ILHL 16

The Camden (Torrington Place to Tavistock Place) (Prescribed Routes, Waiting and Loading Restrictions and Loading Places) Traffic Order [2017]

Transport Proof of Evidence

for

Imperial London Hotels Limited

motion

Document Control Sheet

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1.0 Introduction

Qualifications and Experience

1.1 My name is John Norman Russell. I am a Chartered Transport Planner, being a Chartered Member of the Institute of Logistics and Transport (CMILT) and a Member of the Institution of Highways and Transportation (MIHT). I have an Honours Degree in Civil Engineering. I am a Technical Director of Motion Limited, highway consultants, based in Duncannon Street, London and Guildford, Surrey, which specialise in transport planning, traffic engineering and highway design.

1.2 I have worked in the field of traffic engineering and transportation planning for 25 years. During this time I have worked on a variety of projects of relevance to the traffic and transport issues raised in this Inquiry including:

- Hogwood Farm, Wokingham - Development and testing of Transport Strategy using Wokingham's SATURN model.
- Reading Internal Distribution Road, Reading - Managing and coordinating the transport analysis and scheme refinement and mitigation together with the preparation of the associated documents to support a Traffic Regulation Order to change the mode of operation of Reading's inner ring road. Scheme development and assessment using Reading's SATURN model.
- Shinfield Eastern Relief Road – Managing and coordinating design and planning application documents for a new relief road including a new overbridge crossing of the M4 and 5-arm signalised roundabout. The strategic impact was assessed using SATURN modelling software with the detailed operation of signals assessed using Linsig.
- A33 (Reading) Corridor Study, Reading - Development of an Urban Traffic Control led highway improvement strategy for the A33 corridor in Reading. Testing the strategy using Reading's SATURN model and refining the detail through the use of TRANSYT and Linsig.

- Central Reading Weekend Model, Reading - Coordination and management of the development of a weekend version of the existing Reading Transport Model (SATURN) covering central Reading.
- Kennet Valley Park, Reading - Development and testing of Transport Strategy for a proposed 7,500 residential dwelling development at Kennet Valley, West Berkshire using Reading's SATURN model.
- Bradford Festival of Light, Bradford - Assessing the Movement Vision developed to accompany a masterplan the City of Bradford including strategic analysis of impacts using Bradford SATURN model
- Willington Power Station, South Derbyshire - Development and testing of Transport Strategy for a proposed 1,000 residential dwelling development in South Derbyshire including building a SATURN model to test the development proposals strategically.

1.3 I am currently advising developers regarding a major new urban extension to Burgess Hill which includes assessing the strategic impacts of the extension on the highway network using West Sussex County Council's transport model.

Representations

1.4 I am instructed to appear in this inquiry on behalf of Imperial London Hotels Limited (ILHL) that owns and operates seven hotels and six hostels in the Bloomsbury area including the Tavistock Hotel (hereafter referred to as "the Hotel") which directly fronts onto Tavistock Square. ILHL employs over 1,000 staff many of whom live locally to the hotels within Bloomsbury with 56% resident within the London Borough of Camden. At any one time ILHL is responsible for the safety and welfare of over 7,000 staff and guests. Over the course of the year ILHL is responsible for the safety and welfare of over 1.3 Million staff and guests.

1.5 I am familiar with the Bloomsbury area and local transport network having advised ILHL on highways and transport matters since November 2015. I worked locally (Southampton Row) for a period of three years between April 2014 and March 2017.

1.6 I have advised ILHL on the traffic and transport impacts of the Camden (Prescribed Routes, Waiting and Loading Restrictions and Parking Places) (No.1) Experimental Traffic Order 2015 since 2015, my evidence is presented in support of the hotel company's objection to the to the Camden (Torrington Place to Tavistock Place) (Prescribed Routes, Waiting and Loading Restrictions and Loading Places) Traffic Order [2017] (hereafter referred to as "the proposed Order"). The proposed Order by Camden London Borough Council (hereafter referred to as "the Council") would have the effect of reproducing and continuing in force indefinitely the provisions of the Camden (Prescribed Routes, Waiting and Loading Restrictions and Parking Places) (No.1) Experimental Traffic Order 2015 (hereafter referred to as "the Trial").

1.7 In presenting my evidence to the inquiry, I do so in the knowledge that my duty, as an expert in traffic and transport engineering, is to give a full and fair view of the ILHL's objection to the Order to the best of my professional knowledge and belief. With that duty in mind, I am satisfied that the ILHL's objection is properly made for the reasons that I set out in this proof of evidence.

1.8 The main traffic effects of the proposed Order would be to:

1. Prohibit motor vehicles proceeding in Torrington Place east of its junction with Gower Street, Byng Place, the south-eastern arm of Gordon Square, the south-eastern arm of Tavistock Square or Tavistock Place between its junctions with Woburn Place and Tavistock Square and with Judd Street and Hunter Street, other than in an easterly direction with a carriageway width of at least 3.25 metres (this section hereafter referred to as "the Corridor")

2. Create an eastbound 2 metre wide segregated cycle lane along the northern side of the Corridor utilising the previous segregated two-way cycle lane; and

3. Create a westbound 2 metre wide segregated cycle lane along the southern side of the Corridor.

1.9 In order to facilitate these changes the Order includes a variety of changes to loading and waiting restrictions along and in the locality of the Corridor.

Scope of Evidence

1.10 From November 2015 when the Trial was implemented, I have corresponded with and met with the Council with the purpose of understanding and scrutinizing the Council's traffic and transport justification for its Order decision for the configuration of the Corridor for cyclists (i.e. segregated lanes on either side of the carriageway) and that traffic flows should be restricted to one-way in the eastbound direction.

1.11 I set out below the scope of my evidence based on the information that the Council has provided to me and my own analysis of that information and observations as to the operation of the Trial at the date of preparing this proof of evidence.

Council's reasons for implementing the Trial

1.12 The Council stated in their consultation literature of September 2016 'Consultation: Torrington Place/Tavistock Place route' (**CD6/9**) that the reasons for implementing the Trial were as follows:

1. *"In 2015 this route was the busiest street for cycling in Camden and one of the busiest in London. The previous cycle lane had become overcrowded, causinSg safety problems.*

2. *With narrow pavements, a two-way segregated cycle lane (on one side of the street) and a traffic lane in each direction, the previous road layout did not provide a safe and attractive environment for the many pedestrians using the street.*

3. *Despite high levels of cycling, only a small proportion of the road provided protected space for cycling.*

4. *The route suffered from a high casualty record, particularly due to collisions between motor vehicles and cyclists, cyclists and cyclists, and motor vehicles and pedestrians.*

5. *The road is not wide enough to provide more space for walking and cycling without reducing the space available for motor traffic.*

6. *As part of the approval for the West End Project, we agreed to bring forward proposals for a trial to reduce the impact of through traffic on local residents in Torrington Place between Gower Street and Tottenham Court Road."*

1.13 My evidence takes the above points as the reasons for the Trial being implemented.

Council's rationale for the cycle infrastructure design

1.14 As noted, the Council has explained its rationale for the provisions in the Corridor for cyclists which the Trial has established.

1.15 I am not satisfied that the provision for cyclists which the Trial has implemented represents the best solution for all the users of the Corridor such as local residents, local businesses, visitors and other local road users. This is because the Trial has had the effect of transforming the Corridor into a Cycle Super Highway carrying large volumes of quicker moving, through cycle traffic. In my opinion a more appropriate design solution for the Corridor would have included elements of shared surfaces which would accommodate two-way movements for all road users. Such shared surfaces are common in major cities in continental Europe.

1.16 However I am satisfied that the Council has reviewed this aspect of the Trial thoroughly and arrived at its preferred highway layout catering for cyclists in the Corridor (the Trial) through a combination of design and policy reasons which have some justification in traffic and transport terms.

1.17 In this context I am neutral as to the merits of the arrangements for cyclists in the Corridor which the Trial has tested. My evidence does not therefore discuss further the principle of the cycle infrastructure measures implemented with the Trial and that would be included in the Order if made.

Council's rationale for the traffic arrangements

1.18 The purposes for which a Road Traffic Regulation Order (RTRO) can be made in London are set out in section 6, Schedule 1 and section 1 of the Road Traffic Regulation Act 1984 (RTRA). They can include the provision of cycle-ways and one-way vehicular traffic working.

1.19 Section 122 of the RTRA places the Council under a duty to exercise their function in making an RTRO in such a way as 'to secure the expeditious, convenient and safe movement of traffic (vehicles and pedestrians).' This duty is qualified by the requirement to have regard to the matters set out in s.122(2) that include 'the desirability of securing and maintaining reasonable access to premises' and the 'effect on the amenities of any locality affected...'

1.20 In so far as the making of TROs affects the management of the road network, I consider that the Council must also have regard to its duty under the Traffic Management Act 2004 (TMA) that was introduced to tackle congestion and disruption on the road network. The TMA places a duty on local authorities to make sure traffic moves freely and quickly on their roads and the roads of nearby authorities. Of particular relevance is section 16 which is reproduced in part below:

16 The network management duty

(1) It is the duty of a local traffic authority [or a strategic highways company ("the network management authority")] to manage their road network with a view to achieving, so far as may be reasonably practicable having regard to their other obligations, policies and objectives, the following objectives—

(a) securing the expeditious movement of traffic on the authority's road network; and

(b) facilitating the expeditious movement of traffic on road networks for which another authority is the traffic authority.

(2) The action which the authority may take in performing that duty includes, in particular, any action which they consider will contribute to securing—

(a) the more efficient use of their road network; or

(b) the avoidance, elimination or reduction of road congestion or other disruption to the movement of traffic on their road network or a road network for which another authority is the traffic authority;

and may involve the exercise of any power to regulate or co-ordinate the uses made of any road (or part of a road) in the road network (whether or not the power was conferred on them in their capacity as a traffic authority).

1.21 Section 16 makes it clear that the local traffic authority (in this case the Council) has a duty to avoid, eliminate or reduce road congestion or disruption to the movement of traffic on their road network.

1.22 In the interests of transparency, I have repeatedly asked the Council from 2015 to see the assessment work, comparative or otherwise, which led the Council to conclude that limiting vehicular traffic movements along the Corridor to eastbound only represented the optimum traffic management solution in the Corridor to achieve its objectives despite the ensuing traffic impact which would occur locally due to traffic being displaced from the Corridor. I have been provided with no such assessment work to date. From the information which has been provided to me I have concluded the following:

1. The Council undertook some high level / strategic modelling of the potential traffic impacts arising as a consequence of the West End Project. This led the Council to conclude that there would be a doubling of traffic on some routes following the West End Project implementation including on Torrington Place between Tottenham Court Road and Gower Street. No further assessment work was undertaken to determine whether this claimed doubling of traffic would result in significant impacts or would remain within acceptable limits. The Council simply concluded that the Corridor should be made one-way eastbound for vehicular traffic.

2. No traffic management arrangements were considered for the Corridor other than that it should be provided with cycleways, widened footways and made one-way eastbound for vehicular traffic.

3. The Council undertook some high level/strategic modelling (a copy of this is provided at **ILHL25** and I consider this in more detail later within my evidence) of the potential traffic impact arising as a consequence of the Trial. This led the Council to conclude that by making the Corridor one-way, there would be a significant reduction in traffic movements along the Corridor. The Council further stated that there would be significant increases in traffic volumes along other local routes as a consequence of traffic re-routing from the Corridor. No further assessment work was undertaken to determine whether the stated increases in traffic would result in significant impacts or would remain within acceptable limits. The Council simply concluded that the modelling work supported their position that the Corridor should be made one-way eastbound for vehicular traffic.

4. Prior to the implementation of the Trial The Council did not consider alternative motor traffic management arrangements for the Corridor other than that it should be made one-way eastbound for vehicular traffic. They therefore undertook no assessment work to understand what the traffic impacts would be of alternative vehicular traffic management arrangements.

1.23 Since the commencement of the Trial in November 2015 ILHL has identified a number of highway and traffic concerns arising from the operation of the Trial which are:

1. Restricted access to the Hotel for guests especially protected groups defined by the Equality's Act (2010).
2. Increased traffic congestion arising from the Trial highway arrangements to the general detriment of the amenity of the area;
3. The increased response times for emergency vehicles due to the increase in congestion arising from the Trial combined with the removal of an important westbound vehicular traffic route in the area. This is a matter of concern that has been raised to the Council in correspondence from University College London Hospital, the London Fire Brigade (Euston Watch) and London Ambulance Service (Camden Ambulance Station). It may reasonably be concluded that the consequences of the increased local traffic congestion, should a terrorism attack occur similar to the one on the 7th July 2005, would be unthinkable;
4. Lack of a clear response from the Council as to its understanding, if any, as to how guests and staff at the Hotel could be evacuated effectively from the area in the case of a terror alert taking account of the increase in congestion arising from the Trial combined with the removal of the an important direct westbound route in the area;

5. Increased internal and external delivery times for service vehicles due to the increase in congestion arising from the Trial combined with the removal of an important direct westbound route in the area. This has resulted in increased operating costs for the Hotel as a consequence of the imposition of an additional 15 minutes to each delivery time following the implementation of the Trial; and

6. Increased delay and cost for guests arriving by taxi or by coach due to the increase in congestion arising from the Trial combined with the removal of an important direct westbound route in the area.

1.24 My evidence will demonstrate that had the Council considered and assessed a number of alternative options for the traffic arrangements for the Corridor prior to implementing the Trial, then the Corridor would not be made one-way eastbound for vehicular traffic as proposed in the Order, as this has been demonstrated on the available evidence to increase traffic congestion unnecessarily in the area and to have disrupted accessibility unreasonably for local residents and businesses contrary to the duty set out in section 122 RTRA and section 16 of the TMA.

Structure of Evidence

1.25 My evidence is structured in the following manner.

1.26 In Section 2, as background information, I describe the Corridor in the context of the pre-Trial and during Trial configuration and operation. I provide summarises of traffic and recorded road accident data collected before the Trial commenced and during the Trial and present my conclusions regarding how the Trial has affected traffic movements in the area.

1.27 In Section 3, I consider the development of the Trial scheme and demonstrate that the council did not consider any alternatives to the Trial prior to its implementation and neither undertook a detailed assessment of the Trial nor any other alternative scheme prior to its implementation, drawing out patent errors in what high level / strategic assessment work the Council did undertake.

1.28 In Section 4, I provide a summary and analysis of traffic data collected before and during the Trial both by the Council and ILHL.

1.29 In Section 5, I discuss the traffic modelling that I understand the Council has undertaken since September 2016 and explain why, at the time of preparing my evidence, it was yet to be demonstrated to me that the model was fit for purpose. Notwithstanding this I provide a summary of the most recent model results provided to me and draw conclusions as to their implications for traffic and transport in the area.

1.30 In Section 6, I consider the implications of the Order for access to the Tavistock Hotel, for cyclists, for visitors to the hotel including for protected groups defined by the Equality Act 2010.

1.31 In Section 7, I consider road safety matters along the Corridor arising from the Trial.

1.32 In Section 8, I set out my conclusions and invite the Inspector to recommend, on all the available evidence, that the Council does not make the Order but trials a westbound vehicular traffic only scheme and carries out an assessment of its traffic and transport effects and of the air quality effects of the Trial scheme and the westbound scheme on the study area as a whole for comparative assessment purposes.

1.33 In the alternative and in the light of the acknowledgement in Appendix D 2.1.2 (**CD6/2**)

"removing one direction of motor traffic from the Torrington Place to Tavistock Place 'corridor' (the corridor) would increase the usable width potentially available for pedestrians and cyclists while providing an adequate lane width for motor traffic in a single direction; and that this would be the case "in its current configuration [eastbound motor traffic only] or reversed [westbound motor traffic only]"; and

"that the proposal to reverse the direction of the one-way motor traffic flow in the corridor posed 'no major geometric design changes' to the ETO layout"

I respectfully urge the Inspector to recommend to the Council a 'modification' of the Trial scheme to provide for westbound motor traffic only and the confirmation of the Order with that modified traffic arrangement.

2.0 Baseline Conditions

Study Area

2.1 The relevant traffic and transport Study Area for my evidence is defined as the area bound by the Euston Road to the north-west, Grays Inn Road to the north-east, Gower Street to the south-west and the A40 to the south-east. It is within this area that it can be reasonably assumed the effects of the Trial should be assessed in coming to a determination as to whether the Order should be made. The Study Area and routes within it are illustrated on Figure 2.1 which is provided at the end of the text of my evidence

2.2 The Euston Road to the north-west and part of Grays Inn Road to the north-east from part of the Transport for London Road Network (TLRN), which forms the Strategic Road Network within London.

2.3 The remaining roads forming the boundary to the Study Area comprise:

1. A40 – which forms a main east-west route connecting Old Street in the east to Oxford Street / Regent Street in the west;
2. Gower Street / Tottenham Court Road – which forms a main north-south route connecting the A40 and the Euston Road adjacent to the University College London Hospital;
3. Grays Inn Road - which forms a main north-south route connecting the A40 and the Euston Road at Kings Cross.

2.4 Within the Study Area the main access routes into and out of the local area comprise:

1. A4200 Southampton Row / Woburn Place – which forms the main north-south access route for journeys from the north (Euston Road) and from the south (A40);

2. The Corridor which forms a main east-west access route for journeys from the west (Fitzrovia / Gower Street / Tottenham Court Road) and from the east (Grays Inn Road);

3. Great Russell Street which forms a main east-west route for journeys between Gower Street and Southampton Row; and

4. Guildford Street / Bernard Street which forms a main east-west route for journeys between Southampton Row and Grays Inn Road.

2.5 The remaining roads within the Study Area primarily serve as access roads for local residents, institutions and businesses.

The Corridor

2.6 Prior to the introduction of the Trial layout the Corridor operated as two-way for general traffic between its junction with Judd Street and its junction with Gower Street. Between Gower Street and Tottenham Court Road, the Corridor operated as a one-way street in the westbound direction.

2.7 For its full length between Tottenham Court Road and Judd Street, a segregated two-way cycleway was provided on the northern side of the Corridor. The cycleway was marked with one-lane in each direction. The segregation from the general carriageway was achieved through the provision of a solid kerb of varying width. The total width of the cycleway varied along the Corridor was typically 2.3m.

2.8 The Corridor has frequent side streets and active frontages including restaurants, cafes, offices, residential dwellings, and hotels. Prior to the Trial, loading and unloading on the southern side of the Corridor was commonplace. These characteristics in combination gave the Corridor the character of a busy high street in places.

Eastbound and westbound routes

2.9 The plan Figure 2.2 provided at the end of my evidence illustrates the eastbound and westbound operation of the streets within the Study area prior to the implementation of the Trial in terms of permitted movements.

2.10 Figure 2.2 shows that prior to the Trial, there were six routes for traffic travelling eastbound through the study area and five routes for traffic travelling westbound. These were as follows:

Eastbound – before the Trial

1. Euston Road
2. Endsleigh Gardens
3. Torrington Place / Tavistock Place
4. Montague Place / Russell Square / Bernard Street
5. Great Russell Street
6. A40

Westbound – before the Trial

1. Euston Road
2. Endsleigh Gardens
3. Torrington Place / Tavistock Place
4. Great Russell Street
5. A40

2.11 The implementation of the Trial introduced a contraflow cycle lane along the southern side of the carriageway. The existing two-way cycle lane on the northern side was converted to be eastbound only. And vehicular traffic was restricted to travelling one-way eastbound only between Judd Street and Gower Street.

