

# **BRENT CROSS SOUTH – BUS SERVICE REQUIREMENTS**

## **JULY 2020**

### **Introduction**

1. This paper summarises TfL's bus requirements arising from the revised planning application for parts of Brent Cross development, now known as Brent Cross South (BXS). It is based on data provided by the applicant and discussions with both London Borough of Barnet and the applicant, Argent Related. It suggests bus service alterations that TfL believe will give the development an appropriate level of service, whilst still retaining good levels of service for the existing area.

### **Planning Context**

2. The outline permission granted permission for 1.4 million square metres of new development floor space, around 50% residential (circa 7,500 homes), around 28% would be office space, around 8% retail, and the balance a mix of hotel, leisure, community, industrial, waste and rail related. This is planned to be built over 15 years, now estimated to be completed by 2036, over seven phases.
3. In the October 2010 s106 agreement (incorporated in s73 s106, July 2014) payments for buses were linked to phases that assumed a new bus station adjacent to an expanded shopping centre and opening of a new Thameslink station, Brent Cross West (BXW), with its associated bus services subsequently.
4. The current plan is to open the train station earlier. The Thameslink phase has commenced on site, and aim is open the new station in 2022. This gives the opportunity to better integrate buses into the residential, employment and commercial heart of the development, and create better links to the wider community. The station design creates a new entrance to the west of the station, which needs new bus links, and may help shape how this area develops in the future.
5. It is a planning requirement to open a new interchange to serve the new rail station. One input is to agree and define the end state (2036) bus network and set out what would be needed when the rail station open.

### **Strategic modelling**

6. To understand future bus demand, the consultants have updated TfL demand models and Railplan, and created a "snapshot" assessment of assessment years in 2026, 2031 and 2036. The developers' aim is to develop the area in accordance with the Good Growth principles set out in the Intend to Publish London Plan, support active travel and Healthy Streets approach. The strategic modelling is based on these aspirational mode share assumptions, and the bus network will need be developed to support public transport use.

## Bus Network Planning

- The approach to the bus network approach has been based on analysis and discussion led by Steer with the developer, Barnet Council and TfL. The Railplan model includes future bus capacity and network assumptions. This has given an understanding of how we could develop the bus network to serve this development over the next 15 years and beyond. The aim would be to establish bus use at an early stage. The planning of the bus network will depend on the development of the road network, funding and consultation.
- TfL has reviewed the modelling outputs provided by the developer. The numbers forecast seem reasonable given the scale of development proposed at Brent Cross South (BXS). These numbers have been applied to existing demand to assess whether there will be any capacity issues created on the bus network due to the development. A review of services has also been undertaken to assess which routes should be rerouted and / or extended to serve BXS.

Buses from Brent Cross



Map 1: Current Brent Cross bus network

## Increased Capacity Requirements

- Map 1 shows the current bus network centred on Brent Cross Shopping Centre (BXSC). Base demand data has been collated for the routes in the area. This has identified the demand in the busiest hour for each route in each direction, up to 1.5 - 2 miles from BXS. This distance reflects the average length of ride on the

London bus network, which is about 2 miles. The modelled outputs for 2026 and 2036 have then been added to the base demand to assess whether the additional demand leads to crowding (see Appendix B).

10. There is generally spare capacity in the Brent Cross area, and it is not the busiest point on any route serving it. The relatively high level of service in the area is justified by the high number of trips to and from the shopping centre. Demand for this is reasonably spread across the day, so there are not particularly high peak loads.
11. The development will create crowding in 2026 on the C11 / 189 corridor. This is marginally worse on the 189 so an extra peak journey (to Brent Cross in the morning) will be required at this stage. By 2036 these problems worsen so an extra peak journey will be required on the C11.
12. There are no crowding issues created by the development on other corridors.

### **Service Change Options**

13. Potential alterations to these services have been the main focus of the planning work undertaken. In particular routes 16, 102, 112, 142, 143, 182, 186, 189, 210, 232, 266, 316, 324, 326 and C11 have been identified as possible routes to serve BXS and BXW. More details are contained in appendix A. Route 112 will be extended from BXSC to North Finchley on 29 August 2020.
14. Parts of BXS are currently remote from the bus network, being more than 400m from a 2-way bus service. Given the spare capacity in the area it will be possible to reroute some services to better serve the site.
15. It is expected that by 2024 there will be a new east-west road from roughly the junction of Claremont Road and Claremont Way to close to the Midland Main Line, a north-south road from there to the entrance of BXW station (Brent Terrace) and then a further east-west road back to Claremont Road (School Lane). Tempelhof Link will provide a direct connection between School Lane and Tempelhof Bridge (see appendix C). In the first 2 -3 years of the development only the southernmost east-west road and Brent Terrace will exist, requiring bus services to double run to serve the area.
16. The following sections split the possible service changes into geographical groups. They discuss the benefits and disbenefits of re-routeing / extending the various services in these groups and then recommend a number of service changes, explaining why certain routes were preferred over others. All passenger numbers used represent a typical Monday – Friday.

