steer davies gleave

Camberwell Station Re-instatement Economic Appraisal

TfL

Report
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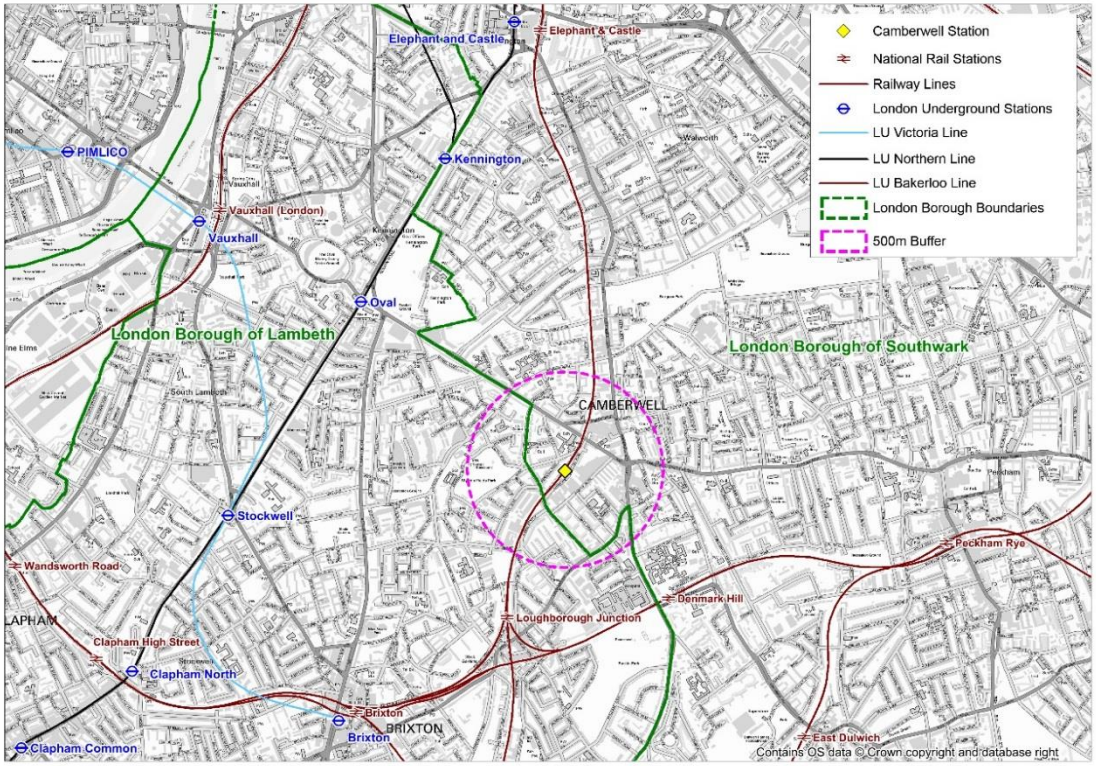
1 Introduction

Background

1.1 Camberwell Station, located in the London Borough of Southwark (LBS), was opened in 1862 along the Chatham and Dover Railway between Loughborough Junction and Elephant and Castle. Due to changing travel patterns in the early 20th Century, primarily the development of a comprehensive lower-cost tram network serving the area, the station struggled to attract enough patronage and was closed in 1916. This led to the demolition of all track level buildings by 1924 and currently there is no evidence of the stations past. A map showing the location of the former station and the surrounding transport context is shown in Figure 1-1.

Figure 1-1: Map showing location of the former Camberwell Station and the rail and Underground Public Transport network serving the southern parts of Lambeth and Southwark



1.2 The re-instatement of a railway station at Camberwell on the same site as the former station has the potential to provide economic benefits to residents in the area by improving their connectivity. Currently, the area is heavily reliant on the bus network which despite its good coverage is subject to delays and unreliability due to high traffic and congestion levels.

Steer Davies Gleave Commission

1.3 TfL is examining the case for re-instating a railway station at Camberwell. Steer Davies Gleave has been commissioned to undertake the economic appraisal and wider impacts assessment of the reinstatement, under a range of scenarios as supporting technical work to inform the Economic Case of a business case being prepared by TfL to consider if there is a case for the re-instatement of the station. This technical note summarises the development of the appraisal and wider economic impacts models used to assess whether reinstatement of a

station at Camberwell represents value for money as well as providing an analysis of the dependent development and the potential land value uplift (LVU) associated with it.

Options Assessed

1.4 Three land use scenarios have been tested (A-C), based on the assumed level of future development forecast to take place on sites identified within a 1km radius of the former Camberwell station. For each land use scenario, three train service operational scenarios (1-3) have been assessed.

1.5 LTS has been run for each land use scenario. The main difference between these is the quantum of development assumed around Camberwell Station. Land Use A assumes the lowest quantum of development, with Land Use C containing the maximum. LTS has been run for both Do Minimum (DM) and Do Something (DS) scenarios.

1.6 The three operational scenarios that have been considered are based on different assumed Thameslink service frequencies and lengths of rolling stock that would serve a re-instated station. A summary of the options assessed is presented in Table 1-1 below:

Table 1-1: Scenarios tested

Land Use	Scenario Name	Key assumptions made
Land Use Scenario	A	New Southwark Plan (NSP) levels of growth – station enables c. 240 additional dwellings
	B	NSP Growth plus higher densities on 3 sites near station – enables c. 310 additional dwellings
	C –	NSP Growth plus max densities on 4 sites near station – enables c. 460 additional dwellings
Operational Scenario	1	4tph 8 car trainsets
	2	6tph 8 car trainsets
	3	6tph 12 car trainsets

2 Economic Appraisal of Options

2.1 A WebTag compliant economic appraisal model has been developed to estimate the benefit cost ratio (BCR) of each of the options tested. The appraisal model considers costs, provided by TfL, and benefits, informed from modelling undertaken by Mott MacDonald on behalf of TfL.

Methodology

General assumptions

2.2 The economic appraisal has been undertaken in accordance with the latest TfL BCDM and DfT WebTAG guidance. The appraisal model applies a series of assumptions in order to estimate the BCR. The key assumptions are:

- Opening year of 2026;
- A 60-year appraisal period from scheme opening;
- Values of time from TfL's BCDM and DfT's WebTAG guidance;
- All costs and benefits presented in 2010 Present Value (PV) terms, this is, in 2010 prices and discounted to 2010;
- Discount rates used based on DfT WebTAG/ HMT Green Book guidance, as presented in Table 2-1; and
- Optimism bias of 66% applied to capital costs, based on guidance.

Table 2-1: HMT Green Book Discount Rates

Years from current year	Discount rate
0-30	3.50%
31-75	3.00%
76-125	2.50%

Source: HMT Green Book

Cost Assumptions

2.3 Both capital expenditure (CAPEX) and operational expenditure (OPEX) costs have been provided by TfL, with details of these presented in the following sections.

CAPEX

2.4 In 2014, Steer Davies Gleave undertook a study for TfL to understand the potential capital costs of delivering re-instated stations at Walworth Road and at Camberwell. These high-level cost estimates for Camberwell have been reviewed and benchmarked by TfL and Network Rail and provide the basis for the high-level cost estimate used for this study. The estimate from the 2014 report has been updated to 2016 prices using the latest observed construction inflation index and the costs of constructing a re-instated station with four platforms, subway and booking hall are presented in Table 2-2 for platforms capable of accommodating station calls by 8-car and 12-car Thameslink trains.

Table 2-2: CAPEX costs excluding Optimism Bias and assumptions on spend profile

Item	CAPEX estimate (includes 20% risk allowance)	Price Base	Profile
Station Works excluding risk[8 car]	£29.22m	2016	2021-2025 evenly spread
20% Risk [8 car]	£6.12m		2021-2025 weighted average of Station works and Risk spend
Station Works excluding risk[12 car]	£30.68m		2021-2025 evenly spread
20% Risk [12 car]	£6.42m		2021-2025 weighted average of Station works and Risk spend
Possession Costs	£1.40m		2021 – 15%, 2022 – 25%, 2023 – 25%, 2024 – 25%, 2025 – 10%
Total [8 car]		**£36.74m**	
Total [12 car]		**£38.50m**	

Source: TfL

2.5 Two different station CAPEX costs have been included within the appraisal depending on the operational scenario. For scenarios 1 and 2, a station capable of accommodating 8 car trains has been assumed with scenario 3 requiring platforms capable of accommodating 12 car trains. Following TfL advice, the latter has been costed by applying a 5% uplift to the 8-car station cost estimate.

OPEX

2.6 Based on operational experience, TfL has provided OPEX estimates for the new station. A single year estimate, composed of elements outlined in Table 2-3 has been used as a yearly OPEX input in the appraisal model.

Table 2-3: OPEX costs Excluding Optimism Bias

Item	Yearly Cost (2016 prices)
Infrastructure Maintenance & Operation	£200,000
Staffing	£175,000
Ticket Machines	£16,000
Oyster Validators	£10,000
Lifts	£15,000
Yearly Total	**£416,000**

Source: TfL

2.7 No allowance has been made for renewal costs as these are assumed to be included with the OPEX figures presented above.

Cost Indexation

2.8 The Retail Price Index (RPI) has been used to index the cost estimates throughout the appraisal period. The GDP deflator has then been applied to convert these into real costs for the appraisal prior to discounting to 2010 prices (as required by WebTAG guidance).

Optimism Bias

2.9 In line with appraisal guidance Optimism Bias (OB) has been applied to the CAPEX estimate. Following TfL advice, and given the early stages of the scheme, a 66% OB has been applied to the CAPEX costs (including the 20% risk allowance) for the 8-car or 12-car capable stations.

Benefits Assumptions

Data provided

2.10 Journey time changes from TfL's Railplan model have been used to estimate the benefits of the scheme. Model outputs provided by Mott Macdonald have been aggregated at Borough level. These show differences in journey times between the DM and DS assignments for a single modelled year, 2031. The outputs have been split between journey time changes accrued by existing users and new users, with new users experiencing half the benefit (Rule of a Half).

2.11 Railplan model outputs cover the three hour morning peak period (0700-1000). These have been annualised using BCDM London Underground annualisation factor of 1076[1]. Similarly, the all day journey purpose splits of 6% business, 56% commuting and 38% leisure required by the BCDM have been used.

2.12 Analysis of the outputs reveals that in some peripheral areas beyond London and Kent produces unexpected counter-intuitive results. In order to minimise the impact on the overall results, and in agreement with TfL, areas outside the GLA boundary and outside of Kent have been excluded from the assessment[2].

2.13 Marginal external costs (MEC) have been derived from changes in car-km observed in each of the LTS runs associated with the different land use scenarios. MECs considered within the assessment include:

- Road decongestion;
- Infrastructure;
- Changes to quantum of accidents;
- Air quality;
- Noise;
- Greenhouse gas emissions (GHG); and
- Changes to indirect taxation.

