

## North Somerset Council

### Transport and Highways Summary Comments

#### Application 18/P/5118/OUT

**12 November 2019**

#### 1. Introduction

North Somerset Council (NSC) received planning application 18/P/5118/OUT in December 2018 from Bristol Airport Limited (BAL), seeking permission for expansion of Bristol Airport to accommodate 12 million passengers per annum (mppa). The full description of the development is set out below:

*Outline planning application (with reserved matters details for some elements included and some elements reserved for subsequent approval) for the development of Bristol Airport to enable a throughput of 12 million terminal passengers in any 12 month calendar period, comprising: 2no. extensions to the terminal building and canopies over the forecourt of the main terminal building; erection of new east walkway and pier with vertical circulation cores and pre-board zones; 5m high acoustic timber fence; construction of a new service yard directly north of the western walkway; erection of a multi-storey car park north west of the terminal building with five levels providing approximately 2,150 spaces and wind turbines atop; enhancement to the internal road system including gyratory road with internal surface car parking and layout changes; enhancements to airside infrastructure including construction of new eastern taxiway link and taxiway widening (and fillets) to the southern edge of Taxiway GOLF; the year-round use of the existing Silver Zone car park extension (Phase 1) with associated permanent (fixed) lighting and CCTV; extension to the Silver Zone car park to provide approximately 2,700 spaces (Phase 2); improvements to the A38; operating within a rolling annualised cap of 4,000 night flights between the hours of 23:30 and 06:00 with no seasonal restrictions; revision to the operation of Stands 38 and 39; and landscaping and associated works.*

Since then, NSC Highways and Transport, with support from our consultants Jacobs, have engaged with BAL and their consultants Peter Brett (PBA), to review the information submitted with the application

Alongside the Transport Assessment, a number of other documents have been submitted to support the transport impacts of the development. These are listed below:

- Travel Plan
- Transport Assessment Supplementary Document
- Technical Note 9 – Post Submission Sensitivity Test
- Technical Note 10 – Comparison of modal share between UK regional airports

- Technical Note 11 – Response to NSC modelling comments
- Technical Note 12 – Response to data request from South Gloucestershire
- Technical Note 13 – Public Transport Capacity Assessment
- Technical Note 15 – Transport Assessment Responses to B&NES
- Technical Note 16 – Validation report of Bristol Airport signalised junctions
- Technical Note 17 – Assessment methodology and survey validation
- Technical Note 18 – Reassignment methodology
- Technical Note 20 – Trip Generation methodology
- Technical Note 22 – Responses to B&NES

This document provides a summary of NSC views on the application. More detailed considerations can be found appended to this document which cover the following areas:

- Appendix 1: Surface Access Comments
- Appendix 2: Transport Assessment and Modelling
- Appendix 3: Car Parking Strategy Review
- Appendix 4: Highway Engineering Comments

## **2. Summary**

Our approach in reviewing the application has primarily focussed on ensuring transport and travel to the airport is as sustainable as possible and that transport impacts are mitigated. In this we have considered;

- The transport hierarchy of modes
- Transport economics
- Congestion and pollution from surface transport

A key focus has therefore been on increasing the public transport mode share, as the principle alternative to passenger and staff car travel, with consideration of both ways in which to make car trips to the airport less attractive to suppress demand and also actions that are required to assist in the increased uptake of public transport.

This is consistent with the Airport's stated objectives for their emerging Airport Surface Access Strategy (ASAS), which are "to reduce car use and implement measures that promote and enable alternative modes of travel".

We therefore recommend a requirement for delivery of a public transport mode share above the 15% proposed by the airport. As well as increasing public transport use and reducing car trips, this also has consequential environmental benefits. We have

also been cognisant of the draft Joint Local Transport Plan targets and the Climate Emergency declared by North Somerset Council, and at each stage have sought to ensure that our ask of the applicant is set in this context.

To this end, we have proposed a mode hierarchy which we consider that all trips with an origin or destination at the airport can be placed on, with the intention of moving as many up the hierarchy as possible.

1. Walking, Cycling and Disabled users
2. Public Transport
3. Ultra-Low Emission Vehicles (ULEVs)
4. ULEV taxi
5. Car sharing (2+ bays)
6. Private Internal Combustion Engine (ICE) vehicles (parking)
7. ICE Taxi
8. ICE Drop off/ lift to the airport (friends and family)

Whilst we have been able to reach an agreement over many aspects of the application, some areas remain outstanding. We intend to seek resolution of these matters through the imposition of planning conditions, securing through the Section 106 agreement and/or further discussion in advance of planning committee (with a verbal update provided), however there may be some outstanding issues based on current information.

As of the date of production of this summary, the outstanding items can be set out as follows:

#### Transport Assessment

- Modelling of the A38/A368 junction

#### Airport Surface Access Strategy

- Full agreement to the proposals as detailed below.

#### Car Parking Strategy

- Agreement to reduce the overall quantum of additional parking to 3,200 spaces (with up to a further 700 additional spaces to be conditional on a review being undertaken and published by BAL no later than 2021/2 or by 10mppa to consider any justification to increase this quantum up to a maximum of 3,900 based on other changes in the parking market not within the TA or Parking Study – the methodology for this review to be agreed with NSC but to include impacts of enforcement action in unauthorised green belt parking locations or other airport parking market entrants).

### 3. Transport Assessment

A Transport Assessment (TA) accompanied by a suite of Technical Notes and a Supplementary Transport Assessment.

NSC, supported by Jacobs, have been able to conduct a thorough examination of these documents and have had extensive and close liaison with BAL and their consultant PBA. This has enabled us to accept the majority of the conclusions of the TA. The assessment process makes use of CAA, BAL and other publicly available data to forecast the impact of the airport expansion on the highway network. Individual junction models have then been used to examine how the expansion affects the operational performance of a number of pre-agreed junctions. These models have been built using industry standard junction modelling programmes and mitigation identified at three locations.

#### Vehicular Trips

The vehicular impact assessment uses a bespoke methodology using Civil Aviation Authority data from passenger surveys in 2015. This is a more standard methodology for airport expansion having been used elsewhere, such as at Luton and Heathrow. Full details of the methodology are contained within the Jacobs TA and Modelling review note. This note does set out some concerns regarding some elements of the assessment methodology which impact on the spread of passenger journeys which we have summarised below:

- Capacity of airside operations – in essence this concern related to whether the airport could accommodate the growth in flights on the runway, taxiways and aircraft stands. Some additional evidence and analysis has been presented by the applicant which provided further assurance. In addition examination of the forecast flight schedule has shown that it is possible, with some minor adjustments, to accommodate the additional flights within existing operational limits.
- Forecast flight schedule – this concern related to whether the forecast flight schedule was realistic and why it differed from the existing established daily temporal profile. The applicant provided further analysis of this which satisfied us that this was a reasonable schedule that varied for good reason away from the existing profile.
- Dwell time analysis – this concern related to whether the data used to estimate the forecast time that passengers arrived at the airport before their flight was sufficiently robust. A number of issues were discovered with the dataset used which reduced our confidence in it. However, we are satisfied that overall it is likely that the data used provides a reasonable estimate of existing passenger behaviour and that it was unlikely that significant change to the data would result in a significant change to the assessment undertaken.

The TA also considers the increase in employee and workforce trip generation. The former results in circa 13 additional trips in the AM peak and 59 in the PM peak, whilst the latter results only in a marginal increase in vehicular activity.

The TA, and other assessments use the month of August to undertake assessment. This month has been selected as it represents the peak month for aircraft

movements at the airport. Typically, a neutral month is assessed and as such the selection of August adds a level of robustness to the assessment. This is in part negated as a result of higher car occupancy in August (caused by families travelling on holiday) and as such this reduces the risk of over stating the impact of airport expansion.

However, whilst this is the peak month at the airport, this is not a neutral month on the surrounding highway network, and as such flow data from early July has been utilised to measure and represent existing network conditions.

Overall, the expansion to 12mppa is predicted (in the peak month of August) to generate the increases in vehicle trips as shown in the table below.

	Additional August daily vehicle trips (two-way)	August AM peak vehicle trips (08:00 – 09:00)		August Airport peak vehicle trips (13:00 – 14:00)		August PM peak vehicle trips (17:00 – 18:00)	
		Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Additional vehicle trips as a result of 2mppa increase	5,552	123	75	254	302	161	157

These increases should be seen against the context set out in the table below:

	Additional August average daily passenger demand	August AM peak total passengers (08:00 – 09:00)	August Airport peak total passengers (13:00 – 14:00)	August PM peak total passengers (17:00 – 18:00)
Consented passengers (10mppa)	34,755	611	3,052	2,322
Additional passengers as a result of 2mppa increase	6,951	254	765	358
Total passengers at 12mppa	41,706	864	3,817	2,680

For the purposes of the modelling undertaken, the additional passengers are forecast to originate from the South West of England and Wales only, with 80% of those coming from the former. Within those originating in the South West of England, just over 30% are forecast to originate from the City of Bristol, just over 25% from Somerset and 17% from Devon.

Within those passengers that originate from Somerset, most (27%) passengers originate from within the Bath & North East Somerset area, followed by North Somerset at 23.2%. Other authority areas within the county share a similar level of passengers at around 11%, except for West Somerset which is forecast to be 4.1%.

It should be noted that the TA has been completed on the basis of a 15% public transport mode share and in the context of a 17.5% target now being pursued provides a further layer of robustness to the assumptions made.

### Vehicular Impacts

The applicants' consultants, PBA, have assessed the impact of the airport expansion on a number of junctions, the scope of which were agreed to at the pre-application stage. Details of these, their current operation and forecast operation with airport expansion (assessed in 2026 – the year BAL expects 12mppa to be reached) are set out below. These assessments, in 2026, assume background growth forecasts as set out by DfT (as derived from the TEMPRO software) and as this includes existing airport traffic (which is subject to a bespoke growth methodology) can be considered robust. It should be noted that following review and some adjustments, the baseline operation (2018) has been accepted as accurately reflecting existing conditions.

- A38 / North Side Road (Bristol Airport Northern Access)

The model shows that the junction operates over practical capacity in the PM peak, particularly on the A38 North approach.

In 2026 with the addition of airport expansion to 12mppa the junction operates over practical capacity in both the Inter Peak and PM peaks, with significant queues forecast on the A38 Northern approach.

As such, mitigation is required at this junction to ensure it operates within capacity and reduces the forecast queueing.

- A38 / Bristol Airport Southern Access

The model for this junction shows that it is currently operating within capacity in all modelling periods in 2018 and is forecast to continue to do so with 12mppa airport expansion.

As such, no mitigation is required at this junction.

- Downside Road / Bristol Airport Service Access

The model for this junction shows that it is currently operating within capacity in all modelling periods in 2018 and is forecast to continue to do so with 12mppa airport expansion.

As such, no mitigation is required at this junction

- A38 / Downside Road

The model for this junction shows that it operates over capacity in the PM peak, particularly on the A38 North and Downside Road approaches in the baseline.

With airport expansion, forecast operation is over capacity in all three modelled periods, particularly in the PM peak with significant queues forecast.

As such, mitigation is required at this junction to ensure it operates within capacity, reducing the significant forecast queuing.

- A38 / West Lane

The model for this junction shows that it operates within capacity in all modelled periods in the baseline.

However, with the addition of airport expansion to 12mppa, the junction is forecast to operate significantly over capacity in all three modelled peak periods.

As such, mitigation is required at this junction to ensure it operates within capacity.

- A38 / Barrow Street

The model for this junction shows that it operates within capacity in all modelled periods in the 2018 baseline.

The addition of airport expansion in 2026, indicates that the junction operates slightly above capacity in the Inter peak and PM peak scenarios.

As the junction is forecast to operate above capacity, we consider that mitigation is required – this is discussed further below.

- A38 / Barrow Lane

The model for this junction indicates that the junction operates slightly above capacity in the 2018 baseline PM peak period. With the addition of growth (including the consented 10mppa permission), forecast operation of the junction results in it operating over capacity on the Barrow Lane approach in all three modelled periods, with significant queues.

The addition of forecast development traffic to 12mppa results in some further worsening of the junction operation. PBA have argued that the model does not accurately reflect platooning of traffic on the A38 which would result in additional gaps for Barrow Lane traffic to make use of. In addition, we would expect that there would be local re-routing to avoid such significant queuing.

As a result, and to avoid promoting this as a rat run, we have agreed that no mitigation of this junction is necessary.

- A38/A368 Churchill Crossroads

An assessment is currently being undertaken, which will be reported supplementally to these comments.

- Modelling of the A370/SBL

As detailed within the Jacobs review of the Transport Assessment, no junction modelling of the A370/South Bristol Link Road junction has been undertaken. Our assessment of the impact of the airport expansion on this junction has determined that assessment should be undertaken to establish whether highway mitigation is necessary. We have agreed with the applicant that although they dispute that mitigation is required that they will make an index linked contribution to a feasibility study that is to be scoped by NSC and undertaken post consent

We note that this approach is not ideal or without some risk, but we are confident that this approach is the best way forward at this location given the complex causations that result in the issues that are exhibited at the junction.

### Highway Works

As a result of the assessment undertaken by PBA, BAL are proposing highway works at the following junctions. For each, we have summarised the mitigation proposals, their forecast performance and when the improvements need to be completed and open to traffic.

- A38/North Side Road (Bristol Airport Northern Access)
- A38/Downside Road
- A38/West Lane

The proposed scheme at these three junctions comprises:

- Signalisation of the A38/West Lane junction
- A widened 3-lane approach from North Side Road to the A38 Roundabout
- Widening of the A38 between its junction with North Side Road and West Lane to provide two lanes in each direction.

The scheme has been assessed in two standalone junction models; one for the A38/North Side Road junction and one for the combined signalised junction of A38/Downside Road/West Lane.

Detailed comments have been provided by NSC Highways and Transport, and amendments to the scheme detailed design are required as set out in Appendix 4. The detailed design, incorporating all required changes, will need to be agreed by NSC post consent.

It is proposed that NSC will deliver these works as soon as is possible, in tandem with other works, which indicates delivery commencing late 2021 with completion late 2022. A S278 process would revert to delivery by the Airport if this does not prove possible.



Our examination of the assessments submitted by PBA has highlighted that there may be a need to provide mitigation at the A38/Barrow Street junction, given the impact on Barrow Street, particularly in the AM peak. Such mitigation could simply take the form of adjustment to signal timings or providing additional physical capacity for the Barrow Street approach. If no physical changes are required then we consider that this mitigation should be delivered upon the passenger capacity granted under the existing consent (10 mppa) being exceeded. If physical works are required, then we would be willing to consider the phasing of the works. This will be undertaken using the applicant's agreed Highways Improvement fund, with which they will monitor the performance of an agreed list of additional junctions and will enable the delivery of further highway mitigation if this is deemed necessary as a result of this monitoring.

At the A370/SBL junction we have agreed with the applicant that although they dispute that mitigation is required, that they will make a fixed sum contribution immediately following consent to a feasibility study that is to be scoped and undertaken by NSC post consent.

The monitoring approach that will be required of the Airport throughout the duration of the 12mppa consent is set out below in section 6.

#### Highway Network outside NSC

In addition to the assessment undertaken by NSC, both Highways England, Bristol City Council and Bath and North East Somerset (BANES) Council have examined the implications of the application on their highway network.

Highways England, following review of the application, have recommended a condition be placed on any consent that requires an improvement to be delivered to M5 junction 22 beyond the airport handling 11mppa. NSC are content that all matters raised by Highways England are concluded and no further comment or action beyond securing the appropriate condition is required.

BANES considered that whilst some areas of impact of the application on their network had been understood, the provision of any amelioration had not. As such, they proposed a monitor and manage approach to be secured via the Section 106 agreement, which we support.

Bristol City Council expressed concerns about the modelling of the SBL roundabout with the A38, and specifically how the queue lengths there have been recorded. Bristol City Council required the applicant reconsider the assessment of this junction. As a result, amendments to the model inputs have been made to better replicate the extent of the queuing at the junction and we are satisfied that this better reflects current operational conditions.

#### **4. Car Parking Strategy**

The applicant has undertaken an assessment of what additional parking it requires to support the expansion plans. As set out in the description of the development for which consent is being sought this comprises:

- erection of a multi-storey car park (MSCP3) north west of the terminal building with five levels providing approximately 2,150 spaces (1200 spaces net of permanent construction losses)
- the year-round use of the existing Silver Zone car park extension (Phase 1) – approx. 3,650 spaces;
- extension to the Silver Zone car park to provide approximately 2,700 spaces (Phase 2).

These proposals result in parking provision at the airport being as set out overall in Appendix 1 section 6.

The Parking Demand Study forecasts that the airport will require circa 22,600 spaces to facilitate growth to 12mppa by 2026 and, therefore, including the delivery of developments to facilitate growth to c.10mppa, there would be a shortfall of 4,600 parking spaces by 2026 based on a 12.5% PT modal share.

The applicants' Parking Study and Strategy documents then note that with a PT mode share target of 15% this number reduces to 3,900 by 12mppa/2026.

Within the assessment there are spaces identified that would be used to compensate loss of spaces during construction activity and it is arguable that this provision is warranted as there are no construction plans for MSCP2.

We concur with the findings of the Parking Demand Study which notes several factors which will impact the 'likelihood to park' moving toward 12mppa, including

- an increase in the percentage of inbound non-UK resident passengers to Bristol Airport from 19.5% in 2017 to 21.2% in 2026
- changes in the airport's catchment area, to include regions further from Bristol, where public transport opportunities need improvement
- and changes in passenger demographics.

However, when the increased shift towards PT is considered (17.5% by 12mppa/2026), against BAL's proposal to target a 15% PT mode share, a lower parking demand of 3,200 is predicted. This is reflected in our recommendation to reduce the permitted additional parking quantum to 3,200 spaces.

