

Date	V1.1 - 21st June 2014
Project No	UN50393
Subject	TN09 Marylebone Road Concept Options

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## 1 Introduction

Jacobs (formerly SKM Colin Buchanan) are commissioned by Westminster City Council to develop the traffic engineering design and transport modelling for the Baker Street Two-Way scheme. As part of the process of developing the Baker Street Two-Way scheme concept, a feasibility exercise has been undertaken using traffic modelling to assess a number of scheme options. This feasibility assessment is detailed in The Baker Street Two Way Scheme Option Feasibility Report.

The feasibility modelling identified that there would be a potential opportunity to provide enhancement to the traffic network interfacing with Marylebone Road within the immediate study area of the Baker Street Two Way scheme. This note looks at options for modifying this interface in the form of junction and pedestrian crossing alterations and presents initial analysis on the benefits and drawbacks of these options.

### Background conditions

The existing traffic network results in the following limits on accessibility within the Marylebone Station and Baker Street area:

- Southbound traffic may only turn right onto Marylebone Road from Baker Street and Harewood Avenue.
- The capacity for southbound right-turning vehicles at Baker Street is limited by the need to provide sufficient capacity for eastbound right-turning traffic and westbound ahead moving traffic on Marylebone Road which means that signal green time is constrained.
- The southbound approach to Marylebone Road on Baker Street is congested through the majority of the day.
- The result is that the right-turn from Harewood Avenue is attractive to drivers and vehicles move through the Marylebone Station and Dorset Square areas to access this turn, impacting the quality of environment for residents and street users and presenting a perceived safety issue.
- Appendix 1 of this report presents an email from Councillor D'Souza describing this issue.

## Objectives

The Baker Street Two Way design team has considered the current issues and determined that the Baker Street Two Way scheme has the potential to provide mitigation. The following study objectives have been considered.

- Understand the existing causes that result in high levels of traffic demand on Harewood Avenue, Harewood Row and Dorset Square.
- Examine the potential for traffic network alterations that would relieve traffic demand on Harewood Avenue, Harewood Row and Dorset Square and identify the options available within the context of the proposed Baker Street Two Way Scheme.
- Determine the benefits and impacts of these options and provide a recommendation for further scheme development.

## 2 Scheme design issues

### Proposed two-way scheme

The proposed two-way operation of Baker Street results in additional traffic conflicts to be managed at the junction with Marylebone Road. The existing southbound right-turn will conflict with the new northbound traffic movement. This can be controlled as an opposed right-turn within the signal method of control but this is likely to result in a reduction in capacity for the southbound right turn.

A similar situation will exist at Gloucester Place for the northbound right-turning traffic. However, at this location it is possible to provide a signal method of control which will allow capacity for the northbound right-turn to be maintained and potentially enhanced. The constraints of this arrangement will not permit a new southbound right-turn to be introduced at Gloucester Place and any arrangement which did permit this would prevent the provision of the proposed straight-over crossing on the west side of the junction. Only the left-turn and ahead movements can therefore be permitted for southbound traffic.

The result of the introduction of two-way traffic on Baker Street and Gloucester Place without mitigation could be that pressure on the sensitive traffic network around Marylebone Station would be increased. Therefore, the objective of relieving this pressure is complimentary to the delivery of the two-way scheme.

The current demand for right-turning traffic from Baker Street into Marylebone Road is 373 PCUs AM peak, 260 PCUs Inter Peak, 304 PCUs PM peak. This is likely to be maintained under the two-way scheme unless traffic is re-routed.

### Existing traffic network limitations

The current arrangement at the junction of Rossmore Road with Park Road does not permit a southbound right-turn from Park Road into Rossmore road to be made. Therefore, traffic travelling from the A41 north of Rossmore Road to use the right-turn on to Marylebone Road from Harewood Avenue is forced to route through the sensitive Dorset Square, Marylebone Station area via Baker Street and Melcombe Street. This is similarly the case with traffic (including taxis) that may be travelling to Marylebone Station as a destination. An alteration of this junction could therefore result in reduced flow on Dorset Square and Harewood Row if not Harewood Avenue itself.

### Environmental impact (noise and emissions)

The presence of the busy Marylebone Road and Baker Street Corridors already has a large impact on the level of noise pollution and emissions in the area. The short re-routing of traffic within the area immediately north of Marylebone Road is unlikely to have any discernable measurable impact, either positive or negative, as in general, traffic is unlikely to be re-routed further than from one side to another side of the same residential block. I.e. From Dorset Square to Marylebone Road. Most of the options examined by this report would only result in short re-routing of traffic of the nature described above and therefore are unlikely to have a significant impact on noise pollution or emissions.