2.14 The MEC rates used are based on DfT WebTAG guidance.

Profiling – Growth and Values of Time

2.15 The scheme opening year is 2026, while the Railplan modelled year is 2031. The demand in 2026 has been assumed to be 90% of that of 2031 with a straight-line interpolation between these years. This accounts for the background demand growth on Thameslink services as well as the passenger build-up at Camberwell station.

2.16 Beyond 2031, demand (and therefore journey time differences) have been assumed to grow at 1% per annum to 2037. Beyond 2037 this is capped, following WebTAG guidance which

[1] BCDM C.5.2

[2] Refer to the technical report prepared by Mott Macdonald for a detailed explanation of the issue and why external zones other than Kent have been excluded.

suggests demand should be capped twenty years from when the appraisal is being undertaken.

2.17 Journey time changes have been monetised using the latest TfL and DfT values of time. These are presented in resource costs, in line with TfL's BCDM guidance.

Table 2-4: DfT's and TfL's Values of Time

Trip Purpose	DfT 2016/17 values of time in 2010 Resource Prices	TfL 2016/17 values of time in 2010 Resource Prices
Business	£17.45	£19.25
Commuting	£9.02	£9.53
Leisure	£4.12	£5.75

Source: DfT WebTAG March 2017 and TfL BCDM

Revenue impacts

2.18 The model has not explicitly considered revenue impacts. Additional revenue is generally considered within the present value of costs (PVC) and used to partly offset construction and maintenance costs. Given the location of the proposed re-instated station in inner London, it is likely that most users of Camberwell station would be abstracted from other public transport modes, primarily bus. While rail fares are higher than bus fares in London, the likelihood of those living in inner London using an Oyster card to travel is high. For those longer-distance trips affected by the additional stop (e.g. from Kent to central London) the most likely response (of those who change their travel) would be to re-route and make their journey via an alternative rail corridor rather than opt to drive – so net revenue impacts would be marginal. The overall net effect of including revenue would be negligible as those using Oyster cards or season tickets would experience no change in costs, and the change in revenue at the network-wide level would be marginal.

Results and discussion

2.19 As outlined in the previous section cost and benefits of re-instating a railway station at Camberwell have been profiled over the 60-year appraisal period, grown and indexed with RPI and presented in 2010 PV for each of the nine scenarios. A summary of the transport user impacts of the re-instated station are presented in Table 2-5. This includes the change in journey times, the present value of costs, the present value of benefits and the BCR applying both TfL and DfT Values of Time.

Table 2-5: Summary of transport-user benefits/ disbenefits appraisal results

Test ID	JT Change Existing Users (3h AM Peak hours)	JT Change New Users[3] (3h AM Peak hours)	PVC	PVB (TfL)	BCR (TfL)	PVB (DfT)	BCR (DfT)
A1	103	-9	£45.44m	-£26.68m	**-0.59**	-£23.55m	-0.52
A2	162	-13	£45.44m	-£42.59m	**-0.94**	-£37.61m	-0.83
A3	371	-15	£47.26m	-£101.84m	**-2.16**	-£89.92m	-1.90
B1	108	-10	£45.44m	-£29.95m	**-0.61**	-£24.67m	-0.54
B2	159	-15	£45.44m	-£41.26m	**-0.91**	-£36.43m	-0.80
B3	329	-17	£47.26m	-£89.17m	**-1.89**	-£78.73m	-1.67
C1	72	-11	£45.44m	-£17.49m	**-0.38**	-£15.44m	-0.34
C2	114	-17	£45.44m	-£27.87m	**-0.61**	-£24.61m	-0.54
C3	294	-20	£47.26m	-£78.40m	**-1.66**	-£69.22m	-1.46

Source: SDG analysis

2.20 The overall headlines are that:

- The present value of costs (PVC) is of a similar order for all options, at between £45.4 and £47.3m PV.
- The present value of benefits (PVB) is negative (a disbenefit) for all options, indicating that disbenefits to through trips out-weighs the benefits to users of the re-instated Camberwell station. The PVB disbenefits range from -£17.5m (Option C1) to -£102m PV (Option A3).
- Accordingly, none of the options tested produces a positive BCR. While new Camberwell station users experience a journey time benefit, this is not enough to offset the time penalty incurred by Thameslink passengers travelling into central London from the Wimbledon Loop, Bromley and parts of Kent.

2.21 The performance of scenarios for transport users improves in land use scenario C compared to land use A and B. Land use scenario C considers potential development around the station to be about double the development that would be delivered under land use scenario A. Scenario C results in an increase in the number of boarders at the stations and therefore those experiencing a net journey time benefit.

2.22 In terms of the operational scenarios, scenario 1 performs best in all three land use scenarios. Operational scenarios 2 and 3 assume that 6tph call at the re-instated station, and therefore would impose a time penalty on a larger number of Thameslink users.

2.23 Operational scenario 3 assumes that 12-car trains at a service level of 6tph call at the re-instated station. From the results, it is evident that this option performs significantly worse than operational scenario 2. The introduction of longer trains in the DM and DS increases capacity significantly, which in Railplan assumes this capacity is taken up by passengers from outer London / Kent, so that there is more demand in the Do Minimum. As a result, in the Do Something, this leads to a greater number of passengers being delayed by the additional stop

[3] Rule of Half included within the numbers presented

at Camberwell, with the increase in demand at Camberwell being unable to compensate for this.

3 Wider Economic Impacts

3.1 The Wider Economic Impacts (WEIs) of re-instating the railway station at Camberwell served by Thameslink services have been estimated for each of the nine land use and operational scenarios using a bespoke model that reproduces the calculations undertaken by DfT's WITA software. WEIs considered in this assessment include Agglomeration, Imperfect Competition and Tax Revenue from Labour Supply changes.

Explanation of the WEIs that have been appraised

Agglomeration calculations look to quantify productivity changes that result from increased clustering of business activity, and better matching between business needs and skills availability as the result of the transport scheme. Agglomeration benefits are reported at Local Authority level and are calculated using WebTAG Guidance.

3.2 Imperfect competition benefits quantify the increase/decrease in output by firms resulting from changes in transport costs enabled by the scheme. They represent the welfare gain achieved as consumers' willingness to pay for the increased output will exceed that of producing it.

3.3 Labour supply impacts consider commuting costs as factor for an individual to join/leave the workforce. If commuting costs reduce as a result of the scheme this may incentivise an individual to join the workforce and labour supply impacts quantify the taxation impact of individuals joining/leaving the workforce.

Methodology

3.4 The bespoke model used to assess the WEIs follows the methodologies set out in WebTAG guidance and is described in greater detail in the following section.

Data requirements

3.5 Data requirements for each of the WEIs considered is summarised below.

Table 3-1: Data requirements by WEI

WEI	Data requirement	Source
Agglomeration	Changes in generalised costs and demand by origin-destination pair	Railplan
	Local GDP per worker by Local Authority District (LAD)	DfT Wider Impacts Dataset
	Sectoral Employment Forecasts by LAD (Construction, Manufacturing, Consumer services and Producer services	
	Agglomeration parameters by industrial sector	
Imperfect Competition	Changes in generalised costs and demand by origin-destination pair	Railplan
Labour Supply Impacts	Average workplace earnings, average National GDP per worker and index of productivity per worker by LAD	DfT Wider Impacts Dataset
	Labour supply impacts parameters	

3.6 Mott Macdonald undertook transport modelling on behalf of TfL and has provided matrices with changes in generalised costs and demand by origin destination pair. These have been supplemented with the DfT Wider Impacts dataset. To be consistent with the BCR calculations, WEI calculations exclude any impacts from outside the GLA area and Kent.

Calculations

Agglomeration

3.7 The model has been developed following WebTAG guidance set out in Unit A2-1 Wider Economic Impacts. It uses the inputs presented in Table 3-1 to estimate an average (weighted) generalised cost of business and commuter users. This is then used to estimate the effective density[4] of each origin-destination pair weighted by a distance decay factor by employment sector. A productivity elasticity is then applied to each sector before scaling it by the local economic mass.

3.8 The output of the model is a single year estimate, for 2031, of the total agglomeration impact in 2010 Prices. This reflects the effect of the change in accessibility between the baseline and the alternative scenario, which related to the nature and scale of transport user benefits described in the Section 2. Given that the additional stop of train services at Camberwell station would extend journey times for many, and the scale of disbenefits to through movements outweighs the benefits to local tips, the agglomeration impact is negative.

Imperfect Competition

3.9 The calculation of the impact of the re-instatement on imperfect competition have been estimated using the simplified methodology described in WebTAG Unit A2-1. This methodology does not seek to explicitly quantify the change to net investment or the associated land use. Instead, it applies an uplift factor of 10% to business and freight user benefits.

Labour Supply Impacts

3.10 Labour supply impacts have been estimated using the methodology described in WebTAG Unit A2-1. These quantify the changes in commuter costs and are compared to earnings to draw conclusions as to whether individuals would be more likely to join or leave the labour market as a result of changes to commuting costs.

Results

3.11 The single year estimate for each scenario, has been profiled over a 60-year appraisal period, discounted to 2010 at a rate of 3.5% per annum for 30 years from appraisal year and 3.0% for the remainder of the appraisal period. To be consistent with the BCR calculation, the level of WEI benefit assumed in the opening year (2026) has been assumed to be 90% of the modelled year estimate.

3.12 The results of the WEI appraisal largely mirror the patterns observed in the transport user impact BCRs. This is expected as both sets of calculations use the same Railplan outputs as part of their inputs. As the overall change in generalised cost is negative (as journey times are extended), the WEIs are negative too. The magnitude of the WEIs in proportion to the PVBs for the nine scenarios assessed range between 90%-283%. These results represent a large proportion and can largely be attributed to the strategic nature of the model, and the small-scale intervention which is being tested in the context of the model.

[4] Effective density is the measure of agglomeration. It considers the number of firms that are located within given journey time thresholds – the more firms there are, the higher the effective density.

