

Argent St George, London and  
Continental Railways and Exel  
**King's Cross Central**  
Transport Assessment

April 2004

**Appendix 8**

## 0. APPENDIX 8 – BUS ASSESSMENT

### 0.1 Introduction

0.1.1 This appendix provides additional background information on the analysis completed on bus passenger demand and capacity described in Chapter 12 of the TA.

0.1.2 The assessment of bus passenger demand and capacity was divided into four scenarios as follows:

- **Existing Case** – the current situation with patronage and service provision at 2003 levels.
- **Base Case** – taking forward the current situation to 2011 with no development, by including foreseen service enhancements and patronage growth forecasts.
- **Full development** – consists of the base case trips in 2011 as well as those arising from the full development.
- **Development excluding The Triangle** - consists of the base case trips in 2011 as well as those arising from the full development but excluding demand generated from the development of The Triangle site.

0.1.3 The proposed development is scheduled for completion in around 2020. In examining demand and capacity for the full development, the assessment adopted 2011 as the base year. Although service provision may increase between 2011 and 2020, Transport for London has only identified foreseen enhancements up to 2011. This approach does not account for potential improvement to the bus network and therefore provides a conservative estimate.

0.1.4 The existing bus patronage was extracted from the Bus Origins and Destinations Surveys (BODS) data collected by London Buses between 1996 and 2002. The average hourly level of existing demand was then determined for the time periods described below. These time periods were identified to be when the maximum demand would be generated by the development.

AM Peak (0800-0900)  
PM Peak (1700-1800)

0.1.5 On routes where BODS data is unavailable, demand was derived by KEYPOINT and BRICKS databases, provided by London Buses. Overall growths of 5%-20% for London were applied to the surveyed patronage to bring it up to the base year level in 2001, as shown in Table A.1. The growth rates were derived from the *Transport Statistics for Great Britain, 2002 edition*.

**Table A.1 Background Bus Passenger Kilometres Growth Factors**

Year	Growth Factor
1996 – 2001	1.18
1997 – 2001	1.19
1998 – 2001	1.16
2000 – 2001	1.09
2001 – 2001	1.00
2002 – 2001	0.95

Note: The extracted BODS data does not contain any survey conducted in 1999.

**0.1.6** For the purpose of assessment it has been important to allocate bus trips generated by the development into route corridors. This has been based on assumptions regarding the percentage of trips likely to be generated along each of the corridors and follows the same assumptions as the car based trips. Table A.2 gives detailed descriptions of the bus route and demand corridors.

**Table A.2: Bus Network By Corridors and By Routes**

Demand Corridor	Bus Route Corridor	Route numbers
East - Hackney, Angel	Pentonville Road	30 73 205 214 476 394
Southeast - City of London, Southwark	King's Cross Road/ Gray's Inn Road	17 45 46 63
Southwest - West End, Kensington	Euston Road	10 30 73 91 205 390
Northwest - Camden, Hampstead	Pancras Road	31 46 214
North - Archway	York Way	390
Northeast - Holloway, Tottenham	Caledonian Road/ Hemingford Road	17 91 153 259 274

**0.1.7** The bus trips generated by the development were assigned to an origin/destination made up of London Boroughs, which have bus connections to Kings Cross. Table A.3 shows how the bus trips were assigned to bus corridors for purpose of analysis.

**Table A.3 Distribution of peak hour bus trips generated by Kings Cross Central**

London Borough	Bus route corridor						Total
	Pentonville Road	King's Cross Road/ Gray's Inn Road	Euston Road	Pancras Road	York Way	Caledonian Road	
Camden		5%	20%	40%	30%	5%	100%
City	30%	70%					100%
Hackney	100%						100%
Hammersmith			100%				100%
Haringey	50%					50%	100%
Islington	45%	5%			10%	40%	100%
Kensington & Chelsea			95%	5%			100%
Lambeth		100%					100%
Southwark		100%					100%
Tower Hamlets	100%						100%
Westminster			85%	10%		5%	100%

