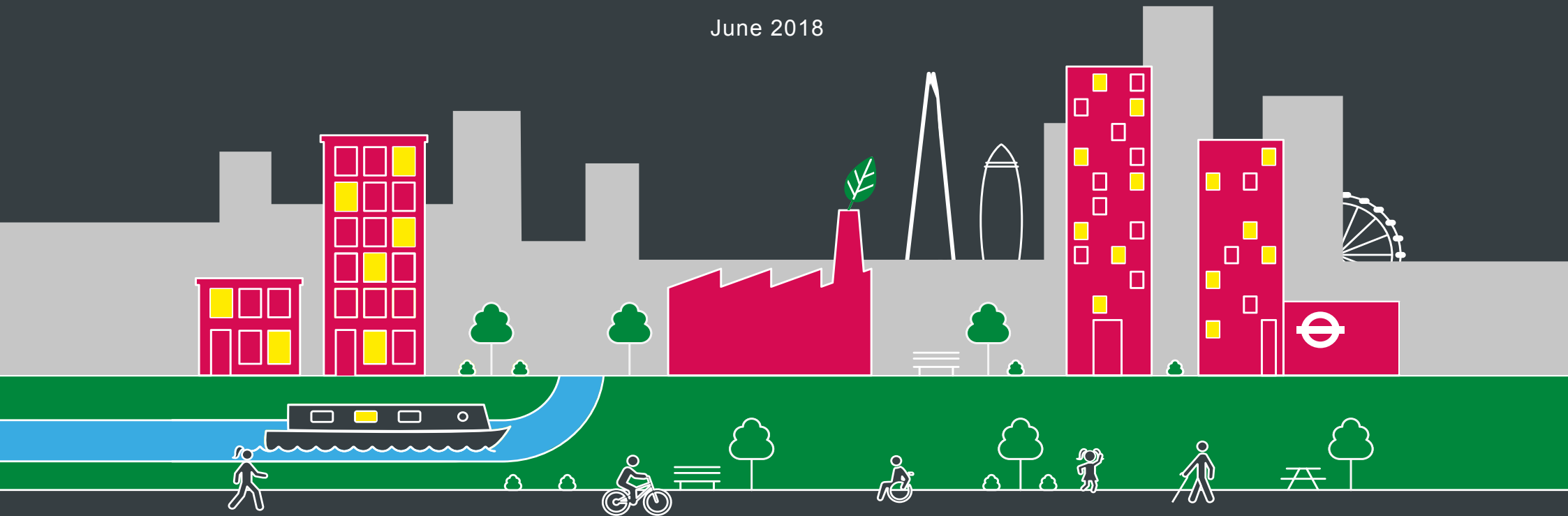


OPDC
OLD OAK AND
PARK ROYAL
DEVELOPMENT
CORPORATION

Bus Strategy

LOCAL PLAN SUPPORTING STUDY

June 2018



MAYOR OF LONDON

5. Bus Strategy

Document Title	Bus Strategy
Lead Author	Transport for London
Purpose of the Study	To identify the indicative bus network and capacity requirements over the course of the development of the Old Oak and Park Royal Opportunity Area
Key outputs	• Old Oak– Bus Network Requirements at Early Activation study • Delivery profile for route adjustment and capacity changes including complementary structures (such as temporary bus stands, routes) • Route planning including trip generation (demand estimates), frequency requirements and cost and revenue forecasting. • Delivery timescales and service profile
Key recommendations	• Provision of additional routes and capacity enhancements • Changes to routes to enhance journey time efficiency • Phased approach to provide capacity enhancements generated by the completion of key developments
Key changes made since Reg 19 (1)	• Update to reflect changes to the road network and development phasing
Relations to other studies	Outputs cross-relate to the Old Oak Strategic Transport Study, Park Royal Transport Strategy and Old Oak North Development Framework Principles
Relevant Local Plan Policies and Chapters	• Strategic Policy SP7 Connecting People and Places • Transport Chapter T6 Buses • Old Oak & Park Royal Regeneration: Indicative Bus Network & Infrastructure Requirements (2016)

Old Oak Bus Network: 2018- 2026+

February 2018

TfL Bus Network Planning



EVERY JOURNEY MATTERS

Overview and Network Aspirations



- Britain's largest infrastructure project including a major new rail station that will also be a bus hub.
- An end-state bus strategy to guide infrastructure requirements was completed earlier in 2017.
- Transport for London's (TfL) Public Transport Service Planning are working closely with OPDC to develop strategy and indicative network. This is an iterative process where infrastructure and bus service requirements have been identified while development plans are emerging.
- Bus service ideas and infrastructure have been split into phases to coincide with OPDC's vision/projections for the site.
- A separate study will be undertaken for Park Royal.