### Bus and coach operation

The proposed two-way scheme presents the opportunity to improve accessibility to bus and coach stops by allowing the relocation of some northbound services onto Baker Street, some southbound services onto Gloucester Place and the potential for re-routing of services to alternative roads / streets where a benefit can be achieved. These options are tied to the permitted movements at the junction with Marylebone Road as a movement must be permitted for a service to use it. Potential benefits to service re-routing are highlighted under the assessment of each scheme option later in this report.

### 3 Scheme options

Jacobs (formerly SKM Colin Buchanan) has considered the potential arrangements which could be implemented as part of the Baker Street Two-Way Scheme in relation the traffic network adjacent to Marylebone Road. Five potential options have been identified. These are described as follows:

#### Option 1 – Do minimum

The Option 1 – Do Minimum arrangement would have the following features:

- The strategic and signed route for southbound right-turning traffic retained at Baker Street.
- The junction arrangement at Baker Street / Marylebone Road would provide the southbound right-turn as an opposed movement with an indicative arrow stage. This would result in a reduction in capacity of approximately 100 vehicles per hour to a maximum flow rate of about 270 PCUs.
- The junction of Rossmore Road with Gloucester Place and Park Street altered to allow southbound traffic to turn right from Park Street into Rossmore Road.
- The junction of Harewood Avenue with Marylebone Road altered to allow increased traffic demand to turn right into Marylebone Road. This alteration could be complementary to the modifications required to deliver the proposed cycle grid link on Enford Street.
- It is envisioned that elements of the Do Minimum Scheme could be included in the other Options set out in this note to further enhance accessibility.

The proposed scheme is illustrated on Drawing UN50393/OS/116 provided in Appendix 2.

#### Option 2 – Balcombe Street / Marylebone Road

The Option 2 – Balcombe Street / Marylebone Road arrangement would have the following features:

- The strategic and signed route for southbound right-turning traffic retained at Baker Street.
- The junction arrangement at Baker Street / Marylebone Road would provide the southbound right-turn as an opposed movement with an indicative arrow stage. This would result in a reduction in capacity of approximately 100 vehicles per hour to a maximum flow rate of about 270 PCUs.
- The junction of Balcombe Street with Marylebone Road altered to allow southbound traffic to turn right onto Marylebone Road. This would allow a method of control which would introduce a straight-over pedestrian crossing (and potentially a cycle crossing) over the east side of Marylebone Road.

- The provision of an alternative right-turn from Balcombe Street would provide an additional point of access onto Marylebone Road, thereby relieving pressure from the Marylebone Station Area. The introduction of this movement would be likely to attract a relatively low flow of traffic throughout the day but would have the potential to relieve pressure from the other existing right-turns onto Marylebone Road and also improve local access for traffic.
- The junction of Gloucester Place with Dorset Square would be designed to provide for a southbound right-turning manoeuvre. This would improve accessibility in the area and allow traffic to travel more directly and therefore relieve some sensitive parts of the traffic network.
- The option to include the Rossmore Road / Gloucester Place / Park Street southbound right-turn arrangement proposed as part of the Do Minimum strategy. Also the option to provide the enhanced arrangement at Harewood Avenue / Marylebone Road proposed as part of the Do Minimum strategy.

The proposed scheme is illustrated on Drawing UN50393/OS/114 provided in Appendix 2.

### Option 3 – Allsop Place / Marylebone Road

The Option 3 – Allsop Place / Marylebone Road arrangement would have the following features:

- The strategic and signed route for southbound right-turning traffic retained at Baker Street.
- The junction arrangement at Baker Street / Marylebone Road would provide the southbound right-turn as an opposed movement with an indicative arrow stage. This would result in a reduction in capacity of approximately 100 vehicles per hour to a maximum flow rate of about 270 PCUs.
- The junction of Allsop Place and Marylebone Road would be modified to allow right turning traffic to exit Allsop Place onto Marylebone Road. This could be a move permitted for all traffic or could be restricted to buses only, buses and cycles only or buses, taxis and cycle only. The turning restrictions would be based on the need to achieve a balance between demand and capacity.
- The provision of an alternative right-turn from Allsop Place would provide an additional point of access onto Marylebone Road, thereby relieving pressure from the Marylebone Station Area.
- It would be possible to consider modifications to bus and / or coach stops and routes, to allow the creation of a better organised and more accessible hub at the northern end of Baker Street / Allsop Place. This hub would concentrate services into a smaller area improving interchange and would be accessible from Baker Street tube station and Marylebone Station.