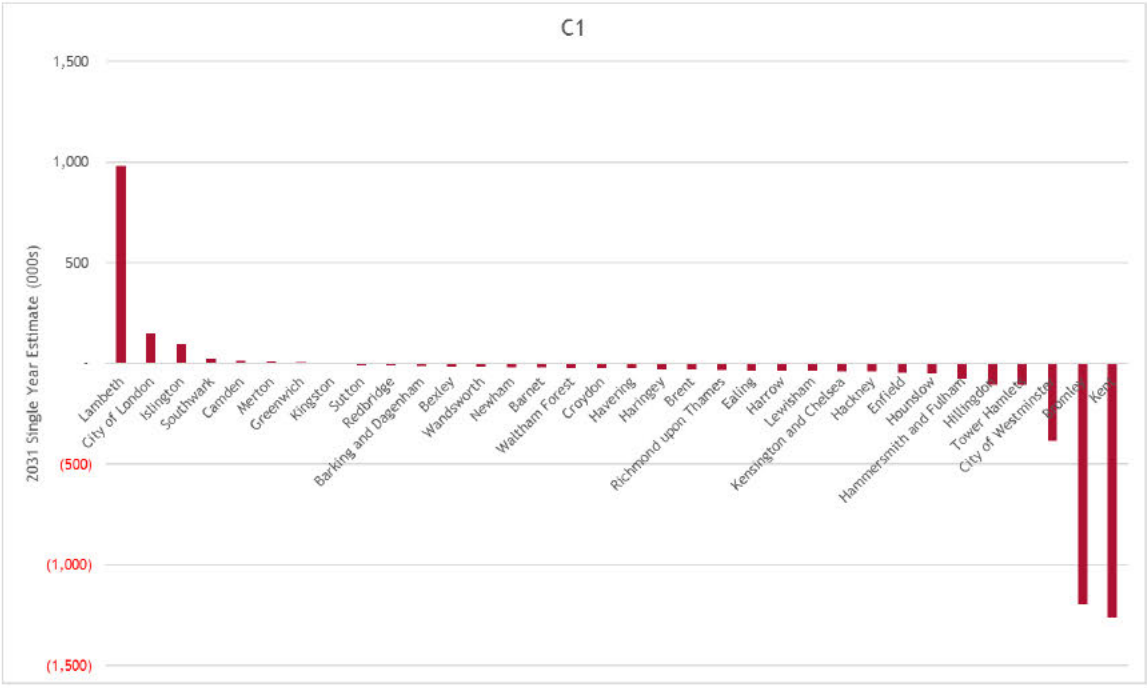
Table 3-2: WEIs results summary and comparison to PVB

Test ID	60 Year Total	PVB (TfL VoT)	WEI / PVB
A1	**-£58.77m**	-£26.68m	220%
A2	**-£62.79m**	-£42.59m	147%
A3	**-£95.44m**	-£101.84m	94%
B1	**-£56.47m**	-£29.95m	189%
B2	**-£56.53m**	-£41.26m	137%
B3	**-£83.22m**	-£89.17m	93%
C1	**-£48.51m**	-£17.49m	277%
C2	**-£44.75m**	-£27.87m	161%
C3	**-£69.24m**	-£78.40m	88%

Source: SDG analysis

3.13 The WEI model used to appraise the wider impacts of re-instating the station has the capability of outputting results by Local Authority (the 33 London Boroughs and Kent). These provide an in depth understanding of the spatial distribution of benefits and disbenefits and provide confidence on the robustness and reliability of the WEI model. Figure 3-1 below shows an example of the results by Local Authority.

Figure 3-1: Test C1 2031 single year estimate



3.14 Figure 3-1 shows the results for option C1. The profile of benefits and disbenefits is very polarised with a big benefit experienced in Lambeth as result of increased connectivity. On the other hand, both Kent and Bromley experience an even larger disbenefit as a result of the journey time penalty imposed on through passengers by the additional station call at Camberwell. The remainder of the boroughs experience very small changes, largely as a result of model noise. This profile is repeated across every test as shown in Appendix A.

Sensitivity testing

3.15 Using a strategic model to capture changes in generalised cost at a coarse level (Local Authority) as a result a small intervention can lead to unintuitive changes over the entire model – 'model noise'. This 'noise' can have a significant impact on results, particularly on WEIs, as very small changes in generalised cost get multiplied by very large numbers, namely the GDP of the areas being considered.

3.16 This is particularly true in the scheme being considered, where the station is located in inner London and the Thameslink train services that would call at Camberwell then subsequently travel through an area of high employment density. Within the group of rail users that are affected by the time penalty imposed by Camberwell station, there is a large proportion of commuters using Thameslink to get to jobs within central London. This amplifies the agglomeration disbenefits, as agglomeration calculations only consider business users and commuters. In addition, the time penalty imposed by the additional stop encourages minor shifts in journeys which added together can have a significant impact.

3.17 In order to minimise the effects of model noise, a sensitivity test has been undertaken whereby changes in generalised cost between the DM and DS smaller than 0.1% have been screened out.

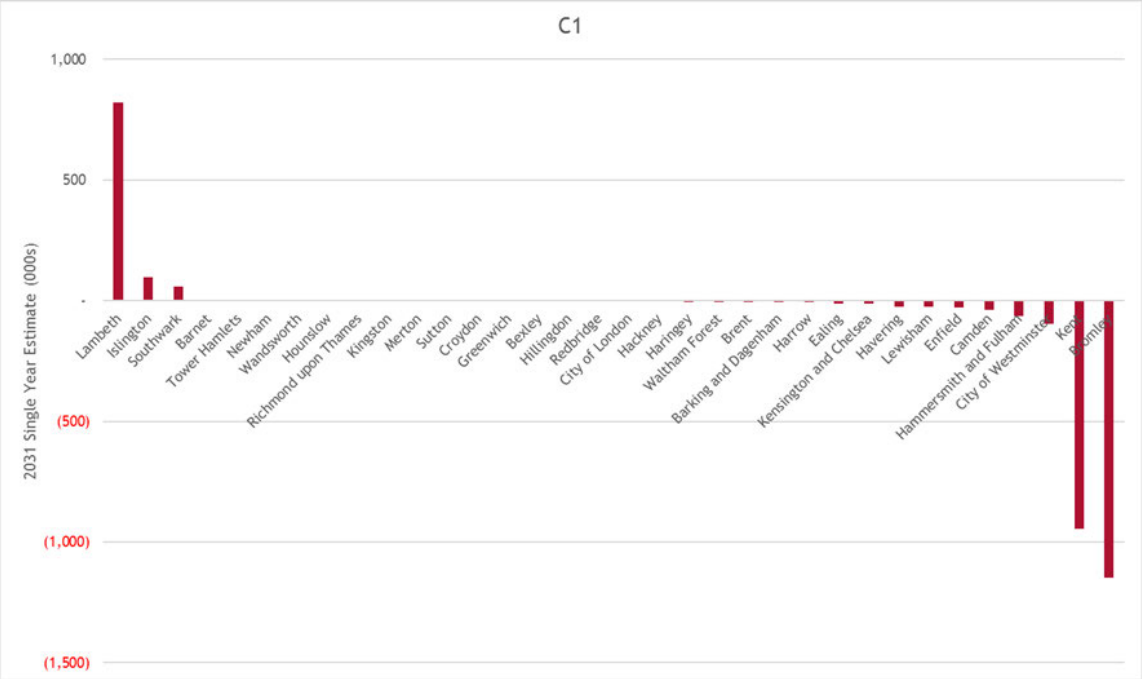
Table 3-3: Sensitivity test results

Test ID	GC changes unscreened	Sensitivity testing (ΔGC <0.1% excluded)	Δ in WEIs
A1	-£58.77m	-£29.89m	-49%
A2	-£62.79m	-£27.75m	-56%
A3	-£95.44m	-£74.10m	-22%
B1	-£56.47m	-£29.15m	-48%
B2	-£56.53m	-£21.10m	-63%
B3	-£83.22m	-£64.33m	-23%
C1	-£48.51m	-£29.40m	-39%
C2	-£44.75m	-£17.55m	-61%
C3	-£69.24m	-£55.86m	-19%

Source: SDG analysis

3.18 The results set out above in Table 3-3 demonstrate that by screening out this model 'noise', the negative WEIs reduce in scale by an average of 42%, highlighting the model's sensitivity to very small changes in generalised cost. Similar to the core results, charts have been produced to illustrate the WEI contribution by Local Authority. Figure 3-2 below shows Scenario C1 results, with results for the rest of the options contained within Appendix B. The overall distribution of the results is similar to that of the core scenario (see Figure 3-1), albeit more polarised with the small impacts experienced by Local Authorities largely unaffected by the changes in service pattern being largely screened out.

Figure 3-2: Test C1 2031 single year estimate excluding changes in generalised cost <0.1%



4 Dependent Development

Introduction

4.1 Currently Camberwell is well served by TfL's bus network, which provides frequent services to a variety of destinations. These, however, suffer from capacity and reliability issues, particularly at peak times because of road congestion and journey time variability is significant. The re-instatement of a railway station at Camberwell is likely to increase the level of public transport accessibility of the area, and to provide more capacity and more reliable journeys into central London by public transport.

4.2 In addition, re-instating Camberwell station may bring forward some development on sites in the vicinity of the station that otherwise may not have been delivered due to the effect of the station in enhancing public transport accessibility. To help quantify this, Steer Davies Gleave commissioned Carter Jonas to undertake a high-level assessment of the likely Gross Development Value (GDV) of the dependent development.

4.3 There are several ways in which the re-instatement of the station could, support the delivery of dependent development and deliver a land value uplift. These are:

- Increasing the general level of public transport accessibility in the area, which provides the public transport capacity and accessibility (that could support a higher density of development. The GLA provides guidance on the density of development that can be supported at different levels of accessibility (PTAL).
- Enabling the delivery of specific development sites, either by directly delivering station related development (e.g. over site development) or making site development in the vicinity of the station more commercially viable (by increasing the land value, and hence the development viability of a site).

4.4 This chapter looks at how the station re-opening could help deliver additional 'dependent' development around the new station.

PTAL Assessment

4.5 A public transport assessment has been undertaken to understand the impact of the new station on PTAL as a change in PTAL zoning can lead to a change in housing density allowed in the area.

4.6 The current PTAL level in Camberwell is 5, which represents very good accessibility to public transport, as a result of the dense bus network in the area. The PTAL measure, however, fails to take into account journey time reliability of buses, an issue of concern given the severe highway congestion levels on bus corridors to and from Camberwell. The results of the assessment show that under all options tested, the PTAL level would increase to 6a, as shown in Table 4-1.

Table 4-1: PTAL assessment

Scenario	Service Frequency	PTAL
Do Nothing	-	5
Operational Scenario 1	4tph	6a

Operational Scenario 2 and 3	6tph	6a

Source: SDG analysis

Table 4-2: Density matrix (Dwellings per hectare)

Setting		1	2	3	4	5	6a	6b
Suburban	Low	35 - 55	35 - 65	35 - 65	45 - 90	45 - 90	45 - 90	45 - 90
	Medium	40 - 65	40 - 80	40 - 80	55 - 115	55 - 115	55 - 115	55 - 115
	High	50 - 75	50 - 95	50 - 95	70 - 130	70 - 130	70 - 130	70 - 130
Urban	Low	35 - 65	45 - 120	45 - 120	45 - 185	45 - 185	45 - 185	45 - 185
	Medium	40 - 80	55 - 145	55 - 145	55 - 225	55 - 225	55 - 225	55 - 225
	High	**50 - 95**	**70 - 140**	**70 - 140**	**70 - 260**	**70 - 260**	**70 - 260**	**70 - 260**
Central	Low	35 - 80	65 - 170	65 - 170	140 - 290	140 - 290	140 - 290	140 - 290
	Medium	40 - 100	80 - 210	80 - 210	175 - 355	175 - 355	175 - 355	175 - 355
	High	50 - 110	100 - 240	100 - 240	215 - 405	215 - 405	215 - 405	215 - 405

Source: London Plan Density Matrix

4.7

4.8 Further, discussions with LB Southwark through the study indicated that PTAL levels were not a key constraint on the levels of additional development that could be accommodated in and around Camberwell. Rather, the constraints were planning-led in that the established nature of development in the area was medium density, and included conservation areas. The limitation on increasing density was primarily around limitations on building heights, given the need for new development to be sympathetic to the character of the surrounding area.