2.12 The plan Figure 2.3 provided at the end of my evidence illustrates the eastbound and westbound operation of the streets in the Study area following implementation of the Trial in terms of permitted movements

2.13 Figure 2.3 shows that the effect of the Trial was to remove one of the five westbound routes through the Study Area, the Torrington Place / Tavistock Place route, leaving four westbound routes. All six routes for traffic travelling eastbound through the Study Area were retained as follows:

Eastbound – during the Trial

1. Euston Road
2. Endsleigh Gardens
3. Torrington Place / Tavistock Place
4. Montague Place / Russell Square / Bernard Street
5. Great Russell Street
6. A40

Westbound – during the Trial

1. Euston Road
2. Endsleigh Gardens
3. Great Russell Street
4. A40

3.0 Development of the Trial

Council Assessment of Options

3.1 I copy below an extract from the Council's Statement of Case:

"8.1 Throughout the design process different design options were considered. At the outset of the project the options considered included (amongst other options):

a. Eastbound traffic only along the whole corridor

b. Westbound traffic only along the whole corridor

c. Timed closure (closed to traffic between 7am and 7pm)

d. Widening the bi-directional track and retain two-way traffic

e. Removing all traffic aside from access for residents and servicing

8.2 It was considered that either enforcing a timed closure or removing all traffic aside from access would result in a significant increase in traffic on other local streets and were therefore not acceptable options.

8.3 The assessment of the remaining options resulted in the preferred option as set out in section 3 being identified and taken forward as the trial scheme."

3.2 This suggests that Council had assessed a variety of options prior to deciding on the arrangements implemented with the Trial.

3.3 I do not consider this to be the case for the reasons I set out below.

Options Assessed prior to deciding on the arrangements implemented with the Trial

3.4 On 23rd November 2015, shortly after the Trial was implemented in the Corridor, ILHL's Solicitors wrote to the Council requesting details regarding the Trial. A copy of the letter is provided at **ILHL19**. The information requested included:

3. *Copies of all material relating to the Order including any reports to Committee/Cabinet or any other officers or members at the Council together with any responses received, all plans/drawings and internal memorandums and e-mails and any other associated papers.*

6. *Details of all other options considered by the Council other than those set out in paragraph 3 of the Report*. (Report of the Director of Culture and Environment dated 1 July 2015 **CD6/1**).

3.5 This information was requested so that I could understand the purpose for the Council introducing the Trial, the options that had been assessed and to advise my Client what the expected access implications of the Order would be on the operation of their businesses.

3.6 In response, two bundles of documents were received:

1. documents accompanying a response from Rebecca Powell to Farrer & Co (dated 21 December 2015) responding to Environmental Information Regulations request dated 23 November 2015 (**ILHL20**); and
2. Documents sent by the Council listed on pages 19 and 20 of their response to pre action letter dated 15 December 2015 (**ILHL20**)

3.7 The response included the following documents:

1. A copy of the report of the Cabinet Member for Regeneration, Transport and Planning to Cabinet entitled *"West End Project public realm improvements"* and dated 21 January 2014 (hereafter referred to as "the January 2015 Cabinet Report" – the date on the report is incorrect) (**ILHL21**);
2. Appendices A, D and H of the January 2015 Cabinet Report (**ILHL21**); and
3. Decision of Cabinet dated 21 January 2015 (**ILHL21**).

3.8 My review of the January 2015 Cabinet Report identified that at Appendix H of the January 2015 Cabinet Report the Council states:

"During the public consultation, comments were received from local groups, residents and organisations that set out concerns about increased traffic for a number of streets."

3.9 Torrington Place is one of the streets that is identified in Appendix H on which there are concerns about increased traffic.

3.10 Appendix H of the January 2015 Cabinet Report provides a table (unreferenced) with numbers denoting the increases in the amount of traffic on some streets that the Council expects to occur due to the implementation of the West End Project. The West End Project will, among other changes, alter the directions that motor vehicles are permitted to drive along Tottenham Court Road and Gower Street. Traffic management changes of this nature will have knock-on effects on neighbouring streets as some motor vehicles alter the routes they travel in order to avoid the newly introduced traffic management restrictions. The first sentence of Appendix H notes that "Detailed traffic modelling using an approved Transport for London traffic model (called the 'ONE' model) had been undertaken to assess the impacts of the West End Project.

3.11 The unreferenced table in Appendix H states that the increase in the amount of traffic on Torrington Place will be 209 vehicles per hour amounting to a percentage increase of 102%. The table does not explain the reference "per hour".

3.12 In the second paragraph below the unreferenced table in Appendix H the Council states:

"As a result of comments received in the public consultation combined with the predicted impacts from the traffic modelling, it is recommended that mitigation be considered for Torrington Place."

3.13 I have reviewed the January 2015 Cabinet Report and understand that the *"comments received in the public consultation"* referred to in Appendix H are those comments which are summarised from paragraph 14.1 of Appendix A of the January 2015 Cabinet Report. The comments from paragraph 14.1 relate to Torrington Place between Tottenham Court Road and Gower Street. Appendix A is a summary of the public consultation responses collected for the West End Project.

3.14 From this I conclude that the Council officer's recommendation that mitigation be considered for Torrington Place arose from the concerns raised during the public consultation regarding increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented.

3.15 Reviewing Appendix A in more detail I noted that at paragraph 14.3 Council officer's state:

"The public consultation highlighted significant concerns about increased traffic from residents on Torrington Place and adjacent streets." and

"To address these concerns the Council will be progressing a trial to remove through traffic on Torrington Place and funding has been committed to undertake a feasibility study of the options to achieve this outcome."

3.16 I understand from these statements that:

1. the concern of residents regarding an increase in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented was the reason why the Council resolved to investigate mitigation measures for Torrington Place;

2. the intention of the mitigation measures was to reduce or prevent impacts associated with the increases in traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented; and

3. the intention was to reduce "through traffic" on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented. I note that there is no definition of "though traffic" and, in my experience, defining through traffic can be controversial. For example a very tight definition would be all traffic movements which have neither an origin nor destination on Torrington Place between Tottenham Court Road and Gower Street. This would mean that a car journey starting in Tavistock Square and ending on Tottenham Court Road would be defined as "through traffic".

3.17 As I have already noted, Appendix H refers to *"Detailed traffic modelling....."* having been undertaken to assess the traffic impacts of the West End Project. No further information was provided in the January 2015 Cabinet Report or its appendices regarding the assessment of likely traffic impacts. I would have expected, at this stage, the Cabinet to have been provided with a summary setting out what the detailed traffic modelling entailed, the area it covered, the changes in the amount of traffic it envisaged, a definition of which traffic impacts had been considered (for example with respect to air quality or noise or congestion or road safety or pedestrian amenity etc) and an assessment of whether the size of the traffic impacts was within acceptable limits or exceeded acceptable limits. No such information was provided with the January 2015 Cabinet Report.

3.18 In particular, as Officers were seeking Councillors' approval to undertake a feasibility study into options to mitigate a claimed increase in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented, I would have expected to see a summary of the traffic impacts which the stated "traffic increase/hr" of 209 vehicles (on Torrington Place) was expected to cause. For example would this amount of traffic in an urban street result in it having to cater for traffic volumes greater than its capacity or result in a reduction in air quality or an increase in noise which was unacceptable? I was unable to find anywhere in the report an assessment of traffic impacts and whether the size of the traffic impacts was within acceptable limits or exceeded acceptable limits. In my experience an understanding the type of traffic impact of a proposed traffic scheme and the size of the impact is fundamental prior to commencing the design of effective mitigation measures.

3.19 Appendix D of the January 2015 Cabinet Report sets out the detailed proposals and amendments for which Council officers are seeking Cabinet approval. At Paragraph 27 of Appendix D Council officer's seek Cabinet approval to undertake:

".....a trial to reduce through traffic on Torrington Place, including to alleviate traffic on the section west of Gower Street."

3.20 The same paragraph 27 explains to Cabinet members that:

"Funding has been committed to undertake a feasibility study of the options to achieve this outcome." and then

"The trial would consider converting Torrington Place and Tavistock Place (from Gower Street to Judd Street) to one-way eastbound and providing more space for cycling as set out in Appendix H."

3.21 Based on this evidence, it was unclear to me how the traffic management measure of converting Torrington Place and Tavistock Place (from Gower Street to Judd Street) to one-way eastbound had been determined prior to the feasibility study of the options to achieve the outcome of alleviating traffic on the section of Torrington Place between Tottenham Court Road and Gower Street having been undertaken.

3.22 Notwithstanding this, I reviewed Appendix H of the January 2015 Cabinet Report again as this was referred to paragraph 27 of Appendix D. This was to double check that Appendix H did not contain any reference to alternative options considered to mitigate the claimed increase in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented. Appendix H states that (third paragraph from the end of Appendix H):

"An assessment of potential mitigation for Torrington Place has been considered and has highlighted that traffic levels on Torrington Place between Gower Street and TCR (where there is a concentration of residents) could be significantly reduced by making traffic changes to Torrington Place and Tavistock Place (east of Gower Street)."

3.23 The "assessment of potential mitigation" which officers refer to in the third paragraph from the end of Appendix H is not summarised in the Appendix and is not appended to the January 2015 Cabinet Report. I would have expected the January 2015 Cabinet Report to have explained what potential mitigation measures had been considered and provide details of the assessment to compare the relative merits of each of the potential mitigation measures considered to arrive at the preferred mitigation measures. Instead, the second paragraph from the end of Appendix H simply describes the main proposals for a temporary trial of traffic changes to Torrington Place and Tavistock Place without any reference to the alternatives considered, the impacts of such a scheme on the Tavistock Place / Torrington Place corridor or the impacts of the scheme on roads connecting to the Tavistock Place / Torrington Place corridor. I note that, at bullet three of the second paragraph from the end of the Appendix, Officers recommend that all westbound traffic other than cycles and servicing traffic would not be permitted to use the street.

3.24 Furthermore there was inconsistency between the Council's statement in Appendix H that I quote at my paragraph 3.22, which suggests that the assessment of options to mitigate the claimed likely increase in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented, had already been undertaken and the Council's statement in Appendix D that I quote at my paragraph 3.20 which indicates that Officers are seeking approval from Cabinet to undertake such a study.

3.25 Having reviewed the January 2015 Cabinet Report I remained unclear whether the Council had already undertaken a feasibility study to identify suitable mitigation for the concerns raised in the West End consultation regarding increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented or if the feasibility study was still to be undertaken, and what assessment work had been undertaken. I understood that mitigation options had been considered and had been assessed because Council officers had stated that this was the case in the third paragraph from the end of Appendix H of the January 2015 Cabinet Report.

3.26 I note from the Council's correspondence of 15th December 2015 (**ILHL20**) that the Council has, since the January 2015 Cabinet resolution to implement he West End project, undertaken a comprehensive programme of traffic surveys including motor vehicle, pedestrian and cycle surveys (I discuss this in more detail later in my evidence). The surveys were undertaken in May 2015 at a time of the year which I would consider to be sufficiently neutral – i.e. the data is likely to be unaffected by seasonal variations such as school holidays. The data was sufficient to enable a comprehensive assessment of the size and type of traffic impacts attributable to the increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented, to be undertaken.

3.27 The survey data could not have been used to inform recommendations made in the January 2015 Cabinet Report, however, as the survey dates post-date the January 2015 Cabinet Report. However, such survey data could have been used to develop and assess mitigation options for traffic impacts consequential upon the forecast increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented and, in this way, to inform recommendations made in the July 2015 Cabinet Report. This was not done.

3.28 The number of pedestrians, cyclists and motor vehicles per busiest hour of the day is quoted in section 2 of the July 2015 Cabinet Report on the 'Torrington Place to Tavistock Place Experimental Traffic Changes' (**CD6/1**). The survey data is not used, however, to develop and assess the mitigation options for likely traffic impacts that would be attributable to the increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented. Instead the July 2015 Cabinet Report offers Councillors two options:

1. Option 1 - "do nothing" in which there is no mitigation measures; or
2. Option 2 – "Experimental Traffic Changes" which are the changes which are the subject of the ETO.

3.29 No other mitigation measures or options are presented or discussed. It is to be noted in this context that the Council's 'Decision Sheet' issued on the 1st July 2015 (**CD6/1**) states the: "There were no alternative options considered or rejected by the Cabinet Member when making the decision."

3.30 Notwithstanding that the July 2015 Cabinet Report does not offer any options to mitigate traffic impacts attributable to the increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented other than the removal of westbound traffic from the Torrington Place / Tavistock Place corridor between Gower Street and Judd Street, the survey data collected could have been used to assess the traffic impacts of removing westbound traffic from the Torrington Place / Tavistock Place corridor between Gower Street and Judd Street.

3.31 There is no such quantitative assessment of the traffic impacts arising from the removal of westbound traffic from the Torrington Place / Tavistock Place corridor between Gower Street and Judd Street referred to in the July 2015 Cabinet Report. Instead paragraph 5.1 of the July 2015 Cabinet Report sets out the Council's assessment of the traffic impact expected to arise from the removal of westbound traffic from the Torrington Place / Tavistock Place corridor between Gower Street and Judd Street as follows:

"Over the last few years there have been full closures of both Tavistock Place and Byng Place for utility works. The traffic impacts of these closures were monitored and none of these closures resulted in unacceptable traffic impacts in the local or wider area."

3.32 There is no explanation of what is meant by "unacceptable". No information is provided regarding the monitoring regime: how it was monitored and the monitoring area. No reference is made to the difference in a road user's responses to temporary road closures and permanent road closures. No comparison, even anecdotal, is made between the temporary closure of a single section of a street and the permanent removal of traffic movements along a 1km corridor.

3.33 A further reference is made to traffic surveys (which I assume to be the comprehensive programme of traffic surveys undertaken in May 2015) in paragraph 5.2 of the July 2015 Cabinet Report. This states:

"The busiest section of the corridor for vehicular traffic is between Upper Woburn Place and Gordon Square (west) with 1,057 vehicles an hour during the morning peak (1,098 in the evening peak). Of these vehicles approximately 40% are eastbound and 60% are westbound in both peak periods. Traffic surveys indicate that much of the traffic on this section is used by vehicles going to or from Euston station."

3.34 The traffic surveys undertaken in May 2015 provide volume, classification and speed of vehicles passing the location of the survey. They do not provide details of the route that traffic passing the survey location takes before or after passing the survey location. The statement at paragraph 5.2 of the July 2015 Cabinet Report that much of the traffic using the section of the Corridor between Woburn Place and Gordon Square West is vehicles going to or from Euston Station cannot, accordingly, be supported by the traffic survey data collected. Either there must have been other traffic survey data which has not been provided by the Council (either at the time of asking or in requests made subsequently) or else the statement is based on an opinion rather than objective traffic surveys.

3.35 Notwithstanding the extensive survey work undertaken by the Council by May 2015, having reviewed such information as was provided by the Council following the request for information of November 2015 (see **ILHL19**) I was still unable to establish:

1. the methodology for how the increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented which were quoted in the table contained in Appendix H of the January 2015 Cabinet Report (209 vehicles per hour), had been derived;

2. if the increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented which were quoted in the table contained in Appendix H of the January 2015 Cabinet Report (209 vehicles per hour) could be expected to result in adverse impacts which exceeded acceptable limits;
3. the options, if any, the Council had considered to mitigate the traffic impacts arising from increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented quoted in the table contained in Appendix H of the January 2015 Cabinet Report;
4. the extent of changes in traffic movements arising from each of the options I refer to in 3.35.3 above on the Corridor and on surrounding streets;
5. if the extent of changes in traffic movements I refer to in 3.35.4 above were expected to be within acceptable levels; and
6. why the Council had chosen the Trial scheme as the preferred scheme to mitigate the traffic impacts arising from increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented.

3.36 The documents listed in the correspondence provided at **ILHL20** referred to further documents and / or assessment work which I understood from the documents had been used by Council officers in preparing both the January 2015 Cabinet Report and the July 2015 Cabinet Report. In order to have all the information which I understood would have been available to the Council in arriving at their decisions regarding the January 2015 Cabinet Report and the 2015 July Cabinet Report I formulated a list of further data sent by letter to Camden of 15 January 2016 (**ILHL22**) seeking clarification on the data received (**ILHL20**) and information to clarify statements made in the data which I had received which included the following:

1. A Report entitled: "Tavistock Place / Torrington Place — Westbound Closure between Judd Street and Gower Street". I wanted to see this report as correspondence from TfL to the Council (**ILHL25**) indicates that the traffic impact of the Order has been assessed.

2. Details of traffic modelling to assess the traffic impacts of the West End Project which are referred to in the first paragraph of Appendix H of the January 2015 Cabinet Report. I expected that this modelling would explain the details of the stated increases in traffic volumes on Torrington Place between Tottenham Court Road and Gower Street, the changes in traffic volumes elsewhere in the local road network and a summary assessment of junction performance (for example queue lengths, vehicle delay). My professional experience of changes in traffic demand or traffic management regimes in urban areas (especially the introduction of one-way travel for motor vehicles) is that there is a displacement of traffic from the street on which the changes are made to neighbouring streets. I would expect the highway authority to investigate what the traffic impact on neighbouring streets was of converting the entire length of the Corridor from two-way operation for motor vehicles to one-way operation. I would expect the highway authority to investigate more than one traffic management option for achieving a reduction in traffic volumes on Torrington Place between Gower Street and Tottenham Court Road. Once a traffic model has been built for such purposes, it is a quick and easy task to obtain output data, including junction performance, from the model.

3. Details of the assessment of potential mitigation for Torrington Place which is referred to in the third from last paragraph of Appendix H of the January 2015 Cabinet Report. This was so I could understand what mitigation options had been considered by the Council and how they had been assessed to arrive at a preferred mitigation option. This was assessment work which Council officers had stated to councillors in the January 2015 Cabinet Report had been done.

4. All traffic modelling work relating to Tavistock Square, Russell Square, Endsleigh Street and Bedford Way including the assessment of junction performance (current transport network and future transport network which includes the West End Project traffic changes) before and after the introduction of the experimental traffic order at junctions along these routes and in particular at the junctions of Tavistock Square (southeast) / Woburn Place, Endsleigh Place / Upper Woburn Place, Endsleigh Place / Endsleigh Street and Tavistock Square / Gordon Square / Bedford Way. I requested this data so I could understand the implications of the Order on traffic flows on streets local to the Corridor as well as on the Corridor itself.

5. A copy of the feasibility study referred to in paragraph 27 of Appendix D of the January 2015 Cabinet Report so that I could see what options for mitigating the increase in traffic volumes on Torrington Place between Tottenham Court Road and Gower Street stated in Appendix H had been considered. For example had one-way traffic westbound only been considered or sections of two-way traffic and sections of one way traffic or physical measures to slow down traffic along the route to deter through traffic. I also wanted to understand if and how the options had been assessed as feasible or not and how the term "through traffic" had been defined when comparing options. I would expect a highway authority considering the implementation of a traffic management scheme to reduce expected increases in the amount of traffic on a section of road to look at a number of options in order to determine which options produced the best outcomes against their assessment criteria.

3.37 A response to requests for information was received from Camden Council on 18th January 2016 (**ILHL24**). The response provided clarification on some of the questions raised but failed to provide clarification on other questions as follows:

1. A Report entitled: "Tavistock Place / Torrington Place — Westbound Closure between Judd Street and Gower Street" (dated 'Approved 29/06/2015) (hereafter referred to as "the 2015 Modelling Report") (**ILHL25**).

2. Details of traffic modelling to assess the traffic impacts of the West End Project which is referred to in the first paragraph of Appendix H of the January 2015 Cabinet Report. Camden responded that:

   "the Council is unable to provide you with a copy of this documentation"

3. Details of the assessment of potential mitigation for Torrington Place which is referred to in the third from last paragraph of Appendix H of the January 2015 Cabinet Report. Two plans were provided which I attach at **ILHL26**.

4. All traffic modelling work relating to Tavistock Square, Russell Square, Endsleigh Street and Bedford Way including the assessment of junction performance (current transport network and future transport network which includes the West End Project traffic changes) before and after the introduction of the experimental traffic order at junctions along these routes and in particular at the junctions of Tavistock Square (southeast) / Woburn Place, Endsleigh Place / Upper Woburn Place, Endsleigh Place / Endsleigh Street and Tavistock Square / Gordon Square / Bedford Way. The Council confirmed that the assessment work was provided entirely within the report I have provided at **ILHL25**.

5. A copy of the feasibility study referred to in paragraph 27 of Appendix D of the January 2014 Cabinet Report. The Council responded that the feasibility study amounted to the two plans I have provided at **ILHL26**.