Bus Network Vision for the Area

Main principles:

- Support the development site through reliable bus services that match capacity to demand.
- Connect development and new rail stations to the surrounding area to spread these benefits. Focus on connecting to rail hubs, local town centres, schools, hospitals, particularly for links where rail connections are not available.
- Secure infrastructure to run a reliable and cost-effective network. HS2 Bus Station is planned to be the bus network hub to spread the catchment of the proposed major rail station.
- A cost-effective network that balance the need for capacity and links against value for money.



Phasing & Bus Network Response

The existing network has been analysed in the context of OPDC phasing starting from around year 2020.

Before then in December 2018, bus network changes in response to the Elizabeth line serving at Acton Main Line are planned and development at Wembley.

Therefore, the evolution of the bus network for Old Oak is split into the following four indicative phases:

- Phase 0 – Elizabeth line introduction (2018-19)
- Phase 1 - Early activation of Old Oak (2020-24)
- Phase 2 - Unlocking the North (circa 2024-2025).
- Phase 3 - HS2 Station, GWR, Elizabeth Line opening (2026+).

Each indicative phase have been developed by adding service changes from the end-state aspirational network that integrates Old Oak with the extensive network surrounding the site. These are tested in Railplan, validated against current bus data, before determining what volume of service is required to meet demand and what links to the surrounding area need to be prioritised.

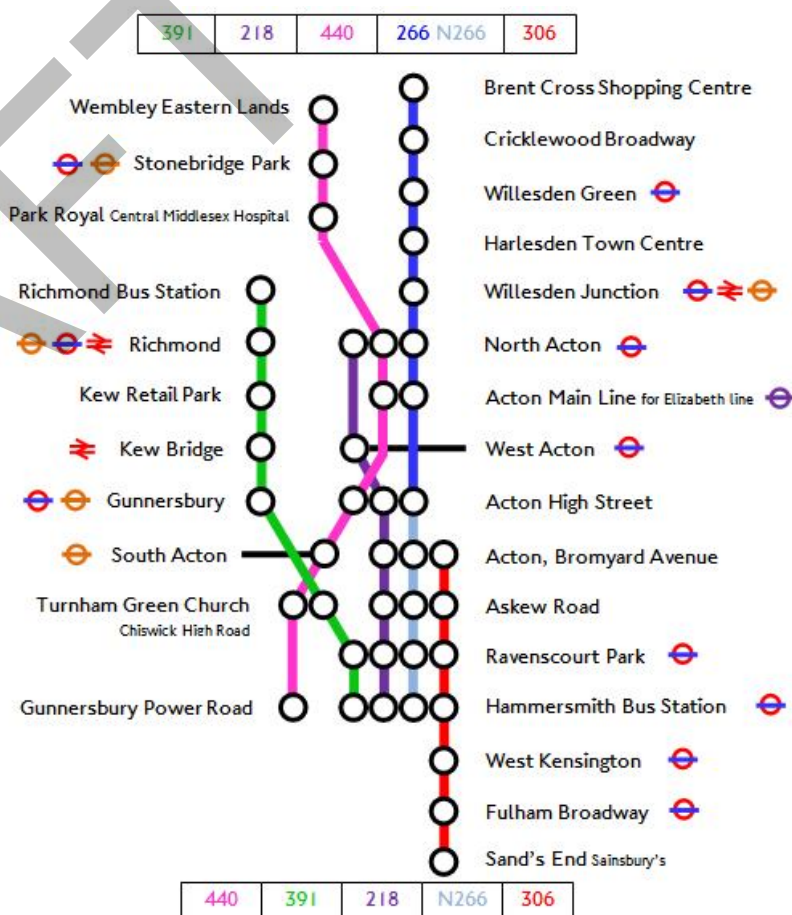


Phase 0 – Linking the Elizabeth line in 2018-19

Major changes are planned in December 2018 to improve links to the Elizabeth line, among other benefits across West London.

