides a density based on a wider development area rather than a less reliable or comparable indication based on an individual building site.
- ii) 285 u/ha (4,872 homes)**
This is based on the planned scheme at Custom House / Freemasons which is adjacent to a planned Crossrail Station.

2.5. Summary of Scenarios

In all the above scenarios residential density has been calculated as gross site area ha / number of residential units. The rationale for these scenarios is for there to be a base option without Crossrail (Scenario 1) and for this to be compared to C&W's consideration of the likely maximum achievable density (Scenario 3) and the density level 'historically' assumed by the RBKC (Scenario 2).

Based on the analysis above and the Crossrail impact analysis in Section 3 which follows, we consider that the three development scenarios which should be modelled are as follows:

1. **Scenario 1 (without Crossrail):** 1,449 homes at an overall development density of 71 u/ha
2. **Scenario 2 (with Crossrail):** 4,000 homes at an overall development density of 230 u/ha
3. **Scenario 3 (with Crossrail):**
 - i) 4,524 homes at an overall development density of 260 u/ha (C&W has not modelled this scenario)
 - ii) 4,872 homes at an overall development density of 285 u/ha

Section 4 provides commentary on C&W's modelling of these three scenarios.

3. Crossrail Impact

As noted in Section 2, it is important to recognise that the potential impacts of Crossrail on densities come in two parts. There is both an impact in planning policy terms through the improvement of the PTAL score (and therefore densities) but also an impact in terms of the 'regeneration effect' and how developers may respond to the impetus provided. Disaggregating these impacts is difficult, particularly as in strongly performing residential areas of London (such as this), it is typically difficult to evidence a cap on densities from anything other than planning policy in the current market (and indeed, for a reasonably long period). However, there is a real impact that transport improvement can provide in relation to the developers perception of increases in demand (and changes in the type of units demanded).

3.1. Development Densities – The Impact of Transport Infrastructure Upgrades

C&W has reviewed a number of regeneration areas within London and major residential led development sites in order to review the density levels achieved being proposed/ delivered (see Table 8 below). The areas covered are:

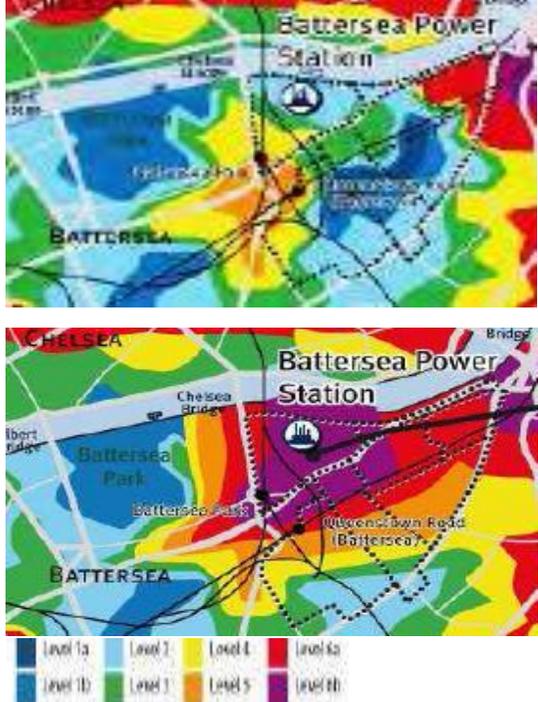
- Woolwich; gained a Crossrail station post original route/ station allocations and has a number of major brownfield land, residential led regeneration schemes.
- Custom House; is subject to a Crossrail station and has a number of residential led regeneration schemes.
- Southall; is subject to a Crossrail station and has a number of residential led regeneration schemes.
- Romford; is subject to a Crossrail station and has a number of residential led regeneration schemes.
- Clapham Junction; 5 years of station improvements and further improvements to come, and has a number of residential led regeneration schemes.
- Vauxhall Nine Elms Battersea (VNEB); the agreed location for a Northern Line Extension (NLE) and is subject to a large number of residential led regeneration schemes on large areas of brownfield land.
- Kidbrooke; developer (Berkeley Homes) has funded and delivered a new station facility (albeit, with no significant alteration in the service as we understand it). This area has been 'repositioned' by the developer and although in an area less attractive to developers than Kensal, Berkeley Homes is delivering a reasonably dense scheme within a short timeframe.

Table 8 - Examples of Major Residential Led Schemes around Major Transport Improvements

Development	Developer	Existing Densities u/ha	Development Timeframe	Calculations of Development Density	Size (ha)	No. of Residential Units	Current PTAL Rating
Royal Arsenal The Warren Waterfront Masterplan 2010 (08/1121/O)	Berkeley	Brownfield / low density		c. 402 u/ha (adjusted for net residential area) c.1,029 hr/ha (adjusted)	15.5	3,722	5-6a which is expected to be further improved with the completion of Crossrail
Royal Arsenal The Warren Waterfront Masterplan 2013 (13/0117/O)	Berkeley	Brownfield / low density		c. 388 u/ha or 698 u/ha (adjusted)	6.3	2,032	5-6a which is expected to be further improved with the completion of Crossrail
Royal Arsenal Phase 3 - Laboratory Square (11/1632/F)	Berkeley	Brownfield / low density		c. 231 u/ha c.653 hr/ha	1.02	234	5 which is expected to be further improved with the completion of Crossrail
Royal Arsenal Phase 4 - Over Station Development (west) (11/2382/O)	Berkeley	Brownfield / low density		c. 405 u/ha	1.47	592	6 which is expected to be further improved with the completion of Crossrail
Armourers Court, Arsenal Way				c. 480 u/ha		394 including affordable	The PTAL of the site is 6a. When Crossrail is operational in 2018 it will increase the PTAL to the maximum level of 6b
Woolwich Central Phase 4 - Grand Depot Rd (14/2000/O)				c. 418 u/ha c.1,082 hr/ha	1.38	516	4 to 6
Southmere Village-Tavy Bridge Phase 3 (12/00876/FULM)	Gallions Housing Association		Phased development	c. 99 u/ha c.302 hr/ha	2.98	296	4 which is expected to be further improved with the completion of Crossrail

Minoco Wharf (11/00844/LTGOUT & 11/00856/OUT)	Ballymore		Phased development	c.196 u/ha c.655 hr/ha or 443-472 hr/ha (adjusted)	17.2	3,385	1, 2 (the PTAL rating at the detailed area of the scheme records a PTAL of 2).
Minoco Wharf (07/01143/OUT & 07/01141/LTGDC)	Ballymore		Phased development	c.293 u/ha c.728 hr/ha	10.2	c.3,000	
Custom House & Freemasons		Low density / low rise residential		c.285 u/ha	5.3	1,500	
Silvertown Quays (14/01605/OUT)	The Silvertown Partnership (Chelsfield, First Base)	Mostly vacant	10 years from 2015 including phasing	c.111 u/ha or c.308 u/ha (adjusted) 453 hr/ha or 536 hr/ha (adjusted) or 1,189 hr/ha (adjusted)	27.4	3,033	The site currently records a PTAL rating of 1b or 2 although this may increase with the proposals for direct links between the site and Pontoon Dock station, the RVD footbridge to Custom House and enhanced bus services.
Silvertown Quays (03/2006 & 10/00860/RENEW)	Silvertown Quays Limited (SQL) /Chelsfield & First Base	Mostly vacant	10 years including 4 phases	c. 210 u/ha	24	4,930	The current PTAL rating is 2 but the introduction of the new DLR station in 2005, a new pedestrian bridge and Crossrail will increase the PTAL rating to 3. However, Crossrail is approximately 1.5 km from the site, which is beyond the average distance of 940m to access a station.
Southall Gas Works (P/2008/3981-s & 54814/APP/2009/430)	Berkeley - ST James			c. 131 u/ha (adjusted)	28.5 - 33	3,750	1 to 4 which is expected to increase to between 3 and 5 or higher upon completion of the development, new rail services/bus services and Crossrail. The supporting planning documentation notes that Crossrail will strengthen connections to the east.
Southall Gas Works - Quality Food /Iceland Site	Berkeley - ST James			c. 80 u/ha		40	4
Southall Gas Works - Gurdwara Site	Berkeley - ST James			c. 144 u/ha		106	4

Southall Gas Works - Crescent Site	Berkeley - ST James			c. 92 u/ha		48	3,2
Southall Gas Works - Merrich Rd (north)	Berkeley - ST James			c. 160 u/ha		125	3
Southall Gas Works - Merrich Rd (south)	Berkeley - ST James			c. 160 u/ha		213	3
Southall Gas Works - MBC (west)	Berkeley - ST James			c. 140 u/ha		274	3
Reflections- Oldchurch Hospital Site (east) (P1638.09 & P1406.12)	Taylor Wimpey			c.144 u/ha	3.42	493	Expected to be further improved with the completion of Crossrail.
Oldchurch Park - Oldchurch Hospital Site (west) (P0975.10)	Taylor Wimpey			c.170 u/ha	2.15	366	4 to 6 and expected to be further improved with the completion of Crossrail which will improve accessibility to the west end
Clapham Junction Battersea Riverside (at central Zone, Riverside Zone and Station Zone)	St James		2,000 units (2015 - March 2018), & 3,000 (2019 +) & 1,500 affordable on top of that).			5,000	There are proposals to safeguard this area for delivery of Crossrail 2. Improved bus services are being negotiated for within the Riverside Development Zone. Network Rail's longer term expansion plans are key here.
Battersea Gasholders Site, 101 Prince of Wales Drive				c. 400 u/ha c. 1,3000 hr/ha (adjusted)	2.1	839	The site currently has a public transport accessibility level (PTAL) of 3, which will increase following the introduction of the NLE.

VNEB		Low rise 5-8 storey buildings	c. 260 u/ha	12,500		<p>The public transport accessibility level range from excellent (PTAL 6) in and around Vauxhall to poor (PTAL 0-2) in the south and west end of the OA. This is expected to improve with the NLE to 5-6, with a wide area around the power station set to have a PTAL of 6 with two northern line stations (as shown below).</p> <p>VNEB PTALs Without (Top) and With (Bottom) the NLE (SDG Report)</p> 
Battersea Park East (VNEB)		Low rise	c. 159 u/ha c. 764 hr/ha	1.82	290	The PTAL rating is 5 to 6a across the site and this is expected to increase to 6a with the NLE.

				Density Calculations for New Covent Garden Market				
				Site	Density	Site Area ha	No of Units	
New Covent Garden Market Nine Elms				Northern site	387 u/ha	4.2	1,625	PTAL scores range from six on the 'Northern' site and from one to two on the 'Entrance' site but drops as low as zero on the Main Market site. The Northern Site is less than 500 metres from the Vauxhall transport interchange, providing mainline rail, Victoria line Underground services, and a range of bus connections.
				Entrance site	320 u/ha	1.34	429	
				Garden Heart	208 u/ha	0.52	108	
				Thessaly Road/College sites	132 u/ha	2.11	280	
Vauxhall Square				1,148 hr/ha		520	6	
Vauxhall Sky Gardens				c. 1,285 u/ha or 3,315 hr/ha	0.18 6	239	6	
Marco Polo House, Queenstown Road, Battersea				c. 365 u/ha Or 1,148 hr/ha or	1.25	456	5	
Kidbrooke Village Phases 3,5 & 6	Berkeley		200 units pa (with affordable on top of that)	c. 166 u/ha (332 u/ha at Phase 3, 215 u/ha at Phase 5, 141 u/ha at Phase 6) c.450 hr/ha (945 hr/ha at Phase 3, 657 hr/ha at Phase 5, 440 hr/ha at Phase 6)			3 Access to the development benefits from new improvements to Kidbrooke station.	

C&W considers that Table 8 supports the assumptions on PTAL scorings in Section 2 and overall development densities of 230 u/ha or potentially higher across the site. C&W does not consider that development densities would be consistent across the site rather that densities would vary depending on the PTAL scoring and planning considerations.

C&W considers that Woolwich provides the best example as an area of major brownfield land which has seen a large number of residential schemes since it gained a Crossrail station. The table above shows a number of examples of residential schemes in Woolwich, all of which are based on densities of over 230 u/ha except one scheme. These examples show densities of up to c.480 u/ha for residential led schemes in Woolwich.

Custom House, as an alternative example of a site with Crossrail and major residential led schemes, supports these density levels with a number of developments over 500m from the proposed station with densities in the range of 111 to 293 u/ha and the majority over 230 u/ha.

Southall examples show lower development densities however we consider that it is a less central location and that Kensal as an area in the west of London and within the RBKC, provides a significantly more attractive opportunity for developers.

The Kidbrooke example shows density levels of 141 to 332 u/ha supporting the case that major transport improvements, funded in this case by the developer, can 'reposition' an area less attractive to developers and deliver relatively high densities within a short timeframe.

As such the examples in Table 8 show significant increases or forecast improvements in densities compared to existing density levels across a number of residential schemes near major transport improvements and developments. VNEB provides an additional example of major residential development on a large brownfield area with density levels at residential developments at VNEB range from 260 u/ha to 400 u/ha.

The examples also include commentary on the impact of Crossrail and other major transport infrastructural improvements on PTAL scorings. They illustrates a significant improvement in PTAL scorings for all stations with Crossrail supporting the assumptions in Section 2 of this report.

3.2. Development Values

The most likely significant catalyst of change to accessibility and value of the site in the foreseeable future is the potential development of a Portobello Road Crossrail station.

There is a large body of research which shows the significant impact of major new infrastructure on property values and development viability. Rail investments such as Crossrail result in changed levels of accessibility, which drives demand for development around rail stations and alters the type of development undertaken. This provides the opportunity for market values and development activity increase.

Data reviewed by C&W gives an indication of potential value uplift and should be viewed as our best estimates given limited case study evidence. Further details are set out in Table 9 but in summary:

General Infrastructure

- There is a premium for retail and commercial space within the immediate proximity of a transport node of up to 400 metres. The literature also suggests that residential property increases in value due to improvements in rail infrastructure up to a range of 1,000 metres although it can sometimes be detrimental to locate residential uses within immediate proximity to a transport node if not properly masterplanned.
- Increased connectivity will enable high density development and is a key factor for retail and office uses.

- Previous research into the time and cost savings of commuters rail in the South East Research suggests that for every 60 seconds saved in commute times, it will add £1,300 to apartments (circa £2,000 for detached housing).
- While there may be additional benefits in terms of increases in property and land values, these are to some extent dependent on other factors being present in the local economy, including supportive local economic conditions relating to the labour and property markets, a supportive political environment that is conducive to inward investment and the availability of both private and public funds for investment.
- The London Assembly heard in July 2015 that transport schemes should drive regeneration using the example of the Bakerloo Line Extension (Estates Gazette, 2015).
- The French experience with regard to regeneration indicates that there is a window of opportunity stretching from about three years prior to a new service launch for approximately four years after opening, during which the major benefits can be expected to arise (Greenguage21). Beyond that period, the newly enhanced services become 'taken for granted'. Rail Infrastructure upgrades enabled greater densities; areas with the benefit of high speed rail grew quicker and exhibited more resilient local office, retail and residential markets.
- Research suggests that infrastructure improvements have a positive impact on value of land and property; unsurprisingly this is particularly prominent where a suburb with poor connectivity is opened up and linked to an area of high economic activity.