3.38 I have reviewed the Council's response and information provided and set out my observations on these as follows.

3.39 I have reviewed the 2015 Modelling Report which is the Tavistock Place / Torrington Place – Westbound Closure between Judd Street and Gower Street modelling report prepared by TfL and approved on 29 June 2015 (**ILHL25**). The 2015 Modelling Report states that its purpose is to determine the impact of closing sections of westbound carriageway along the Tavistock Place / Torrington Place corridor and it assesses the following scenarios:

1. Closure of the westbound carriageway along the Tavistock Place / Torrington Place compared to the base model (2012); and
2. Closure of the westbound carriageway along the Tavistock Place / Torrington Place compared to the future base model which includes a number of highway interventions including the Option A of the West End Project.

3.40 The July 2015 Cabinet Report was signed and dated by the Assistant Director on 23 June 2015. The July 2015 Cabinet Report was submitted to Cabinet on 1 July 2015. It is unclear how much information from the 2015 Modelling Report was used in compiling the July 2015 Cabinet Report as it was issued for use 6 days after the July 2015 Cabinet Report was completed and signed on the 23rd June 2015' This may explain why the July 2015 Cabinet Report does not refer to the assessment work presented in the 2015 Modelling Report, resorting instead, anecdotally, to compare how road users react to temporary local road closures for road works as being a precedent for how road users would react to a permanent prohibition of westbound movement along the 1km of Tavistock Place / Torrington Place between Judd Street and Gower Street.

3.41 I have reviewed figures 7 and 10 in the 2015 Modelling Report and the patterns of the select link analyses (which show the routes that traffic take to and from a specific section of highway) indicate that following the closure of sections of westbound carriageway along the Tavistock Place / Torrington Place corridor, traffic is displaced to the following local roads:

1. Guildford Street;
2. Judd Street;
3. Russell Square (west and north);
4. Bedford Way;
5. Tavistock Square (west and east);
6. Endsleigh Street;
7. Endsleigh Gardens;
8. Gower Place;
9. The northern end of Gower Street;
10. Woburn Place;
11. Great Russell Street; and
12. Montague Street.

3.42 The 2015 Modelling Report does not provide any comment on what the potential traffic impacts would be on residents and businesses on streets which would accommodate the displaced traffic. It does not attempt to assess the level of impact arising from these changes in road traffic or to provide a conclusion regarding whether the level of impact is acceptable. It is provided as information to the Council. I have not been able to find, nor have I been provided with, an assessment that the Council has made of the potential traffic impacts on residents and businesses on streets which the 2015 Modelling Report shows are predicted to accommodate traffic displaced as a result closing sections of westbound carriageway along the Tavistock Place / Torrington Place corridor.

3.43 I note that Figure 3 of the 2015 Modelling Report shows that there would be a 415% increase in the volume of traffic travelling northbound along Endsleigh Street during the morning peak hour as a result closing sections of westbound carriageway along the Tavistock Place / Torrington Place corridor. During the evening peak hour this increase in hourly northbound traffic is 155%. I have seen no assessment by the Council of the traffic impacts which increases in traffic volumes of this magnitude would have on people using Endsleigh Street.

3.44 My paragraph 3.10. I note that the first sentence of Appendix H of the January 2015 Cabinet Report states:

> *" Detailed traffic modelling using an approved Transport for London traffic model (called the 'ONE' model) has been undertaken"*

3.45 This suggests to me that detailed traffic modelling work had been undertaken of the West End Project and its impacts. I note, however, that in their response to my data request (**ILHL24**) the Council stated they were unable to provide it to us.

3.46 Appendix H of the January 2015 Cabinet Report continues that:

> *" The traffic modelling data for these streets is set out below"*

3.47 In the unreferenced table in Appendix H Council officers state that the increase in traffic on Torrington Place after the West End Project has been implemented is 209 vehicles per hour which is a change of 102%. I have reviewed the traffic survey data subsequently undertaken in May 2015. Survey location ATC 41 (**ILHL27**) provides observed traffic volume data for Torrington Place between Huntley Street and Tottenham Court Road. The survey data shows the weekday hourly traffic volume as between 385 vehicles per hour (morning peak hour) and 440 vehicles per hour (evening peak hour). An increase in traffic volumes of 209 vehicles per hour is a change of around 50% not the 102% that Council officers quote in Appendix H. My conclusion, based on this evidence, was that either the increases in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented presented in the January 2015 Cabinet Report were wrong or else the survey data against which the increases in hourly traffic were assessed was wrong.

3.48 Unfortunately, as the Council's response was to not provide details of the modelling undertaken,I was unable to verify the data presented in Appendix H.

3.49 The Council's response regarding the feasibility study mentioned in paragraph 27 of Appendix D to the January 2015 Cabinet report provided two plans (**ILHL26**). These plans appear to be identical with the exception that one shows eastbound and westbound traffic to be separated at Gower Street and one shows eastbound and westbound traffic to be separated at Malet Street. No other options to mitigate a claimed increase in hourly traffic on Torrington Place between Tottenham Court Road and Gower Street expected to occur after the West End Project had been implemented are provided. No explanation of why the option of removing westbound traffic from Torrington Place / Tavistock Place between Judd Street and Malet or Gower Street was the only option which arose from the feasibility study which Council officers had sought approval to undertake in the January 2015 Cabinet Report.

3.50 In my professional experience of working on traffic schemes at all levels over 25 years I have never encountered a feasibility study which only considers one option and a variation on that one option. All the studies I have worked on have considered more than one option. The outcome of the feasibility study may be that only one option is actually feasible for a variety of reasons including cost. However all the studies I have encountered have included more than one option to be assessed.

3.51 The information which the Council provided on 18th January 2016 (see **ILHL24**) provided some clarification on the questions I had raised but left many questions unanswered. To try again to get answers to these questions I formulated a list that was added to letter sent from ILHL's solicitors to the Council on 20 January 2016 (**ILHL28**) seeking clarification on the data received from the Council on 18th January 2016. The data requested included the following:

1. I had spoken to a Mr Andrew Ulph of Transport for London (TfL) in order to obtain the detailed traffic modelling which Council Officer's refer to in the first paragraph of Appendix H of the January 2015 Cabinet Report but which the Council had failed to provide to me following ILHL solicitor's request of 15 January 2016. I had been informed that TfL were not sure if the modelling work for the West End Project had been undertaken by them at the instruction of the Council or if TfL had audited modelling work undertaken by the Council's consultants. The Council were asked if they could contact Andrew Ulph at TfL and request that the modelling work was released immediately.

2. An explanation of and the provision of, the analysis that led the Council to conclude that the mitigation for Torrington Place was to remove through traffic in a westbound direction in the Corridor.

3. The numbers which underpin the 2015 Modelling Report (**ILHL25**). This is because I had experienced great difficulty in distinguishing between the different coloured band widths.

4. A summary of the actual junction performances within the study area rather than an indicative colour as again I had experienced great difficulty in distinguishing between the thickness of lines etc (paragraph 4.3 of the 2015 Modelling Report refers to this 'information' being available).

5. Clarification / confirmation that the entire feasibility is comprised of the 2 options called "7_Stations Proposals Option 1" and "7_Stations Proposals Option 2" (**ILHL26**) and asking again whether or not there was a report setting out all of the feasibility work undertaken including other options to removing westbound traffic and a copy of such report if it existed.

3.52 The Council was asked to respond by 21 January 2016. All the data / information requested had been referred to in the January 2015 Cabinet Report and the July 2015 Cabinet Report so I assumed that it would be readily available. It was data / information that I would have expected in any case to have been available in the public domain in the interests of transparency of decision making; as noted above it is normal in traffic studies to consider a number of options and assess each against a common assessment framework in order to arrive at the best solution.

3.53 The Council responded on 26 January 2016 (**ILHL29**). The response provided the following answers to the requests for information which I expected was readily available.

3.54 The Council does not provide the detailed modelling referred to in the first sentence of Appendix H: As I have said above, I would have expected this to have been readily available as it must have been available to Council officers when they were preparing the January 2015 Cabinet Report.

3.55 The Council notes that the detailed modelling shows that traffic on Torrington Place between Gower Street and Tottenham Court Road is predicted to double with the implementation of the West End Proposals: I have raised my concerns regarding this statement above in my evidence. However in any event, there is no assessment of the traffic impact arising from an increase of 209 vehicles per hour. There is simply a statement that this is the forecast increase in traffic volumes.

3.56 The Council States that:

> *"In order to limit westbound traffic on Torrington Place, options for limiting westbound traffic were therefore considered further east."*

3.57 The Council had at that point provided details of only one option for limiting westbound traffic further east (**ILHL26**). The Council has not provided an assessment of the traffic impacts of limiting westbound traffic further east.

3.58 The Council does not provide the numerical data which underpins the figures in the 2015 Modelling Report: The figures in the 2015 Modelling Report illustrate on which streets traffic impacts have the potential to occur. However, as the size of the traffic changes cannot be easily interpreted from the figures it is impossible to accurately assess what the traffic impacts would be. The Council states that:

> *"Strategic modelling [using TfL's ONE model] is not carried out to give exact flow information but a predicted proportion of reassignment as a consequence of the proposals."*

3.59 Notwithstanding this I note that Appendix H of the January 2015 Cabinet Report (on the basis of which Councillors agreed to proceed with a feasibility study into the Trial) refers to detailed modelling using TfL's ONE model and quotes modelled increases in flow of exactly 209, 113, 38 and 134 vehicles per hour for various streets. This is "exact flow information".

Summary

3.60 I have set out above details of the correspondence I have had with the Council following the implementation of the Trial in November 2015 and up to January 2016. In the context of this correspondence, there is no substantial evidential foundation in my view for the Council's statement in their Statement of Case that they assessed a variety of options prior to deciding on the arrangements implemented with the Trial or that they assessed the options bulleted in paragraph 8.1 of their SoC. On the contrary, the evidence demonstrates that

1. The Council only considered two options for the Trial both of which had westbound traffic removed from the corridor (**ILHL26**). In the July 2015 Cabinet Report which reported on the options considered, the only other option referred to other than the Trial was "doing nothing";
2. The only traffic assessment work undertaken was the modelling of the Trial as implemented and as reported in the 2015 Modelling Report; and
3. Notwithstanding the volumes of traffic that the 2015 Modelling Report predicted would be displaced onto adjacent local streets, the Council made no attempt to assess the impacts of these changes in traffic volumes.

West End Project Modelling

3.61 As part of the West End Project, the Council commissioned traffic modelling to understand the potential impact of the implementation of the West End Project. A summary of the modelling was provided at Appendix H of the report of the Cabinet Member for Regeneration, Transport and Planning to Cabinet and dated 21 January 2015 (hereafter referred to as "the January 2015 Cabinet Report")

3.62 Appendix H of the January 2015 Cabinet Report provides a table (unreferenced) with numbers denoting the increases in the amount of traffic on some streets that the Council expected to occur due to the implementation of the West End Project. The unreferenced table in Appendix H states that the increase in the amount of traffic on Torrington Place between Gower Street and Tottenham Court Road will be 209 vehicles per hour stating that this is an increase of 102%. This equates to a "without West End Project" flow of 205 vehicles per hour and a resulting total flow of 414 vehicles per hour.

3.63 A review of the May 2015 ATC surveys identifies that there was a typical traffic volume of circa 400 vehicles per hour during the morning weekday peak hour and 440 during the evening weekday hour.

3.64 Government guidance on assessing the accuracy of traffic models is set out in the publication TAG UNIT M3.1 ("Unit M3.1") (**ILHL30**). Table 2 of Unit M3.1 sets out acceptability guidelines for modelled flows compared with observed flows. Criteria 1 sets the acceptability guidance for a link with a flow of less than 700 veh/h as being "within 100 veh/h". The difference between the modelled flow of 205 vehicles and the observed flow of 440 or 385 vehicles is significantly more than 100 veh/h.

3.65 Further guidance is provided at paragraph 3.2.7 of Unit M3.1 which introduces the concept of relative differences in modelled and observed traffic flows alongside absolute differences through the application of the GEH statistic recommending that the value of the GEH statistic should be 5 or less for a specific pair of observed and modelled traffic flows. The GEH statistic value for Torrington Place is greater than 11.

3.66 The model which forms the basis from which the Council's modelling was undertaken covers the whole of London. Nonetheless the analysis set out above indicates that the model which the Council was using to assess the impacts of the West End Project did not meet acceptability guidelines within the area of the Corridor. The model would therefore be unreliable to use to assess changes in local traffic movements as a consequence of changes to the local road network in this location.

3.67 My conclusion set out above is further reinforced by correspondence with TfL (**ILHL32**) which confirms that:

".....the ONE model is a strategic assessment tool which hasn't be designed to be used in detailed assessments".....

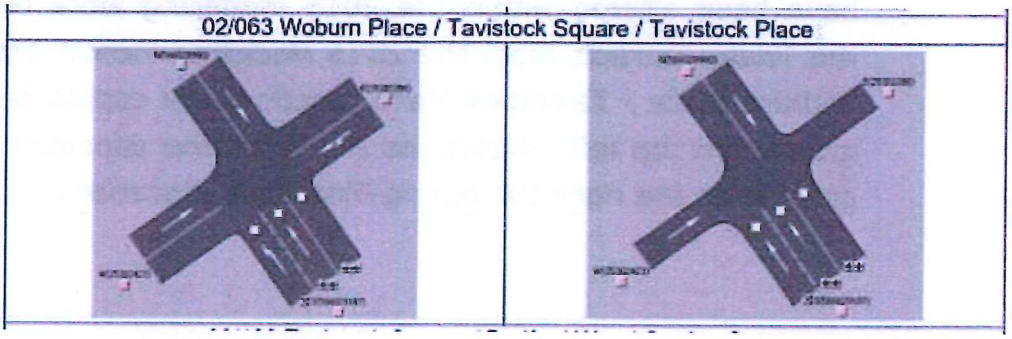
3.68 Based on the above, it is clear to me that data taken directly from the ONE model is insufficiently accurate at a local level to be able to make decisions on local infrastructure interventions such as the Trial. The use of the data in the January 2015 Cabinet Report in support of implementing the Trial was therefore misleading. Instead the data should have been used by the Council as, at best, an indicator of potential impacts which they should then, adopting conventional traffic modelling methodologies, have investigated in more detail. The summary of the correspondence I have provided above indicates that this further necessary detailed assessment was not undertaken between the January 2015 Cabinet and the July 2015 Cabinet at which the Council confirmed that the Trial should proceed.

2015 Modelling Work

3.69 Prior to the Council's decision in July 2015 to implement the Trial, the Council commissioned further traffic modelling work to determine what the potential impact of the Trial would be in terms of displaced traffic. The summary of this work is set out in the 2015 Modelling Report (**ILHL25**). The 2015 Modelling Report was issued for use 6 days after the July 2015 Cabinet Report was dated (23 June 2015) as having been prepared. The 2015 Modelling Report could not therefore have been used by officer's in completing the July 2015 Cabinet Report.

3.70 Figure 2 of the 2015 Modelling Report illustrates how junctions have been altered within the 2015 modelling work to replicate the Trial. Extracts from the 2015 Modelling Report showing the Woburn Place / Tavistock Place junctions are copied below. The graphic on the left shows the Pre-Trial lane allocations and the graphic on the right the during-Trial lane allocations.

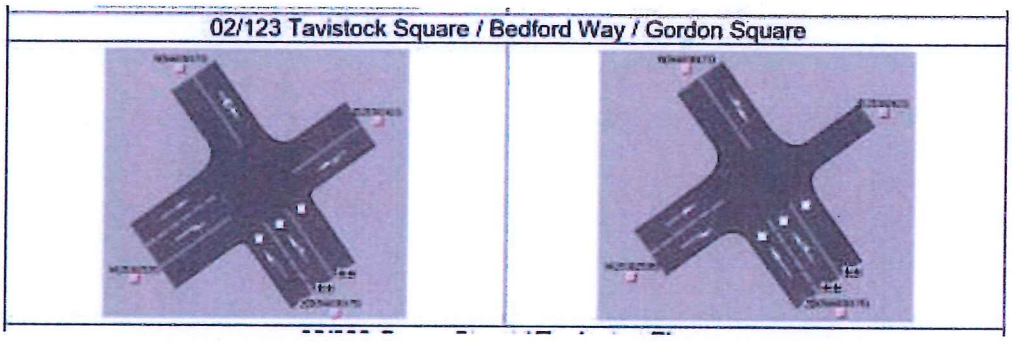
Pre-Trial **During-Trial**



3.71 The extracts above show that the 2015 Modelling Report includes two northbound lanes on Woburn Place on the approach to the Woburn Place / Tavistock Place junction both before the Trial and during the Trial. Pre-Trial there is a left turn only lane and a straight ahead lane. During the Trial there are shown two straight ahead lanes. This is incorrect. As a consequence of the Trial layout permitting eastbound only for general traffic in the Corridor, the left-hand lane is removed completely from use by general traffic: either turning left or travelling straight ahead. This leaves only one lane northbound on Woburn Place on the approach to the Woburn Place / Tavistock Place junction with the Trial layout at the junction whereas the Trial 2015 modelling work assumed and included two lanes.

3.72 Similarly extracts from the 2015 Modelling Report showing the Bedford Way / Tavistock Square junctions are copied below. The graphic on the left shows the Pre-Trial lane allocations and the graphic on the right shows the during-Trial lane allocations included in the 2015 modelling work.

Pre-Trial **During-Trial**



3.73 The extract above shows that the 2015 modelling work includes two northbound lanes on Bedford Way on the approach to the Bedford Way / Tavistock Square junction both before the Trial and during the Trial. Pre-Trial there is a left turn only lane and a straight-ahead lane. During the Trial there are two straight-ahead lanes. This is incorrect. As a consequence of the Trial permitting eastbound only for general traffic on the Corridor, the left-hand lane is removed completely from use by general traffic. This leaves, in fact, only one lane Bedford Way available on the approach to the Bedford Way / Tavistock Square junction during the Trial whereas the 2015 modelling work assumed and included two lanes.

3.74 As a consequence of these two apparent errors in the 2015 modelling work, the model will assume that more traffic can travel along these two routes than in actual fact can happen in reality. This is because the model has been told there are two northbound lanes available at each of these locations in the Model layout where there is in fact only one.

3.75 These are just two errors I have identified from the small amount of information I have been provided by the Council regarding the 2015 modelling work.

3.76 Notwithstanding the errors in the 2015 modelling work I identify above, I understand that this was the only assessment work available to the Council at the time of the feasibility study into the merits of the Trial. I also understand that the purpose of the modelling was meant to be as an indicator of potential impacts which the Council, adopting conventional traffic modelling methodologies, should then have investigated in more detail.