Dependent Development Scenarios and Land Value Uplift

Proposed development around the station – Area-Wide Scenarios

4.9 London Borough of Southwark undertook a comprehensive assessment of the likely developments that may come forward around Camberwell station in the next decade. The exercise focused on those sites located within a 1km radius of the station.

4.10 Table 4-3 shows the implied dwelling density assumed by LBS in the DM scenario. Comparing this to the indicative density matrix presented in Table 4-2 demonstrates that LBS dwelling density assumptions are already within the upper range, and in the case of Scenario C, slightly in excess of the upper end of the range for urban in the London Plan Density Matrix guidance.

Table 4-3: Implied densities in developments around Camberwell station

Scenario	LBS Proposed Dwellings	Implied density (Do Nothing)
A	2414	210
B	3138	237
C (excl. Lambeth site)	3551	261
C Max	4627	280

Source: LBS

4.11 LBS and TfL then estimated the additional number of dwellings under a 'with station' case, under each of the land use scenarios above, based on there being an additional 10% in the DS. This would imply densities far above the upper range included within the current London Plan guidance.

4.12 Table 4-4 sets out the DM and DS development storey heights and the number of dwellings for the two bus garage sites, the Royal Mail sorting office site and the Key Industrial and Business Area (KIBA) site in Lambeth – under each land use scenario. It should be noted that the difference in the number of storeys between DM and DS are indicative and only aim to capture the total 10% difference in the number of dwellings between the DM and DS. This implied there could be between 240 and 460 additional dwellings depending on the land use scenario.

Table 4-4 DM and DS dwellings by land use scenario

	Land Use A		Land Use B		Land Use C	
Site	No Station	Station	No Station	Station	No Station	Station
Abellio Garage	Podium (c. 2 storeys)	Podium (c.4 storeys)	Podium (c. 2 storeys)	Podium (c.4 storeys)	Bus Garage relocated (c. 4 storeys)	Bus Garage relocated (c. 8 storeys)
Go Ahead Garage	Podium (c. 2 storeys)	Podium (c.4 storeys)	Podium (c. 4 storeys)	Podium (c.8 storeys)	Bus Garage relocated (c. 4 storeys)	Bus Garage relocated (c. 8 storeys)
RMSO	-	-	50% of RMSO (c. 4 storeys)	100% of RMSO (c. 8 storeys)	50% of RMSO (c. 4 storeys)	100% of RMSO (c. 8 storeys)
Lambeth KIBA	-	-	-	-	c. 4 stories	c. 8 stories
Total	2414	2655	3138	3452	4627	5090
Dependent Development	241		314		463	

Source: LBS and TfL

Consideration of Specific Developments

4.13 Steer Davies Gleave commissioned Carter Jonas to provide a 'bottom up' estimate of the dwellings that could be accommodated at specific identified sites adjacent to the proposed Camberwell Station location. These sites considered for future residential redevelopment were:

- The current Abellio bus garage;
- The current Go Ahead bus garage;
- The Royal Mail sorting office (RMSO); and
- The Key Industrial and Business Area (KIBA) site in Lambeth.

4.14 In order to estimate the total land value uplift (LVU), Carter Jonas was commissioned to provide an indicative GDV assessment of sites around the potential station.

4.15 Carter Jonas undertook a simple GDV assessment of the developments to provide an understanding of the potential land value uplift associated with the dependent development. The GDV assessment is based on comparable transactions for new build developments nearby with the following assumptions:

- A total of 410 units considered;
- 40% affordable units. These are assumed to be cost neutral and therefore do not contribute towards the GDV;
- Dwellings based on 8 storeys;
- Building rate of 135 dwellings/ha with a sensitivity of 215 dwellings/ha;
- Development mix assumed to be 40% 1 beds, 44% 2 beds and 16% 3 beds; and
- Sales value as per Bellway Elmington Green 2015.

Table 4-5: Carter Jonas' GDV assessment

	Go Ahead Garage and RMSO	Abellio Bus Garage	Total
Gross Developable Area (ha)	1.77	1.27	3.04
Dwellings total [no. excl. affordable]	239 [143]	171 [108]	410
1 bed flats [value, £ '000s]	57 [380]	41 [380]	
2 bed flats [value, £ '000s]	63 [500]	45 [500]	
3 bed flats [value, £ '000s]	23 [690]	16 [690]	
Total GDV ('000s)	69,000	49,150	118,150

Note: Lambeth KIBA not assessed, on basis that Lambeth expect to retain local employment sites in the Borough, and that the site location is as close to Loughborough Junction station as proposed Camberwell site.

4.16 Under a higher build-rate scenario the (215 dwellings) the total dwelling number would be 653 and the GDV £188m.

Land Value Uplift

4.17 Based on the assumptions above the total GDV for the dependent development is £118.15m. This represents the gross value of the development. To estimate the LVU, it is necessary to make assumptions on:

- **The potential return that the developer will be seeking.** Typically, developers will seek a return of 15-20%. Assuming a 20% return the LVU could be valued up to £23.6m;
- **The number of dwellings that can be considered dependent.** It is unlikely that the full development could be considered dependent and, in line with the LB Southwark / TfL assessment presented in Table 4-4 an assumption that around 50% of the development was dependent is a more reasonable working assumption. This would provide a LVU estimate associated with dependent development of £11.8m (or £18.7m under a higher build-rate scenario).

LVU represents the difference in value of land between old and new uses and it is important to note that LVU is not an additional benefit that can be considered within the BCR. It can be reported within the strategic case and used as an argument to support the scheme but cannot be included within the economic case.

5 Conclusion

5.1 Steer Davies Gleave has been commissioned by TfL to undertake economic appraisal of the transport user benefits (BCR) and Wider Economic Impacts (WEI) assessment, including PTAL and Land Value Uplift (LVU) assessment, of re-instating a rail station at Camberwell in the London Borough of Southwark. Nine different scenarios have been tested, a combination of three potential future land use scenarios and three operational train service scenarios.

5.2 The results of the economic appraisal looking at the three hour AM peak (0700-1000) show that none of the nine scenarios assessed generates a positive BCR. While the magnitude of the disbenefits varies between options, the journey time benefits experienced by users boarding and alighting at Camberwell are not enough to offset the time penalty imposed on large numbers of passengers travelling on the services into central London from origins further afield in Bromley, Kent and on the Wimbledon Loop line .

5.3 WEIs assessed include agglomeration, labour supply impacts and imperfect competition. The results of this show that, reflecting the economic appraisal, none of the nine scenarios would achieve positive wider economic impacts. This is to be expected given that the calculations are based partly on changes to travel costs, and the overall result of the economic appraisal BCR calculations was a net disbenefit under all nine scenarios. The results from the WEI assessment showed very large disbenefits. A sensitivity test removing some of the 'noise' within the model that was likely to be causing some distortion, showed that these WEI disbenefits are significantly decreased once these very small changes in generalised cost are screened out.

5.4 LVU has been estimated based on the GDV assessment undertaken property consultants Carter Jonas. The GDV assessment valued the potential development around the station based on sales of similar types of properties in similar areas. This assessment concluded that the change in land use could generate a LVU of around £12m. This relatively modest figure reflects a low quantum of development that would be dependent on the delivery of the re-instated station at Camberwell.

Limitations and assessment of need for further work

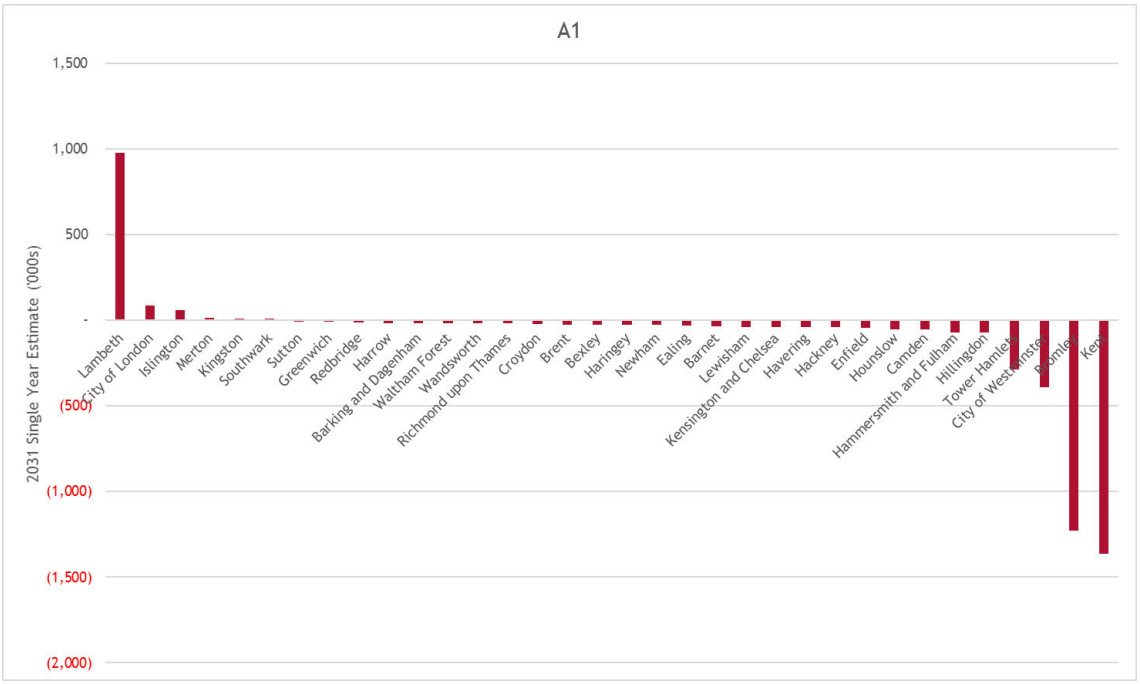
5.5 The work undertaken is based on the best available tools and methodologies. The model used, Railplan, is a strategic public transport model covering the entirety of London in detail, with detailed rail and bus networks within London's boundaries and a coarser network beyond these. The land use and operational scenarios tested represent very small scale interventions on what is a very congested part of the rail network. The additional station call at Camberwell introduced in the model a behavioural response of some rerouting as a result of the slight increase in journey times. In practice such behaviour would not be likely to be observed under normal circumstances.