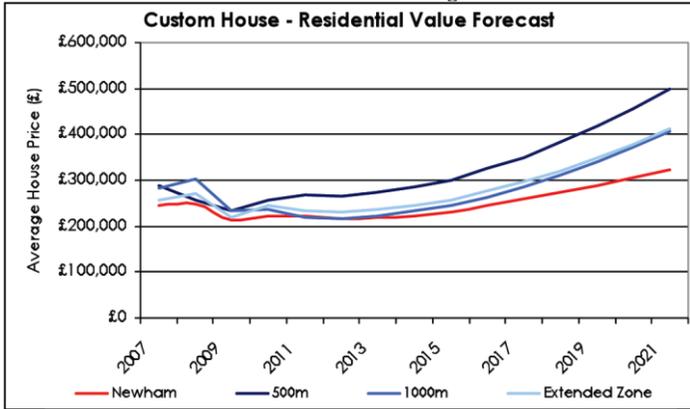
Crossrail

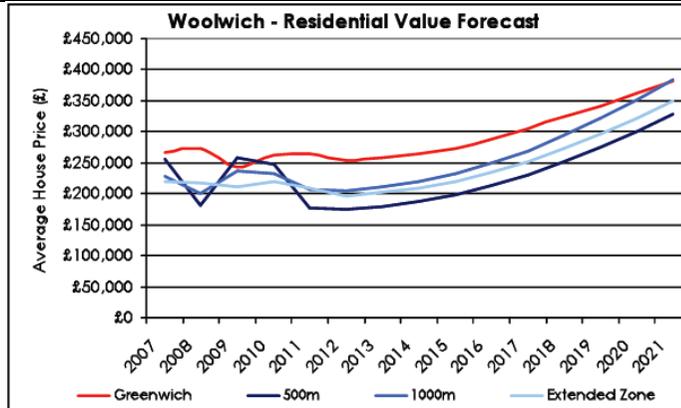
- The GVA Crossrail Property Impact Study (October 2012) indicates a potential capital uplift of up to 20% to 25% for residential and 10% for commercial values immediately around Crossrail stations. It forecast that for every 250m distance from the Station entrance, there would be a decrease in price or impact of 1.9% of additional property values increase.
- JLL forecast that the price of homes near stations along the Crossrail 1 route will increase by up to 57% between 2013 and 2018.
- Groundsure's recently published 2015 study, based on land registry data, found that the most significant price increases have been around Crossrail stations at less central locations between 2013 and 2015.
- However, Knight Frank's 2015 Residential Research found the overall price performance to be generally stronger around central stations. The research showed average property prices within a 10-15 minute walk from new Crossrail stations had already outperformed prices in the wider area by some 5% (averaged over each station). Residential property prices within a 10 minute walk of the central stations had risen, on average, by 57% since July 2008 compared to 43% growth in the prime central London market over the same period, according to Knight Frank's own index. The research identified western and eastern stations where price growth has lagged surrounding areas as areas of opportunity for further price uplifts, especially where large scale regeneration and development is underway such as Woolwich and Southall.
- Recent research undertaken by Hamptons International has discovered a stark rise in property transactions in close proximity to Crossrail stations. Transactions within 500m of future Crossrail stations grew by 23% in 2013 and by 21% within a mile, significantly exceeding the London average of 13% for 2013.
- In cost-benefit terms, the Department for Transport classify anything with a cost benefit ratio of over 2:1 as a good investment. The case for Crossrail in 2007 resulted in an original benefit-cost ratio rising from 1.9 to a range of 3.1 to 7:1. To put this in context the Channel Tunnel Rail Link had a ratio of 0.5:1. (London First)

Other Transport Interchanges

- The impact that the HS1 rail network had on residential price increases across the network ranged from 5%-25% and was linked to commuting times to London. The extension has enabled three major development sites.
- The Boston Subway, Southern New Jersey Line, Portland Eastside and Dublin metro lines all recorded an increase in residential prices of circa 10%. Recorded increases in land values were as high as 25%.

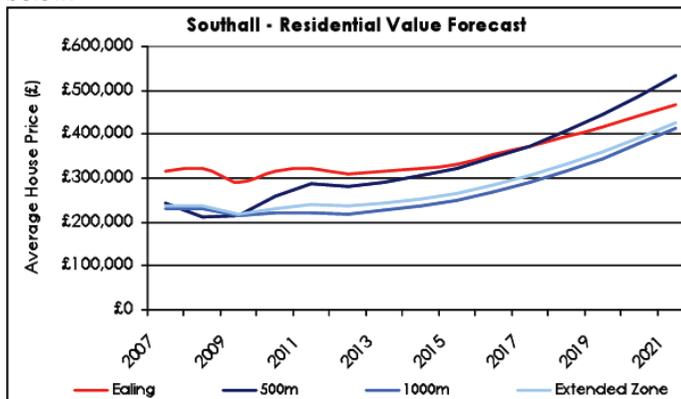
Table 9 - Examples of Residential and Commercial Value Uplift around Major Transport Developments / Investments

Case Study	Source	Impact on	Value Impact
Crossrail 1	<p>Groundshore 2015</p> <p>GVA Crossrail Property Impact Study 2012</p> <p>Knight Frank Residential Research: Crossrail – Analysing Property Market Performance from Reading to Shenfield 2015</p>		<p>Between 2013 and 2015 Taplow has seen a 73% increase in the value of homes within 800m of the Crossrail station whilst Gidea Park has experienced a 49% rise in values, Custom House 46%, Hayes and Harlington 46% and Southall 45% (Groundsure). During this period the average London property increased by around 17%.</p> <p>Custom House, Crossrail - The GVA Study reported that between 2009 and 2012 there was 8 applications within 1km of the station which would together provide circa 9,000 residential units, 32,000 sq m of office space, and 4,100 sq m of retail space. These applications all identified Crossrail as key to development. The study projects that the average house price near Custom House Crossrail Station will grow as below:</p>  <p>Woolwich, Crossrail - The GVA Study predicts that the average house price near Woolwich Crossrail Station will grow as below:</p>



Knight Frank's analysis showed that average residential prices have already risen by 25% around Woolwich station (since 2008), a slight underperformance compared to the 32% uplift in Greenwich over the same period. However, Knight Frank expect this trend to change once the extensive new development around the station is completed. There are currently 163 new residential units under construction within a 15 minute walk of the new station, and planning has been approved for 2,700 more, with 400 being built directly above the new station.

Southall, Crossrail - The 2012 Study forecasts that the average house price near Southall Crossrail Station will grow as below:



			Knight Frank identified a lagging in prices around Southall Station against the local authority average and highlighted a subsequent opportunity for price growth around the Station.
London Jubilee Line Extension (JLE)	C&W / London Transport studies		The JLE is a prime example of other supportive and positive factors in the local economy being present i.e. around Canary Wharf, allowing the JLE to maximise on these benefits and their impacts.
	Chesterton (2000 and 2002)	Residential Commercial	Positive impact but variable – highest impact for apartments. Positive perception from estate agents, developers and investors and high occupancy levels.
	Riley (2001)	Land	Aggregate increase in value of AED 78bn against a project cost of AED 21bn.
Dockland Light Railway (DLR) and Jubilee Line Extension, Isle of Dogs	Groundsure		<p>The Isle of Dogs has been transformed from industrial brownfield land to London's second financial centre (Canary Wharf) and a robust office market with the development of the Docklands Light Railway (DLR), and the later arrival of the Jubilee Line extension. The housing market subsequently responded, with high-end developers attracted by the opportunity to build significant schemes including Pan Peninsula and Baltimore Wharf.</p> <p>C&W consider that it was not until the arrival of the jubilee line extension that residential values were significantly impacted. We consider that this was because the jubilee line provided a significantly large and influential transport infrastructure compared to the DLR which was of a smaller scale and impact.</p> <p>A 2004 TfL report suggested that the uplift in values attributed to the Jubilee Line Extension is in the region of £2.8bn in the proximity of Canary Wharf and Southwark Underground Stations.</p> <ul style="list-style-type: none"> • £2bn around Canary Wharf Underground station; • £800m around Southwark Underground station.
East London Line Extension/ London Orbital Overground		Residential	Completion on these transport upgrades led to price increases of up to 15% more than the market average.

Crossrail 2 & Northern Line Extension (NLE)		Residential & Commercial	Crossrail 2 and the NLE to Clapham Junction could increase residential capital values along the route by up to £32bn existing office capital values increase by up to £5.8bn, according to Carter Jonas' 'Track to the Future' research report. The average value impact may be up to 50% over existing values.
High Speed 2	C&W Real Estate Information Pack December 2010		<p>A study undertaken by C&W in December 2010 explored the potential impact of HS2 on values with a focus on Birmingham NEC site. C&W forecast that High Speed 2 will significantly increase business travel rather than commuting between Birmingham and London. Therefore it expected potential uplift to be most pronounced for commercial and office space rather than residential.</p> <p>Economic impact studies of high speed rail lines suggest that it will increase GDP by 1-3% within the region. Whilst these benefits may sound modest at certain high speed station sites there may be large increases in commercial activity and commensurate increases in land values at a local level, with uplifts in excess of 50% having been observed. However it should be noted that this growth has been largely attributed to displacement of other businesses than net gains of new employment (Leading edge, 2009).</p> <p>C&W reported that the impact that the HS1 rail network had on residential price increases across the network ranged from 0.1% - 14.4% which was linked to commuting times to London and the extension enabled three major development sites.</p> <p>C&W predicted that the creation of an economic hub on the Birmingham NEC site with HS2, will have a localised impact on commuting patterns and reported that it expected to see an increase in commuting and house prices in the immediate area.</p> <p>Kensal is different from HS2 in that HS2 connects two economic regions together. Kensal will connect a 'London suburb' to a 'central' business district/ central London and therefore the impact for residential values is likely to be more significant.</p>
South Axis, Amsterdam HSL South Services	Debrezion (2006)	Residential Commercial	+4% generally, but negative if too close (205 – 500m) to stations. +14% increase within 400m of stations. Basically limited to reasonable walking distance.
T2 Tramway – Hauts De seine Department, France	Boucq (2007)	Residential	No increase before opening, progressive increase in prices for 4 years after opening.

Dublin Area Rapid Transit (DART)	Mayor, Lyons Duffy and Richard (2009)	Residential	+7-17% between 500m and 2,00m of stations
Asia			
Talpel MRT	Hwang Lin (2003)	Land	+25%
Tokaldo Line, Japan	Cervero (1998)	Land (for commercial)	Up to +27% within 50m of stations.
Guangzhou Line 2 (China)	C&W (2009)	Land	+15-25% on commencement with another +15-25% once the line opened against a benchmark market uplift of 5% pa.
Shanghai MRT Line 5 (China)	C&W (2009)	Residential	+50% (in sales prices) within 1 year of completion against an average increase of Shanghai residential property which was 17% in 2003.
Shenzhen MRT Line 1 (China)	C&W (2009)	Residential	+100% (in sales prices) within 1 year of completion against an average increase of Shanghai residential property which was 17% in 2003.
Hong Kong MRT	C&W (2008)	Residential	+24.3% (in sales prices) average increase within a radius of 400m around MRT station. +31.5% within 100-200m.
Tongzhou Metro	Gu (2006)	Residential	1.8% every 1,000m from stations.
North America			
San Francisco Bay Area Rapid Transit (BART)	Apta (2002) and Gruen & Associates (1997)	Single family homes. Apartment rents comm. land values.	+AED 2,900 depreciation per 1.6km (mile) from stations +15-26% +AED 272/sq ft within 0.4km (¼ mile) and +AED 110/sq ft with 0.8 km (½ mile).
San Francisco Bay Area Rapid Transit (BART)	Landis and Cervero (1995)	Residential	+38% (in sales prices) for property immediately adjacent to station (35km away)

Portland Eastside Metropolitan Area Express	Duecker and Stratham (1994)	Residential	+10.6% within 500m of stations, 2 years after the operation in the East Burnside area.
Washington DC Metro	Benjamin and Sirmans (1996)	Residential	-2.4-2.6% (in rental values) every 0.2 km (1/10th of a mile) from the Metro stations.
Toronto Subway / Rapid Transit	Hack (2002)	Commercial Residential	+30% within 500m of station which is +10% over the city average. +20% (max) for properties "close" to the stations.
Southern New Jersey Line (PATCO) Philadelphia	Both (1991)	Residential	+10% for properties near commuter rail stations.
Boston Subway	Armstrong and Rodruguez (2006)	Residential / Commercial Single family residential	+10% for properties within 0.8km (½ mile) of stations. +6.7%.
Dallas Area Rapid Transit (DART)	Cwer and Weinstein (2002)	Residential / Commercial	+31% within 0.4km (¼ mile) from LRT station compared with +19.5% at other stations.
Santa Clara California Light Rail Transit	Weinberger (200)	Land (for commercial use)	+23% within walking distance of stations.
Atlanta Light Rail (MARTA)	Nelson and McClesky (1989)	Residential	No uplift.
Miami Metrorail	Gatzlaff and Smith (1993)	Residential	No uplift.

C&W does not consider that upgrades or an extension to bus services / routes at Kensal will demonstrate a significant enough infrastructure investment in terms of scale or perceived impact, to improve property values and development viability. This is predominately based on our experience on major regeneration schemes and case study analysis but also the perception of developers (and ultimately consumers). It is not an area in which C&W has been able to find a significant body of quantitative evidence. There was a study called the 'Curley 2012' research project which showed there to be no effect identified on residential property values following an improvement and extension works to bus services/ routes/ infrastructure in New York; residential property values within the immediate proximity to the new Bx12 Select Bus Service stations after the 2008 opening were not more highly valued and the viability model did not detect any value change. The Curley report advocated that a more extensive and sizeable transit project would be necessary to impact property values. In the absence of any specific information from TfL, we do not consider that there is sufficient evidence to assume any uplift in value from a new bus route.

Based on the evidence in Table 9 and wider commentary, C&W considers that an overall average value uplift of 15% on units within the site (and the wider study area as defined in Section 8 of this report) of the Crossrail station is an appropriate assumption for analysis at this level. This is the same as the residential value uplift indicated following the East London Line Extension as shown in Table 9 above, which we consider to be a less transformational infrastructure development. We consider this to be a conservative assumption based on some of the value increases identified around infrastructure development and shown in Table 9 which indicate increases of between 25% and 73% around some new stations

3.4. Developer Perceptions & Response

In well performing residential areas of London, we anticipate that outside of 'super prime' residential areas, the 'ceiling' on densities is provided by planning policy and statutory restrictions as opposed to being driven by the desires of unconstrained developers and land owners. Developers will likely respond to changes in the market through altering the rate of build out of the scheme in response to the maximum density they can achieve given planning regulations.

C&W models a number of scenarios on major regeneration schemes in and around London and would typically anticipate private market sale units (with a single sales 'output') to be in the region of 125-175 per annum. This rate of sale takes into consideration the likely increased revenue at the beginning of the sales period received from off plan sales once construction is complete. To give some context, in the South East (out of London), on standard suburban sites, a house builder at full capacity would typically construct circa 50 units on any one site in any year (at the top end of historic build out rates) and if delivering a major development of a new/ extended urban area, up to 5 different house builder 'brands' could be involved in a scheme to mean unit delivery of around 200 units per annum (pa). Note that affordable units would be on top of these figures.

This figure of 200 units pa is likely to vary +/- 25% depending on the market, see Section 3.1. At this level we would likely expect the site to be split up so that marketing is pitched at a range of markets (with different product finishes and different design). To achieve a strong build out rate, you would need a mix of developers with complementary (i.e. not the same) business models. Some, typically low margin, developers are driven by building out high volumes of units quickly in order to maximise returns and minimise risk; other developers seek higher margins and look to restrict sales rates to maximise residential sales values.

To build out 4,000 units at Kensal Canalside we would expect a 10-15 year programme and would anticipate that any consent to be optimised during that lifecycle (every 5 years) so it is up-to-date, relevant and aligned to the market and planning/housing policy.

On a site such as Kensal Canalside, the dynamics of a major suburban development (in the South East currently, large scale residential development of this kind typically consists of an urban extension concept) has some resonance given the unestablished micro location and scale of development being incomparable to typical urban infill or single plot redevelopments. However, the market within London and current imbalance between supply and demand is such

that potential sales rates are considerably stronger than other locations of major new housing provision. We consider that subject to physical constraints, up to five different house building brands could be brought forward on the site. This would not mean multiplying the typical sales rate per house builder highlighted above (125-175 per annum) by five; although the brands would typically target different segments of the market, the sales rate achieved would likely be diluted by the sheer quantum of units. On balance, we consider that a rate of 100 units pa for multiple brands (say 3/4) is a reasonable assumption for an intensively managed regeneration scheme.

Based on the examples in Section 3.1 of this report, the build out rate is typically accelerated by the introduction of significant transport infrastructure improvements. In a hypothetical scenario, without planning control restricting densities, the 'with' and 'without' Crossrail density scenarios may not be as significantly different as C&W's assessment suggests. However, what would likely be different would be the rate of build out by the developer which would be likely to be slower without Crossrail to reflect the relatively lower demand for the units and the consequent actions by the developer to not want to 'flood' the market. There is a point in an appraisal where stretching timeframes out further will begin to reduce returns to a developer and it would make sense for them to reduce densities – however, C&W considers that this would be unlikely in relation to this site given its location and strategic importance.

The physical limitation of the site in terms of heights and developable floorspace has (we understand) been tested by the RBKC and we would caution that the heights and block planning will need to be carefully considered to achieve these densities. In particular, rights of lights claims from close by buildings may be an additional restriction which C&W has not considered at this stage.

4. Block Planning

4.1. Methodology & Assumptions

Scenarios

Based on the analysis in earlier sections, and as stated in Section 2.5, C&W considers that the three development scenarios which should be modelled are as follows:

1. **Scenario 1 (without Crossrail):** 1,449 homes at an overall development density of 71 u/ha
2. **Scenario 2 (with Crossrail):** 4,000 homes at an overall development density of 230 u/ha
3. **Scenario 3 (with Crossrail):**
 - i) 4,524 homes at an overall development density of 260 u/ha (C&W has not modelled this scenario)
 - ii) 4,872 homes at an overall development density of 285 u/ha

As stated above, in each scenario, we would assume that the existing 295 bus service would be extended by one stop further along Canal Way. Section 2 provides justification on the development densities and unit numbers for each scenario.

