# **3.0 ACCESS**





# 3.1 Policy Approach

The following policies have been identified as relevant to access as part of the proposals:

• North Somerset Council Core Strategy (2017) and Sites and Policies Plan Part 1: Development Management Policies (2016);

Extract from North Somerset Core Strategy 2017 Page 139 - Replacement Local Plan policies Those Replacement Local Plan policies previously saved in March 2010 (i.e. all except GDP/4, H/10 and T/5) but not listed in the table will remain saved until superseded by the adoption of future development plan documents;

- National Planning Policy Framework 2018;
- Passengers with Reduced Mobility Regulation (EC) No 1107/2006 (refer to description below);
- Approved Document M: access to and use of buildings, volume 2: buildings other than dwellings
- BS 8300-1:2018. Design of an accessible and inclusive built environment. External environment. Code of practice
- BS 8300-2:2018. Design of an accessible and inclusive built environment. Buildings. Code of practice
- The Equality Act (2010)

#### 3.2 Sites and Policies Plan Part 1: Development Management Policies (2016)

Policy DM33 of the Sites and Policies Plan Part 1: Development Management Policies provides policy guidance with regards to inclusive access into non-residential buildings and spaces. This policy states;

"The design of the public realm, shared amenity spaces and entrances into public buildings must be accessible for everyone who may wish to use a building, facility or area of open space on an inclusive basis. Designs should make no physical distinction between the people who are able to use them. Where there are genuine barriers to designs incorporating a group of people's needs specific alternatives must be put in place. Alternatives must maintain an equal standard of service in a dignified and appropriate manner. Applicants will be required to demonstrate in supporting documents such as the Design and Access Statement that inclusive access arrangements have been taken into account and included in the design solution. This should include:

- The siting, layout, design and orientation of the proposal;
- The movement around the site or building(s); and
- The access and egress from any buildings including any necessary changes to the nearby public realm."

The supporting text to this policy states;

"Details of how access will be achieved should be set out in the Design and

Access Statement together with appropriate plans and submitted as a part of any application for a public building or space. Applicants should make reference to the "British Standard, BS 8300"

# 3.3 Passengers with Reduced Mobility

Regulation (EC) No <u>1107/2006</u> of the Parliament and of the Council of 5<sup>th</sup> July 2006 concerns the rights of disabled persons and persons with reduced mobility when travelling by air [Official Journal L 204 of 26.7.2006].

The rights of persons with reduced mobility when using air transport prohibits operators from refusing reservation or boarding to persons because of their disability.

This Regulation is part of a general plan to reinforce passenger rights on all forms of transport. Persons placed at a disadvantage by reduced mobility, whether caused by disability, age or another factor, should have opportunities for air travel comparable to those of other citizens. The key term used in the act that will be further referenced in this document is "person with reduced mobility" (PRM) which means any person whose mobility when using transport is reduced due to any physical disability (sensory or locomotor, permanent or temporary), intellectual disability or impairment, or any other cause of disability, or age, and whose situation needs appropriate attention and the adaptation to his or her particular needs of the service made available to all passengers.

It is the policy and approach of BAL to meet the requirements of the above EC Regulation and provide facilities which meet the requirements of Part M of the Building Regulations, policy DM33 of the Sites and Policies Plan Part 1: Development Management Policies (2016), BS8300-1:2018, BS8300-2:2018 and The Equality Act (2010).

#### 3.4 Passenger Access

Access to and from an airport, and indeed the access within the confines of an airport site, is complex. Successfully determining the hierarchy of the various access requirements and the relationship between these elements is essential.

A simple but effective approach has been applied to the distribution of arriving and departing passengers with a further focus on incorporating the site wide operational access requirements. This approach has proved fundamental in creating a clear and concise access design; the following examples outline some key elements.

- An arterial road across the northside of the site forms a connecting route which organises all the vehicular functions of the north site. For this element priority is obviously given to vehicular activity, and where pedestrian access across this route is required a dedicated bridge link is proposed. Various bus stops through the north parking areas allow for safe routing from the car parks to the drop off zone on the top level of the MSCP Phase 2. The philosophy is to separate the primary vehicular and pedestrian routes.
- Arrivals/departures split A feature canopy will mark the transition from the



approved MSCP Phase 2 passenger link bridge to the existing terminal building. From here passengers are directed towards the existing check in halls and in addition this feature canopy forms a destination point for arriving passengers.

- Vertical Circulation Cores will form part of the terminal extension design and will distribute and collect passengers. These cores ensure that persons with reduced mobility are not segregated but will be able to move up and down in a building and use the same access points as everyone else without detours.
- East Walkway and East Pier This will be designed with the simple philosophy of utilising the upper level for passenger transfer routes (departing and arriving) and the lower level for passenger pre-board zones (PBZ). This allows for an effective distribution of passengers from the terminal to the various boarding gates. Each ground floor PBZ will be linked to the first floor by a staircore while some of the larger PBZs will have lift access also.
- Travellator travellators (moving walkways) are proposed in the new east walkway to effectively reduce the walking distance between the terminal and boarding gates. As airport capacity and size increases, travellators are an ideal solution to improve passenger experience by reducing journey times for both departing and arriving passengers. This investment in travellators supports the passenger experience design principle.
- Wheelchair users and those with reduced mobility can circulate and use the building in the same way as everyone else.
- PRM access is further prioritised with a dedicated PRM facility in the proposed South Terminal Extension. PRM passengers have direct access to the Ambulifts which 'pick up' directly outside this facility.
- Parking PRM parking spaces have been provided to all car parks and on all levels of the MSCPs and in close proximity to the main Vertical Circulation Core (VCC).
- Commitment to accessible passenger vehicles, notably the 'Airport Flyer', landside bussing and airside bussing.