However, the above proposed parking provision should be re-evaluated by BAL on this basis and space reductions in specific car parks proposed. The reduction (700) in the total number of spaces to be provided should be identified by car park and should be evidence led, as should too many spaces be removed from the Silver Zone extension may increase in unauthorised parking. Conversely, if insufficient space is provided within the premium MSCP the airport may become less attractive for business travel.

We have also agreed that a BAL review would be appropriate to consider new evidence and justify any additional parking above 3,200, to a maximum of 3,900 spaces. Non-Airport off-site provision may vary greatly in location, type and

authorisation status throughout the period to 2026, and is not predictable and so should be accounted for in a review of actual changes in provision.

In addition, as set out in the Parking Strategy and Airport Surface Access Strategy appendices below, we have determined the order, and phasing in which the additional parking should come forward and its relationship to public transport modal share targets. Parking provision should be linked to the delivery of public transport measures and modal shift.

The agreed order of parking delivery is:

1. Silver Zone (Phase 1) full year release and Silver Zone extension (Phase 2) upon consent of this application and only in tandem with delivery of an agreed set of public transport improvements
2. MSCP2 – this was consented as part of the 10mppa application but has not yet been constructed by the airport. The release of Silver Zone Phases 1 and 2 will provide sufficient capacity for delivery of this important scheme, which requires release of Silver Zone parking to enable construction due to temporary loss of spaces.
3. MSCP3 – this should only be brought into use at the point at which a 16% public transport modal share is achieved.

### Off-site parking

The applicants own demand study notes that unauthorised off-site car parking has increased from approximately 3,200 spaces in 2014, to approximately 4,800 in 2017 as a result of increased advertising and being able to undercut official parking charges. These sites cause significant unmitigated congestion, air quality and other environmental impacts in local communities. They also encourage further car travel, whereas official sites are led by public transport improvements. The applicant forecasts that if supply of official airport parking is restricted, this will increase demand for unauthorised sites with which we agree. However, when considering the attraction of official parking over unauthorised sites, price appears to be the dominant driver over other factors such as security and convenience. Therefore, the act of simply providing more official car parking without any consideration of the pricing structure would be unlikely to reduce the demand off-site.

### Pricing Review

Car parking charges are high in comparison to other airports. The applicants own demand study has indicated that travellers are becoming more price sensitive given the changing market (increased leisure travel) and passenger growth locations representing lower quartile UK household incomes (SW England and South Wales).

However, with increasing demand for low cost parking (which is a major driver in the increasing use of unofficial off-site providers), it is crucial, given the need to increase public transport modal share, to also to manage off-site car parking, and therefore that a comprehensive pricing strategy review is undertaken as part of the ASAS process (within 6 months post consent).

This strategy will need to look cross mode, including car parking, public transport, and drop-off to develop proposals that move passengers up the modal hierarchy (as set out earlier), and tackle the issue of off-site parking, taking into account the elasticity related to each mode.

### Parking Summary

In summary, having considered the car parking requirements of the expansion to 12mppa – we require the following:

- A total of 3,200 net additional spaces be permitted at consent. This quantum would then be subject to a parking quantum review to be undertaken by BAL that would consider any new evidence derived from enforcement actions on unauthorised parking locations and other new factors on total parking quantum including other new market provision. Subject to completion and approval of this review (methodology to be agreed) a further release of 700 spaces (up to a maximum of 3,900 net additional spaces) would be permitted.
- Car parking to be delivered in phases, linked to a public transport investment programme and then modal share increase. This is as follows:
  - Silver Zone (Phase 1) full year release and Silver Zone extension (Phase 2) upon expiration of 10mppa consent and only in tandem with delivery of an agreed set of public transport improvements
  - MSCP2 – this was consented as part of the 10mppa application but has not yet been constructed by the airport. The release of Silver Zone Phases 1 and 2 will provide sufficient capacity for delivery of this important scheme, which requires release of Silver Zone parking to enable construction due to temporary loss of spaces.
  - MSCP3 – this will only be able to be brought into use at the point at which a 16% public transport modal share is achieved.
- A multi modal pricing strategy to be undertaken with the aim of moving passengers up the mode hierarchy and away from unauthorised car parking. This should directly inform ASAS and Travel Plan actions. The ASAS will not be signed off until the pricing strategy is agreed.
- A condition/S106 obligation that provides incentives for BAL to achieve the agreed mode share targets. These should be, in order of priority:
  1. Additional funding of public transport measures/services (extent to be agreed with NSC)
  2. A comprehensive review of the ASAS and Travel Plan, which should be used if incentive one fails (review scope to be agreed with NSC)
  3. A rollback of approved parking provision commensurate with the PT mode share achieved. This measure to be used if there is repeated failure in the delivery of the above incentives.

## **5. Airport Surface Access Strategy**

The applicant has not submitted an Airport Surface Access Strategy (ASAS) to accompany this application. This has significantly hampered our understanding of the concrete proposals that the Airport intend to bring forward as well as their purpose and timing of introduction. As a result, NSC has had to proactively engage with the applicant to understand and ensure that pragmatic, deliverable schemes which would support an increased public transport modal share at the airport, beyond the 15% share target (agreed as part of the 10mppa consent) are brought forward. We also ensured that the release of additional car parking at the airport was contingent on firstly public transport investment, and secondly an increase in the public transport modal share.

As such, we have set out our requirements to the applicant. While many of these are agreed, some are still in negotiation:

- *From a baseline PT mode share target of 15% (as consented at 10mppa) - a target of 17.5% modal share for public transport by 12mppa/2026, with an interim target of 16% at 3 years after consent, upon which the delivery of MSCP3 is also contingent.*
- *Mode share should increase from consent at an average of 0.5% per annum, to reach the overall target of 17.5% by 12mppa or by 2026. A KPI shall be set for this, and monitoring of all KPIs and targets to be overseen by the Transport Steering Group.*
- A target of 30% for staff using sustainable modes by 2026/12mppa (which is an increase from the 25% proposed by the Airport)
- A short-term PT inputs approach, which describes investments targeted to make a meaningful difference to PT mode share, followed by a more flexible outputs and monitoring approach above a 16% mode share
- The delivery of the following public transport measures which are to implemented on the consent of the application, which will be in addition to any commitments made as part of the 10mppa consent which will be rolled over into this application:
  - Enhanced frequencies of and infrastructure improvements to the South West and South Wales services (to be detailed and agreed)
  - The Weston Super Mare Flyer becomes 24 hours and routes via Worle (includes some bus shelter/stop improvements)
  - A new Demand Responsive service be launched to serve Nailsea, Yatton and Clevedon on a 24-month trial, with review periods every 6 months.
  - Enabling this there should be a DRT booking platform and longer-term this should interwork with the proposed WECA MaaS platform to future-proof the full range of transport options to the Airport.
  - Linked to the above, information and marketing improvements are to be made to allow passengers booking parking to be able to make direct

comparisons with public transport options (journeys and pricing) (within a period to be agreed)

- The Bristol Flyer is converted to metrobus (subject to approval by metrobus Board), with the airport operating as a premium fare zone, together with delivery of infrastructure and branding changes. In future direct metrobus services from the North Fringe of Bristol would therefore be possible.
- An at least annual public transport modal share monitoring regime, with the initial target of increasing the PT modal share by 0.5% per year.
- Increase drop off zone and taxi charges for drop off's outside the terminal and ringfencing use of this revenue to go into a carbon offset programme or as additional investment in ASAS or Travel Plan measures.
- Construction of the Public Transport Interchange. Public transport access and visibility is vital to its' success. The Airport has consent as part of the 10mppa application for delivery of a Public Transport Interchange. This is not currently programmed for construction, but it is vital this Public Transport Interchange be delivered as early as possible during the first 18-24 month period (and no later than 24 months following consent) and in tandem with and to allow early parking release to support PT mode shift. A planning condition will be drafted to ensure early delivery, which should be in use at the latest by 24 months following consent, and in a location to be permitted and approved by NSC.
- If/when the BAL taxi contract is re-tendered North Somerset Council require that 100% of all taxi provision within the contract should be EV by the end of 2025, in line with the Airport's own target to be carbon neutral by 2025. To support monitoring of interim progress, a target will be required of 50% of taxi provision to be EV by 2023. Should the Airport decide not to pursue a new taxi contract, then an ambitious target will need to be agreed with NSC for the percentage of trips to be made to the Airport by EV taxi, relative to travel distances and related to the Airports new taxi arrangements. The Airport is in a strong position to provide leadership on EV taxi fleet conversion and use and the strategy should be ambitious plan to support the range of low emission vehicles.

Beyond these initial short term (18-24 months post consent) actions, the applicant will be required to make further annual investments in public transport and other transport and highways infrastructure, informed by regular monitoring and review activity via the Transport Steering Group, in order to ensure that the public transport modal share increases. This will include provision of

- an annual Public Transport Improvement Fund which is to be overseen and directed by the Transport Steering Group. A comprehensive public transport strategy should address all key existing and growth markets, seeking to improve marketing, and make service and infrastructure

improvements, based on accurate monitoring information and other data such as changing flight schedules.

Whilst the applicant will be given freedom within this process to identify opportunities for improvements and to direct this funding as they see fit, this will at all times be done in conjunction with approval from the Airport Transport Forum and Steering Group. The effectiveness of the allocation of funding will be key and must respond to the annual monitoring information. There should be a clear link between the modal share and the release of further car parking.

Other commitments made by the applicant are:

- To install a further 6 Electric Vehicle (EV) charging points. However, we recommend a condition be in place to ensure EV charger provision relate in quantum and type to the national and sub-regional (whichever is the greater) fleet share in all parking locations and types. This should be monitored at least annually and provided for as necessary. All new parking and waiting areas should be equipped with chargers and passive provision for future expansion as part of the construction. To be read with section 3.2 in Appendix 1.
- Provide a time limited (20 minute) free drop off area for car share and taxis within the Silver Zone, in order to limit waiting in local villages and in inappropriate locations by both taxis and friends and family collecting passengers. This has been implemented in 2019.
- Implement the actions from the recent Parking Summit. These are summarised in Section 4.1.1 of Appendix 3. This will include provision of funding and resources to support an enforcement officer (to be employed by NSC) and resource the design and implementation of appropriate on highway schemes in local villages, in consultation with stakeholders.
- To make changes to the internal layout of the site in line with the submitted plans, in order to improve on-site traffic circulation, easing flows of traffic in peak periods. This will not only benefit the user experience but is anticipated to improve the impacts of the highway network as a knock-on consequence of minimising congestion within the site.

There are a number of studies and reports that are required for development and delivery by BAL. These will inform the latter delivery of the ASAS and Travel Plan actions. Every study listed will require written approval of both the scope and methodology with NSC officers, and final reports are to be submitted to NSC for sign off. While many of these are agreed, some are still in negotiation:

<b>Studies and reports</b>	<b>Date of completion</b>
1. Finalisation of ASAS and Site-wide/all employer Travel Plan.	Within 6 months of consent
2. Worle Station Study to improve bus/rail access and facilities and develop integration between rail and bus services, particularly the Weston Flyer.	Within 6 months of consent

Studies and reports	Date of completion
3. South West and South Wales bus and coach infrastructure detailed design improvements and delivery plan development in partnership with appropriate authorities. Delivery within 24 months of consent.	Within 12 months of consent
4. MaaS/DRT feasibility project to deliver a platform in partnership with WECA FMZ. Ensure delivery of a platform to support MaaS and DRT across NSC area. A fixed sum is to be allocated to WECA study.	2020-2022 in accord with FMZ
5. Marketing and promotion of public transport alternatives. A specific output for the Airport should be that (by 2022/within 24 months post consent) passengers booking parking be able to make direct and instantaneous comparisons with other modes, particularly public transport options (journey options and pricing).	Operational within no more than 2 years after consent
6. Pricing study focussed on ensuring options at the top of the mode hierarchy are supported and enabled financially. Favourable public transport costs should be delivered in comparison to self-drive/parking, taxi and other options lower down the transport hierarchy in all cases. This should incorporate an all-modes cost review and introduce a favourable and dynamic parking/PT pricing strategy. This should inform the ASAS and Travel Plan. NSC should not approve the ASAS without first signing off on this study.	Within 6 months of consent
7. Parking quantum review. This would review the quantum of parking to be released at 16% PT mode share and/or 2022, whichever is sooner. The initial maximum parking spaces permitted totals 3200. However, this study should examine new factors/information that were not available or considered in BAL's TA and parking study and strategy documents. The review would consider these to potentially revise the quantum up to maximum up to 3900 parking total, or reduce it based on lack of modal share delivery for PT. New factors may include impacts of enforcement action in unauthorised parking sites, on-street impacts in local villages, new parking operators serving the airport (i.e. new P&R type operator) or similar, and other new information.	2022 or triggered at the latest by 16% PT mode share delivery
8. Ultra Low Emission Strategy development to address air quality/carbon impacts of car travel. Plan to accelerate introduction of EV into fleet and provision for public vehicles charging (number and type of chargers).	Within 6 months of consent
9. Monitoring strategy to be implemented.	Immediately following consent
10. Workplace charging review.	Within 12 months of consent

## 6. Monitoring strategy requirements



In order to monitor the impacts of the proposed future developments and ensure that the Airports Surface Access Strategy and Travel Plan are updated and implemented as necessary, the following monitoring strategy should form part of the agreed Section 106 agreement.

A comprehensive monitoring approach is a key requirement for a robust transport strategy. This will include a wide variety of elements including staff travel surveys, automated traffic counters and mode share monitoring. We are in on-going discussions with BAL to explore these draft requirements in light of plans for BAL to adopt annual CAA surveys and monitor and manage network requirements. Monitoring requirements will be clarified and revised subject to these ongoing discussions.

The recommended monitoring strategy includes:

- Permanent installation of Automatic Traffic Counter (ATC) loops, capable of recording volume and classification of all vehicles entering and leaving the Airport operational sites via the public highway. Data to be collected daily in 15min periods across a 24-hour period. Returns shall be made to the highway authority on a monthly basis accompanied with details of monthly air passenger arrivals and departures. Monitoring should commence from approval of planning application and shall be required throughout the period for which permitted use above 10mppa is consented.
- If the average annual traffic flow, measured pro rata to passenger numbers (per passenger trip rates) subsequently exceeds the average annual traffic flow measured in the baseline survey by 2.5% or more, then a review of the surface access /travel plan, including a programme for the implementation of any necessary measures identified within the review, should be submitted to the local planning authority for approval within 4 months of the survey. The data used in any such approved review of the surface access / travel plan shall then become the baseline survey data against which subsequent annual survey results must be compared for the purposes of this Condition, and any necessary measures identified in any approved review of the surface access/ travel plan shall be implemented in full accordance with the programme and details included in the most recent approved review document.

We also consider that monitoring related to car parking is necessary to ensure that supply is sufficient to meet demand, while also ensuring that there is not over supply. Therefore, the below should accompany any consent granted.

- Monitoring of and maintaining records for parking occupancy including length of stay. Data to be collected daily in hourly periods across a 24h period. Returns shall be made to the highway authority on a monthly basis accompanied with details of monthly air passenger arrivals and departures. Monitoring should commence from approval of planning application and shall be required throughout the period for which permitted use above 10mppa is consented.

#### Annual Monitoring:

- The airport shall collect daily occupancy figures for all Long-Stay visitor parking. Data to be reported quarterly and will provide assessment of available capacity, percentage occupancy rates and seasonal demand in relation to air passenger

numbers. Number of parking actions (daily) are to be reported for each Short Stay and Drop Off parking provision with data to be provided on a quarterly return basis.

- We will need to obtain data suitable to inform any parking triggers' and related reviews. This may include use of barrier logs or parking demand (space availability).
- We have identified the need to monitor the use of Kiss and Fly and Taxi Waiting to determine effectiveness, usage and identify need to modify the offering depending on uptake.

#### Quarterly Monitoring:

- In addition to the daily parking occupancy data, the numbers of vehicles arriving and departing at all BAL operated parking locations (including drop off) shall be recorded at 15 minute intervals throughout the 24hr period of QMD's. These data will provide support to parking occupancy data and inform parking demand by time of day. In addition, data will be analysed together with other data sources to inform passenger dwell times.

## **Appendix 1:**

### **North Somerset Council Surface Access Comments**

#### **Application 18/P/5118/OUT**

**October 2019**

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## 1. Airport Surface Access Strategy

The Bristol Airport (BAL) Transport Assessment (TA) states that to ensure more sustainable modes are encouraged, a new and ambitious Airport Surface Access Strategy (ASAS) will be produced through the S106 process. This will consider improvements to public transport services, smarter choices, travel plan measures and improvements to local highway infrastructure.

The ASAS should ensure it sets out at a strategic level how the airport will improve and encourage all the different ways that passengers, staff and goods get to and from the airport. There should be particular emphasis on development of more sustainable forms of transport. The ASAS should be an active document, with a commitment of, at a minimum, annual reviews and updating. The initial document requested from the Airport should set out firm proposals for the first 12-24 months, with draft actions for the 5-year period between 2019 and 2025.

The document will need to explain how the proposed priorities and initiatives that will manage the surface access effects of increased passengers, colleagues and freight/cargo that arise from the proposed growth in airport passenger numbers to 12mppa.

Whilst a draft ASAS has not been formally submitted to the Planning Authority in support of the application, North Somerset Council (NSC), officers have been provided with a draft ASAS action plan for comment. This provides some detail of a package of measures that BAL proposes to introduce to mitigate the impact of its proposed expansion, particularly focusing on measures to be implemented in the first 24 months. This reflects an approach agreed with the Airport for early clearly defined actions focused on delivering modal shift toward public transport and more sustainable modes, paired with a robust monitoring strategy and regular reviews. Later in the application period the focus would be on an outputs (modal share target) approach, with more flexibility on the specific actions required to deliver this.