Block Layouts for Modelling and Justifications

The RBKC's previous block planning scenarios were provided for the C&W 2014 study and have been used as a basis for the purpose of this 2015 study. C&W has modelled these scenarios which achieve the desired number of residential units at the appropriate density level for each scenario by undertaking high level alterations to the previous massing studies undertaken by the RBKC on the site (which identified individual plot developments). This allows C&W to demonstrate how the form of the development could change if the site was developed out at the proposed densities. For clarity, this has not involved any masterplanning work by C&W but rather C&W has calculated two separate variations:

- **Option A** is based on a revised number of floors across the development (i.e. the existing block footprints but higher buildings).
- **Option B** is based on a revised total development footprint as a percentage of the gross site area (i.e. the existing building heights but with a greater footprint of buildings).

In reality C&W considers that any revision to the form of the development would be based on a mix of revision to both the height of buildings and the development footprint as a percentage of the gross site area and a comprehensive masterplanning study.

For the purposes of the assessment, C&W has assumed that the number of units across the northern and southern site are split: 71% at Kensal North and 29% at Kensal South (based on the C&W 2014 study).

Each scenario has been compared and related to a scheme in block planning terms as previously undertaken by the RBKC as summarised in Table 10:

- Scenario 1:
The block layout for Kensal North is based on Scenario 1 from the C&W 2014 study (which is based on a development of 700 units at Kensal North only given the assumption of no road bridge). An alternative assessment could be based on the Scenario 2 from the C&W 2014 study (which like the 2015 Scenario 1, assumes development on both sides of the rail line) but this assumes that there will be a new road bridge, which has not been assumed for the 2015 Scenario.

The block planning at Kensal South for Scenario 1, has been based on the lowest development density at Kensal South from the 2014 study which was Scenario 2 (as Scenario 1, did not include development at Kensal South).

It should be noted that this allowance does not allow for any specific footprint for the Crossrail station which would slightly reduce the developable site area at Kensal South compared to the previous block planning exercise. This explains why Scenario 3 from the 2014 study has not been used for Kensal South (which was based on a lower development density based on the inclusion of Crossrail). C&W recognises that there may be some reduction in the number of units achievable at Kensal South for Scenarios 2 & 3 based on the positioning and size of the Crossrail station (given that the impact of Crossrail on developable area has not been included in this model). Based on the 2014 study and block planning exercises, C&W expected the impact to be minimal.

- Scenario 2:

The block layout for Kensal North has been based on Scenario 3 in the C&W 2014 study (the 4,000 unit scheme) which is consistent with the number of units proposed for 2015 Scenario 2. The block planning at Kensal South however, has been based on Scenario 2 from the 2014 study (based on the above assumption of discounting the impact of the Crossrail Station footprint on block planning at this stage).

- Scenario 3:

C&W has modelled just one options within Scenario 3 to allow for comparison to between the scenarios. No block planning has been undertaken for a 4,000 plus unit scheme and therefore we have based this on the highest density development scenario in the previous block planning for Kensal North and Kensal South. Therefore, development at Kensal North has been based on the 2014 Scenario 3, the highest density scheme in the previous block planning by the RBKC. At Kensal South this has been based on Scenario 2 from the 2014 study (again based on the above assumption of discounting the impact of the Crossrail Station footprint on block planning at this stage).

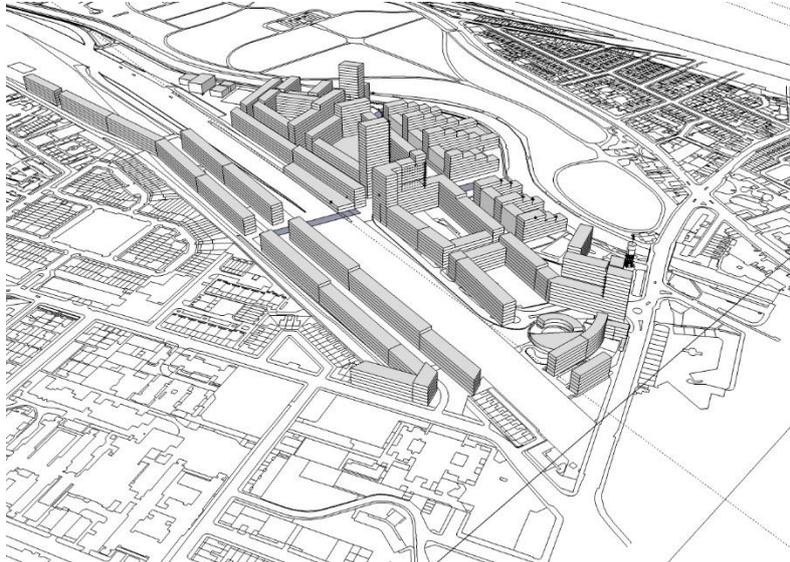
Table 10: Summary of Block Layouts Assumed for Modelling & Justifications

2015 Study Scenarios	Scenario Altered from the 2014 Study & Justification			
	Kensal North	Summary Justification	Kensal South	Summary Justification
Scenario 1	Scenario 1	No assumption of a road bridge in line with infrastructure costing analysis in this report*	Scenario 2	The maximum development option modelled in the 2014 C&W study*
Scenario 2	Scenario 3	4,000 unit scheme from the 2014 study	Scenario 2	The maximum development option modelled in the 2014 C&W study
Scenario 3	Scenario 3	The maximum development option modelled assuming 285 u/ha	Scenario 2	The maximum development option modelled in the 2014 C&W study

* However C&W note that a road bridge may be required to develop Kensal South.

Figure 10 shows the 4,000 unit scheme scenario in block planning terms as previously undertaken and provided by the RBKC.

Figure 10 - 4,000 unit scheme (previously produced by the RBKC)



C&W has made a number of assumptions in modelling the development scenarios and options:

- Residential units calculated on basis of 75% net to gross ratio, and an average net unit size of 65 sq m; this is a conservative ratio but based on previous analysis to ensure consistency and to give a degree of contingency).
- Retail / Leisure net floorspace based on 65% net to gross ratio; again, this is a conservative ratio.
- Office net floorspace based on 75% net to gross ratio; again, this is a conservative ratio.
- As stated above residential density calculated as gross site area ha / number of residential units

The outcomes of this assessment is summarised in Section 4.2 - 4.4 of this report. C&W highlights that the outcomes are based on the assumptions on density and unit numbers and that these could differ from those calculated if different assumptions were made on the scheme to be altered from the previous block planning by the RBKC and the incorporation of the Crossrail Station footprint on massing.

4.2. Scenario 1

C&W considers that a reasonable number of units that the market could expect without a Crossrail station (but with the new bus route / extension) on the site is 1,449, as justified in the analysis in Section 2.2 of this report. This is based on a development of:

- 1,029 units at Kensal North
- 420 units at Kensal South
- An overall density of 71 u/ha

Table 11 – Scenario 1

Scenario 1	Kensal South		Kensal North	
	2014 Model	Revised Model (420 units)	2014 Model	Revised Model (1,029 units)
Option A				
Average Number of Floors	4.8	2.4	4.8	6.9
Range of Floors	3 to 5	1.5 to 2.5	1 to 12	1.5 to 17.4
Development Footprint (sq m)	15,158 sq m		23,895 sq m	23,895 sq m
Development Footprint as % of Gross Site Area	26%		21%	21%
Option B				
Development Footprint	15,158 sq m	7,513 sq m	23,895 sq m	34,713 sq m
Development Footprint as % of Gross Site Area	26%	12%	21%	30%
Average Number of Floors	4.8		4.8	
Range of Floors	3 to 5		1 to 12	

4.3. Scenario 2

C&W considers that a circa 4,000 unit scheme, as justified in Section 2 above, is achievable on the site with a Crossrail station (plus a new road bridge, and new bus route / extension). This is based on a development of:

- 2,841 units at Kensal North
- 1,159 units at Kensal South
- An overall density of 230 u/ha

Table 12 – Scenario 2

Scenario 2	Kensal South		Kensal North	
	2014 Model	Revised Model (1,159 units)	2014 Model	Revised Model (2,841 units)
Option A				
Average Number of Floors	4.8	6.8	6.4	7.3
Range of Floors	3 to 5	4 to 7	1 to 24	1.1 to 27.3
Development Footprint (sq m)	15,158 sq m		52,005 sq m	
Development Footprint as % of Gross Site Area	26%		43%	
Option B				
Development Footprint	15,158 sq m	20,767 sq m	52,005 sq m	59,230 sq m
Development Footprint as % of Gross Site Area	26%	36%	43%	49%
Average Number of Floors	4.8		6.4	
Range of Floors	3 to 5		1 to 24	

4.4. Scenario 3 (High)

C&W consider that a scheme of more than 4,000 units could be achievable on the site (with a Crossrail station) subject to careful masterplanning. This is based on a development of:

- i) 4,524 homes
 - 3,213 units at Kensal North
 - 1,311 units at Kensal South
 - An overall development density of 260 u/ha

- ii) 4,872 homes
 - 3,460 units at Kensal North
 - 1,412 units at Kensal South
 - An overall development density of 285 u/ha

The above total unit numbers are based on C&W's density analysis on what C&W consider to be the most comparable high density schemes. As stated in Section 2.4, the 4,872 unit / option 3ii scenario which we have modelled is based on the Custom House / Freemasons development (we also looked at density scenarios for a scheme of 4,524 units / option 3i, based on another scheme, VNEB).

Table 13 - Scenario 3 (i)

Scenario 3 (i)	Kensal South		Kensal North	
	2014 Model	Revised Model (units 1,311)	2014 Model	Revised Model (units 3,213)
Option A				
Average Number of Floors	4.8	7.5	6.4	8.3
Range of Floors	3 to 5	4.6 to 7.7	1 to 24	1.3 to 30.9
Development Footprint (sq m)	15,158 sq m		52,005 sq m	
Development Footprint as % of Gross Site Area	26%		43%	
Option B				
Development Footprint	15,158 sq m	23,490 sq m	52,005 sq m	66,986 sq m
Development Footprint as % of Gross Site Area	26%	41%	43%	55%
Average Number of Floors	4.8		6.4	
Range of Floors	3 to 5		1 to 24	

* Note that from the block planning plans previously undertaken, C&W has used the 4,000 unit density scenario as a base for the prorated high density modelling here.

Table 13 - Scenario 3 (ii)

Scenario 3 (ii)	Kensal South *		Kensal North	
	2014 Model	Revised Model (units 1,412)	2014 Model	Revised Model (units 3,460)
Option A				
Average Number of Floors	4.8	8	6.4	8.9
Range of Floors	3 to 5	5 to 8.3	1 to 24	1.4 to 33.3
Development Footprint (sq m)	15,158 sq m		52,005 sq m	
Development Footprint as % of Gross Site Area	26%		43%	
Option B				
Development Footprint	15,158 sq m	25,300 sq m	52,005 sq m	72,135
Development Footprint as % of Gross Site Area	26%	44%	43%	60%
Average Number of Floors	4.8		6.4	
Range of Floors	3 to 5		1 to 24	

* Note that from the block planning plans previously undertaken, C&W has used the 4,000 unit density scenario as a base for the prorated high density modelling here.

5. Economic Impact Assessment

5.1. Methodology

This section examines the Gross Value Added (GVA) that could be expected to arise in line with the scenarios set out within this report. The benefits are split between those resulting from the additional commercial floorspace, the temporary construction jobs and the additional new residential units.

The GVA and job figures set out below are an estimate of the anticipated additional economic value generated from the construction and completed development. The calculations are based on a number of generic high level assumptions and consequently should be used as an indicative guide only.

The key benefits assessed are:

- Gross permanent jobs and additional GVA from the new employment space
- Gross construction jobs and construction spend relating to the employment and residential space, and new infrastructure
- Additional Council tax revenues
- Anticipated New Homes Bonus (NHB) income
- Increased spend in the local economy from the additional residential population.

The assessment uses desk-based information, standard industry assumptions and professional judgement to assess the likely scale of economic impacts of the proposed development. In doing so, it follows best practice method and guidance as appropriate, including advice set out in the following:

- *Additionality Guide: Fourth Edition, HCA, 2014.*
- *Employment Densities Guide, Drivers Jonas Deloitte & HCA, Second Edition, 2010.*
- *Construction Jobs Guidance Note, OffPAT, 2009.*

The economic benefits have been calculated using the employment floorspace and residential unit numbers set out in Section 2 and 4 of this report. The benefits of each scenario have been assessed separately.

The residential and employment benefits have been assessed independently of each other. This is in order to avoid issues in double counting the additional disposable income brought into the local area e.g. if a new resident earns the additional disposable income they bring to the area from the new employment floorspace. For this reason, the analysis assumes that new jobs do not go to residents of the new housing.

It should also be noted that income resulting from the new jobs is included within the GVA figures (i.e. salaries are included within the additional turnover). Job figures should therefore be seen as an alternative expression of GVA rather than as an additional benefit.

5.2. Overall

Residential Income:

- Relationship between Council Tax bands and unit types estimated using professional judgment and examples from other London Boroughs.
- Council tax are 2014/15 rates and include GLA element but exclude the RBKC Garden Square's charge.
- Household size data taken from Table 810, DCLG Survey of English Housing, 2007.
- Proportion of working age population based on 18-65 age proportion in London, Census 2011.
- Median gross annual pay is for all workers from ONS ASHE, 2013.

- Income deductions are estimated and assumed to include: tax, national insurance, mortgage payments and Council tax. Based on current tax rates, UK industry mortgage average and Council Tax band D.
- Leakage, displacement and multiplier assumptions taken from HCA Additionality Guidance, 2014.

Jobs and GVA from employment uses:

- Employment densities taken from HCA / Deloitte Employment Density Guidance, 2nd edition - general categories used due to high level nature of uses.
- Gross jobs assumed, given difficulty in estimating net local jobs due to highly mobile nature of employment between Boroughs.
- GVA per worker is an average blended rate.

Construction Jobs:

- Assumptions taken from development model on split of total construction spend by residential, employment and infrastructure uses.
- Labour co-efficients taken from OffPAT Construction Jobs Guidance Note (01/12/ /12/2009).
- Total construction spend taken as proxy for output (i.e. GVA of construction).

5.3. Benefits from Employment Floorspace

5.3.1. Permanent Jobs from the Employment Floorspace

The gross direct permanent jobs created by the employment floorspace can be estimated by applying average employment density standards (floorspace per full time equivalent job, based on the 2010 HCA Employment Density Guidance, 2nd edition) to the net floorspace for each use type. This provides an approximation of the additional job potential of the development. Given the high level nature of the proposals, general categories from the guidance have been used for each of the proposed uses. The employment density assumptions used are set out in Table 14.

Table 14 - Employment Densities

Use	Employment Density (sq m per FTE)	Density Guidance Category
Retail / Leisure	19	High Street Retail
Office / Employment	12	General Office
Education / Commercial / Culture	65	Education Space
Other	70	Amusement & Entertainment

Applying these densities produces the gross permanent full time (FTE) jobs for each scenario as set out in Table 15.

Table 15 - Employment Floorspace FTE Jobs

Additional Gross FTE Jobs		
Scenario 1	Scenario 2	Scenario 3(ii)
1,455	1,818	2,393

These jobs are presented as gross jobs rather than net jobs for local resident i.e. no leakage or displacement effects have been accounted for. This is due to the difficulty in estimating net local jobs given the highly mobile nature of employment between London Boroughs.

5.3.2. GVA from the Employment Floorspace

As an alternative measure of the benefits resulting from the employment floorspace, the additional GVA likely to be generated has also been calculated. This uses an estimate of the average blended GVA per worker of £71,300. This assumption is calculated by applying the ratio between the median wage for London as a whole and its GVA, to the median wage for the two Boroughs. This GVA value is also similar to those used in previous studies for the area. The GVA has been calculated on a per annum basis and, in line with CLG guidance, it has been assumed that the benefits would last for 10 years.

Table 16 sets out the estimated GVA from the employment floorspace for each scenario. Again, it should be noted that these figures are gross – in that no account has been taken for leakage or displacement. The figures are also discounted i.e. the gross figures have been entered into a cashflow phased on the expected completion date of the commercial floorspace. This cashflow has then been discounted at the Treasury discount rate of 3.5% per annum.

Table 16 - Employment Floorspace GVA

Additional GVA (total over 10 years)		
Scenario 1	Scenario 2	Scenario 3(ii)
£ 600m	£ 750m	£ 987m

5.3.3. Construction Jobs

The calculation of construction jobs is based on using the total construction spend of the proposed development, split by residential, commercial and infrastructure components. This is then divided by the OffPAT construction labour co-efficient for each component from the OffPAT Construction Jobs Guidance note, 2009. This is now the accepted method for estimating construction-related employment impacts from a Treasury economic appraisal perspective.