3.77 In this context I copy below extracts from the 2015 Modelling Report.

Figure 3 – AM Flow Changes Compared to Base Model

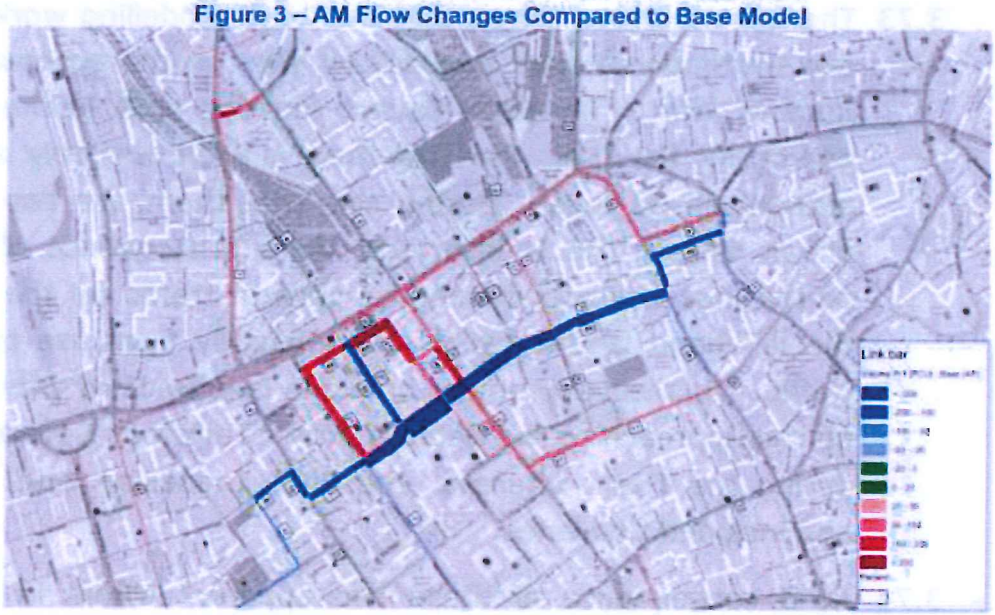


Figure 3.1 – Extract from 2015 Modelling Report showing forecast changes in traffic flows attributable to the Trial during the morning peak hour

Figure 4 – PM Flow Changes Compared to Base Model

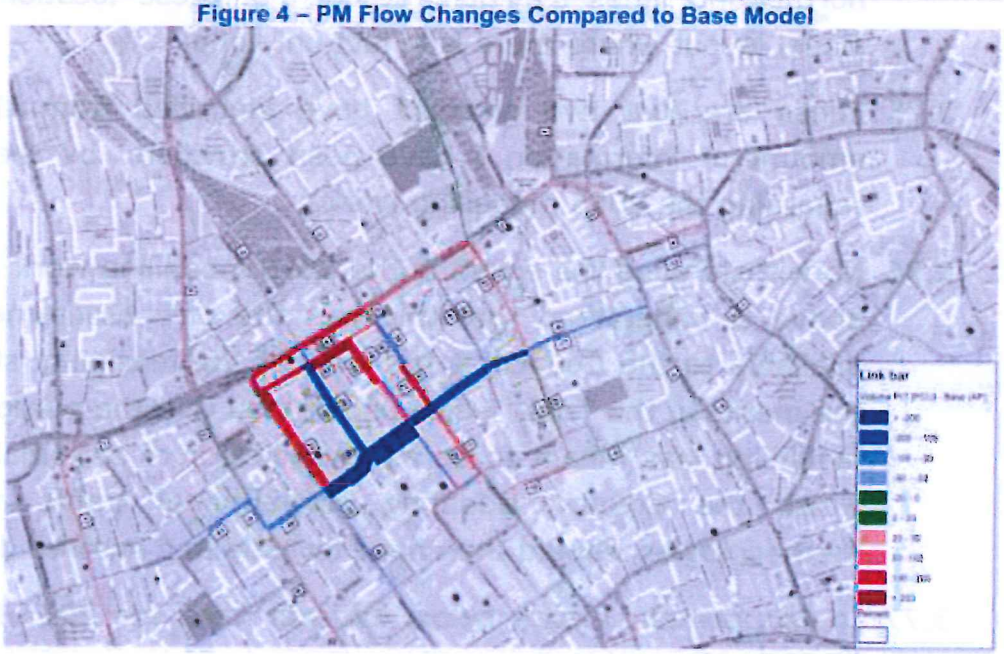


Figure 3.2 – Extract from 2015 Modelling Report showing forecast changes in traffic flows attributable to the Trial during the evening peak hour

3.78 The above two Figures 3.1 and 3.2 show that the removal of westbound traffic form the Torrington Place / Tavistock Place corridor is expected to result in reductions in westbound traffic of over 200 vehicles per hour during the morning and evening peak hours. Reductions are illustrated using blue shading.

3.79 At the same time, both plans show that the majority of this westbound traffic will be displaced onto local streets with Endsleigh Gardens experiencing an increase of over 200 vehicles per hour during the morning and evening peak hours. Increases are represented using red shading.

3.80 There is also shown an increase in southbound traffic on Gower Street during both the morning and evening peak hours together with an increase in eastbound traffic along the Torrington Place / Tavistock Place corridor.

3.81 I understand that the numbers in the boxes on Figures 3.1 and 3.2 represent the percentage changes in traffic volumes on specific elements of the road network. This shows that an increase in westbound traffic volumes of 415% could be expected during the morning peak hour on Endsleigh Street.

3.82 To set this change in context, guidance on assessing the environmental impact of road traffic is set out in the industry standard *Guidance Notes No. 1, Guidelines for the Environmental Assessment of Road Traffic* (1992) (**ILHL31**). This provides at paragraph 3.15 two broad rules- of-thumb to delimit the scale and extent of the assessment. The rules are described and justified in the following paragraphs:

1. Rule 1 - include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)

2. Rule 2 - include any other specifically sensitive areas where traffic flows have increased by 10% or more.

3.83 The above IEMA Guidelines (1992) go on to provide advice on identifying particular groups or locations which may be sensitive to changes in traffic conditions providing the following list for consideration:

1. people at home
2. people in work places
3. sensitive groups including children, elderly and disabled
4. sensitive locations, eg hospitals, churches, schools, historical buildings
5. people walking
6. people cycling
7. open spaces, recreational sites, shopping areas
8. sites of ecological/nature conservation value
9. sites of tourist/visitor interest

3.84 Considering the list above, with the exception of "sites of ecological/nature conservation value" there are examples of all the other groups or locations within the study area which the guidance states may be sensitive to changes in traffic conditions located on the streets that the Council's 2015 Modelling Report identifies as having more than 10% increases in road traffic.

3.85 And I re-iterate that the 2015 Modelling Report does not attempt to assess the level of impact arising from these predicted changes in road traffic or to provide a conclusion regarding whether the level of impact is acceptable. It is provided as information to the Council for the Council to then use in their detailed assessments of traffic impacts. I have not been able to find a detailed assessment that the Council has made of the potential impacts arising from the displacement of road traffic on to other local streets as a consequence of the Trial as predicted in the 2015 Modelling Report. As I have stated above, I have asked the Council for details of the assessment undertaken and none has been provided.

3.86 I further note that the author of the 2015 Modelling Report recommends that a VISSIM model would be needed to "*properly assess congestion at junctions and links*" resulting from the Trial. I am not aware of any such assessment having been undertaken. As I have stated above, I have asked the Council for details of the assessment undertaken and none has been provided.

3.87 I can only conclude, therefore, that contrary to conventional traffic modelling and assessment of impacts methodologies, the Council neither:

1. assessed the magnitude of impacts associated with changes in road traffic volumes on local streets brought about by the Trial which the 2015 Modelling Report predicted would experience an increase in traffic by displacement; nor
2. considered other options for managing traffic to minimise the adverse impacts expected to arise from those predicted changes in road traffic volumes.

3.88 It is this failure to consider any options other than:

1. the Trial; or
2. doing nothing

that has led to the traffic congestion and associated impacts that local residents and businesses currently have to endure.

4.0 Traffic Survey Analysis

Pedestrian Traffic

4.1 I understand that the Council undertook pedestrian surveys in March 2015 along the Corridor, before the Trial commenced, and in May 2016, during the Trial.

4.2 I have asked the Council for complete copies of the pedestrian traffic surveys undertaken in March 2015 and May 2016 but at the time of preparing my evidence these had not been provided. I am therefore unable to evaluate or comment upon the change in pedestrian numbers on Torrington Place / Tavistock Place and the wider local area that has been affected (beneficially and/or adversely) by the Trial as I do not have a complete set of the survey data to do so.

4.3 The Council provided a brief summary of some of the pedestrian survey data that I understand is mentioned in "3. Pedestrians...before and after counts for walking..." in their September 2016 consultation leaflet (CD6/9) entitled *"Consultation: Torrington Place/Tavistock Place route. Proposed improvements for walking and cycling"* (hereafter referred to as "the Consultation Leaflet") and is undated.

4.4 In section 3 of the Consultation Leaflet the Council states:

"Overall, there were increases in pedestrian numbers in some places, while on other parts of the route, numbers fell slightly. This may be because some pedestrians have chosen to travel through the area by cycle or public transport or it may be that there were simply fewer pedestrians visiting the area on the days when surveys were undertaken."

4.5 The Council's analysis, on the face of it, would appear to indicate that there has been no material change in pedestrian numbers along Torrington Place / Tavistock Place as a result of the Trial.

4.6 I note that the pedestrian surveys were undertaken during different seasons of the year and that walking is a mode of transport which can be influenced by weather conditions. The pre-Trial and during Trial surveys could not, therefore, in any event, be directly compared without allowing for seasonal differences.

4.7 I also note that the Trial did not provide any infrastructure improvements in terms of, for example, footway widening and so it is not to be unexpected that pedestrian numbers may have not change materially as a result of its introduction.

4.8 Footway widening forms part of the proposed Order works and such widening will improve the level of service experienced by pedestrians along the corridor. ILHL therefore does not take issue with this element of the Order which may have the potential to benefit pedestrians. The footway widening and potential benefits can be delivered whether the Order is implemented in accordance with the Trial or with the Trial modified so that the permitted movement of vehicular traffic is reversed to be westbound only.

Cycle Traffic

4.9 I understand that the Council undertook cycle traffic surveys in March 2015, before the Trial commenced, and in May 2016, during the Trial.

4.10 I have asked the Council for complete copies of the cycle traffic surveys undertaken in March 2015 and May 2016 but at the time of preparing my evidence these had not been provided. I am therefore unable to evaluate or comment on the change in cycle numbers on Torrington Place / Tavistock Place or in the wider local area that has been effected (beneficially and/or adversely) by the Trial as I do not have a complete set of the survey data to enable me to do so.

4.11 The Council provided a brief summary of some of the cycle traffic survey data that I understand is referred to in their Consultation Leaflet. In section 2 of the Consultation Leaflet the following table is provided:

Location	Tuesday 24/03/15 and Thursday 12/05/16											
	AM peak (8.15 to 9.15am)				AM peak (9.15 to 10.15am)				PM Peak (5.45 to 6.45pm)			
	Before	After	Change	% Change	Before	After	Change	% Change	Before	After	Change	% Change
Byng Place EB	183	223	40	22%	91	138	47	52%	546	632	86	16%
Byng Place WB	819	781	-38	-5%	403	479	76	19%	321	332	11	3%
Tavistock Place EB	242	307	65	27%	121	162	41	34%	609	692	83	14%
Tavistock Place WB	767	792	25	3%	390	499	109	28%	271	357	86	32%

Extract from Consultation Leaflet

4.12 The Council's summary shows that at certain times of the day at specific locations along the corridor there has been an increase in cycling during the Trial compared to pre-Trial. Without access to a full dataset of surveys I am unable to discover or comment upon whether this recorded increase is new cyclists or cyclists who previously used other routes and have now diverted to the Trial route.

4.13 I note that the cycle surveys were undertaken during different seasons of the year and that cycling is a mode of transport which can be influenced by weather conditions. As an example TfL has monitored cycle traffic on their network on a 4-weekly period since 1999 (**ILHL33**). This shows that year on year cycling has increased in London. It also shows that the number of cyclists in March 2015 (when the pre-Trial surveys were undertaken) is typically 15% lower than the number of cyclists in May 2016 (when the during-Trial surveys were undertaken). The pre-Trial and during Trial surveys could not therefore, in any event, be directly compared without allowing for seasonal differences.

4.14 Notwithstanding these limitations to the survey data collected and the less than full disclosure of that data made available at the time of preparing my evidence, I acknowledge that the provision of wider cycle lanes represents an enhancement in the level of service experienced by cyclists along the corridor. ILHL therefore does not take issue with this element of the Order which has the potential to benefit cyclists.

4.15 These cycle infrastructure improvements and potential benefits, however, can be delivered whether the Order is implemented in accordance with the Trial or with the Trial modified so that the permitted movement of vehicular traffic is reversed to be westbound only.

Vehicular Traffic

4.16 Prior to the introduction of the Trial, the Council undertook a comprehensive set of automatic traffic count (ATC) surveys in the Study Area covering 78 separate sites. Survey data regarding volume, classification and speed of vehicles was collected. The ATC surveys were undertaken during the week commencing 11th May 2015 ("the May 2015 ATC surveys") and then repeated after the commencement of the Trial during the two weeks commencing 11th May 2016 ("the May 2016 ATC surveys"). The location of the surveys undertaken are shown on the plan provided at **ILHL34**. Independently, ILHL commissioned camera surveys in and around Tavistock Place. These ran for a 12-hour period (07:00-19:00) on Tuesday 24th May 2016. The location of the surveys undertaken are shown on the plan provided at **ILHL35**.

4.17 The able 4.1 below provides a summary and comparison of average weekday 12-hour (07:00-19:00) traffic volumes counted on key streets within the Study Area in 2015 and in 2016. The survey data excludes cycle data as ATC surveys are poor at distinguishing cycle traffic.

Location	May 2015 Traffic Flow (12-hour)			May 2016 Traffic Flow (12-hour)		
	East or Northbound	West or Southbound	Two-way	East or Northbound	West or Southbound	Two-way
Wakefield Street	230	429	659	245	781	1,025
Judd Street	3,129	2,332	5,461	4,205	2,600	6,805
Euston Road (east of Judd Street)	12,931	12,776	25,707	17,528	12,326	29,854
Woburn Place north of Endsleigh Gardens	3,979	5,727	9,706	4,695	5,805	10,499
Torrington Place (east of Judd Street)	2,714	2,577	5,291	1,601	2,754	4,355
Guildford Street (by Coram's Fields)	5,579	6,597	12,176	4,686	5,234	9,919
Russell Square (north)	3,263	2,433	5,696	2,656	2,457	5,113
Russell Square (west)	1,428	4,128	5,556	2,554	1,341	3,895
Guildford Street (on approach to Russell Square)	-	5,592	5,592	-	3,644	3,644
Montague Street	1,277	1,632	2,909	1,233	1,850	3,083
Great Russell Street	3,922	2,495	6,417	2,299	4,078	6,377
Grafton Way	-	2,392	2,392	-	2,921	2,921
Gower Street (northern end)	-	11,004	11,004	-	10,968	10,968
Woburn Place	6,547	5,455	12,002	5,955	4,816	10,771
Bedford Way	3,692	1,798	5,490	3,556	1,790	5,346
Tavistock Square (southwest)	971	761	1,732	3,503	690	4,192
Tavistock Square (northeast)	5,092	5,858	10,950	6,111	5,554	11,664
Woburn Place south of Endsleigh	4,159	5,228	9,387	5,050	5,450	10,500

Location	May 2015 Traffic Flow (12-hour)			May 2016 Traffic Flow (12-hour)		
	East or Northbound	West or Southbound	Two-way	East or Northbound	West or Southbound	Two-way
Gardens						
Gordon Square (northwest)	1,782	2,708	4,490	478	1,536	2,014
Endsleigh Street	909	1,077	1,986	2,615	765	3,379
Tavistock Square (northwest)	1,059	576	1,635	1,078	1,292	2,370
Gordon Square (southeast)	3,141	6,517	9,658	4,225	602	4,827
Tavistock Square (southeast)	2,606	4,551	7,157	3,068	1,620	4,687
Endsleigh Gardens	729	1,717	2,446	3,473	928	4,400
Gower Place	-	930	930	-	2,566	2,566
Endsleigh Gardens west of Woburn Place	-	1,156	1,156	-	1,328	1,328
Southampton Row	5,507	7,301	12,808	7,357	7,222	14,578
Endsleigh Street	909	1,077	1,986	2,615	765	3,380
Endsleigh Gardens (east of Endsleigh Street)	-	1,156	1,156	-	1,328	1,328
Tavistock Place (between Herbrand Street and Marchmont Street)	1,979	2,290	4,269	594	3,005	3,599
Tavistock Place / Sidmouth Street	2,714	2,577	5,291	1,605	2,739	4,344
Tavistock Place between Marchmont Street and Judd Street	2,491	2,468	4,959	3,055	357	3,412

Table 4.1 – Pre-Trial and During Trial Traffic Surveys

Tavistock Place / Torrington Place Corridor

Euston Road

4.18 Table 4.1 shows that Euston Road between Judd Street and Grays Inn Road carried the highest volume of traffic of those streets listed comprising circa 25,700 two-way vehicle movements during the 12-hour period pre-Trial. During the Trial the volume of traffic recorded had increased to circa 29,800 two-way vehicle movements during the 12-hour period. The increase between the pre and during Trial traffic volumes is almost entirely due to an increase in eastbound traffic along the Euston Road (circa 4,600 vehicles). Westbound movements reduce slightly (circa 450 vehicles). This outcome is counter-intuitive as it is the westbound movement along Torrington Place / Tavistock Place that has been removed with the introduction of the Trial. If this westbound traffic removed from the Corridor was displacing onto more strategic routes, then I would have expected to have seen an increase in westbound traffic on Euston Road between Judd Street and Grays Inn Road.

Tavistock Place / Torrington Place

4.19 The 2015 ATC survey shows that the dominant flow along the Corridor pre-Trial was in a westbound direction. Closer analysis of the 2015 ATC survey data on an hour by hour basis shows that the westbound movement was the dominant movement along the corridor throughout most of the day. This is unusual as typical commuter patterns are tidal with the dominant flow in the morning peak, for example, reversing during the evening peak. This typical tidal flow is shown in the Council's published cycle traffic survey data which shows the westbound movement being the dominant movement for cyclists during the morning peak hour and the eastbound movement being the dominant movement for cyclists during the evening peak hour.

4.20 This means that, the magnitude of adverse traffic impacts associated with westbound traffic diverting onto alternative local streets would be expected to greater than if the eastbound traffic movement were diverted. Furthermore the adverse traffic impacts would occur throughout most of the day as the westbound movement is the dominant movement throughout most of the day rather than the Corridor having a tidal traffic movement.

4.21 However, despite the prohibition of westbound traffic on the Corridor consequent upon the introduction of the Trial, the Council's May 2016 ATC surveys collected the following information:

1. Tavistock Place between Woburn Place and Herbrand Street: 4,857 vehicles travelling eastbound and 931 vehicles travelling westbound;
2. Tavistock Square adjacent to Tavistock Hotel: 3,068 vehicles travelling eastbound and 1,620 vehicles travelling westbound;
3. Byng Place: 3,457 vehicles travelling eastbound and 613 vehicles travelling westbound; and
4. Torrington Place between Byng Place and Gower Street: 2,740 vehicles travelling eastbound and 486 vehicles travelling westbound.

4.22 The May 2016 ATC surveys have either identified widespread disobedience of the restrictions imposed by the Trial or else the surveys themselves are flawed. I note my comment at paragraph 4.17 regarding the reliability of ATC surveys in distinguishing cyclists.

4.23 For comparison purposes the ILHL commissioned camera surveys of the junction of Woburn Place / Tavistock Place. These ran for a 12-hour period (07:00-19:00) on Tuesday 24th May 2016. These surveys (which being camera surveys are held as a visual record of vehicle movements) identified 1 vehicle travelling westbound (illegally) along the southern side of Tavistock during the 12-hour survey period. This is significantly less than the 1,620 vehicles recorded by the Council.

Endsleigh Gardens

4.24 The Council's May 2016 ATC surveys (Table 4.1 above) identified an average of 3,473 vehicles travelling eastbound and 928 vehicles travelling westbound during the 12-hour survey period along Endsleigh Gardens between Taviton Street and Gordon Street. Again this is counter-intuitive as it is the westbound movement along Torrington Place / Tavistock Place that has been removed as consequence of the Trial. With westbound traffic being diverted to avoid the prohibition in the Corridor, it would be expected that the westbound movement in Endsleigh Gardens would have increased with the Trial in place.

4.25 According to the Council's survey data shown in Table 4.1 above, these flows are linked to flows in connecting streets as follows:

1. 3,473 vehicles Endsleigh Gardens eastbound– which links to Endsleigh Street southbound which has observed flows of 765 vehicles; and
2. 928 vehicles Endsleigh Gardens westbound – which is fed by 1,328 vehicles from Endsleigh Gardens and 2,615 vehicles from Endsleigh Street.

4.26 Logistically the three sets of May 2016 ATC data do not align unless the observed traffic data on Endsleigh Gardens of 3,473 vehicles travelling eastbound and 928 vehicles travelling westbound are transposed. Transposal of traffic flows (i.e. simply getting the direction wrong) is a common phenomenon in traffic data collection and has seemingly occurred here.