In addition, the development will seek to incorporate the following features to support access for all;

- sheltered access between terminal and boarding gates;
- a focused and holistic PRM operation for both departing and arriving passengers;
- voice announcements and new signage will reinforce access and orientation;
- as development progresses, a lesser dependence on airside buses;
- induction loop to enhance the public address system;
- low level flight information screens;
- low level wheelchair accessible information desks;
- tactile signage to passenger lifts and at the entrance to the toilet cubicles;
- audible voice level indicator in operation in all passenger lifts;
- additional disabled WC facilities;

- commitment to Changing Places facilities;
- an inclusive experience; and
- existing site levels utilized to provide coordinated access.

# 3.5 Vehicular and Transport Access

Access to and from the airport is generally via express coach, private car or taxi, or private hire vehicles.

With reference to vehicular and public transport access, the consented 10 mppa design incorporates the MSCP Phase 2. Within this there are dedicated pick up and drop off zones and taxi rank and passenger facilities on the top deck, all of which converge at the central circulation core which in turn links with the main terminal building plaza via the glass enclosed pedestrian bridge. All pedestrian movement from the approved MSCP Phases 1 and 2 as well the proposed Phase 3 and the adjacent northside parking is centred on utilising this circulation core. Dedicated pedestrian routes are provided from the surface car park directly to this core. This singular element organises the major passenger level changes from the surface car parking and MSCP levels right through onto the upper level. Pedestrian access from the further reaches of the surface car park are facilitated by an internal bus loop picking up at various dedicated points within and setting down passengers at the transport interchange on the upper level of the car park.

A brief description of the various transport elements are outlined below:

# i. Public Transport and Taxi

Bristol Airport is well served by an extensive range of frequent and direct bus routes to Bristol, Bath and Weston-super-Mare, as well as other local towns and villages. The airport also acts as a hub for local bus routes within North Somerset, where local bus services from the surrounding villages connect with the frequent routes.

The main bus stops are located directly outside of the terminal building, accessed via a secure bus lane from Northside Road. The bus lane is controlled by rising bollards and is clearly marked with signage and red surfacing. Less frequent rural routes do not enter the airport itself but instead serve stops at Lulsgate Bottom on the A38, which is a short walk from the airport terminal.

Service A1, branded as the 'Airport Flyer', is the principal bus route to Bristol Airport. The Airport Flyer operates 24 hours a day, seven days per week, with frequencies up to every 10 minutes (6 buses per hour) from Bristol City Centre. The A1 service provides the main link with the National Rail network at Bristol Temple Meads railway station, for onward connections to London, the South West, South Wales, the South Coast and the Midlands.

The A1 service is a limited-stop service operating with brand-new vehicles equipped with leather seats, tables, additional luggage space, USB sockets and free wi-fi. The service has been a considerable success, with a recent enhancement to the frequency and vehicle specification helping to boost passenger numbers significantly. The new double deck buses utilised on the route have increased capacity on the service to up to 828 seats per hour.



The City of Bristol is by far the largest catchment area for airport users and particularly by those travelling by public transport. With this in mind, the frequency of the main bus services to/from the city centre has been increased to 8 buses per hour by introduction of service A2 in October 2018. This has further increased capacity by 144 seats per hour.

In conjunction with the introduction of service A2, the A1 utilises the Metrobus infrastructure between Bristol City Centre and Ashton Vale. This consists of a section of guided busway and on-street priority measures to improve journey times and reliability on the key route into Bristol.

Service A2 operates as a local bus service calling at all stops, retaining the link between Bedminster and the airport, and therefore ensuring continued connectivity for staff and passengers living in south Bristol. In order to maximise opportunity for all staff, services operate between 03:00 and 00:00, seven days per week.

Service A3 provides the key link between the airport and Weston-super-Mare, operating every 60 minutes from early morning (03:00) until late at night (23:00) seven days per week. The route is also branded as 'Airport Flyer' although uses single deck buses.

Service A4, branded as 'Air Decker' connects Bath and Keynsham to Bristol Airport. The Air Decker service operates every 30 minutes (two buses per hour) during the daytime with hourly services in the early morning and late evenings, seven days per week.

Service A5 is a new route which operates in part replacement of former routes A2 and 97.

The service provides 10 journeys per day on Monday to Friday between Felton, Winford, Bristol Airport, Wrington and Langford, with alternate journeys serving either Congresbury and Yatton or Sandford and Winscombe.

Service U2 is a new service which commenced in September 2018 which provides an hourly link between the University of Bristol's main campus in Clifton and the veterinary campus at Upper Langford. This service stops on the A38 at Lulsgate.

To help further encourage the airport's role as a public transport hub where residents of local villages can access the Airport Flyer and other services, a concessionary scheme for residents of selected areas of the local community is available for subsidised travel. This provides up to a 60% reduction in fares on services A1, A2 and A3.