The labour co-efficient represents the number of construction jobs per year per £1m of construction spend. In line with the OffPAT guidance, a co-efficient of 26.4 has been adopted for the construction of employment uses, 31.5 for residential uses and 22.2 for infrastructure provision. This results in the following construction jobs per year over the build period (7 years for Scenario 1 and 15 years for Scenarios 2 and 3). As with the above calculations, it should be noted that these are gross jobs, with no account taken for these being taken up by people not resident in the respective Boroughs.

Table 17 - Gross Construction Jobs

Construction Jobs Per Year for Build Period		
Scenario 1	Scenario 2	Scenario 3(ii)
1,588	1,795	2,190

5.3.4. Construction GVA

An estimate of the GVA resulting from the construction activity has been calculated as an alternative measure to construction jobs generated. As a proxy for output it has been assumed that the construction GVA equates to the construction spend over the development period. The resulting GVA figures have been discounted in line with the Treasury discount rate and are set out in Table 18.

Table 18 – Construction GVA

Additional GVA Over Construction Period		
Scenario 1	Scenario 2	Scenario 3(ii)
£ 323m	£ 646m	£ 790m

5.4. GVA / Benefits from the Residential Units

5.4.1. Council Tax Revenues

The additional residential units under each scenario would result in extra Council Tax income for the Local Authorities, albeit such revenues will be partially offset by the cost of providing associated services. As Council tax is dependent on a property's Council Tax band, the unit mix breakdown from the development appraisals discussed in the previous sections has been used.

To estimate additional Council Tax Revenue, current Council tax rates i.e. 2014-15 have been used for each Borough. These include the GLA tax element but exclude the RBKC's Garden Square's charge. These rates have been applied to the unit mixes using the Council tax band assumptions as set out in Table 19 (established using professional judgment and established best practice).

Table 19 - Council Tax Band and Rate Assumptions

Unit Type	Council Tax Band	RBKC Council Tax rate
1-bed	D	£1,1067
2-bed	E	£1,304
3-bed	F	£1,541
4-bed	G	£1,778

Applying these assumptions to the proposed unit mixes results in additional gross annual Council Tax Revenue figures. As these will only start to be realised once residential units are completed, these figures have been phased and discounted in line with the Treasury's discount rate. In line with CLG guidance, the benefits from this additional revenue have been assumed to last for 10 years. This results in the following gross additional Council Tax revenues for each scenario.

Table 20 - Additional Council Tax Revenue

Additional Council Tax Revenue (total over 10 years)		
Scenario 1	Scenario 2	Scenario 3(ii)
£ 11m	£ 31m	£ 37m

5.4.2. New Homes Bonus

The NHB is a government scheme aimed at encouraging Local Authorities to grant planning permission for new homes in return for additional revenue. The likely additional income to the Local Authorities has been calculated on the assumption that the NHB scheme continues as it currently stands. This income is based on the number of equivalent Council Tax Band D properties completed. Units falling in other bands are adjusted to produce a Band D total e.g. the number of Band E properties are multiplied by 11/9 to give a Band D equivalent. For 2012/13, the

standard bonus for each Band D unit was £1,456 and we have assumed this will remain constant over the 6 year payment period.

Adjusting the unit mix to equivalent Band D property numbers and including an additional £350 per annum for each affordable unit, results in total NHB income over six years as set out below. Due to the delay in receiving these revenues, totals have been phased and discounted in the same manner as the Council Tax income.

Note that C&W has kept the NHB impact assessment in our analysis although it is not yet clear whether this scheme will be extended (see Section 9).

Table 21 - NHB Revenue

Scenario 1		Scenario 2		Scenario 3(ii)	
£	10m	£	28m	£	34m

5.4.3. Increased Spend from the Additional Population

Economic benefits are also likely to accrue through the additional disposable income in the local economy from the additional residential units under each scenario. Although slightly dated, the latest household size data from the DCLG (2007) can be used to establish an expected population for the unit mix in each scenario. From the 2011 census, 67% of these can be expected to be of working age and therefore economically active (18-65 years old, London average). This produces the following anticipated working age populations from the residential units in each scenario.

Table 22 - Anticipated Working Age Population

Scenario 1	Scenario 2	Scenario 3(ii)
1,942	5,360	6,528

The Annual Survey of Hours and Earnings (ASHE, 2013) reveals that median annual gross pay for Kensington & Chelsea residents is £39,600. Assuming that 50% of this is taken up by fixed costs (based on appropriate income tax and national insurance rates for these incomes, average UK industry mortgage costs and a Band D Council tax rating), this results in an average non-housing annual disposable income per resident of £19,800 in Kensington & Chelsea.

Multiplying the average disposable income by the number of additional working age residents' results in the total gross disposable income for each scenario. However, to account for the fact that a significant proportion of this will not be spent in the local area but 'leak' out (i.e. spent elsewhere or saved), 50% has been deducted from the total figure in line with the HCA Additionality Guide, 2014 – though it should be recognised that this is a high level estimate. However, whatever is spent locally is also likely to have a knock-on effect, stimulating further economic spend and local supply chains. A standard multiplier effect for retail of 1.21 has therefore also been applied (again, in line with the Additionality Guide).

This results in an estimated additional local expenditure per annum from the new residential units for each scenario. As with the other benefits described above, these figures have been phased and discounted to take account of the delay in them being realised. It has also been assumed that the benefits will be realised for 10 years. The discounted figures are set out in Table 23.

Table 23 - Additional Residential Expenditure

Scenario 1		Scenario 2		Scenario 3(ii)	
£	135m	£	372m	£	453m

5.5. GVA Summary

Attempting to establish the GVA and other economic benefits of development schemes is invariably difficult as the circumstances of each project are unique, and because hard evidence on the impacts from future events is impossible to establish. In particular, various indicators are highly sensitive to local circumstance but in reality can only be practically estimated using benchmarks derived from national evaluation experience (albeit informed with knowledge of the local area).

Taking account of the implicit caveats and limitations set out above, the following tables provides a summary of the potential job and GVA benefits of the ‘with’ and ‘without’ Crossrail scenarios.

This includes: permanent jobs from the commercial floorspace; construction jobs from commercial, residential and infrastructure works; and GVA figures from commercial employment, construction, Council tax, and NHB, along with disposal income expenditure from the additional residents.

Finally, it should be noted that the job and GVA figures are different expressions of the same economic benefit so should not be seen as additional to each other.

Table 24 - Potential Job and GVA Benefits

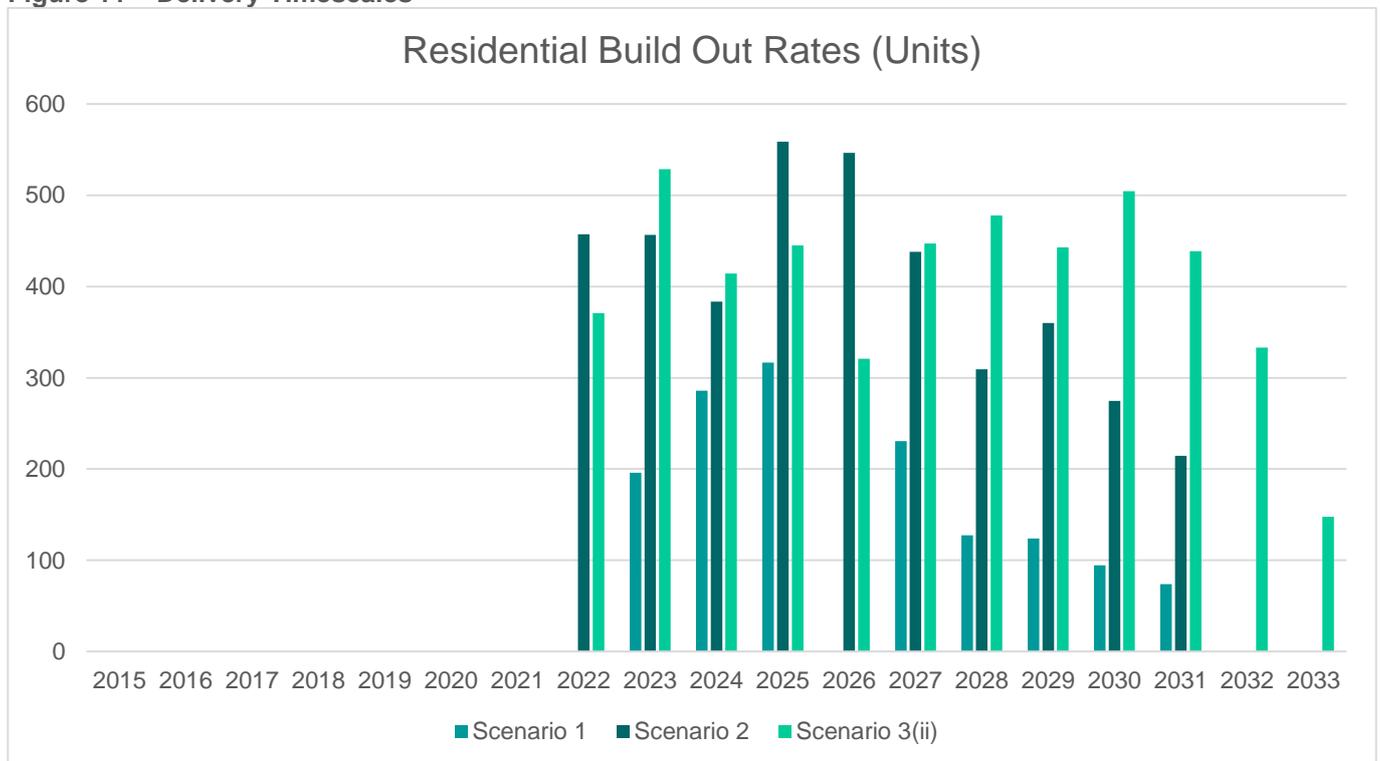
	Scenario 1	Scenario 2	Scenario 3(ii)
Jobs (per annum):			
Permanent	1,455	1,818	2,392
Construction (for build period)	1,588	1,795	2,190
Total Additional GVA:			
Employment floorspace	£600,340,000	£750,120,000	£987,360,000
Construction (for build period)	£322,770,000	£645,590,000	£789,590,000
Council Tax	£11,130,000	£30,730,000	£37,430,000
NHB	£10,130,000	£27,970,000	£34,070,000
Residential expenditure	£134,610,000	£371,610,000	£452,620,000
TOTAL - with construction	£1,078,980,000	£1,826,020,000	£2,301,070,000
TOTAL - without construction	£756,210,000	£1,180,430,000	£1,511,480,000
Uplift Scenario 2 vs Scenario 1		£747,040,000	
Uplift Scenario 3 vs Scenario 1		£1,222,090,000	

6. Timescale of Delivery & Deliverability

6.1. Timescale

Section 3.3 (Developer Perceptions and Response) covers considerations of the timescale for development and how that may alter in different density scenarios. Figure 11 below illustrates the proposed phasing of the various scenarios.

Figure 11 – Delivery Timescales



All scenarios have been assessed on the basis that there will be a 4/5 year lag before the development of any units on the site to reflect the time taken to get vacant possession, formulate a coherent planning policy for the site and (if applicable), to get commitment for a Crossrail Station to come forward.

We consider that a 10-15 year period for development of a circa 4,000 unit scheme to be reasonable although relatively 'aggressive' (particularly as illustrated in Figure 11 for Scenario 2) and dependent on a regeneration, step change impact and public sector intervention/ support to ensure that developers do not land bank to delay development.

6.2. Deliverability

We have modelled the three scenarios in terms of the scheme densities summarised in Section 4 above.

A summary of the results of modelling is provided in Table 25. This demonstrates that development of a high density scheme with Crossrail is viable and delivers significant potential GDV and land value. The difference between the three scenarios is substantial:

- The GDV of Scenario 1 is £810m, compared to £2,256m in Scenario 2. The GDV is increased further in Scenario 3(ii) to £2,775m (a 23% increase from the GDV in Scenario 2).
- The Residual Value (in NPV terms) of Scenario 1 is £11m, compared to £287m in Scenario 2. The residual value is increased further in Scenario 3(ii) to £388m (a 35% increase on the land value in Scenario 2).

Table 25 - Model Summary Results*

SUMMARY RESULTS			
	Scenario 1	Scenario 2	Scenario 3 (ii)
<u>OVERALL</u>			
Gross Development Value (GDV)	£810,000,000	£2,256,000,000	£2,775,000,000
Net Realisation	£803,000,000	£2,250,000,000	£2,766,000,000
Total Development Costs	(£720,000,000)	(£1,322,000,000)	(£1,530,000,000)
Developer Profit	(£162,000,000)	(£451,000,000)	(£555,000,000)
Residual Value (Gross)	£15,000,000	£476,000,000	£676,000,000
Residual Value (NPV)	£11,000,000	£287,000,000	£388,000,000

OVERALL DIFFERENCE	Uplift Scenario 2 vs Scenario 1	Uplift Scenario 3 (ii) vs to Scenario 1
Gross Development Value	£1,446,000,000	£1,965,000,000
Residual Value (Gross)	£461,000,000	£661,000,000

*The key modelling assumptions are provided in Appendix 1 of this report and the input assumptions including assumptions on values, residential unit split and affordability level, as well as build and development costs and other cost inputs into C&W's model are provided in Appendix 2.

7. Cost & Requirements of a Station & Associated Infrastructure

The spreadsheet review of costings for each scenario is provided in Appendix 3 of this report.

7.1. Bridges Feasibility Cost Estimate

C&W has reviewed the construction costs to establish the reasonableness of the estimate's cost assumptions. It should be noted that the Cyril Sweett cost are only an 'Order of Cost' Estimate at feasibility stage and are based on outline proposals for the Road Bridge (single and double span), Pedestrian Bridge and General Site Fill.

The costs provided are a feasibility 'Order of Cost' estimate for an indicative feasibility design and therefore the rates applied are generic, ball-park in nature and will change when the design is developed and advanced, and specification confirmed to allow the costs to be firmed up. Given the purpose of the assessment, we consider this to be a reasonable approach.

C&W's comments and observations are based on reviewing the relevant cost documents provided, namely the Cyril Sweett feasibility 'Order of Cost' estimate dated 2nd Quarter 2013.

C&W's review of the cost information supplied has highlighted that it has been produced on an indicative basis. The cost estimate is structured on the three elements of the works and two options have been estimated for one element (Road Bridge) as follows:

1. Road Bridge – Single Span
2. Road Bridge – Double Span
3. Pedestrian Bridge – Footbridge Over Canal
4. General – Site Fill

7.1.1. Road Bridge – Single Span

The costs for a number of the items have no detailed build-up and are just given as lump sum allowances.

The item for the roadway and the fill to ramp have been priced with rates adequate to cover all the additional items to be budgeted for and are, in our view, reasonable. The item for bridge abutments has insufficient detail to gauge whether the allowance is appropriate and this is particularly relevant as the cost for two abutments add up to £2,600,000. The allowance, on initial impression, does appear to be high, however it is difficult to comment upon the costs meaningfully in the absence of further detail. Whether comparison with previous similar projects was made in arriving at the figures used is not clear as no explanatory note is given as we would typically have expected.

There is a discrepancy on the temporary work where the rate and the amount given do not match (£300,000 and £550,000). Preliminaries have been allowed at 20% and this is ample provision for these works. A contingency allowance has been included at 30% and we consider that this represents overprovision; in C&W's view, 15% is a more appropriate allowance, therefore cost could be reduced by approximately £1,120,000. There are however a number of other project costs that have been excluded.

Overall, the costs seem to be more than sufficient to provide for the construction of a single span bridge (without any special architectural merit) as indicated in the Alan Baxter report of April 2013.

7.1.2. Road Bridge – Double Span

The costs for a number of the items have no detailed build-up and are given as lump sum allowances.

The item for the roadway and the fill to ramp have been priced with rates adequate to cover all the additional items to be budgeted for and we consider to be reasonable. The item for bridge abutments though has insufficient detail to gauge whether the allowance is appropriate and this is particularly relevant as the cost for two abutments add up to £2,600,000 (the same as the single span road bridge). The allowance, on initial impression, does appear to be high, however it is difficult to comment upon the costs meaningfully in the absence of further detail. Whether comparison with previous similar projects was made in arriving at the figures used is not clear as no explanatory note is given as would have been expected.

Temporary works have been priced at £450,000 but no detail has been given to gauge whether the allowance is appropriate and no explanatory note as to the assumption made with regards to temporary works. Preliminaries have been allowed at 20% and this is ample provision for these works. A contingency allowance has been included at 30% and this in our view overprovision with 15% being considered to be a more appropriate allowance; therefore cost could be reduced by approximately £1,269,000. There are however a number of other project costs that have been excluded.

