

Our Proposals By Theme

7

7.0 Our Proposals by Theme

7.1 Airfield

7.1.1 The new airfield comprises the new runway and associated infrastructure, including taxiways.

7.1.2 Consistent with the ANPS the proposed runway is 3,500m long and is located northwest of the airport with a Landing Distance available of 2,950m. The total paved runway width of 60m, consisting of a 45m wide runway with 7.5m wide paved shoulders on each side. The proposed runway has been designed to accommodate size Code F aircraft (wingspans up to 80m in length) such as the Airbus A380. The distance between the centreline of the proposed runway and the centreline of the existing northern runway is 1,035m.

7.1.3 The new runway and its associated infrastructure are designed so that the aircraft touchdown point is approximately 550 metres further along the runway than would typically be the case at Heathrow today. Known as a 'displaced threshold', the effect of this measure is to reduce noise impacts of approaching planes on nearby residents as aircraft will be at a higher altitude as they pass over local communities. Additional noise attenuation measures have been included such as acoustic walls, acoustic fencing or bunding, these are identified in chapter 6 of this document, and are designed to mitigate ground noise impacts on sensitive adjacent receptors such as homes, heritage areas and parks.

7.1.4 This runway is the same as Option A4, included in Airport Expansion Consultation One, in which was deemed to be the best performing option in environmental and property loss terms. Consultees responding on Runway options were often in favour of Option A4 because it would provide greater operational flexibility, address long-term needs, and accommodate the largest aircraft types.

7.1.5 Twin Code F Around the End Taxiways (ATETs) are located at the western end of the centre runway. This is so that aircraft traveling between the new runway and the existing airfield can taxi around the centre runway without constraining the operation of the centre runway; the ATETs therefore allow full throughput on the centre runway, which is necessary to deliver the increased air traffic movements required by the ANPS. Locating the ATETs at the western end of the centre runway will see them nearer to the new runway than if they were to the eastern end and will have less impact on residential and commercial property.

7.1.6 Western Bypass Taxiways are located to the west of the Terminal 5 campus providing access to the T5X aprons and an alternative north-south routing for aircraft, thereby reducing congestion within the existing airfield. Taxiway modelling confirmed that they are essential to the efficient operation of the airfield. Twin Code F taxiways are therefore shown to allow for northbound and southbound movements to/from the new runway and to provide access to the new aprons around T5X.



Figure 7.1.1: Illustrative Masterplan aerial visualisation

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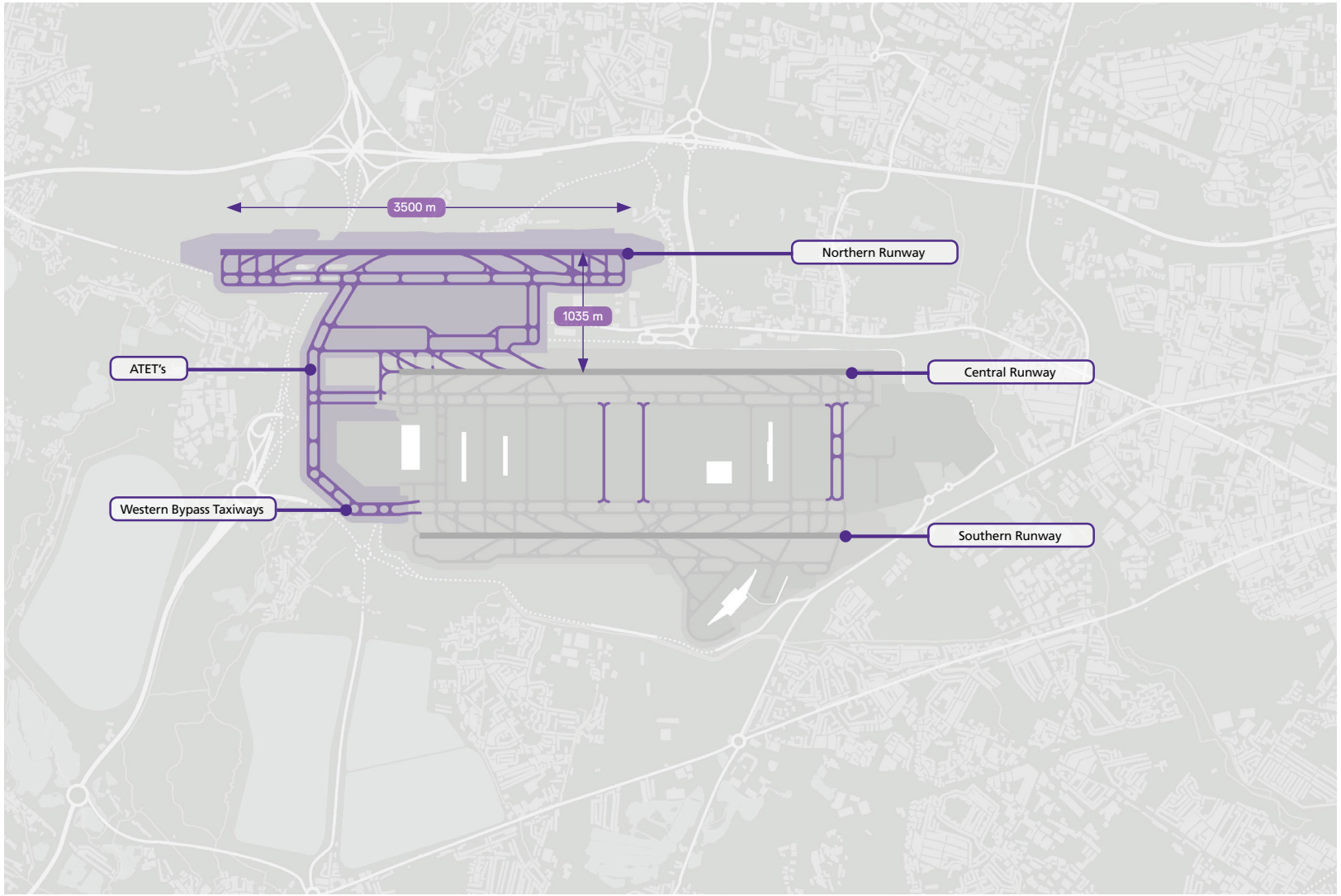


Figure 7.1.2: Runways and Taxiways

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7.2 Terminals, Satellites and Aprons

7.2.1 New passenger terminal capacity and associated apron space (required for aircraft parking stands and manoeuvring areas) will be split between the Western Campus and the Central Terminal Area (CTA).

7.2.2 New satellites and aprons providing aircraft stands are arranged to maximise the use of land between the existing runways. This is to allow for flexibility in use to accommodate changing airline requirements throughout the lifetime of the infrastructure, and to minimise land take to the north.

7.2.3 In the eastern campus, capacity will increase through the extension of T2A to the north and the building of new satellites T2C and T2D with associated stands. Terminal 3 is proposed to be demolished in the later stages of the construction of the Project and 5 new banks of live stands will be provided in its place. The new apron will be served from T2A. There will be no changes to satellite T2B.

7.2.4 The CTA will be reconfigured to deliver an improved Public Transport Interchange (PTI) and an associated commercial zone.

7.2.5 Major new passenger terminal facilities (T5X) are located to the west of, and directly link to, T5. This new terminal building is conceived to be modular, lightweight and adaptable to future needs. A new type of passenger environment is envisaged within this building, providing high levels of natural daylight, daily and seasonal temperature variation, and internal landscaping. This design approach targets low energy demand, reduction in embodied carbon, and a modular construction approach that enables off-site manufacture, as well as end-of-life disassembly and reuse of components.

7.2.6 A landside terminal zone links T5 and T5X and will include a public transport interchange, vehicle drop-off/pick-up, passenger transit facilities, commercial developments and passenger facilities, such as hotels and offices. It is envisaged that parts of this zone will adopt a similar enclosure design to T5X, providing a continuity of passenger experience and amenity.

7.2.7 A new satellite (T5XN) provides passenger facilities and access to aircraft on the new northern apron. T5XN will be linked to T5X by a passenger transit system.

7.2.8 Both landside terminal zones in the east and the west will be connected with the parkways by passenger transit systems – the southern parkway to the western LTZ, and northern parkway to the CTA. It is currently envisaged that routes and infrastructure will be provided such that they can accommodate developments in transit system technologies.



Figure 7.2.1: Illustrative visualisation of T5X and PTI

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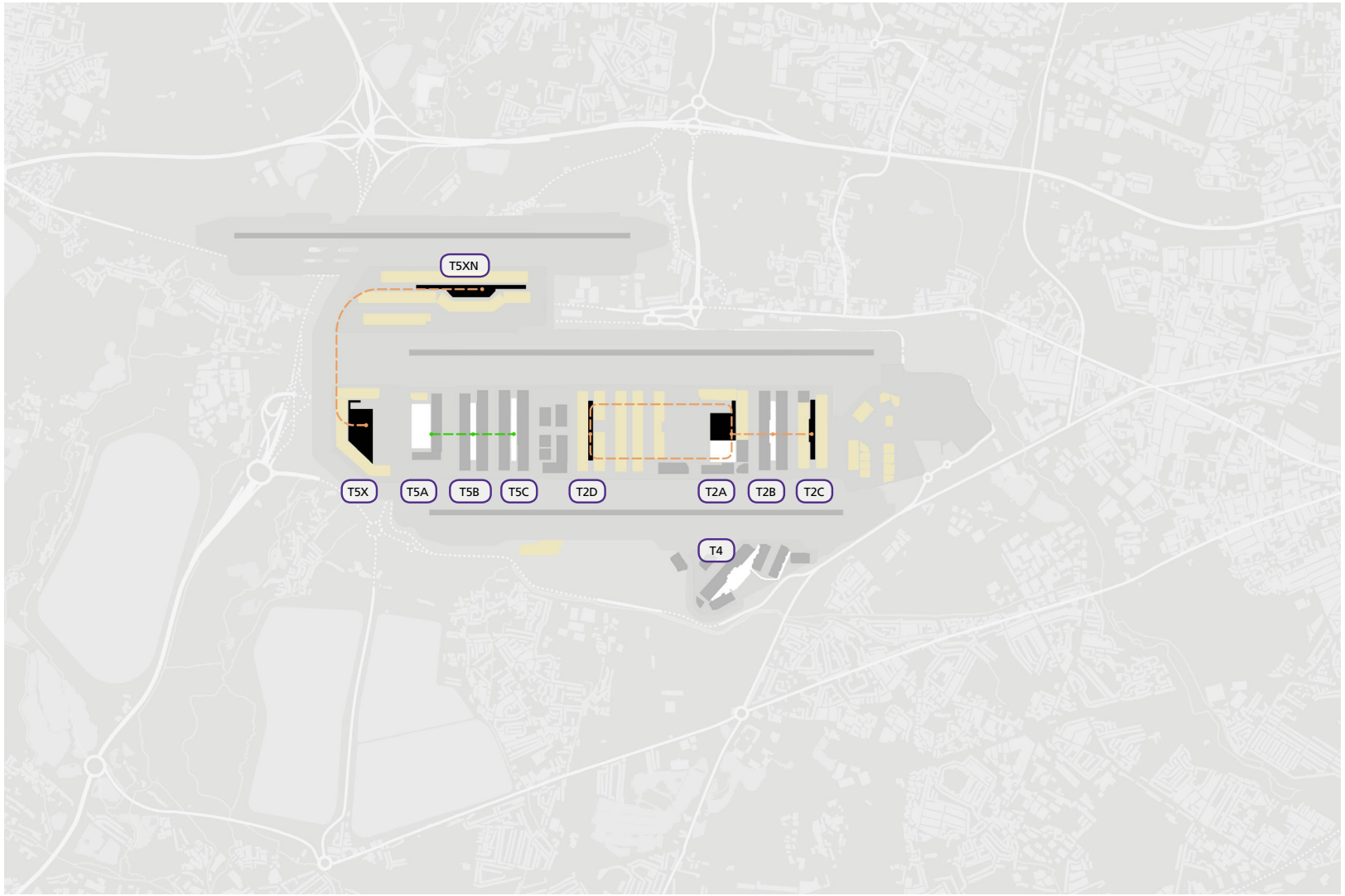