Bristol Airport also has a good range of long-distance coach services, currently providing connections to Taunton, Exeter, Plymouth, Newport and Cardiff.

The airport taxi service is currently operated under a concessionary arrangement with Arrow Cars, who were awarded an exclusive five-year contract in April 2015. This allows Arrow Cars sole rights to provision of private hire services taking bookings from the airport terminal forecourt, but does not exclude other operators who are able to set-down or pick-up prebooked passengers from elsewhere; this is directed towards the drop-off and short stay car parks on site.

Although there are no direct rail services to Bristol Airport, the airport Flyer provides a direct connection to Bristol Temple Meads. There are other railway stations in the local area, namely Nailsea and Backwell, Yatton, Worle, Weston Town Centre, Bedminster and Parson Street.

# ii. Car Drop-off and Pick Up

This facility, currently located to the west of the terminal building, is due to be relocated on the top level of the MSCP Phase 2, providing the departing passenger with a direct and level approach to the terminal. Proposed signage and road markings will orientate and distribute vehicles to the drop off area.

A pick-up facility will be available within the MSCP Phase 2. This is on a separate level to the drop off facility.

# iii. Car Park Access (Northside)

The MSCPs are accessed from the main arterial route. This allows for flexible use and ease of phasing during construction. Roundabouts and left turn lanes have been incorporated. The northside surface car park has separate access/egress points to the east and west extents. A comprehensive external signage system will direct vehicles to the various parking services.

#### iv. Internal Buses (Northside)

Passengers using the northside surface car park are offered a courtesy bus service which picks up at the several bus stops and drops off on the top deck of the MSCP Phase 2. In parallel with this bus service, the passengers using the northside surface car park can reach the terminal by entering the MSCP at ground level, using the central core and then crossing to the terminal via the link bridge. The northside car park is landscaped so that pedestrian

crossings have priority over the vehicular routes. This bus route utilises the arterial road to complete the continuous loop.

# v. Pedestrian Access

All pedestrian movement from the MSCP and the adjacent northside parking is centred on the central core located within the proposed MSCP Phase 2. Dedicated pedestrian routes are provided through the northside surface car park directly to this core. This singular element organises the major passenger level changes from the surface car parking and MSCP levels right through onto the upper level.

Footpaths are provided along the main internal access roads allowing safe pedestrian access throughout the site and indeed this provision allows pedestrian access from the A38 entrance roundabout thereby facilitating the local community.

# vi. Motorcycles, Bicycles etc.

Dedicated secure parking arrangements are located in the MSCPs for these users.

Due to its largely rural location, walking and cycling trips are unlikely to be made to/from the airport by passengers who usually carry luggage. Employees are more likely to commute to the airport by walking and cycling trips, primarily those living in nearby villages. However, based on the design principles for this development, BAL have sought to incorporate facilities to encourage walking and cycling.

# vii. Car Park Access/Car Hire/Internal Buses (Southside)

Passengers using the southside parking and the car hire facility will be linked to the northside by courtesy accessible buses on a continuous loop and vice versa. These buses drop off and pick up from the transport interchange (top level of the MSCP).

#### viii. Deliveries/Operations/Staff

The operational vehicle element of the airport development requires a defined access solution. The spine road forms the primary access and egress route for the operational vehicle activity which includes goods delivery, fuel farm, some staff parking, hotel guests, catering facility, associated airport operations and airside access. The majority of these operational buildings and infrastructure are concentrated to the west of the site so that the proposed terminal scheme is prioritised. Employee access is generally via public transport to the transport interchange, or from the staff car park in the Silver Zone car park area on the southside via the courtesy buses described above.

#### 3.6 Emergency Services

Access for the emergency services has been allowed for along the front of the terminal building and any canopies that traverse this path have been designed to allow emergency vehicles to pass underneath. In the event of an emergency all building users will escape either airside or landside to allocated congregation points depending on the user's location at the time of an incident, this is necessary to maintain a secure environment at the airport.

![](_page_7_Picture_0.jpeg)

# **4.0 EVALUATION**

![](_page_8_Picture_1.jpeg)

![](_page_9_Picture_0.jpeg)

#### 4.1 Overview

The evaluation of the emerging information and engagement with stakeholders has assisted in optioneering, thereby formulating the overall design and access principles. This chapter reviews the objectives of the development. It includes a review of the airport's context along with emerging assessments undertaken in support of the planning application and summarises engagement whilst describing the design evolution including alternatives considered.

# 4.2 Objectives

As set out in detail in section 1.2 of this document, BAL's objectives for the Proposed Development of the airport are to focus on;

- Safety and Security;
- Passenger Experience;
- Demand;
- Value for Money;
- Sustainability; and
- Policy.

# 4.2.1 Involvement

There has been ongoing engagement during the design evolution stage, notably through the following public consultations on the emerging Master Plan;

- Your Airport: your views: A world of opportunities: 16<sup>th</sup> November 2017 to 26<sup>th</sup> January 2018.
- Your Airport: your views: Towards 2050 Master Plan Consultation Stage II Development Proposals and Option: 14<sup>th</sup> May to 6<sup>th</sup> July 2018.

The second stage of the Master Plan (Towards 2050) set out BAL's proposals for, and sought views on, development of the airport to 12 mppa.