Overall the cost seem to be more than sufficiently provide for the construction of a double span bridge as indicated in the Alan Baxter report of April 2013.

7.1.3. Pedestrian Bridge – Footbridge Over Canal

As before the costs for a number of the items have no detailed build-up and are just given as lump sum allowances. The cost assume a steel bridge construction which we consider to be a reasonable assumption at this stage.

The item for the lighting and the canal wall repairs have been priced with adequate rates and are, in our view, reasonable. The items for bridge and ramp foundations though have no sufficient detail to gauge whether the allowances are appropriate and this is particularly relevant as the cost for the two add up to £ 704,000. Whether comparison with previous similar projects was made in arriving at the figures used is not clear as no explanatory note is given as would have been expected.

Temporary works have been priced at £200,000 but no detail has been given to gauge whether the allowance is appropriate, again no explanatory note as to the assumption made with regards to temporary works. Preliminaries have been allowed at 20% and this is ample provision for these works. A contingency allowance has been included at 30% and this reflects overprovision in our view with 15% considered to be a more appropriate allowance; therefore cost could be reduced by approximately £272,000. There are however a number of other project costs that have been excluded.

Overall the cost seem to be more than sufficiently provide for the construction of a pedestrian footbridge as indicated in the Alan Baxter report of April 2013.

7.1.4. General – Site Fill

The costs for the light weight fill amount to a considerable total of £7,235,000 based on a detailed quantity build-up work out applied to a rate of £74 per cubic metre (m) which we consider to be very high. C&W's view is that a rate of £40 – 45 per cubic m is adequate provision and therefore, as there is a large quantity of fill at (96,470 cubic m), this item has been significantly overprovided for by approximately £2,894,000. We are not aware of why there is no specific clarification to justify why such a high rate was budgeted for and therefore we assume that this is an over provision.

We consider that the item for security fencing at £200 per linear metre is appropriate, whilst the retaining wall item at £6,000 per linear meter seems high; however it is difficult to comment upon the costs meaningfully in the absence of further detail regarding the height of such wall. We however consider this to be ample provision.

Preliminaries have been allowed at 12% and this is ample provision; considering the nature of these works C&W would have expected these to be 7–8%. Contingency allowance has been included at 30% and we consider this to be an overprovision; in C&W's view, 7.5% is a more appropriate allowance which would reduce costs by approximately £1,899,000. There are however a number of other project costs that have been excluded.

Overall the cost estimate seems to be significantly overprovide for the site fill works and in our assessment a reduction of -£5,926,000 to the total amount indicated in the Alan Baxter report of April 2013 that would bring the new total for the fill works at £10,528,000.

7.1.5. Other Developments Costs & Exclusions & Assumptions

The Cost estimates does not identify a separate figure for main Contractor Overheads & Profit (OHP). We therefore have to assume that this is partly covered by the overprovision in respect of contingency.

- Design Reserve and Construction cost contingency has been applied in general at 30%. This seems an overprovision as C&W would expect 15% overall (7.5% for Design Reserve contingency and 7.5% for Construction contingency).
- Professional Fees are excluded from the Order of Cost estimate with the exception of the Design & Build design fees. These will need to be budgeted for within the wider scheme development and are likely to be in the range of 7 - 10%.
- Other Exclusion are demolitions & site clearance and Network Rail Management costs

7.1.6. Inflation

The 'Order of Cost' estimate at 2nd Quarter 2013 needs to be updated to 3rd Quarter 2015 by adding an item for inflation at 11.86% in line with C&W's view which is based on published indexation data.

7.2. Station Feasibility Stage Cost Estimate

C&W has reviewed the construction costs to establish the reasonableness of the estimate's cost assumptions. It should be noted that Halcrow's TfL cost assessment model is only an 'Order of Cost' Estimate at feasibility stage and is based on outline proposals for the new station and all necessary track etc. modification works. Given the purpose of the assessment, we consider this to be a reasonable approach.

The costs provided are a feasibility 'Order of Cost' estimate for an indicative feasibility design and therefore the rates applied are generic, ball-park in nature and will change when the design is developed and advanced, and specification confirmed to allow the costs to be firmed up.

Our comments and observations are based on reviewing the relevant cost documents that were provided to us, namely the Halcrow TfL cost assessment model estimate dated 2nd Quarter 2012.

C&W's review of the cost information supplied has highlighted that it has been produced on an indicative basis. The cost estimate is structured on the typical elements of the model as follows:

1. Large Infrastructure
2. Other Structures
3. Power and Traction
4. New Station
5. Station Modifications
6. Station Access
7. Station Facilities
8. Depots and Stabling
9. Network management
10. Environment

The total for the works in respect of the above is £40,475,185 and we are reviewing this cost as instructed. However we would like to highlight that other on-costs of £36,832,418 have been budgeted for on top of this figure. In particular these include items such as contractor fee / profit, contractor risk fee and contingency which would typically be added to construction costs. We advise that these costs need careful, separate consideration to ensure that no cost has been left out of the overall assessment.

The works have been subdivided into three separate work sections as is typical in rail and roadwork estimates. With regards to the works listed under the 'Other Structures' heading, the upgrade formation and upgrading of track drainage have all been priced with robust all-inclusive budget rates. The items under 'Power and Traction' have also been priced with robust budget rates.

The cost for the 'New Station' itself has been budgeted at £12,000,000 for a 10 car capacity with a small island platform and includes one passengers' and staff facilities. It is important to note that this budget figure allows for a standard station i.e. excludes for any additional cost that are often incurred with designs of high architectural merit / quality

The cost for the 'Station Access' also includes for a footbridge with ramps at £1,102,500 - this is an extremely high cost and has been justified as being three times the normal budget cost of £367,500 in order to enable access to existing housing. In consideration of the fact that a separately identified footbridge to gain access to the new housing

development has already been budgeted for we consider this an over provision and recommend that the item is reduced by -£735,000.

Under the costs for 'Depots and Stabling', the budget includes a significant allowance of £2,600,000 for provision of additional Depot space on the basis that an additional train might be required. This is a general assumption as just because there is an additional station, it is not confirmed that an additional train will be indeed added to the service; consequently the additional provision for Depots and Stabling may be unnecessary. We therefore would propose that a net figure of £2,600,000 is excluded from the overall assessment calculation until or unless the position in this respect has been confirmed by the operator/ TfL.

Other Developments Costs & Exclusions & Assumptions

As previously mentioned, other on-costs of £36,832,418 have been budgeted for. In particular these include items such as Contractor fee / profit (at 10%), Contractor risk fee (at 10%) and Contingency at (20%); as these are calculated on a percentage basis it is important that their amounts are also reduced in line with the appropriate percentage but we have not reviewed these costs but instead focused on the £40,475,185 figure.

Inflation

The Halcrow 'Order of Cost' estimate at 3rd Quarter 2012 needs to be updated to 3rd Quarter 2015 by adding an item for inflation at 18.38% in line with C&W's view which is based on published indexation data.

7.3. Overall Costings

C&W has reviewed the three options included in the Alan Baxter report dated June 2013 and prepared an estimate of cost for each Scenario as laid out in Appendix 3; this includes a number of estimates which are not outlined in this section but which are based on standard assumptions which C&W would apply to a major strategic site such as this.

We have assumed the residential units to have an average Gross Internal Floor Area (GIFA) of 87 sq m and that 20% of the residential units are affordable tenure.

To give an indication of the potential infrastructure cost to develop the site we have based our estimate on the schemes as drawn in the Alan Baxter report which allowed us to identify the roads, services and social infrastructure required. As no information was provided for the Social and Community facilities we have assumed that the approximate area would be 2.5% of the residential (based on benchmarking typical strategic schemes). This maybe an overprovision and therefore, the requirement would be subject to refinement. We have then applied a minimum benchmark rate for construction of a Community Hall. Again a better understanding of the type of community facility required would allow us to project a more accurate picture.

For the general landscaping cost we have included a minimum allowance based on the overall site area of 17.6 ha. The actual calculation for costs have been applied to 8.9 ha based on the overall site area of 17.6 ha less the area of buildings (circa 2.5 ha) and roads (6.2 ha)

We have separately reviewed the cost estimates of the bridges provided by Cyrill Sweett and revised them in line with the information we have obtained from the report. In particular the footbridge cost has significantly increased to allow additional repairs to the canal walls mostly due to our understanding / interpretation of the length of canal walls to be repaired as part of the overall development scheme and not just immediately adjacent to the footbridge.

We have also reviewed the costs for the general site fill the volume of which was identified in the report as being 96,470m³. We have reviewed the rate applied and despite the limited information available on the ground required

for fill we deem this to be excessive so this has been reduced to £60/m³ instead of £ 75/m³. Indeed this item could potentially be reduced further based on a specification of ground fill type required but at this stage we have been prudent in our reduction.

We have also adjusted the preliminaries in line with the type of work and we have also adjusted the level of contingency from 30% to 10% as this is a significant addition to an already indicative budget.

The infrastructure costs which we have outlined have been put through the financial model and are reflected in Section 6 of this report.

8. Development Uplift

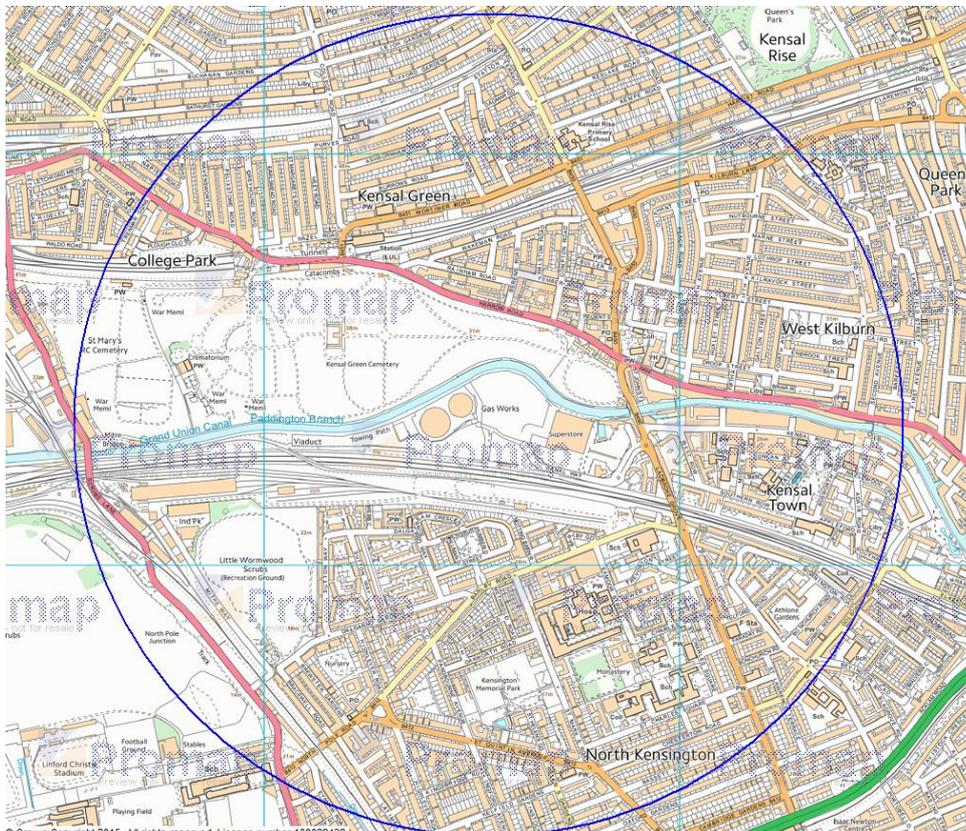
This section seeks to calculate the potential benefit/ value uplift which could be generated by the development of a Portobello Road Crossrail Station on the wider area outside of the Kensal North and Kensal South sites. We have reviewed the potential property impacts within a 1km radius of the site, the 'study area' whilst excluding 'the site' (Kensal North and Kensal South).

The analysis of the site and results outlined in Section 6, illustrate the potential uplift which can be derived from the location of a Portobello Road Crossrail Station. We have sought to calculate the potential uplift within the 1km radius study area through tree forecast impacts:

- The potential 'one off' value uplift on existing residential properties / assets within the study area.
- The potential value and density uplift on the typical pipeline, planned residential developments over a 20 year period.
- The potential value and density uplift on significant long term redevelopment sites.

Figure 12 shows a 1km radius from the centre of the site. Given the size of the study area, comprehensively capturing all impacts is not feasible or possible and this analysis aggregates data from within the study area to create an estimate; given the limited commercial (office, industrial, office) development in the study area (and our assessment that the new scheme is unlikely to promote these uses to any significant degree), it focuses on residential impacts.

Figure 12 - The site's 1km Hinterland (the 'study area')



8.1. Impact on Existing Assets

C&W has made a number of assumptions and interpretations in order to estimate the value of residential assets across the study area with and without Crossrail (see Table 26).

Based on a high level interpretation of a sample block (comprising part of Droop Street, Huxley Street, Sixth Street, Ilbert Street) within the study area, and a site inspection, we estimate that the existing residential density within the study area is 70-100 u/ha. Based on a net area (calculated using Promap) of around 207 ha within the study area, C&W has calculated a total number of residential units of 14,490-20,700 dwellings. This net area is based on the study area minus the area of 'the site' and any significant currently underutilised land area; the gross study area (including the site totals 314 ha).

We have taken average residential values across the study area to be £506,565 based on calculating a weighted average of average residential values for postcode areas, NW10 and W10 (based on data from Zoopla and Rightmove). C&W has calculated the total value of existing assets within the study area to be in the range of £7.4-10.5bn.

Section 3 of this report supports an assumption of 15% uplift in residential values at existing assets with the development of a Crossrail station. These assumptions have been applied to calculations to show that Crossrail could create an uplift in the total value of existing assets in the study area of £3.7bn (moving from £8.4 to £12.1bn).

Table 26 - Assumptions and Calculations on Value of Residential Assets within the Study Area

	Assumptions	Calculations
Existing Density (u/ha)	70 to 100	n/a
Net Study Area (ha)	207	n/a
Total No. of Units (Net Area x Density)	n/a	14,490 to 20,700
Existing		
Av. Value (Source: Right Move & Zoopla)	£506,565	n/a
Value of Assets within the Study Area (Av Value x Total No. of Units)	n/a	£7.4-10.5bn
With Crossrail		
Forecast Uplift in Values (based on the Analysis in Section 3 of this Report)	15%	n/a
Forecast Av. Values (Av. Value x 115%)	n/a	£582,550
Value of Assets within the Study Area (Forecast Av. Values x No. of Units)	n/a	£8.4-12.1bn

In terms of the timing of the impact of infrastructure improvements on property prices, the majority of evidence suggests that much of this is 'priced in' when the improvements have been committed to as opposed to needing to wait until it is completed. Therefore we consider it reasonable to expect to see an immediate impact of residential values within the study area if the commitment to a Crossrail station at Kensal has been confirmed.

8.2. Impact on the Typical Development Pipeline

Capturing the impact of a new Crossrail station on future developments in isolation is obviously clouded by the many other external factors which alter property values, densities and delivery. However, there is clear evidence that a new Crossrail Station not only has the potential to increase property values considerably but to also increase the density which is achievable (and desirable) and also the pace of build out (see Section 3.3 of this report). To estimate the potential difference we need to review the existing position (values and densities) of planned schemes and compare it to what could be achievable with a new Crossrail station.

Table 27 shows recently completed development sites and other schemes with full/outline planning at various stages of completion / construction (in the 2010-2015 period), all of which fall within the study area.