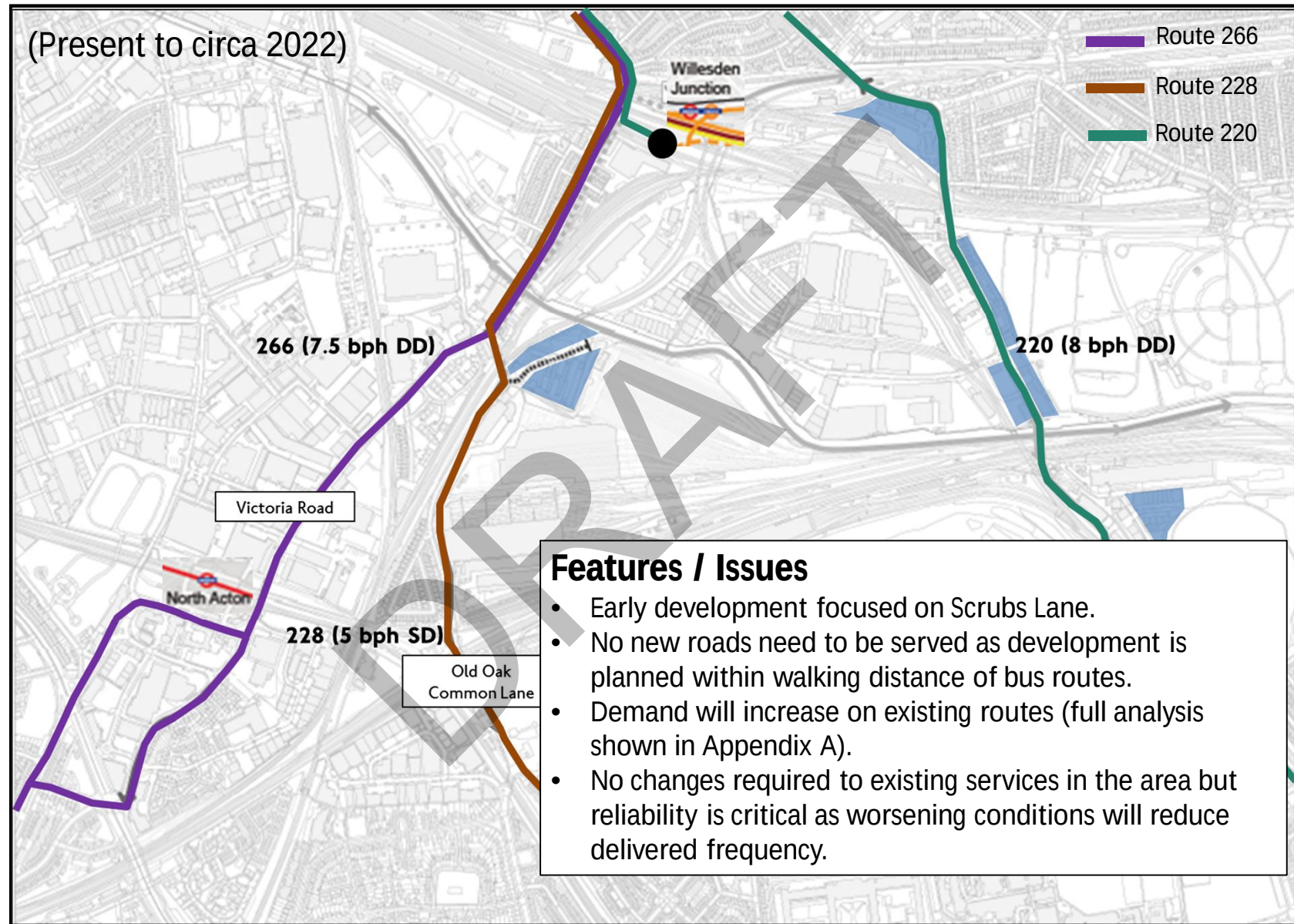
The key changes that impact Old Oak and the surrounding area are:

- Splitting the 266 into two to provide a more reliable route via Victoria Road and Old Oak Lane linking to Harlesden, North Acton and Acton Main Line station for the Elizabeth line.
- Major changes to the 440 to create a new orbital link between the Elizabeth line, Park Royal and Wembley among other places.
- Creation of new route 218 between Hammersmith and North Acton to cover the southern end of the 266. It would be extended to serve Old Oak Common in phase 2.