Figure 7.2.2: Terminals, Satellites and Aprons

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7.3 Surface Access (Roads and Rail)

7.3.1 A number of roads need to be diverted around the airport, including the M25 and local roads such as the A4 and A3044 and their associated junctions.

7.3.2 The M25 is diverted offline with a two-junction strategy and supporting collector distributor roads, that will help avoid weaving of traffic between junctions. It allows the new carriageway and tunnel under the proposed runway to be constructed largely offline, up to a maximum of 150m to the west of the existing M25. The vertical profile is lowered up to a maximum of 4 – 4.5m below the existing M25 and passes under the proposed new runway in a tunnel with 4 boxes – 2 for the new M25 mainline carriageways (4 lanes in each) and one each for the northbound and southbound Collector Distributor roads (3 lanes in each).

7.3.3 Changes will be made to surrounding junctions – maintaining access to the M25 and connecting routes. Junction 14 will have an enlarged roundabout which enables connection to the new A3044 north. A new roundabout at the eastern side of the existing Junction 14a will be elevated above both other highways and the proposed new river corridor.

7.3.4 The A3044 provides a connection between West Drayton in the north and Staines to the south. The proposed diversion of the A3044 runs parallel to the M25 to the west, bypassing Poyle. This option is considered to provide the most appropriate replacement, taking into account comments from consultees about property loss and impact on communities, impacts on Green Belt and compatibility with active travel and also avoids a tunnel beneath the new runway, which would be unsuitable for cyclists and is significantly more costly.

7.3.5 The A4 will be diverted as a dual carriageway from a reconfigured junction at Nene Road – east of Emirates roundabout – to a new junction on Holloway Lane. The A4 will run northwards from Nene Road parallel to the M4 Spur, before crossing it south of M4J4 and north of Sipson. From Holloway Lane the A4 will be diverted as a wide single carriageway north of Harmondsworth, before re-joining is original alignment at a new junction just to the east of Brands Hill. The final width will be refined in due course, taking into account a final assessment of traffic capacity requirements. The alignment shown is closest to Option 3A shown at Airport Expansion Consultation One but includes a link road to the east of the M4 Spur to ensure that it maintains its role as a local road rather than merging with the motorway.

7.3.6 A new Southern Road Tunnel will connect Beacon Road Junction roundabout to the south into the CTA. This will provide a new direct landside connectivity link for buses, coaches and other vehicles between the Western Campus and CTA once the Northern Perimeter Road is closed. This will increase the capacity of the landside road network into the CTA and to provide greater resilience.

7.3.7 The Southern Perimeter Road alignment will run north of the Southern Parkway linking to the upgraded Stanwell Moor Junction. There will be a new grade-separated (multi-level) roundabout junction on the A3113 at Stanwell Moor. The east–west mainline would dive down to a maximum of 8m to pass under the new roundabout via a simple box structure. The works are similar to Option SMJ3 shown at Airport Expansion Consultation One and has the smallest footprint, thereby minimising property impacts, which were raised as a concern.

7.3.8 A widened Southern Perimeter Road and new roundabouts are proposed at Seaford Road and Stirling Road to replace the existing signal junctions. The Seaford Road roundabout would provide access to and from the Southern Parkway site and the retained Southern Fuel Receipt Facility (SFRF). The Stirling Road roundabout would provide access to the Cargo Area link road.

7.3.9 Other works proposed include additional connections onto the Great Western Mainline to allow for more flexibility on train paths from both east and west, and to provide additional holding facilities.



Figure 7.3.1: Illustrative M25 visualisation

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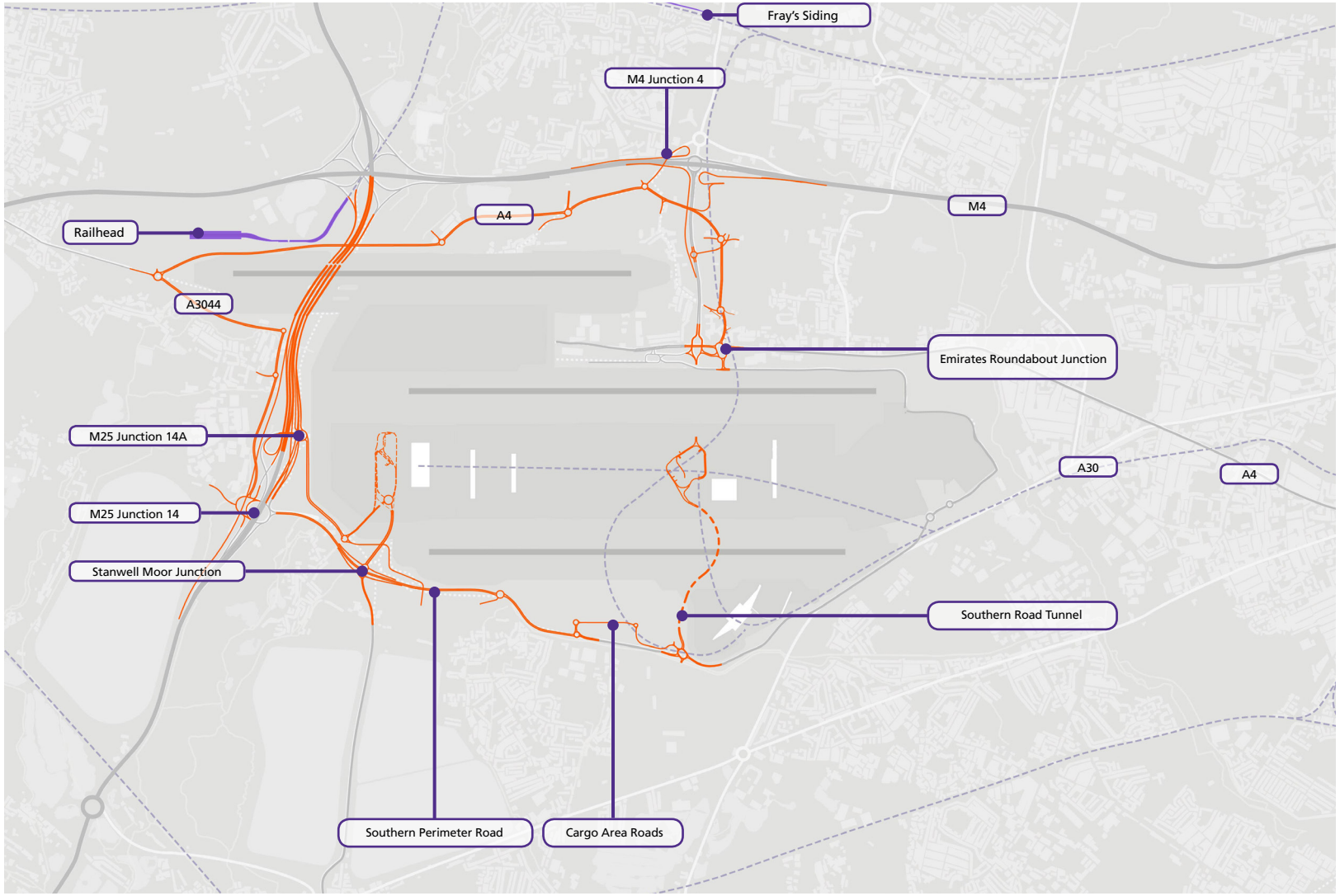


Figure 7.3.2: Roads and rail

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7.4 Active Travel

7.4.1 Today, there are limited facilities for walking and cycling around Heathrow. Expansion is an opportunity to work towards best practice standards, and provide safe routes to connect people from where they live to where they work. The 'Hub and Spoke' network, as shown in Figure 7.4.2, aims to connect these areas to the Heathrow campus, and provide high quality routes around the airport perimeter to link employment locations. Improvements will include segregated cycle infrastructure to separate people on bikes from faster-moving traffic and crossing improvements to ensure that major roads and junctions do not represent a barrier to people cycling from nearby communities to the airport. The improvements will also link local communities, making short, local journeys much easier on foot and by bike and will be developed in consultation with Local Authorities.

7.4.2 The network of active travel routes is integrated with existing walking and cycling routes in the vicinity of the airport, proposed schemes for improved walking and cycling routes being promoted by others, our proposed green loop around the airport (described in Chapter 5 and elsewhere in this document), and diverted and improved highways close to the expanded airport.

7.4.3 The Green Loop is an approximately 20km route that invites residents, employees and visitors to experience the landscape in new ways. The Green Loop will:

- Improve connectivity around the airport's perimeter;
- Offer informal recreation as a leisure route; and
- Utilise existing and new footpaths and cycleways to connect communities, public open spaces and biodiversity sites.

7.4.4 The green loop will work in tandem with the surface access 'Hub and Spoke' network to provide improved connections to and around the airport.