Table 27 - Development Pipeline Schemes within the Study Area

Scheme	Details	Borough	Developer	Number of Residential Units	Size (ha)	Development Density (u/ha)	Values per square foot (psf)	Planning Status	Reference / Source
Recently Completed Schemes (2010 - 2015)									
Ink Building, 130-136 Barlby Road / 6 Exmoor Street W10 6BD	108 residential units built over basement car park 8 storeys	RBKC	Stac Properties	108	0.43	251	£691	Construction completed (May 2010)	PP/04/02264 Molior
St Thomas (St Thomas C Of E School), Appleford Road, W10 5EF	Redevelopment of existing school site to provide new primary school with residential accommodation above providing 69 flats 4 storeys	RBKC	Places for People Homes	69	0.39	177	£462	Construction completed (December 2010)	PP/06/00646 Molior
Argyll Place (Princess Louise Hospital), Pangbourne Avenue, W10 6DL	37 residential units, Class D1 (non-residential institution – education and community use) and associated access and parking 3 storeys	RBKC	Taylor Wimpey Central London	37	0.39	95	£1,074	Construction completed (June 2015)	PP/10/03600 Molior
Manor Point, 731-761 Harrow Road, NW10 5NY	125 residential units 400sqm B1 floorspace 4-6 storeys	LBHF	Castalyst Housing	125	0.595	210		Construction completed & sold (2012)	2007/02889/FUL Molior

City View (Central 2/Metro 88), 35 Chamberlayne Road/ Banister Road, NW10 3NB	50 residential units, 604 sqm retail 5-8 storeys	Brent	Bellway Homes North London	50	0.118	424	£648	Construction completed (Q3 2012)	11/1287 Molior
Nido – Notting Hill, 222 Kensal Road, W105BN	6,996 sq.m office 272 student units	RBKC	Blackstone Group International Limited	272	0.17	1,600		Granted subject to s106 22/09/09 and Completed September 2011	EGi / promap PP/09/01388
Rhapsody, 904 Harrow Rd, NW10 5JU	21 residential units and amenity space	LBHF	Clearview Homes	21	0.1	210	£893	Construction completed (June 2015)	2013/01312/OBS Molior / promap / Zoopla
Claridge House, 91 Mortimer Rd, NW10 5TN	14 residential units 3 storeys	Brent	Crossier Properties	14	0.1	140	£787	Construction completed (2015)	08/3185 Molior / promap / Zoopla
Kingisholt Court, Wellington Road, NW10 5LJ	14 residential units, two B1 units 4-6 storeys	Brent	Far Developments Ltd	14	0.071	197	£ 648	Construction completed (circa 2014)	05/2509 Molior / Zoopla
Schemes with Full Permission (Construction Commenced and Completion Due Between 2010 - 2015)									
The Ladbroke Grove (Grand Union Centre Site A), 321-337 Kensal Road / Land Adjacent to 338 Ladbroke Grove, W10 5AH	9,895sqm employment floorspace 1,005sqm retail floorspace 10,876sqm residential floorspace (145 units) 6 storeys	RBKC	Taylor Wimpey Central London	145	0.321	452	£1,184	Construction mostly completed (completion due Q4 2015). At the end of Q2 2015 76 units had been sold.	Molior
Schemes with Full / Outline Permission (With Construction Due to Commence)									

Middle Row + St Mary's Primary Schools, W10 5AT	42 residential units 226sqm commercial (B1) floorspace 4-6 storeys	RBKC		42	0.13	300		Construction was due to commence July 2014 but is still awaiting the completion of new school buildings.	PP/12/02862
The Moberly Sports & Education Centre, Kilburn Lane, W10 4AH	9293sqm sport and leisure use (D2), 67 residential units, 240 sqm of retail floorspace 4-7 storeys	Brent	Prime Place	67	0.187	380		Full /outline pp gained 5 March 2013	13/3682
253-263 Kensal Road, W10 5DE	3,345sq.m office 177 student residential units	RBKC	Kensal Developments Limited	177	0.255	694		Permission granted subject to S106 1 st May 2014	EGi PP/13/06196
Kensal Rise Library, NW10 5JA	Residential development & community space	Brent	Uplift Properties	5	0.04	125		Permission granted 11/11/14	Kilburn Times 14/0846
296 Latimer Road, w10 6QW	200sq.m office 317 sq.m industrial	RBKC	6a Architects Ltd	0	0.0432	0		Full permission achieved 18/07/13 & amended planning permission granted 14/04/14	EGi PP/13/00932 18/07/2013
77-79 Southern Row, W10 5AL	566sq.m office 8 residential units	RBKC	Overgrove Properties	8	0.0742	108		Full permission achieved on 28/05/13	EGi PP/13/00324

Table 27 includes schemes listed on the property databases, EGi and Molior; whilst these databases are relatively comprehensive for schemes over a certain size, this list is unlikely to be exhaustive (particularly for small schemes) and we therefore consider this to be a relatively conservative assumption. The time period over which these scheme have been/ will be delivered is 6 years (assuming the schemes with full permission will be completed by the end of 2016 and that the list does not included developments completed in 2010). This equates to an average number of 192 units pa at a weighted average density of 338 u/ha.

Given prevailing densities within the area and the potential for a high density scheme at the site (with Crossrail), we consider that a conservative estimate of the average potential density increase of these schemes is 20%. However, the densities within Table 27 appear high and above the density proposed at the site (i.e. higher than Scenario 3(ii)) which means that we do not consider that there is potential to increase these densities further in this analysis; the densities quoted are likely to have been skewed by calculation of density on a net basis which does not make them comparable to the analysis in Section 3.

192 units pa is therefore taken as the average number of units delivered per annum within the study area; assuming an average unit size of 65 sq m (as per the assessment of the site in Section 4), C&W calculate that this creates a GDV of around £110m pa of additional which is £2,200m of value creation over a 20 year period without Crossrail. With Crossrail C&W has calculated that there could be an additional £20m of GDV pa which would total £400m over a 20 year period. This is based on the assumption of sales values of £814 without Crossrail and £937 with Crossrail (a 15% uplift). This assessment ignores affordable housing within the sites on the basis that we are comparing between the two scenarios on the same basis.

Table 28 – Potential Impact of Crossrail on the typical residential pipeline

Total Number of Units (2010 - 2015 Inclusive)	1,154	
Development Timeframe		6 years
Total Development Area		3 Ha
Weighted Density	338	Units/Ha
Average No. Units /Year		192
Average Unit Size		65 sq m
Total Residential Floorspace Created	12,502	sq m
Average psf Values		£814
Uplift in psf Values With Crossrail		15%
Forecast psf Values		£937
Value Created (without Crossrail)	£110,000,000	pa
	£2,200,000,000	Over 20 year period
Value Created Over and Above (With Crossrail)	£20,000,000	pa
	£400,000,000	Over 20 year period

8.3. Long Term Planned Development

Outside of the 'typical' development pipeline, there are a number of significant long term schemes or planned developments within the study area which are likely to be significantly impacted by Crossrail by improving values but

crucially, also deliverability and developer appetite to accelerate these schemes. Table 29 shows three potential future development sites within the study area.

Table 29 – Strategy, Long Term Schemes within the Study Area

Scheme	Details	Borough	Number of Residential Units	Size (ha)	Development Density (u/ha)	Planning Status	Reference / Source	C&W's Assumptions on Achievable Affordable Level
Land adjacent to Trellick Tower	Allocated for a minimum of 688 residential units, 2,000 sq m of retail (A1-A5)	RBKC	Upwards of 688	5.3	130	Site allocation	Adopted Core Strategy 2010 (Strategic Site Allocations)	20%
Wornington Green (Housing Estate Renewal); Portobello Square - Master Consent	1,000 residential units 3,104sqm non-residential floorspace (A1,A2,A3,A5 and B1) 5-15 storeys	RBKC	919	3.10	319	Outline Planning Permission		50%
Treverton Estate	Existing Density is 69 u/ha (based on 142 units) Emerging Estate Regeneration Scheme (with the potential for the joint redevelopment of Barlby Road School site to the north to prove a more comprehensive redevelopment)	RBKC	259	2.07	125		Housing Review – Estate Comparison Document 20140424	50%

As stated above C&W considers that a reasonable estimate of the average potential density increase of these schemes/ planned development is 20% based on the analysis in Section 3 (on major development sites). Assuming an average internal unit size of 65 sq m, C&W calculates that an increase in the density level of 20% and an uplift in residential values of 15% could create an additional GDV of £270m over and above that created without Crossrail. Note that C&W has made a high level assumption on the level of affordable housing that will be provided on these sites and an estimated affordable housing capital value of £200 psf.

Table 30 – Potential Uplift on Strategic Sites

	Land Adj. to Trellick Tower	Wornington Green/ Portobello Square	Treverton Estate	Total
Total Number of Units (LT developments)	688	919	259	1,866
Total Number of Private Units	550	460	130	1,139
Total Number of Affordable Units	138	460	130	727
Average Unit Size	65 sq m			
Total Residential Floorspace Created	121,290 sq m			
Total <u>Private</u> Floorspace Created	74,061 sq m			
Total <u>Affordable</u> Floorspace Created	47,229 sq m			
Average Private psf Values (without Crossrail)	£814 psf			
Uplift in psf Values (with Crossrail)	15%			
Average Private psf Values (with Crossrail)	£936.1 psf			
Average Affordable psf Values	£200 psf			
GDV (without Crossrail)	£ 750,000,000			
Additional GDV (With Crossrail)	£270,000,000			
With Crossrail	£1,020,000,000			

9. Funding Mechanisms

The challenge in relation to a potential Portobello Road Crossrail Station is in understanding how to fund and finance this infrastructure from those who will ultimately benefit from significant increases in property values; C&W has identified various forms/ sources of funding the upfront investment cost and also the various pay back mechanisms (e.g. developer receipts or council taxes / business rates).

9.1. Funding from Development on ‘the site’

9.1.1. Forms of Funding

Developer

The simplest and most direct form of funding is for the developer (or consortium of developers in partnership with landowners) to fund the upfront infrastructure costs based on the potential for a significant increase to the achievable GDV on their landholdings. The downside of this approach is the ‘free-rider’ problem in that it is not possible to limit the beneficiaries of the new Station to those who are directly funding it and the fact that the land is not within single ownership. However, the biggest benefit from the new infrastructure would be the landowners/ developers of the site which means that this could be the most efficient way to fund the new Station. The analysis and financial modelling in Section 6 of this report suggests that the infrastructure investment is fully covered by the potential receipts from development and the uplift which can be directly attributed to the impact of a new Station.

Potential payback mechanism: developer’s investment is recovered in the form of increased GDV and land values which will be created by the new infrastructure.

GLA Housing Zones (or HCAi funding outside of London)

The GLA’s Housing Zones programme seeks to accelerate the delivery of significant housing developments in London through providing funding for items which assist in achieving this, including infrastructure projects. The initiative is backed by £400m of funding; £200m of grant or loan capital funding from the GLA and £200m of recoverable funding from the HM Treasury. The GLA will look to recover its investment where this is possible, either by direct recovery through loans with a commercially calculated interest rate, or through overage or profit share type arrangements. Where this is not possible then the Mayor will consider making investment available through grant. The funding being made available by central Government is in the form of a Financial Transaction. Access to the recoverable capital investment fund is open to private sector organisations only but through a Local Authority led bid. In terms of infrastructure funding, it is expected that any investment would be at least matched with equal funding from other partners and be made on a repayable basis.

Local Authorities who submit successful proposals for housing zones will also have access to cheaper borrowing at the Public Works Loan Board’s projected rate for capital infrastructure expenditure, relating to the zone. This is a current programme with no opportunity for further applications at this stage; however, as per the various HCA funding programmes in recent years, it is widely anticipated that this will be extended and could become a rolling programme.

Boroughs are to identify and package together brownfield land which could be used for development into a zone, remove unnecessary restrictions and partner with developers to build new homes. The GLA seeks to work with boroughs to plan the development, put in the infrastructure, release public land, simplify planning, clean up pollution, streamline compulsory purchase orders and do anything necessary to open up the regeneration of an area. The zones will be governed by 10-year frameworks, offering commitment and affording clarity and certainty.

Inclusion of this potential mechanism assumes an extension of the existing Housing Zone programme.

Potential payback mechanism: developer payback from long term development revenue on the site.

Local Authority Capital Budget or Prudential Borrowing

The RBKC has previously committed £33m to underwrite the cost of the new station from its own capital reserves and there may be scope to continue this element of funding based on the overall economic benefits to the Borough. The Local Government Act 2003 also allows a local authority to borrow for any purpose relevant to its functions or for the 'prudent management of its financial affairs'. Under prudential borrowing, the amount of debt and other liabilities most Local Authorities can incur is no longer capped by an upper limit, instead it must conform to the Prudential Code which requires that borrowing be affordable and prudential. The amount that a Local Authority can borrow is governed by the requirements of CIPFA's Prudential Code for Capital Finance in Local Authorities and by the Local Authorities Regulations 2003. Each authority must set a total borrowing limit for itself in accordance with the principles of the Prudential Code. The limit will be related to the revenue streams available to the Local Authority, with which it can repay the debt. Local authorities cannot breach the overall limits on their borrowing set by the Prudential Code regime. The judgement as to an appropriate level of reserves lies with the Local Authorities, on 'general accounting principles.'

Potential payback mechanism: NHB, Business Rate Retention.

Local Government Pension Scheme (LGPS)

A number of recent studies have found there to be scope for LGPS funds to do more to invest for wider social and economic benefit. In 2012, DCLG carried out a consultation on possible changes to the Investment Regulations. As a result of the consultation, it amended the investment regulations to increase the proportion of the capital value of a fund that could be invested in partnerships. The DCLG said the change would give funds more scope to invest in infrastructure projects. A report published by the National Association of Pension Funds (NAPF) in May 2013 found a trend in LGPS investments away from investing in equities towards other assets such as property and infrastructure. The need for such funded is based on the increasing requirement on banks to put aside reserves against all their loans, and their reticence to commit to the long term loans needed to develop infrastructure; in contrast, pension funds have a long term perspective which matches the funding required to a greater extent.

Potential payback mechanism: NHB, Business Rate Retention.

The UK Guarantees Scheme

The UK Guarantees Scheme was announced in 2012 in order to progress UK infrastructure projects held back by adverse credit conditions. The Government committed up to £40bn in guarantees to remove barriers to private finance, with contractors charged a fee. Guarantees are awarded via Infrastructure UK and are subject to a number of checks and eligibility criteria, including: national significance; financial credibility; readiness (construction within 12 months); dependence on the guarantee (project must be unlikely to proceed without intervention); and value for money (for the taxpayer). The structure of each guarantee differs, with the Government having control over the scale, timing, risk exposure and relationship elements, depending on the need of the individual project. As of April 2014, 40 projects were known to have passed the pre-qualification stage, worth £37bn in total. Therefore, without an extension of the scheme, there are likely to be only a small number of additional projects that will qualify for a guarantee. A number of high profile guarantees have been awarded to date, including the Northern Line Extension to Battersea (£750m), the Mersey Gateway Bridge (£257m) and the Drax Power Station (£75m). The scheme in its current guise is open until 31 December 2016.

Potential payback mechanism: developer payback from long term development revenue on the site, NHB, Business Rate Retention.

The Growing Places Fund

As of June 2014, £657m of Growing Places Fund had been allocated to 323 specific projects. The funding can be used to establish revolving funds to take forward a range of projects that can help facilitate economic growth, jobs and house building in the local area, providing returns which can be reinvested locally. Examples include infrastructure delivery (such as new roads, utilities and broadband), site acquisition and preparation, residential and commercial building construction and public realm.

In order to qualify for the fund, partnerships must demonstrate that they meet certain criteria such as how the money they receive from the fund will generate economic activity in the short term by addressing immediate infrastructure and site constraints which promote the delivery of jobs and housing. Bidders also need to demonstrate that they have match funding in place, be in a position to start from the approval date, have private sector involvement or the means of unlocking wider private sector development and economic activity and the necessary planning permissions, legal consents and land ownership in place. It is currently unclear if there are any plans to advance this programme any further or whether it has been superseded by things such as the Cities & Local Growth Unit.

Potential payback mechanism: this is a revolving infrastructure fund but repayment could be from long term development revenue on the site or Business Rate Retention.

Tax Increment Finance (TIF) schemes

TIF schemes were approved by the 2010-2015 Coalition Government as a new mechanism for forward funding infrastructure and capital development. TIF schemes use future uplifts in real estate tax revenues to finance current public infrastructure improvements, which will in turn create tax gains to help fund future projects. The projected increase in taxation is captured in a bond and sold to fund the infrastructure. TIF allows Local Authorities to borrow against different elements of retained business rate revenue. The revenue is not to the Local Authority but goes directly back to the government to repay the loan (i.e. central government fund and repay loan via TIF). TIF is only likely to be suitable where the site is cleared to ensure substantial business rate growth is a realistic prospect (which could be the case at the site).

New Development Deals which have been negotiated within City Deals for Newcastle, Manchester, or Sheffield for example, involve the ring-fencing and dedication of proceeds for future growth through TIF. In the absence of more systematic fiscal devolution London First see scope for HM Treasury to apply these principles to a wider range of schemes in London so as to enable growth-stimulating infrastructure investment to go ahead.

Manchester City Deal, which included a TIF scheme, was set up in 2012 and became known as the 'Greater Manchester earn-back scheme'. Under this deal £1.2bn is being invested up-front in transport improvements.

Potential payback mechanism: repayment from Business Rates.

9.1.2. Pay Back Mechanisms

Direct Developer

There are examples where significant land owner(s) / developer(s) have funded infrastructure improvements without a mechanism for payback from other potential beneficiaries. For example, Woolwich (Berkeley Homes' Royal Arsenal scheme funded a new Woolwich Crossrail station) and Kidbrooke (Berkeley Homes again – funding for a significant

railway station upgrade); the payback mechanism to them is an increased GDV, a faster pace of absorption and improved land values.