NSC will require the full draft ASAS to be submitted and approved in writing within 6 months of determination of the application or prior to commencement of construction, whichever is sooner.

The ASAS should provide detailed consideration and action plans relating to all the areas of comment below.

*Actions:*

- *A S106 planning obligation to submit the final ASAS containing longer-term measures is for approval in writing by NSC within 6 months of determination of the application or prior to commencement of construction.*

## 2. Hierarchy of users/mode

NSC require the production of a hierarchy of modes as part of the ASAS S106 planning obligation. A hierarchy will assist in framing the Heads of Terms for the S106 and ASAS and the following is proposed:

1. Walking, Cycling and Disabled users
2. Public Transport
3. Electric Vehicle (EV)
4. EV taxi

5. Car sharing (2+ bays)
6. Private Internal Combustion Engine (ICE) vehicles
7. ICE Taxi
8. ICE Drop off/ lift to the airport (friends and family)

ICE taxi and ICE drop off are the lowest in the hierarchy as they often result in double the trip generation (two trips for drop off and pick up each way i.e. four trips in total).

The hierarchy should be given consideration with any parking enforcement or incentives/disincentives to encourage more sustainable modes, in order to reduce congestion and improve air quality (the two priority objectives which require improvement within the ASAS). These two aims are largely complementary and should be seen as having equal priority.

*Actions:*

- *NSC require BAL to incorporate a hierarchy of modes and will propose a planning condition requiring one to be set out in the ASAS*

### **3. Sustainable Travel**

#### **3.1 Walking & Cycling provision (highway mitigation package)**

The following comments are additional to those provided previously (and as contained in Appendix 4) and relate to plan C1124-SK-A38-010 rev 11.0:

The proposed shared use path south of Downside Road and on the west side of A38 is of adequate width (3 metres), meets minimum requirements of national guidance and is accepted.

The existing shared use path facility south of Downside Road is in a poor condition with vegetation encroachment. Its' upgrade should be included in the proposed highway mitigation package either through a S106 contribution or S278 agreement if it has not already been remedied by NSC.

Widths of lanes for the proposed highway improvement should be demonstrated as adequate and appropriate for cyclists. This is especially pertinent for those travelling south along the A38 from Bristol. Cyclists require more width on the inside lane as they travel more slowly and have a greater tendency to weave on uphill gradients. A lane width of 4.25m or greater should be considered on this section. Lanes of 3m width would not allow for additional width, however they offer a 'defensible space/width' to stop hazardous overtaking in lane. Widths between 3.25m-4.25m encourage 'in lane overtaking' and can be hazardous for cyclists. Cyclists are 6 more times more likely nationally to suffer a fatal collision on an A-road, so the Council's Road Safety advice should be taken seriously, and lane widths investigated and adjusted accordingly.

The proposed roundabout improvement scheme shows a feeder lane from the airport having priority onto the A38. This presents hazards for northbound cyclists and is unacceptable. NSC require that either traffic leaving the airport is required to give way or an alternative is devised which does not generate this road safety concern.

*Actions:*

- *Widths of lanes for the proposed highway improvement should be provided to the Council and the applicant should confirm that its width complies with design guidance and is appropriate for cyclists.*
- *Traffic leaving the airport should be required to give way to traffic on A38 or an alternative design is proposed that addresses concerns about cycle safety.*
- *A detailed design for the A38 Downside Road scheme will be submitted by the Airport to address all comments and requirements provided by NSC Highways as set out in Appendix 4 and elsewhere in our comments. NSC will require to approve the final scheme at the detailed design stage which will take place post-consent.*
- *A38 Downside Road Scheme construction will follow a contribution to NSC, based on final scheme, with BAL to secure land and NSC to deliver as soon as practicable. There will be a back-stop agreement for BAL to deliver the scheme via S278 should there be delays to NSC delivery. A formal agreement is to be developed setting out these requirements.*

### **3.2 Electric vehicles (EVs) and EV charging**

The DfT Road to Zero Strategy (2018) sets a target that a minimum of 50% of all vehicles on the road should be EV's by 2030. The Autonomous Vehicle & Electric Vehicle Act (2018) also sets out why take up is important and how the UK should provide for this growing market.

North Somerset has a corporate carbon reduction target of 80% from 1990 levels by 2050, in line with UK Climate Change Act 2008. More recently, North Somerset Council has pledged (within their Climate Emergency statement) to be carbon neutral by 2030. This is against a back drop of 45% of the overall emissions in North Somerset being created from the transport sector, which is considerably higher (10%+) than the West of England average percentage split.

As an international gateway, the airport is one of the single largest trip generators within the sub-region, based on overall airport passenger numbers, especially in the summer peak.

EV charger installation and provision should, at minimum, keep pace with the proportions of the national and sub-regional fleet (whichever is greater) to enable confidence in use in standard parking and adequate provision for recharging in block parking (due to the need to regularly move vehicles) at the airport. There should be suitable provision for both staff and passengers and in all drop off and waiting areas.

BAL currently propose that the development will include six new charging point spaces for electric vehicles and they commit to monitor customer demand for such facilities. However, it is unclear whether any assessment has been completed to establish whether this provision will meet the current needs or growth for such provision bearing in mind recent increases in the proportion of EVs in the national fleet.

Prior to any construction of any car parking/waiting facility (new, additional or released by the 12mppa application), a review should be completed to inform the appropriate allocations of chargers (type, location, number) within each new car parking/waiting facility at the airport to ensure suitable provision in line with the national and sub regional fleet make-up.

The type of chargers ('trickle', 'fast' or 'rapid') is critical and should reflect the specific market that each car park is intended to serve (e.g. long, medium, and short stay, or

drop-off respectively). 'Trickle charging' may be more appropriate in long stay and any valet/block parking areas, with more rapid and fast provision in short, medium stay and drop off car parks.

North Somerset and the West of England's emerging EV Policy Technical Note for developments recommends 25% of all new/additional spaces should have passive EV charging for 7Kw charging and a 3-phase supply. Likewise, BAL should adapt the amount of charging provision in line with the growth in the EV market, after initial outline charger provision is reached. This detailed technical note will be available for reference for the airport in time for the Heads of Terms to be agreed. It is important that BAL are aware of and satisfy the emerging requirements.

When the BAL taxi contract is re-tendered North Somerset Council require that 100% of all taxi provision within the contract should be EV by the end of 2025, in line with the Airport's own target to be carbon neutral by 2025. To support monitoring of interim progress, 50% of taxi provision should be EV by 2023. This is in line with central government targets for the Road to Zero Strategy 2018 and the Automated and Electric Vehicles Act 2018. This should be reviewed and conditioned within the planning application and appear in the Airport's Carbon Reduction Plan.

We recognise that EV charging provision will be a future commercial revenue stream for the airport, and therefore we expect this to come forward as part of the Airport's business as usual activity. Our requirements are to ensure early delivery is met and consideration of need is undertaken to satisfy national and local policy and best practice.

BAL should also confirm their plans and timetable for replacement of their own fleet with electric or other low emission vehicles as part of their Carbon Management Plan.

#### *Actions:*

- *Prior to agreement on planning conditions and S106 Heads of Terms the Council will require a breakdown of any proposed EV charging points.*
- *BAL should set out their plans and timetable for taxi and fleet replacement with Electric Vehicles (and these should be reflected in the Carbon Management Plan).*
- *We recommend a requirement that EV charger installation and provision should, at minimum, keep pace with the proportions of the national and sub-regional fleet (whichever is greater) for both staff and passengers. Prior to design and construction of new car parking or waiting, a review should be completed to inform the appropriate allocations of chargers (type, location, number) within each new car parking/waiting facility at the airport to ensure suitable provision in line with the national and sub regional fleet make-up.*
- *When the BAL taxi contract is re-tendered North Somerset Council 100% of all taxi provision within the contract should be EV by the end of 2025, with 50% of taxi provision to be EV by 2023.*

### **3.3 Public Transport**

Surface access by public transport matters to passengers, staff and the local community.

For passengers' surface access is an important part of the overall experience and satisfaction. Passengers' value reliable, convenient, direct and frequent services.

Offering a range of choices makes it easier to meet the differing needs of passengers. The convenience of travel to and from the airport is an important factor in the passengers' decisions on which airport to use. With population growth, congestion is expected to increase and therefore minimising the impacts of congestion on the passenger journey is essential for a successful airport. Road traffic congestion is estimated to have cost the UK economy about £31 billion in 2016 through lost time and unreliable journeys. Public transport is at the heart of delivering sustainable growth.

NSC is not supportive of the Airport's initial proposal to roll-over the 10mppa consented public transport target of 15% modal share to 12mppa. A revised target of 17.5% is instead proposed, which allows continuation on the trajectory of growth currently observed. This is based on the current methodology agreed to assess modal share as per the 10mppa consent, however it is proposed to review this to ensure future alignment with CAA methodology, thereby enabling better comparison between other UK airports. This methodology is to be agreed with the highway authority and the public transport modal share to be rebased accordingly.

At 12mppa, this additional 2.5 percentage points will result in an additional 300,000 PT passengers across the year, and so it will be crucial that the measures set out within the ASAS in support of PT properly identify opportunities for and can accommodate this level of growth. This is a material and critically important factor to address the aspirations of the sustainable operation of the airport, one of the largest trip generators and attractors in the West of England sub region (887,000+ individual passenger trips in August 2017).

Making public transport more convenient by reducing overall travel times and improving interchange between services and modes will encourage public transport usage. There is clear potential to deliver further growth. We also recognise that the West of England area is seeing a continuing trend of PT growth, contrary to other areas nationally (as shown in the graph below), and we consider a continuation of the current trajectory of growth for PT mode share reasonable in this context.

For example; 31.4% of bus passengers come from the Bristol area – which is served by several bus services: A1, A2 and A4 with good frequency. In comparison buses to “Somerset” are more limited, despite being the second largest catchment (26.3%). There is scope to increase frequencies or create new links to increase public transport use from this area. For example, there are currently no direct links to Nailsea, Clevedon or Portishead from the Airport. Such a provision could serve both passenger and staff travel. As a result, we believe there is scope to encourage further public transport use and increase its' modal share.

In the PBA TA Figure 19 sets out 'Proposed passenger public transport % by region' (this table is shown in this report's Appendix 3 section 2.1.2). This clearly shows that there are potential markets of airport passenger growth (e.g. North Devon & Cornwall and South Wales & Cardiff) where no or lower than proportionate growth for public transport services is being proposed to 2026. It is our view that with action to target improvements in bus or coach services to these market areas, further modal shift to public transport is also possible.

Public transport access and visibility is vital to its' success. The Airport has consent as part of the 10mppa application for delivery of a Public Transport Interchange (with current plans showing this to be located on top of MSCP2). This is not currently programmed for construction, but it is vital this Public Transport Interchange be delivered as soon as possible, and at the latest prior to 10mppa or as an early



delivery measures (within the first 18-24 months post consent). We recommend a condition to ensure construction of this vital infrastructure is progressed in a timely manner to support early PT mode shift. It is currently being proposed by the Airport that the location of the PTI change and be de-coupled from the MSCP2. Therefore, the condition should ensure that a PTI be conditioned for delivery in a location to be permitted and approved by NSC. In addition, it is vital that any change to location provide no detriment to the outcomes of the PTI, in terms of distance from the terminal, accessibility of all the arrangements (including covered walkways and disability access), wider connections information and ticketing arrangements and the quality of the offer in terms of waiting environment, construction materials and signage plans. In addition, the offer should ensure that all public transport service passengers are delivered to this location (ensuring access for all scheduled public transport services whether operated or funded by the airport or otherwise).

BAL are in the process of setting out a range of early public transport delivery measures which includes new and enhanced services and facilities for public transport. These include a proposal to introduce a 24/7 demand responsive service to Nailsea, Clevedon and Yatton, with regular reviews to consider the effectiveness of the offer. It remains unclear how success is to be measured, or whether the services will operate as a trial and over what period, which is problematic as public transport measures often take considerable time to become established. We would therefore wish to see a commitment to delivery over a 24 month period, rather than the Airport's initial offer of 6 months, with regular reviews to amend or improve the offer as required, alongside marketing and promotional activity to seek to ensure the success of the new service.

As well as this specific intervention, there are a range of other measures that BAL have proposed in draft form. These include:

- A public transport improvement fund that will be provided over seven years, commencing immediately post consent. The fund will be flexible in its use, but BAL initially propose that this will support the following items:
  - rail/bus ticketing integration;
  - marketing and promotion;
  - Bristol Temple Meads bus stop enhancements;
  - Bath Spa interchange improvements; and
  - Worle Station interchange improvements.
  - South West/South Wales infrastructure enhancements.

In tandem with release of parking and to 'front load' early improvement of public transport services, to set right trajectory for 'mode shift' the following early action to support scheduled public bus and coach services should also be implemented. A timetable for delivery of each of these early delivery elements is not yet fully agreed, but will be specified in the drafting of planning conditions and S106 and should be focussed on the period immediately following consent and the following 18-24 months.

- A. The Bristol Flyer A1 to be fully integrated into Metrobus within 2 years following consent (subject to metrobus Board approval); which would include bus stop upgrades; off bus ticketing; marketing, information and promotional materials, adoption of the Metrobus fares regime; and a review of bus priority measures. Consideration will be given to a Premium Fare metrobus zone for the Airport. A feasibility study to align the A1 with the metrobus network will be required to be undertaken within 6 months after consent to include (but not limited to):

- branding of vehicles
  - consideration of the fare structure
  - acceptance of metrobus tickets for interim journeys
  - upgraded information across the metrobus network to add Bristol Airport to the network map
  - provision of off-bus ticketing
  - review of stopping patterns
  - bus stop infrastructure
- B. Once the A1 service to the Airport is integrated into the metrobus network, future public transport improvement funding might then be assigned to develop the connectivity options within the metrobus network. This could include direct connections to the North Fringe, including Cribbs interchange, potentially providing a choice of onward connections.
- C. The Weston super Mare Flyer to become 24 hour and route via Worle Station, with appropriate infrastructure improvements, following a study to be undertaken by the Airport within 6 months after consent to determine requirements. Delivery within 12 months post consent.
- D. Enhanced frequencies and facilities on services to the South West (Somerset/ Devon/Cornwall) and South Wales services. A review will be required to be undertaken by the Airport within 6 months following consent to determine the package of measures, which should be implemented within 18 months following consent.
- E. Specific actions targeted to enhance early morning and late-night PT provision for both passengers and staff, related to origins of both and changing to enable public transport options suitable for both flight and shift patterns.
- F. Specific actions targeted ensure current services are developed into viability where this is not currently the case, including through active marketing and promotion.
- G. Development of enhanced bus/rail interchange and joint ticketing schemes
- H. Continuation and underwriting of all current commitments and conditions from the 10mppa planning consent, including minimum frequencies (as at consent of the 12mppa application). In particular, this will require a commitment to ensure the continuation of all strategic bus and coach services that are currently operating, whether they are operated or contracted by the Airport or otherwise. These services are a critical base provision to deliver public transport options to the Airport from the current key market areas, and their continuity is vital. This includes the services currently identified as A1, A2, A3, A4, plus the currently named Falcon (to Plymouth) and National Express (to Cardiff), and ensures services continue to serve Weston-super-Mare, Bristol, Bath, the South West (Somerset/Devon/Cornwall) and South Wales.
- I. A fixed contribution to schemes supporting 'Mobility as a Service' and Demand Responsive Transport that come forward from the WECA Future Mobility Zone bid, in line with the requirements of the bid.
- J. Delivery of a demand responsive scheduled bus service operating 24/7 via Yatton, Nailsea, Portishead and Clevedon, initially for a minimum of 24 months,

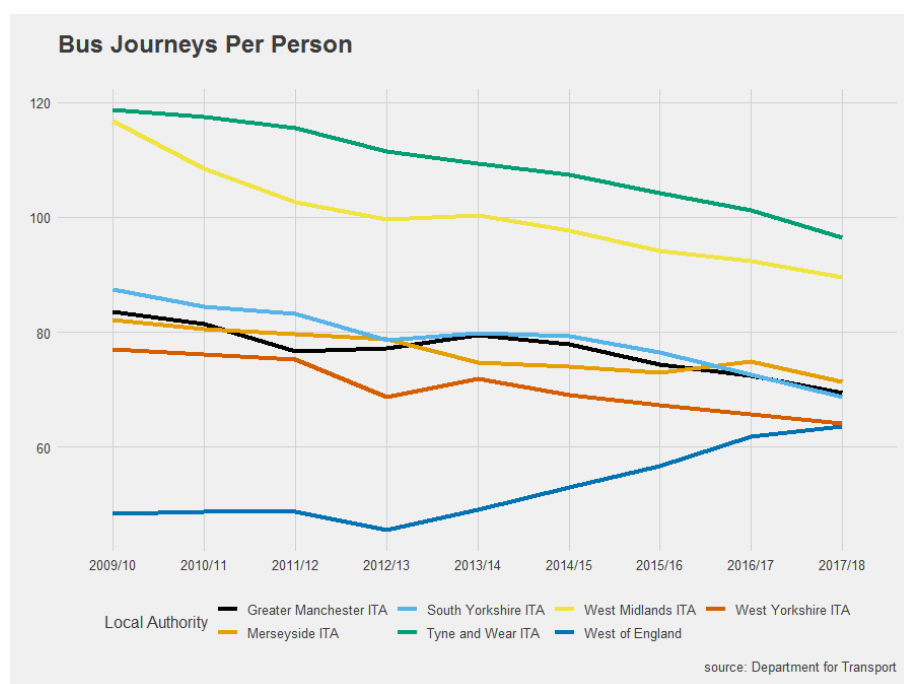
with regular reviews. This should be operational within 3 months following consent.

The Transport Assessment includes a 15% public transport mode share as part of its calculations and thus the mitigation set out by BAL is on this basis.

However, we recommend setting an overall target of 17.5% by 2026 or 12mppa, an interim target of 16% at 3 years post consent, to release additional multi storey car parking beyond that consented within the 10mppa application.

From a baseline at 10mppa of 15% public transport mode share (as currently consented), an average 0.5% modal share increase annually between 10–12mppa, based on current projections of passenger growth would mean delivery of 17.5% modal share for public transport by 2026, which would appear reasonable and in line with previous demand and growth trajectories over the previous 9-year period.

This is also consistent with the draft JLTP4, which seeks to double bus patronage in the West of England sub region by 2036 (a key airport passenger area), and the continued growth seen in West of England area bus journeys per person, which is rising in contrast to the national trend as shown below.



#### **Actions:**

- Detailed, firm proposals for public transport improvements are to be agreed and conditioned.
- The continuing role of the Transport Forum and Transport Steering Groups should be prioritised.
- The ASAS is required to provide for an increase in public transport modal split of 0.5% per annum, from the current baseline of 15% as presently consented at 10mppa (2021) to 17.5% by 2026 or 12mppa.
- The incremental target should be monitored and reported at least annually, allowing the airport to respond to any fluctuations with changes to provision, infrastructure, service improvements, smarter choices measures and marketing.

## **Parking**

**Sections 4,5 and 6 concerning Parking should be read in conjunction with Appendix 3 - the analysis of the Airport's Parking Strategy, Study and Addendum, produced by Jacobs.**

### **4. Illegal Parking/ Enforcement**

The airport has agreed through their recent 'Parking Summit' with residents, members and stakeholders, to look at a package of parking measures in the villages and areas surrounding the airport. These are outlined as follows:

- (a) Review parking restrictions in laybys and main roads;
- (b) Review parking in surrounding roads, lanes, cul-de-sacs and driveways;
- (c) Traffic regulation orders (as required);
- (d) Addressing issues of illegal parking within local landowners' fields (outside the permitted temporary 28-day period); and
- (e) An enforcement officer (employed by the Council) will be funded in full by BAL.

These committed actions, including their proposed immediate commencement are welcomed by the authority. However, BAL are recommended to finalise their considerations and advance firm proposals for how this will proceed, in discussion with the Council.

This will form a S106 obligation, with submission of the measures above required within 1 month of consent. Development should not proceed until the scheme has been approved.

Any proposed TROs will need to be approved by the Council, as part of the Council's ongoing Parking Review. This is a separate process to the planning application.

The Council has programmed an ongoing series of meetings to progress this work and the Parking Summit measures with the Airport.

#### *Actions:*

- *BAL should to continue their ongoing commitment to work to implement the measures as set out in the Parking Summit in points a-e above in partnership with North Somerset Council and other stakeholders. NSC will comment on TRO's and design. The airport and their consultant(s) are leading and will provide resources to progress the design and implementation of proposals and consultations with stakeholders/communities.*
- *Funding for an enforcement officer for 5 years (to be employed by the Council) to be funded by BAL, to be secured through planning Condition.*

### **5. Drop off and taxi provision**

The newly implemented drop off and taxi waiting area in the 'Silver Zone' for passengers who are driven to the airport by friends and family are welcomed. It is anticipated that its 39 spaces will act to limit waiting in residential areas and off-site laybys and be welcomed by local residents.

Drop off arrangements will inevitably encourage further taxi, friends and family drop off ('kiss and fly'), and unfortunately, this doubles trip generation (4 journeys as

opposed to two for people choosing to park at the airport or elsewhere) which has impacts on air pollution and congestion.

Free drop off parking should be strictly enforced for limited periods (we suggest a maximum stay of 20 minutes for drop off) to limit the growth of this type of travel.

In addition to the time limited nature of the free drop off area in the Silver Zone, increased charging should be applied at the drop off zones closer to the terminal to deter usage, and the income be permanently ring-fenced for carbon offsetting measures.

*Actions:*

- *BAL to finalise their considerations and advance firm proposals within the ASAS for the operation and charging regime for the 'drop off zones for passengers and taxis and the parking charges associated with each area near the terminals.*

## 6. Car Parking Provision

Tables in the Parking Study and Strategy set out the levels of car parking provision currently being advanced by BAL for the 2021/10mppa and 2026/12mppa and passenger limits.

The 12mppa planning application from BAL outlines parking proposals of:

- 2,700 additional spaces within the Silver Zone (referred to as 'Cogloop2'). The proposed Silver Zone expansion proposal lies within the greenbelt and will require justification of "very special circumstances". This addition would be for lower cost 'block car parking' away from the terminal buildings. This is cheaper and most 'in demand' from the public.
- 2,150 spaces and the construction of a new multi storey car park Northside on an existing ground level car park. This is referred to as MSCP3, which BAL propose as higher priced premium parking, generally used for shorter stays. Surveys show that this attracts less demand, even in the existing summer peak periods. NSC are aware some of the additionality for the Northside multi storey parking will be lost due to MSCP3 being constructed on an existing car park. It is noted that the new gyratory system and 'transport hub' located on MSCP2, will also take further available spaces. The net increase in North Side parking is therefore calculated as 1,200 spaces.

Car Park Type	2018 baseline	2021 (10mppa) consented	2026 (12mppa) application	Summary of position at 12mppa
Silver Zone	11,023	13,723	13,723	+2,700
Long Stay (Northside)	2,960	2,433	2,042	-918*

Car Park Type	2018 baseline	2021 (10mppa) consented	2026 (12mppa) application	Summary of position at 12mppa
MSCP 1	1,162	1,878	1,878	0
MSCP 2 (not yet constructed or scheduled)	0	1,900	1,900	0
MSCP 3	0	0	2,150	+2,150*
Premier	522	0	0	0
Meet & Greet	900	900	900	0
<b>Total</b>	<b>16,567</b>	<b>20,834</b>	<b>22,593</b>	<b>+3,900</b>

*\*net additional is 1,232 spaces. We have rounded this down to 1,200 in the remainder of this document.*

The Parking Demand Study forecasts that the airport will require around 22,600 spaces to facilitate growth to 12mppa by 2026 and, therefore, including the delivery of developments to facilitate growth to 10mppa, there would be a shortfall of around 4,600 parking spaces by 2026.

Jacobs independent assessment of the applicants' Parking Study and Strategy documents noted that of the identified 4,600 spaces noted to be 'shortfall' by 2026, a proportion (numbering 700) of these spaces would be used to compensate loss of spaces during construction activity and then to aid in reducing the share of off-site providers.

We do not therefore feel that additional provision above 3,900 is warranted as there are no construction plans for MSCP2 and off-site provision may vary greatly in location, type and authorisation status throughout the period to 2026, and is not predictable and so should better be accounted for in a review of actual changes in provision as provided for in our recommendations.

We concur with the findings of the Parking Demand Study which notes several factors which will impact the 'likelihood to park' moving toward 12mppa, including

- an increase in the percentage of inbound non-UK resident passengers to Bristol Airport from 19.5% in 2017 to 21.2% in 2026
- changes in the airport's catchment area, to include regions further from Bristol, where public transport opportunities need improvement
- and changes in passenger demographics.

However, when the increased shift towards PT is considered (17.5% by 12mppa/2026), against BAL's proposal to target a 15% PT mode share, a lower parking demand of around 3,200 is predicted. This is reflected in our recommendation to reduce the permitted additional parking quantum to a maximum of 3,200 spaces.

However, the above proposed parking provision should be re-evaluated by BAL on this basis and space reductions in specific car parks proposed. The reduction (700) in the total number of spaces to be provided should be identified by car park and should be evidence led, as should too many spaces be removed from the Silver Zone extension may increase in unauthorised parking. Conversely, if insufficient space is provided within the premium MSCP the airport may become less attractive for business travel.

We have also agreed that a BAL review would be appropriate to consider new evidence and justify any additional parking above 3200, to a maximum of 3900 spaces.

It is therefore a requirement that BAL be conditioned to a maximum of 3200 additional parking spaces subject to NSC's consideration of this review (of the additional 700 parking spaces up to the maximum sought of 3900). NSC will need to agree a review scope and methodology, but in principle this will take the form of a report submitted to NSC to present new evidence (i.e. outside the Parking Studies and TA – so for example effective enforcement actions or new entrants into the market o/s the green belt).

In addition, as set out in the Parking Strategy and Airport Surface Access Strategy appendices below, we have determined the order, and phasing in which the additional parking should come forward and its relationship to public transport modal share targets. Parking provision should be linked to the delivery of public transport measures and modal shift.

Our concern is that the increase of parking, risks undermining current and future public transport and smarter choices use. BAL should ensure a phased introduction of parking supports mode share increases set out in the current consent and the continued growth of sustainable travel modes to 12mppa.

The construction and use of additional car parking should be directly linked to the public transport mode split, to ensure it is proportionate to the amount of car parking spaces required and does not undermine the uptake and deliverability of public transport services.

A review of parking facilities alongside passenger demand no sooner than 2021 but no later than 2022 to ensure passenger needs are being met. This review should also consider the PT offering to ensure viable alternative to private car exist.

In terms of phasing of car parking, prior to expansion beyond the current 10mppa consent, the full parking allocation for this stage is assumed to have been constructed and open to the public, as stated within the Parking Study and Strategy documents provided as part of this application, this includes MSCP2. This acts to ensures the maximisation of parking within the green belt inset before utilising green belt land for parking and that there is no shortfall to serve the predicted demand. Part

of the justification for an immediate release of the Cogloop parking sites is related to the temporary loss of parking associated with the construction of the MSCP2.

BAL's parking study and strategy includes evidence of differing markets for parking, and we acknowledge the short term need for lower cost parking as provided at the Cogloop sites (Silver Zone parking provision). The expansion (year-round use of Cogloop 1 [Silver Zone extension] and implementation of Cogloop 2 [Silver Zone extension]) *must* however be accompanied by the suite of early investment in measures on the same timescale of implementation to encourage sustainable mode shift, particularly to public transport.

No further parking release (beyond Cogloop 1 and 2 as above) will be agreed unless a PT mode share of 16% has been achieved, and then the quantum should not be greater than 3200 total additional spaces (or 3900 subject to NSC approval of a parking quantum report, as above).

NSC will consider further release of parking spaces (only up to a maximum 3900 total additional spaces) subject to a review to be undertaken by the Airport (to be submitted to NSC) which would consider the impacts of any enforcement actions on unauthorised parking or other factors not known about during the drafting of the TA and parking study/strategy documents (for example new P&R type airport parking provisions).

Monitoring will be undertaken and reported by BAL to NSC in accordance with the monitoring requirements set out. These will measure the public transport mode share, and any decline in the mode share will result the application of the following actions, as recommended by our consultants Jacobs which are (in order of priority):

- a) Additional PT funding
- b) A comprehensive review of the ASAS and Travel Plan, which should be used if incentive one fails
- c) A rollback of approved parking provision of 128 spaces per 0.1% fall in PT mode share percentage points. This final method should be used if there is repeated failure of the above incentives

We will need to define a methodology and monitoring regime to define these mechanisms.

*Actions:*

- *BAL to amend their proposals for additional parking to a maximum number of 3,200 net spaces by 12mppa.*
- *A review (with methodology to be agreed with NSC) be undertaken by BAL if seeking to justify any parking above 3,200 spaces – to a maximum of 3,900 additional spaces only.*
- *Detail should be provided of early investment and provision of public transport improvements (which are to be brought forward in tandem with proposals for car parking expansion), particularly in the first two years*
- *The ASAS should review price structures across all transport to both promote use of more sustainable modes and to deter illegal off-site parking practices.*
- *A clear timescale for construction the Public Transport Interchange, which was consented as part of the 10mppa application, be confirmed.*



- *Agreement of monitoring regime and associated incentives to ensure a suitable measurement and understanding of shift towards sustainable modes*

No new parking in this application can come forward until the ASAS is approved.

## **7. Disabled Provision**

There is a need to ensure disabled people are not excluded from any of the transport modes and no assumptions should be made about how disabled people will access the airport and its services. Travel and transport information must be in accessible formats at all locations. The focus though should not solely be on disabled people and focus more generally on the needs of other people or groups such as families, maternity and pregnancy needs, plus people of faith. The airport will have a duty to meet all needs under the Equality Act and the Council will also be required to have due regard to these groups needs as a part of their duties under the Equality Act within their application.

All modes of transport must be designed on an inclusive basis and not require intervention from others unless requested by a disabled person.

Any equipment, e.g. payment machines must be procured on the basis that they are the most accessible available as well as providing online and/or telephone payment.

### **Car parking**

- Parking bays must be provided in accordance with council policy but varied to meet known demand at the airport. Special Assistance usage will help guide this figure.
- They should be located close to building entrances, transport hubs and to lifts.
- Operation of payment machines/barriers must be accessible considering height ranges and people with limited dexterity.
- Alternative energy charging points e.g. electric must have accessible bays available and again, must be accessible in terms of their design.

### **Bus links from car parks/around the site/at terminal entrances**

- The vehicles must have more than one wheelchair bay and be fully accessible to a disabled passenger with priority seating enforced by drivers and transport staff.
- Infrastructure at pick up/drop off points must be fully accessible with:
  - Shelters to wait for buses
  - Audio visual information
  - Seating with arms and backrests
- Assistance must be available if required to assist disabled travellers to point of travel, i.e. from Arrivals to bus stop, car parks etc.

### **Pedestrian routes**

- All pedestrian routes must be on direct, preferred desire lines, well-lit and with shallow gradients (1:18 - 1:20) and avoid the use of steps anywhere. Long ramps taking travellers off desire lines should be avoided and lifts should be installed for any height change over 2 metres.
- Surfacing must be smooth with close jointed paving units, where relevant.
- Any drainage channels must be enclosed and fitted flush with surrounding surfaces.

## Special assistance points

- As the airport grows and transport modes are more spread around the site there is a need to consider at what point the service is offered. There may be some people who require assistance from the actual multi storey car park, bus drop off point, and have a need for the assistance point not to be located somewhere in the terminal. Assistance reception points should be constructed at key transport interchanges, including at the terminal entrance.

### *Actions:*

- *The draft ASAS is to be provided to NSC within 6 months of consent, providing evidence of consideration of all comments in section 7 above.*

## **8. Staff transport provision**

Provision of staff car parking is currently 1,000 spaces (with all spaces located in the Silver Zone) and it is not proposed to increase from 2017 levels.

The draft work place travel plan has identified the behavioural change targets required to accommodate the additional staff increase of 700. This will be achieved by increasing staff their car sharing and public transport use combined with a raft of measures such as marketing, a staff notice board, increase in 2+ bays, and changes to the training and induction pack.

The focus on sustainable staff travel is welcomed, but it is considered that this will only be achievable through regular monitoring and review, and a dynamic approach to the package of measures applied.

From review of the workplace travel plan it is noted some staff will be working within the new staff building, Southside. However, the majority airside staff, such as pilots, stewards/stewardesses, terminal operatives and retail workers work airside (northside). Consideration should be given by BAL to locating some staff parking relative to their working locations with a view to reducing staff trips on the A38 outside the main entrance, however we would encourage activity to support public transport and car sharing in preference to parking location changes..

BAL should ensure continuation of (or improvement to) the discounted public transport scheme in operation for staff (£1 any journey one way). To deliver increased public transport usage significant focus will be required to target improvements to shift patterns around peak departure times (early in the morning/late at night) as public transport is typically less available and attractive at these times. NSC will require BAL to detail their specific plans for public transport improvements for staff travel within the ASAS/Workforce Travel Plan (WTP).

BAL are proposing updates to the existing WTP. NSC has reviewed these and comments are provided below. We understand BAL are supportive of and willing to update the WTP.

- (a) The WTP indicates that a dedicated Travel Plan Co-ordinator will be appointed. Within the draft S106 Heads of Terms, details should be provided of the timescales of this appointment; a breakdown of the proposed; levels of funding; and further details of the operational budget; and those for implementation and monitoring. It is recommended that the Travel Plan Co-ordinator is employed on a permanent basis and that the

role should have a remit across the whole site (including all associated uses) and all employers. This will require support from other employers to ensure the focus is not solely on BAL employees, which is a relatively low percentage of the total staff employed on site.

- (b) The Travel plan proposes the creation of 'user groups' of the Transport Forum to inform, advise and manage the WTP. The latter would mean major employers attend the Transport Forum. This measure is to ensure BAL 'manage' through implementation and monitoring.
- (c) The WTP is planning a re-launch of the active promotion of on-site car share schemes, with additional car-share spaces. This should be for all on site staff and not only those employed by BAL. In addition, the airport should ensure that car-share spaces are monitored and enforced.
- (d) BAL should clearly define the overall target for car share spaces (percentage and actual numbers) and their utilisation. Details of the process for allocating the additional car share spaces should also be provided.
- (e) As parking will be less available to staff, clear proposals are required on how demand and supply will be managed by BAL not only for BAL staff but for all those working on site. It is recommended BAL bring forward a review of airport-wide staff car park charging to encourage less car use and to drive increases in public transport and smarter choices. It is recommended that staff parking charges should be at least be equivalent to or greater than the cost of a public transport journey.
- (f) The WTP is planning to increase bus services to and from Bristol Airport and active promotion of these routes and services (particularly increase in the frequency prior to peak time flights) is supported.
- (g) Alongside this, consideration should be given to Personalised Travel Planning and incentives should be available to those who would benefit from these services. Any new or rebranded bus services should have a series of promotions and incentives for both staff and passengers to raise the profile within the target demographic/ geographical area. Funds to support this should be identified within the Heads of Terms.
- (h) An additional measure within the WTP, which is strongly supported, is further promotion of discounted staff bus fares available on all public transport services (from BAL contracted services e.g. Bristol Flyer).
- (i) Research demonstrates that when starting a new job there is a propensity to change travel behaviour. It is recommended BAL fund free travel by non-car modes to attend interviews and for travel by non-car modes to work for the first month of employment to encourage and cement new behaviours at this point of change.
- (j) The WTP should provide measures to encourage walking and cycling and their promotion (post Access Fund in 2020). This should include measures such as grants to pay for showers, lockers, drying rooms, which should be conveniently located and accessible. Further provision of cycle parking and storage facilities should be conveniently provided throughout the site and the responsibility of the Airport rather than other employers.
- (k) It is recommended that circulation of regular information updates regarding sustainable transport charges and opportunities is provided, and this should include the promotion of the use of Travelwest and Better by Bike.

NSC support the inclusion of the Airport as a zone within the Future Mobility Fund bid coordinated by WECA in June 2019. We acknowledge the commitments to co-delivery and co-funding of the staff-focussed Demand Responsive Transport elements that feature in the bid. Should this bid fail, the Airport's will consider how elements of the bid can be incorporated into the ASAS.

*Actions:*

- *NSC requires BAL to detail their specific plans for public transport improvements for staff travel including to serve shift patterns around early morning/late night flight peaks.*
- *Consideration should be given by BAL of staff parking locations relative to staff working locations and justification provided, including detail for any changes proposed within the Workplace Travel Plan. As parking will be less available to staff, clear proposals are required on how demand and supply will be managed by BAL not only for BAL staff but for employees of all companies on site. It is recommended BAL bring forward a review of airport-wide staff car park charging to encourage less car use and to drive increases in public transport and smarter choices.*
- *All comments above (a-k) should be included within the Workforce Travel Plan which shall be submitted to NSC and approved in writing before the existing passenger limit (10mppa) is exceeded or within 6 months of consent (whichever is sooner) and in associated BAL documents, including the ASAS.*
- *BAL will look at including the main aims of the Future Mobility Zone within the heads of terms for the S106 and planning conditions, should the bid not be successful.*

## **9. Other Local Authority & Stakeholder Comments**

Consultation responses have been received from neighbouring authorities and other stakeholders and are briefly discussed below.

### **9.1 Bath and North East Somerset Council**

Bath and North East Somerset Council issued an objection, subject to their key mitigations and objectives being incorporated in to the Heads of Terms/S106. Concerns noted related to:

#### *Transport Assessment*

- Passenger growth profile - resolved
- Flight schedule information - not possible to review the detail. Reliance on a realistic flight schedule is critical to form the basis of the overall traffic impact of the proposed scheme.
- The daily profile of public transport connections - sensitivity test exercise undertaken, however it is not certain whether the test scenarios reflect actual usage trends through the day and week. NSC require BAL to clarify this point.
- Technical Note considers "average weekday" scenario appropriateness to assess the impact of the proposed development traffic on the local highway network. The 10mppa and 12mppa flight schedule information has been used to determine the future daily profiles, which shows no significant difference between the weekday passenger totals, and that this should not affect the traffic impact analysis scenarios but shows the importance of the flight

schedule information within the assessment approach. It is understood that this would be a change from the current passenger number profiles and it would be sensible to ensure that this is monitored over time to ensure that daily passenger predictions are not significantly exceeded over time. Such monitoring to be enshrined within the S106 with appropriate amelioration should the passenger or traffic movement predictions be exceeded. The Applicant should reflect upon this and put forward a proposal for consideration. NSC concur with this view.

- Technical Note reviews potential impact of the passenger number increases at the weekend and in particular Sunday (which is predicted to be the busiest day of the week). A review against the traffic flows on the A38 road corridor has been undertaken. This shows that background traffic flows are lower on a typical Sunday, and it would be expected that the operation on a peak weekday would be the worst case scenario for the assessment of this corridor.
- B&NES Council has collected further traffic information to evaluate the impact associated with Bristol Airport traffic travelling along the B3130 in B&NES which confirms flows associated with Airport activities on the B3130 are not significantly different to those presented within the planning application submissions.
- There remains a significant concern that the proposed mitigation measures may not be able to resolve the existing problems experienced on the A38 road corridor, and this would result in traffic diverting through alternative routes. This includes the B3130 road corridor and surrounding routes.

*The need for an appropriate Airport Surface Access Strategy:*

- Chew Valley Transport Strategy - The Applicant should consider and propose amelioration where the proposals will worsen existing conditions.
- Parking Strategy - Concerns that the planning application proposed an unrestrained growth in parking at the Airport, and the proposed increase in parking exceeded the percentage increase in passenger numbers. With the proposed additional 4,850 car parking spaces there is potential for the Airport expansion project to have a greater impact on the wider highway network, and there was a concern that this was to the detriment of more ambitious public transport initiatives. NSC concur with the recommendation that any car park number changes are linked to passenger numbers travelling through the Airport and achievement of challenging modal share targets (for both passengers and staff).
- Environmental Impact Assessment – concern over failure to consider the average daily traffic flows, use of a more restricted calculation, which reviewed weekday 18-hour flows. A supplementary technical note provided a (TN24 April 2019). Traffic modelling has been updated following comments relating to the assignment of traffic across the local highway network. It is noted that this has changed the traffic volumes on each link through the baseline and development scenarios. The predicted flow levels along the A38 corridor and local roads have generally fallen as a result of this.
- Assessment of the Annual Average Daily Traffic (AADT) traffic flows has now been undertaken, and this approach demonstrates that the proposed scheme would have a more significant impact than presented in the original submission. This shows that there would be an increased impact on the majority of links as compared to the Annual Average Daily Weekday Traffic

(AAWT) scenario and this includes the West Lane corridor. Whilst this is likely to have an impact on traffic flows within the B&NES authority area, it is acknowledged that the changes are minor and would not alter the EIA document conclusions.

NSC concurs with the BANES conclusion that some potential impacts of the proposed scheme have not been addressed, and satisfactory amelioration is not agreed with the applicant at this time and the following issues need to be addressed:

1) Strategic impacts and amelioration agreed as part of the S106 agreement. Heads of terms should be agreed at this time. 2) The proposal needs to demonstrate how it will address and link to the draft Chew Valley Transport Strategy. 3) The Parking Strategy for the Airport needs to be reviewed and measures secured to ensure that uncontrolled growth in parking numbers is not an unintended consequence of any planning permission.

We do not support the application therefore unless these points are resolved. A monitoring and management approach is proposed to be detailed, which we would support.

## 9.2 Bristol City Council

The Bristol City Council Transport Development Management (TDM) response expressed concerns in respect of the modelling of Junction 7 (A4171 Colliters Way (South Bristol Link) roundabout with the A38), and specifically how the queue lengths there have been recorded. Bristol City Council requires the applicant reconsider the assessment of this junction.

As a result, amendments to the model inputs have been made to better replicate the extent of the queuing at the junction, and under Jacobs advice, we are satisfied that this better reflects current operational conditions.

## 9.3 Highways England

Initial comments received from Highways England outlined concerns with the proposed assignment of traffic, which have been addressed by the airport through further sensitivity testing. Further clarification was sought in respect of the modal share analysis, as well as further assessment of the key junctions including junctions 18, 19, 20, 21 and 22 of the M5. Final recommended planning conditions have subsequently been issued and this includes a Grampian condition relating to works at M5 junction 22. This limits the airports growth to 11mppa, until improvements works at this junction are carried out.

NSC are content that all matters raised by Highways England are concluded and no further comment or action beyond securing the appropriate condition is required.

## 9.4 Third Party Objectors

Concerns have been raised that the applicant has incorrectly completed the traffic modelling of the A38/Downside Road junction, and the way that this model has been validated against current traffic conditions. The concerns relate to the fact that the full extent of the existing queuing on Downside Road had not been recorded (as they extend past the view of the camera used to record these queues). As such it is contended that it is not possible to fully validate the model against existing traffic flow

conditions, and consequently the modelling cannot be relied upon. These concerns have been raised directly with the applicant's transport consultants. As a result, amendments to the model inputs have been made to better replicate the extent of the queuing at the junction and we are satisfied that this better reflects current operational conditions.

## **10. Monitoring**

A clear updated and revised monitoring and review strategy is required to be implemented and incorporated in the ASAS and TP.

Specific and measurable targets should be monitored regularly over time up to 12mppa.

We recommend a monthly, quarterly and annual review cycle, specific to requirements for each aspect.

The Transport Forum should oversee implementation of the monitoring strategy and its progress. Review schedules must be set out, for approval by NSC, considering the proposed timeframes for delivery of the targets and to ensure the right measures and monitoring are in place sufficiently early as passenger numbers grow.

When monitoring against targets over a long period of time, it is important to recognise that the nature of transport will change. Technology such as electric vehicles and in the future autonomous vehicles will become more common place and will enable different models of shared mobility and transport. As a result, accurate definitions within monitoring are vital to ensure appropriate comparison can be made. For example, it is key that the Airport monitor public transport (defined as scheduled bus and coach services) as well as the full range of car and non-car modes over time. They should also ensure clarity over primary and secondary travel modes.

In order to monitor the impacts of the proposed future developments and ensure that the Airports Surface Access Strategy and Travel Plan are updated and implemented as necessary, the following monitoring strategy should form part of the agreed Section 106 agreement.

A comprehensive monitoring approach is a key requirement for a robust transport strategy. This will include a wide variety of elements including staff travel surveys, automated traffic counters and mode share monitoring. We are in on-going discussions with BAL to explore these draft requirements in light of plans for BAL to adopt annual CAA surveys and monitor and manage network requirements. Monitoring requirements will be clarified and revised subject to these ongoing discussions.

The recommended monitoring strategy includes:

- Permanent installation of ATC loops, capable of recording volume and classification of all vehicles entering and leaving the Airport operational sites via the public highway. Data to be collected daily in 15min periods across a 24 hour period. Returns shall be made to the highway authority on a monthly basis accompanied with details of monthly air passenger arrivals and departures. Monitoring should commence from approval of planning application and shall be

required throughout the period for which permitted use above 10mppa is consented.

- If the average annual traffic flow, measured pro rata to passenger numbers (per passenger trip rates) subsequently exceeds the average annual traffic flow measured in the baseline survey by 2.5% or more then a review of the surface access /travel plan, including a programme for the implementation of any necessary measures identified within the review, should be submitted to the local planning authority for approval within 4 months of the survey. The data used in any such approved review of the surface access / travel plan shall then become the baseline survey data against which subsequent annual survey results must be compared for the purposes of this Condition, and any necessary measures identified in any approved review of the surface access/ travel plan shall be implemented in full accordance with the programme and details included in the most recent approved review document.

We also consider that monitoring related to car parking is necessary to ensure that supply is sufficient to meet demand, while also ensuring that there is not over supply. Therefore, the below should accompany any consent granted.

- Monitoring of and maintaining records for parking occupancy including length of stay. Data to be collected daily in hourly periods across a 24h period. Returns shall be made to the highway authority on a monthly basis accompanied with details of monthly air passenger arrivals and departures. Monitoring should commence from approval of planning application and shall be required throughout the period for which permitted use above 10mppa is consented.
- Should the parking occupancy exceed 95% (or a number to be agreed with BAL) for a complete 7 day period then a review of the surface access /travel plan, including a programme for the implementation of any necessary measures identified within the review should be submitted to the local planning authority for approval within 4 months of the survey. This should prioritise investment and implementation of measures contained within the surface access/travel plan to encourage travel by public transport, thus minimising use of the car park, prior to the release of any additional parking space for airport use.

#### *Annual Monitoring:*

- The airport shall collect daily occupancy figures for all Long-Stay visitor parking. Data to be reported quarterly and will provide assessment of available capacity, percentage occupancy rates and seasonal demand in relation to air passenger numbers. Number of parking actions (daily) are to be reported for each Short Stay and Drop Off parking provision with data to be provided on a quarterly return basis.
- We will need to obtain data suitable to inform any parking triggers'. This may include use of barrier logs or parking demand (space availability).
- We have identified the need to monitor the use of Kiss and Fly and Taxi Waiting to determine effectiveness, usage and identify need to modify the offering depending on uptake.

#### *Quarterly Monitoring:*



- *In addition to the daily parking occupancy data, the numbers of vehicles arriving and departing at all BAL operated parking locations (including drop off) shall be recorded at 15 minute intervals throughout the 24hr period of QMD's. These data will provide support to parking occupancy data and inform parking demand by time of day. In addition, data will be analysed together with other data sources to inform passenger dwell times.*

*Action:*

- *BAL should propose monitoring and review methodologies and schedules in reflection of our comments to inform the S106 Heads of Terms drafting and/or planning conditions and/or incorporated into the draft ASAS.*

**Appendix 2:**  
**Transport Assessment and Modelling**  
**Application 18/P/5118/OUT**  
**October 2019**

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<b>Subject</b>	<b>Bristol Airport Expansion: TA and Modelling Review</b>	<b>Project Name</b>	North Somerset Highways Development Management
<b>From</b>	Graham Stevenson		
<b>Date</b>	11 <sup>th</sup> October 2019		

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## 1. Introduction

Jacobs have been commissioned by North Somerset Council to review the transport impact of planning application 18/P/5118/OUT submitted by Bristol Airport Limited (BAL) for the proposed expansion of Bristol Airport to serve 12 million passengers per annum (mppa). The comments in this Technical Note provide our review of the submitted Transport Assessment (TA) and supporting documents, prepared by Peter Brett Associates (PBA) on behalf of BAL. Whilst the application is supported by a TA, itself a large, complex document (containing considerable amounts of data, and analysis), in turn it is supported by a suite of Technical Notes and a TA Supplementary document. Much of the methodology of the TA was agreed at pre-application stage, however we consider that in places the assessment remains challenging to follow given the cross referencing between documents.

The assessment relies heavily on Civil Aviation Authority (CAA) passenger data which has been used to determine the modal split, spatial distribution of passengers, and passenger vehicle occupancy levels. Whilst the use of CAA data is the recognised approach to the prediction of travel demand at airports, we have concerns that the validation against Automatic Traffic Counter (ATC) reported in the TA does not provide a fully robust comparison.

## 2. Existing Highway Network

The extent of the Highway Network to be assessed in the TA was agreed at pre-application stage. A total of 13 junctions were identified for traffic survey and assessment. They were accepted subject to the caveat that, should the assessment demonstrate any additional areas of concern which have not been picked up by the surveys, additional assessment may be required.

The 24-hour classified turning count and queue length survey data were collected in early July 2018 at the following junctions:

- Junction 1                      A38 roundabout with Bristol Airport northern access
- Junction 2                      A38 roundabout with Bristol Airport Silver Zone access
- Junction 3                      Downside Road priority junction with Bristol Airport service access
- Junction 4                      A38 signal junction with Downside Road
- Junction 4                      A38 priority junction with West Lane
- Junction 5                      A38 priority junction with Hobbs Land and Barrow Lane

- Junction 6                      A38 signal junction with B3130 Barrow Street
- Junction 7                      A4171 Colliters Way (South Bristol Link) roundabout with A38
- Junction 8                      A370 roundabout with A4174 (South Bristol Link)
- Junction 9                      A370 signal junction with Brockley Coombe Road and Brockley Lane
- Junction 10                     A370 signal junction with Station Road & Dark Lane
- Junction 11                     A370 signal junction with B3133 Smallway
- Junction 12                     A370 signal junction with B3133 High Street
- Junction 13                     A38 signal junction with A368

There are concerns that at A38 Downside Road junction, the queue length surveys did not pick up the full extent of queuing, because the queue extended beyond the view of the enumerators. This has an impact on the modelling of this junction and is discussed in section 10 of this note.

The assessment of transport impact is typically considered for a 'neutral' month. In this case data has been collected in July which is not typically accepted as 'neutral'. PBA and NSC have undertaken a comparison with available ATC data, both over the month of data collection, and a neutral month as defined in the Design Manual for Roads and Bridges (DMRB). Whilst, as you would expect, there is some variance, overall the comparison demonstrated that the single day counts appear robust for use in assessment.

The survey data indicate that there are defined morning and evening peak periods on the network, covering 07:00-10:00 and 16:00-19:00 respectively. Generally, the busiest hour on the network is 17:00 to 18:00, with the exception being junctions on the South Bristol link which has an earlier peak at 16:00 to 17:00.

### **2.1            Traffic Growth**

The applicant has used an assessment year of 2026, the year when passenger numbers are expected to reach 12mppa. To complete this the applicant has applied TEMPRO growth to 2018 traffic data. TEMPRO is an industry recognised tool, and its use is accepted. However, the factor has been applied to all traffic recorded within the surveys, including existing trips to and from the Airport. Consequently, there is an element of 'double counting' within the assessment, as growth in trips to and from the airport would be expected to be assessed within the TA methodology, rather than relying on TEMPRO. BAL has indicated that this has led to an increase of 4,021 trips across the site accesses from the application of TEMPRO alone, before development traffic predicted in the TA is applied to the network. We agree that this double counting has led to a robustness in the assessment of network conditions.

### **3.            Baseline Conditions**

To forecast the transport impacts of the airport expansion the applicant has undertaken a comprehensive assessment of baseline conditions for passenger, employee, operational and logistics travel. The baseline conditions draw on employee travel surveys undertaken in 2017; CAA survey data from 2015; CAA published data from 2017, as well as BAL commercial data. The assessment relies heavily on CAA survey data and, whilst commonly used in the assessment of airport expansions, in this instance the data for Bristol Airport only covers a single year (2015).

CAA survey data is an industry recognised tool used at all major airports and involves surveying passengers as they arrive at the terminal building from inbound flights. The survey asks several questions, including how people travelled to the airport (mode split), how many people were in their group and where they travelled from. This allows a picture of travel patterns to be built up and used as a prediction tool for expansion.

Published CAA monthly data indicates that, in 2017 (the most recent full year of data available when the TA was prepared) the airport served 8,232,628 passengers, which equates to an average of 22,555 passengers per day. The busiest month was August, when 887,485 passengers used the airport, comprising approximately 11% of the total demand for the year. The average daily passenger numbers for August were recorded as 28,629.

### **3.1 Spatial Distribution**

CAA data also provides the spatial distribution for existing passengers to the airport and shows that 96% come from the South West and Wales regions. Currently 77.2% of passengers originate in the South West, and 18.8% in Wales. This translates to 22,101 and 5,368 passengers respectively. The South West is defined as Cornwall, Devon, Somerset, Dorset, Bristol, Wiltshire and Gloucestershire.

The applicant then considered the split of trips within the South West and reports this in Table 5.3. It shows 26.3% of trips originate from Somerset, but no further details or breakdown of origins within Somerset have been provided. PBA have subsequently disaggregated information for North Somerset, revealing that within that local authority area in which the airport is located most passenger and employee trips originate in Weston Super Mare, followed by Clevedon, Portishead and Nailsea.

### **3.2 Mode Split**

CAA data has also been used to determine the existing modal split of passengers arriving at the Airport. This is currently 12.5% for public transport, 48% private cars, 27% car drop offs, and 12% using taxis. It is recognised that the modal split for each separate region differs, which is a function of both the distance and availability of public transport. TA figure 5.2 provides a breakdown of the modal share based on passenger catchment and highlights some of these differences. For example, Bristol has a modal split of 22% for buses, and only 24% for private car. By comparison Dorset has 65% modal share for private cars, and only 7% for buses. Data for North Somerset specifically does not appear to have been provided.

## **4. Passenger Forecast Trip Generation**

The methodology to determine the forecast travel demands was agreed at the pre-application stage and the TA appears to follow the agreed approach. The assessment is based on a bespoke methodology that has used information from the 2015 CAA passenger surveys 2015. The assessment has identified existing journey patterns, journey timings and the mode share of existing trips to the airport and uses these to predict the future generation. When compared to standard trip generation methodologies for large housing and employment developments, typically using TRICS, the use of the survey data to determine trip generation is unusual. However, as the trip making pattern and behaviours at airports are very different and so an alternative methodology is required. As such, it is standard practice for airport expansion proposals and has been considered an acceptable and robust methodology to predict the traffic generation for proposed expansions at Luton and Heathrow airports, both of which are considerably larger than the Bristol proposal. Further details of the methodology are provided below.

### 4.1 Passenger Annual Profile

As the application is seeking an increase in the annual passenger numbers at the airport to 12mppa, there is a need to refine this figure to determine the likely daily increases in passenger numbers. Using baseline information on passenger annual profiles, PBA has broken down the expected increase in passenger numbers for the month of August, the busiest at the airport. The assessment assumes that the same percentage of passengers per month will arrive in August as was recorded in the 2015 CAA survey data. This is 11% of annual passenger demand and, if the application receives consent, the total passengers in August will rise to 1,317,817, an increase of 219,636 when compared with the ceiling of 10mppa permitted by the current consent.

PBA has then divided this figure by 31, the number of days in August, to derive a total daily increase in passenger numbers expected to use the airport. This gives a predicted total daily uplift of 7,085 passengers a day in the peak month, and is the figure tested in the TA. This represents an 'average' daily total during August and does not look at specific days which could vary about that average giving higher or lower passenger numbers. A variation about the mean is to be expected and it would not be reasonable to expect the applicant to consider a 'worst case' assessment of demand at the airport as this would lead to unreasonable mitigation requirements which would not be required for much of the year. Furthermore; it should be noted that during the month of August traffic flows on the surrounding network in the peak periods are generally lower than other months of the year, and BAL is testing the impact of the development against July flows which are higher. This element of robustness gives confidence that the use of an 'average' August day is entirely appropriate.

### 4.2 Passenger Catchment

The next step of the assessment is to determine where the increase in passenger numbers arrive from. To do this the TA again uses baseline CAA data to consider the origin of those passengers. Currently the biggest passenger catchments for the Airport are the South West and Wales, with 77.2% and 18.8% respectively. This means that 96% of the total passenger demand originates in these areas. As geographical location has a key bearing on both route and mode choice, this is a key factor in the assessment of new trips to the airport.

**Figure 1.1: 8.2mppa CAA data percentages by UK area for Bristol Airport**

Region	Passenger Percentage	Passenger per Annum
East Midlands	0.1%	10,994
East of England	0.1%	11,910
North East	0.0%	1,832
North West	0.2%	13,742
Scotland	0.2%	17,407
South East	1.3%	105,359
South West	77.2%	6,295,708
Wales	18.8%	1,604,012
West Midlands	2.0%	162,161
Yorkshire	0.1%	5,497
<b>Total</b>	<b>100%</b>	<b>8,232,628</b>

PBA state that historical growth at the Airport has been primarily in the South West and Wales and predicts that this trend will continue. The assessment has therefore assumed there will be zero growth from other regions and consequently the share of passengers from the South West and Wales will increase to 78% and 19% respectively.

#### **4.3 Modal Split**

The total number of new passengers to the airport is a fixed variable at 2mppa, and their origin has been calculated in the passenger catchment section of the TA as reviewed above. The next step of the assessment is to calculate which mode these passengers will use to travel to the airport, to determine the total number of new public transport and vehicular trips. This is calculated by looking at the existing Modal Split of each passenger catchment as determined with the CAA passenger survey data.

The extant planning application which granted consent to 10mppa required the airport to achieve a modal split of 15% using public transport. It is understood that the current mode split for public transport is closer to 12.5%. The assessment has used a 15% modal split for its future predictions for 12mppa in line with the 10mppa consent. At the pre-application stage concerns were raised that, given a relatively modest change in percentages for the modal split would equate to considerable difference in the resultant trip generation, we would need confidence that this figure is both realistic and achievable. As an example, the TA indicates that at 12mppa, a 15% modal split to public transport would equate to 1,800,000 people a year using public transport whereas if the current figure of 12.5% were used this number drop to 1,500,000, a reduction of 300,000 people. This would have obvious knock on impacts on the total vehicular generation to the airport, the surrounding road network, and potentially, the operation of key junctions.

PBA subsequently undertook some analysis to examine the difference in the peak hours of modelling a lower figure of 12.5%, and this demonstrated that a further set of assessments on this basis would not demonstrably affect the results. We agree with this conclusion and so only a single set of assessments have been undertaken.

Whilst 15% has been used within the Transport Assessment to assess the highway impact of the proposals, whereas a higher target, of 17.5% of sustainable modes has been agreed as the basis of the Travel Plan and Airport Surface Access Strategy.

#### **4.4 Car occupancy Levels**

To establish the number of new vehicular movements on the network, the next step is to understand car occupancy levels. These are presented in Table 8.8 of the TA and show a variation not only between the type of vehicle and whether it is a vehicle drop off or parked on site, but also between region. An average car occupancy figure for the year has been used, and PBA indicate that for August a higher level of car occupancy is recorded (as more families are travelling on holiday). Higher levels of car occupancy mean fewer resulting vehicles in assessment and we are satisfied that the approach is acceptable.

#### **4.5 Passenger Dwell Analysis**

To this stage the assessment has identified the average daily increase of vehicle trips to the airport, and there is a requirement to understand how this equates to an hourly increase in traffic, arising from the expansion.

The data provided in Table 8.10 demonstrates the average passenger dwell time for departures and has been split into long haul (flights which exceed 6 hours) and short haul (flights less than 6 hours). There is considerable variation in times when passengers arrive for their departing flights, with a significant number those travelling on

short haul flights arriving just 30 minutes before their departure. This information has been provided directly from BAL and therefore should be a true reflection of the profile of passengers at the airport. Whilst we appreciate that this data has been derived directly from BAL, we had several concerns about its' robustness. Further analysis has been undertaken by PBA and this has demonstrated that changes to the data results in minor differences in the resulting outputs. In addition, PBA and BAL have provided further detail on how the data has been collected and its' limitations; which has helped allay some of our concerns. However, some minor residual questions remain about precise details of the method of data collection, whether it allows for the time people may spend at the airport before passing through security, and whether it reflects the true departure profile of passengers, in particular those arriving very close to their flight departure time.

A similar exercise has been undertaken for passenger arrivals at the airport albeit based on a first principles approach. This shows that on average passengers spend an hour at the airport from landing to departing. This has been used to provide a daily profile for the month of August and is shown in figures 8.7 and 8.8; which is acceptable.

## **5. Employee Forecast Trip Generation**

The applicant has indicated that growth to 12mppa will see an increase of 700 full time equivalent staff at the airport, when compared to the 10mppa consent. The catchment for employees has been identified by the airport, and it has been assumed that current patterns of spatial distribution of employees will continue as the airport seeks to recruit locally. This demonstrates that most employees live relatively close to the airport, with the biggest percentage coming from North Somerset.

Using information on working patterns derived from the 2017 staff survey the applicant has compiled a table showing the likely arrival and departure profile for staff. It is recognised that, with shift working, staff movements are unlikely to fall within the traditional morning and evening peak periods. The assessment indicates that 16 staff are likely to arrive between 08:00 and 09:00, and 69 staff will depart between 17:00 and 18:00, the time when the existing highway network is at its busiest. Using modal split analysis from the staff survey it is possible to determine how many of these staff are likely to travel via public transport, and how many will arrive via private car. This modal split assessment is accepted. The uplift in staff numbers following this expansion is predicted to generate an additional 13 trips in the AM peak of 08:00 – 09:00 and 59 trips in the PM peak of 17:00-18:00. This additional generation figure is accepted.

## **6. Logistics Trip Generation**

In addition to passenger and staff movements, additional operational and logistics trips are predicted, including fuel deliveries, car rental deliveries and other operational movements. PBA has completed additional bespoke assessment of the likely increase, using a simple upscaling methodology, which results in a marginal uplift of these trips throughout the day. It is difficult to confirm if this is an acceptable methodology, although given that existing airport traffic has been expanded using TEMPRO, we are satisfied that the impact of additional trips for operational and logistic movements has been accounted for in the assessment.

## **7. Airside Capacity / Operations**

Comments thus far within this Technical Note have focussed on factors affecting landside trip generation. However, it is the case that this is all driven by the flight schedules proposed. BAL have provided an indicative flight schedule for the 12mppa scenario. Whilst we have been unable to corroborate the detail of this, it appears realistic. We have however asked PBA and BAL to provide detail and confirmation that there is enough airside capacity to accommodate the proposed schedule. Whilst some information has been provided, which



demonstrates that the runway has enough capacity, we have not been provided with confirmation that there is enough stand and taxiway capacity to accommodate the forecast level of growth. However, it does appear that BAL would be able to smooth the demand to ensure that total flight movements per hour do not exceed those which already operate at the airport. BAL have also assured us that detailed planning has been undertaken to ensure that the airside infrastructure has capacity to accommodate the additional 2mppa.

We have also sought clarity of the temporal profile of the increase in passengers at the airport, which does not represent a direct uplift from either existing operations or that forecast at 10mppa. Whilst PBA/BAL have provided some information that this has been derived by discussion with airlines, and we recognise that any profile tested could (and is likely to) change with changes in operator needs, it may have been more robust to model a direct uplift; at least as a sensitivity. This is especially the case given that the existing temporal profile has been established for some time.

## **8. Total Traffic Generation**

Whilst there are still some minor concerns regarding application of the methodology within the TA, and thus the final generation figures, we consider it likely that the forecast traffic flows are representative of the impact of the proposals, given the range of variabilities that could occur in reality and a number of other factors (such as the application of TEMPRO growth to existing airport movements and that the PT mode share has been set at 15% which is 2.5% lower than the now agreed target). The total traffic forecast generation resulting from increasing passenger numbers from 10mppa to 12mppa are shown in Table 8.22 of the Supplementary TA. The proposed expansion is expected to generate 5,552 two-way vehicular trips daily, which equates to 2,771 inbound trips and 2,782 outbound trips.

During the AM peak period of 08:00-09:00; the expansion is predicted to generate an additional 123 inbound trips, and 75 outbound trips.

During the PM peak period of 17:00-18:00 the application is predicted to generate an additional 161 inbound trips and 158 outbound trips, a total generation figure of 319 trips. The peak generation period for the airport is the hour of 18:00-19:00 where the airport is predicted to generate an additional 337 inbound trips and 299 outbound trips, a total of 636.

## **9. Forecast Traffic Assignment**

To assign new vehicle trips from the 2mppa increase onto the highway network, a basic buffer network has been developed within SATURN, which considers link distance between specific nodes and recorded speed data, provided by HERE. This is not a dynamic assignment model and does not take account of congestion and delay on links and any reassignment effects these may have. Assigned traffic network diagrams for each scenario have been provided in Appendix G of the TA. An updated version of this assessment was presented in Technical Note 18, which was undertaken to add the route between Clevedon Road and the A370, through Nailsea.

The outputs from this analysis have been shown in PBA Technical Note 20 for the AM, PM and airport peak periods.

This revised output has been accepted as a robust methodology for predicting the distribution of trips arising from the proposed airport expansion.

## **10. Residual Highway Impact**

Assessment of the impact of the growth to 12mppa has been presented for 2026. This has been selected by BAL as it represents the time at which they consider this level of growth will be reached. In practice, growth will occur over a period and without information relating to the profile of growth over the intervening period it is difficult to determine whether mitigation is required at a point beyond 10mppa, but before 12mppa.

### **10.1 Junction Modelling**

The Transport Assessment includes the capacity analyses of several junctions. These have been validated to reflect observed base / existing conditions. The TA did not contain the necessary information to enable this to be checked. However, this has subsequently been demonstrated during dialogue with PBA. This has included making alterations, particularly at the A38/Downside Road junction, where there was concern that the observed queues did not reflect the full extent of those currently experienced at this junction.

Considering this additional assessment and examination, the base models of all the junctions assessed within the TA have been accepted as reflecting existing conditions acceptably.

We have also examined the future year models; although it should be noted that these are based on the assumptions made by PBA, not all of which have yet been agreed. However, PBA have proposed that, to accommodate expansion of the airport to accommodate an increase to 12mppa, mitigation should be provided at the following junctions:

- A38/ Bristol Airport Roundabouts – Northern Roundabout
- A38/West Lane and Downside Road.

NSC have been reviewing the proposals put forward at these junctions and comments have been provided to PBA and BAL separately.

At the other junctions assessed, and again noting this is based on the assumptions made by PBA, the only other junction that a case for mitigation could be made would be the A38/Barrow Street junction, as our review of the junction modelling outputs has shown that the proposed expansion is forecast to have a significant impact on operational conditions there.

In addition to the junctions assessed by PBA, the forecast impact on several other junctions were detailed within the assessment. PBA excluded assessment on these junctions for a variety of reasons. We have reviewed these and consider that the level of forecast flow increases as a result of the proposals would require junction assessment to have been undertaken at the following two junctions, to demonstrate whether mitigation is required:

- A370/SBL
- A38/A368 – Churchill Crossroads.

### **10.2 Modelling Summary**

Our review of the modelling completed by PBA to support the 12mppa application has concluded the following points:

- The base models have all been agreed

- The ‘with development’ models have been agreed, save for the fact that these are based on assumptions which have not yet fully been signed off.
- Consideration should be given to the provision of mitigation at the A38/Barrow Street junction.
- Assessment of the A370/SBL and A38/A368 junctions should be completed to understand the impact of the proposals.

### 11. Conclusions

This Technical Note has provided a summary of our review of the Transport Assessment (and supporting documentation) submitted as part of the proposal to expand Bristol Airport to accommodate 12mppa. Whilst many areas of the assessment have been agreed, there are some on which agreement has yet to be reached.

It is also worth noting that, in general, the documentation of the assessment of the expansion proposals is sometimes difficult to follow and would have benefitted from a comprehensive refresh of the TA to provide a “one-stop” shop to examine the impact of the proposals on the highway network.

Areas that we have not reached full agreement on, and our concluding thoughts on these are as follows:

- Whether airside operations have the capacity to handle the proposed 12mppa flight schedule. Some information has been provided by BAL on this matter and whilst this does not resolve all our concerns, we are confident that the flight schedule is deliverable with small changes which would result in it operating within the currently achieved maximum aircraft movements per hour.
- Whether the flight schedule as modelled is robust vs the established daily temporal profile. Again, BAL have provided further information, but we consider that it may have been beneficial to model a direct uplift in flight movements as a sensitivity to demonstrate that this would not be a material concern.
- Whether the dwell time data for departing passengers is completely robust; acknowledging that this represents a significant volume of records on which to base this element of the TA upon.
- That mitigation is required at the A38/Barrow Street Junction to resolve the operational impacts that the proposed development is forecast to have.
- That junction assessment is required at the A370/SBL and A38/A368 junctions to demonstrate whether the impact of the proposals requires mitigation.

**Appendix 3:**  
**Car Parking Strategy Review**  
**Application 18/P/5118/OUT**  
**October 2019**



# **Highways Development Management – Bristol Airport**

## **Parking Strategy Review**

4

15/10/2019

North Somerset



## Highways Development Management – Bristol Airport

Project No: 674946CH  
 Document Title: Parking Strategy Review  
 Document No.: -  
 Revision: 4  
 Date: 15 October 2019  
 Client Name: North Somerset  
 Project Manager: Guido Meloni  
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### Document History and Status

Revision	Date	Description	By	Review	Approved
0	June 2019	First issue	TS	LG	GAT
1	June 2019	Amendment following client consultation	TS	LG	GAT
2	August 2019	Amended following ongoing discussions with NSC and BAL	DE	GAT	GS
3	October 2019	Amended following ongoing discussions with NSC and BAL	GAT	GS	HJD
4	October 2019	Amended following client comments	GAT	GS	HJD

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## 1. Introduction

Bristol Airport Limited (BAL) propose to increase passenger numbers to 12 million passengers per annum (mppa) and is investigating options to satisfy car parking demand under this scenario. BAL submitted a planning application for expansion to North Somerset Council (NSC) (LPA Ref. 18/P/5118/OUT) in December 2018.

Passenger numbers at the airport increased by c.2.3 million passengers per annum (mppa) between 2012 and 2017 with the numbers of cars parked increasing proportionately from c.565,000 to c.878,000 per annum.

In February 2011 BAL was granted planning permission allowing growth to 10mppa by 2021 with parking permitted to increase from c.16,700 spaces in 2018 to a maximum of 18,400 by 2021.

Beyond this, parking demand is expected to continue to grow with passenger demand for the official parking sites predicted to increase by 39% between 2017 and 2026 from 1.6m passengers to 2.3m passengers.

### 1.1 Existing Parking Provision

In 2018 the airport had c.16,700 on-site car parking spaces, up from approximately 15,000 spaces in 2016. This growth followed the opening of Phase 1a of its first Multi-Storey Car Park (MSCP).

Parking at the airport is provided in five main on-site car parks (figures from start of Summer 2017 peak);

- Meet and Greet car park near the terminal (900 spaces);
- Premier/Short Stay car park - partially multi-storey (522 spaces);
- Long Stay car park a short walk from the terminal (2,960 spaces);
- MSCP1 also a short walk from the terminal (1,162 spaces); and
- Budget Silver Zone car park to the south of the airport site (11,023 spaces).

These figures include a seasonal summer expansion of Silver Zone parking (C1) of c.3,650 spaces which was permitted by NSC in 2017 and 2018 to ensure the airport could cater for demand in peak periods. During these summer peaks, BAL claim that car park utilisation reached 95%.

There were also an estimated 4,800 off-site parking locations available in 2017, particularly during the summer months. These are often offered by unauthorised third parties with neither the airport nor NSC having outright control over their presence.

### 1.2 10 mppa Consented Parking Provision

As part of a previous planning application BAL have permission to expand its parking offering. When fully built out provision of spaces will increase to:

- Meet and Greet car park near the terminal (900 spaces);
- Long Stay car park a short walk from the terminal (2,433 spaces);
- MSCP1 also a short walk from the terminal (1,878 spaces);
- MSCP2 also a short walk from the terminal (1,900 spaces); and
- Budget Silver Zone car park to the south of the airport site (13,723 spaces).

Note that the “Premier” offering is proposed to be replaced entirely by MSCPs, although MSCP2 has no planning related trigger and is not currently scheduled for construction.

## 2. Parking Demand

A Parking Demand study was undertaken in 2018 by Teneo Consulting for BAL. This aimed to identify the level of car parking required to support the expansion and explore options available for delivery.



It should be noted that the demand study assumes that all parking consented in the approval of the 10mppa application is constructed and open to the public. This is confirmed by section 4.2.2 of the Wood Environment & Infrastructure Solutions Parking Strategy which states that:

“BAL expects to increase car parking capacity from circa 16,700 spaces in 2018 to approximately 18,400 spaces in 2021 through the completion of MSCP Phase 1b and the construction of MSCP Phase 2 (including public transport interchange). Despite these planned increases the provisional findings of the Parking Demand Study indicated that a total of 4,600 additional spaces will be required to meet forecast demand at 12 mppa (assuming public transport modal share remains at 12.5%).”

## 2.1 Parking Demand Study

### 2.1.1 Future Demand Forecast

BAL forecast that the number of passengers arriving at the airport by car and parking will grow from c.1.7m in 2017 to c.2.3m in 2026, an increase of 39%, as part of its ambition to grow to 12mppa. This equates to a projected increase in the number of cars parking on-site from c.900k in 2017 to c.1.3m in 2026.

The Parking Demand Study uses the passenger demand numbers to forecast the predicted increases in numbers of parking spaces required. The relationship between increased passenger demand and increased parking demand is not linear however, and the report notes several factors which will impact the ‘likelihood to park’.

For example, an increase in the percentage of inbound non-UK resident passengers to Bristol Airport from 19.5% in 2017 to 21.2% in 2026 (as is reportedly witnessed with larger airports) will partially suppress relative parking demand. This has been verified by BAL using Civil Aviation Authority (CAA) data, cross-checked with BALs own studies and we concur that this appears to be a realistic assumption.

Other factors which are predicted to impact ‘likelihood to park’ include changes in the airport’s catchment area, to include regions further from Bristol (which increase the propensity to drive due to less attractive public transport offerings), and changes in passenger demographics.

The Demand Study forecasts that the airport will require 22,600 spaces to facilitate growth to c.12mppa by 2026 and, therefore, including the delivery of developments to facilitate growth to c.10mppa, there would be a shortfall of 4,600 parking spaces by 2026. This is calculated by converting future passenger number forecasts into likely number of cars parked, using average group sizes from CAA surveys and historic demand/occupancy ratios. However, it is important to note that parking demand is also dependant on public transport mode share, and that link is discussed in section 2.1.2 below.

It should also be noted that for the Silver Zone car park extension to be unnecessary the Demand Study identifies that the PT mode share would need to increase from the proposed 15% to 29% would be required. Jacobs recognise that such a mode shift would be unachievable without the implementation of mass transit which, given the significant investment needed, is not deliverable under the current application.

### 2.1.2 Public Transport Improvements

The study notes the low public transport (PT) mode share at Bristol Airport compared to other major hubs in the UK such as Heathrow (39%) and Birmingham (22%). BAL estimate that in 2017 only 12.5% of passengers travelled by public transport. BAL have committed to increase this share to 15% as part of its plan to grow to 10mppa. Improvements to facilitate this include:

- Increasing frequency and capacity of bus services between Bristol City Centre and the airport;
- Increasing the frequency of bus services between Weston Super Mare and the airport;
- Setting up a public transport fund to support local services and to more effectively link the airport to its nearest railway station (Nailsea and Backwell);
- The introduction of a coach service to Cardiff; and

- The introduction of bus services between Bath and Plymouth and the airport.

A Transport Assessment undertaken by Peter Brett Associates for BAL in 2018 claimed that the 15% target would also be appropriate for the further development up to 12mppa. This mode share would reduce future demand for car parking spaces from 4,600 spaces at 12.5% PT mode share to 3,900 at 15% mode share. This reduction due to PT mode share increase appears accurate.

Figure 19 - Proposed passenger public transport (PT) % use by region of origin in 2026<sup>6</sup>

Origin	2017 Pax numbers	2026 Pax numbers	2017 % of total Pax numbers	2026 % of total Pax numbers	CAA 2015 PT % <sup>1</sup>	Adjusted CAA PT % <sup>2</sup>	p.p. adjustment to reach target PT %	2026 PT% requirement	Implied additional pax on PT
Bristol & Surrounding Area	2.31m	2.87m	28%	24%	13%	10%	4%	14%	117k
South Wales & Cardiff	1.27m	2.01m	15%	17%	16%	13%	1%	14%	21k
North Devon & Cornwall	0.79m	1.51m	10%	13%	8%	6%	0%	6%	0k
South Devon & Cornwall	0.72m	1.13m	9%	9%	15%	11%	1%	12%	12k
Eastern Corridor	0.49m	0.69m	6%	6%	13%	10%	0%	10%	0k
North and East Birmingham	0.45m	0.67m	6%	5%	10%	8%	0%	8%	0k
South Eastern Corridor	0.34m	0.30m	4%	2%	6%	4%	0%	4%	0k
Rest of Wales	0.25m	0.38m	3%	3%	12%	9%	0%	9%	0k
Other (Inc. foreign passengers)	1.60m	2.32m	19%	21%	30%	23%	5%	28%	132k
<b>Total</b>	<b>8.23m</b>	<b>11.87m</b>	<b>100%</b>	<b>100%</b>	<b>16.1%</b>	<b>12.5%</b>	<b>-</b>	<b>15.0%</b>	<b>282k</b>

The figure above taken from the Demand Study displays the predicted changes in public transport usage to and from the airport between 2017 and 2026, reflecting the increase to 15% PT share. This demonstrates that the vast proportion of the projected PT increase is to come from Bristol and South Wales, benefiting from upgrades to the Great Western mainline, as well as increased numbers of incoming non-UK resident passengers. The forecast does not project any additional passengers using PT from projected significant growth areas such as Devon, Cornwall and Somerset.

Jacobs agree with North Somerset Council's opinion (NSC) that the 15% target is not sufficiently ambitious given the predicted growth to 12mppa by 2026. The 15% target was agreed with BAL during discussions for the 10mppa application some time ago and should the airport wish to grow further then PT mode share should also increase in line with national and local planning policies. These policies seek to reduce private car trips and encourage the use of sustainable modes. This should also be considered within the context of the airport's public future growth plans prior to which a step change in the public's mindset about travel to the airport is required. Further consideration and justification for NSC's position in this regard can be found in the NSC comments on the Airport Surface Access Strategy (ASAS). Furthermore, given the airport's location in the Green Belt, it is not feasible to suggest that continued expansion of car parking will be permitted as the airport grows further. Therefore, we support the NSC position that the PT mode share should increase by 0.5% per annum between 2021 and 2026, resulting in a target of 17.5% PT mode share. This target, which Jacobs understand has been established based upon the continuation of the current public transport growth curve of at the airport, has been verbally agreed with BAL. It should be noted that the overall increase in parking proposed by the airport, as mentioned earlier in this report is 3,900, a 15% PT share. At a 17.5% share the overall increase in parking demand would fall by a commensurate 700 spaces from 3,900 to 3,200. This is based upon the BAL calculation of the difference between a 12.5% PT mode share and 15% mode share as set out in the table below.

Table 1 – PT mode share and associated parking demand

Public transport mode share	Parking demand
12.5%	4,600

15%	3,900
17.5%	3,200

To incentivise BAL to achieve the required PT mode share targets Jacobs suggest that two approaches are pursued. The first should be proactive, requiring BAL to achieve a PT mode share target prior to the release of additional parking, and the second reactive as series of disadvantages should the agreed targets not be met.

To ensure unrestricted parking increase does not occur at the expense of PT the release of additional spaces should, as a proactive measure, be linked upfront PT funding. Jacobs understand that BAL and NSC have agreed that a first phase of additional parking will come forward in tandem with suitable public transport funding while the delivery of MSCP3 is dependent upon BAL achieving a PT mode share of 16% by the measure used in the TA. The first phase of public transport funding is proposed to support the early delivery of the car park known as Cogloop 2 and the year round use of the currently seasonal Cogloop 1. We understand that BAL have agreed with the Council to provide upfront public transport funding for several measures. These measures are set out in section 3.3 which discusses the future phasing of car park expansion.

Reactively there are several options which NSC should agree with BAL during consultation of the application. Jacobs suggests the following three options are considered:

- A commensurate reduction in car parking dependant on the measured PT mode split
- Additional BAL PT funding to create a shift towards sustainable modes
- A review mechanism to consider all aspects of the Airport Surface Access Strategy (ASAS)

A first potential incentive is to link PT targets to parking provision. This would see a commensurate roll back in on site car parking spaces should the required PT targets not be met. The ASAS comments produced by NSC propose that 128 car parking spaces are removed for every 0.1% fall in PT mode share below the agreed target. This rollback of parking provision could act as a reserve measure should other proposed measures prove to be ineffective. However, it should be noted that a roll back of parking without adequate investment in alternatives may push users to unauthorised parking facilities.

The second method of incentivising BAL to ensure PT targets are met is to require additional funding over and above that provided initially to support PT if the mode share falls short of the agreed target. This is typical of a measure found in a Travel Plan (TP) which supports any planning consent and should be agreed between BAL and NSC during production of the TP. Jacobs understands this is BAL's preferred method. Equally, by providing an improved public transport offering this method, will bring ancillary benefit to the wider community.

The final potential method to incentivise BAL to provide adequate PT provision is to require a comprehensive review of the ASAS should targets not be met. Again, the methodology for this should be agreed between NSC and BAL. Jacobs note that this could also act as a reserve method should other incentives prove insufficient.

In order of priority Jacobs suggests the following hierarchy of incentives to ensure PT targets are met:

1. Additional PT funding
2. A comprehensive review of the ASAS and Travel Plan, which should be used if incentive one fails
3. A rollback of approved parking provision commensurate with the PT target achieved, which should be used if there is repeated failure of the above incentives.

The precise method of incentivisation may comprise any, or a combination of, the above and should be agreed between NSC and BAL as part of the planning process.

A monitoring regime to ensure compliance with the above is set out in section 8 of this report.

### 2.1.3 Sensitivity Tests

BAL examined six alternative scenarios to understand the likelihood of future demand being below predicted capacity with no intervention. These are displayed in Figure 21 from the Parking Demand study, included below.

Figure 21 - Description of scenarios tested for impact on parking demand

Scenario	Brief Description of Scenario	Change	Additional capacity required
<b>A</b> Volume Reduction	<ul style="list-style-type: none"> <li>Bristol Airport has forecast near-linear levels of passenger growth. Historically, UK aviation demand has seen periodic, sharp drops, which may be due to economic downturn, terrorism, etc.</li> <li>We model a sharp decline in passenger numbers in 2019 - 21, similar to the decline experienced by UK airports in 2009</li> </ul>	• Fewer passengers	✗
<b>B</b> Foreign Passengers	<ul style="list-style-type: none"> <li>The central case sees the proportion of foreign passengers gradually increase, which can be expected with pax growth</li> <li>We model more extreme high and low cases, whereby passenger numbers are disproportionately high or low</li> </ul>	• Increasing proportion of foreign passengers	✓
<b>C</b> Demand Profile	<ul style="list-style-type: none"> <li>Bristol's annual demand profile is relatively seasonal, with the majority of demand focussed in the peak holiday season</li> <li>We model 2 scenarios, one where BRS's demand spreads more evenly across the year, and one which becomes highly seasonal</li> </ul>	<ul style="list-style-type: none"> <li>• Non-seasonal</li> <li>• Highly seasonal</li> </ul>	<ul style="list-style-type: none"> <li>✓</li> <li>✓✓</li> </ul>
<b>E</b> Parking Market Share	<ul style="list-style-type: none"> <li>Competitor parking sites present in the BRS area capture some of BRS's parking demand today (approximately 20% at peak)</li> <li>We model the outcome of these competitors being given council permission to operate and expand, and one where they are shut</li> </ul>	<ul style="list-style-type: none"> <li>• Low market share</li> <li>• High market share</li> </ul>	<ul style="list-style-type: none"> <li>✗</li> <li>✓✓</li> </ul>

Of these six scenarios, only two resulted in future parking demand reducing below the future parking capacity (without expansion); a scenario where there is a sharp decline in passengers like that after the 2008 recession and a scenario whereby unauthorised off-site parking competitors gain market share.

### 2.1.4 Impact of Increased Demand on Off Site Unauthorised Parking

The Demand Study notes that unauthorised off-site parking has increased from c.3,200 spaces in 2014 to c.4,800 spaces in 2017, primarily due to advertising and undercutting the prices of official parking services.

It notes that many of these off-site providers are in Green Belt locations and have a significant impact on visual amenity and cause disturbance to residents. BAL claim that a shortage of official airport parking would lead to increases in unofficial and often unapproved off-site car parks and in on-street parking in residential areas and rural roads.

The Study does not provide an assessment of the potential impact of a reduction in off-site parking on value for money for airport passengers, given that it would increase BALs dominance over airport parking. Furthermore, the study does not consider other interventions, such as a step change in PT provision and enhanced and enforced parking restrictions, which could be used to limit parking demand for authorised parking. This is discussed further in section 4 of this report.

### 2.1.5 Future Capacity Requirements

The Demand Study predicts that expansion to 12mppa will generate a requirement for 3,900 additional car parking spaces by 2026. This is beyond the current planned capacity increases of c.1,700 spaces by 2021.

The Demand Study also notes that the 3,900 figure is reduced from an initial projection of 4,600 spaces, due to a target to increase PT mode share to 15% from the current 12.5%. This will be delivered by a new ASAS and further investment in Public Transport to the airport. However, as noted the agreed 17.5% PT mode share reduces this demand to 3,200.

Growth in demand for parking is elevated due to anticipated changes to the airport's catchment area, with more visitors from South Wales and South West England, who are considered more likely to drive due to poor public transport accessibility from these areas.

The Demand Study also highlights the growth in aircraft based at Bristol Airport overnight, resulting in a higher number of early morning flights (27.8% of all outbound flights during the 2018 peak) which attract a greater proportion of parking passengers due to a lack of other travel options.

Finally, the Demand Study found an increasing propensity for low cost parking over more premium services. This was attributed to an increasing proportion of leisure passengers, who are more price sensitive, and passengers from areas in the South West of England and South Wales, who are on average in the lower quartile of UK household incomes.

Figure 29 - Current and forecast split to UK geographic demand

Geography	2015	2026 (Forecast)	Forecast Change to Geog. Split*
North Devon & Cornwall	12.2%	c. 16.8%	↑
South Wales and Cardiff	19.0%	c. 20.9%	↗
Rest of Wales	3.7%	c. 3.9%	↗
Eastern Corridor	7.4%	c. 7.3%	→
South Eastern Corridor	5.0%	c. 3.0%	↓

### 2.1.6 Benchmarking Using Similar Airports

Using other UK airports to benchmark parking quanta and, by association, PT mode share comes with several difficulties. UK airports vary greatly by, amongst other things, mix of inbound/outbound passengers, size, locality, environment, road and public transport links and mass transit. However, such comparisons can provide a useful indicator of passenger travel habits. It should also be noted that BAL have suggested that the method by which Bristol airport's public transport mode share is measured may differ from that used by other airports. To resolve this BAL have proposed that they replace the existing measure, which is based upon bus ticket sales, with one more comparable to other sites. It is recommended that the methodology supporting this revised measure is agreed prior to planning consent to allow the proposed PT mode share to be framed around it.