Figure 7.4.1: Artist's impression of active travel route

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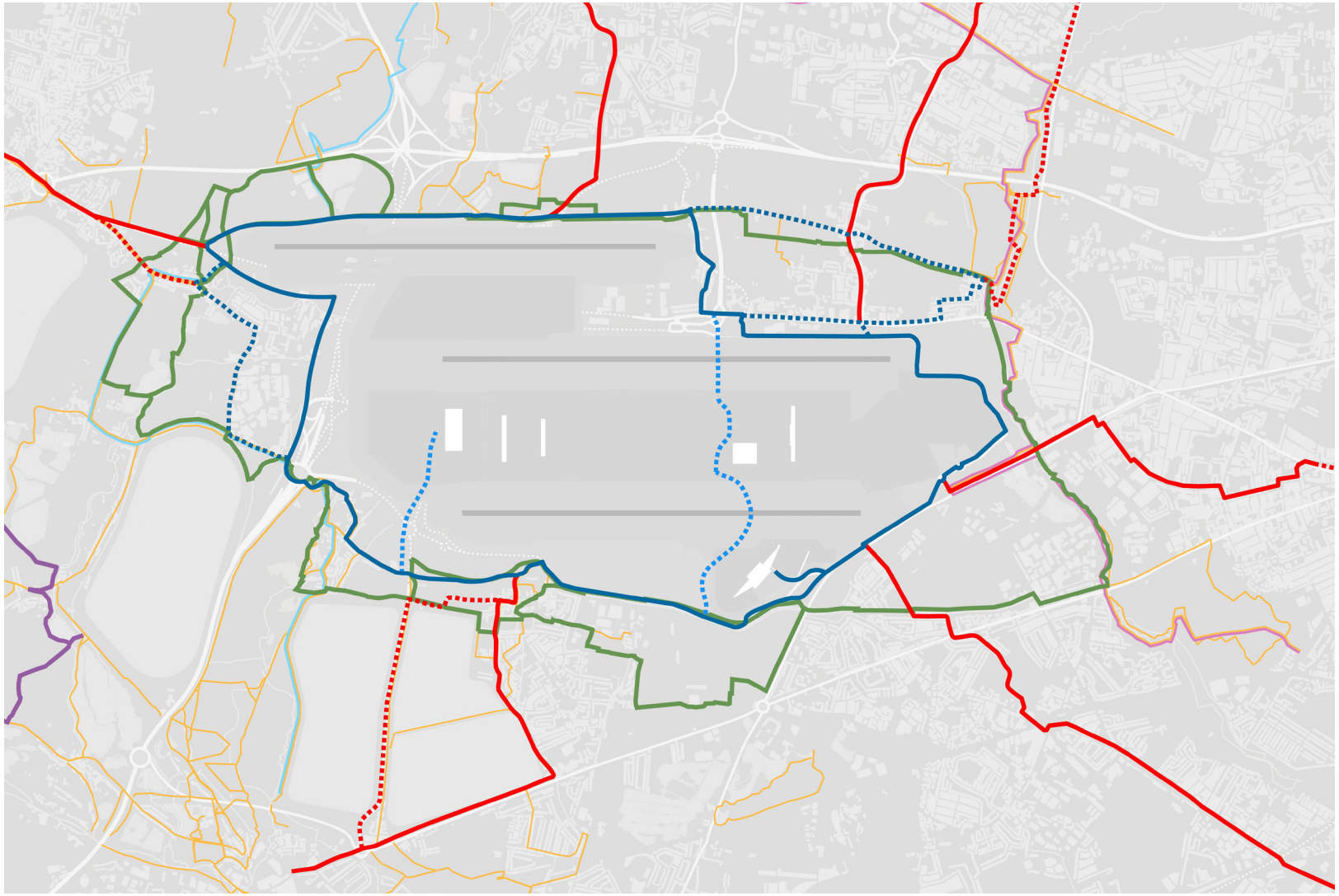


Figure 7.4.2: Active travel

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* The Environment Agency plans for a flood alleviation scheme in the Thames south of Heathrow are well known to us. We are discussing how our landscape plans can be integrated with theirs to enhance connectivity and overall benefit of the two neighbouring schemes.

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7.5 Water Environment

7.5.1 The expansion of Heathrow will extend the airport's footprint further into the Colne Valley, affecting the existing alignments of watercourses, areas of floodplain storage, overland flow routes and run-off rates.

River Diversions

7.5.2 Several rivers and smaller tributaries will be realigned as a part of the expansion. Most of these rivers will require diversion, realignment or bridging over as part of the expansion. There will be works on the Duke of Northumberland's River which feeds into the River Crane. The diversion designs will demonstrate compliance with the Water Framework Directive. As part of these rivers have, naturalised channels and riverbank corridors provided to enhance ecological benefits.

7.5.3 Wraysbury River, River Colne and Bigley Ditch will join north of the new runway at Harmondsworth Moor and the flows will pass in a common channel under the airfield and to the east of the existing M25. South of Bath Road, Wraysbury River will split from the River Colne and head west under the existing and new M25. The Wraysbury River will then be diverted to the west of the M25 from its connection with the Poyle channel to Horton Road to accommodate the route of the realigned M25.

7.5.4 The River Colne will pass under the Southern Perimeter Road before connecting back to its existing channel north of Stanwell Moor.

7.5.5 The Duke of Northumberland's River will be combined with flow from the Longford River and the two rivers will pass together in a common channel under the airfield and to the east of the existing M25. This will run parallel to the combined Colne/Wraysbury channel along the western perimeter of the expanded airport and then along the south of the Southern Parkway.

7.5.6 A control structure at the end of this channel will return flows (at the existing rates) to their courses east of the Southern Parkway.

7.5.7 A Covered River Corridor (CRC) will allow the runway and taxiways to cross over the rivers flowing to the east of the M25. This structure will comprise two compartments, one containing the Colne/Wraysbury channel and the other the Duke of Northumberland's River/Longford channel. These channels in the CRC will be similar multi-stage channels to the open sections of river and will mimic natural channels, through the adoption of locally sourced river-bed substrate and targeted in-channel planting of native flora. Plant growth will be supported by artificial lighting, to augment natural light where appropriate.

7.5.8 The Colne Brook will be diverted westwards south of its crossing under the M4, before returning to its existing channel immediately upstream of Colnbrook village. The diversion will pass around the northern side of the Thames Water sewage treatment works and around the northern and western side of the railhead/logistics centre. This will require the infilling (at least in part) of Old Slade Lake.

Flood Storage

7.5.9 The loss of existing floodplain due to expansion of the airfield and associated infrastructure will require the provision of compensatory flood storage areas to the east and west of the M25.

7.5.10 The NPPF and ANPS require the re-provision of lost fluvial floodplain capacity, considering allowances for Climate Change adaptation. The design basis for the protection of off-site receptors from a fluvial event has been agreed with the Environment Agency as the 1 in 100-year event +35% Climate Change allowance.

7.5.11 Flood plains are being lost in the catchments of the River Colne and Colne Brook and we need to ensure that all lost storage is re-provided within catchments. The ANPS requires that the 'design considers flood risk and should put forward measures to mitigate the impact of flooding'.

7.5.12 Flood defence works will also be carried out on the channels through Colnbrook village to mitigate flood risk due to a change in overland flood flow paths resulting from the Project.

7.5.13 Ten locations for additional flood storage are currently being considered in advance of the completion of hydraulic modelling, with the final number of sites required expected to reduce.

Drainage and Pollution Control

7.5.14 The Project would result in several changes to the surface water drainage regime in the vicinity of Heathrow. Flood storage and water quality treatment areas will be required to manage surface water run-off from all new development, both on and off-airport, prior to discharge to the environment.

7.5.15 The Project proposals incorporate on-airport surface water drainage, including treatment areas for contaminated water in three locations around the airport perimeter. Attenuation ponds for run-off from roads and sustainable urban drainage measures are integrated within the land parcels for off-airport development.

7.5.16 Stormwater attenuation and treatment ponds are proposed southwest of the airport on the Hithermoor site and immediately south of the west end of the new runway, and also at Mayfield Farm, where glycol contaminated flows from the runway will be treated by vertical flow aerated reed beds.

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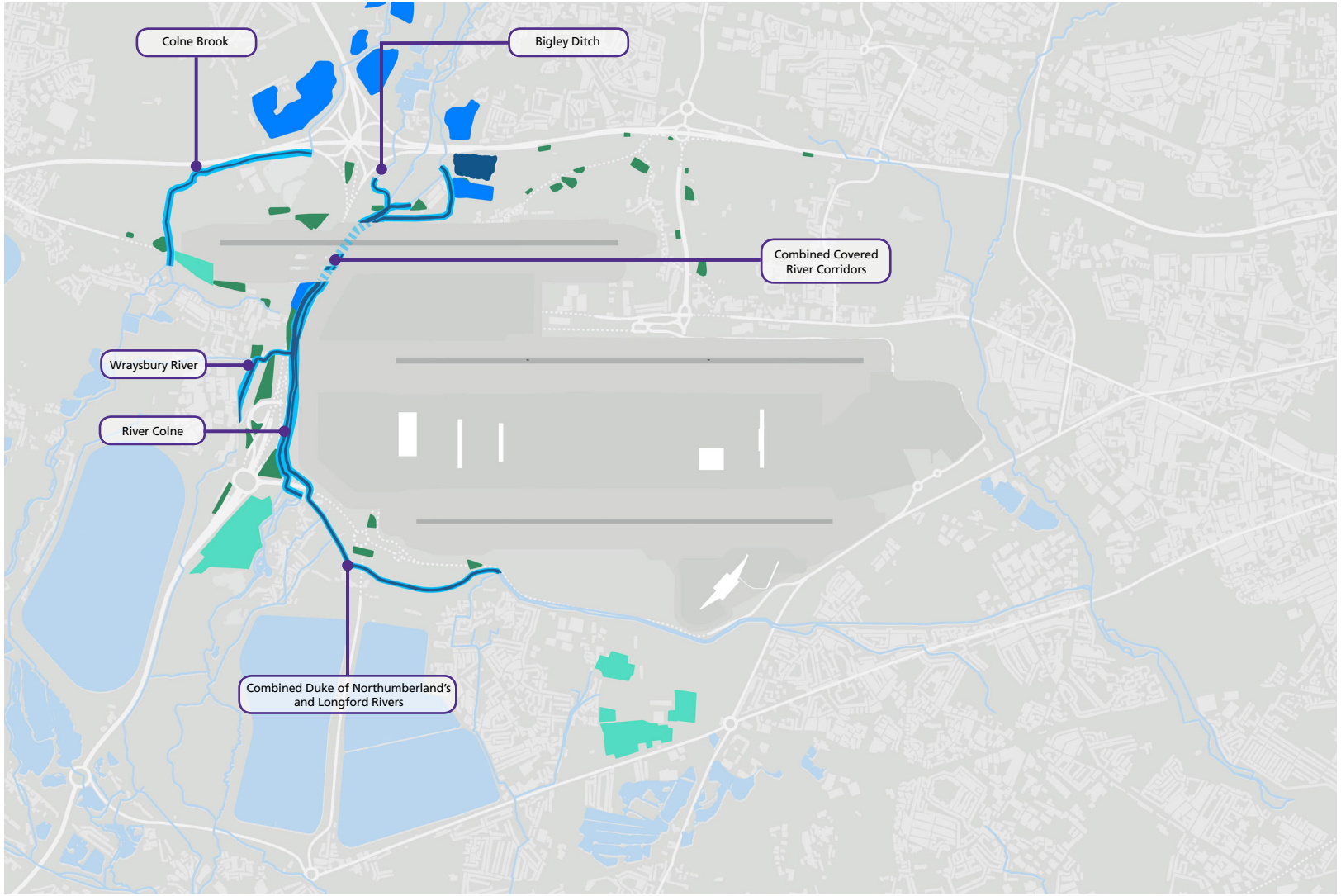


Figure 7.5.1: Water - rivers, flood storage and drainage and pollution control

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7.6 Airport Supporting Development

7.6.1 Airport Supporting Development (ASD) including cargo, aircraft maintenance, airport operations industrial, hotels and offices, are currently distributed on and around the airport. Expansion will require changes to the ASD in a number of different ways and the future layout is described below.

