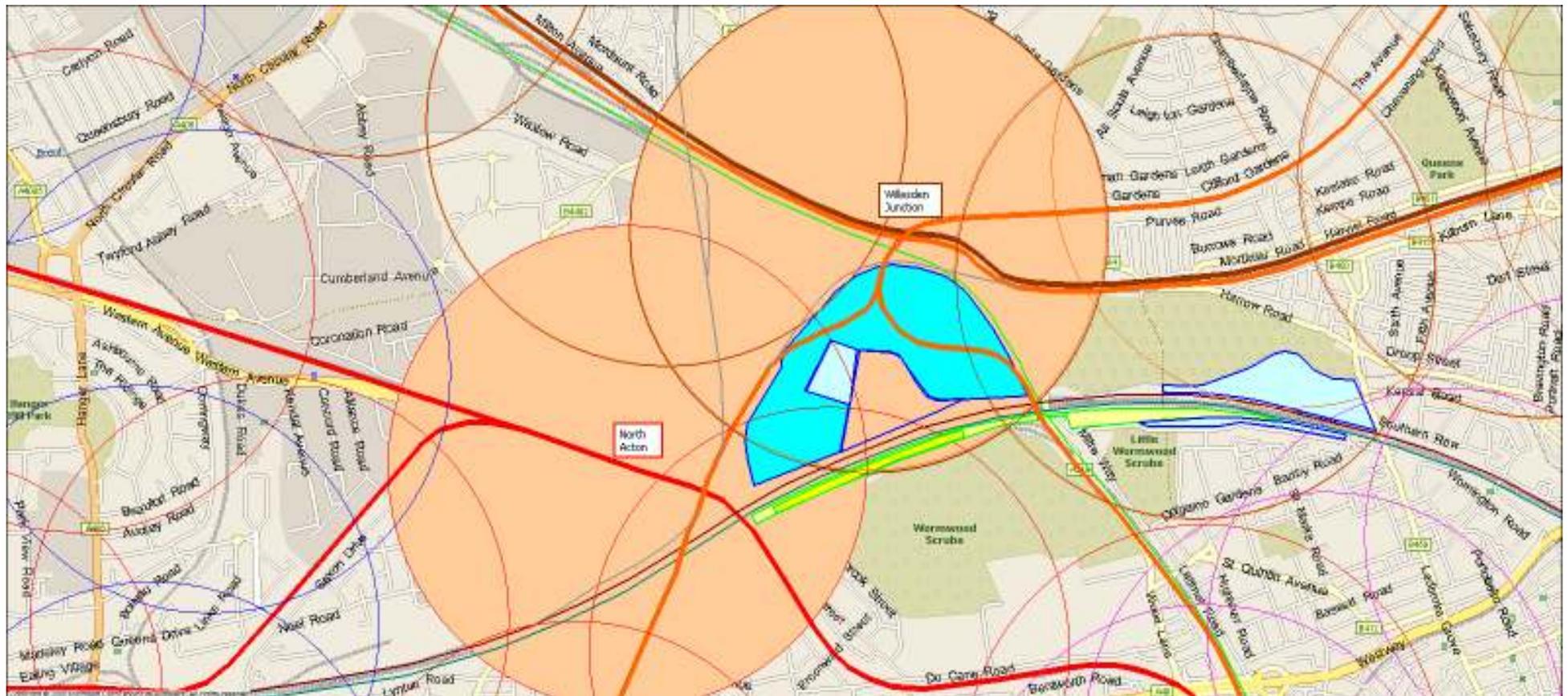




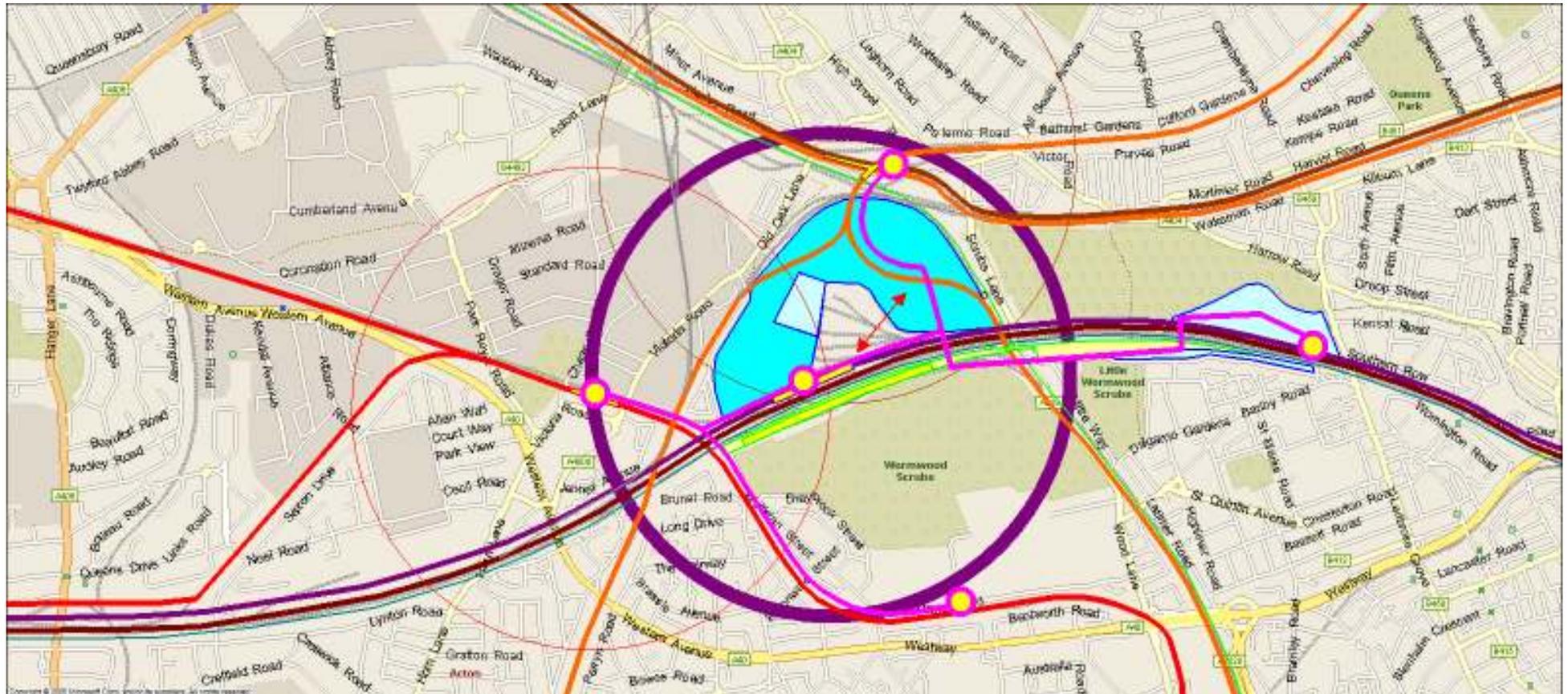
## NOW (2011) – Old Oak Central area



- Circles show 1 kilometre radius from station entrances = approximate walking catchment (actual catchment will depend on streets/paths).
- 2011 stations serving Old Oak area shown in pink: North Acton (Central Line), Willesden Junction (Bakerloo Line, London Overground incl Orbital lines from Richmond/West London/North London)
- Notional Old Oak Central development catchment shown in background (in bright blue). Lands at Kensal in light blue.
- Former Eurostar North Pole depot and sidings (yellow) assumed to be used until 2018 for Hitachi Intercity Express train testing, then GW services.
- Railways serving catchment stations shown as thick lines, other passenger lines shown thin.