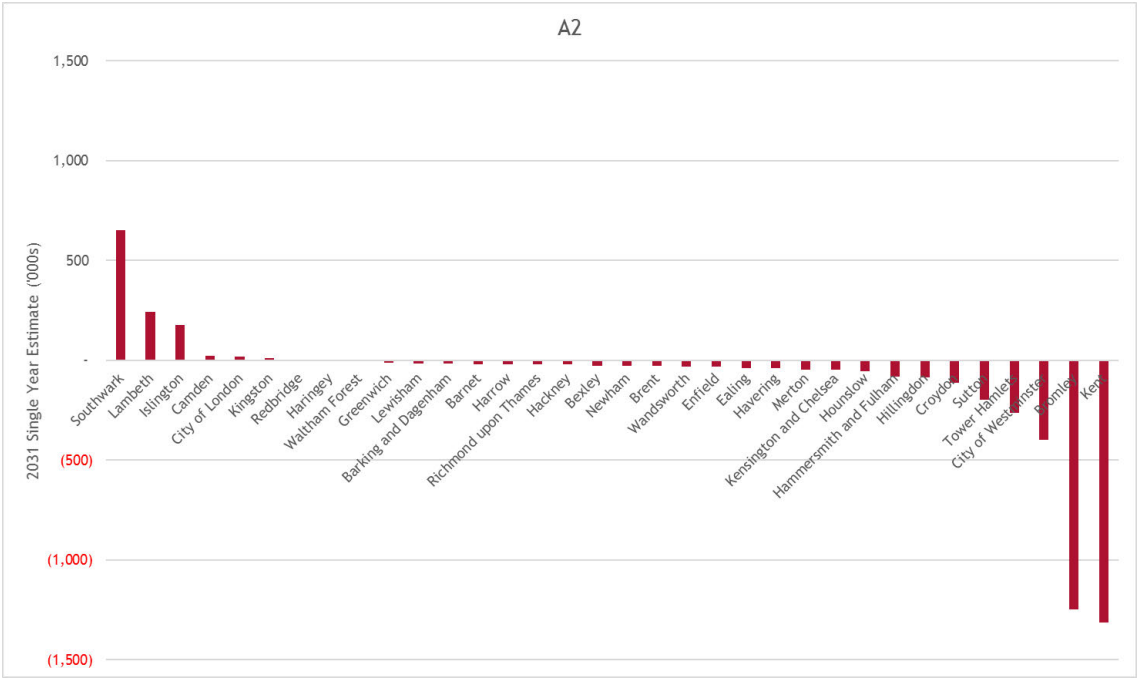
5.6 However, our view is that the modelling results pertaining to the trade-off between adverse impacts for commuters from Bromley and Kent facing increased travel costs and the benefits of lower travel costs for trips to and from Camberwell utilising the re-instated station are sensible in terms of the scale and nature of impact.

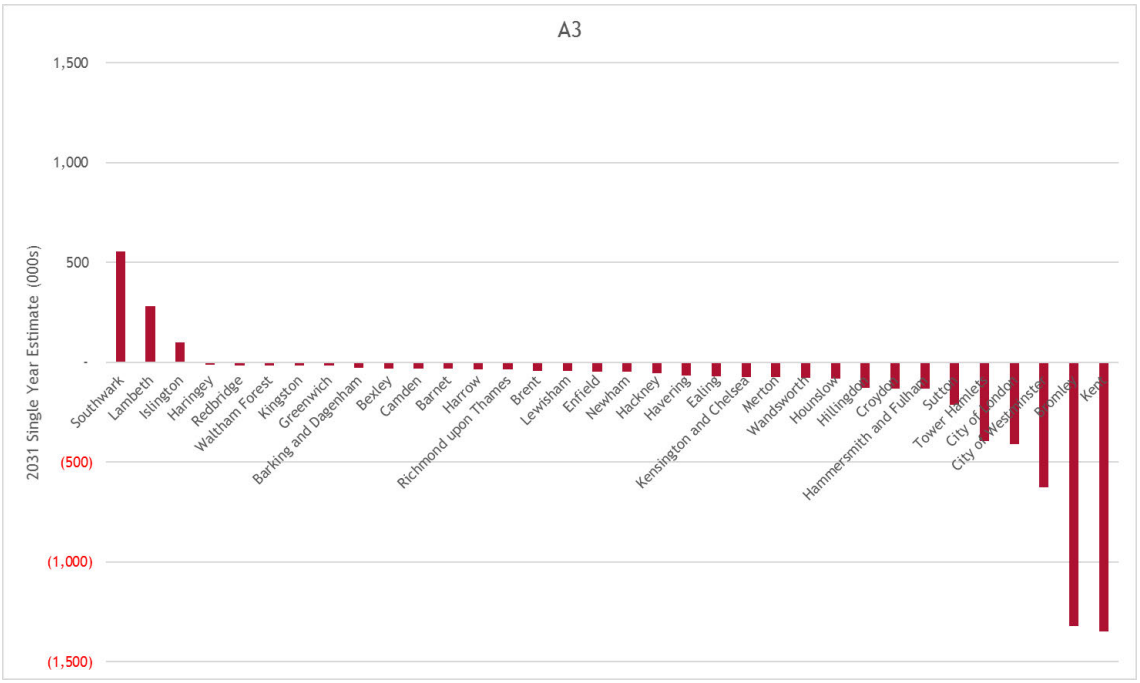
5.7 Undertaking any further modelling analysis would therefore be unlikely to do anything to alter the results showing that disbenefits experienced by longer distance commuters on Thameslink services on journeys into central London from Bromley and Kentoutweigh the benefits of

faster journey times for a relatively smaller number of more local trips to and from Camberwell via the re-instated station.