Developer Framework through a Supplementary Planning Document (SPD)

The establishment of an SPD for a defined area can be created to identify infrastructure costs and ensures that the cost of providing this infrastructure is evenly shared between the different land owners in the defined SPD area. A private sector developer may fund the key piece of infrastructure to allow a scheme on its land to be brought forward and the SPD would create a mechanism where the developer is able to capture contributions from developers of other plots of land within the defined SPD area as they develop their schemes at a later date and within the timeframe specified within the SPD (benefiting from the infrastructure put in place and already funded by the first developer). For instance, Crest Nicholson has committed to infrastructure works in excess of £30m to help them develop circa 2,100 homes on a major constrained, brownfield site in Bath (Bath Western Riverside); these infrastructure works have the potential to directly enable a number of other sites adjacent to the Crest Nicholson development. Therefore, an SPD area was created (outside of the Crest Nicholson site) with Crest Nicholson funding the infrastructure works but with the potential to claim contributions from future developments as they come forward.

An SPD style approach can also be used in the case of public sector led development, as in the case of the Bedford Bypass project. In this example, English Partnerships (EP, now the HCA) forward funded the first phase of the Bedford Bypass to support and enable the delivery of some of the key housing sites on the west side of Bedford. Under this innovative deal, £17m was put towards the cost of the £24m road through Treasury accounting systems. This went to EP which acted as ringmaster and forward funder on the project. Money is to subsequently be recouped from the housing developers to pay back this funding; various thresholds, such as completion of a particular number of homes, triggers payments. The remainder of the funding for the road came from the government's Growth Area Fund, which provided £5m, and a £2m local transport plan contribution.

Enterprise Zones (Business Rates)

In 2012, the UK government established a number of Enterprise Zones (EZs), geographical areas with a range of incentives to help to build or grow businesses, including simplified planning and tax relief. Hence EZs have a commercial focus rather than being aimed at improving housing supply. Gaining classification as an EZ can help fund infrastructure projects as changes to business rates generated by firms locating in the defined zone are retained and reinvested in local economic growth for a period of typically 25 years. This enables a greater share of business rate uplifts to be retained locally, and large infrastructure projects such as the Northern Line Extension (NLE) at Battersea have benefitted from contributions obtained through a new EZ in the London Borough of Wandsworth and Lambeth.¹

The NLE to Battersea is largely being funded by the Public Works Loan Board and paid back by the private sector through value uplifts generated by redevelopment in the wider Battersea area; the entire funding requirement, including interest costs, is expected to be met through £266m (2012/13 prices) of developer contributions from section 106 and CIL and retained business rates via a new Enterprise Zone. The zone is to be used purely as a funding mechanism for the NLE with no additional incentives available to businesses (so distinct from the 'official EZs').

New Homes Bonus

¹ NLE: EZ and Borough s106/CIL contribution, 4 March

The NHB is a government scheme aimed at encouraging Local Authorities to grant planning permission for new homes in return for receiving additional revenue. The NHB provides un-ring fenced funds to Local Authorities for each new home completed. The scheme only applied to homes that are completed in the previous Spending Review period; that is, to the end of March 2015. There was no announcement relating to the NHB in the March 2015 or July 2015 Budgets. Assuming the bonus is continued, the additional residential units would unlock additional funds. The scheme pays out for each new home for six years, with an additional payment of £350 for six years for each new affordable home completed. The grant is based on the amount of extra Council Tax revenue raised for new-build homes, conversions and long term empty homes brought back into use. There is also an extra payment for providing affordable homes. The Department for communities and Local Government set aside £1bn for the NHB with the aim for the scheme to produce an additional 140,000 homes over 10 years. In 2015 The DCLG announced that almost £3.4bn had been allocated between 2011 and 2016.

9.2. Funding from the 1km Study Area

Community Infrastructure Levy (CIL)/ S106

CIL is a planning charge, introduced by the Planning Act 2008 as a tool for Local Authorities in England and Wales to help deliver infrastructure to support the development of their area. The Borough CIL allows for the pooling of funds by Local Authorities to capture increases in development value over a wide area. Note that, in line with the Borough CIL Charging Schedule January 2015 and Zone Maps, development at the Kensal site is not liable to a CIL charge across all uses. CIL is separate to any s106 contributions and does not form any part of s106 agreement. The RBKC CIL Regulation 123 List (April 2015) identifies the RBKC's intention to continue to negotiate S106/S278s/on-site provision in particular in relation to transport / infrastructure provision, where S106s tests and pooling requirements are met, and for items not included in the Regulation 123 List. This specifically states that provision will be made by S106/S278s/ on site provision for development in the Kensal Gasworks Strategic Site / Kensal Canalside Opportunity Area.

The difficulty with Borough CIL compared to S106 is the allocation of pooled fund for on-site provision.

From 1 April 2013 the Mayoral CIL came into operation following the Mayor's review of his Charging Schedule (introduced in April 2012). This updated guidance on implementation of London Plan policies on the funding of Crossrail, planning obligations and the Community Infrastructure Levy (CIL) and it replaces the SPG on "use of planning obligations in the funding of Crossrail" published in July 2010. The Mayoral CIL provides that most developments that were consented on or after 1 April 2012 will be liable to pay the CIL (developments used for the provision of medical / health services or education may be excused from the levy). It is a flat rate charge of £50 psm for Zone 1, £35 psm for Zone 2 and £20 psm in Zone 3 based on net increases in Gross Internal Area (GIA). This three band charging schedule based on April 2010 average house prices in each borough. Boroughs which benefit most from Crossrail will be required to charge the higher rate. The flat rate enables the burden of the infrastructure to be spread across all development. The entire sum collated by the Mayoral CIL is put into a pooled fund which is allocated for the purposes of funding the Crossrail project.

The Mayoral CIL is being kept under regular appraisal with biannual review and the potential for future CIL payments for a localised area has not been explored as far as C&W is aware.

The difficulty of utilising CIL contributions to deliver critical infrastructure on an individual scheme is clearly a timing risk as for development to commence at the site (at the scale envisaged in scenarios 2 and 3) this requires infrastructure to be in place. The payment of CIL or first CIL instalments is not paid until 60 days after the commencement of development (based on the RBCK CIL Instalments Policy February 2015 & The Mayor of London CIL Instalments Policy).

Stamp Duty Land Tax (SDLT)

Ringfencing SDLT is identified by London First as an alternative means for pooling funds to capture value uplifts accruing to development. The current threshold for paying SDLT is £125,000 for residential properties and £150,000 for non-residential land and properties, and is chargeable on the purchase of a freehold property, a new or existing leasehold, shared ownership scheme, and on the transfer of land or property in exchange for payment. This is usually paid on the price of the land or property. Rates are paid in increasing portions of the property above £125,000 on residential property (unless it's an existing lease). Currently, these funds are pooled with the HM Revue & Customs and therefore it is difficult for Local Authorities to create a direct mechanism to share in the growth that would come from SDLT receipts based on infrastructure upgrades. Long term, it could be on the agenda to see Local Authorities be able to retain all or part of the increase in SDLT receipts which can be attributed to their own direct investment.

9.3. Indicative Phasing Plan for Payments & Infrastructure Delivery

Table 31 – Phasing Plan

	Start Year	Duration (Years)	End Year	Year					
					1	2	3	4	5
REVENUE					2017	2018	2019	2020	2021
Gasworks Decommission	2017	1.0	2018	-£ 6,844,000	£ -	£ -	£ -	£ -	-
Crossrail Station	2019	3.0	2022	£ -	£ -	-£ 13,491,728	-£ 13,491,728	-£ 13,491,728	-
Kensal North Site Levelling	2017	3.0	2020	-£ 2,475,333	-£ 2,475,333	-£ 2,475,333	£ -	£ -	-
Canal /Pedestrian Bridge	2018	1.0	2019	£ -	-£ 8,782,000	£ -	£ -	£ -	-
Railway / Road Bridge	2017	2.0	2019	-£ 6,989,500	-£ 6,989,500	£ -	£ -	£ -	-

Please note that this is a high level and indicative assessment and C&W has not consulted with those who developed these costs estimates in terms of potential timing.

10. Conclusion

10.1. Part 1

Table 32 - Summary of Part 1 Conclusions

Questions	C&W Response
1. How many units would the market expect to deliver without a Crossrail station on the site?	1,449
2. Would the market expect to deliver 4,000 homes with a Crossrail station on this site?	Yes
3. If not or in the case that C&W consider that 4,000 plus units is achievable, what is the maximum quantum of development that the market would comfortably expect on a site like this with a Crossrail station?	C&W consider that 4,000 plus units is achievable up to 4,872
4. What is the economic impact of a station on the Kensal site and the surrounding area compared to the no-station option?	£0.7-1.2bn over and above a scheme on the site without Crossrail.
5. What is the likely timescale of delivery of this site and what is the likely impact on cash flow and deliverability?	Completion by circa 2034 based on a 10-15 year delivery programme if infrastructure works are funded and delivered by 2022.

10.2. Part 2

- Cost and requirements of a station and associated infrastructure (including site servicing costs):
 - Scenario 1: £87m
 - Scenario 2: £243m
 - Scenario 3(ii): £249m

Outside of the cost of the new Crossrail station, we consider that a scheme of this size and scale should be able to shoulder the full costs of this infrastructure. Site fill and bridge works, whilst significant costs, are primarily servicing the site area (as opposed to the wider study area) and the scheme of a significant enough scale to cover these costs.

It is actually possible (from a purely financial perspective) for the scheme on the site to be able to fully fund the new Crossrail station in its entirety without wider contributions from the public sector or contribution strategies to capture the uplift generated in the wider study area. However, it is not necessarily equitable that this scheme funds all of the cost given the wider benefits identified within C&W's analysis. The GDV benefits of the new Crossrail station to the site is forecast as £1.45-1.97bn and £0.46-0.66bn in land value terms.

Given the healthy nature of the viability of the scheme, we have not reviewed potential trade-offs on the various infrastructure costs for the scheme.

- Proposed contribution strategy

Section 9 identifies various potential funding options for the infrastructure required to bring forward Scenario 2 and 3 schemes on the site. We consider that there are a number of viable options for this site and that potentially the 'best fit' in the current climate is for Housing Zone status given that the overarching development potential here is residential as opposed to commercial use. The benefits outlined in Section 8 overlap slightly but the overall benefit calculated is a significant sum from which to draw contributions. This totals:

- Uplift on existing housing values in the study area: £1.2-1.6bn
- Increased GDV on typical pipeline in the study area over a 20 year period: £0.40bn
- Increased GDV on one off strategic developments in the study area: £0.27bn

However, as stated above, we consider that the scheme on the site could fully fund the infrastructure requirements.

- Funding Mechanisms

Section 9.1.2 illustrates the various mechanism for paying back the upfront infrastructure costs required to enable development on the scale envisaged in scenarios 2 and 3 to come forward. The difficulty of utilising CIL contributions to deliver critical infrastructure on an individual scheme is clearly a timing risk as development of the site (at the scale envisaged in scenarios 2 and 3) requires that infrastructure is in place for it to commence. However, we consider there to be significant potential to take into account future business rates revenue, NHB and creating a wider planning strategy (through an SPD) which creates a more direct link between infrastructure funding and acceleration development.

Appendix 1 - C&W's Key Modelling Assumptions

Area

Residential units calculated on basis of 75% gross to net ratio, and varying net unit sizes based on our experience and local guidelines.

Retail / Leisure net floorspace based on 65% gross to net ratio (apart from the Sainsbury's store which has been done at 95% for the new store to reflect improved efficiency in design compared to the existing store).

Office net floorspace based on 75% gross to net ratio.

Residential density calculated as site area ha / number of units.

Residential unit areas have been benchmarked against the minimum unit areas as stated in the London Plan and are well above this minimum level.

Affordable housing levels at 20% of the gross floor area; this is lower than RBKC policy (50%) and is a adjustable figure based on the viability of the scheme.

Site areas are based on C&W Promap assessment and checking this against the original brief provided. The initial brief included some double counting of areas. For clarity, the areas assumed are:

Kensal South:	Hectares	Acres
North Pole Depot	5.8	14.3
Total	5.8	14.3
Kensal North:		
Kensal Gasworks & Adjacent Land (Ballymore site)	6.0	14.8
Kensal Gasworks & Adjacent Land (NG site)	2.2	5.5
Sainsburys site	3.2	7.8
Boathouse Centre & Canalside House	0.3	0.6
Total	11.6	28.7
Overall Total	17.4	43.0

Scheme

Mix of units for all schemes (for assessing GVA) are based on the LBHF assumption of – c. 30%, 30%, 40% for 1, 2 and 3 bed units respectively. Based on previous density modelling and alteration to these schemes, including some amendments on commercial mix (at C.07 for Scenario 2&3) and the level of commercial has been upped slightly at C.07 (for Scenario 1) and at B.03 and Block D (for Scenario 2&3) to reflect where the previous block layout exercise did not add up (based on C&W's understanding). Note C&W are not undertaking a masterplanning exercise and the results would be best checked with a full masterplanning exercise.

Existing Use

The existing use value of the Sainsbury's store has been calculated using a gross to net area ratio of 90%. A rent of £25 at a yield of 4.75% has been applied and as well as purchaser's costs at 5.8%.

The Gas Works and associated land to the east, as well as the North Pole depot has been assumed to have an existing use of industrial for the purpose of assessing the existing use of the sites. The values that have been assigned are indicative values based on 'tone of the list' methodology to reflect the unlimited information available. C&W has no access to operational information for these assets/land.

The existing use value of the Gas Works and associated land to the east has been assumed to be of higher value than the North Pole Depot site due to the existing access to the site as well as the shape of the land which would likely compromise use of the land for industrial use.

We have assumed that an approximate proportion of 70% of the North Pole Depot is within the RBKC scheme.

Values

Residential values have been benchmarked using new build/recently constructed schemes in W10 and the immediate surrounding area.

Office values have been benchmarked using small scale lettings in the immediate surrounding area.

Retail and Leisure values have been benchmarked using letting values in the surrounding area as well as similar sized residential schemes in London.

No annual growth in value has been accounted for in the appraisal.

Residential values have been increased by 15% units overall, with values also being increased/decreased depending on their proximity to the canal and railway track respectively.

Residential values have also been revised based on the likely attractiveness of the site to occupiers / buyers and the impact of the development of a Crossrail station at the site where applicable.

Affordable housing values for the RBKC are represented as a blended rate based on 85% affordable rented and 15% intermediate housing.

Costs

Base build costs are based on previous experience of similar projects in London.

There has been no inflation added to build costs.

Bridge and Kensal North site levelling costs have been sourced from the Kensal Gasworks Bridge Feasibility Study by Alan Baxter.

Gas holder decommission costs are based on broad assumptions including utilising our experience of gas holder development sites.

Decontamination/site servicing is based on previous experience of contaminated sites. Contamination level has been assumed to be high considering previous uses.

Crossrail Station costs have been sourced from the previous project brief.

Highways improvement is included within external works.

Borough CIL costs have been sourced from the respective council Draft Charging Schedules.

Mayoral CIL has been applied to all development save from education and health facilities.

Cash flows are annual and the S curve apportion costs annually. Finance costs are also calculated annually.

There has been a contingency applied to total costs.

Phasing

Development takes place at an 'even' pace across all sites within the scenarios.

Scenario 1 has a 10 year sales period based on a conservative build and sales period.

Scenarios 2 and 3 are based on a 15 year sales period starting in 2020 as advised within the previous brief.

Misc

All parties sell their holdings at a market value and do not enforce a 'ransom payment'.

National Grid are able to gain operational VP of the Gasworks.

Canal Way is an adopted highway.

All 3 schemes have been assessed as comprehensive developments with cash flow apportioned between land holdings.

GVA

Residential Income:

Relationship between council tax bands and unit types estimated using professional judgment and examples from other London Boroughs.

Council tax are 2014/15 rates and include GLA element but exclude K&C Garden Squares charge.

Household size data taken from Table 810, DCLG Survey of English Housing, 2007.

Proportion of working age population based on 18-65 age proportion in London, Census 2011.

Median gross annual pay is for all workers from ONS ASHE, 2013.

Income deductions are estimated and assumed to include: tax, national insurance, mortgage payments and council tax. Based on current tax rates, UK industry mortgage average and Council tax band D.

Leakage, displacement and multiplier assumptions taken from HCA Additionality Guidance, 2014.

Jobs and GVA from employment uses:

Employment densities taken from HCA / Deloitte Employment Density Guidance, 2nd edition - general categories used due to high level nature of uses.