4.27 For comparison the ILHL surveys identified that the Council's data for Endsleigh Gardens is in fact transposed and should read: 3,473 vehicles travelling westbound and 928 vehicles travelling eastbound during the 12-hour survey period.

Tavistock Place

4.28 The Council's May 2016 ATC surveys identified an average of 594 vehicles travelling eastbound and 3,005 vehicles travelling westbound during the 12-hour survey period along Tavistock Place between Marchmont Street and Herbrand Street.

4.29 This would mean that there is more traffic travelling illegally westbound along Tavistock Place than legally eastbound unless the observed traffic data has been transposed. My review of the May 2016 ATC survey data for Tavistock Place between Herbrand Street and Tavistock Square confirms that the count between Marchmont Street and Herbrand Street has most likely been transposed.

Southampton Row

4.30 There were circa 12,800 two-way vehicle movements recorded during the 12-hour period on Southampton Row (A4200) pre-Trial (Table 4.1 above). This had increased to circa 14,600 with the increase being primarily in the northbound direction (circa 1,800 vehicles). This suggests that some traffic affected by the Trial is diverting northwards along Southampton Row. However at Upper Woburn Place where the A4200 meets Euston Road the northbound increase has reduced to less than 700 vehicles indicating that whilst traffic is diverting northwards onto Southampton Row, the majority is then working its way westwards through local streets such as Great Russell Street.

Judd Street

4.31 On Judd Street pre-Trial two-way traffic flows amounted to circa 5,400 vehicles (Table 4.1 above). During the Trial this had increased to 6,800 two-way vehicle movements of which the majority of the increase (circa 1,100 vehicles) was in northbound movements. This indicates that displaced traffic is travelling northbound along Hunter Street (either from the south or else via Wakefield Street / Handel Street - as the direct right turn from Tavistock Place into Judd Street is prohibited) or else it is local traffic having to travel eastbound along the Corridor then north along Judd Street in order to reach a strategic route.

General patterns of re-routed traffic

4.32 Across the highway network the following is identified for the 12-hour survey period analysed (Table 4.1 above):

1. Pre-Trial eastbound traffic movements along the Corridor amounted to circa 2,600 vehicles adjacent to the Tavistock Hotel compared with circa 4,500 vehicles travelling in the westbound direction;
2. During the Trial (Table 4.1 above):
3. Traffic flows westbound on the southern side of Tavistock Square reduce by circa either 4,500 vehicles or 3,000 vehicles subject to the accuracy of the data (which I discuss more in section 3). Eastbound traffic movements increase by circa 400 vehicles.
4. Traffic flows westbound on Great Russell Street increase by circa 1,700 vehicles;
5. Traffic flows westbound on Endsleigh Gardens increase by circa 1,700 vehicles;
6. Traffic flows northbound on Judd Street increase by circa 1,000 vehicles;
7. Traffic flows eastbound on the southern side of Tavistock Square increase by circa 1,000 vehicles; and

8. Traffic flows northbound on the western side of Tavistock Square increase by circa 2,600 vehicles.

4.33 The above changes show that there has been a reduction in traffic flows along the Corridor due to the prohibition of westbound traffic movements. The reduction is not wholly the same as the pre-Trial westbound traffic volumes as the volume of traffic travelling eastbound along the Corridor has increased during the Trial.

4.34 The pre-Trial and during Trial traffic surveys also suggest that whereas the Corridor has seen a reduction in traffic volumes, the traffic which previously travelled westbound along the corridor has remained largely within the Study Area and displaced to other nearby local streets. There does not appear to be an overall reduction in traffic within the Study Area but rather a rerouteing along other available westbound routes and in particular:

1. Great Russell Street;
2. Endsleigh Gardens;
3. Gower Place;
4. Tavistock Square (southwest side) to reach Endsleigh Gardens;
5. Endsleigh Place to reach Endsleigh Gardens; and
6. Judd Street to access Euston Road.

4.35 The majority of the routes listed above are local streets.

Queue surveys

4.36 ILHL commissioned surveys of queue lengths during the Trial at junctions within the vicinity of Tavistock Square (**ILHL36**).

4.37 The results of the queue surveys show the following:

1. On Woburn Place on its northbound approach to its junction with Tavistock Square, a queue of 195m length formed around 9:15 and remained at that length until the end of the survey at 19:00. For reference purposes, the distance between the junction of Woburn Place / Tavistock Place and the preceding junction to the south (Russell Square / Woburn Place) is approximately 230m. This means that for most of the day, the queue of traffic on Woburn Place at its junction with Tavistock Square stretches almost as far as the next junction to the south. Photograph 1 below shows an image of this queue taken at 10:51am.

Photograph 1 – Woburn Place looking southbound from Tavistock Place

2. On Bedford Way on its northbound approach to its junction with Tavistock Square the queue of traffic during the hours of 09:15 and 19:00 exceeded 100m for 72% of the time with queues reaching a maximum of circa 165m. Photograph 2 below shows an image of this queue taken at 10:48am.

Photograph 2 – Bedford Way looking south from Tavistock Square

3. On Endsleigh Street, queues of up to 80m in length are recorded on the northbound approach to its junction with Endsleigh Gardens at which point all traffic must turn left from Endsleigh Street in to Endsleigh Gardens. A review of the video footage shows that the queue on Endsleigh Street is not a stand alone queue but rather a continuation of a queue on Endsleigh Gardens from its junction with Gordon Street as shown on Photograph 3 below.

Photograph 3 – Endsleigh Gardens looking east towards its junction with Endsleigh Street

4.38 I am given to understand from the anecdotal recollections of those familiar with the locality that queues of this length and duration were not usual prior to the Trial commencing.

4.39 I note, in this context, that one effect of the Trial has been to remove one northbound traffic lane from the Woburn Place northbound approach to the Woburn Place / Tavistock Place junction. There is now one lane northbound whereas pre-Trial there was two. I also note from Table 4.1 above that the volume of traffic travelling northbound at this location has largely remained the same during the Trial as it was pre-Trial. Similarly the Trial has removed one northbound traffic lane from the Bedford Way northbound approach to the Bedford Way / Tavistock Place junction. There is now one northbound lane whereas pre-Trial there was two. Again I note from Table 4.1 that the volume of traffic travelling northbound at this location has largely remained the same during the Trial as it was pre-Trial.

4.40 In both cases, accordingly, the effect of the Trial has been to significantly reduce the capacity of the junctions on these approaches but without any change in the traffic volume trying to get through them. The consequence of this has been, evidently, to increase the degree of saturation at these two locations leading to apparent increases in queue lengths and journey times.

4.41 The geometry of these two previous left turn lanes was such that they could only serve traffic turning left along the Corridor and so cannot be used for vehicular traffic with the Trial implemented as it currently is. If the direction of vehicular traffic were reversed in the Corridor to be westbound only, these two lanes could be reinstated and used in the same way that they were prior to the Trial commencing. This would increase capacity at these junctions and thereby reduce queues, delays and congestion in the local area. As demonstrated by the traffic surveys presented in Table 4.1 above, it is unlikely that this return of capacity to these two junctions would lead to an increase in traffic volumes because the loss of the capacity imposed by the Trial has not led to a consequential decrease in traffic volumes in the area.

4.42 In this context I note correspondence between the University College London Hospital (UCLH) and the Council (**ILHL37**).

4.43 UCLH have a number of sites within the Study Area requiring them to transport patients between their sites around Queens Square (which is south of Guildford Street and next to Great Ormond Street Hospital as shown on Figure 2.1) and Tottenham Court Road (UCLH is marked on Figure 2.1). These are non-emergency ambulance transfers.

4.44 The correspondence refers to significantly increased journey times for patient transfers. Westbound journeys between Queens Square and Tottenham Court Road (that would previously have been made westbound along the Corridor) that were reported as having taken less than 20 minutes before the Trial was introduced are now expected to take a minimum of 35 minutes and up to 52 minutes reinforcing the significant increases in delays for vehicles making local journeys.

4.45 Notwithstanding this, UCLH acknowledges that the improved cycle infrastructure is beneficial to staff working at UCLH. However it also states to the Council that UCLH that it:

"…..needs a solution that does not cause delay and stress for our patients"

4.46 I am not aware of any response from the Council to UCLH's need for a solution that does not cause delay or stress for their patients.

Comparison of survey data with Council's claims on traffic displacement

4.47 At paragraph 3.2.1 of Appendix D of the Cabinet Report of 22nd February 2017 (**CD6/2**) the Council states that the predicted impact of making the Trial permanent (this is with traffic only allowed to travel eastbound along the Corridor) would include:

"Broadly, traffic is shown to reassign to the Transport for London Road Network (TLRN) and Strategic Road Network (SRN) with increases in traffic volumes shown on Gray's Inn Road northbound and Euston Road."

4.48 The Council seek to reinforce this claim in their Statement of Case as follows:

"7.2. The volume of motorised traffic has reduced as a result of the trial layout as 'through traffic' is unable to use the Corridor to gain access from Tottenham Court Road to Hunter Street and vice versa.

9.4 Whilst some traffic has inevitably displaced onto surrounding streets, the overall impact of traffic in the area is minimal as rather than local roads, the majority of traffic is diverted to more strategic roads, such as Euston Road and Grays Inn Road, which are considered more suitable to cope with this type of vehicle."

4.49 However, contrary to these statements, the available traffic survey data indicates that:

1. No traffic appears to have displaced by the Trial on to Euston Road between Judd Street and Grays Inn Road as a consequence of removing westbound movements along the Corridor;

2. Some traffic appears to have displaced on to Euston Road between Tottenham Court Road and Upper Woburn Place; and

3. The majority of traffic appears to have displaced on to local streets adjacent to the Corridor.

4.50 In summary, the traffic survey data demonstrates a completely contrary picture to the above statements made by the Council in their Statement of Case and in the report that was presented to Cabinet on 22nd February 2017.

Summary

4.51 The results of my analysis of traffic survey data collected before and during the Trial show that:

1. Prior to the Trial commencing the dominant traffic flow at a local level was westbound throughout the day and not tidal. This means that, the magnitude of adverse traffic impacts associated with westbound traffic diverting onto alternative local streets would be expected to greater than if the eastbound traffic movement were diverted;

2. The adverse traffic impacts would occur throughout most of the day as the westbound movement is the dominant movement throughout most of the day rather than the Corridor having a tidal traffic movement.

3. The removal of westbound traffic from the Corridor has resulted in traffic that previously travelled westbound along the corridor displacing onto other streets along which westbound movements remain permitted;

4. The streets onto which the majority of the traffic has displaced are local streets such as Endsleigh Gardens, Great Russell Street and Judd Street;

5. There are significant queues and delays for traffic on local streets in particular at the junctions of Woburn Place / Tavistock Place and Bedford Way / Tavistock Square and along Endsleigh Gardens;

6. I am given to understand that the significant queues and delays experienced during the Trial were not usual prior to the Trial commencing. Correspondence from the UCLH indicates that local journey times from Queens Square to Tottenham Court Road have more than doubled; and

7. That despite these increases in queues, delays and journeys times, there does not appear to have been a material reduction in traffic volumes on local streets – just a displacement from one local street to another local street suggesting that journeys being made have a local reason for being in the study area (rather than through traffic).

4.52 In this context, my conclusions are that were the operation of the Trial reversed so that traffic was restricted to travelling in a westbound direction only:

1. The magnitude of impacts associated with changes in road traffic on local streets (including queues, delays and congestion) would be lower than with the Trial as implemented because there is less traffic travelling eastbound along the Corridor over the course of the day;

2. The two local bottlenecks of the junctions of Woburn Place / Tavistock Place and Bedford Way / Tavistock Square would be resolved as their left turn lanes could be reinstated; and

3. It could be expected that there would not be a material increase in traffic across the Study Area because despite the current significant queues and delays, there does not appear to have been a material reduction in traffic volumes.

5.0 Traffic Modelling

Importance of Council's traffic modelling

5.1 Prior to implementing the Trial and during the course of the Trial the Council has made reference to the traffic modelling of the Trial that they have commissioned and upon which they rely to support their decisions to implement the Trial and subsequently to make the Order.

5.2 Repeatedly in reports and statements, the Council has relied on claimed results of modelling to justify the eastbound only vehicular traffic configuration in the Corridor as an appropriate traffic management regime. I provide some examples below:

"As a result of comments received in the public consultation combined with the predicted impacts from the traffic modelling, it is recommended that mitigation be considered for Torrington Place. "

Source: Appendix H, January 2015 Cabinet Report (**ILHL21**)

"In particular, traffic modelling predicted a 102% increase in traffic on Torrington Place, representing an increase of 209 movements an hour as a result of the West End Project. The Council considered the potential impact on Torrington Place (west of Gower Street) to be severe, so that mitigation measures should be considered."

Source: Council response to pre-action letter, 15th December 2015 (**ILHL20**)

"The detailed traffic modelling referred to in the first paragraph of Appendix H of the Cabinet Report reference CENV/2014/20 is the property of Transport for London ("TfL") and Council does not hold the executable model used to run various traffic scenarios as this model is in the possession of TfL."

Source: Council response Dated 18th January 2016 (**ILHL24**)

"Reverse one way working for motor traffic to render it westbound: Officers have commissioned traffic modelling to assess the feasibility of reversing the one way system for motor traffic, to make it westbound only. The modelling suggests that journey times would increase slightly under this scenario. However, it also suggests that through traffic would increase along the corridor, reducing the air quality benefits of the scheme."

Source: Page 98 Torrington Place / Tavistock Place route – Trial Traffic Scheme, Cabinet Report dated 22nd February 2017 (**CD6/2**)

5.3 The reliance on the traffic modelling of the Trial that the Council has commissioned in support of the Trial / Order in their Statement of Case 2017.

"7.3. The comparative traffic impact of the trial compared with potential alternatives has been assessed with the aid of traffic modelling undertaken by transport consultants (Systra) appointed by Camden."

"8.7 A suggestion has also been made that the one-way vehicular traffic flow should be reversed so that it runs in a westbound direction. Broadly speaking this could achieve one objective of reducing motor traffic along the corridor, but a comparative modelling exercise indicated a greater level of reassignment to more local roads."

"9.4 Continuing the current trial traffic arrangements [in the context of implementation of the West End Project], compared to the alternatives suggested, will serve to reduce through traffic on the Corridor as indicated by modelling keeping traffic largely to the most appropriate routes and improving the local environment."

5.4 These extracts indicate the importance that traffic modelling has played in the Council's development of the Trial, its implementation, its assessment and that of alternatives and in the decision to make the Order. In this context, and so that I might have a transparent understanding of the traffic and transport modelling relied on I have sought to understand:

1. what modelling has been undertaken;
2. the suitability of the modelling for the purposes for which it has been used;
3. the limitations of the modelling; and
4. the assessment of the model outcomes.

5.5 In doing so my intention has been to reach a position where I could be satisfied that the traffic modelling was fit for the purpose of assessing the Trial and alternatives to the Trial. At the outset my intention was to assess the model outputs and report back to ILHL what they revealed in terms of merits of the Trial and the comparative merits of alternatives to the Trial including reversing the flow of vehicular traffic in the Corridor westbound only.

5.6 Regrettably, the transparency I have sought, which has been wholly reliant on the willingness of the Council to provide details of the traffic modelling and to provide these in a timely manner, has not been provided. At the time of preparing my evidence I have not yet been able, on the limited information supplied to me regarding the model(s) by the Council, to form my professional opinion as to whether the model(s) referred to by the Council were or are fit for the purpose of assessing the Trial and alternatives to the Trial. I explain below why this is the case.

Reliability of Council's Traffic Modelling

5.7 I first asked for details of the Council's modelling of the Trial and alternatives to the Trial in December 2016 (document **reference ILH7**). I received a response to that 4 months later in April 2017 (document **reference ILHL8**). In that response I was advised that:

"The assessment was undertaken using Transport for London's ONE Model software. Should you wish to view this, we would need to seek permission from TfL."

5.8 Accordingly I contacted TfL on 8th May 2017 seeking to view the assessment work as advised by the Council. I received no response and so followed this up on 17th May 2017. In both e-mails I copied in officers of LBC. I received a response on 19th May 2017 (**ILHL38**). TfL responded that:

"We have been supporting Camden and their consultants on assessing different options for this scheme. I believe the reports are in the process of being finalised by Camden's consultants and is probably best that they provide these to you."

5.9 As a consequence I responded to officers of the Council (who had been copied in to the e-mail trail from the 8th May) seeking a time to meet them to discuss the modelling assessment.

5.10 As I had received no response from the Council I contacted TfL again on the 26th May 2017 asking for a date to meet to discuss commissioning TfL to undertake modelling on behalf of ILHL (correspondence provided at **ILHL39**). It was at this point that I received a response from Ms Simi Shah (SS) of the Council seeking to set up a meeting to view the assessment work. After some further correspondence a date was set for the 29th June 2017 (correspondence provided at **ILHL40**). I note that in this correspondence trail at 26th May 2017 Ms Shah remarked that:

"The note on the modelling assessment is being finalised at present and will have to be checked by Camden and TfL before it can be released."

5.11 Given that a summary of the results of the modelling work was presented to Camden Cabinet at their meeting of 22nd February 2017 and was included in the Cabinet Report for that meeting, I was surprised to read that three months later there was still no "note on the modelling assessment" undertaken that could be provided.

5.12 At the meeting of the 29th June 2017 I met with officers of the Council, the Council's consultants (Systra) and officers of TfL. Notes of this meeting were prepared and agreed by those attending (document **reference ILHL9**). During the course of the meeting the Council presented me with an overview of the modelling work that had been undertaken in support of the Trial. Having seen the several errors in the 2015 Modelling Report I asked specifically that Bedford Way / Tavistock Square and Woburn Place / Tavistock Place junctions should be checked to ensure that they had been represented correctly in the current model being used by the Council.

5.13 Due to the large extent of information associated with a strategic model, we agreed that:

1. A meeting be arranged (if possible) with TfL regarding model inputs and parameters – (LB Camden officers SS and Alexis Bielich (AB) to arrange with TfL). Following the above meeting, more will be known re any gaps or further information needed; and

2. Following the second meeting at TfL offices (if agreed), the modelling would be likely to be updated and the summary of options tested and their results would then be sent to JR

5.14 I subsequently received an invitation to attend a meeting on the 13th July 2017 (corresponding to the meeting referred to at my paragraph 5.13.1). On the 12th July 2017 I was notified (**ILHL41**) that this meeting had been postponed with reason given being:

".....due to a mistake having been spotted and the models having to be re-run"

5.15 The meetings was re-arranged for 24th July 2017. On the 24th July 2017 I received a message to say that this second arranged meeting had to be cancelled for "Technical issues" (**ILHL42**). I was subsequently advised on 7th August 2017 (**ILHL10**) that the reason the meeting had been cancelled was because:

"...checks revealed discrepancies in the calibration, which had to be addressed. This meant all of the options had to be re-run"

5.16 I finally met the council on the 16th August 2017 which was the meeting referred to at my paragraph 5.13.1. During this meeting it transpired that the Bedford Way / Tavistock Square and Woburn Place / Tavistock Place junctions had been represented incorrectly in the then current model: outputs from an earlier version of which, I understood, had been used to inform the Cabinet Report of 22nd February 2017.

5.17 Following this meeting I provided the Council on 18th August 2017 with a list of queries we had discussed and what I understood the Council had agreed to look into and provide information to me about. The list is provided as document **reference ILHL13** with the covering e-mail as document **reference ILHL12**.

5.18 I fully expected to meet with the Council and their consultants to resolve the remaining matters set out in my correspondence of 18th August 2017. This would have been in accordance with the agreed meeting notes from our meeting of 29th June 2017 and the action referred to at my paragraph 5.13.2.

5.19 In the absence of any apparent cooperation by the Council I had to seek this information on a further occasion by way of correspondence on 7th September 2017 (document **reference ILHL15**). And at the time of preparing my evidence I am continuing to wait for a response to most of the queries raised.