Appendix A – WEIs Core Results



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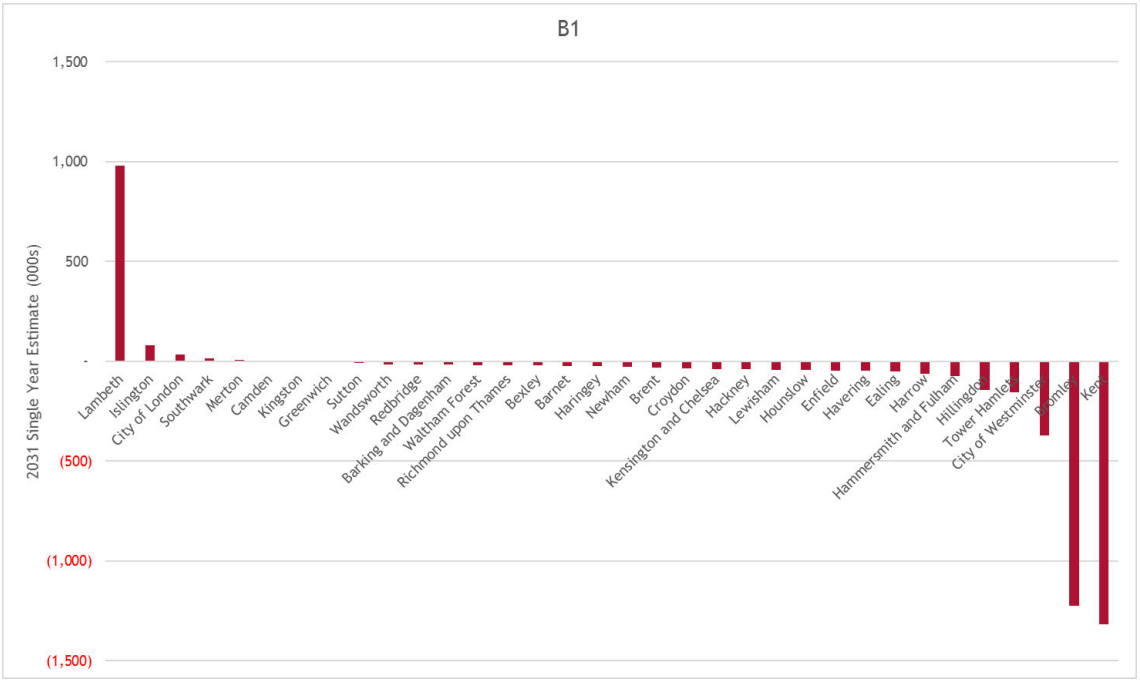
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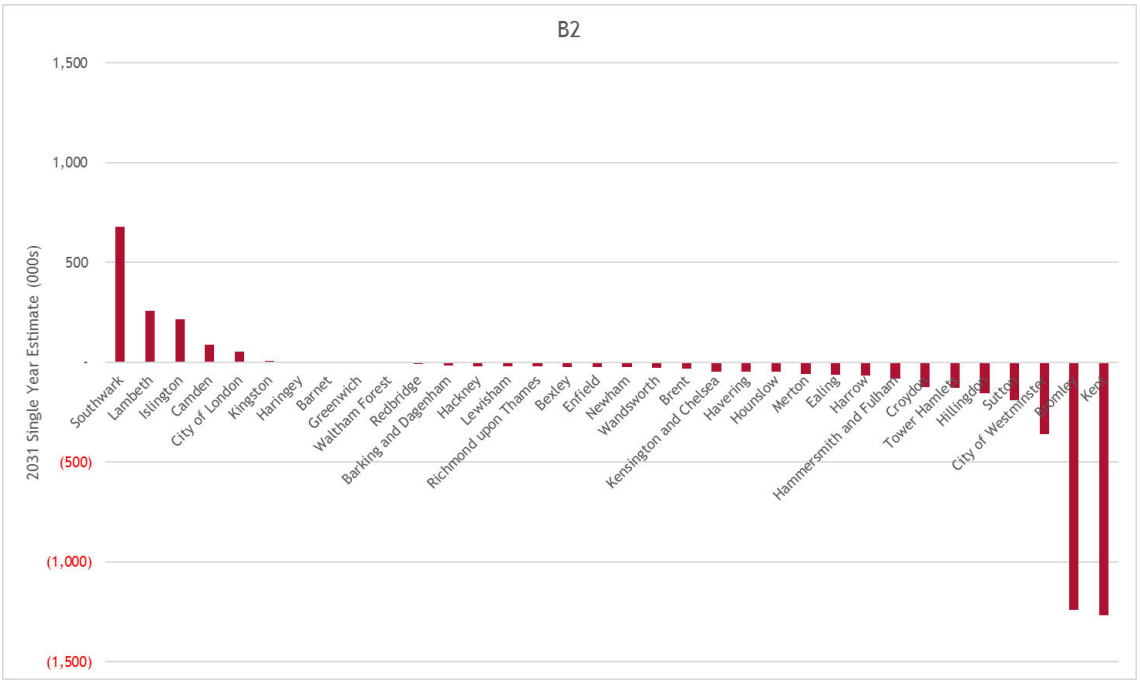
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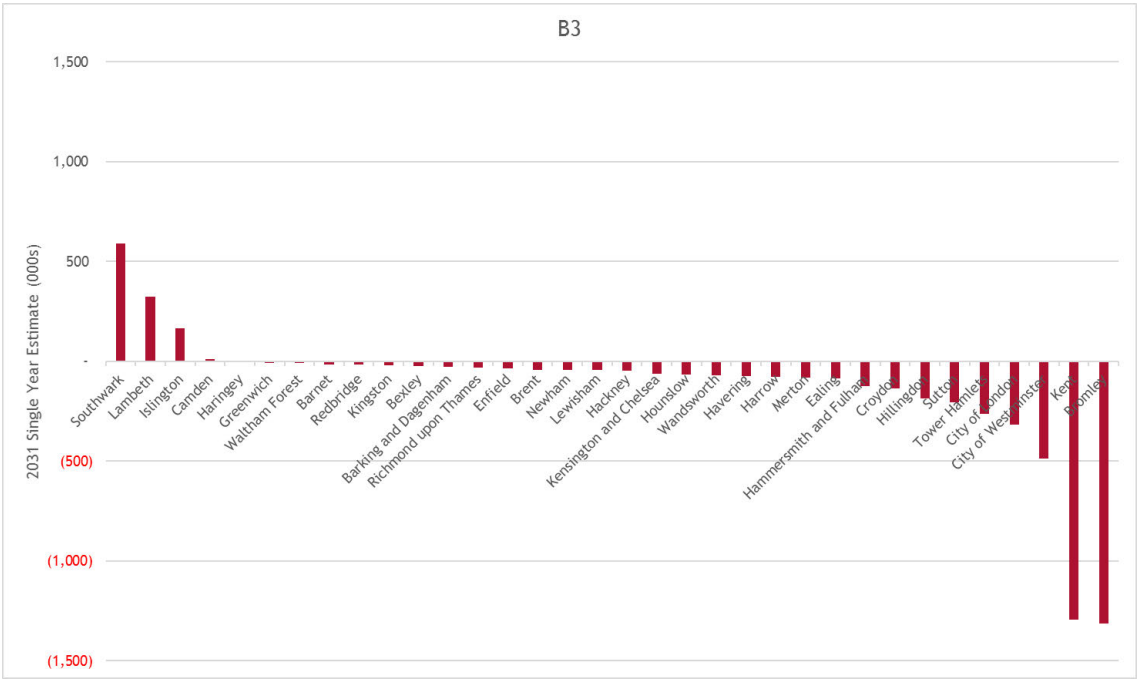
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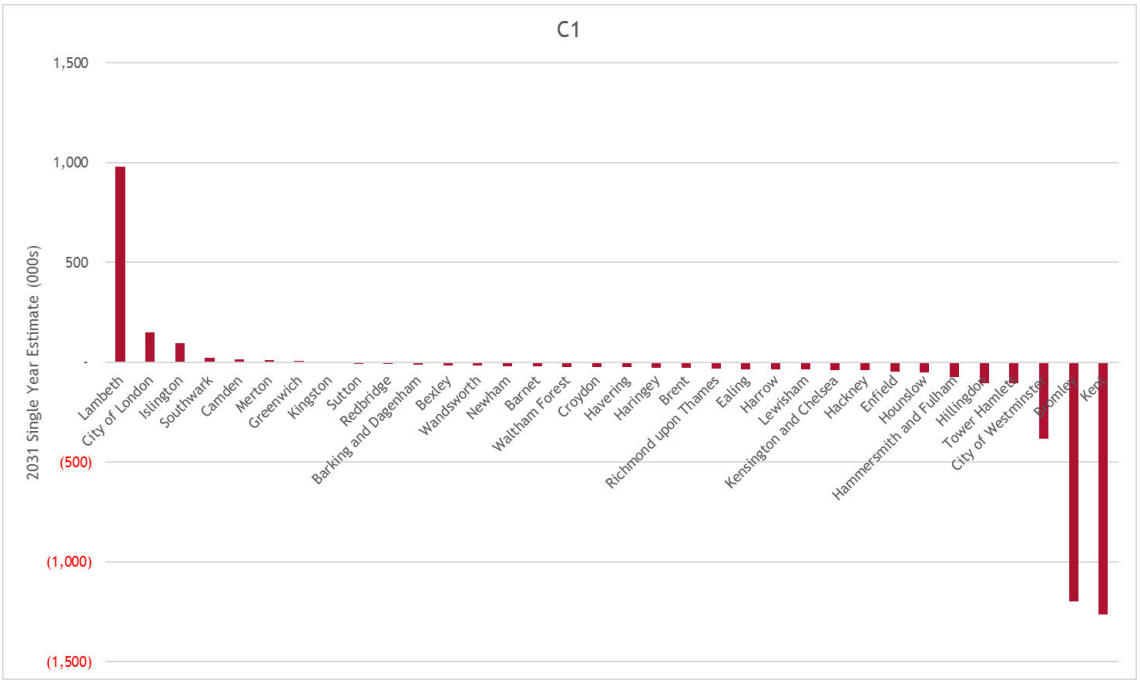