#### **North – South services**

17. Routes 102, 189 and C11 all currently serve Claremont Road and provide local links to Golders Green, Kilburn and West Hampstead respectively, as well as destinations further away along their routes. Re-routeing any of these is feasible.

18. If these services were rerouted via BXW and Tempelhof Link some trips to / and from the Mapledown School stops would no longer be possible without changing buses or walking about an additional 200m. This would affect 450 trips on the 102, 470 trips on the 189 and 410 trips on the C11. It is assumed that all the trips made to and from the existing stops near the junction of Claremont Road and Claremont Way could still be made as those stops could be relocated close to their current position.
19. In addition rerouting these services via BXW and Tempelhof Link would lead to longer journey times for some passengers accessing BXSC. This would affect 1,420 users of the 102, 1,200 users of the 189 and 750 users of the C11. There would be an increase of 1 mile on the round-trip distance without the Tempelhof Link and 0.5 miles with it. 1 mile is equivalent to about 6 minutes journey time. Passengers would therefore experience a longer journey time of 3 minutes without Tempelhof Link and 1.5 minutes with it.
20. Any of these service could be rerouted via School Lane and Tempelhof Link rather than Tilling Road and Tempelhof Bridge. This would allow them to serve BXS, but not BXW, without adding any additional journey time. If stops can be located near the junction of School Lane and Claremont Road they would replace the Mapledown School stops.
21. The modelling shows increases in demand between BXS / BXW and the north east, particularly as far as Hendon Central. 4 routes link Hendon Central and BXSC. These are the 143, 186, 324 and 326. Route 324 already runs beyond BXSC so is not suitable to serve BXS / BXW. However the other 3 could be extended to BXW as long as sufficient bus standing space was provided. There would be no significant disbenefit to existing passengers on these routes, although it should be noted that longer routes tend to be less reliable.

#### East - West services

22. Route 210 runs on a basically east west alignment, providing links to Golders Green, Highgate and beyond. It could be rerouted via School Lane and Tempelhof Link to serve BXS. If it were rerouted all of its existing stops would still be served. Around 2,000 people a day would have a 1.5 minute longer journey time due to the longer routeing.
23. Tilling Road, west of Tempelhof Bridge, is currently served eastbound by routes 112, 142, 182, 232 and 266 but there is no westbound service on it. This is partly due to the current road layout and partly due to the lack of development on Tilling Road. However, much of BXS will be within walking distance of Tilling Road. Running one or more of these routes in both directions along Tilling Road would create important direct journey opportunities for BXS.
24. The 112, 182 and 232 provide links to Neasden and beyond to the west. Routes 112 and 232 also provide links to the east along North Circular Road and on to North Finchley (route 112) or Wood Green (route 232). The 142 provides links to Edgware Road, Edgware and points north to Watford. The 266 provides links to the south west via Willesden and Park Royal to Acton.

25. If any of these services were rerouted westbound via Tilling Road their journey times would increase by around 7- 8 minutes, due to the longer distance travelled and the slower roads it would use. This would adversely affect 930 passengers on the 142, 1,270 on the 182, 620 on the 232 and 740 on the 266.

#### Edgware Road

26. BXW will also be accessible from west as it will be about 150m from Edgware Road. The possibility of extending the 16 or 316 from Cricklewood to BXW by terminating on Geron Way has been considered. The modelling undertaken shows that the current services on this part of Edgware Road provide enough capacity for the increases in demand forecast from the BXS development and the station itself.
27. However if other large-scale development on Edgware Road in the vicinity of North Circular Road occurs then extra capacity will be needed in the area. If the 16 or 316 were extended it would improve links to and from BXW and for people living and working in BXS.