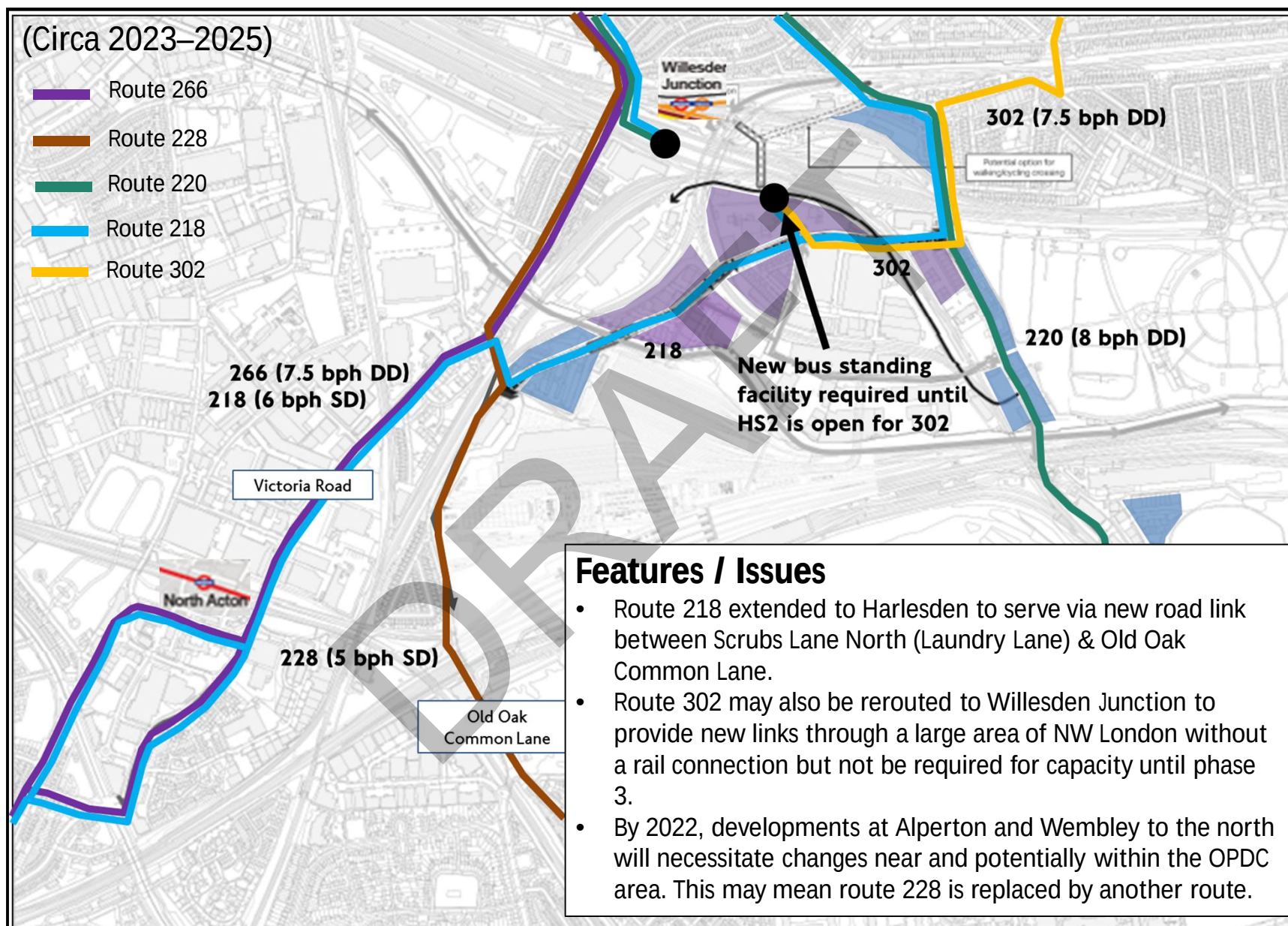
Indicative Phase 1: Early Activation

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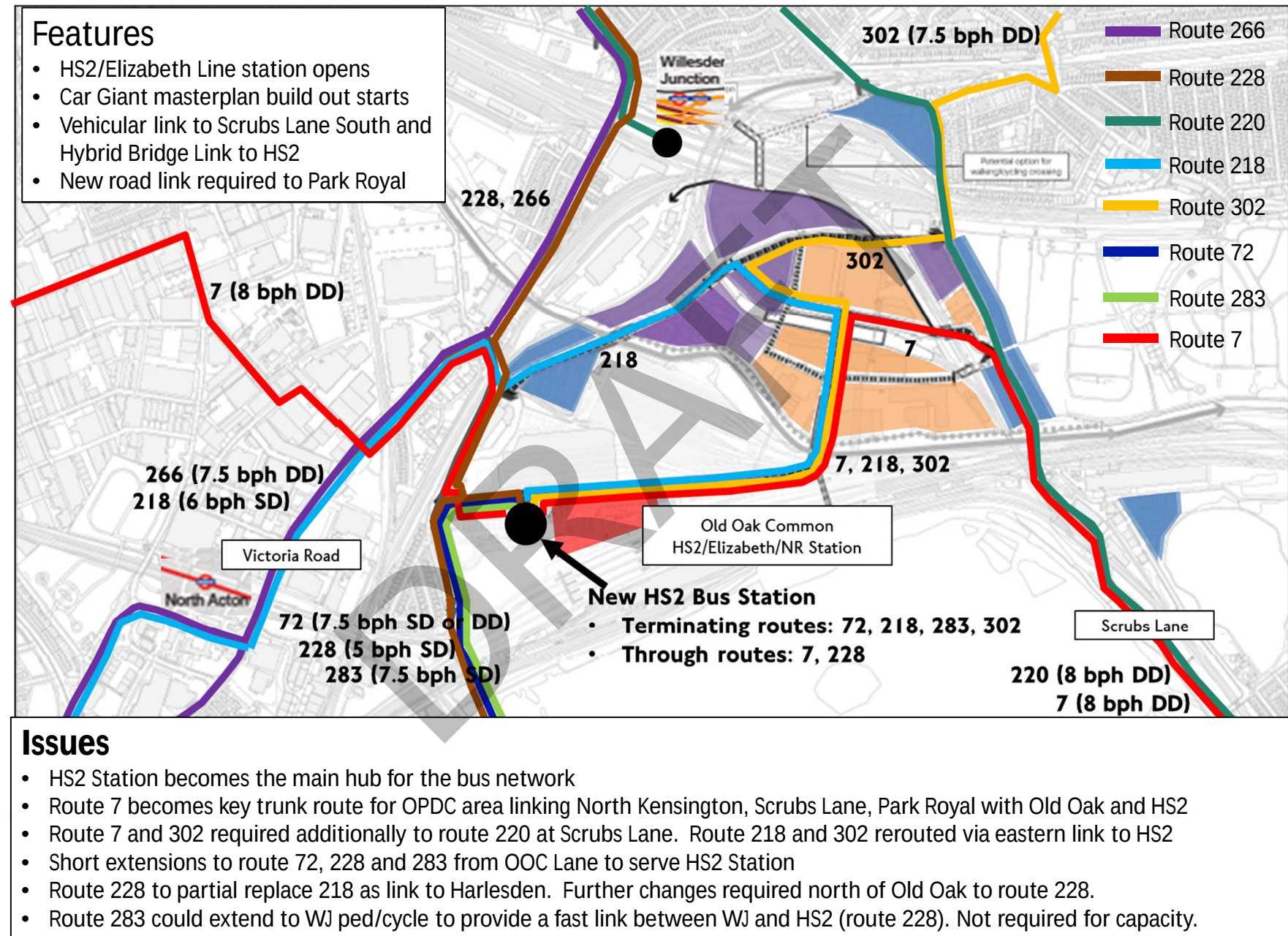
Indicative Phase 2: Unlocking the North

7



Indicative Phase 3: 2026+ (HS2 Station & Old Oak North)

8



Infrastructure Issues/Limitations

9

The indicative network is dependent on the following:

- At Phase 2, standing facilities for 2 vehicles (1 route) at both Harlesden Town Centre and Old Oak North next to pedestrian link to Willesden Junction are required. If the latter is delivered, 2 less vehicles (-1 route) would need to stand at the HS2 station if route 283 were at Phase 3.
- A new bus station / passenger facilities next to the proposed HS2 including standing for 8 vehicles (4 routes), driver toilets/mess room and stops for 6 routes at Phase 3.
- Delivery of highway links to a suitable standard for double-deck buses.

Some ideas from the end-state bus strategy for improved connectivity and capacity are not deliverable within these scenarios:

- No single bus route can serve Harlesden-WJ station entrance-Old Oak North-HS2 resulting in missing direct links (WJ to HS2) or less efficient/more costly network.
- New route 7 needs a new direct highway link between the key hubs of Park Royal and HS2. This is of great importance to Park Royal as it has no rail station. A do-minimum is for a contra-flow bus lane on Chandos Road to provide a continuous two-way road link.
- Further changes are likely to be required to the north of Old Oak and Park Royal to improve connectivity into the area.



Indicative Costs by Phase

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Below is a summary of additional operating costs to deliver the indicative network at each phase. This is an annualised increase in cost to the operation of the bus network and does not include bus infrastructure or revenue. Revenue would offset an increasing proportion of the operating cost over time as routes get busier.

- **Phase 0:** Costs not applicable to OPDC area.
- **Phase 1:** No changes provided reliability and bus speeds on route 220 is maintained.
- **Phase 2:**
 - Extension of route 218 to Harlesden. +4-5 vehicles, £1.25m p.a.
 - Extension of route 302 to Old Oak North. +3-4 vehicles, £1m p.a.
- **Phase 3:**
 - Extension of route 7 to Central Middlesex Hospital via Old Oak. +4-5 vehicles, £1.25m p.a.
 - Reroute 218 and 302 to HS2 via Eastern Assurance Link. -2 vehicles, -£0.5m as a step from Phase 2.
 - Short reroute to 228. +1 vehicle, £0.25m p.a.
 - Short extensions of routes 72 and 283 from Brunel Industrial Estate. +2 vehicles, £0.5m p.a. total.



Further Options for Phase 3 and Beyond

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Below is a summary of further options during Phase 3 and beyond that would improve connectivity in the area.

- Extension of route 283 to WJ station Old Oak North entrance (required to connect WJ and HS2 in the absence of a rail connection). +2-3 vehicles, £0.75m p.a.

OR

- Save at least £1.25m (-5 vehicles) compared to the above and unlock land by removing the need for any standing at WJ if a bus enabled bridge were built between Old Oak North and WJ over the WCML. It would allow routes 220 and 302 to provide high frequency and quicker journey times connections between OOC/HS2 and Harlesden/WJ spreading the benefits of regeneration north.



EVERY JOURNEY MATTERS

Summary

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- **Phase 0: Changes to the bus network will take place in December 2018 to improve connections to the Elizabeth line at Acton Main Line**
- **Phase 1: Improvements are required to reliability for route 220 to meet capacity needs.**
- **Phase 2: Bus route changes are required to serve the proposed Old Oak North highway connection along with a new bus stand if route 302 extended.**
- **Phase 3: Major changes are required to link new HS2 station to the surrounding area and meet growing demand.**
- **Highway connections with bus priority are required to deliver a high quality and cost-effective service.**
- **The main public transport connectivity issue is connecting HS2/OOC with Park Royal and WJ/Harlesden. A direct road connection between these would allow a far better and cheaper network to operate.**
- **Further work needs to be done to determine requirements for Park Royal**
- **Post-2026 the indicative network is forecast to require further capacity in the 2030s.**



Appendix A – Early Activation Study

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EVERY JOURNEY MATTERS

Old Oak Common – Bus Network Requirements at Early Activation Phase

September 2017

TfL Bus Network Planning



EVERY JOURNEY MATTERS

1. Introduction

- Old Oak Common and Park Royal is the UK's Largest Regeneration Area – 650 hectare site.
- By 2026 the site is expected to deliver:
 - New mixed use developments on Cargiant and Genesis sites plus many other smaller ones.
 - New HS2, Elizabeth Line and GWR rail station and a new bus station.
 - New London Overground stations at Hythe Road (Cargiant site) and Old Oak Common Lane on the West London Line.
 - New highway alignments and connections.
 - Intensification of Park Royal with some new residential development.
- Bus Network Planners are working closely with Old Oak Park and Park Royal Development Corporation (OPDC).
- A high level indicative bus network has been developed to utilise the new infrastructure and meet the new travel demand.