- The junction of Gloucester Place with Dorset Square would be designed to provide for a southbound right-turning manoeuvre. This would improve accessibility in the area and allow traffic to travel more directly and therefore relieve some sensitive parts of the traffic network.
- The option to include the Rossmore Road / Gloucester Place / Park Street southbound right-turn arrangement proposed as part of the Do Minimum strategy. Also the option to provide the enhanced arrangement at Harewood Avenue / Marylebone Road proposed as part of the Do Minimum strategy.

The proposed scheme is illustrated on Drawing UN50393/OS/115 provided in Appendix 2.

### Option 4 – Glentworth Street / Marylebone Road

The Option 4 – Glentworth Street / Marylebone Road arrangement would have the following features:

- The strategic and signed route for southbound right-turning traffic retained at Baker Street.
- The junction arrangement at Baker Street / Marylebone Road would provide the southbound right-turn as an opposed movement with an indicative arrow stage. This would result in a reduction in capacity of approximately 100 vehicles per hour to a maximum flow rate of about 270 PCUs.
- The junction of Glentworth Street with Marylebone Road would be modified to permit traffic to turn right onto Marylebone Road through the installation of a new traffic signal junction. This junction would introduce a signal controlled crossing over Glentworth Street. The introduction of this movement would be likely to attract a relatively low flow of traffic throughout the day but would have the potential to relieve pressure from the other existing right-turns onto Marylebone Road and also improve local access for traffic.
- The option to include the Rossmore Road / Gloucester Place / Park Street southbound right-turn arrangement proposed as part of the Do Minimum strategy. Also the option to provide the enhanced arrangement at Harewood Avenue / Marylebone Road proposed as part of the Do Minimum strategy.

The proposed scheme is illustrated on Drawing 113 provided in Appendix 2.

## Option 5 – Fall back

The Option 5 – Fall Back arrangement would have the following features:

- Baker Street and Gloucester Place retain one-way operation north of Marylebone Road and immediately south of Marylebone Road. Therefore the Marylebone Road junction arrangements would remain as existing.
- The proposed two way operation of Gloucester Place would start southbound at York Street or further south. The proposed two way operation of Baker Street would end northbound at York Street or further south.
- None of the benefits of the two-way scheme would be achieved at or north of Marylebone Road.
- The benefits of the two-way scheme south of Marylebone Road would be limited as traffic would be less likely to make use of the new routes and be more inclined to follow existing routes. This would result in a dominance of a particular direction of flow making a symmetrical arrangement less likely to be achievable and increasing the risk that the scheme would not provide a good level of traffic network resilience.

A drawing illustrating this proposed arrangement has not been prepared at this stage.

## 4 Initial option assessment

No traffic modelling of the Marylebone Road concept options has been carried out at this stage. However, it is possible to use engineering judgement to predict the likely benefits and impacts of each option and provide a comparison to enable an initial assessment of the options to be developed.

### Traffic reassignment

The potential for traffic reassignment under each option has been considered. The design team has a good understanding of existing traffic patterns and the likely changes to these patterns under the proposed two-way scheme as a result of the feasibility traffic modelling carried out for the main scheme. The likely alterations to these traffic patterns as result of the concept options presented in this report have been estimated and are set out in the following table.

Table 4.1 – Estimated traffic reassignment

Sensitive traffic link	Option 1	Option 2	Option 3	Option 4	Option 5
Marylebone Road	No change	No change	Small Increase	No change	No change
Baker Street (North of Marylebone road)	Small reduction	Small reduction	Small reduction	Small reduction	No change
Melcombe Street	Small reduction	Small reduction	Small Increase	Small Increase	No change
Dorset Square	Small reduction	Small increase	Small Increase	Small reduction	No change
Harewood Row	Small reduction	Small reduction	Small Increase	Small reduction	No change
Harewood Avenue	Increase	Small reduction	Small Increase	Small reduction	No change
York Street & Crawford Street	No change	No change	No change	No change	Small Increase

Small increase = less than 100 PCUs per hour – unlikely to be appreciable on street

Increase = more than 100 PCUs per hour – could be appreciable on street

Traffic network operation

Although no traffic modelling of the concept options has been undertaken, it is possible to predict the potential impact of each option in terms of traffic operation and capacity. Table 4.2 presents a prediction of traffic impact relative to existing conditions.