Further detailed information is available from the Consultation Feedback Report which is submitted in support of the planning application.

# 4.3 Health and Safety

Health and safety considerations are fundamental to this 12 mppa development proposal and inform all aspects of the design from inception through to completion. Established best practice, regulations and policy will ensure that health and safety is at the forefront of the various elements of this proposal. Health and safety is an important consideration for both the construction and operational stages of the Proposed Development. These aspects are summarised as follows;

# Construction

i.

- For all developments, there will be an accompanying Construction and Environmental Management Plan (CEMP). An outline CEMP is contained within the Environment Statement for reference purposes.
- The Construction (Design and Management) Regulations 2015 provide a managed standard for health and safety in the building construction and these apply to all roles including clients, designers, principal designer, principal contractor, contractor and workers. These regulations ensure;
  - the work is sensibly planned so the risks involved are managed from start to finish;
  - o the right people are engaged for the right job at the right time;
  - work is cooperative and coordinated with others;
  - the right information about the risks and how they are being managed is recorded;
  - $\circ$   $\quad$  this information is communicated effectively to those who need to know;
  - workers are consulted and engaged with regarding the risks and how they are being managed.
- BAL risk workshops for each and every project with risk management built into the construction management process.
- Main Contractor health and safety commitments:
  - o Occupational health;
  - Zero harm elimination of risk.
  - Considerate Constructors Scheme
- The fire strategy (life safety) for the 12 mppa development will employ an engineered solution based on BS9999. This code of practice for fire safety in the design, management and use of buildings has been used as the principal fire guidance to develop the fire strategy for the works to be carried out at the airport. This code of practice offers the advantage that it allows a more rational approach to fire safety by setting the recommended travel distances and exit widths based on a risk profile of the building, rather than simply applying a generic travel distance for all building types.

# Airside Operations

ii.

• Bristol Airport operates under rules required by the European Aviation Safety Agency (EASA). These rules require specific areas of the airport's operating and surrounding areas to be protected from the effects of the built environment. These EASA rules will be applied to all design and access considerations. Furthermore, Bristol Airport operates under the relevant Civil Aviation Publications (CAPs) from the Civil Aviation Authority (CAA).

# 4.4 Security

All measures, materials and processes introduced into the security protocol must be commensurate with regulations protecting the health and safety of all personnel, staff, visitors and the general public.

It is the airport authorities who accept, through risk assessment, which measures, materials and processes comply with such legislation.

Airports must satisfy particular criteria with regard to counter-terrorism. In particular, and as relevant to this DAS, this relates to the Department for Transport's Aviation Security in Airport Development (ASIAD) requirements. The key criteria relate to the design of particular components, including terminal structures, façade, roofs, forecourts and interiors.

General security measures can be broken down into a number of categories, all of which have been considered in the 12 mppa proposal and applied where necessary. These include;

- Passive surveillance: Public spaces are designed to avoid hiding places, to increase transparency and awareness across and between spaces for passive security and to maximise the effectiveness of surveillance, to deter loitering, and to permit staff to operate 'behind the-scenes' in an efficient and private manner;
- Active surveillance: Use of external CCTV systems and security personnel to:
  - Monitor activities within the facility;
  - o Identify personnel moving though critical areas within the facility;
  - Identify and monitor passengers and personnel crossing airside/landside boundaries;
- Physical segregation: separation of those landside from airside, required in order to screen those who are legitimate passengers and permitting screening for explosives and weapons.
- Vehicle management: The main airside vehicular access points are not affected by this proposal. Landside vehicular activity requires some key planning objectives to maintain security, these include;
  - Vehicle drop-off areas are kept away from high density public areas;
  - o Vehicle speed, velocity and impact probabilities are assessed and mitigated;
  - Non-authorized vehicles are kept a minimum of 30 metres from high density public areas where physically possible;
  - The effective use of physical barriers which are fitted and operated in accordance with CPNI issued National Standards;
  - The effective managed access of authorized vehicles to the terminal forecourt.
- For existing terminals, where site specific factors prevent the creation of a 30 metre vehicle exclusion zone, BAL will seek a formal Blast Mitigation Report (BMR) for advice as to recommended mitigating measures.

# 4.5 Design Options

In many areas of airport design development there may be more than one possible approach. The consideration of options were made in the context of the emerging Master Plan with a focus on making best use of the existing site. As a result, the options considered during the development of 12 mppa proposals focused on the following elements;

- The terminal building extensions;
- Passenger car parking; and
- Highways improvements to the A38.

# 4.5.1 The Terminal Building Extensions

The need to provide additional terminal building capacity is central to any plan to deliver passenger growth. The existing terminal building was originally opened in 2000, with subsequent extensions added as explained in section 2.3. The building is compact and efficient in its use of floor space and will be one of the most efficient passenger terminals, in terms of floor space per passenger in the UK.

Without increased capacity in the existing terminal, proposals to grow the passenger throughput towards 12mppa will increasingly result in congestion, most noticeably at peak times of operation. Capacity modelling has been undertaken by BAL and this has been independently verified. From this modelling it has been demonstrated that the terminal building will have operational processing capacity constraints, specifically with the check in facilities, security search, baggage reclaim, immigration operations and departure lounge sub-systems. These constraints in an increasingly busy terminal will ultimately have an adverse effect on airline punctuality and could compromise the success of the operation as a whole.