#### Possible new routes

28. Three potential new services were also modelled. These had been discussed during the previous planning application process. Although they do provide some new direct bus links for BXS, they were designed primarily to provide new links for the previously proposed extension of BXSC. The modelling does not suggest that they add substantially to the network at this stage as they do not have many trips on their unique sections. Therefore none of these should be taken forward at this stage. This can be revisited if and when revised proposals to redevelop BXSC come forward.

### **Service Change Options Suggested**

#### North – South services

29. Once Tempelhof Link is open it is suggested that the 102 and C11 be rerouted to serve BXS via School Lane and Tempelhof Link. This will not adversely affect any existing passengers, if the northbound Mapledown School stop could be slightly relocated. There will be no change to operating cost changes as a result of this.
30. It is suggested that route 189 be rerouted to serve BXW and BXS. This will create direct bus links to and from Kilburn, Edgware Road and Marble Arch. It will also mean that BXW and BXS will have an all-night service. This rerouting will add about 1 mile to the round-trip distance without the Tempelhof link and 0.5 miles with it. 1 mile is equivalent to 6 minutes journey time and the route will therefore need an extra bus in the schedule.
31. Extending route 186 to BXW is not recommended. This is already a long route and an extension would have a particularly adverse effect on reliability. Therefore extending either the 143 or 326 has been considered. These run at the same frequencies and have the same routing between BXSC and Finchley Central. The 143 then runs to Archway and the 326 to Chipping Barnet. There is

little difference in the benefits of extending either route, so it is suggested that the 326 be extended.

32. It will be extended from BXSC via Prince Charles Drive, Tempelhof Bridge, Tempelhof Link, School Lane and Brent Terrace to BXW. Without Tempelhof link, extending the 326 would add about 2 miles to a round trip. This will be around 10 - 12 minutes additional time and will need an additional bus in the schedule. With Tempelhof Link it adds 1 mile which will still require an additional bus.
33. Route 324 will continue to terminate at Brent Cross Tesco. However, if that shop closes or relocates then it may make sense to reroute the 324 to terminate at BXW.

#### East - West services

34. Once Tempelhof Link is open the 210 will be rerouted via School Lane. This will add around 0.5 miles to a round trip, equivalent to 3 minutes additional journey time, so will not cost an extra bus.
35. Re-routeing the 112 is not a preferred option as this service is designed to provide fast longer-distance links across north west London by using the North Circular as much as possible.
36. Re-routeing the 142 brings less benefit to BXS than some other services. This is because there is no major centre on Edgware Road until Edgware itself, which is around 4 miles distant.
37. Re-routeing the 182 or the 232 would provide similar links to the west. The 232 also provides links to the east and therefore, although it operates at lower frequencies, rerouteing it will bring more benefit for BXS. Due to the increase in journey times it will require an additional bus in the schedule.
38. Re-routeing the 266 will create new links towards Willesden and Park Royal. It will require an additional bus to re-route it.

#### Edgware Road

39. Extending either the 16 or 316 from Cricklewood would have no negative passenger effects. The 16 probably offers better new links than the 316, providing a service to Edgware Road, Park Lane and Victoria. This is the preferred option.

#### **Bus Infrastructure Requirements**

40. From the opening of the Interim Transport Interchange, we will need 3 standing spaces on the east side of the Thameslink Station for up to 2 bus routes and fully accessible bus stop provision to support the specified bus frequency on both routes.

41. Conveniently located bus driver toilets and associated facilities will be required from the opening of the interchange within a 2-minute walking distance of the bus stands.
42. Bus stand and bus stop facilities for a similar level of bus service provision will also be required on the west side of the interchange.

### Costs and Timescales

43. The indicative network is costed below. These are the full gross costs of the service changes suggested above. This includes only half the cost of the 16 extension, given that it is only partly required for the BXS development.

Route	Requirement	Scheme	Cost	
			Per Annum	Total Contribution
16	Links	Extend from Cricklewood to BXW	£125,000	£625,000
102	Links	Reroute via School Lane & Tempelhof Link	£0	£0
189	Capacity	Run an additional journey in each peak	£90,000	£450,000
189	Links	Reroute via BXW and BXS	£250,000	£1,250,000
232	Links	Reroute via Tilling Road westbound	£220,000	£1,100,000
210	Links	Reroute via School Lane & Tempelhof Link	£38,000	£190,000
266	Links	Reroute via Tilling Road westbound	£250,000	£1,250,000
326	Links	Extend from BXSC to BXW via Templehof Bridge	£220,000	£1,100,000
C11	Capacity	Run an additional journey in each peak	£90,000	£450,000
C11	Links	Reroute via School Lane & Tempelhof Link	£0	£0
Total			£1,283,000	£6,415,000