5.20 My current understanding is that some of the errors I noticed in the model when I met the Council on 29th June 2017 and which directly impact on the operation of the Tavistock Place / Torrington Place corridor have been resolved, the model re-run and re-calibrated by the Council. However, I have not seen the exercise that was undertaken nor am I able to discover what other errors remain in the modelling in the absence of the information I have requested from the Council and which has not been provided to date.

5.21

5.22 In these circumstances, neither I, nor the inspector in my respectful opinion, can be satisfied that the Council's traffic modelling was at any time or is now fit for the purpose of assessing the impacts of the Trial and the alternatives. All outputs from the traffic modelling relied on by the Council, accordingly, need, in my professional opinion, to be treated with caution, the model not having been shown by the Council to be fit for the purpose for which it has been used.

Outstanding Data Requests

5.23 I provide below in Table 5.1 a summary of the model information I have asked for which remains outstanding together with an explanation of why I consider the data to be necessary.

Item Requested	Purpose of Request
1. A list of the errors and discrepancies that were identified with the model that led to the meeting between Camden and JNR being cancelled on the 13th July 2017.	To understand model evolution and how this will have impacted on statements made by the Council regarding model outputs up to 13th July 2017 (including in the 22nd February 2017 Cabinet Report)

Item Requested	Purpose of Request
2. Prior and Post matrix estimation [1]calibration [2]data in particular zone value difference pre and post matrix estimation.	JNR was told that calibration pre-matrix estimation was low. Review of pre- and post matrix estimation zone values provides a check that no individual zone has an unexpected increase or decrease in trips to and from that zone as a result of the matrix estimation process. This could indicate a problem with the network / zoning system.
3. Individual link count performances. Actual modelled flows rather than "flow range bands"	Calibration of model flows as against observed flows is based on actual values not ranges. Impossible to check the calibration if only ranges are provided. Similarly, impossible to understand limitations of calibration without knowing the extent of deviation of model flows from observed flows. It is normal practice in traffic and transport modelling to provide traffic flows not flow range bands.
4. Origin / Destination Trees pre- Trial and during the Trial.	To understand how the model is routeing traffic through the network to compare against what would be expected in "real life".
5. Trip length distribution graphs.	These provide a comparison of the distribution of trip lengths from a zone against actual trip length distribution enabling the modeller to check that trips to and from an individual zone in the model are generally of the correct length.

[1] The purpose of matrix estimation is to refine estimates of origin and destination movements between each zone in the model based on traffic survey data
[2] Model calibration refers to the process of assuring that a model reproduces real-world traffic conditions reasonably well

Item Requested	Purpose of Request
6. Flow plots (baseline model)	To see how much traffic is on streets in the model in various scenarios so that the impacts of the scenarios can be compared.
7. Details of sensitivity testing	It is normal to undertake sensitivity testing of a model to ensure that it continues to operate sensibly under differing network or flow scenarios.
8. Comparison of modelled (Jan- Aug 2017 model) pre-trial scheme against 2015 observed traffic counts.	I understand that the base model being used by the Council is a 2016 version which includes the highway arrangements established by the Trial i.e. one-way eastbound for vehicular traffic along the Corridor. I further understand that a model network has been prepared that replicates the pre-Trial highway network i.e. with two-way traffic movements along the Corridor. The Council undertook an extensive pre-Trial ATC survey exercise. It would be informative to compare the modelled flow outputs from the pre-Trial highway network model against the ATC data collected pre-Trial. It could then be seen how well the modelled pre-Trial traffic flows validate against the observed pre-Trial traffic flows. This in itself would be a useful sensitivity test and meet the requirement of my point 7.

Item Requested	Purpose of Request
9. Clarification of the assessment framework which the Council has used to determine which scheme for the Corridor performs the best. JNR advised that this is in the February 2017 Cabinet Report. JNR unable to locate anything that looks like an assessment framework which can be objectively applied to alternative schemes.	This information is required as importantly it sets the assessment criteria framework within which differing options for the Trial corridor can be objectively compared and assessed.
10. Clarification regarding apparent errors in the traffic survey data around Russell Square	JNR told that this ATC data has been used in the calibration of the model used to assess the area wide traffic impacts. If the ATC data used in the calibration is incorrect, or incorrectly applied, then whilst the calibration will meet calibration requirements (which compares model flows against the survey flows) the model will still not be fit for purpose as it is calibrated against incorrect data.
11. Explanation of why the Council's automatic traffic counts reported significant volumes of cars, LGV, OGV1 and OGV2 travelling westbound along Tavistock Place, Tavistock Square, Byng Place and Torrington Place during the trial when this movement is prohibited.	

Item Requested	Purpose of Request
12. Clarification of apparent traffic count errors on Endsleigh Gardens.	
13. Clarification of apparent traffic count errors on Tavistock Place.	
14. Explanation of loss of vehicles at Byng Place recorded during the pre-Trial traffic surveys (24% fewer vehicles leave the junction than enter it during the same time period) compared to the during Trial surveys (5% fewer vehicles leave the junction than enter it during the same time period).	
15. List of issues in survey data which the Council has picked up and raised with the survey company (the Council raised this list at meeting of 29th June 2017).	
16. Confirmation of how changes in modelled journey times through the local area can be presented.	It is important for local businesses and residents to understand what the impact on average journey times to and from their locality would be if the Trial or alternative options to the Trial are made permanent

Item Requested	Purpose of Request
17. Confirmation of how total traffic flows into and out of the local Bloomsbury area can be extracted from the model scenarios	It is important to understand for the Trial or alternative options to the Trial whether traffic is being diverted away from local streets onto the strategic road network or simply displaced on to adjacent local streets.
18. Model validation details. Motion understands that the Council's traffic model is yet to be validated.	Any adjustments to the model intended to reduce the differences between the modelled and observed data is regarded as calibration. Validation involves comparing modelled data against observed data that is independent from and has not been used in calibration. This is clearly explained in TAG Unit M3.1 (**ILHL30**) published by the Department for Transport together with validation criteria and guidelines.

Table 5.1 – Outstanding traffic model data requests

5.24 The information that I have requested and which I have summarised in Table 5.1 is conventional information that can be readily extracted from or provided about a strategic traffic model. I therefore do not understand why the Council has failed to provide me (or this Inquiry) with this information. Had I received the information then I could have either:

1. Responded to confirm that, on review of the information provided, I was satisfied that the traffic model was fit for the purpose of assessing the impacts of the Trial and alternatives to the Trial; or

2. Responded with a final list of errors / anomalies for the Council to consider and update the traffic model after which I would have expected to have been in a position to be satisfied that the traffic model was fit for the purpose of assessing the impacts of the Trial and alternatives to the Trial or not.

5.25 However in the absence of the information requested I and nor the Inspector in my respectful view, can be satisfied that the Council's traffic modelling is or has ever been fit for the purpose of assessing the impacts of the Trial and the alternatives. Any outputs from the traffic modelling need to be treated with the utmost caution in these circumstances.

Model outputs to date

5.26 At the meeting I had with the Council on 16th August 2017, Systra presented a number of model plots to me showing outputs from the modelling work that they had undertaken on behalf of the Council. The model plots were subsequently issued to me on 24th August 2017 (document **reference ILHL14**).

5.27 The model plots were provided in a file referred to as "Draft Modelling Options Slides". I have not received a "final" version of the Modelling Option Slides. All the modelled options of the Trial and alternatives to the Trial include the West End Project. Options are modelled in the morning and evening peak hours. However I have concentrated on assessing the morning peak hours only. This is because at the meeting of 29th June 2017 the Council noted problems in calibrating the evening peak hour model. As a consequence all agreed at the meeting to focus on the morning peak hour. I have been provided with no information from the Council that the problems they were having with the evening peak hour model have been resolved. I assume, therefore, that the evening peak hour model remains unreliable.

5.28 My assessment of the model plots for the Trial and the reversal of the Trial is provided below. I also highlight anomalies in the model and explain what these could mean.

Model output of the Trial

5.29 The morning peak hour model output of the Trial is provided at **ILHL43**. The plot shows the modelled change in traffic flows on streets consequential upon the introduction of the Trial compared to the scenario in which Torrington Place / Tavistock Place has two-way vehicular movements. Where an increase in traffic flows is shown this means that the Council's traffic model is predicting that there will be an increase in traffic on that particular street as a direct consequence of the Trial. Where a decrease in traffic flows is shown this means that the Council's traffic model is predicting that there will be a decrease in traffic on that particular street as a direct consequence of the Trial. Where no change in traffic flows is shown this means that the Council's traffic model is predicting that there will be largely no change in traffic on that particular street as a direct consequence of the Trial.

5.30 The model output plots are difficult to interpret exactly in terms of the direction of changes in traffic flows (e.g if the change is east or westbound). However looking at the model output (**ILHL43**)I make the following observations:

1. The Trial results in a large decrease in westbound movements along Tavistock Place / Torrington Place.
2. There are related small decreases in eastbound traffic along Tavistock Place / Torrington Place.
3. Decreases in traffic volumes are shown on Gordon Street and Gower Street.
4. Increases in traffic volumes are shown on Endsleigh Street, Endsleigh Gardens, Gower Street, Judd Street and Hunter Street.

5. There is an increase in westbound traffic on Euston Road (east of Judd Street) and northbound on Grays Inn Road together with a decrease in westbound traffic along Tavistock Place between Grays Inn Road and Judd Street and northbound on the initial section of Judd Street adjacent to Tavistock Place.

6. There is an increase in traffic flows on Euston Road between Judd Street and Gordon Street but this is indicated as being half of the increase on Euston Road east of Judd Street.

7. There are increases in traffic volumes on a number of streets west of Tottenham Court Road in particular on Fitzroy Street and Maple Street.

8. The impact of the Trial continues beyond the boundary of the London Borough of Camden and into the City of Westminster with increases in traffic volumes predicted on streets including Clipstone Street and Mortimer Street.

9. Northbound traffic flows on Bedford Way and Tavistock Square (southwest) are predicted to remain largely unchanged.

10. There is predicted to be a decrease of 400+ vehicles per hour westbound on Gordon Square (southeast). This appears to be balanced by westbound increases of circa 100 vehicles per hour on Euston Road, 200 vehicles per hour on Endsleigh Gardens and 100 vehicles per hour on Russell Square. This indicates that the Council's traffic modelling is predicting that around 75% of traffic displaced by the Trial will re-route along local streets with only 25% choosing to re-route on strategic roads.

5.31 I set out in Section 4 my analysis of the ATC traffic survey data collected before the Trial was implemented and during the Trial. I compare this here with some of the Council's predicted changes in traffic flows:

1. The traffic surveys (**Table 4.1**) show very little change in westbound traffic on Euston Road east of Judd Street but increases in northbound traffic on Judd Street, westbound on Sidmouth Street / Tavistock Place and eastbound on Tavistock Place (between Marchmont Street and Judd Street) with the Trial in place compared to before the Trial. The Council's traffic modelling predicts the opposite of this observed traffic pattern (**ILHL43**).
2. The traffic surveys (**Table 4.1**) indicate a large increase in westbound traffic on Great Russell Street as a consequence of the Trial. The Council's model suggests that traffic flows on Great Russell Street will remain largely unchanged (**ILHL43**).
3. The traffic surveys (**Table 4.1**) indicate large increases in northbound traffic on Tavistock Square (southwest). The Council's model suggests that traffic flows on Tavistock Square (southwest) will remain largely unchanged (**ILHL43**).
4. The traffic surveys (**Table 4.1**) indicate an increase in eastbound traffic on Torrington Place / Tavistock Place. The Council's traffic modelling predicts the opposite of this observed traffic pattern (**ILHL43**).

5.32 These apparent discrepancies between how the model is predicting that traffic will re-route and what the Council's own traffic survey data is indicating regarding driver behaviour suggests to me that the traffic model being used by the Council is not performing optimally in this respect in particular with regards to the attractiveness of Grays Inn Road / Euston Road as an alternative route for local streets.

5.33 Notwithstanding the above, the disclosed modelling outputs indicate that the traffic impact arising from the Trial has a very wide geographic spread impacting on local streets remote from the corridor as well as within the Bloomsbury area. It also indicates that the majority of the traffic displaced by the Trial will displace onto other local streets and not onto strategic roads as the Council has claimed in their Statement of Case.

Model output of reversing the flow of vehicular traffic in the Trial

5.34 The morning peak hour model output showing traffic changes arising from reversing the flow of vehicular traffic in the Trial so that it is westbound only compared to the situation in which Torrington Place / Tavistock Place caters for two-way vehicular movements is provided at **ILHL44**.

5.35 Again the Council's model output plots are difficult to interpret exactly in terms of the direction of changes in traffic flows (e.g if the change is east or westbound). However looking at the model output provided at **ILHL44** I make the following observations:

1. There are large decreases in eastbound movements along Tavistock Place / Torrington Place.
2. There are small decreases in westbound traffic along sections of Tavistock Place / Torrington Place.
3. There are shown to be largely no changes in traffic volumes on local streets west of Tottenham Court Road.
4. There are decreases in traffic predicted for Judd Street, Guildford Street, Gordon Street, Gower Street and southbound on Hunter Street.
5. There are increases in traffic predicted along Bernard Street, northbound along Hunter street and then westbound along Tavistock Place between Hunter Street and Herbrand Street.
6. There are increases in traffic eastbound along Euston Road between Tottenham Court Road and Judd Street indicating strategic re-routeing of traffic.

5.36 Analysing the patterns of traffic re-routeing that the model outputs indicate, I note the following:

1. The increase in traffic volumes eastbound along Bernard Street, northbound along Hunter street and then westbound along Tavistock Place between Hunter Street and Herbrand Street appears to be traffic with a local origin or destination. The increase is fairly consistent along the whole route then stops at Herbrand Street. I would expect this to be traffic which previously travelled east along Tavistock Square / Place and then turned right into their destination in Herbrand Street.

2. The increase in westbound traffic volumes on Endsleigh Gardens is counter-intuitive. This is because the westbound route along Tavtistock Square / Gordon Square / Torrington Place remains in place in both the two-way and the westbound only scenario. This would indicate the likelihood of a further error in the model coding.

5.37 Notwithstanding that I am not yet able to conclude on the limited information provided by the Council that the Council's traffic modelling is fit for the purpose of assessing the Trial and alternatives to the Trial, the modelling presented to me by the Council indicates that reversing the flow of traffic along Torrington Place / Tavistock Place so that it is westbound only compared to the Trial, would result in a much smaller geographic spread of traffic impacts and with the number of local streets suffering from a material increase in traffic volumes being fewer than with the Trial in place.

Summary

5.38 I have sought repeatedly to meet with the Council to discuss in detail the modelling work that they have undertaken to assess the traffic impacts of the Trial. This is so that I can reach agreement with them that it is fit for the purpose of assessing the Trial and alternatives to the Trial.

5.39 The information that I have requested and which I have summarised in my evidence is all typical information that could be expected to be freely available for a strategic model.

5.40 In the absence of the information requested I cannot form a professional viewthat the Council's traffic modelling is fit for the purpose of assessing the impacts of the Trial and the alternatives. Any outputs from the traffic modelling relied upon by the Council need to be considered with caution in this context.

5.41 Notwithstanding this state of affairs, I have been presented with a number of model plots by the Council showing outputs from the modelling work that they have had undertaken.

5.42 I have analysed the model plots provided and identified a number of apparent discrepancies between how the model is predicting that traffic will re-route and what the Council's own traffic survey data is indicating regarding driver behaviour. These discrepancies indicate to me that the traffic model is not performing optimally in this respect in particular with regards to the attractiveness of Grays Inn Road / Euston Road as an alternative route for local streets.

5.43 Notwithstanding the above, the modelling presented to me by the Council indicates that reversing the flow of traffic along Torrington Place / Tavistock Place westbound with the Trial layout compared to the Trial would result in a much smaller geographic spread of traffic impacts and with the number of local streets suffering from a material increase in traffic volumes being fewer than with the Trial in place.

6.0 Access for Protected Groups

Equality Act (2010)

6.1 The Equality Act (2010) ("the EA Act") sets out the public sector equality duty at section 149 as follows:

"149 Public sector equality duty

(1) A public authority must, in the exercise of its functions, have due regard to the need to—

a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act;

b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;

c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

(2) A person who is not a public authority but who exercises public functions must, in the exercise of those functions, have due regard to the matters mentioned in subsection (1)."

6.2 ILHL falls under the description in paragraph (2) as it exercises public functions.

6.3 The EA Act provides an explanation of the protected characteristics and persons relevant to the EA Act in sections 4 - 12. Of particular relevance to the ILHL is section 6 which refers to disability.

6.4 Paragraph 7.17 of the Council's Statement of Case states:

"Some other feedback from public engagement showed there were concerns with lack of taxi drop off and pick up areas and that this was discriminatory against disabled people using taxis. The Council have incorporated a dedicated taxi rank along the route enabling taxi's to arrive at the kerb side so disabled users can use the disabled loading facilities on this side of the vehicle."

6.5 I explain below why this statement is incorrect.

Impact of the Trial on Disabled Access

6.6 Access to and egress from the Tavistock Hotel by visitors and guests is taken immediately from Tavistock Square. Prior to the Trial disabled visitors, including those requiring a wheelchair for mobility, were dropped-off / picked-up on Tavistock Square outside the Tavistock Hotel along with all the other visitors and guests. Taxis were able to pull alongside the kerb facing westbound to enable visitors and guests with wheelchairs to enter and leave the taxi via the front passenger's side of the taxi. This is the side of a taxi which is designed for disabled passengers using wheelchairs to use to enter and leave a taxi.

6.7 With the Trial in place, all motor traffic is required to proceed in an eastbound direction. Taxis are, accordingly, no longer able to pull alongside the kerb on the front passenger's side. They must stop in the street with disabled passengers disembarking in the street where on-coming westbound cyclists are a present hazard.

6.8 The Council's suggested mitigation for this loss of accessibility by persons protected by the Equality Act is that disabled guests requiring wheel-chair accessibility are dropped-off / collected from the Tavistock Hotel's side entrances on Woburn Place and Bedford Way. I do not know why the Council insists that that there are side entrances for guests and visitors to the hotel on Woburn Place and Bedford Way. To be clear, the Tavistock Hotel does not have guest entrances on either Woburn Place or Bedford Way. There is a service entrance and yard accessed from Bedford Way from which the back of house can be accessed and through back of house the reception. The Council has been advised of this. It is neither safe nor acceptable for disabled guests requiring wheel-chair accessibility to be required to make their way through an active goods yard and back of house to reach the reception that all other guests and visitors can access directly from Tavistock Square.

6.9 The Council's suggested mitigation would, in reality, cause disabled guests requiring wheel-chair accessibility to have to make their way, with their luggage, more than 50m either from Bedford Place or Woburn Place to reach the entrance of the Tavistock Hotel which is on Tavistock Square.

6.10 Prior to the Trial commencing this same protected group of people were able to access and egress the Tavistock Hotel directly from the Tavistock Square pavement. Non-protected groups were also able to be safely dropped-off / picked-up immediately outside the Tavistock Hotel either within the taxi rank by black cab or else on street by private hire vehicle.

6.11 Had the Trial scheme been one-way westbound then the protected groups would have retained the same level of access as enjoyed pre-Trial and as retained by all the other guests and visitors.

Design of Taxi Bay on Tavistock Square

6.12 Notwithstanding the direction of flow of traffic along Tavistock Square, the existing Taxi bay is formed of a marked stand located wholly within the westbound cycle lane, around which cyclists are required to manoeuvre in order to travel past the Tavistock Hotel.

6.13 The taxi driver has to pull in against the flow of on-coming westbound cyclists. Taxi doors opening on the passenger side of the taxi open, similarly, against the flow of westbound cyclists. With this arrangement during the Trial the hotel has witnessed a number of near misses when a taxi pulls in to the marked taxi from the eastbound direction. The arrangement also involves taxi doors opening onto the cycle lane which has also caused near misses known as 'car dooring.' These events would be likely to be substantially avoided with taxis and private hire vehicles travelling in the same westbound direction as cyclists passing the front entrance to the hotel.