Cargo

7.6.2 On-airport cargo development includes Internal Temporary Storage Facilities (ITSF) such as IAG World Cargo Centre and transfer trans-shipment facilities. Off-airport facilities include cargo external storage facilities such as Freight Forwarding.

7.6.3 ITSF cargo capacity growth is achieved predominantly through the redevelopment of the existing cargo handling facilities to the south of the Southern Runway. The existing transit sheds to the west of IAG World Cargo Centre can be redeveloped and intensified to provide a two-level ITSF facility, with a second facility to the southeast. Additional cargo developments include a truck park to the northwest of Stanwell Moor junction and a cargo trans-shipment area serving the Northern Apron to the west of the Centre Runway.

Aircraft Maintenance

7.6.4 Aircraft Maintenance will continue in its current location. The west base will be reconfigured to allow the T2C satellite to be developed. The Cathedral Hangar will be relocated to a new hangar to the east, safeguarding for additional hangar growth. Space for a Forward Maintenance Unit (FMU) and Ground Run Pen (GRP) is safeguarded as the site could accommodate the FMU if this was desirable and if remote stands in the north were relocated (e.g. to the maintenance base area as a land swap).

Airport Operations

7.6.5 The safe and efficient turnaround of aircraft is critical to the smooth running of the airport and to airline punctuality. Therefore, airport operational facilities have been located in close proximity to runway and apron areas and access control posts. For example, an additional fire station will be located to meet rapid response times.

Industrial

7.6.6 Airside Contractor and Engineering compounds have been located along the perimeter with opportunities for airside access if required. Most of the growth to Industrial sites will be located landside in the Northwest Logistics zone within Zone M, with direct access to airside, and on redundant parking sites along Bath Road, with direct access links through the access control points at the east end of the northern apron.

Hotels, Offices and Freight Forwarding

7.6.7 Since Airport Expansion Consultation One, Heathrow has been carefully scrutinising the scale and location of ASD related to passengers near to the airport. In doing so, the views of Local Authorities (the HSPG), a better understanding of commercial requirements, Airport Expansion Consultation One feedback, Green Belt and other planning constraints, and the Surface Access Proposals all have been taken into account.

7.6.8 New freight forwarding facilities will be provided to meet demand as the airport expands. These new facilities will be located south of the airport, close to existing industrial and cargo areas and close to major highway access routes.

7.6.9 New hotels will be provided to replace existing hotels displaced by the expansion, and to respond to growth in passenger numbers. Hotels will be located near to public transport stations in the CTA, next to Terminal 5 and at Hatton Cross. Further hotel development will be provided south of the Northern Parkway, taking advantage of the new connectivity system proposed for this area.

7.6.10 The Preferred Masterplan also includes office space within the CTA and at Hatton Cross, along the public transport spine, which is expected to be occupied by businesses closely connected to the operation of the airport, which have been displaced by the new runway.

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Figure 7.6.1: Airport Supporting Development

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7.7 Parking

7.7.1 Heathrow currently includes a number of surface level car parks distributed within and around the boundary of the airport, necessitating bus connections to terminals and other areas. Heathrow is proposing to rationalise and consolidate parking provision in order to free up space within the central area of the airport for critical airfield infrastructure, passenger facilities and ASD. This is achieved via the Southern and Northern Parkways.

7.7.2 Consistent with feedback received from Airport Expansion Consultation One and engagement with Local Authorities and communities, Heathrow has sought to ensure that the scale and location of parking is aligned with the Surface Access Proposals which sets out how the Project will achieve ANPS targets. Adjustments have been made to the massing of the Parkways in response to feedback and analysis on local and more distant views. Construction costs and a high water table have precluded full or semi basement car parking.

7.7.3 The Northern and Southern Parkways will have capacity for up to 24,000 and 22,000 spaces respectively and are integral to the Surface Access Proposals. They offer significant wayfinding and accessibility benefits associated with having two main car parking locations; with the Northern Parkway close to the M4 access (serving the CTA) and the Southern Parkway connecting to the M25 and serving the Western campus. By being close to the strategic road network, they will connect passengers and staff to the terminals. There would be direct shuttle services connecting the Northern Parkway to the CTA and the Southern Parkway to the expanded Western Campus.

7.7.4 Heathrow also proposes to consolidate car parking around Terminal 4 with up to 6,500 spaces provided. This will be in a new multi-storey building to the south of the terminal on the existing T4 long stay car parking site and on a new at-grade parking site immediately west of it. The multi-storey building will accommodate car rental, authorised vehicles and taxi feeder parking areas. Long term passenger and colleague parking will be relocated to an enlarged at-grade parking area at the east end of the southern runway.

7.7.5 Existing short stay car parking adjacent to T2, T3, T4 and T5 will be retained.

7.7.6 Surface level parking for buses and coaches will also be provided. Airside coaching for off pier and transfer traffic will be located south of the eastern end of the new runway. Landside coach parking to support the connectivity between the parkways and terminals and to take colleagues to other parts of the airport will be located at the eastern end of the centre runway. This will reuse the site currently used for long term parking, which is to be consolidated into the parkways.



Figure 7.7.1: Illustrative visualisation of Southern Parkway

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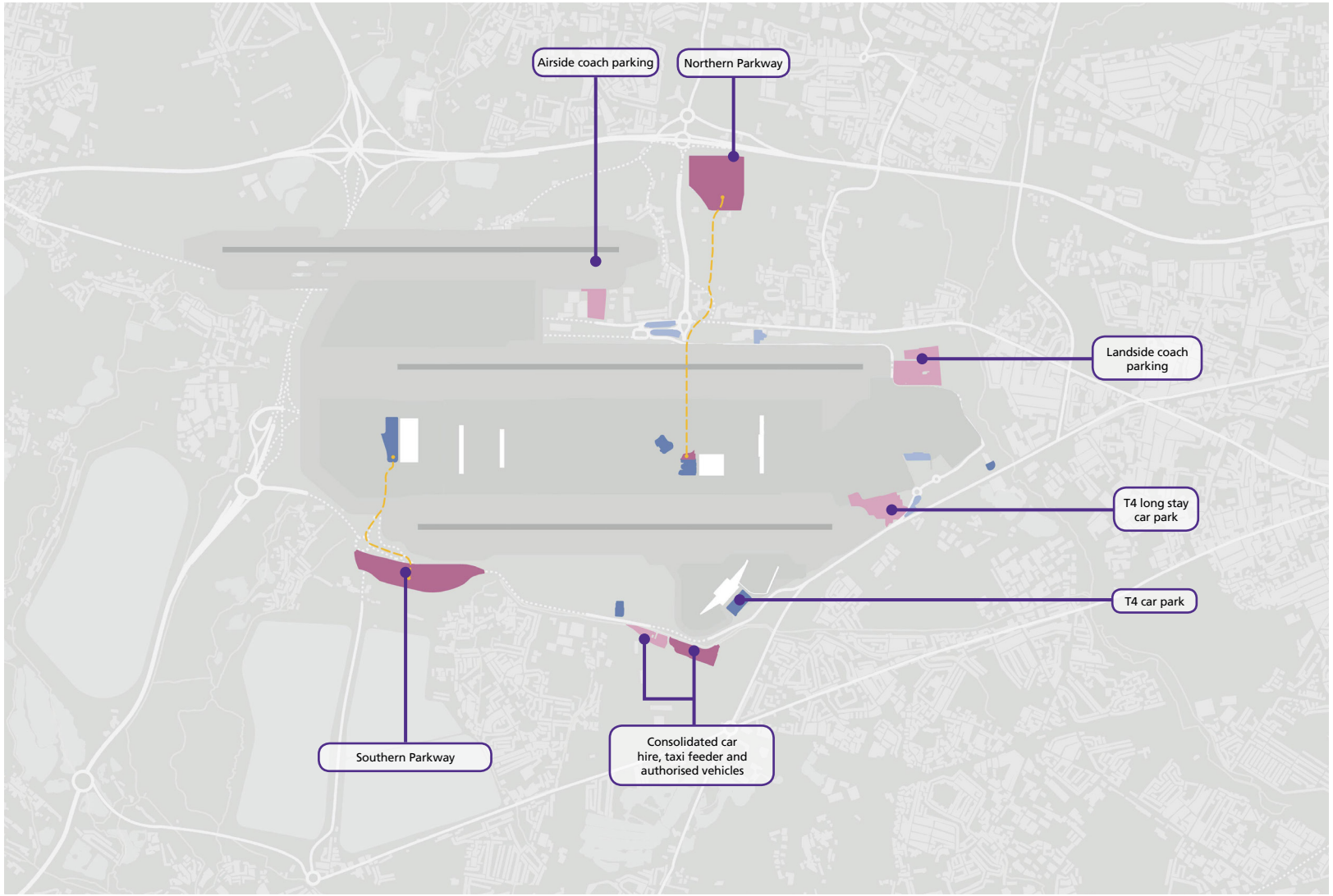


Figure 7.7.2: Parking

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7.8 Proposed Displacements (Key Land Uses and Community Facilities)

Key Land Uses

7.8.1 The expansion of the airport impacts a number of existing buildings and community facilities which will be displaced to make way for the new runway and its associated development. As part of the proposals, Heathrow will be re-providing many of these uses in alternative locations on and around the airport.

7.8.2 The existing Immigration Removal Centres at Harmondsworth and Colnbrook need to be relocated prior to the construction of the new runway. Four sites were considered for this relocation in Airport Expansion Consultation One. One of these, Mayfield Farm (E1), remains an option, however an additional site at Faggs Road between Bedfont and Hatton has emerged more recently as a preferred location following further engagement with the Home Office and the London Borough of Hounslow. Although both of these sites are designated Green Belt land, the ANPS emphasises the nationally important role that the existing facilities fulfil in maintaining effective immigration control to secure the UK's borders, as well as the requirement for continuous service provision to be achieved.

7.8.3 Some other considerable land uses displaced by the new runway include Total Railhead, Lakeside Energy from Waste facilities, Aggregate Industries' asphalt plant and BA Waterside offices. The Total facility will be re-provided north of the new runway and west of the M25. This facility will sit alongside the relocated Colnbrook railhead which will be diverted and realigned in an east-west direction north of the new runway also. While the other land uses mentioned above are likely to be re-provided by means of separate Town and Country Planning Applications, sites for some of these uses have been safeguarded within the Preferred Masterplan. The intention is that these areas would be utilised for other purposes, such as Airport Supporting Development or Public Open Space, if the individual applications did not progress.

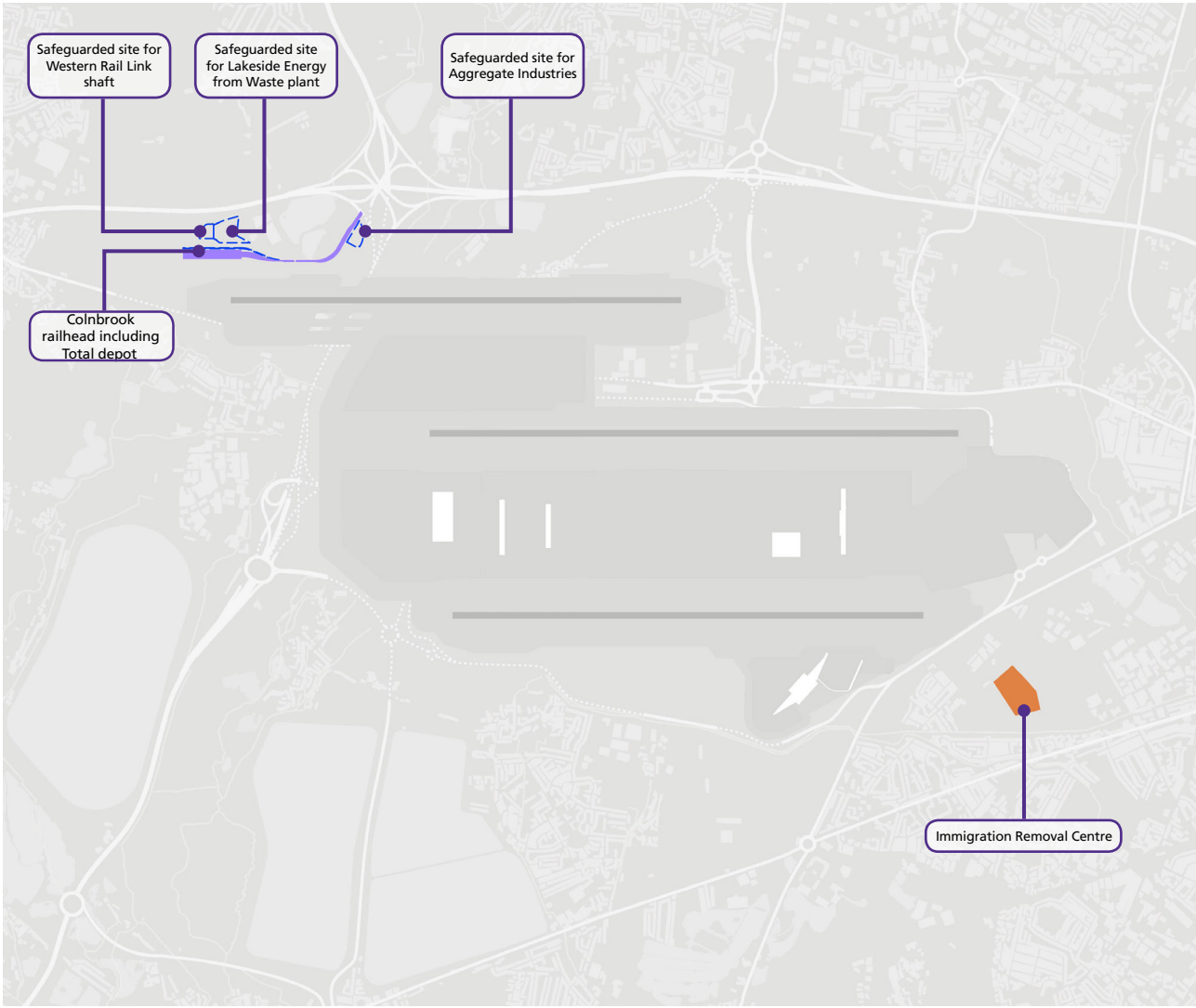


Figure 7.8.1: Proposed displacements - key land uses

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Community Facilities

7.8.4 A number of community facilities will also be impacted by the expansion and are proposed to be relocated as part of the Preferred Masterplan.

7.8.5 Harmondsworth Primary School will be displaced by the new runway. Land to the north of the M4 highway on Stockley Road has been identified as a suitable replacement site for the school as it is within the catchment area and has appropriate road access and connections to green areas for recreational purposes. This site also has the benefit of being able to accommodate early delivery to enable vacation of the existing facility in time for the commencement of construction of the new runway.

7.8.6 Heathrow Special Needs Centre will also be impacted by the construction of the new runway and is proposed to be re-provided at a new location immediately west of Poyle. Heathrow Special Needs Centre does not have any ties to the Local Authority (LB Hillingdon) and does not need to be relocated in any specific administrative area. The proposed site was selected as it provides a similar area of land, is located close to the current facility and has good access to public highways and public transport routes. The chosen site also allows for the facility to be planned as an enclosed site, which is preferable to ensure privacy and safety for its users.

7.8.7 Three areas of community allotments will be displaced as a direct result of the expansion. These are The Vineries allotments in Stanwell Moor, Moor Lane allotments in Harmondsworth and Pinglestone allotments in Sipson. These community facilities will also be re-provided as part of the Project at locations close to the existing sites.

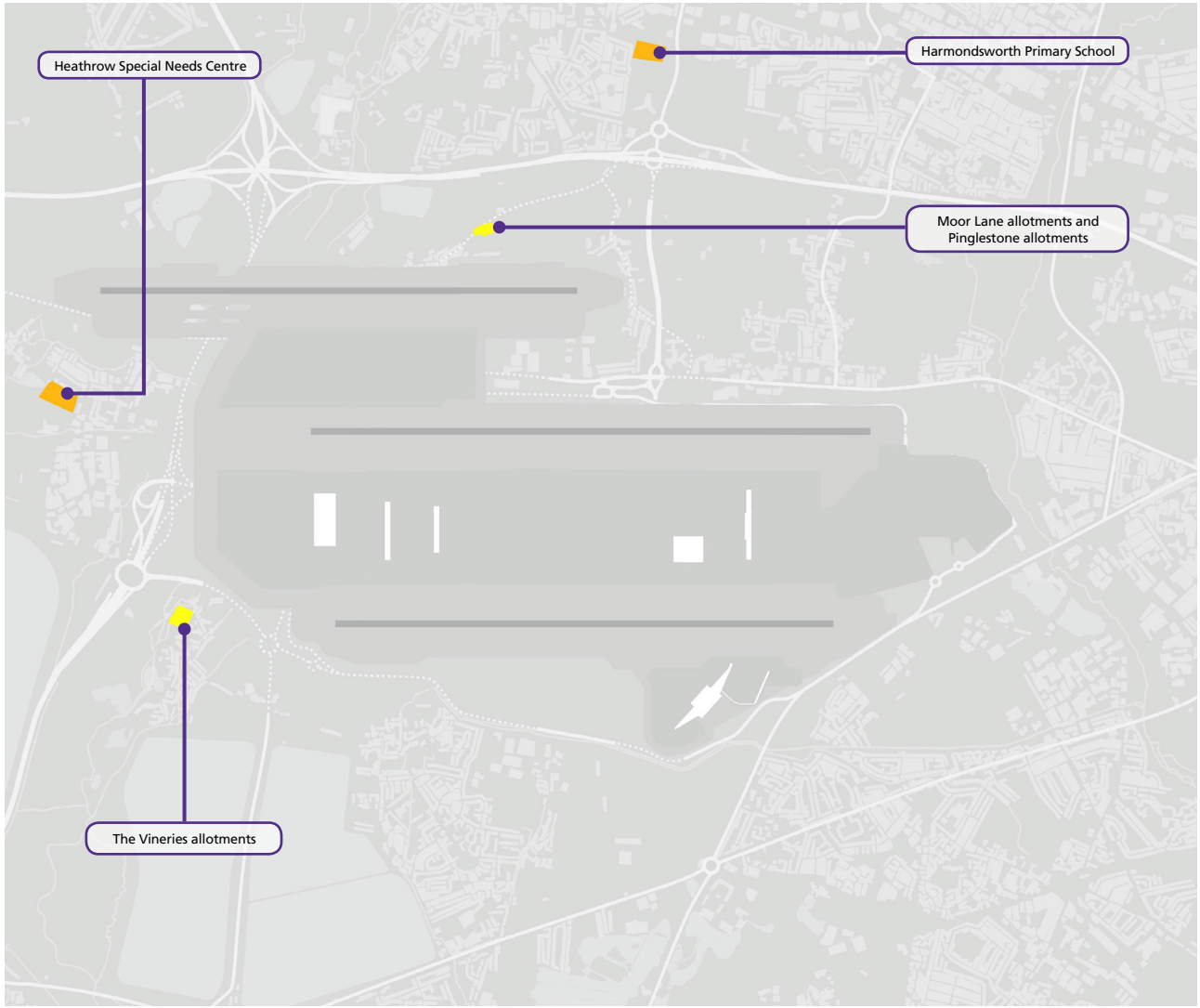


Figure 7.8.2: Proposed displacements - community facilities

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7.9 Landscape and Biodiversity

Landscape

7.9.1 The Landscape Strategy sets out an aspiration for a smarter, brighter, greener Heathrow, as described in Chapter 4. The aspiration is envisaged to be met through the collaborative delivery of landscape layers that facilitate innovative, considered and sustainable proposals. The Landscape Strategy will be brought to life through catalyst pilot projects and the implementation of a Landscape Toolkit (refer to Appendix C) that secures 'good design' as required by the ANPS.

7.9.2 The Green Infrastructure Strategy presented at Airport Expansion Consultation One set out a number of mitigation categories including:

- European Protected Species (EPS) mitigation areas;
- Biodiversity offsetting areas;
- Re-provided Public Open Space;
- Enhancements to existing Public Open Space;
- Enhancement to the setting of historic assets; and,
- Noise attenuation buffering.

7.9.3 The Landscape Strategy has used a number of landscape layers which offer a clear structure for the Landscape Masterplan and further study. These include:

- Multifunctional Green Loop and Public Open Spaces;
- Landmarks and gateways;
- Blue and green infrastructure; and,
- Boundary and perimeter.

7.9.4 These layers will deal with the provision of enhanced connectivity including the proposal for the Green Loop, the development of coherent journey and arrival experiences, sensitive and integration of natural systems and the sensitive interfaces with communities, commuters and colleagues near to the airport boundary.