Table 1: Cost Summary

44. The following timescale for introduction is suggested.

Trigger	Route	Scheme
First Occupation / Station Opens	16	Extend from Cricklewood to BXW
	189	Run an additional journey in each peak
	189	Reroute via BXW and BXS
	232	Reroute via Tilling Road westbound
	102	Reroute via School Lane & Tempelhof Link
Tempelhof Link opens	210	Reroute via School Lane & Tempelhof Link
	326	Extend from BXSC to BXW via Templehof Bridge
	C11	Reroute via School Lane & Tempelhof Link
In 2030	266	Reroute via Tilling Road westbound
	C11	Run an additional journey in each peak

Table 2: Introduction Phasing

45. The table below shows the s106 funding required by trigger point.

Trigger	Routes	S106 Payment
First Occupation / Station Opens	16, 189 & 232	£3,425,000
Tempelhof Link opens	102, 210, 326 & C11	£1,290,000
In 2030	266 & C11	£1,700,000
Total		£6,415,000

Table 3: s106 Triggers

46. The above suggests an indicative bus network that would be suitable for providing good bus coverage for Brent Cross South. It also suggests a timetable for introduction of service changes. All service changes will be subject to TfL's financial and statutory duties, including undertaking consultation. Therefore this document does not contain proposals to change services and it needs to be recognised that the network that will be implemented may vary from that suggested here.



## APPENDIX A – Current route termini and frequencies (buses per hour)

	Present frequencies & structure			
	AM Peak	Mid day	PM Peak	Eve
<u>Route 16</u>				
<i>MF</i>				
Cricklewood Bus Garage - Victoria	8	8	8	6/5
<i>Sat</i>				
Cricklewood Bus Garage - Victoria	5/6	8	8	6/5
<i>Sun</i>				
Cricklewood Bus Garage - Victoria	4/6	6	6	6/5
<u>Route 102</u>				
<i>MF</i>				
Edmonton Green Bus Station - Brent Cross Shopping Centre	7.5	7.5	7.5	5
<i>Sat</i>				
Edmonton Green Bus Station - Brent Cross Shopping Centre	4/5	7.5	7.5	5
<i>Sun</i>				
Edmonton Green Bus Station - Brent Cross Shopping Centre	4	5	5	5
<u>Route 112 - from 29 August 2020</u>				
<i>MF</i>				
Ealing Broadway - North Finchley	6	6	6	4/3
<i>Sat</i>				
Ealing Broadway - North Finchley	3/4	6	6	4/3
<i>Sun</i>				
Ealing Broadway - North Finchley	2/3	4	4	3
<u>Route 142</u>				
<i>MF</i>				
Watford Junction Station - Brent Cross Shopping Centre	5	5	5	4/2
<i>Sat</i>				
Watford Junction Station - Brent Cross Shopping Centre	3/5	5	5	4/2
<i>Sun</i>				
Watford Junction Station - Brent Cross Shopping Centre	2/4	4	4	3/2

**Present frequencies & struc**

**AM Mid PM Eve**  
**Peak day Peak**

Route 143

*MF*

Archway Station

Brent Cross Shopping Centre 5+ 5 5+ 5/4

*Sat*

Archway Station

Brent Cross Shopping Centre 3/4 5 5 5/4

*Sun*

Archway Station

Brent Cross Shopping Centre 3/4 4 4 4

Route 182

*MF*

Harrow Weald -

Brent Cross Shopping Centre 7.5 7.5 7.5 6

*Sat*

Harrow Weald -

Brent Cross Shopping Centre 4/6 7.5 7.5 6

*Sun*

Harrow Weald -

Brent Cross Shopping Centre 3/4 6 6 6

Route 186

*MF*

Northwick Park Hospital -

Brent Cross Shopping Centre 5 5 5 4/3

*Sat*

Northwick Park Hospital -

Brent Cross Shopping Centre 3/5 5 5 3

*Sun*

Northwick Park Hospital -

Brent Cross Shopping Centre 2 3 3 3

Route 189

*MF*

Marble Arch -

Brent Cross Shopping Centre 6 6 6 5

*Sat*

Marble Arch -

Brent Cross Shopping Centre 4/5 6 6 5

*Sun*

Marble Arch -

Brent Cross Shopping Centre 4 5 5 5

*Nightly*

Marble Arch -

Brent Cross Shopping Centre 2

**Present frequencies & structure**

	<b>AM Peak</b>	<b>Mid day</b>	<b>PM Peak</b>	<b>Eve</b>
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Route 210