The 10 mppa planning approval continues to be developed in a phased manner in line with passenger growth, including the first phases of both the East and West Terminal Extensions. Following recent completion of various developments, the existing facilities accommodated 8.2 mppa in 2017. Future phases are reflected (and revised) in the proposals for development of the terminal to accommodate 12 mppa.

The current terminal building is bounded on all four sides by existing buildings, airside operations, landside operations and future planned buildings. These site parameters along with the internal building layout and associated passenger processes constrain the opportunities for terminal building extensions.

The design progression for this element of the Proposed Development has necessitated an analysis of alternative options for the required extensions to the terminal building to account for an additional 2 mppa. The option of not extending the terminal was discounted as this would not meet the capacity. The option for a new terminal was not considered as necessary for 12 mppa capacity but this is a consideration in the Master Plan beyond 12 mppa. The alternative options considered included;

- Option 1: East Terminal Extension;
- Option 2: South Terminal Extension;

![](_page_12_Figure_0.jpeg)

Fig. 4.5.1A Reference Section

- Option 3a: West Terminal Extension (10 mppa design); and
- Option 3b: West Terminal Extension with a revised design.

#### i. Option 1: East Terminal Extension

As part of the extant consent for expansion of Bristol Airport to accommodate 10 mppa, planning permission was granted for an East Terminal Extension. The first phase of this extension was completed in 2015 and incorporated the rear section of Level 10 and the 'spine' element of Level 20 up to grid line (GL) 34. The existing terminal elevations can be referenced on 17090-ZZ-300-009-01 - East Walkway - Existing Elevations drawing. The second phase, which has not been completed, has been reviewed in detail to determine its ability to accommodate a passenger throughput of 12 mppa. The floor levels of the proposal are illustrated in Fig. 4.5.1A.

The existing consented East Terminal Extension phased proposal focused on extending the existing terminal building eastwards across levels 00, 10 and 20. To complete this extension as per the 10 mppa approval, the second phase of the East Terminal Extension would extend these levels eastwards by another three structural bays resulting in an increase to the check in hall (additional check-in desks), expansion of the baggage make-up area on level 00 and an increase to the departures concourse and associated facilities on floor levels 10 and 20.

Upon review, it was identified that the 12 mppa design does not require the amount of additional check in desks that the 10 mppa initially offered. The 10 mppa approval sought to increase the number of check-in desks to 67 from an original 50. Following recent works to the Hold Baggage Screening (HBS) in 2017/18, the number of check-in desks has now reduced to 49. These 49 desks are currently deemed sufficient because BAL has commenced a transition to automated bag drop operations. With this new automated operation, each check-in desk has increased. Fundamentally, this reduces the demand for traditional check-in desk facilities, however, the success or failure of self bag drop will depend on the ability of airlines adopting this technology. This increase in baggage processing has an obvious consequence for the back of house baggage handling operations in that it will require additional space to handle the increased baggage amount and frequency of baggage throughput.

Also, on the upper levels, the second phase of the East Terminal Extension extended the passenger route eastward on floor level 10. This provided an opportunity to expand the passenger facilities, however it did result in directing the passengers eastwards, only for them

to have to return westward on floor level 20. From a passenger experience perspective and considering the expansion to 12 mppa, this elongated circulation is not ideal.

With due consideration of these fundamental operational and passenger experience issues, a design review was prompted to determine a better solution. This review took the form of a stakeholder Red Amber and Green (RAG) analysis. This informed the optioneering process and qualified the decision to consider alternatives to the development of the East Terminal Extension floor levels 10 and 20. Instead of extending eastwards on floor levels 10 and 20, the concept of extending southwards became the preferred option for the 12 mppa proposal.

#### ii. Option 2: South Terminal Extension

The concept of extending the terminal southwards on floor levels 10 and 20 has been considered as a more suitable alternative to the second phase (floor levels 10 and 20) of the consented East Terminal Extension.

This option provides a more focused facility from a passenger perspective by centralising the food and beverage offers whilst generating better defined and much shorter passenger circulation routes on floor level 20. Furthermore, passenger access to all gates will be from this centralised zone on level 20 so this rationalisation is essential to simplify the passenger passage through the terminal.

The subsequent additional space on level 10 provides the opportunity to improve both passenger facilities and terminal operations. This opportunity is further enhanced due to the relocation of existing coaching gates in this area to the east walkway coaching gates (planning application reference 18/P/3536/AIN). At peak times the queuing to these existing coaching gates spill out onto the concourse causing major passenger congestion. This issue would be exacerbated if these gates remained as the capacity increases to 12 mppa. Therefore, the east walkway coaching gates development can best be described as an operational enablement project for the 12 mppa and associated South Terminal Extension. With the passenger in mind, these improvements will include expanded retail offers, additional seating, better circulation, covered arrivals routes and bespoke facilities for passengers with reduced mobility (PRM).

In comparison to the original East Terminal Extension, the location of this South Terminal Extension between the existing terminal and central walkway means that there is no landscape and visual impact and better corresponds with the overall 12 mppa internal and external proposals.