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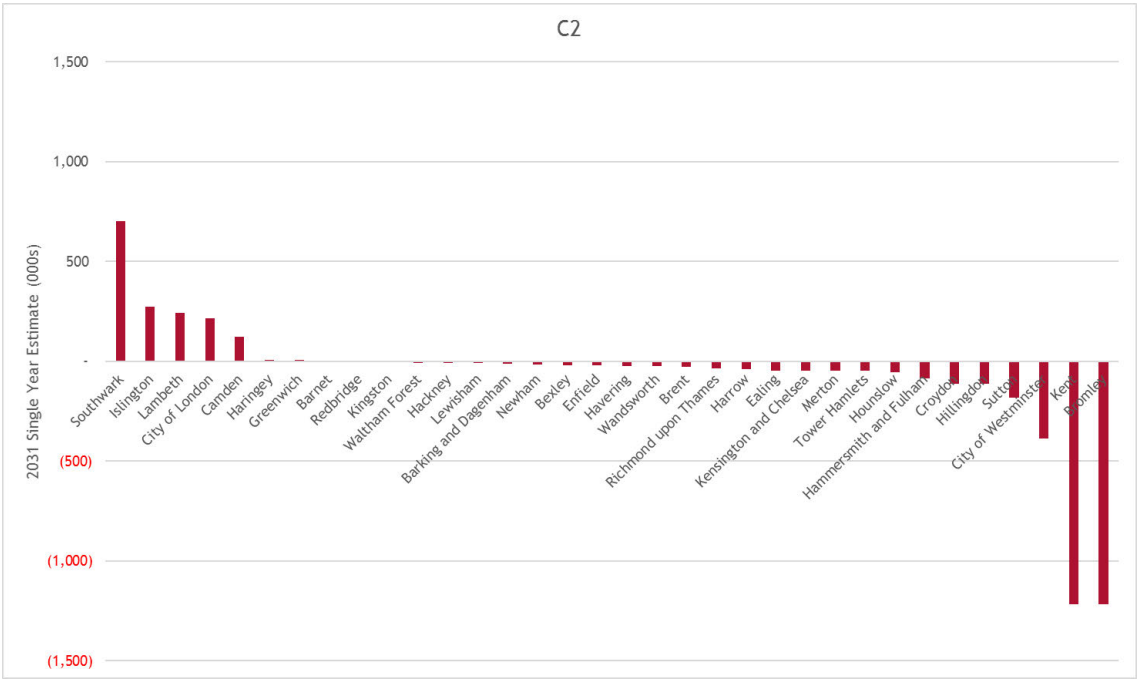
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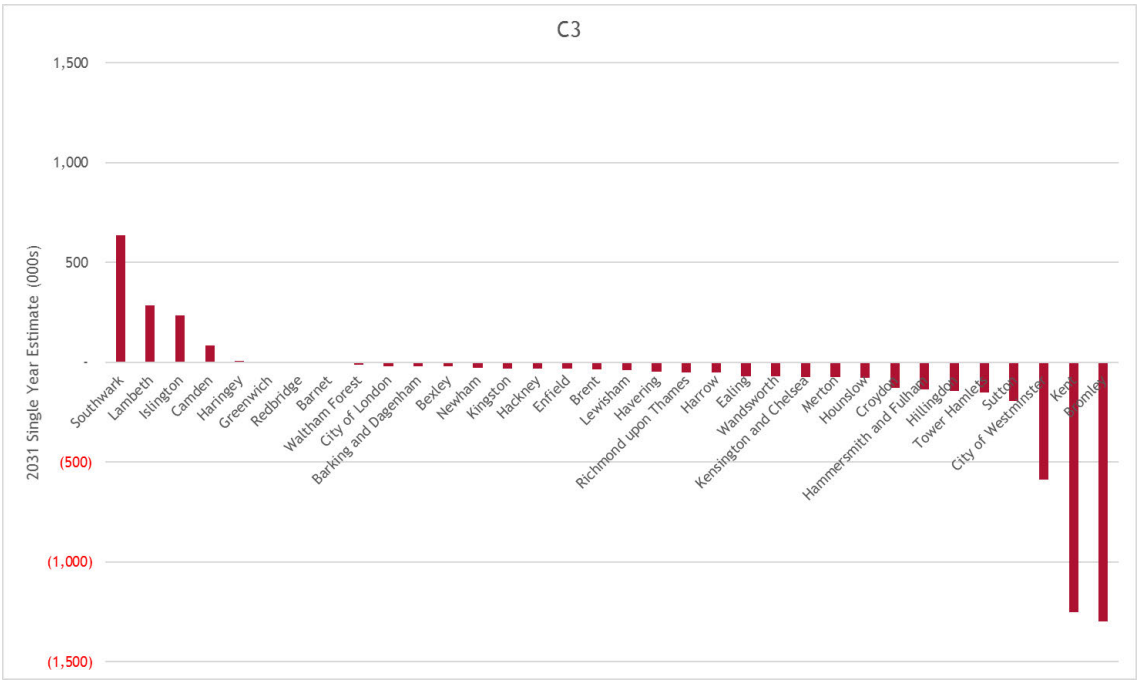
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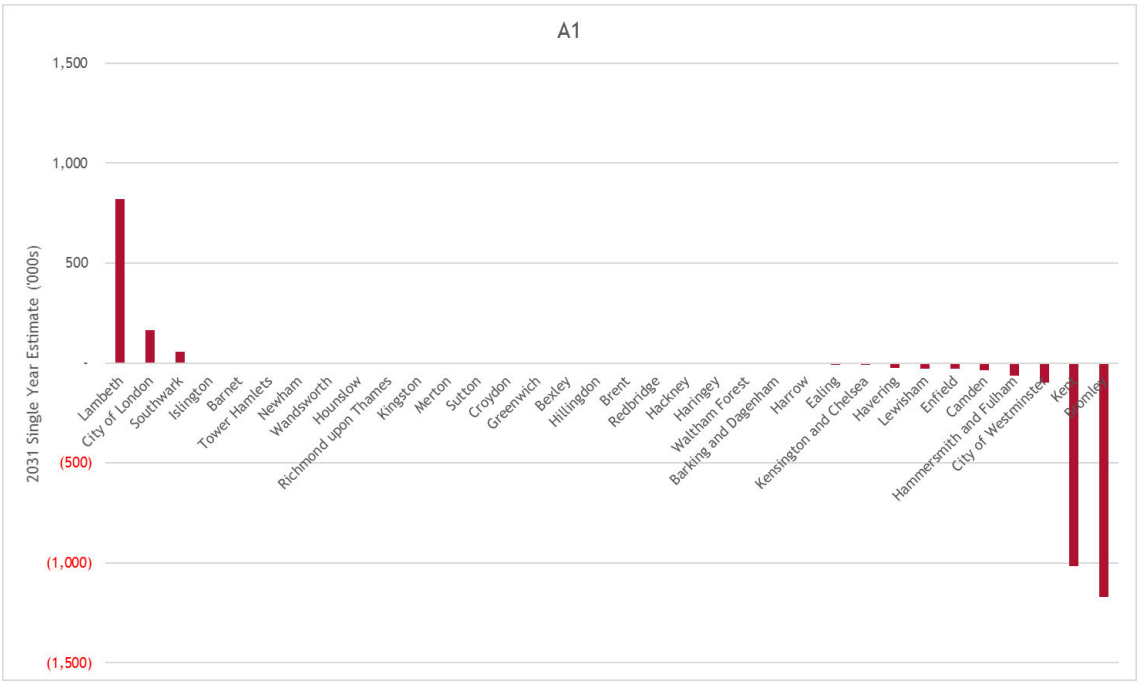
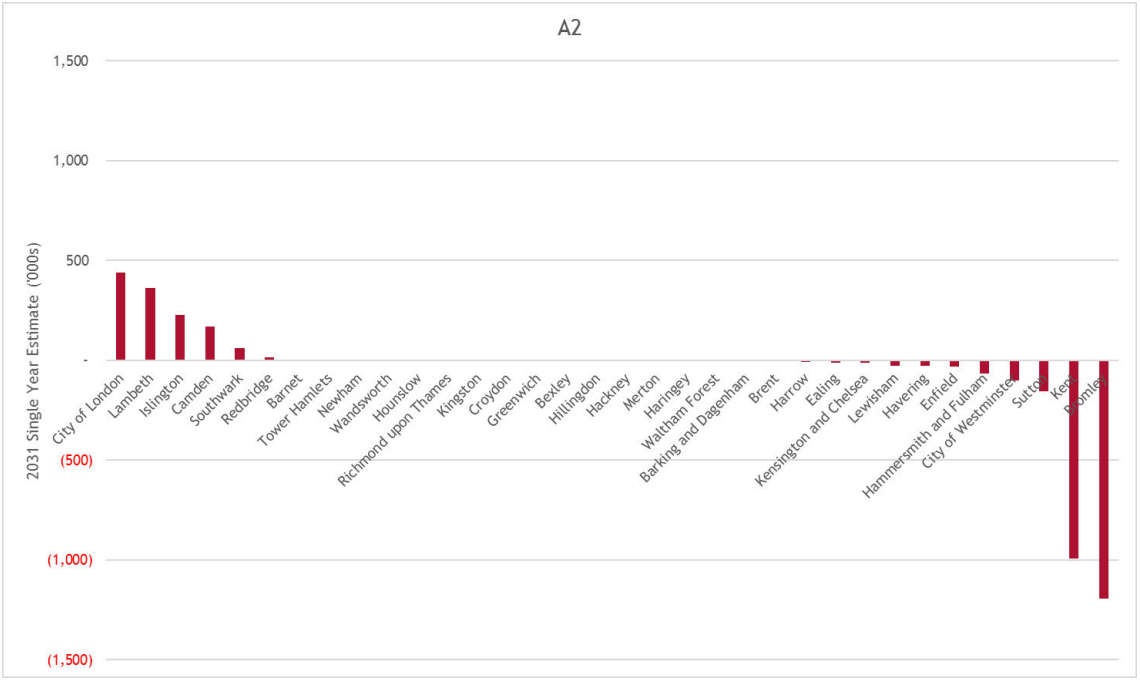
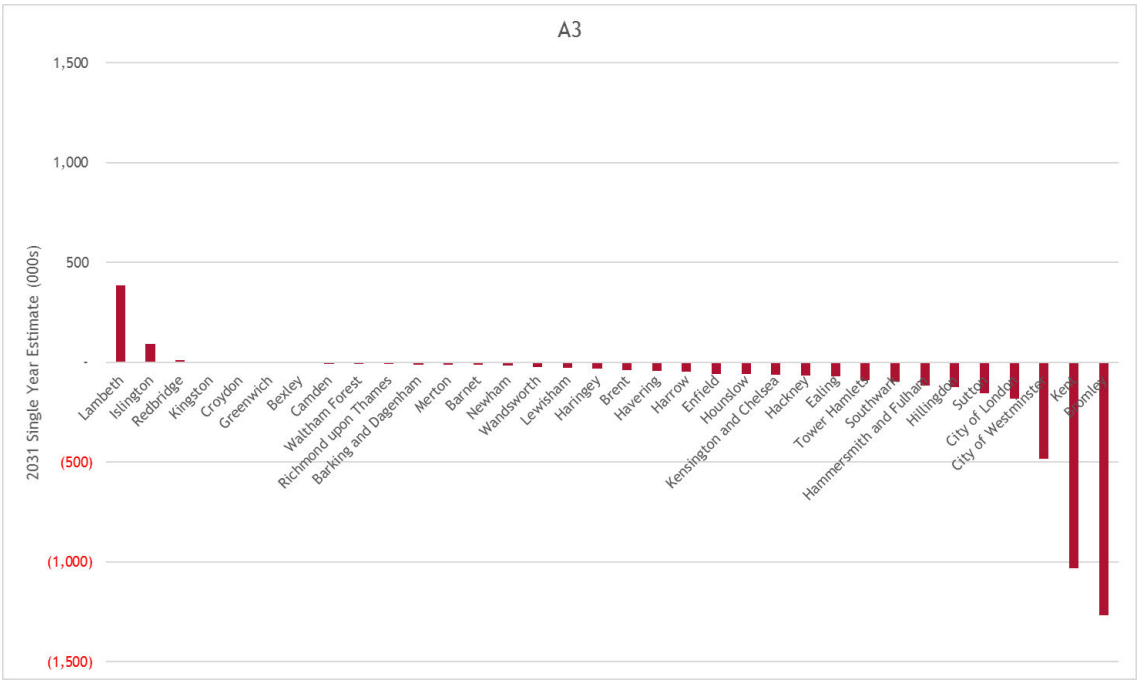
Appendix B – WEIs Sensitivity Results