7.9.5 A robust approach to multifunctionality of the proposed landscapes around the airport sits at the heart of the Landscape Strategy. This allows the mitigation categories listed above to overlap, offering richer, more diverse, open spaces and landscape elements, greater than the sum of their parts. This also allows landscape to weave through engineering, water management and infrastructure projects, ensuring that well considered landscape design can become part of and make better every part of the Preferred Masterplan. This will ensure that where possible, the landscape proposals for the Project are more than just 'making good'.

7.9.6 Biodiversity offsetting offers fantastic opportunities for multi-functional green infrastructure and a number of sites have been identified in locations where they can offer other functions such as Public Open Space and the re-provision and realignment of water bodies. Sites have also been located where they can benefit other regional strategies such as the objectives for the Colne Valley Regional Park, for example.

7.9.7 Key requirements are identified for European Protected Species and met within the proposals shown on the Preferred Masterplan by providing movement corridors, foraging and habitat opportunities. The Landscape Strategy ensures that where possible the proposals will offer additional benefits to local communities, by aligning with the Green Loop or contributing to visual screening.

7.9.8 A thorough strategy for the re-provision of Public Open Space has been undertaken as part of the Project, ensuring the right provision in the right places. The Landscape Strategy builds on this commitment by finding new opportunities for better, more multi-functional provision for both communities and biodiversity. The current Preferred Masterplan offers re-provided Public Open Space at least as good in terms of size, usefulness, attractiveness, quality and accessibility.

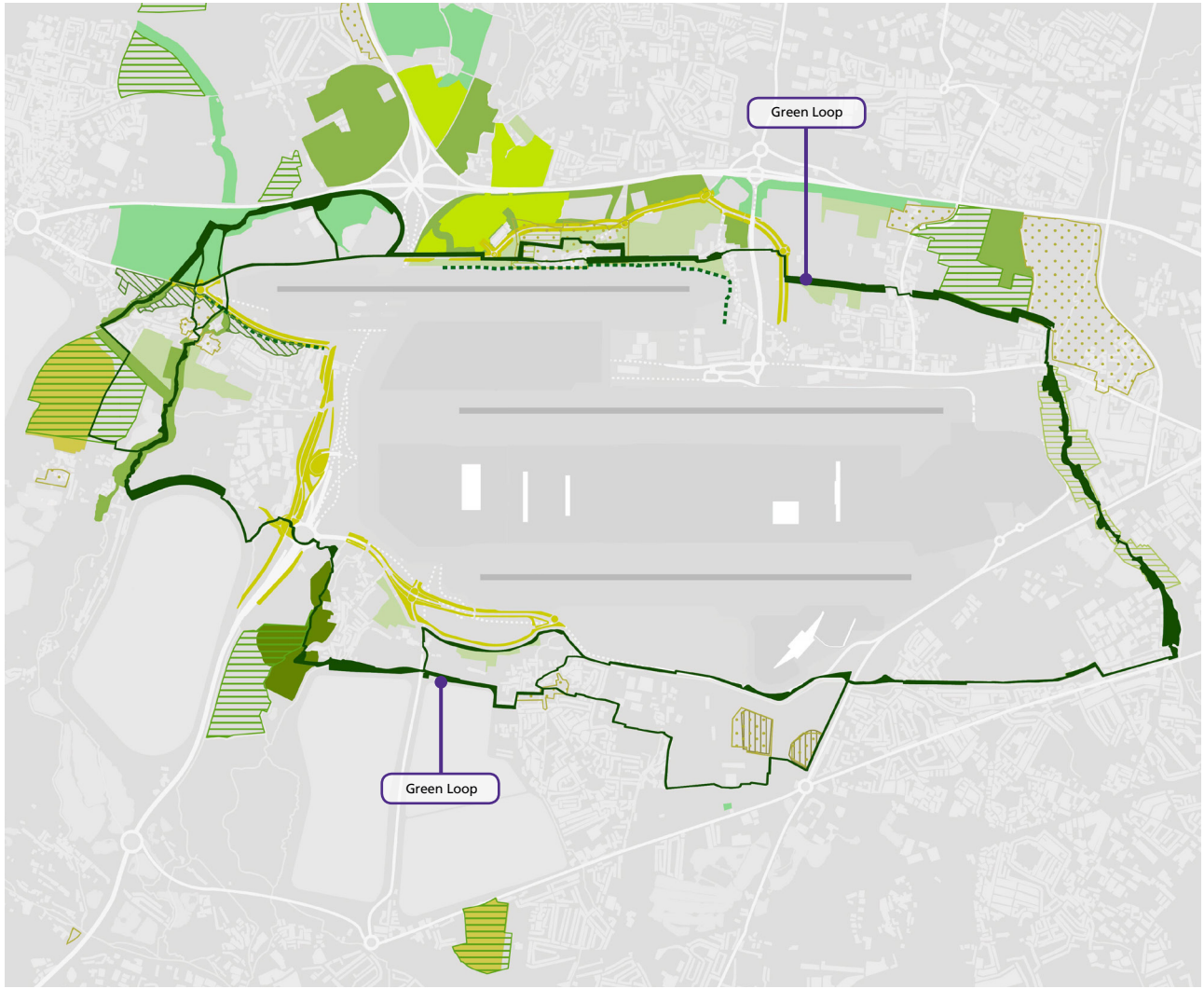
7.9.9 Proposals for the landscape enhancements of heritage sites will be carefully considered to offer sensitive solutions that can be woven into wider proposals for better connected, better functioning open spaces. The solutions will also provide landscapes that offer sensitive appropriate setting for and interpretation of important historical assets around the airport. The Landscape Strategy will work in tandem with the Heritage Interpretation Strategy and the Heritage Design Strategy (see Section 7.11.5) to identify opportunities to achieve this.

7.9.10 Opportunities for Enhancements to existing Public Open Spaces are generally identified in locations that sit along the Green Loop ensuring greater connectivity and amenity. The Green Loop is approximately 20km and runs around the airport. It is made up of existing and proposed footpaths and cycleways with parts that diverge to offer alternative and additional routes and a range of experiences or landscape settings (Refer to section 7.4). The Green Loop is a leisure route that complements and sometimes combines with the Active Travel Strategy's Hub and Spoke Cycle network. The Green Loop connects multifunctional open spaces, communities and also functions as wildlife corridors in places.

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7.9.11 The Landscape Strategy will develop further detail proposals across five areas including:

- Colne Valley Regional Park South (west of Heathrow);
- Harmondsworth Country Park (north of Heathrow);
- The Heathrow Southern Gateway (southwest of Heathrow);
- Hatton Cross Quarter (southeast of Heathrow); and,
- Crane Valley (east of Heathrow).



*Key describes primary functions of open space parcels. All open spaces will be multifunctional.

Figure 7.9.1: Overview of landscape proposals

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Biodiversity

7.9.12 The Project will result in the loss of semi-natural habitats within the surrounds of the airport. However, the Preferred Masterplan has evolved to ensure that biodiversity can be maintained and improved through its implementation.

7.9.13 Currently, the habitats surrounding the airport are fragmented and of varying quality for biodiversity. The green infrastructure is designed to secure opportunities to deliver biodiversity mitigation in locations that are as close as possible to the affected areas, within a layout that can be designed to ensure habitat connectivity.

7.9.14 The quality and structure of new or improved semi-natural habitats within the green infrastructure will ensure that there are numerous opportunities for a range of legally protected and notable species. The principle behind the design is to ensure that the populations of species present in the landscape around Heathrow can be maintained or enhanced within a habitat that provides resilience over time. Opportunities for species not currently present in the area will also be provided.

7.9.15 The layout and extent of the green infrastructure has been strongly influenced by aspects of biodiversity. The layout has been informed by field survey results that show, for a number of species, their distribution and the routes that are used to navigate across a landscape fragmented by motorways, residential and industrial development. The extent of the green infrastructure has also been informed by early outputs from the biodiversity offsetting metric adopted by Heathrow in order to deliver biodiversity net gain in a transparent way.

7.9.16 Biodiversity net gain will mainly be delivered through the green infrastructure shown on the Preferred Masterplan, although other opportunities to deliver projects focused on improving biodiversity are being discussed with stakeholders. These opportunities are within the wider landscape but are still within relatively close proximity to the airport.

7.9.17 In addition to the design of green infrastructure, consideration of biodiversity within the evaluation of individual project components and the various assembly options has been integral. The inputs have followed the mitigation hierarchy that is central to ecological impact assessment and described within the ANPS. Where particularly sensitive ecological features were identified options that avoided these were highlighted as favourable within the evaluation process. Where this was not possible due to other project constraints alterations to the design were suggested to minimise effects and appropriate outline mitigation measures noted.

7.9.18 The Preferred Masterplan, as it evolves, will further demonstrate the principle that biodiversity interest will not be limited to areas of green infrastructure. Rather the design will ensure that the proposed hard infrastructure also provides opportunities for a range of biodiversity both from consideration of connectivity across the landscape and the integration of habitats and species with other design elements such as sustainable urban drainage.

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Figure 7.9.2: Biodiversity ponds and grassland

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7.10 Boundary Treatment

7.10.1 The airport boundary and perimeter will be carefully designed in response to its surrounding context and will improve the overall experience and appearance of the airport while ensuring Heathrow is secure. 'Boundary and perimeter' is one of the four Landscape Layers that are identified within the Landscape Strategy and is described here, recognising its importance in the context of proximity to local communities.

7.10.2 The boundary of the airport must:

- Effectively mitigate noise and visual impacts;
- Offer a coherent edge condition that contributes to wayfinding around the airport and reinforces the identity of the airport where appropriate;
- Interface sensitively with surrounding communities;
- Find smarter, brighter, greener ways to interface with adjacent communities, wildlife and other land uses; and,
- Provide a safe and secure operational boundary.

7.10.3 The requirements of the boundary in each location along the airport perimeter will be achieved by the application of one or more typical components, depending upon specific operational requirements and the external environment. For further information on boundary treatment components, please refer to Appendix C: Landscape Toolkit.

Standard Airside Fence
In areas without sensitive external receptors, we will provide a standard airport security fence to secure the airport operational area.

Screened Facade
In some locations, the airport boundary will present as a building, the facade of which may be combined with some form of visual screening.

Visual Mitigation Bund
In areas where space allows, we may provide a landscaped bund to provide visual screening of the airport from local communities.

Noise Attenuation Wall
In areas where aircraft ground noise has the potential to impact upon sensitive external receptors, we will provide a noise attenuation wall outside the airport fence line to mitigate the impact. The design of the wall may vary so that it reflects the nature and character of the adjacent communities and environment.

Operational Blast Protection
Where aircraft operations are in close proximity to the airport perimeter, it may be necessary to provide a blast protection wall to shield the airfield perimeter road from aircraft jet blast. Its design will be sensitive to the local environment. In some locations, this may also serve to provide noise attenuation.