6.14 The Council in the Trial acknowledges the need to retain a taxi bay in front of the Tavistock Hotel If it is decided the Order should be made whether with eastbound or westbound motor traffic t the taxi bay should be altered such that a bay is formed partially within the widened footway outside the Tavistock Hotel. I provide at **ILHL45** a suggested layout which demonstrates the benefits of such an approach.

6.15 The layout provided at **ILHL45** provides the following:

1. 3.3m wide footway on the northern side of Tavistock Square;
2. 2.0m wide eastbound cycle lane;
3. 3.5m wide westbound vehicular traffic lane;
4. 2.0m wide westbound cycle lane; and
5. Up to 5.0m wide footway on the southern side of Tavistock Square with a half-kerbed inset 2.0m taxi bay similar to existing facilities at Russell Square (see image below).

Example of half-kerbed inset taxi / loading bay on Russell Square

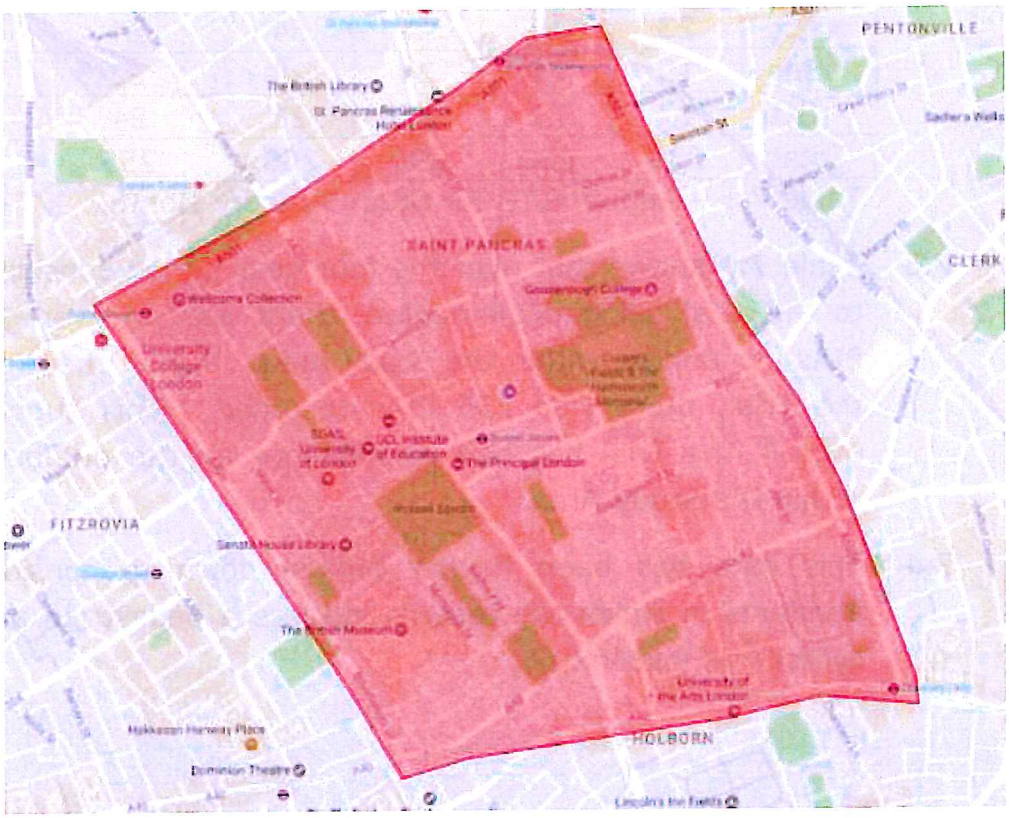
6.16 Crucially the location of the taxi bay removes stationary vehicles from most of the westbound cycle lane so that cyclists can travel along the route without having to manoeuvre around taxis as the currently need to do with the Trial as implemented.

6.17 The provision of this type of arrangement would benefit cyclists and Taxi users irrespective of the direction of flow of vehicles along Tavistock Square i.e either in accordance with the Trial as implemented or with the modification that the direction of vehicular traffic should be westbound.

7.0 Road Safety

Personal Injury Accident Data

7.1 Personal Injury Accident (PIA) data has been obtained from TfL for the most recently available five year period. This covers the period 1st November 2011 to 31st October 2016 and so includes four years' data pre-Trial and one year's data during the Trial which is from 1st November 2015 to 31st October 2016 inclusive (**ILHL46**). This was the most up to date data available at the time of preparing the analysis. The area for which the data was collected (hereafter referred to as "the Study Area") is shown below.



Road Safety Study Area

7.2 The table below provides a summary of all PIAs which occurred within the Study Area on a year by year basis.

Month	Pre-Trial					During Trial
	2011-12	2012-13	2013-14	2014-15	4 year pre-Trial average	2015-16
Nov	25	19	20	17	20	26
Dec	19	16	20	19	19	27
Jan	19	16	23	15	18	22
Feb	15	16	23	22	19	14
Mar	25	17	27	14	21	17
Apr	12	25	24	17	20	23
May	23	19	27	15	21	25
Jun	20	20	24	21	21	25
Jul	26	24	22	37	27	14
Aug	23	16	21	34	24	24
Sep	15	21	24	28	22	17
Oct	17	21	35	21	24	21
Total	239	230	290	260	255	255

Table 7.1 – Annual PIAs for Study Area by Month

7.3 Table 7.1 shows that over the four year period considered prior to the Trial being implemented, there was an average of 255 PIAs per annum within the Study Area. During the first year of the Trial, there was 255 PIAs recorded. This suggests that overall, the Trial has had no influence on the number of PIAs within the Study Area.

7.4 This data has been further broken down to consider those accidents in which the records indicate a pedestrian and / or a cyclist was involved.

Month	2011-12		2012-13		2013-14		2014-15		4 year pre-Trial average		2015-2016 (Trial Period)	
	Ped	cycle	Ped	cycle	Ped	cycle	Ped	cycle	Ped	cycle	Ped	cycle
Nov	9	8	11	3	10	4	4	7	9	6	6	8
Dec	6	6	5	5	9	4	5	6	6	5	7	6
Jan	9	8	7	3	7	6	7	3	8	5	4	7
Feb	6	6	5	5	7	3	9	2	7	4	3	3
Mar	9	8	2	9	6	7	1	4	5	7	5	6
Apr	6	6	6	10	3	9	5	7	5	8	4	8
May	9	8	6	6	6	10	1	5	6	7	7	7
Jun	6	6	1	6	7	3	4	4	5	5	5	7
Jul	9	8	6	12	6	9	10	9	8	10	3	3
Aug	6	6	6	6	2	7	2	12	4	8	2	9
Sep	9	8	7	8	5	5	3	9	6	8	5	1
Oct	6	6	4	6	10	9	9	3	7	6	2	8
Total	90	84	66	79	78	76	60	71	74	78	53	73

Table 7.2 – Annual Pedestrian and Cyclist PIAs for Study Area by Month

7.5 Table 7.2 shows that over the four year period considered prior to the Trial being implemented, there was an average of 74 PIAs involving pedestrians per annum and 78 PIAs involving cyclists within the Study Area. During the first year of the Trial the number of recorded PIAs involving a pedestrian was 53 with 73 recorded accidents involving cyclists.

7.6 The PIA records indicate that the Trial has made a negligible change to cycle safety within the Study Area. However there has been a noticeable reduction in pedestrian accidents within the Study Area with the lowest annual recorded number of pedestrian injury accidents on the lead up to the Trial being 60 in one year. In particular the months of July, August, September and October appear to have the largest reduction in recorded pedestrian injuries during the Trial compared to the average of the four-years leading up to the Trial.

7.7 Turning to the Corridor itself, the Table below provides a breakdown of annual recorded PIAs by mode and severity.

Mode	2011-12		2012-13		2013-14		2014-15		4 year pre-Trial average		2015-2016 (Trial Period)	
	Seri-ous	Slight	Seri-ous	Slight	Seri-ous	Slight	Seri-ous	Slight	Seri-ous	Slight	Seri-ous	Slight
Pedestrian	2	6	2	6	3	5	1	5	2	6		1
Pedal Cycle	2	10	2	4	1	7		5	1	7		12
Powered 2 Wheeler		2		2	1	3		2		2		1
Car		1		1		3		4		2		3
Taxi							1	1				
Bus Or Coach												1
Total	4	19	4	13	5	18	2	17	3	17		18

Table 7.3 – Annual PIAs for Corridor by Mode and Severity

7.8 Table 7.3 shows that over the four year period considered prior to the Trial being implemented, there was an average of three serious and 17 slight accidents per annum within the Corridor. Of these accidents, there was an average of one serious and seven slight PIAs per annum involving cyclists.

7.9 During the first 12 months of the Trial there were no recorded serious accidents and a total of 18 recorded PIAs. This is a slight reduction from the average of 20 recorded PIAs during the four years leading up to the Trial.

7.10 Notwithstanding this, the number of PIAs involving cyclists amounted to 12 during the first 12 months of the Trial. This is an increase compared to the average of eight recorded PIAs per annum involving cyclists during the four years leading up to the Trial.

7.11 The number of recorded injury accidents involving motor vehicles has remained the same during the Trial as before the Trial commenced.

7.12 However there has been a noticeable reduction in recorded pedestrian injury accidents. This is most probably attributable to the change of operation from two-way to one-way for vehicular traffic along the Corridor as there have been many studies that demonstrate that there are generally fewer pedestrian injuries on one-way streets than on two-way streets. These apparent road safety benefits for pedestrians would be similar if the direction of traffic flow was eastbound as currently or reversed to westbound.

Potential effect of loading and unloading activities on road safety

7.13 Prior to the Trial being implemented loading / unloading activities were undertaken on the southern side of the Corridor. This is because of the two-way cycle-lane was provided along the northern side of the Corridor.

7.14 In order to provide a continuous westbound cycle lane along the southern side of the Corridor during the Trial, the existing loading / unloading facilities have been removed from the Corridor and alternative loading / unloading facilities provided on side streets. All the relocated loading / unloading areas are located to the south of the Corridor.

7.15 The combination of relocating the loading / unloading bays and the traffic restrictions requiring general traffic to travel eastbound only means that all delivery vans / vehicles must travel eastbound along the corridor and then turn right to access the relocated loading facilities. This introduces a conflict in movements with delivery / service vehicles having to turn right across the paths of on-coming cyclists travelling legally in the contra-flow westbound cycle lane.

7.16 Table 2 of TfL's Cycle Safety Action Plan (copied below) provides an analysis of the five conflict types most commonly resulting in killed or seriously injured accidents (KSIs) to cyclists during 2011-13.

Table 2: The five conflict types most commonly resulting in KSIs to cyclists during 2011-13

Conflict rank	Indicative diagram	Manoeuvre description	Seriously injured casualties (% of total)	Fatal casualties (% of total)
1		Other vehicle turns right across path of cyclist	243 (14%)	2 (5%)
2		Cyclist hits open door / swerves to avoid open door of other vehicle.	160 (10%)	2 (5%)
3		Cyclist and other vehicle travelling alongside each other.	146 (9%)	4 (9%)
4		Other vehicle turns left across the path of cyclist	125 (9%)	11 (25%)
5		Other vehicle fails to give way or disobeys junction control and collides with cyclist	96 (6%)	1 (2%)

7.17 The research undertaken by TfL and set out above shows that the conflict which causes the single largest number of KSIs is "Other vehicle turns right across path of cyclist". This conflict type accounted for 245 KSIs during the study period. In contrast the manoeuvre described as "Other vehicle turns left across the path of cyclist" was cited as causing 136 KSIs during the study period.

7.18 I note that the research demonstrates that the single largest danger to cyclists is turning vehicles, whether right turning or left turning. However this research by TfL suggests that the risk of cycle-vehicle collisions increases with increases in the volume of right turning traffic compared to left turning traffic.

Cycle accident data analysis

7.19 The table below provides a summary of the 12 PIAs (**ILHL46**) which were recorded along the Corridor between 1st November 2015 and 31st October 2016 in which a cyclist was reported as having been injured.

Accident reference	Location	Causation	Light / dark
0116EK40007	On Tavistock Square 65m NW of Tavistock Place	Passenger in taxi opened door hitting cyclist who was overtaking on the nearside.	Light
0116EK40034	Tavistock Place / Herbrand Street	Bike turning right into Herbrand street failed to look properly and hit car travelling straight ahead	Light
0116EK40102	Gordon square / Gordon square	Car turned left onto Gordon Square (the corridor) hit cyclist travelling SW-NE along corridor. Driver "failed to look properly" cyclist had "defective indicators or lights"	Dark
0116EK40171	Tavistock Square near	Cycle only. Loss of control hitting kerb	Dark

Accident reference	Location	Causation	Light / dark
	junction with Bedford Way		
0116EK40183	Tavistock Square / Bedford Way	Taxi turning right into Bedford Way hit cyclist that was overtaking. Cyclist must not have been in eastbound cycle lane to be doing this manoeuvre. Cyclist "impaired by alcohol". Taxi "failed to look properly".	Dark
0116EK40192	Gordon Square / Tavistock square	Cyclist travelling SW to NE. Car turned left illegally from Gordon Square in to Tavistock Square hitting cyclist.	Light
0116EK40266	Byng Place / Torrington Place	According to report, van turning left from Byng Place into Malet street hit cyclist travelling ahead from Byng Place to Torrington Place. Report does say "illegal turn or direction of travel" but note that van must have been travelling the wrong direction on Byng Place then trying to travel the wrong way down Malet Street	Light
0116EK40313	Gordon Square Woburn Square	Car travelling eastbound turned right into Woburn Square. Cycle travelling westbound (contraflow) hit turning vehicle.	Light
0116EK40624	Tavistock Square / Marchmont Street	Car turning right into Marchmont street hit cyclist travelling NE-SW in contraflow lane.	Light
01160024352	Tavistock	Car turning right into	Dark

Accident reference	Location	Causation	Light / dark
	Place / Herbrand Street	Marchmont street hit cyclist travelling NE-SW in contraflow lane.	
0115EK41098	Tavistock Square J/W Bedford Way	Driver heading straight ahead passed too close to cyclist. Point at which cycle lane is discontinued as it passes a junction.	Light
0115EK41146	Tavistock Place / Judd Street	Both vehicles travelling side by side. Both turned left. Both failed to look properly and collided.	Dark

Table 7.4 – PIAs during the Trial involving cyclists

7.20 Table 7.4 above shows that of the 12 recorded PIAs, four (33%) involved vehicles turning right across the path of cyclists.

7.21 Of the remaining eight PIAs, the following summarises the causation factors:

1. passenger from taxi failed to look before opening the door – one accident;
2. loss of control by a cyclist – one accident;
3. cyclist failed to look properly – one accident;
4. driver turning left failed to look properly although it was dark and cyclist had defective lights – one accident;
5. Driver and cyclist both turning left, both failed to look properly – one accident;
6. driver too close to cyclist – one accident;
7. motorists undertaking illegal movements along the Corridor – two accidents.

7.22 Based on the above summary and clustering of accidents by causation factor, the single largest causation factor for cycle-vehicle accidents along the Corridor is eastbound vehicles turning right across cyclists travelling westbound.

Implications for the Trial

7.23 The current configuration of the Trial, which has traffic travelling one-way eastbound, forces traffic to turn right in order for delivery vehicles to access relocated loading bays. These have all been relocated to the south of the Corridor.

7.24 Of the 12 PIAs recorded which involved cyclists, the single largest causation factor for vehicle–cycle accidents along the Corridor is vehicles turning right across cyclists travelling westbound (33%). This aligns with research undertaken by TfL which identifies other traffic turning right across the path of a cyclist as being the single largest causation factor for cycle-vehicle accidents.

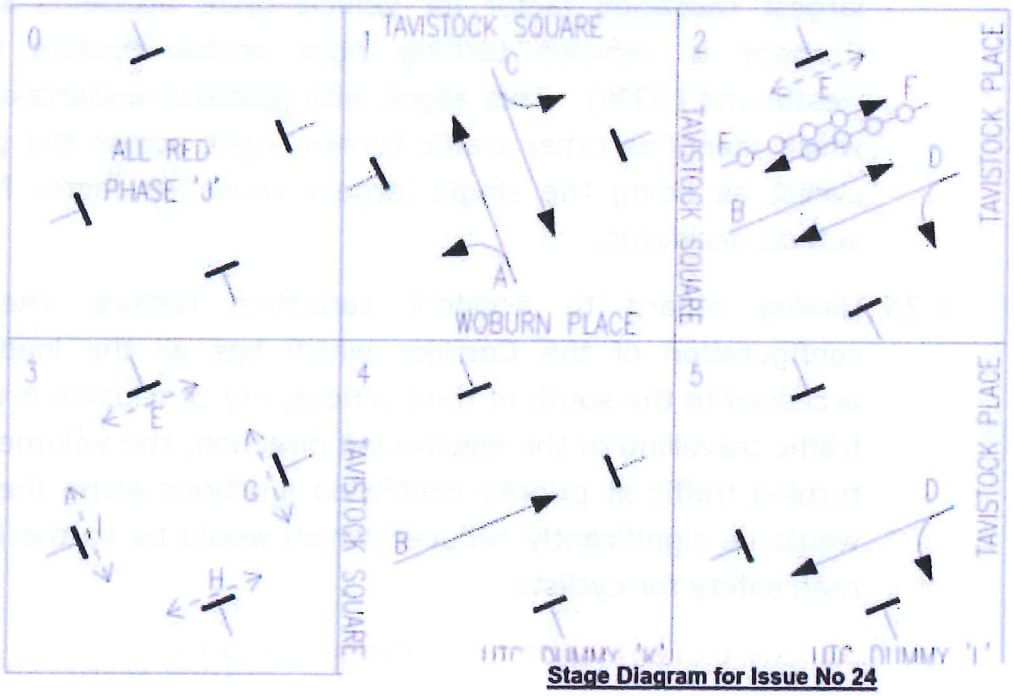
7.25 Having regard to accident causation factors, the current configuration of the Corridor which has all the loading bays accessed to the south of the Corridor, my conclusion is that were traffic travelling in the westbound direction, the volume of right-turning traffic at priority controlled junctions along the Corridor would be significantly reduced which would be to the benefit of road safety for cyclists.

Access to Taxi Rank on Tavistock Square

7.26 I have reviewed the video surveys that ILHL commissioned of traffic movements in and around Tavistock Square in order to understand how taxis and cyclists interact at the taxi rank adjacent to the Tavistock Hotel on Tavistock Square.

7.27 At this location, taxis are required to turn right across and into cyclists travelling westbound along the experimental cycleway in order to park in the Taxi rank. There were some occasion when taxis could turn into the taxi rank without interfering with the flow of cyclists travelling westbound. However in most instances, such as during the morning when westbound cycle flows are at their peak, there was a platoon of cyclists travelling westbound that turning taxis conflicted with.

7.28 The diagram below was obtained from TfL and shows the sequencing of the Woburn Place / Tavistock Square signal controlled junction which is adjacent to the taxi rank.



Stage Diagram for Issue No 24

7.29 The diagram above shows that the traffic signals at the Woburn Place / Tavistock Square junction are configured to allow traffic to travel from Tavistock Square to Tavistock Place (eastbound) at the same time as cyclists are allowed to travel from Tavistock Place to Tavistock Square (westbound). This means that taxis approaching the Taxi rank in an eastbound direction are highly likely to be facing opposing cyclists travelling westbound as both movements are controlled to occur at the same time.

7.30 Pre-Trial, the left turn from Woburn Place into Tavistock Square was not permitted to run at the same time as the straight ahead movement from Tavistock Place to Tavistock Square. So for example a platoon of cyclists travelling westbound would have a green light allowing them to travel from Tavistock Place to Tavistock Square whereas taxis would be held at the northbound stop line on Woburn Place. Once the cyclists had cleared the junction the taxis would receive a green light allowing them to turn westbound into Tavistock Square and access the taxi rank whilst westbound cyclists were held at a red light on Tavistock Place.

7.31 I note that pre-Trial, not all Taxi movements to access the taxi rank were left turns from Woburn Place into Tavistock Square. However under the Trial, every taxi movement to access the taxi rank is a right turn across an on-coming platoon of cyclists.