#### iii. Option 3a: West Terminal Extension (10 mppa design)

The West Terminal Extension phased proposal focused on extending the existing terminal building westwards across levels (-10, 00, 10 and 20) to accommodate several functions including goods yard, storage, staff security, waste out, arrivals hall, customs, baggage reclaim, central search, office facilities and circulation. For levels 10 and 20, there was also an element extending southwards and this was to accommodate the immigration hall and associated vertical circulation. The first phase of this West Terminal Extension was completed in 2017 and incorporated the development up to GL 03. To complete this extension as per the 10 mppa approval, the second phase would extend these levels westwards by another four structural bays and this would primarily accommodate an enlarged immigration hall along with additional international baggage belts on floor level 00 and additional search lanes on level 10. For reasons explained in the description of Option 3b, this original design is no longer suitable.

#### iv. Option 3b: West Terminal Extension (revised design)

The second phase of the West Terminal Extension is necessary to expand the primary operational systems of the terminal and is being taken forward as part of the 12 mppa proposals. However, the design has been revised to account for operational developments since the 10 mppa approval.

Due to security policy changes and subsequent requirements to improve efficiency and passenger throughput, the requirement for the central search facility since the 10 mppa approval was granted has changed; specifically, the length of the search lanes have increased to 22 metres (the 10 mppa design had lane lengths of 11 metres). This significant internal design change causes displacement and relocation of several building operations. For levels -10, 00 and 20, the original 10 mppa scheme was still mostly applicable. However, for level 10, this central search lane operational change has a fundamental impact on the original design. As such, a new concept was required and due to the restricted site parameters viable options

![](_page_13_Figure_5.jpeg)

were limited. The redesign process for this revised West Terminal Extension was thorough and incorporated input from the key stakeholders. The final proposal simply repositioned the new immigration hall westwards to allow for the longer search lanes and associated queuing, divest and redress areas. The opportunity to utilise the existing western walkway for access to the hall, albeit with some adaptation, has also been incorporated.

#### v. Summary

Extensions to the existing terminal building are required to accommodate a throughput of 12 mppa. In developing its proposals, BAL has considered the extent to which the remaining phases of the East and West Terminal Extensions permitted under the extant 10 mppa consent would meet capacity requirements at 12 mppa. Taking into account an additional 2 mppa, ongoing development at Bristol Airport and changing operational requirements since that consent was granted; it has also considered an alternative South Terminal Extension. Following detailed analysis of the four terminal options outlined above, BAL considers that Option 2 (South Terminal Extension) and Option 3b, involving a revised West Terminal Extension, will best accommodate passenger growth, support an efficient airport and enhance passenger experience. The development of options is further illustrated in Fig. 4.5.1B.

# 4.5.2 Passenger Car parking

An additional 2 mppa will increase the demand for passenger car parking at the airport site. An assessment of parking demand has been undertaken in support of the planning application which has identified that the expansion of Bristol Airport to 12 mppa will require circa 3900 spaces, taking into account existing consented capacity and sustainable travel targets.

A Parking Demand Study and a Parking Strategy have been developed as part of the emerging Master Plan to assess car parking options to accommodate future demand associated with the growth of Bristol Airport, including the additional 3900 spaces necessary for 12 mppa. A sequential approach has been adopted to the identification of possible siting options, which has in-turn informed BAL's preferred parking solution. The approach, which has broadly sought to focus growth in the Green Belt inset in the first instance, is as follows:

- Sites within the Green Belt inset;
- Strategic park and ride locations remote from the airport including land outside the Green Belt;
- Sites within the airport site but outside the Green Belt inset;
- Sites in Green Belt locations contiguous to the airport site.

The preferred car parking solutions comprises:

- Further MSCP provision to the northside of the airport, in the Green Belt inset providing circa 2,150 spaces;
- The year-round use of the existing seasonal Silver Zone car park extension which has an existing capacity of 3,650 spaces;
- A further extension to the Silver Zone car park located to the south of the existing seasonal Silver Zone car park extension, providing circa 2,700 spaces.

This solution maximises development in the Green Belt inset and makes the best use of existing facilities whilst ensuring that passenger demand is met as part of a holistic approach to sustainable travel.

Reference should be made to the Planning Statement (Section 5) and Chapter 3 of the Environmental Statement for further discussion on the options including the rationale for selecting preferred options that make up BAL's parking solution.

# 4.5.3 Highways Improvements to the A38

At an early stage in developing proposals for the expansion of Bristol Airport to accommodate 12 mppa, the need for significant improvements to the A38 between the main airport access roundabout and West Lane to accommodate additional traffic generated by an extra 2 mppa was identified. The development of proposals for the improvements to the A38 comprised of two stages: first, an appraisal of preliminary options; and second, a review of detailed options. In total, sixteen possible options were considered which are described in-turn below.

# i. Preliminary Options

A total of six preliminary options were identified as part of the early design process and were subject to discussion with NSC. The options identified are set out below:

- Options A and B sought to generate capacity increases by providing two lanes in either direction from Potters Hill to the main airport roundabout. The additional lanes were created by removing the traffic islands and some minor widening north of West Lane. However, the result was that the right turn into West Lane could not be provided and it remained as a priority junction. Downside Road remained unwidened and as such the scheme had insufficient capacity for the demand flows;
- Option C introduced improvements to the Downside Road area with an enhanced left turn facility. While this improved the capacity, the lack of a right turn into West Land and traffic islands was not considered to be appropriate;
- Option D reintroduced the traffic islands and the right turn into West Lane. However, this proposal required Common Land;
- Option E introduced a roundabout at the Downside Road junction rather than traffic signal control. Analysis revealed that this proposal had a significant impact on existing properties, along with limited long term capacity; and
- Option F returned back to traffic signal control but applied it to both junctions and moved the widening further west away from the Common. It also introduced a right turn from the A38 into Downside Road. While this provided significant improvements, the impact of additional third party land was unachievable.

# ii. Detailed Options

• Owing to numerous issues outlined above, namely insufficient capacity and significant impacts on third party properties, the six preliminary options were discounted and further 10 options subsequently developed. These further, detailed options sought to minimise land take but increase capacity and safety. They were again subject to

#### discussion with NSC. The detailed options identified were as follows:

- Option 1 provided an all movement junction at Downside Road, tying it back to a priority junction at West Lane. While the Downside Road junction had sufficient capacity, the West Lane junction in this format was unable to provide the capacity needed whilst the two lanes northbound on the A38 had to merge earlier thus affecting the junction operation.
- Option 2 pushed the Downside Road junction further south to increase the length of two lanes northbound, before tapering down to West Lane. While this offered some improvement, it was minimal and not considered to be sufficient to meet forecast demand.
- Option 3 introduced traffic signals at West Lane, but limited impact on third party / Common Land by only providing one lane northbound. However, the narrowing from two lanes to one remained and issue.
- Option 4 moved the Downside Road junction further south to increase the distance over which the lanes narrowed. This again was unsatisfactory as the distance over which the two lane merge occurred caused issues with the junction modelling and affected the overall capacity.
- Option 5 increased the number of left turning lanes from Downside Road and relocated the bus stop, both of which resulted in the loss of a third party property.
- Option 6 amended the alignment of the A38 and sought to increase taper lengths, again impacting a third party property.
- Option 7 amended the Downside Junction to tie up with the Forge Hotel access, which produced limited capacity improvements and made other access points more challenging.
- Option 8 adjusted the West Lane junction to provide two full lanes in both directions of the A38, plus a right turn facility at the signals. The Downside Road junction also had a right turn and was also diverted. While this provided capacity, it had significant adverse impacts on third party land and properties.
- Option 9 kept Downside Road off line but removed the right turning lane from the A38, requiring users to U turn as they do currently at the main Bristol Airport roundabout. While this junction reduced impacts on third party land and provided capacity, construction costs were higher than an online improvement and the alignment produced a sterilised parcel of land which would not have been useful. Further improvements were therefore made in developing Option 10 (the preferred option).
- Option 10 involved an online improvement to Downside Road, with widening only on its southside. While a new junction was provided into the Airport Tavern, the building is retained. This option provides the capacity and safety required but minimises the impact on third party land. The Transport Assessment has demonstrated that this option is predicted to operate within capacity.

# Overall, Option 10 has been selected as the preferred option for the proposed highway improvements. BAL considers that this option represents a significant improvement to the A38 that will provide the necessary capacity to accommodate an additional 2 mppa, improving traffic movements, way finding legibility and road safety on the local road network surrounding Bristol Airport whilst minimising the impact on the adjacent land use.

iii.

Summary

# 5.0 DESIGN

![](_page_16_Picture_1.jpeg)

![](_page_17_Picture_0.jpeg)

#### 5.1 Introduction

The design process for expansion of an airport must take a holistic approach to ensure that the capacities of all airport components have been considered, as each of these will influence throughput at a given point as a passenger passes through the airport. For example, if the capacity at immigration is limited, the arriving passenger process is compromised.

Notwithstanding these operational requirements, good design is important in providing an enhanced passenger experience. Good design is reflected in the Five Pillars set out in the emerging Master Plan. The proposed design will deliver high quality design contributing to a continued sense of identity and place, and efficient operations.

At this point it is worth reiterating that this development will be guided by the following design principles;

- **Safety and Security** delivering safe and secure facilities for all passengers, employees and visitors to Bristol Airport
- **Passenger experience** delivering facilities that provide easy and convenient access for passengers and improved on-time performance for airlines
- **Demand** ensuring flexibility and a phased approach to meet demand, which will help secure the economic benefits for the region
- Value for money developing facilities that represent value for money for passengers, airlines and other stakeholders
- **Sustainability** seeking to reduce and mitigate the effect on communities and the environment, locally and globally, as well as finding opportunities to deliver enhancements
- **Policy** making best use of existing airport capacity, maximising development in the Green Belt inset and complying with other relevant policy.

The following sections describe the proposed design for each main component.

#### 5.2 Multi-storey Car Park Phase 3

#### 5.2.1 Use

The proposed MSCP Phase 3 will further maximise the use of the northside car parking area. The first 3 storeys of Phase 1 were completed in Q2 2018 and the remaining 2 storeys will be completed by Q2/Q3 2019. Phase 2 and enabling works are expected to start construction in Winter 2019/20.

It is proposed that the design of MSCP Phase 3 will follow the modular type construction rather than the traditional construction method. This is in line with MSCP Phase 1, of which Phase A is in operation.

The levels of MSCP Phase 3 will be integrated with the levels of Phase 1. Phase 3 and Phase 1 will be separated to allow for natural ventilation to the east elevation of MSCP Phase 3 and west elevation of MSCP Phase 1. Phase 3 will expand and share the exit entry point for Phase 1. Pedestrian access between the various MSCP phases will be incorporated, this allows pedestrians parking in MSCP Phase 3 to access the bridge link from MSCP Phase 2 to the proposed plaza in front of the terminal building.

The multi-storey solution continues the concentration of structured car parking close to the terminal building, providing easy pedestrian access between the car park and the terminal. This solution also reduces the surface area of the impermeable structure, minimising the effect on existing drainage patterns and continuing Bristol Airport's commitment to sustainable drainage systems (SuDS).

![](_page_18_Picture_17.jpeg)

#### 5.2.2 Amount

MSCP Phase 3 will provide circa 2150 car parking spaces over 5 levels.

# 5.2.3 Layout

The consented MSCP Phase 1 (A and B) and Phase 2 will have independent vehicular entrances, exits and internal vehicular circulation to allow a phased development dependent on demand. With the design principles in mind, specifically passenger experience, pedestrians from both car parks access one central vertical circulation core with lifts and staircase to the top deck level which is approximately level with the terminal forecourt. On this level, the vertical circulation core will access a retail unit and onward travel centre (desks for bus tickets, train tickets etc) leading to a glazed bridge linking with the terminal pedestrian forecourt. The consented bridge link will terminate to a proposed feature canopy. This proposed canopy will accommodate car park payment machines on the forecourt and covered walkways to the east and west allowing pedestrians to move to and from the departures and arrivals concourses respectively, mostly under cover.

MSCP Phase 3 will be constructed over five levels with access directly from the internal airport spine road via a roofed entrance/exit plaza at ground level (level 5 of the MSCP). Access to the other upper car park decks is via separate 'up' and 'down' D ramps. The vehicular entrance/exit point for MSCP Phase 1 will be expanded to accommodate an adjacent entry/ exit point for MSCP Phase 3.

Further to the regular car parking spaces, a number of disabled persons parking spaces will be incorporated as per policy. Electrical car charging parking spaces will be incorporated.

This car park will have a simple circulatory layout for vehicles with a central protected pedestrian walkway allowing safe pedestrian access to a segregated zone adjacent to the vertical circulation core. Dedicated access points into the multi-storey car park lower decks facilitates wayfinding from the adjacent surface car park to the terminal via the internal protected walkways and the vertical circulation core.

Pedestrians can circulate under cover between the MSCP Phase 3 to the terminal plaza via MSCP Phase 1 and the MSCP Phase 2 vertical circulation core to the top level. From this point, the proposed terminal plaza is accessible via the bridge link.

#### 5.2.4 Scale and Appearance

The building structure will be based on a modular steel frame system with approximately 16.5 metre spans to match through with MSCP Phase 1. Similarly, the top level of MSCP Phase 3 will align with the top level of MSCP Phase 1.

In contrast to the white metal and green glass aesthetic of the terminal, the scale of the MSCP building and its proximity to the surrounding natural environment highlights the need to introduce a softer and more colourful appearance that will integrate easily with its environment. The topography of the site greatly assists in this and the development has been designed to integrate with the landscape. The elevational treatment will be similar to that of MSCP Phase 1 and will incorporate perforated polyester powder coated aluminium panels finished with muted and tonal colours. Lapped timber effect planks to the stair cores and

intermittent timber effect planks to the ramps, along with gabion walls to the base, complete the elevational treatment.

Care will be taken to minimise noise and headlight glare from the transport interchange and top level of the MSCP by continuation of the timber cladding along the north and part of the east and west edges of this top level of the structure. Fixed lighting on this top level will be carefully designed to minimise upward and outward lighting pollution. This approach has also been applied to the recently developed MSCP.

Wind turbines will be installed to the top level. The mast height of these will be approximately 12 metres and with the rotor length considered these will extend to 15.5 metres in height.

#### 5.2.5 Access

Refer to section 5.0 for a detailed appraisal of access issues, including access for the mobility impaired.

# 5.2.6 Landscaping

Refer to section 6.0 for a detailed appraisal of landscaping issues.

# 5.3 Main Terminal Extensions and associated Service Yard

# 5.3.1 Use

The main terminal is a system of interactive components, each of which needs to be planned to provide a balanced passenger process from forecourt/car parks through to aircraft. The main components comprise:

- Terminal road system including drop off and pick-up areas;
- Landside departures concourse including check-in, baggage facilities, waiting area, catering and shops;
- Security search;
- Airside departure lounge, including seating, shops, catering and airline lounges;
- Departure gates and passenger transfer to aircraft;
- Arrivals gates;
- Immigration;
- Baggage reclaim and customs;
- Arrivals concourse;
- Offices, storage and accommodation for airport companies; and
- Service yard.

In keeping with the principles established in the 10 mppa Master Plan and the further subsequent evaluation in section 4.0, the main terminal extensions are proposed to both the west and the south of the existing terminal with the layout carefully designed to optimise internal passenger way finding and operational circulation whilst complimenting the existing building design. Furthermore, the canopy proposals to the north of the terminal will generate

![](_page_20_Picture_0.jpeg)

![](_page_21_Picture_0.jpeg)