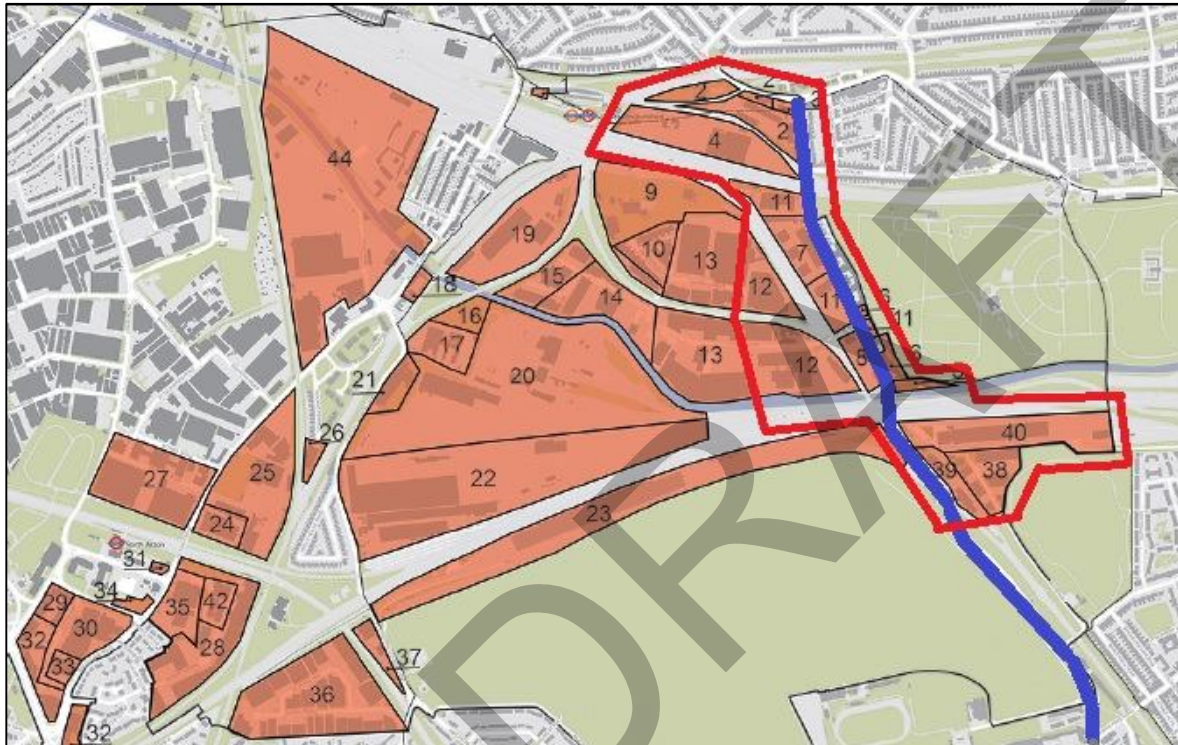


2. Update – Scrubs Lane prior to 2026

- Pre 2026, development around Old Oak Common is set to be concentrated on Scrubs Lane and land south of Willesden Junction Station, delivering 2,400 Residential units, 2,500m² Retail space, 27,000m² Office space and generating around 1,300 Jobs.
- By 2026 this is estimated to generate:
300 new bus trips during each peak on Scrubs Lane; southbound in the AM peak hour and northbound in the PM peak hour.
- Above data based on predictions supplied by OPDC and from individual Transport Assessments submitted from development applications submitted so far.



3. Scrubs Lane - Development Sites



Blue Line indicates alignment of Scrubs Lane

Applicable Scrubs Lane developments are shown within the red line. The included developments are:

- a) Within walking distance of Scrubs Lane
- b) Expected to be occupied prior to any significant highway changes.



4. Bus Route 220 - Summary

- Termini: Wandsworth Town – Willesden Junction Station
- Double-Deck Buses
- New contract: 21st Oct 2017
- Contract Renewal expected in 2022 or 2024 subject to performance
- Current service levels:
 - Peak frequency – 9 buses per hour (10 bph in peak hours)
 - Interpeak / Sat frequency – 7.5 bph
 - Sunday frequency – 6 bph



5. Bus Route 220 – Reliability & Capacity

- Although the route as a whole is meeting it's minimum performance target, the performance on Scrubs Lane is poor during peak periods.
(Average Excess Wait Time of 2.5 mins against a target of 1.4).
- Early curtailments occur on route 220 during the peak periods northbound so the actual service level may sometimes be much lower than the scheduled 10 bph.
- Reliability on Scrubs Lane may deteriorate further with delivery of CS9 (Hammersmith) and CS10 (Wood Lane), and the increased traffic on Scrubs Lane and Wood Lane as new developments become occupied.
- The busiest hours on Scrubs Lane are southbound in the AM peak and northbound in the PM peak:

7 bph required / 10 bph scheduled in busiest hour

Table below shows expected changes in demand based on planned developments:

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
New Trips Generated (in each peak hour)	0	24	84	118	142	154	170	211	265	309
BPH Required	6.8	7.1	7.8	8.2	8.4	8.6	8.7	9.2	9.8	10.2



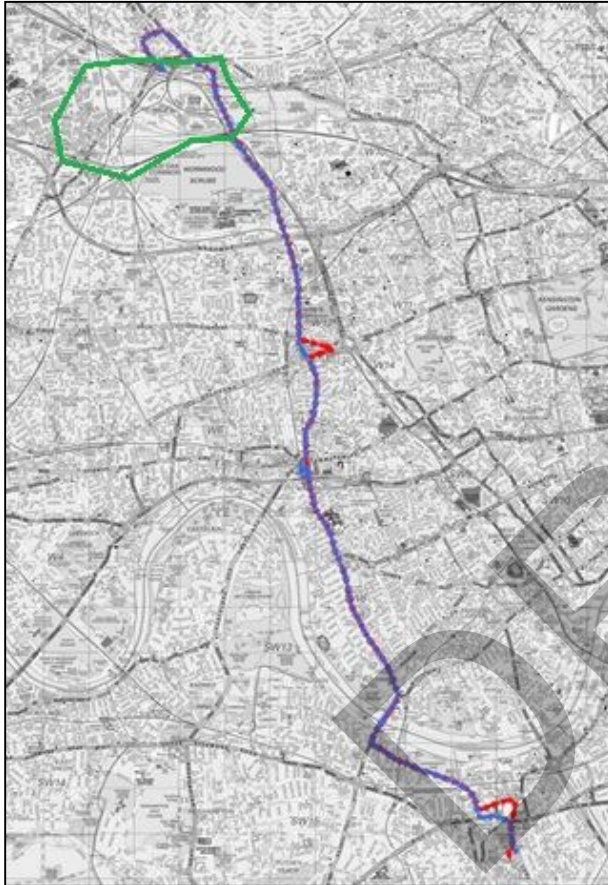
6. Bus Route 220 – Reliability & Capacity

Conclusion:

- Based on current trip generation predictions, demand for route 220 along Scrubs Lane will increase by 3 or 4 bph.
- This means peak hour demand will be around 10 bph which matches the current scheduled provision. (This initial analysis will be reviewed as Transport Assessments are received for each development)
- However bus priority on Scrubs Lane is essential to ensure that the scheduled service levels can be delivered in reality, with no curtailments.
- If additional bus provision is required to meet passenger demand prior to 2026, this will cost around £250,000 per bus per year.