## 2018 RADIAL STATION ONLY – Old Oak Central area and early Transit shuttles



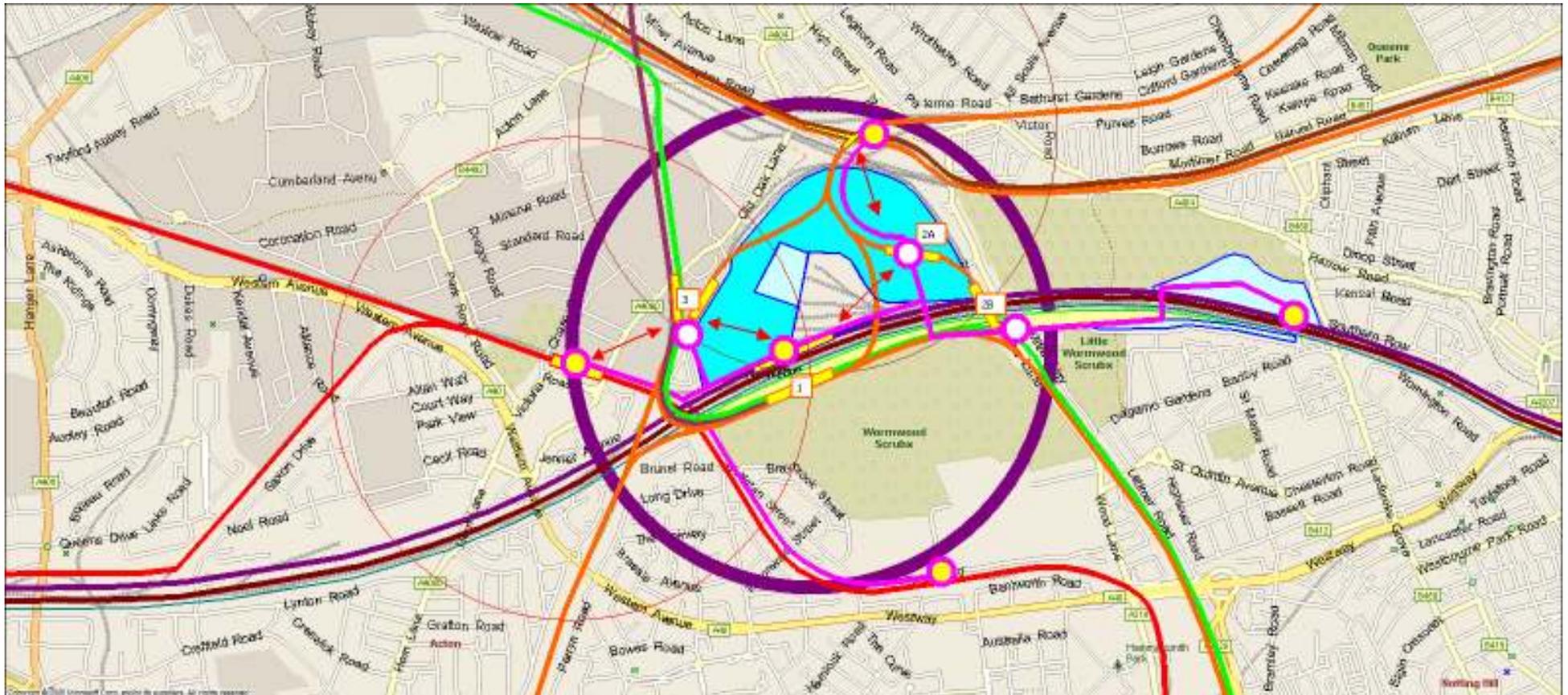
- Only stations shown are: Old Oak Central interchange, North Acton, Willesden Junction.
- Main changes: new radial station on GW local lines/Crossrail to enable starter phase of development, stimulated by Great Western electrification (2018) and Crossrail initial scheme (2019-20 via Old Oak to West London). Requires early inclusion of station within GW investment project.
- Potential for initial service of 10 Crossrail trains per hour and some GW outer suburban trains. Can be designed to allow reversal of Central tunnel Crossrail trains. Direct interchange with orbital lines is not assumed – early Transit links are shown diagrammatically (pink lines).
- Pedestrian access across Crossrail depot ‘throat’ to reach early development phases near Scrubs Lane, alternatively Transit shuttle to local stops.
- Land immediately adjoining (north of) Crossrail station may be sterilised for use as HS2 tunnel-boring and works site until around 2024/25.
- Good radial rail access should stimulate good development scope – Transit shuttles will also support initial development at Transit hubs including Kensal, North Acton, Hammersmith Hospital health community and en route to Willesden Junction.

## 2018 RADIAL STATION ONLY – London & Home Counties catchment



- Crossrail and GW electrification stimulate wider accessibility of Oak Oak Central. Fast journey times to West End, City, Canary Wharf.
- Direct rail access opened to Heathrow Airport T1,2,3,4 (indirect to T5), Thames Valley, Thames Gateway.
- Main accessibility improvements will benefit selective high value corridors with rapid economic growth.
- Starts long standing regeneration of North Hammersmith and Kensal and North Kensington areas if two local stations at Old Oak and Kensal, or Old Oak and Kensal Transit. The LSE RUS considers that a Kensal Crossrail station is not consistent with the rail strategy for the GW line.
- In parallel, by 2018, powers should be secured for HS2 Phase 1 and HS2-HS1 link, so the shape of works land will be known.
- Powers will also have had to be secured for Crossrail-West Coast rail link and for rerouted orbital railway and interchange if these are to proceed in time for HS2 Phase 1 – this too will inform land availability and design options for stations and eventual interchange at Old Oak.