Gross jobs assumed, given difficulty in estimating net local jobs due to highly mobile nature of employment between Boroughs.

GVA per worker is an average blended rate.

Construction Jobs:

Assumptions taken from development model on split of total construction spend by residential, employment and infrastructure uses.

Labour co-efficients taken from OffPAT Construction Jobs Guidance Note (01/12/2009).

Total construction spend taken as proxy for output i.e. GVA of construction.

The costings utilised in this assessment are high level with significant potential for change. For the avoidance of doubt, no advice within this report is to be taken as a C&W formal opinion of value and is not suitable for any purpose other than as agreed within the Engagement Letter. The commentary relates to scenarios and analysis which is based on information provided by third parties and high level, hypothetical schemes (although, they are schemes that we consider to be broadly deliverable in planning terms). No values referred to in this report are covered by the RICS Red Book (January 2014 edition).

Appendix 3 – Potential Development Costs

OPTION 1 - CLOSE - No Crossrail Station, Residential-led Development						
Item	Description	Qty	Unit	Rate	£	Comments
1	Crossrail Station		nr	40,475,185	0	Excluded
2	Residential units	1,449	nr			
	Assumed area - GIFA	1,356,942	ft²		0	
2.1	Demolition / Enabling Works	1	item	2,035,000	2,035,000	Allowance only
2.2	Residential units - Affordable	271,388	ft²	220	59,705,000	Assumed 20% of total
2.3	Residential units - Private	1,085,554	ft²	320	347,377,186	Assumed 80% of total
2.4	Basement & Parking	1	item	8,142,000	8,142,000	Allowance only
2.5	External Works	1	item	6,106,000	6,106,000	Allowance only
	Residential Unit Sub-Total				423,365,186	
3	Residential Infrastructure					
3.1	Roads	62,400	m²	638	39,814,000	
3.2	Street Lighting	390	nr	2,614	1,019,000	
	Services					
3.3	Sewer	7,800	m	1,026	8,006,000	Allowance only
3.4	Water	7,800	m	834	6,505,000	Allowance only
3.5	Gas	7,800	m	642	5,004,000	Allowance only
3.6	Electricity	7,800	m	513	4,003,000	Allowance only
3.7	BT / Broadband / cable	7,800	m	513	4,003,000	Allowance only
3.8	Infill levelling of site	96,470	m³	77	7,426,000	
3.9	Retaining wall to 'Rail boundary (piling in possessions)	500	m	5,132	2,566,000	
3.10	Possession management	1	item	128,304	128,000	
3.11	Security Palisade fence including post and concrete foundations	640	m	205	131,000	
3.12	Improved Bus interchange	1	item	300,000	300,000	Allowance only
3.13	Social & Community facilities for new residents	34,000	ft²	240	8,160,000	
3.14	General Landscaping (E.O. External Works)	89,000	m²	4	343,000	Allowance only
4	Overall Development Infrastructure					Excludes Compounds for Gas and Electrical infrastructure
	Road Bridge (over railway)					
4.1	Single Span	650	m²		Excluded	
4.2	Double Span	650	m²		Excluded	
	Pedestrian Bridge (over canal)					
4.3	Pedestrian Bridge (over canal)		m²		Excluded	Basic provision
4.4	Piled foundations		item		Excluded	Allowance only
4.5	E.O. above for moveable bridge		item	300,000	Excluded	Allowance only (Swing, Retracting or Lifting)
4.6	E.O. above for Architectural quality		item	200,000	Excluded	Allowance only
4.7	E.O. above for Underpinning to Cemetery wall		m²	205	Excluded	Allowance only
4.8	Approach Ramp		item		Excluded	Allowance only
4.9	Ramp to Cemetery		item		Excluded	Allowance only
4.10	New pathway through Cemetery	900	m²	128	Excluded	Allowance only
4.11	E.O. above for relocation of graves / monuments		item		Excluded	Assumed option not viable
4.12	Repair / Strengthening works to existing canal wall	2,556	m²	50	Excluded	Allowance only
	Road works					
4.13	New Road link to Mitre Way	2,350	m	638	Excluded	Assumed 8 m wide dual carriage
4.14	Street Lighting	390	nr	2,614	Excluded	
	Residential & Development Infrastructure Sub-Total				87,408,000	
5	TOTAL for OPTION 1				£510,773,186	

OPTION 2 - SQUARE - Mixed Use Development with a new Crossrail Station						
Item	Description	Qty	Unit	Rate	£	Comments
1	Crossrail Station	1	nr	40,475,185	47,914,524	As per Alan Baxter Feasibility Report plus inflation
2	Residential units	4,000	nr			
	Assumed area - GIFA	3,745,872	ft ²		0	
2.1	Demolition / Enabling Works	1	item	5,619,000	5,619,000	Allow ance only
2.2	Residential units - Affordable	749,174	ft ²	220	164,818,368	Assumed 20% of total
2.3	Residential units - Private	2,996,698	ft ²	320	958,943,232	Assumed 80% of total
2.4	Basement & Parking	1	item	22,475,000	22,475,000	Allow ance only
2.5	External Works	1	item	16,856,000	16,856,000	Allow ance only
	Residential Unit Sub-Total				1,168,711,600	
3	<u>Residential Infrastructure</u>					
3.1	Roads	125,200	m ²	638	79,883,000	
3.2	Street Lighting	783	nr	2,614	2,045,000	
	<u>Services</u>					
3.3	Sewer	15,650	m	1,026	16,064,000	Allow ance only
3.4	Water	15,650	m	834	13,052,000	Allow ance only
3.5	Gas	15,650	m	642	10,040,000	Allow ance only
3.6	Electricity	15,650	m	513	8,032,000	Allow ance only
3.7	BT / Broadband / cable	15,650	m	513	8,032,000	Allow ance only
3.8	Infill levelling of site	96,470	m ³	77	7,426,000	
3.9	Retaining wall to 'Rail boundary (piling in possessions)	500	m	5,132	2,566,000	
3.10	Possession management	1	item	128,304	128,000	
3.11	Security Palisade fence including post and concrete foundations	640	m	205	131,000	
3.12	Improved Bus interchange	1	item	300,000	300,000	Allow ance only
3.13	Social & Community facilities for new residents	94,000	ft ²	240	22,560,000	
3.14	General Landscaping (E.O. External Works)	89,000	m ²	4	343,000	Allow ance only
4	<u>Overall Development Infrastructure</u>					Excludes Compounds for Gas and Electrical Infrastructure
	<u>Road Bridge (over railway)</u>					
4.1	Single Span	650	m ²		7,391,000	see review of Sweett cost by DTZ
4.2	Double Span	650	m ²		n/a	see review of Sweett cost by DTZ
	<u>Pedestrian Bridge (over canal)</u>					
4.3	Pedestrian Bridge (over canal)	1	item	12,442,000	12,442,000	Basic provision
4.4	E.O. for Piled foundations	1	item	1,000,000	1,000,000	Allow ance only
4.5	E.O. above for moveable bridge	1	item	300,000	300,000	Allow ance only (Swing, Retracting or Lifting)
4.6	E.O. above for Architectural quality	1	item	200,000	200,000	Allow ance only
4.7	E.O. above for Underpinning to Cemetery wall	180	m ²	205	37,000	Allow ance only
4.8	Approach Ramp	1	item	100,000	100,000	Allow ance only
4.9	Ramp to Cemetery	1	item	100,000	100,000	Allow ance only
4.10	New pathway through Cemetery	900	m ²	128	Excluded	Assumed option not viable
4.11	E.O. above for relocation of graves / monuments		item		Excluded	Assumed option not viable
4.12	Minimal Repair works to existing canal wall	2,556	m ²	50	128,000	Allow ance only
	<u>Road works</u>					
4.13	New Road link to Mitre Way	2,350	m	638	1,499,000	Assumed 8 m wide dual carriage
4.14	Street Lighting	390	nr	2,614	1,019,000	
	Residential & Development Infrastructure Sub-Total				194,818,000	
5	TOTAL for OPTION 2				£1,411,444,124	

OPTION 3 - WATERSIDE - Large scale Residential, Mixed Use Development with a new Crossrail Station

Item	Description	Qty	Unit	Rate	£	Comments
1	Crossrail Station		nr	40,475,185	47,914,524	As per Alan Baxter Feasibility Report plus inflation
2	<u>Residential units</u>	4,872	nr			
	Assumed area - GIFA	4,562,472	ft ²		0	
2.1	Demolition / Enabling Works	1	item	6,844,000	6,844,000	Allow ance only
2.2	Residential units - Affordable	912,494	ft ²	220	200,749,000	Assumed 20% of total
2.3	Residential units - Private	3,649,978	ft ²	320	1,167,992,857	Assumed 80% of total
2.4	Basement & Parking	1	item	27,375,000	27,375,000	Allow ance only
2.5	External Works	1	item	20,531,000	20,531,000	Allow ance only
	Residential Unit Sub-Total				1,423,491,857	
3	<u>Residential Infrastructure</u>					
3.1	Roads	125,200	m ²	638	79,883,000	
3.2	Street Lighting	783	nr	2,614	2,045,000	
	<u>Services</u>					
3.3	Sewer	15,650	m	1,026	16,064,000	Allow ance only
3.4	Water	15,650	m	834	13,052,000	Allow ance only
3.5	Gas	15,650	m	642	10,040,000	Allow ance only
3.6	Electricity	15,650	m	513	8,032,000	Allow ance only
3.7	BT / Broadband / cable	15,650	m	513	8,032,000	Allow ance only
3.8	Infill levelling of site	96,470	m ³	77	7,426,000	
3.9	Retaining wall to 'Rail boundary (piling in possessions)	500	m	5,132	2,566,000	
3.10	Possession management	1	item	128,304	128,000	
3.11	Security Palisade fence including post and concrete foundations	640	m	205	131,000	
3.12	Improved Bus interchange	1	item	300,000	300,000	Allow ance only
3.13	Social & Community facilities for new residents	114,000	ft ²	240	27,360,000	
3.14	General Landscaping (E.O. External Works)	89,000	m ²	4	343,000	Allow ance only
4	<u>Overall Development Infrastructure</u>					Excludes Compounds for Gas and Electrical infrastructure
	<u>Road Bridge (over railway)</u>					
4.1	Single Span	650	m ²		n/a	see review of Sweett cost by DTZ
4.2	Double Span	650	m ²		8,782,000	see review of Sweett cost by DTZ
	<u>Pedestrian Bridge (over canal)</u>					
4.3	Pedestrian Bridge (over canal)	1	item	12,442,000	12,442,000	Basic provision
4.4	E.O. for Piled foundations	1	item	1,000,000	1,000,000	Allow ance only
4.5	E.O. above for moveable bridge	1	item	300,000	300,000	Allow ance only (Swing, Retracting or Lifting)
4.6	E.O. above for Architectural quality	1	item	200,000	200,000	Allow ance only
4.7	E.O. above for Underpinning to Cemetery wall	180	m ²	205	37,000	Allow ance only
4.8	Approach Ramp	1	item	100,000	100,000	Allow ance only
4.9	Ramp to Cemetery	1	item	100,000	100,000	Allow ance only
4.10	New pathway through Cemetery	900	m ²	128	Excluded	Assumed option not viable
4.11	E.O. above for relocation of graves / monuments		item		Excluded	Assumed option not viable
4.12	Repair / Strengthening works to existing canal wall	2,556	m ²	50	128,000	Allow ance only
	<u>Road works</u>					
4.13	New Road link to Mitre Way	2,350	m	638	1,499,000	Assumed 8 m wide dual carriage
4.14	Street Lighting	390	nr	2,614	1,019,000	
	Residential & Development Infrastructure Sub-Total				201,009,000	
5	TOTAL for OPTION 3				£1,672,415,381	

Kensal Green								
General								
Site Fill				Sweett		DTZ		
Lightweight to fill area	96,470	m ²	75	7,235,000	60	5,788,000	Granular fill type 2, compacting etc.	
Perimeter Security fencing	640	m	200	128,000	160	102,000	Fencing 2440 high including posts and Innds	
Retaining wall to Rail boundary (piling in possessions)	500	m	6,000	3,000,000	4,000	2,000,000	Assumed 5m high	
Possession management	1	item	100,000	100,000	100,000	100,000	Not clear why this is required for filling?	
Sub-total				10,463,000		7,990,000		
Preliminaries		12%		1,256,000	8%	639,000	Reduced Prelims due to nature of the works	
Sub-total				11,719,000		8,629,000		
D&B Design		8%		938,000	8%	690,000		
Sub-total				12,657,000		9,319,000		
Contingency		30%		3,797,000	10%	932,000	Reduced Contingency	
Total Estimated Cost				16,454,000		10,251,000		

Kensal Green								
Pedestrian bridge								
Footbridge over canal				Sweett		DTZ		
Bridge and ramp foundations	1	item	310,000	310,000	310,000	310,000	Structural Steel bridge with concrete foundations assumed 39 metre span	
Bridge Ramps (incl decs & parapets)	1	item	394,000	394,000	462,150	462,000		
Lighting (columns)	20	nr	2,000	40,000	2,000	40,000		
Power supply for last	1	item	50,000	50,000	50,000	50,000		
Temporary works - lifting (incl. compound)	1	item	200,000	200,000	200,000	200,000		
Diversion of electric cables	1	item	100,000	100,000	100,000	100,000		
Diversion of C&W cables	1	item	100,000	100,000	100,000	100,000		
Canal wall repair	60	m	3,000	180,000	128,000	7,680,000		
Sub-total				1,374,000		8,942,000		
Preliminaries		20%		275,000	15%	1,341,000	Reduced Prelims due to nature of the works	
Sub-total				1,649,000		10,283,000		
D&B Design		10%		165,000	10%	1,028,000		
Sub-total				1,814,000		11,311,000		
Contingency		30%		544,000	10%	1,131,000	Reduced Contingency	
Total Estimated Cost				2,358,000		12,442,000		

Kensal Green Road Bridge							
Single span				Sweett			DTZ
Bridge abutments	2	nr	1,300,000	2,600,000		800,000	1,600,000
Bridge structure (incl decs & parapets)	1	item	869,000	869,000		1,779,375	1,779,000
Roadway (incl. lighting & drainage etc.)	650	m²	300	195,000		300	195,000
Drainage connection	1	item	50,000	50,000		50,000	50,000
Power supply for lighting	1	item	50,000	50,000		50,000	50,000
Fill to ramp	13,530	m²	75	1,015,000		60	812,000
Temporary Works - bridge jacking / launching (incl. compound)	1	item	550,000	550,000		500,000	500,000
Diversion of BT cables	1	item	100,000	100,000		100,000	100,000
Diversion of C&W cables	1	item	100,000	100,000		100,000	100,000
Culvert access	1	item	25,000	25,000		25,000	25,000
Possession management	1	item	100,000	100,000		100,000	100,000
Sub-total				5,654,000			5,311,000
Preliminaries		20%		1,131,000	15%		797,000
Sub-total				6,785,000			6,108,000
D&B Design		10%		679,000	10%		611,000
Sub-total				7,464,000			6,719,000
Contingency		30%		2,239,000	10%		672,000
Total Estimated Cost				9,703,000			7,391,000

RC bridge with precast beams
assumed 70 metre span

Reduced Prelims due to nature of the works

Reduced Contingency

Road Bridge							
Double span				Sweett			DTZ
Bridge abutments	2	nr	1,300,000	2,600,000		800,000	1,600,000
Central Support	1	nr	500,000	500,000		500,000	500,000
Allowance for NR service diversions	1	nr	500,000	500,000		500,000	500,000
Bridge structure (incl decs & parapets)	1	item	723,000	723,000		1,779,375	1,779,000
Roadway (incl. lighting & drainage etc.)	650	m²	300	195,000		300	195,000
Drainage connection	1	item	50,000	50,000		50,000	50,000
Power supply for lighting	1	item	50,000	50,000		50,000	50,000
Fill to ramp	13,530	m³	75	1,015,000		60	812,000
Temporary Works - bridge jacking / launching (incl. compound)	1	item	450,000	450,000		500,000	500,000
Diversion of BT cables	1	item	100,000	100,000		100,000	100,000
Diversion of C&W cables	1	item	100,000	100,000		100,000	100,000
Culvert access	1	item	25,000	25,000		25,000	25,000
Possession management	1	item	100,000	100,000		100,000	100,000
Sub-total				6,408,000			6,311,000
Preliminaries		20%		1,282,000	15%		947,000
Sub-total				7,690,000			7,258,000
D&B Design		10%		769,000	10%		726,000
Sub-total				8,459,000			7,984,000
Contingency		30%		2,538,000	10%		798,000
Total Estimated Cost				10,997,000			8,782,000

RC bridge with precast beams
assumed 2 x 35 metre span

Reduced Prelims due to nature of the works

Reduced Contingency