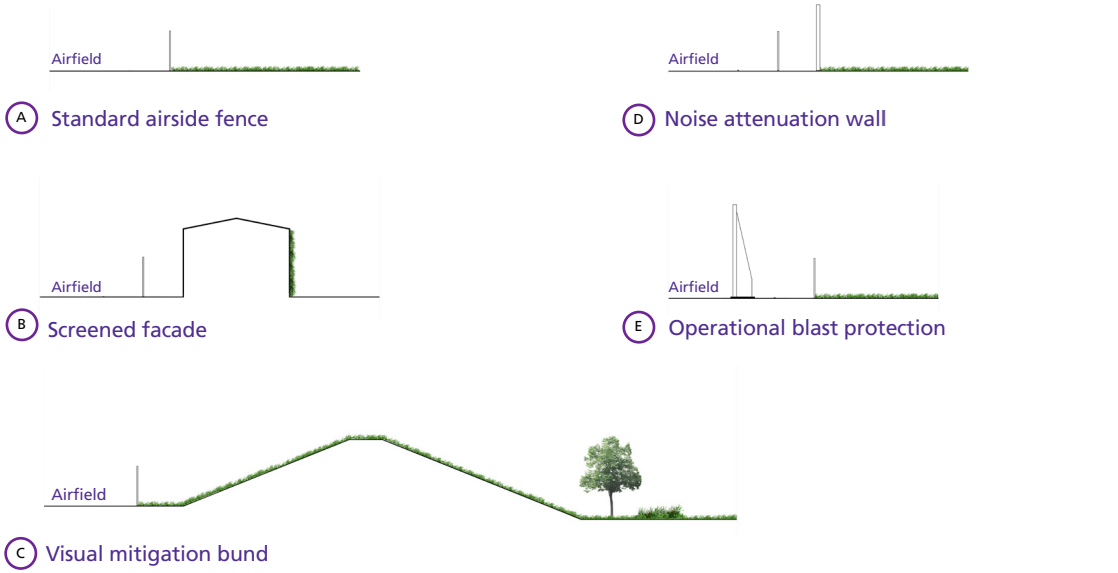


Figure 7.10.1: Proposed boundary treatment sections (see Figure 7.10.2)

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Figure 7.10.2: Proposed boundary treatment strategy

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7.11 Heritage

7.11.1 Historic environment principles have informed the Preferred Masterplan. In summary the Preferred Masterplan:

- Restricts land take that affects conservation areas and heritage assets to the minimum essential to the DCO Project and generally retains historic form and fabric where it is reasonably practicable;
- Ensures the historic environment is a viable resource for placemaking, with scope to deliver practicable public value measures, especially through the recognition and support for local community conservation initiatives;
- Generates new opportunities for the enjoyment and appreciation of historic areas, landscapes and assets; and,
- Recognises that active travel can create new positive connections between historic areas that assist communities or institutions responsible for the care, maintenance and conservation of heritage assets, while also recognising that surface access changes have the potential to reduce traffic within sensitive areas.

7.11.2 Specific arrangements have been incorporated through the design evaluation process:

- The proposed additional runway has been located to minimise the loss of Harmondsworth conservation area north of the High Street, retaining the historic streetscape and the more significant built heritage assets and assets groups; and,
- Land use changes will benefit the Mayfield Farm Scheduled Ancient Monuments.

7.11.3 Building on the Preferred Masterplan, it is proposed that further design measures areas to be informed by:

- A Historic Environment Research Framework, which will synthesise current knowledge and define priorities that any investigative works deliver a better understanding of local heritage and cultural significance;
- The Heritage Interpretation Strategy will further contribute to the design of recognisable places that celebrate the locally distinctive historic environment;
- A Heritage Design Strategy will inform urban, architectural and landscape design approaches appropriate to the historic environment; and,
- The Heritage Management Strategy will define processes and practices that protect heritage assets throughout the construction process and airport operations.

7.11.4 This combination of historic environment research, interpretation and design will deliver a positive contribution to the historic environment and promote understanding, appreciation and engagement. They provide a framework for engaging with the airport's neighbours, enabling them to consider how the Project might benefit the sustainable use of heritage assets in ways that strengthen communities and improve the experiences of those engaged in the airport.

7.11.5 The Masterplan establishes key opportunities:

- An airport environment better integrated and aligned with the distinctive heritage qualities of its neighbouring village historic areas;
- Harmondsworth Country Park visitor centre, a new community facility focused on the Great Barn and St. Mary's Church, with additional opportunities for beneficial use of residential historic buildings and the conservation area in Harmondsworth;
- Promoting positive opportunities to sustain heritage assets through diversification in use, especially historic village locations such as Colnbrook, with its legacy of historic commercial buildings;
- Delivering heritage interpretation through the Green Loop, providing pedestrian and cycling access that connects heritage assets to Public Open Space, other green spaces and themed public art that explores the unique and rich character of the historic environment within which the airport sits;
- Opportunities to provide for Public Open Space and interpretative landscape treatment at Mayfield Farm Scheduled Ancient Monuments, replacing current agricultural land uses; and,
- Traffic control measures for conservation area likely to be affected by surface access changes.

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Figure 7.11.1: Illustrative visualisation of Harmondsworth Country Park

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7.12 Utilities

7.12.1 The construction of the new runway and its associated development will impact upon a number of existing utilities which would need to be diverted or relocated. Additional facilities will also be required to support the growth of the airport and the increased infrastructure that will be delivered as part of the expansion.

Electrical

7.12.2 The existing 275 and 132kV overhead powerlines at the western end of the new runway will need to be removed as they clash with height restrictions imposed by the runway. These will be diverted underground. Two locations for grid supply points are proposed northwest of M25 Junction 15 and west of the industrial area in Poyle.

7.12.3 Longford substation will be relocated to a site to the west of the Colnbrook rail branch line and north of the A3044. Permission to undertake this relocation may be sought prior to the DCO application for the Project.

Utility Corridors

7.12.4 Other utility routes impacted by the expansion, such as the Bath Road Sewer, will be diverted in consolidated utility corridors to the north of the new runway along routes selected to minimise impacts on existing infrastructure and local communities.

Fuel

7.12.5 Aircraft fuel is currently stored at the Perry Oaks site, which is located within the existing airport boundary, between the T5C satellite and Terminal 3, south of the existing centre runway. Additional fuel tanks are proposed for this facility.

7.12.6 Further fuel capacity is required in addition to these four new tanks and is to be located between the existing centre runway and the new runway. This additional capacity will consist of four new tanks immediately east of the ATETs at the southwestern corner of the T5XN apron.

7.12.7 The existing fuel railhead is displaced to the northwest of the runway. The airport will be supplied through the relocated Longford Metering Station and Northern Fuel Receipt facility, both to be located south of the west end of the new runway.

Thermal

7.12.8 The proposed heating and cooling strategy comprises thermal stores at a number of locations around the airport, including a new lake east of Saxon Lake, borehole thermal energy stores and new and extended energy centres.

Fire Water

7.12.9 The proposed fire water infrastructure comprises storage at Saxon Lake, a new pumping station west of the lake and underground pipework to convey water to the on-airport fuel areas.

Non-Potable Water

7.12.10 The proposed non-potable water infrastructure comprises storage at Saxon Lake and Clock House Lane Pit, treatment facilities, boreholes and rainwater harvesting facilities. Reuse of treated surface water at Mayfield Farm is also proposed with an underground storage tank included in this area.

Foul Water

7.12.11 Two strategies are being considered for foul water generated by the expansion, and possibly, the existing airport facilities. The preferred strategy is to offset where foul is discharged unrestricted to the Thames Water Sewer. This strategy is under review with Thames Water. An alternative is to provide a new Waste Water Treatment Plant (WWTP) to treat foul water from the airfield. The location of the WWTP is flexible but must be remote from habitation due to the risk of odour. A site north of Holloway Lane and south of the M4 has been proposed as a suitable location in the Preferred Masterplan.

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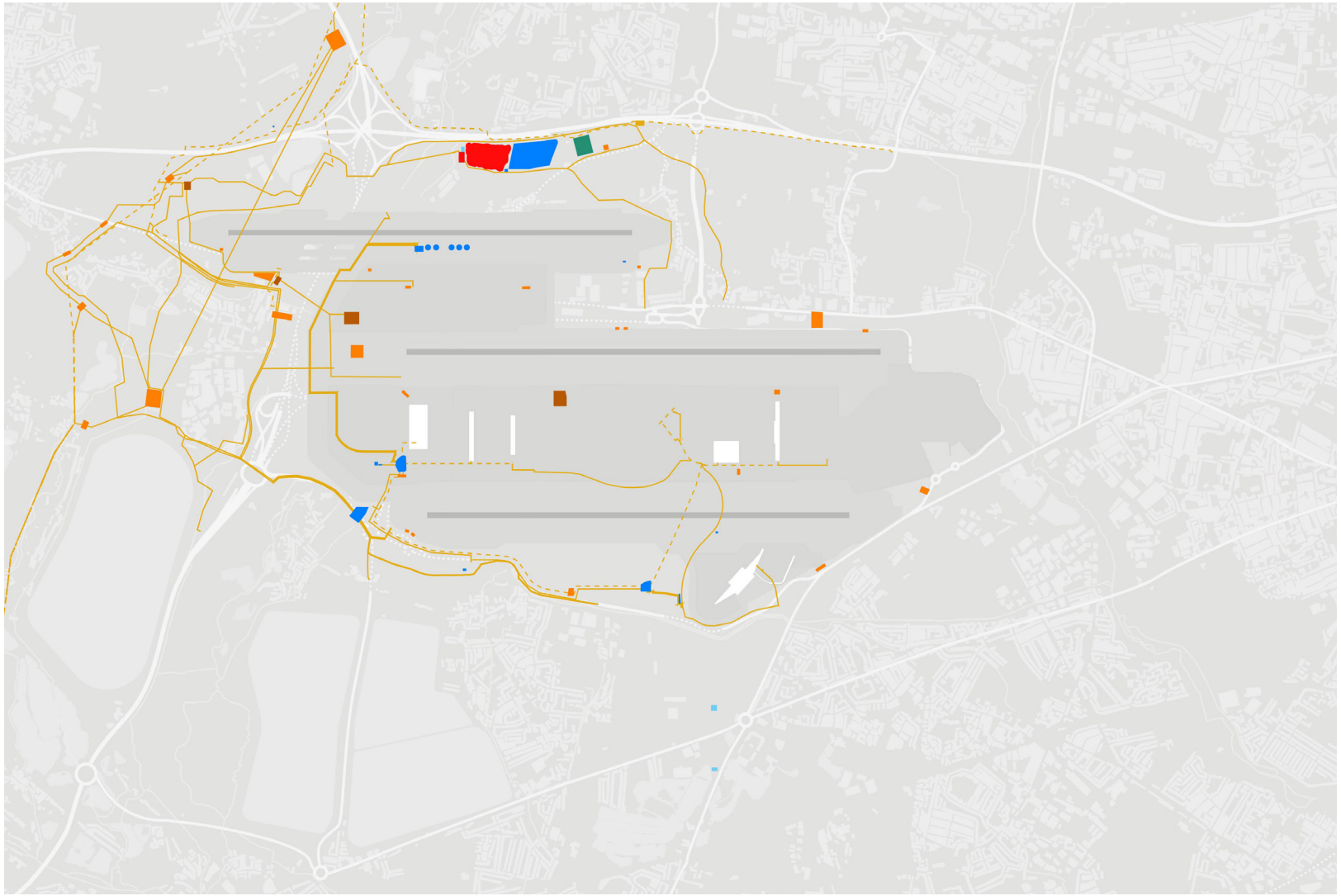