## 2018/early 2020s RADIAL + ORBITAL INTERCHANGE STATION – locality



- Major radial/orbital interchange makes Old Oak a strategic hub for transport network across West/South West/North West London.
- Facilitates many suburban journeys by rail (environmental/carbon benefit), strengthens economic and regeneration case for Old Oak Central and Park Royal City International developments.
- Key is to address funding of new orbital linkages – who pays, in what railway investment phase? (Generally 5-year periods, 2014-19, 2019-24...)
- Existing orbital lines already very busy, will need investment to achieve new capacity in all scenarios – scope to align with this investment need by securing further payback thanks to wider connectivity. Powers to build new lines will be needed if outside existing railway lands.
- At least 3 primary options for location of orbital station(s):  
**(1)** TfL initial idea could be N or S of Eurostar site: *positive*:- near main GW/Crossrail and future HS2 station; *negative*:- not all North London / West London Line trains might call at Old Oak (to avoid reversal there).

**(2B)** is Balfour Beatty idea and allows Southern and West London orbital trains to call (not Midland Line), **(2A)** would be West London orbital trains only (not Southern or Midland Line), but nominally low cost in heart of early development area (should allow space for 8-car trains and doesn't require major bridge reconstruction over GW line). (2A) is about 200m from GW/Crossrail station, 2B is over 300m distant (though closest to RBK&C lands). Transit shuttle could be altered to serve (2A) or (2B).

**(3)** shifts the orbital hub to the west and avoids need for long viaduct crossing all tracks east of Crossrail station, at cost of new western curve which using tight radius can also avoid high value development lands close to eventual HS2 station entrance.

- (3) allows access by all existing and possible future orbital services: West London Line, Richmond Line and TfL-suggested Hounslow Line, North London Line, Southern-Milton Keynes and TfL-suggested Midland Line connection from St Albans etc. Scope also to create interchange with North Acton station in LB Ealing. Transit shuttle could be altered to serve (3).
- Overall, (3) may have stronger overall benefits at lower capital cost than (1) and can further benefit North Acton.
- Adoption of (3) would place reliance by early land developments (near Scrubs Lane) on orbital access from Willesden Junction station.