**0.1.8** Tables A.4 and A.5 summarise bus passenger demand for the existing case and the base case and the capacity utilisation. Peak hour passenger capacities for the existing case were derived from the 2003 timetable information. For all routes that were not enhanced in association with the introduction of Congestion Charging, the Mayor's Transport Strategy target of a 40% increase in bus service provision between 2001 and 2011 has been adopted. This increase is assumed to occur steadily over the years at 3.4% per

annum. London Buses has indicated that this increase is likely to relate to an enhanced service frequency. The service frequencies shown in the 2003 timetables were therefore uplifted accordingly to produce the base case in 2011.

**0.1.9** It is important to note that a number of bus routes operate in more than one route corridor and are therefore included in each of the corridors they serve.

**0.1.10** Tables A.6 and A.7 identify what level of service improvements would be required to accommodate the additional bus trips generated by the development. The assessment was completed for the peak hour that experienced the greatest level of capacity constraint for the two corridors Pentonville Road and York Way. It identifies how service levels in these route corridors should be increase to accommodate the additional trips generated by the development.

**Table A.4 Existing Bus Passenger demand and Capacity Utilisation**

Route Corridor	Peak Hour capacity, 2003	Existing Demand, 2003				Utilisation, 2003			
		AM Peak		PM Peak		AM Peak		PM Peak	
		To	From	To	From	To	From	To	From
Pentonville Road	2484	1871	691	1360	1856	75%	28%	55%	75%
King's Cross Road/ Gray's Inn Road	1567	241	879	676	318	15%	56%	43%	20%
Euston Road	2935	333	1566	1744	636	11%	53%	59%	22%
Pancas Road	1315	214	431	208	421	16%	33%	16%	32%
York Way	404	339	64	73	392	84%	16%	18%	97%
Caledonian Road/ Hemingford Road	2079	987	440	477	794	47%	21%	23%	38%

**Table A.5 Base Case Passenger demand and Capacity Utilisation**

Route Corridor	Peak Hour capacity, 2011	Base case demand, 2011				Utilisation, 2011			
		AM Peak		PM Peak		AM Peak		PM Peak	
		To	From	To	From	To	From	To	From
Pentonville Road	2975	2449	904	1780	2429	82%	30%	60%	82%
King's Cross Road/ Gray's Inn Road	1898	316	1150	884	417	17%	61%	47%	22%
Euston Road	3516	436	2050	2282	832	12%	58%	65%	24%
Pancas Road	1673	280	564	273	550	17%	34%	16%	33%
York Way	529	444	83	96	513	84%	16%	18%	97%
Caledonian Road/ Hemingford Road	2516	1292	576	624	1040	51%	23%	25%	41%

**Table A.6 Scenario 1: Additional Frequency Required to Accommodate Full Development Demand**

Route Corridor	Base Case, 2011					Scenario 1 Full Development					Difference
	Peak Hour	Passenger Capacity	Passenger Demand	Extra Trips	Additional Frequency (buses per hour)	Peak Hour	Passenger Capacity	Passenger Demand	Extra Trips	Additional Frequency (buses per hour)	
Pentonville Road	AM	2083	2449	366	5	AM	2083	2752	669	8	3
York Way	PM	370	513	143	2	PM	370	582	212	3	1

**Table A.7 Scenario 2: Additional Frequency Required to Accommodate Development Demand (excluding The Triangle)**

Route Corridor	Base Case, 2011					Scenario 1 Full Development					Difference
	Peak Hour	Passenger Capacity	Passenger Demand	Extra Trips	Additional Frequency (buses per hour)	Peak Hour	Passenger Capacity	Passenger Demand	Extra Trips	Additional Frequency (buses per hour)	
Pentonville Road	AM	2083	2449	366	5	AM	2083	2749	666	8	3
York Way	PM	370	513	143	2	PM	370	558	188	3	1