Table 4.2 – Estimated traffic network operation

Sensitive traffic link	Option 1	Option 2	Option 3	Option 4	Option 5
Marylebone Road	Potential negative impact	No change	Potential negative impact	No change	No change
Baker Street (southbound approach)	Potential negative impact	Potential improvement	Potential improvement	Potential improvement	Potential negative impact
Gloucester Place (northbound approach)	No change	No change	No change	No change	Potential negative impact

General benefits – Public Realm, Pedestrian Environment, Cycling

Each of the proposed option has the potential to unlock benefits or trigger draw-backs against other key criteria for scheme feasibility. The full details of these scheme elements have not been described but have been summarised in the following Table 4.3. The options have been assessed against a base-line assuming the a generic full-two way scheme is in place.

Table 4.3 – General benefits

Sensitive traffic link	Option 1	Option 2	Option 3	Option 4	Option 5
Public realm benefits	No impact	Positive	Positive	Positive	Negative (no two-way N of Marylebone Rd)
Pedestrian environment	No impact	Positive	Positive	Positive	Negative (no improved crossings N of Marylebone Rd)
Cycling	No impact	Positive (+ cycle crossing over Marylebone Rd)	No impact	No impact	Negative (no cycle route N of Marylebone Rd)
Public transport	No impact	No impact	Positive (Potential for improved bus/coach hub)	No impact	Negative (reduced re-routing to Baker St N/B)
Local traffic accessibility	Positive	Positive	Positive	Positive	Negative (no two-way N of Marylebone Rd)
Safety (or perceived safety)	Negative (increased flow on Harewood Avenue)	No impact	Negative (increased flow around Mdme. Tussauds)	No impact	No impact

## 5 Conclusions

This technical note has provided an overview of the potential options for managing the interface between the Baker Street Two-Way Scheme and Marylebone Road and presented initial analysis on the benefits and drawbacks of each option. In summary, Jacobs would suggest the options could be ordered as follows in terms of most favourable to least favourable from a technical perspective:

### Option 2 – Balcombe Street / Marylebone Road

Provides an elegant solution with minimal drawbacks to the combined issue of relieving traffic congestion at Harewood Row / Harewood Avenue and facilitating the two-way scheme. The overall benefits outweigh relatively minimal drawbacks. Would require agreement from Transport for London Signal Infrastructure on the proposed method of control at Balcombe Street / Marylebone Road.

### Option 4 – Glentworth Street / Marylebone Road

### Option 1 – Do Minimum

### Option 3 – Allsop Place

### Option 5 – Fall back



## Appendix 1 – Correspondence from Councillor D'Souza to Graham King

From: Sheila D'Souza [<mailto:dsouza.sheila@gmail.com>]  
Sent: 06 February 2014 17:08  
To: King, Graham  
Cc: Beddoe, Richard (Cllr); Lewis, Audrey (Cllr)  
Subject: Baker Street Two-way and Marylebone Station

Dear Graham,

Further to our brief conversation, I am getting in touch because Penny Alexander said you chaired the Project Board on the Two-way.

Cllr Graham and I asked for it to be on the agenda for the Marylebone Forum on 6<sup>th</sup> March (see below, though unfortunately I will not be there). Residents around the northern end of the gyratory are keen on the two-way but also want reassurance that the changes at the Park Road end do not result in the streets between Gloucester Place and Lisson Grove getting clogged.

Southbound traffic flows on Lisson Grove and Baker street are heavy in the morning. And a lot of cars divert into Harewood Row (from Lisson Grove) and into Melcombe Street/Melcombe Place (from Baker Street) in order to join the bottom section of Harewood Ave and eventually turn right onto the Marylebone Road. These two streams enter Harewood Ave south of a long yellow box, and gain advantage over the main stream of cars coming south on Harewood Ave to turn right. The very short time allowed by the traffic lights at Marylebone Road, coupled with parked vehicles delivering to the Landmark Hotel compound the problem.

This influx of three streams of cars, on top of the large number of taxis and buses operating here, makes the area immediately around Marylebone Station very congested and hazardous/unpleasant for pedestrians and cyclists. This situation is likely to get worse after the much needed pedestrian crossings are installed on Harewood Ave beside the station. We need to keep through traffic away from the station. I believe the best solution would be to allow Right-turns at Baker Street and Gloucester Place, AND to move the present turning point from Harewood Ave to Lisson Grove.

Local residents and Cllr Graham are also keen to see if the #453 bus route can be extended to Paddington Basin instead of it terminating at the station. It seems like a win-win suggestion if TfL wants to terminate Bus #159 at Marble Arch.

Can I come in to discuss these two matters with you? Are you free for half an hour between 9.30 and 10.30 on Tues 11<sup>th</sup> or after 12.30?

Regards

Sheila



Appendix 2 – Scheme concept drawings