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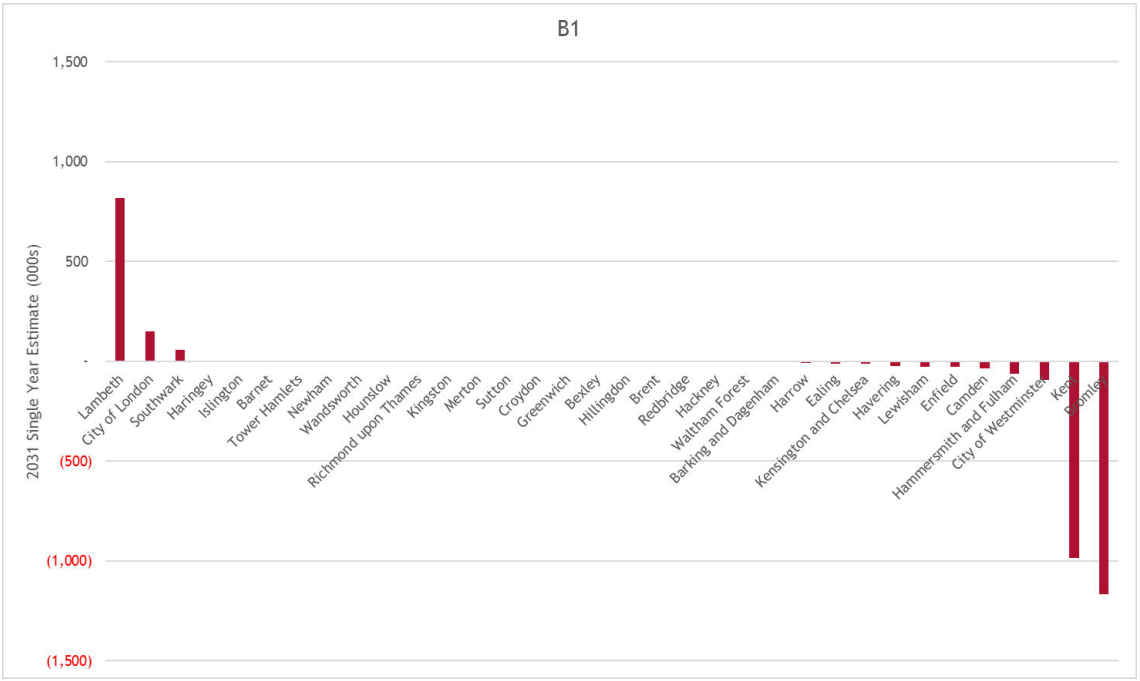
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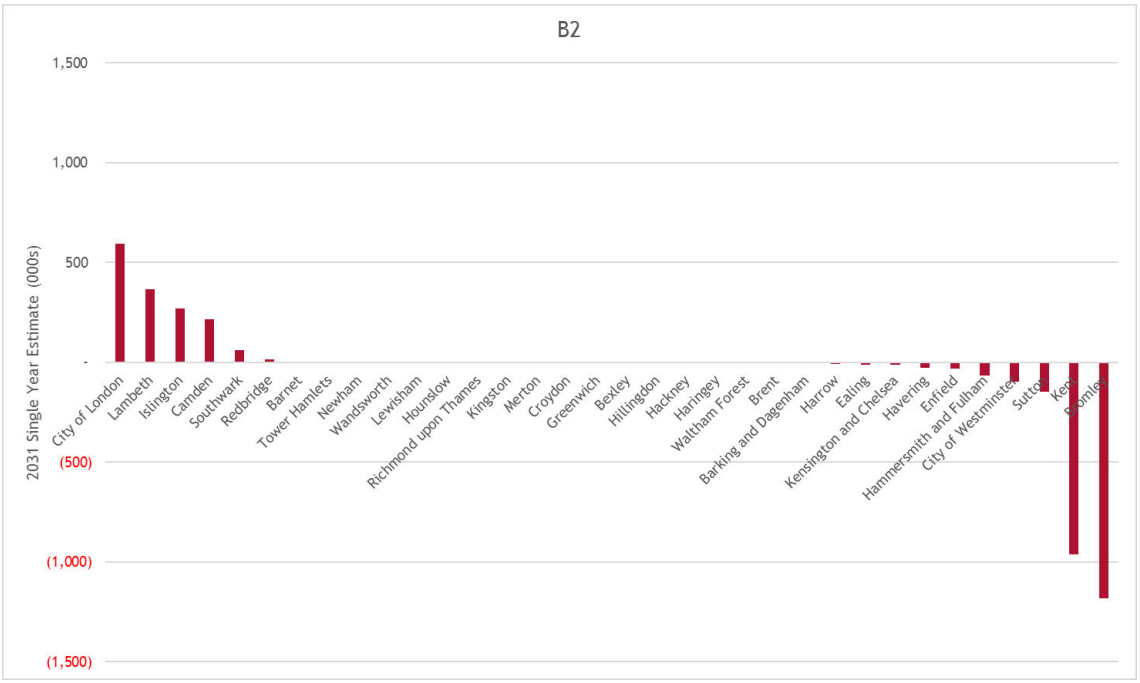
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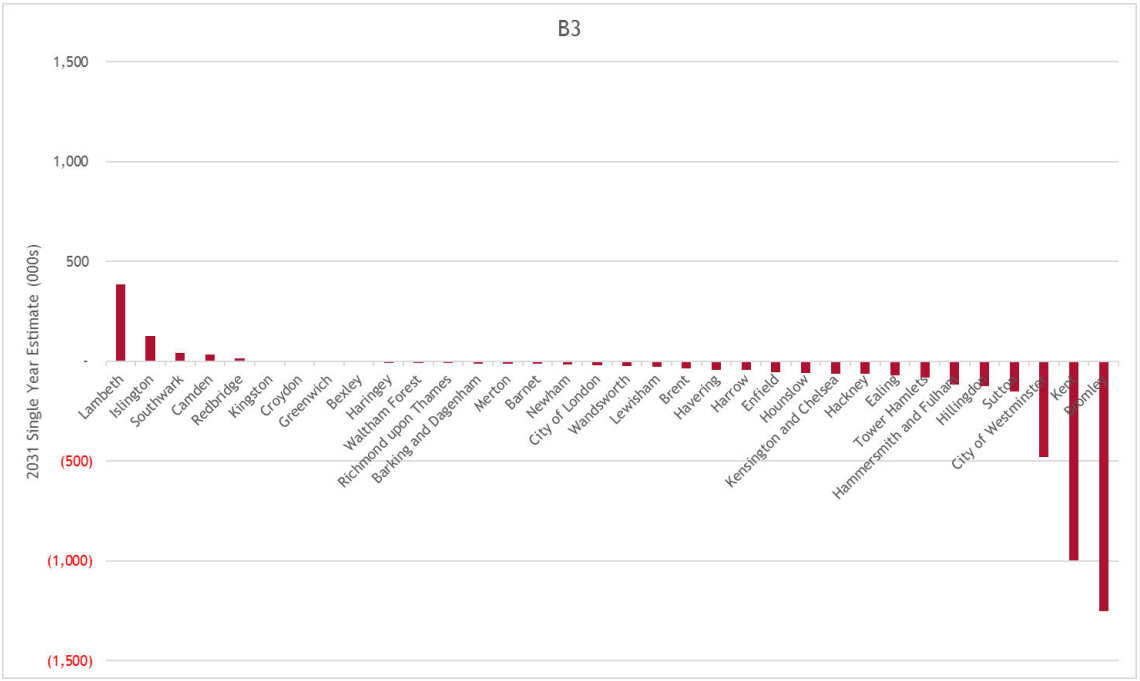
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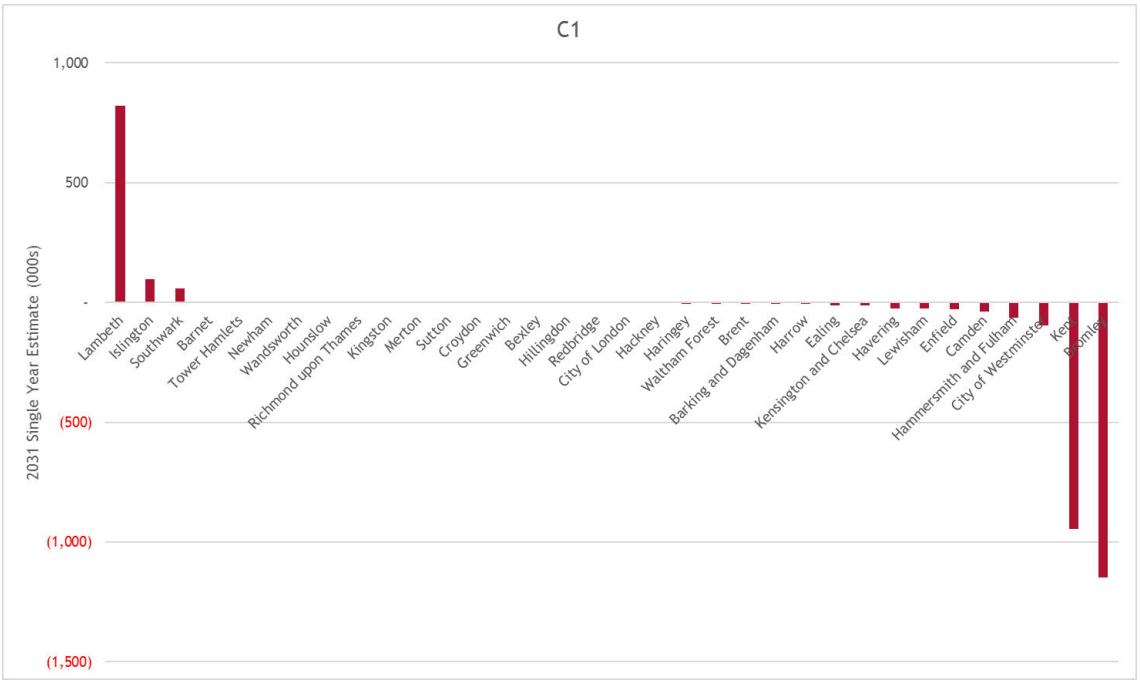
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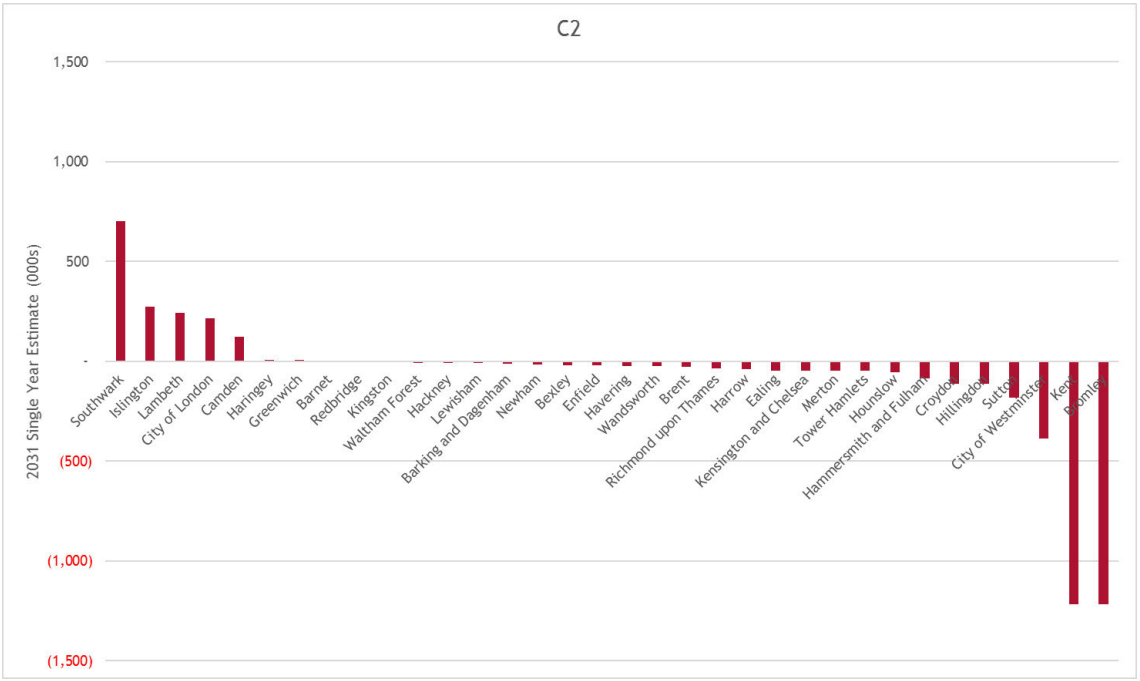
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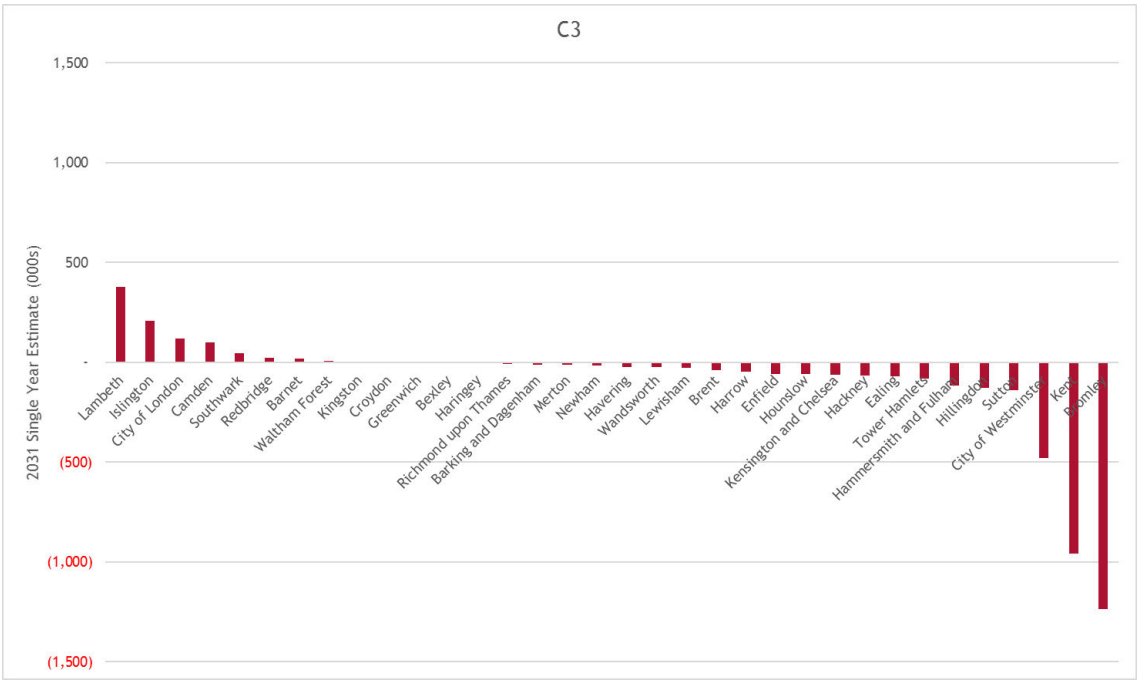
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