*MF*

Finsbury Park Station -

Brent Cross Shopping Centre

6	6	6	6/5
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*Sat*

Finsbury Park Station -

Brent Cross Shopping Centre

4/6	6	6	6/5
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*Sun*

Finsbury Park Station -

Brent Cross Shopping Centre

4/5	5	5	5
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Route 232

*MF*

Turnpike Lane Station -

St. Raphaes Estate

5	5	5	3
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*Sat*

Turnpike Lane Station -

St. Raphaes Estate

3/4	5	5	3
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*Sun*

Turnpike Lane Station -

St. Raphaes Estate

3	3	3	3
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Route 266

*MF*

Acton, Old Town Hall -

Brent Cross Shopping Centre

7.5	7.5	7.5	4
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*Sat*

Acton, Old Town Hall -

Brent Cross Shopping Centre

4/5	7.5	7.5	4
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*Sun*

Acton, Old Town Hall -

Brent Cross Shopping Centre

3/4	5	5	4
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Route 324

*MF*

Stanmore Station -

Brent Cross Tesco

3	3	3	3/2
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*Sat*

Stanmore Station -

Brent Cross Tesco

3	3	3	3/2
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*Sun*

Stanmore Station -

Brent Cross Tesco

2/3	3	3	2
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**Present frequencies & structure**

	<b>AM Peak</b>	<b>Mid day</b>	<b>PM Peak</b>	<b>Eve</b>
<u>Route 326</u>				
<i>MF</i>				
Barnet The Spires - Brent Cross Shopping Centre	5+	5	5	5/4
<i>Sat</i>				
Barnet The Spires - Brent Cross Shopping Centre	3/4	5	5	5/4
<i>Sun</i>				
Barnet The Spires - Brent Cross Shopping Centre	2/3	4	4	4
<u>Route C11</u>				
<i>MF</i>				
Archway Station - Brent Cross Shopping Centre	6	6	6	5/3
<i>Sat</i>				
Archway Station - Brent Cross Shopping Centre	3/5	6	6	5/3
<i>Sun</i>				
Archway Station - Brent Cross Shopping Centre	3	5	5	4/3

## APPENDIX B – Capacity Summary

2026	Current Spare Capacity				Modelled trips				Post Development Spare Capacity			
	AM to BX	AM from BX	PM to BX	PM from BX	AM to BX	AM from BX	PM to BX	PM from BX	AM to BX	AM from BX	PM to BX	PM from BX
C11	130	105	188	142	39	125	85	131	91	-20	103	12
189	39	285	157	275	71	71	78	78	-32	215	79	197
266	374	207	323	234	43	25	29	23	331	182	294	211
182 / 232 (W)	504	433	469	445	60	61	123	101	444	372	346	344
112	379	318	324	300	42	42	28	42	337	276	296	258
Edgware Rd (N)	318	453	395	437	76	76	54	54	242	377	341	383
Edgware Rd (S)	270	153	230	192	104	49	76	90	166	104	154	102
Hendon Central	274	433	422	274	89	65	51	169	186	369	372	106
210	327	150	230	257	25	10	42	29	302	140	188	228
102	283	223	311	318	82	65	48	87	201	158	263	231

2036	Base Spare				Modelled trips				Spare - New			
	AM to BX	AM from BX	PM to BX	PM from BX	AM to BX	AM from BX	PM to BX	PM from BX	AM to BX	AM from BX	PM to BX	PM from BX
C11	130	105	188	142	122	204	117	163	9	-99	72	-21
189	39	285	157	275	118	118	187	187	-79	168	-30	88
266	374	207	323	234	100	58	68	62	274	149	255	172
182 / 232 (W)	504	433	469	445	161	154	129	120	343	279	340	325
112	379	318	324	300	50	117	48	48	329	201	276	252
Edgware Rd (N)	318	453	395	437	119	64	29	55	199	389	366	382
Edgware Rd (S)	270	153	230	192	173	113	105	105	97	40	125	87
Hendon Central	274	433	422	274	150	104	141	193	124	329	281	82
210	327	150	230	257	52	177	71	171	275	-27	159	87
102	283	223	311	318	119	17	60	54	164	206	251	264

## APPENDIX C – Proposed road layout