7. Bus Route 220 - Links



The route already provides a variety of links to the surrounding area:

Northbound to:

- The nearest town centre at Harlesden (for connection to many other bus routes)
- Willesden Junction Station (for London Overground and Bakerloo line)

Southbound to:

- Wood Lane and White City stations (for Central, Circle and Hammersmith & City lines)
- Shepherd's Bush
- Hammersmith
- Fulham
- Putney
- Wandsworth Town Centre

Blue line indicates alignment of route 220

Green outline indicates the Old Oak Common opportunity Area



8. Update – Old Oak Common Lane & Victoria Road, prior to 2026

- Pre 2026, a portion of land will also be developed adjacent to Old Oak Common Lane. The developments will be within walking distance of bus stops served by routes 228 and 266.
- The developments are predicted to deliver 850 Residential units, 3,000m² Retail space, 7,000m² Office space and generate around 400 new jobs.
- By 2024 this is estimated to generate:

168 new bus trips on each bus route on Old Oak Lane/Victoria Road; southbound in the AM peak hour and northbound in the PM peak hour.

As with Scrubs Lane, the above data is based on predictions supplied by OPDC. Separate schemes to restructure routes 266, 440 and introduce route 218 are planned to start in 2018-2019 to meet growth in and around North Acton station.



4. Bus Routes 228 & 266 - Summary

Route 228

- Termini: Central Middlesex Hospital – Maida Hill, Chippenham Gardens
- Single-Deck Buses
- Contract Renewal expected in 2019 or 2021 subject to performance
- Current service levels:
 - Peak, Interpeak / Sat frequency – 5 buses per hour (bph)
 - Sunday frequency – 3 bph

Route 266

- Termini: Brent Cross Shopping Centre – Hammersmith Bus Station
- Double-Deck Buses
- Contract Renewal expected in 2022 or 2024 subject to performance
- Current service levels:
 - Peak, Interpeak / Sat frequency – 7.5 buses per hour (bph)
 - Sunday frequency – 6 bph



9. Bus Routes 228 & 266 – Reliability & Capacity

- Over the last 12 months both routes have failed to meet their minimum performance targets along sections adjacent to Old Oak Common.
- This indicates that curtailments are a feature and that actual service levels may be lower than scheduled.
- Reliability on Old Oak Common Lane and Victoria Road may deteriorate further with the increased traffic generated by the new developments.
- The busiest hours on Old Oak Lane/Victoria Road are southbound in the AM peak and northbound in the PM peak :

Route 228: 2 bph required / 5 bph scheduled in busiest hour

Route 266: 4.5 bph required / 7.5 bph scheduled in busiest hour

Table below shows expected changes in demand based on planned developments:

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
New Trips Generated (on each route in each peak hour)	0	9	18	27	29	40	45	45	45
BPH Required on route 228	2	2.2	2.4	2.6	2.6	2.9	3.0	3.0	3.0
BPH Required on route 266	4.5	4.6	4.8	4.9	4.9	5.1	5.2	5.2	5.2



9. Bus Routes 228 & 266 – Reliability & Capacity

Conclusion:

- Based on current trip generation predictions, demand on routes 228 and 266 along Old Oak Common Lane/Victoria Road will increase by 1 bph
- This means peak hour demand remain within the capacity of the scheduled service levels.
- Bus priority on this corridor may be required to ensure that the scheduled service levels can be delivered in reality, with no curtailments.
- If additional bus provision is required to meet passenger demand prior to 2026, this will cost around £250,000 per bus per year.



11. Potential New Infrastructure – Pre 2026

- In 2026, it is envisaged that major structural changes to bus services in the area would be required. Some of which would add services to Scrubs Lane, Old Oak Common Lane, and the new highway infrastructure in the centre of the site. All proposed eastern accesses to OOC would lead to Scrubs Lane.
- Pre-2026, there are plans emerging for the north side of OOC to be ‘unlocked’ by a new east-west road (Laundry Lane) between Scrubs Lane and Old Oak Common Lane. This would form a further study for potential bus network changes, circa 2023-2026.



12. Next Steps

- Continue to monitor route 220 and the Scrubs Lane development sites.
- Feed into separate bus priority study covering highways in the area.
- Reliability of route 220 will be reviewed periodically as various road space schemes are delivered, e.g. CS9, CS10 and developments on Wood Lane.
- Trip Generation data will be reviewed as and when further Transport Assessments are received from each development on Scrubs Lane.
- Routes 228 and 266 will also be monitored for reliability and capacity pre-2023.