7.32 Having regard, having regard to the operation of the signals at the Woburn Place / Tavistock Square junction, the current configuration of the Corridor which has taxis turning right into platoons of on-coming cyclists, my conclusion is that were traffic travelling in the westbound direction, interactions between taxis and cyclists at the taxi rank would reduce to the benefit of road safety for cyclists.

8.0 Summary and Conclusions

Summary

8.1 In their Statement of Case, the Council claims:

"7.1 The rationale behind not providing a continuous eastbound or westbound link between Tottenham Court Road and Hunter Street is to avoid attracting 'through traffic' and more strategic motor traffic from the Transport for London Road Network (Euston Road) onto the more local road network."

8.2 Contrary to this statement, my analysis of the traffic surveys undertaken before and during the Trial suggest that very little traffic has transferred onto the Euston Road. Instead the majority has simply displaced onto adjacent local streets. To the best of my knowledge the Council has collected no data to support their statement that there was significant "through traffic" prior to the Trial or that the volume of "through traffic" has changed during the Trial.

"7.2. The volume of motorised traffic has reduced as a result of the trial layout as 'through traffic' is unable to use the Corridor to gain access from Tottenham Court Road to Hunter Street and vice versa."

8.3 Again my analysis of the traffic surveys undertaken before and during the Trial suggest that whilst the volume of traffic on the Corridor has reduced as a result of the Trial, this traffic has simply displaced onto adjacent local streets.

"7.3. The comparative traffic impact of the trial compared with potential alternatives has been assessed with the aid of traffic modelling undertaken by transport consultants (Systra) appointed by Camden."

8.4 While modelling has been undertaken, my evidence demonstrates that I have found:

1. simple errors in the coding of the model;
2. potential errors in the data used to calibrate the model; and

3. that there is insufficient data made available by the Council to determine if the model is fit for the purpose of assessing the Trial and the alternatives to the Trial. I have requested this data which is all typical information that I would expect would be available for a strategic model. At the time of preparing my evidence I was waiting on a response this request.

8.5 In the absence of the information requested it is not possible to determine whether the Council's traffic modelling is or has been fit for the purpose of assessing the impacts of the Trial and the alternatives. In these circumstances the Council's claimed outputs from the traffic modelling need to be treated with caution.

8.6 Notwithstanding this I have been presented with a number of model plots by the Council showing outputs from the modelling work that they have had undertaken. These flag up apparent discrepancies between how the model is predicting that traffic will re-route and what the Council's own traffic survey data is indicating regarding driver behaviour. Notwithstanding this, the modelling presented to me by the Council shows that reversing the flow of traffic along Torrington Place / Tavistock Place westbound compared to eastbound with the Trial would result in a significantly smaller geographic spread of traffic impacts and with the number of local streets suffering from a material increase in traffic volumes being fewer than with the Trial in place.

"7.4. The conversion of the carriageway from two-way working to one-way working for motor traffic inevitably changed some traffic patterns in the area. Removing traffic from the corridor appears to have displaced some motor traffic to Endsleigh Gardens as this a natural desire line for vehicles to link to Euston Road forming an alternative westbound route."

8.7 As regards this statement, my analysis of traffic survey data shows that "some" means a doubling of traffic volumes in the westbound direction on Endsleigh Gardens. A similar magnitude of increase is also experienced westbound on Great Russell Street which the Council fails to acknowledge.

7.8. Early indications from draft collision data suggest an increase in accidents involving cyclists, but that the severity of injuries has reduced, with none reported as 'serious'.

8.8 In fact, the evidence demonstrates that injury accidents involving cyclists have increased by 50% during the first 12-months of the Trial compared to the average annual number of cycle accidents on the four years leading up to the Trial. My analysis identifies that the single largest causation factor is cyclists travelling westbound colliding with traffic turning right across their paths. This could be alleviated by reversing the flow of traffic to reduce the incidence of right turning traffic in the circumstances where loading bays previously located along the Corridor have all been located to the south in the Trial forcing vehicles to turn right to reach them.

7.17. Some other feedback from public engagement showed there were concerns with lack of taxi drop off and pick up areas and that this was discriminatory against disabled people using taxis. The Council have incorporated a dedicated taxi rank along the route enabling taxi's to arrive at the kerb side so disabled users can use the disabled loading facilities on this side of the vehicle.

8.9 The taxi rank outside the Tavistock Hotel has been retained. However as I set out in my evidence, due to the configuration of taxis and the direction of traffic flow of the Trial, wheelchair users arriving by taxi are required either to exit the taxi into the live cycleway or else they are dropped remotely by the kerbside and required to work their way back to the entrance. Were the flow of traffic along the Corridor reversed then wheelchair users arriving by Taxi would be able to exit safely directly into the footway.

8.10 I also recommend that should the Inspector conclude that the Order should be made, the design of the Taxi bay is altered when the scheme is made permanent such that a bay is formed partially within the widened footway outside the Tavistock Hotel. This would benefit cycle safety by removing Taxis from most of the cycle lane. The taxi bay is currently located within the westbound cycle lane which is dangerous to both cyclists and taxi users.

8.11 I also note that having regard to the operation of the signals at the Woburn Place / Tavistock Square junction, in order to access the taxi bay with the current configuration of the Corridor, taxis turn right into platoons of on-coming, westbound cyclists as both movements have a green signal at the same time. My conclusion is that were traffic travelling in the westbound direction, interactions between taxis and cyclists at the taxi rank would reduce to the benefit of road safety for cyclists.

"8.1 Throughout the design process different design options were considered. At the outset of the project the options considered included (amongst other options):

a. Eastbound traffic only along the whole corridor

b. Westbound traffic only along the whole corridor

c. Timed closure (closed to traffic between 7am and 7pm)

d. Widening the bi-directional track and retain two-way traffic

e. Removing all traffic aside from access for residents and servicing

8.3 The assessment of the remaining options resulted in the preferred option as set out in section 3 being identified and taken forward as the trial scheme."

8.12 Contrary to this statement my evidence demonstrates that the Council did not consider any alternative options prior to the Trial scheme being implemented other than one which restricted vehicular traffic movements to one-way in an eastbound direction.

8.7 A suggestion has also been made that the one-way vehicular traffic flow should be reversed so that it runs in a westbound direction. Broadly speaking this could achieve one objective of reducing motor traffic along the corridor, but a comparative modelling exercise indicated a greater level of reassignment to more local roads.

8.13 Contrary to this statement, my evidence, based on information provided to me by the Council, demonstrates that reversing the flow of traffic along Torrington Place / Tavistock Place compared to the Trial would result in a significantly smaller geographic spread of traffic impacts and with the number of local streets suffering from a material increase in traffic volumes being fewer than with the Trial in place.

Conclusion

8.14 Based on the information that is available to me and the analysis of this information set out in my evidence, I conclude that the Council did not undertake an assessment of alternative options and is only now, in the face of a Public Inquiry, beginning to assess alternative options to the Trial. Had such an assessment been undertaken prior to finalising the Trial scheme, in my professional opinion the Council would have concluded that if the Corridor were to be made one-way for vehicular traffic in order to cater for improvements for pedestrians and cyclists, then the direction of travel for vehicular traffic that would result in least impact would be westbound only.

8.15 I accordingly invite the Inspector, on the strength of the evidence available, to recommend that the Council does not make the Order but trials a westbound only scheme and carries out an assessment of its traffic effects and of the air quality effects of the Trial scheme and the westbound scheme on the study area as a whole for comparative assessment purposes.

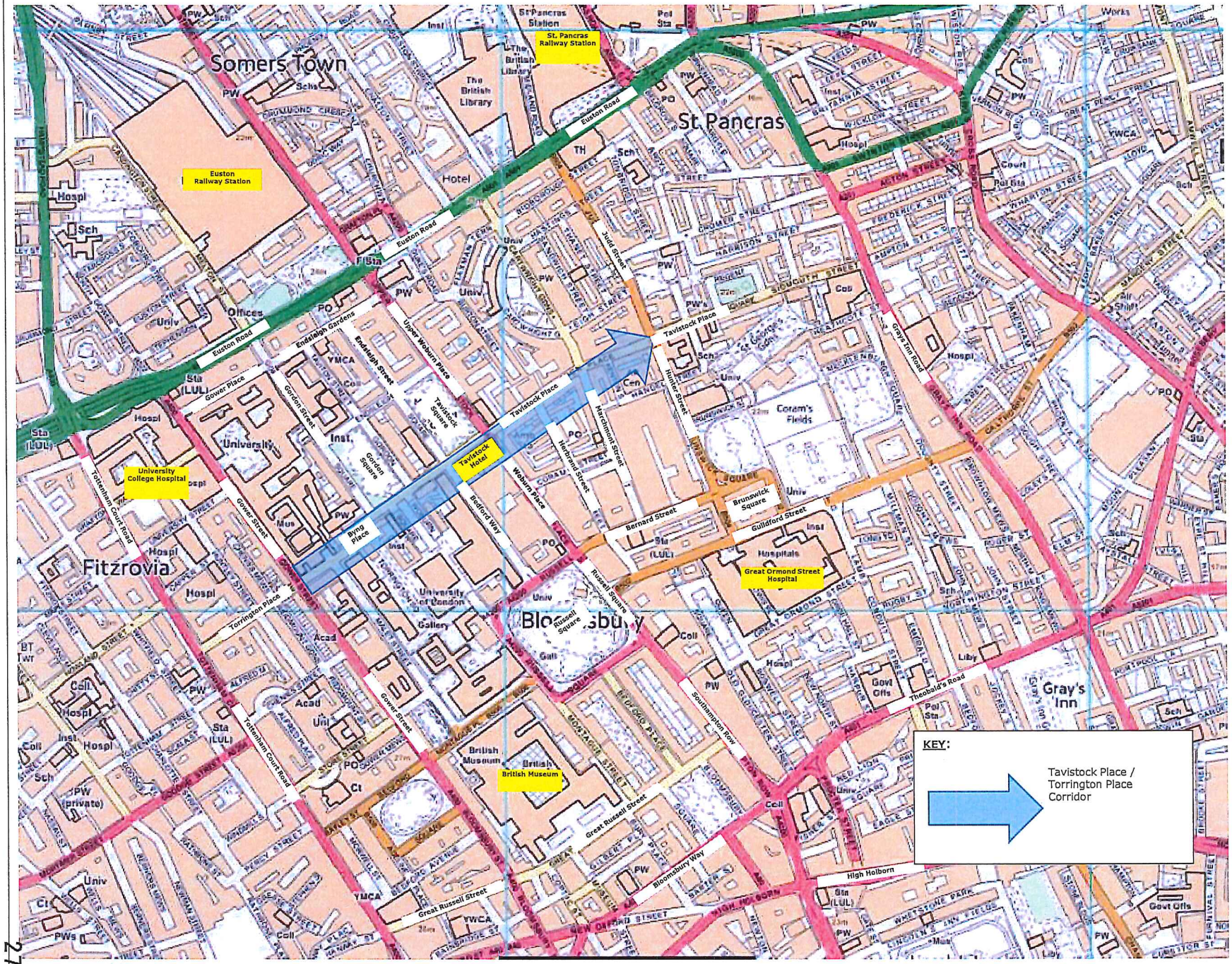
8.16 In the alternative and in the light of the acknowledgement in Appendix D 2.1.2 (**CD6/2**)

"removing one direction of motor traffic from the Torrington Place to Tavistock Place 'corridor' (the corridor) would increase the usable width potentially available for pedestrians and cyclists while providing an adequate lane width for motor traffic in a single direction; and that this would be the case "in its current configuration [eastbound motor traffic only] or reversed [westbound motor traffic only]"; and

"that the proposal to reverse the direction of the one-way motor traffic flow in the corridor posed 'no major geometric design changes' to the ETO layout"

8.17 I would urge the Inspector to recommend the 'modification' of the Trial scheme to provide for westbound motor traffic only and its confirmation with that traffic arrangement.

FIGURE 2.1



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Project: Torrington Place / Tavistock Place Traffic Order

Title: Figure 2.1 - Tavistock Place / Torrington Place Corridor

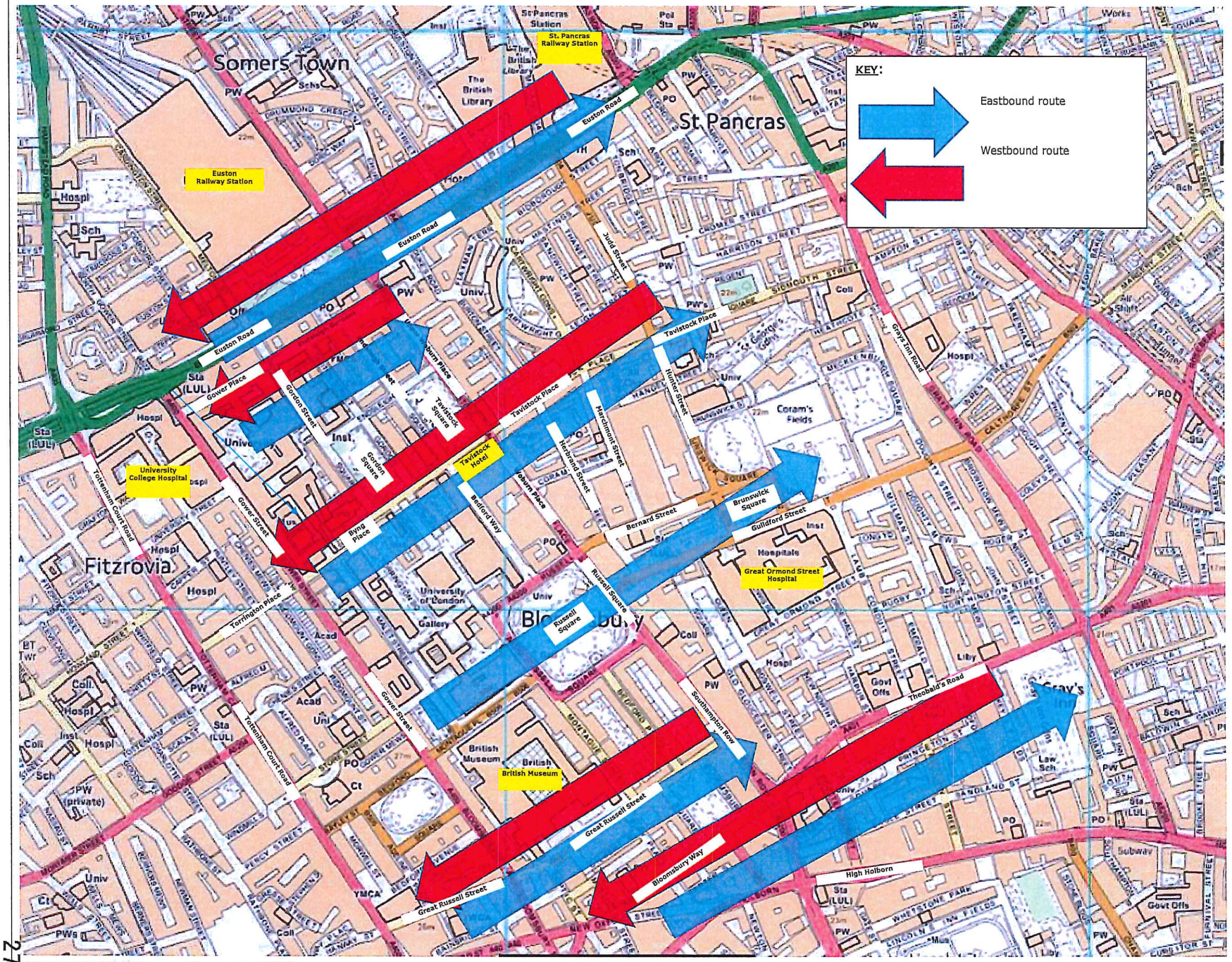
Scale: NTS

Drawing: Ihtavi/170431/F2.1

Revision:

270

FIGURE 2.2



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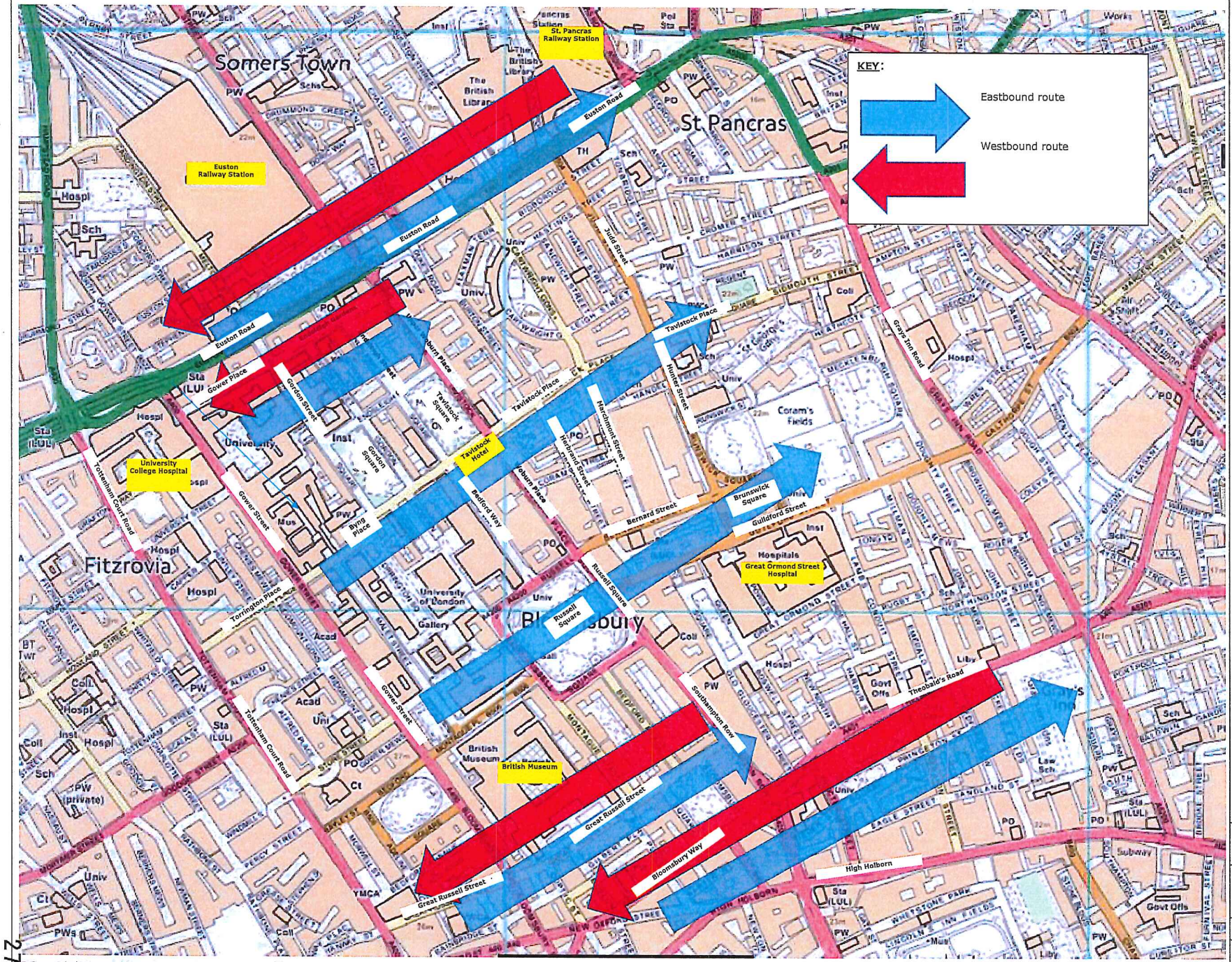
Title: Figure 2.2 - Pre-Trial East-West Routes

Scale: NTS

Drawing: Ihtavi/170431/F2.2

Revision:

FIGURE 2.3



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Project: Torrington Place / Tavistock Place Traffic Order

Title: Figure 2.3 - During Trial East-West Routes

Scale: NTS

Drawing: Ihtavi/170431/F2.3

Revision: