5. Transport Statement

1 Introduction

This document has been prepared to support an application for the *"permanent relocation of the British Library access road to replace existing temporary access point."* The planning application has been prepared by UKCMRI Construction Ltd and is submitted pursuant to a landswap agreement on land to the north of the British Library (BL) which requires a vehicular access for the BL to be provided.

The planning application is for the BL's vehicular access road only and is not an application for the future development of either the BL site (and BL/ Farrell's masterplan references in this document) or the land to the north of the BL's ownership. Any application for the development of those sites will be considered on their merits at the time they are submitted.

However, in order to confirm that the access road proposed can provide a long term solution to the development of the BL's rear extension land, this assessment has been prepared to test the capacity of the proposed BL service road/ Midland Road junction in a 'worst case scenario' for trip generation. The purpose of this is to ensure the access road is designed as a long term solution which can meet the BL's potential future, as well as current, operational needs.

The floorspace (GEA and GIA) estimates used in this document are based on a proposed estimated mix of uses set out in a masterplan prepared by Terry Farrell and partners, on behalf of the BL, in 2009. The masterplan is a strategic document which was prepared to explore future potential development options for the rear extension land. The mix of uses and quantum of floorspace proposed is not fixed and may be subject to change, but has been selected as a 'worst case scenario' to test in terms of trip generation. The majority of non-library uses (such as commercial offices) are envisaged to be 'interim' medium term uses before the BL ultimately occupies all of the space in the long term.

This assessment demonstrates that, even in a worst case future scenario, both the BL service road and Midland Road junctions will operate satisfactorily.

2 Development Background

The proposed development of the British Library comprises of three buildings which will be constructed in three separate phases. There are two options for the development, Option A and Option B, with the latter being the larger of the two. The Gross External Area (GEA) of the three buildings for each option, and the phases in which they will be constructed are shown in **Table 1**.

Table 1: GEA of each Building in the Proposed Development

Option	Building	Construction Phase	Total GEA (m²)
Option A	A	1	24,800
	B	2	28,750
	C	3	23,240
Option B	A	1	25,460
	B	2	33,850
	C	3	28,268

In computing the trip generation for the proposed the development, the GEA for Option B has been chosen so that the associated trips will represent the worst case scenario. The roof plant, with a GEA of 5,030m², has been omitted as have the basement plant areas.

3 Development Land Uses

There are various land uses within the buildings as part of the proposed development. These include:

- Retail land uses comprising of food and beverage facilities and a book store;
- A hotel;
- Student accommodation (residential);
- Commercial offices;
- A loading bay;
- Storage;
- Public realm space; and
- A winter garden.

In calculating the trip generation, only the retail aspects of the development, the hotel, student accommodation and commercial offices are considered. The other uses are considered ancillary to the selected four uses.

3.1 Estimated GEA and GIA per Land Use

The estimated GEA for each of the land uses in the previous section is shown in **Table 2**. The land uses shown are calculated for each building (and thus for each phase of construction) based on the estimated areas per land use provided by Farrells.

Table 2: Estimated GEA per Land use for the Proposed Development.

	Option A GEA (m²)			**Option B GEA (m²)**		
Building	A	B	C	**A**	**B**	**C**
Land-use						
Retail	0	2,415	0	**0**	**2,415**	**0**
Hotel	0	19,140	0	**0**	**19,148**	**0**
Student Accommodation **or** Offices	0	5,758	22,078	**0**	**10,603**	**27,189**
Offices	23,560	0	0	**24,187**	**0**	**0**
Total	23,560	27,313	22,078	**24,187**	**32,166**	**27,189**

In accordance with Farrells outline design, the Gross Internal Area (GIA) of each land use is assumed to be 95% of the total GEA. Thus, the total GIA for each land-use within the development for Options A and B are shown in **Table 3**, below.

Table 3: Total GIA per Land use and Building

Land-use	Option A GEA (m²)	**Option B GEA (m²)**
Retail	2,415	**2,415**
Hotel	19,140	**19,148**
Student Accommodation **or** Offices	27,836	**37,792**
Offices	23,560	**24,187**
Total	72,951	**83,542**

4 Trip Generation

4.1 Introduction

The trip generation for the proposed development has been based on the GIA of the proposed floor plans, which has been derived from the GEA. A number of assumptions have been made with regard to this and these are as follows:

- The GIA is assumed to be 95% of the GEA;
- In the case where the land use is either student accommodation or offices, the land use with the greater trip generation (i.e. offices) has been chosen to represent a worst case scenario.
- Based on the existing provision of catering and cafes within the existing British Library site, 50% of the retail is assumed to be for catering/café uses;
- Couriers are excluded from the vehicle arrivals; and
- There will be no car trips as a result of the proposed development as no car parking can be provided.

4.2 Existing Traffic Flows

The existing traffic flows on Midland Road were obtained from traffic surveys carried out in June 2009. The peak hours of 08:00 to 09:00 and 18:00 to 19:00 for the AM peak and PM peak respectively have been derived from the surveys. The peak flows at the junction of Midland Road and the British Library Access Road are shown in **Table 4**.

Table 4: Total Entry Flows (vehicles) for the junction of Midland Road and BL Access Road

Entry Arm	**Exit Arm**	**AM Peak**	**PM Peak**
Midland Road (North)	Midland Road (South)	618	500
Midland Road (North)	British Library Access Road	28	3
British Library Access Road	Midland Road (South)	7	15

It is assumed that there will be no growth in the traffic flows of **Table 4** between the base and future scenario.

4.3 Estimated Trips

The peak times for service vehicle arrivals have been chosen to coincide with the peak times obtained from the surveys carried out on Midland Road. Although these vary very slightly from the peak arrivals of service vehicles, the difference is negligible when the peak traffic flows on Midland Road are considered.

The trip generation is broken down by building which corresponds to the construction phases, with Building A construction in Phase One, Building B in Phase Two and Building C in Phase 3. The total trips generated for the site, by construction phase, are shown in **Table 5**.

Table 5: Estimated Trips to the Proposed Development by Phase

Time Period	Direction	Building A	Building A and B	Building A, B and C
AM Peak	Arrivals	4	22	26
	Departures	4	22	28
PM Peak	Arrivals	2	5	8
	Departures	2	5	7

In addition to the trips to and from the proposed British Library Development, there will be additional trips associated with the proposed UKCMRI development, which is adjacent to the British Library site. Following a meeting with HOK and URS on 23 December 2009, it has been assumed that there will be approximately 120 vehicles accessing the UKCMRI development in Brill Place each day, split evenly over 10 hours. Thus, there will be 12 additional trips on Midland Road in the morning and evening peak periods.

5 Junction Assessment

5.1 Assessment Scenarios

The junction of Midland Road and the British Library Access Road has been assessed using the junction modelling software PICADY under two different scenarios. These are:

- Base Case with the Existing Layout; and
- Assessment Case with the Proposed New Layout.

In each case the morning peak, from 08:00 to 09:00, and the evening peak, from 18:00 to 19:00, have been assessed. For the Assessment Case, the scenarios have been further broken down into three flow scenarios which correspond to the varying flows associated with the three different stages of the development, accounting for the total trips from Phase One, Phases One and Two, and Phases One, Two and Three.

The geometric dimensions of the junctions have been measured using AutoCAD drawings.

5.2 Base Case at Existing Layout

The results of the Base Case assessment of the existing layout are shown in **Table 6**.

Table 6: Base Case Assessment of the existing junction layout

Junction Arm	AM Peak Hour		PM Peak Hour	
	Avg RFC	Max Queue	Avg RFC	Max Queue
Midland Road (N)	0.046	0	0.004	0
BL Access Road	0.022	0	0.032	0

The results show that the Ratio to Flow Capacity (RFC) on all approaches to the junction is significantly below the recommended maximum of 0.85 and thus all approaches are well within capacity. In addition, there is no queuing at the junction. Therefore, in the Base Case scenario, the junction operates satisfactorily.

5.3 Assessment Case at New Layout

The results of the Assessment Case analysis of the junction using the estimated trips and the new proposed layout are shown in **Tables 7 to 9**. As with the previous scenario, the analysis is split into three scenarios according to the phases at which the development will be completed.

Table 7: Assessment Case Results for Phase A using the New Layout

Junction Arm	AM Peak Hour		PM Peak Hour	
	Avg RFC	Max Queue	Avg RFC	Max Queue
Midland Road (N)	0.005	0	0.002	0
BL Access Road	0.008	0	0.003	0

Table 8: Assessment Case Results for Phases A and B using the New Layout

Junction Arm	AM Peak Hour		PM Peak Hour	
	Avg RFC	Max Queue	Avg RFC	Max Queue
Midland Road (N)	0.032	0	0.007	0
BL Access Road	0.047	0	0.012	0

Table 9: Assessment Case Results for Phases A, B and C using the New Layout

Junction Arm	AM Peak Hour		PM Peak Hour	
	Avg RFC	Max Queue	Avg RFC	Max Queue
Midland Road (N)	0.037	0	0.011	0
BL Access Road	0.060	0.1	0.012	0

As was the case for the previous scenario, the junction operates satisfactorily on all approaches at all stages of the completed development. In each case, the RFC is below the recommended maximum of 0.85. In addition, very minor queuing is only present on the British Library Access Road approach in the AM Peak of the completed development case.

6 Summary

The trip generation of the proposed development is calculated using the GIA as provided by Farrells. Of the two options provided, the trip generation has been calculated using the larger option, Option B in order to represent the worst case scenario. Two junction design options were also provided.

Based on the assumed GIA and estimated trip generation and the existing traffic flows along Midland Road, the junction of Midland Road and the British Library Access Road has been assessed using the junction modelling software PICADY.

The analysis has shown that for the Base Case at the existing junction layout, the junction operates satisfactorily with the RFC on all approaches below the recommended maximum of 0.85. In addition, there is little or no queuing present on all approaches.

The analysis shows that for the Assessment Case at the new junction layout, the junction operates satisfactorily and the RFC is below 0.85 on all approaches. There is little or no queuing present.