Figure 7.12.1: Utility corridors and infrastructure

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Indicative Phasing

8



8.0 Indicative Phasing

8.1 Introduction

8.1.1 As part of the DCO application, we will seek consent to remove the 480,000 Air Traffic Movements (ATMs) cap to enable Heathrow to implement expansion. We will start the expansion straight away and believe we can provide an additional 25,000 ATMs per annum on the existing two runways prior to the proposed third runway being brought into operation. However, because this initial growth would be enabled through airspace change and operational changes and require only minimal infrastructure changes to the airport, they are not included here as a distinct phase towards the final Masterplan. For more information on this initial growth in ATMs please see the *Early Growth* document. This early growth has been assessed in the *Preliminary Environmental Information Report.*

8.1.2 The following drawings show a likely sequence of development leading to a completed Heathrow and have been provided to help consultees understand the proposals. At each phase, infrastructure is drawn to accommodate the stated annual passenger throughout. The year in which the infrastructure illustrated becomes operational is shown at each phase. However, it should be noted that the speed of delivery of infrastructure could be influenced by changing passenger demand, affordability, or other factors and hence this is an illustrative sequencing. Heathrow is confident that the phasing shown is a realistic and reasonable case upon which consultees can provide their views.

8.1.3 The following phases have been illustrated for these reasons:

- **Phase 1 –** Represents the airport when the new runway becomes operational currently anticipated to be 2026;
- **Phase 2 – 2030:** To represent the airport in 2030 as this is a specified year in the ANPS for public transport mode share;
- **Phase 3 – 2035: A**t this point, the infrastructure represents that required for 740,000 ATMs and 130mppa; and,
- **Phase 4 – End State:** This is when the capacity is 142mppa and is expected by circa 2050.

8.1.4 The detailed construction phasing is documented in the *Construction Proposals* document.

8.1.5 The phasing shown is indicative and is expected to evolve in response to circumstances over the lengthy implementation period but is issued for consultation.

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8.2 Phase 1 - Circa 2026 (Opening Day)

8.2.1 Phase 1 represents the infrastructure that is required on runway opening day. At this stage, the new runway and taxiway connections will have been completed and the M25, A4, A3044 and river corridors impacted by the runway will have been diverted. The road access to T5 from the M25 will be relocated to the south.

8.2.2 Terminal and apron capacity will be met by providing enhancements to the existing facilities.

8.2.3 The Colnbrook Railhead will have been realigned by this point and will continue to be used for the conveyance of construction materials. It will also be used for delivery of aviation fuel.

8.2.4 The Immigration Removal Centre (IRC) will be re-provided on a site next to Faggs Road in Zone G. Other re-provisions include impacted ASD such as freight forwarding and displaced hotels.

8.2.5 The Northern Perimeter Road will still be operational, as will many of the existing land uses along it and Bath Road, such as the Thistle, Regus and Premier Inn Hotels, and the existing car parks in this area.

8.2.6 The new drainage and pollution control measures will be operational by this point. Surface water treatment areas are illustrated in three main areas: northeast, southwest and south of the airport.

8.2.7 The multi-storey car park on the existing T4 long stay site will be complete.

8.2.8 With these major infrastructure changes the new boundary of Heathrow is largely reset with minimal future changes – the main outstanding one being the Northern Parkway.

8.2.9 Surrounding the airport, the Green Loop and network of active travel will be in place. Around this boundary the new landscaping will start to mature.



Figure 8.2.1: Indicative phasing circa 2026

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8.3 Phase 2 - 2030 (115 mppa)

8.3.1 By Phase 2, the first phase of the new T5X terminal west of T5A will be open. T2A Phase 2 will also have been delivered with an additional 'stick' pier protruding northwards from its eastern side. There will be new remote stands with a taxilane for access in the space between the central and new runways.

8.3.2 The Northern Perimeter Road parking areas will still be operational by this point, however, some of the spaces currently serving T5 will be reallocated to serve the enlarged East Campus. To make up for the loss of spaces assigned to T5, and to serve the new passenger capacity in the West Campus, around half the Southern Parkway will need to be operational by this stage.

8.3.3 New and improved road infrastructure in the south of the airport, consisting of works to Stanwell Moor Junction and the Southern Perimeter Road, a new landside link road through the cargo area, and a new southern road tunnel to the CTA, will also be constructed by this stage.

8.5.4 As the requirement for construction support sites reduce we will return the areas to landscape.



Figure 8.3.1: Indicative phasing 2030

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8.4 Phase 3 - 2035 (130 mppa)

8.4.1 By Phase 3, additional phases of T5X will have been built, including a northerly extension to the terminal and a pier extension. The first section of the T5XN northern satellite will be operational, with additional aircraft stands and taxi lanes, and a road-based connectivity system in place to convey passengers from T5X to the satellite.

8.4.2 The Southern Parkway will be fully completed by this point. The Northern Parkway site will be in use as an at-grade parking area for the CTA, replacing some of the existing parking areas now lost due to the closure of the west end of the Northern Perimeter Road. Improvements to M4 Junction 4 and new access roads from the diverted A4 will provide access to the Northern Parkway.

8.5.4 As the requirement for construction support sites reduce we will return the areas to landscape.



Figure 8.4.1: Indicative phasing 2035

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8.5 Phase 4 - End State Circa 2050 (142 mppa)

8.5.1 Between Phase 3 and the End State, T5X and T5XN will be fully built out and the road-based connectivity system will be replaced by an enhanced system appropriate for increased demands. The east campus will also be fully developed during this stage, with a full T2 northern extension, a new T2C eastern satellite and the redevelopment of T3 with a linear T2D satellite with remote aircraft stands.

8.5.2 A new aircraft hangar will be provided within the existing maintenance base area to replace Cathedral Hangar which is displaced by the construction of T2C. The Northern Parkway will be fully developed with multi-storey car parking buildings to serve the expanded east campus. Additional accesses (Rapid Access Taxiways/ Rapid Exit Taxiways) will be added to the runways to improve airfield performance.

8.5.3 As construction demands reduce in the railhead area, sections of the area will be re-purposed to accommodate increasing ASD demand, avoiding the need to take additional land.



Figure 8.5.1: Indicative phasing end state circa 2050

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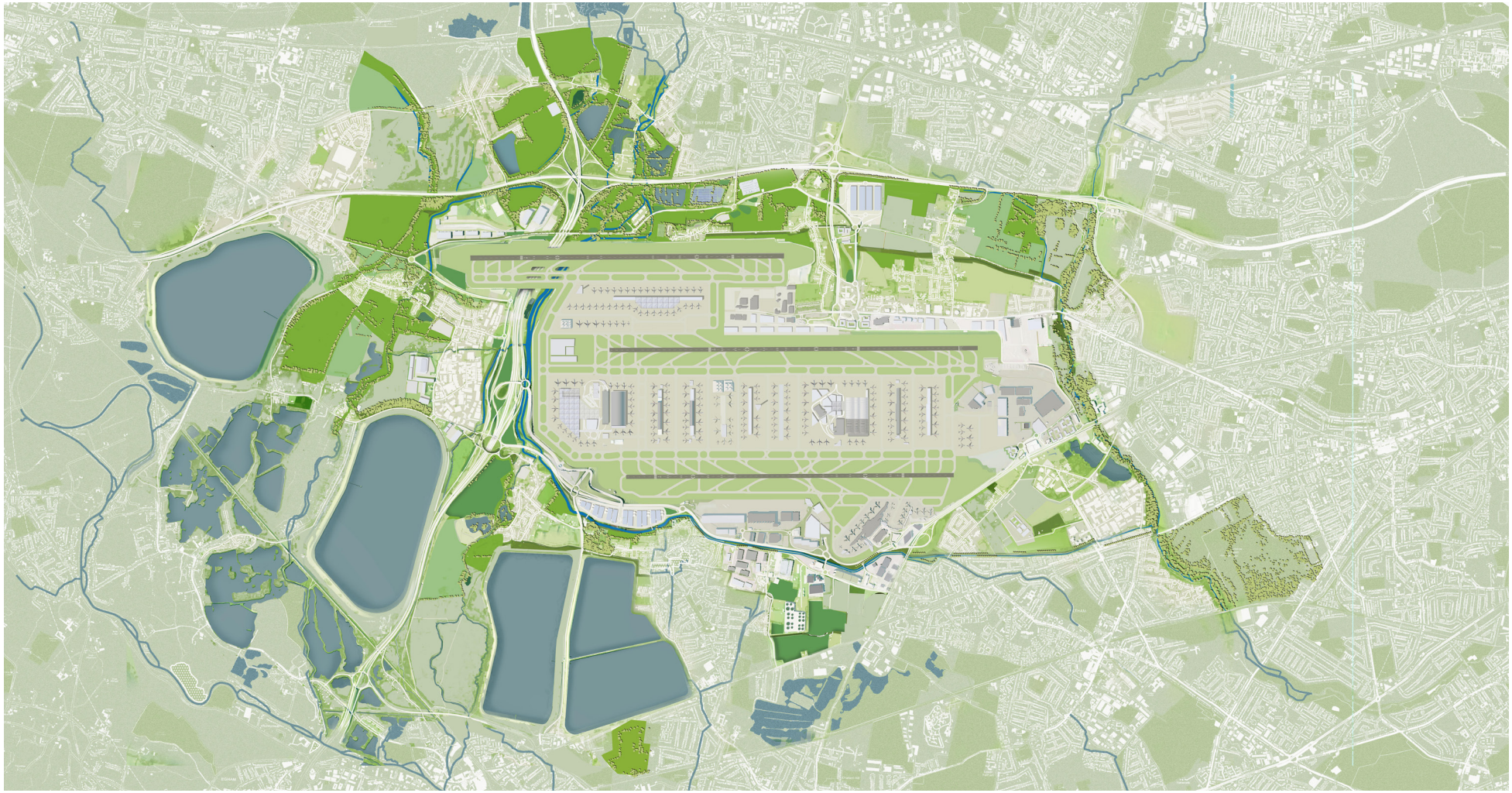


Figure 8.5.2: Illustrative phasing end state

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