**Option 1 Orbital routes**



**Option 2A/2B Orbital routes**



**Option 3 Orbital routes**



## 2018/early 2020s RADIAL + ORBITAL INTERCHANGE STATION – London & Home Counties catchment



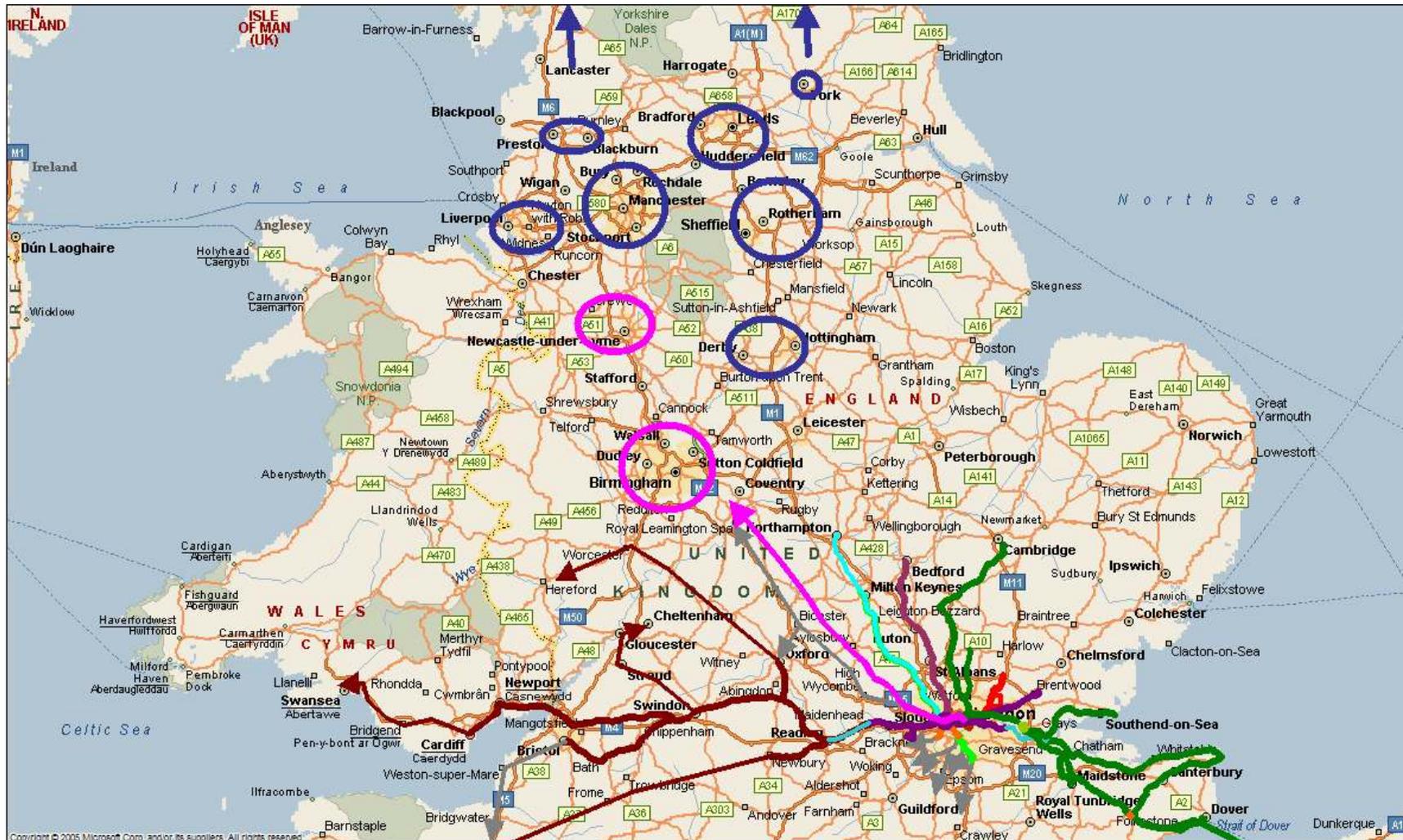
- There are three strategic gains from combining a radial and orbital interchange within a few years.
  - (1) London gains high quality orbital links, causing more suburban journeys by rail (and by linking with the Central Line at North Acton).
  - (2) The Home Counties catchment is enlarged with North-South connections from commuter towns such as Milton Keynes, Luton and Croydon, complementing the radial East-West links with the GW/Crossrail corridors, and also stimulating interchange between those NS and EW routes.
  - (3) The commercial case for high value development at Old Oak Central is enhanced by the earning power of the outer suburban and Home Counties commuters who are offered direct services to Old Oak with Southern and Midland Line trains.
- Early progress with high value developments within Old Oak Central should be achievable with such connectivity. It creates the possibility of incremental values being returned to the transport sector as S106 / CIL contributions. Sites showing potential high value yields need priority.

## MID TO LATE 2020s – HS2, HS2-HS1 link, Crossrail to West Coast line – London & Home Counties catchment



- Arrival of HS2 Phase 1 (London-Birmingham-West Coast) in 2026 opens many opportunities. 25-40% of HS2 passengers will use Old Oak.
- As part of the London & South East Route Utilisation Strategy plans to 2031, Crossrail is forecast to have: (1) a second western leg to Milton Keynes; (2) an extension from Maidenhead to Reading; (3) a possible extension to Dartford and Gravesend (see light blue lines).
- These Crossrail extensions create scope for use of existing or new depots and sidings elsewhere in the enlarged network, allowing the depot and/or sidings within Old Oak Central to be re-assigned as development lands adjoining the new HS2/Crossrail interchange - or to add oversite development as part of commercial development over rail lands. HS2 and Crossrail combined can return development gains to the public sector or support other transport investment - entirely fitting for railways budgeted initially at £14.5bn (Crossrail) and £9bn (HS2 Phase 1) and paid for by taxpayers, passengers and businesses.
- Crossrail extensions would also enhance the benefits of interchange at Old Oak Central – by then a most accessible hub for London.
- The HS2-HS1 link can be designed to allow London & Home Counties regional services via Old Oak (see dark green lines).

## MID 2020s TO 2030s – HS2, HS2-HS1 link, Crossrail to West Coast line – UK catchment



- HS2 Phase 1 expands access and capacity to and beyond the West Midlands
- Phase 2 in the early 2030s takes this access and capacity to the main Northern centres and Scotland, enabling Old Oak to become a truly national hub. By this stage, there may be a commercial case for it also to be served by all Great Western Intercity trains.
- There are consequential opportunities to maximise development yields at Old Oak Central and the wider Park Royal City International, with the commercial logic of a 21<sup>st</sup> Century business and residential quarter with high environmental standards.

- This is mirrored by accessibility into mainland European centres with the HS2-HS1 link.
- Old Oak Central will be a primary European hub.
- Through airport links, Park Royal City will be a location of world importance.