To benchmark the parking proposals of BAL to facilitate growth to 12 mppa several other UK airports of a similar size have been considered. The approximate mppa use for each airport gathered from statistics collected by the Civil Aviation Authority are set out in the table below.

Table 2 – Airport passenger comparison

Airport	Approximate million passengers per annum (2018)
Edinburgh	14.3
Birmingham	12.4
Glasgow	9.6
Bristol	8.6
Belfast International	6.2
Newcastle	5.3

#### 2.1.6.1 Edinburgh Airport

Edinburgh Airport produced an updated Masterplan in 2016 covering a 25-year period until 2041 within which it predicts that passenger numbers will increase to 13.1 mppa by 2020, although this threshold has been exceeded in 2018. This suggests that Edinburgh Airport, in terms of mppa, may present a good comparator for Bristol.

The latest Airport Surface Access Strategy (ASAS) published in 2012 provides a supplementary document to the Masterplan and sets out Edinburgh Airport's surface access aims and objectives for the next five years. One of the ASAS's targets include increasing the percentage of passengers using public transport to access the airport to 35% by 2017. The Masterplan noted that Edinburgh Airport was on track to reaching this target, and that a continued mode shift from car towards public transport had been achieved due to a "proactive approach working in partnership with councils, the Scottish



Government, SEStran and transport operators”. However, we note that the introduction of the Edinburgh Tram system in 2014 would have provided a significant boost to public transport use. Nevertheless, the Masterplan states that 8% of passenger journeys during 2015 used the tram system to access the airport. This suggests that passenger journeys to the airport by other public transport modes (excluding journeys by tram) would only need to reach 27% by 2017 in order to reach the ASAS target for increase in the use of public transport modes.

The Masterplan considers the various transport links and facilities at Edinburgh Airport, including car parking in which the document states that 7,426 spaces are spread across seven on-site car parking options, whilst a further 5,290 spaces are provided in off-site car parks run by third party providers, therefore providing the airport with a total parking capacity of 12,716 spaces. Although Bristol Airport wishes to operate at a similar level to Edinburgh Airport, in terms of passenger numbers, its proposals include a considerably higher private car mode share and parking provision and, consequently, a lower public transport mode share. It is suggested that more action could be taken to increase Bristol Airport’s public transport offering and that third-party car parking sites should be included within its offering when reviewing the total car parking facilities available.

Edinburgh City Council’s (ECC) consultation response to the revised Masterplan on the 2<sup>nd</sup> of March 2017 includes points relating to the use of public transport and car parking. ECC note that the recently refreshed West Edinburgh Transport Appraisal (WETA) assumes a 37% public transport mode share by 2030 after taking into consideration airport forecast figures. This figure is slightly higher than the 2015 public transport mode share figure of 32% as displayed in the Passenger Mode Share table within the Masterplan and the ASAS target of 35%. The ECC consultation response states that “the Masterplan should acknowledge these figures and provide details on how this is going to be achieved”. Furthermore, the consultation response also states that:

“Car parking targets should not be based on demand forecasts. The Masterplan should be setting out ways in which to make car trips to the airport less attractive to suppress demand and assist in the modal share towards the use of public transport”.

#### **2.1.6.2 Birmingham Airport**

In July 2018 Birmingham Airport Limited submitted a planning application for an additional 9,300 sqm of retail and commercial floorspace within its terminal building. As part of this application Arup were commissioned by Birmingham Airport Limited to produce a Transport Statement (TS) in support of the extended floorspace. This TS included modal share and car parking capacity studies.

The Birmingham Airport Masterplan 2018 and Arup’s TS Addendum for the application discussed above display passenger modal share figures for 2016 in which approx. 50% of passengers accessed the site via private car (this includes drop-off/pick-up zones, on-site car parks, off-site car parks and the use of rental cars), with the airport itself setting a target of 48% by 2020. Given at this stage Birmingham airport was operating at the approximate size that Bristol Airport wishes to grow to, the 17.5% PT mode share proposed by NSC appears low. However, we recognise that Bristol airport has somewhat limited public transport links compared with Birmingham and thus targets as ambitious as those may be unobtainable here.

In terms of car parking, Arup’s TS Addendum states that Birmingham Airport offers 15,000 spaces with 2,000 allocated to staff and the remainder to passengers. Again, considering that Birmingham Airport in 2016 was approximately the size Bristol Airport wishes to grow to, under the latest planning application the allocation of just 1,000 spaces for staff (discussed in Section 9) appears low while proposals to increase passenger car parking to 22,600 appear excessive. However, as noted previously limited transport options at Bristol Airport compared with Birmingham Airport suggest that car parking levels above those at Birmingham Airport may be required.

Arup’s TS Addendum notes that a 2008 planning application for an extension of the main runway at Birmingham Airport, along with an agreed S106 planning agreement dated 2<sup>nd</sup> November 2009, requires that future car parking capacity is provided at a rate less than proportional increase in passenger numbers. However, contrary to the approach Bristol Airport Limited estimate that an increase in passenger numbers of 20% to 12 mppa will require a 23% increase in official parking.

### 2.1.6.3 Glasgow

Glasgow airport has reportedly seen a decrease in passenger numbers over recent times and is expecting to serve just 9.1 mppa in 2019. The focus of growth around the airport is the Glasgow Airport Investment Area focussing on ancillary business rather than passenger growth. As such it is difficult to compare with proposals at Bristol.

Nevertheless the 2011 document titled “Our Vision Glasgow Airport Draft Masterplan 2011” sets out the airport’s strategy for 2020 and 2040, similar horizon years to those of Bristol airport. The final section of this document, titled Surface Access and Transport, provides useful information on mode share which allow at least a partial comparison. It notes that the Airport Surface Access Strategy (ASAS) 2009 - 2013 seeks to “support Government aims to increase public transport” and has the key objective to “increase the overall public transport modal share from 11.2% to 15% by 2012”. While no update to this ASAS has occurred, it seems reasonable to assume that more ambitious targets would be applied to any future version should the airport envisage a return to growth.

### 2.1.6.4 Other Airports

The other airports mentioned earlier in this section are considerably smaller than the size BAL have proposed Bristol grows to. Therefore, we do not believe they would provide a representative comparator.

It should be noted that any UK airport larger than those considered in the above section (13 mppa and above) benefit from mass transit links to nearby cities. Thus, we suggest that, as part of the ambitious growth plans by BAL over the forthcoming decades, travel to and from the airport will require careful consideration and likely require a step change in public transport provision. There would appear a danger that providing for disproportionate parking demand at this time may prejudice the need for this shift or potentially a poor investment by BAL should demand reduce in the future because of public transport shift.

### 2.1.6.5 BAL Benchmark

The current BAL benchmark for public transport use, measured at 15%, is based upon the number of tickets sold on the flyer bus services compared to overall passenger numbers. It is noted that this appears to be a different measure to that employed by other airports of a similar size. It is recommended that BAL produce a new benchmark by which PT use is measured for future reference. This would align the measure of PT use at Bristol Airport with that of other airports and allow a better comparison. This comparison could be used to establish the relationship between PT interventions, mode shift and parking provision at similar sites and thus allow BAL to make informed transport investment decisions. This benchmark should be agreed prior to the approval of any future PT mode share targets to ensure consistency between the baseline and any future measures.

Clearly, as the airport grows further, particularly growth plans to 20 mppa, the proportion of PT use will become an important measure to appraise travel habits, and thus predicted parking provision, ahead of any future planning application. Reliance on the number of tickets sold on bus routes may become obsolete due to the need to create mass transit to serve an expansion of this size and future travel trends, which are generally predicted to become more multi model. Therefore, the importance of agreeing an appropriate PT benchmark as part of the current 12 mppa application should not be underestimated.

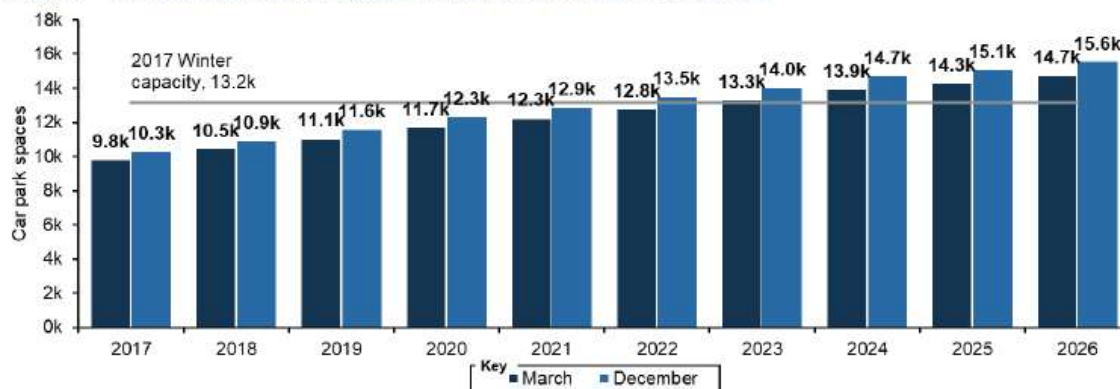
## 2.2 Parking Demand Study Addendum

Teneo Consulting produced a 2019 addendum to the Parking Demand Study, focussing specifically on winter parking demand, and the proposed year-round use of the existing seasonally limited Cogloop parking. The addendum report notes that, despite overall demand for parking being significantly lower during the six winter months (January, February, March, April, November and December), there are still substantial peaks in December (Christmas) and March (Easter).

The report noted that in December specifically, most vehicles require parking for a short duration around Christmas, creating a 3,200 discrepancy between average occupancy and peak occupancy in

the month. Various future proposed construction projects around the airport site are projected to temporarily or permanently reduce future parking capacity.

Figure 7 – Forecast demand for spaces in March / December 2017 to 2026



The figure above from the Addendum Report highlights the forecast peak demand for spaces in the winter of 2026 and compares it to winter 2017 capacity. The figure demonstrates that from 2022 the peak December demand will exceed the 2017 winter capacity. The report proposes the operation of the Silver Zone temporary seasonal extension (C1) and a proposed extension to the south of C1 (C2) on an annual basis to accommodate fluctuations in demand for and provision of on-site parking.

Furthermore, the report argues that the closure of the C1 and proposed C2 sites during the winter months significantly reduces the proportion of available low-cost parking, potentially shifting passengers to cheaper off-site facilities. Given the desire of all stakeholders to limit the amount of off-site, unauthorised, parking this appears to provide part of a solution. However, as noted several times throughout the work to date, pricing policy appears to be the main deterrent for use of official sites driving user groups, such as those in lower income households, towards unofficial sites. This is discussed further in section 4 of this report.

BAL foresee growth in passenger numbers at the airport causing a reduction in the seasonality of demand for parking, and makes the case using examples from many larger airports. It is predicted that a greater variety of routes will shift demand towards flying in winter and therefore increase the required parking at these times of year. This assessment appears appropriate and the reduction in seasonality of the airport is agreed.

## 2.3 Parking Demand Study Conclusions

Jacobs broadly agrees that the growth assumptions for the airport, which appear robust and are generally a continuation of existing observed trends. The demand forecasting methodology and results have reportedly been independently verified by Mott MacDonald as an appendix to the planning application for the airports expansion, however Jacobs has not been able to review the raw data behind the demand forecasts.

Sensitivity testing has been carried out which appears to demonstrate increased demand under most alternate scenarios.

The requirement to reduce or regulate the use of unauthorised parking operators as supported by NSC is also noted, as these often operate on unsuitable sites and adversely affect local communities and the local highway network. The report suggests that increased levels of official parking are likely to support this aim. However, while other factors suggested by BAL such as security and convenience, as noted by the report, price point is the most likely deterrent for the use of the BAL car parks. Thus, even if the additional capacity is provided, a shift towards the official car parks may not occur unless the pricing regime is amended. Furthermore, any changes to parking practices must be undertaken in a holistic manner alongside measures aimed at:

- Encouraging trips by sustainable modes;
- Moving trips higher up the mode hierarchy as set outlined the NSC ASAS comments;



- Disincentivise or reduce the use of unauthorised parking facilities.

Jacobs agree with comments made by NSC that targets for public transport modal share increases are not sufficiently ambitious, especially as BAL are proposing to maintain the 15% PT mode share target at the same as approved under its growth plans for 10mppa. Furthermore, BAL estimate that an increase in passenger numbers of 20% to 12 mppa will require a 23% increase in official parking. This is contrary to NSC policy which is designed to encourage trips by sustainable modes and not private car. NSC has proposed that permission for increased car parking should be linked to investment and increased growth in PT mode share by 0.5% a year until 2026, resulting in a 17.5% mode share. This will result in a commensurate reduction in the additional parking demand to 3,200 from the 3,900 proposed by BAL.

The benchmarking exercise undertaken using publicly available information from other, similar sized, airports indicates that those smaller or approximately the same size (Glasgow) as Bristol operate in a similar fashion in terms of PT mode split and car parking. However, as airports grow beyond this it is clear a step change in passenger travel habits is required and a significant increase in the use of PT is essential to achieve a sustainable balance of modes.

### 3. Parking Strategy

A Parking Strategy study was produced in 2018 by Wood Environment & Infrastructure Solutions UK Limited in relation to the proposed expansion of the airport to 12mppa by 2021. This aimed to appraise and sift the potential options to cater for this increased demand to 2026. The basis for this study was that all parking facilities consented through the 10mppa planning application are constructed and open to the public. This is confirmed by section 4.2.2 of the Parking Strategy which states:

“BAL expects to increase car parking capacity from circa 16,700 spaces in 2018 to approximately 18,400 spaces in 2021 through the completion of MSCP Phase 1b and the construction of MSCP Phase 2 (including public transport interchange). Despite these planned increases in parking provision, the provisional findings of the Parking Demand Study indicated that a total of 4,600 additional spaces will be required to meet forecast demand at 12 mppa (assuming public transport modal share remains at 12.5%).”

It should be noted that, when considered the increased PT mode share target of 17.5%, the predicted shortfall of 4,600 spaces falls to 3,200 as set out in section 2.1.2 of this report.

However, the full quantum of parking consented through the 10mppa application is yet to be constructed. MSCP2, which is intended to offer 1,900 parking spaces remains unbuilt and will add to the shortfall identified above. Given that MSCP2 is proposed within the airport's Green Belt Inset the construction of this facility should take precedence over additions elsewhere and hence prior to the opening of any parking facilities proposed in the 12mppa application.

#### 3.1 Comparison with Demand Studies

The Airport Parking Strategy reported that growth to 12mppa will generate a requirement for 3,900 additional car parking spaces, as is forecast within the Demand Study. The Strategy noted that the 3,900 figure is reduced from an initially projected 4,600 spaces required, due to a target to increase Public Transport mode share to 15%. However, as noted in section 2.1.2 of this report Jacobs believes that, following an increase use of PT a revised parking expansion of 3,200 is more appropriate. Nevertheless, for ease of reference we have, when reviewing the option sifting, considered the BAL suggested provision of 3,900 spaces.

The strategy also noted that the 3,900 car parking spaces requirement considers growth in demand for parking is likely to be elevated due to anticipated changes to the airport's catchment area and the growth in aircraft based at Bristol Airport overnight. The Strategy also noted that the Demand Studies found an increasing propensity for low cost parking, over more premium services.

## 3.2 Review of Potential Car Parking Locations

The Parking Strategy adopted a sequential approach for assessment of potential parking locations as follows;

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

Jacobs would question whether expansion of facilities beyond the Green Belt Inset in close proximity to the airport is preferable to a strategically located park and ride scheme, which would limit further impacts to congestion, noise, air quality and visual amenity in the vicinity of the airport and potentially provide a better low cost option which could compete with unauthorised providers. Clearly such provision would dependent on onward transport links, location and local characteristics

### 3.2.1 Sites within the Green Belt inset

Two options were considered, providing new MSCP facilities on land within the airport site to the north of the airport. Option A provides 2,150 spaces and is assessed as a neutral overall impact, whilst Option B expands upon Option A to provide an additional 950 spaces, however with a potentially significant negative impact as assessed. The Parking Strategy set out these impacts as:

- “Potentially significant impact on visual amenity of nearby residential receptors (particularly along Downside Road). Would likely constitute over development of the northside of the airport site”; and
- “Highest construction cost. Long walk for passengers if parking in decking furthest from terminal. Longer to offset initial and ongoing costs and, due to the level of charging required, would not address demand for low-cost car parking.”

Option A (MSCP3) was taken forward as part of the proposed strategy, leaving a shortfall of 1,750 spaces.

Given this is a use of existing land with neutral impacts including no additional impact development on Green Belt land, it appears to be a reasonable assumption. Furthermore, Jacobs recommends that all proposed parking facilities within the Inset are fully built out and open to the public prior to the expansion of sites beyond it. This includes all car parks consented through the application for 10mppa.

### 3.2.2 Strategic off-site locations

A longlist of 25 sites for potential off-site schemes were originally identified and measured against the key criteria catchment areas, land availability and accessibility to the major highway network. This list was reduced to a shortlist of 12 sites using RAG (red-amber-green) assessment scores. These scores were based on factors including proximity to residential development, distance from the airport, ability to only support low numbers of spaces and potential poor-quality interchanges to access the airport. The twelve shortlisted sites and BALs reasons for discounting are listed below. However, it is unclear that, despite BAL assertion that a minimum of 900 spaces are required to ensure an off-site facility is viable four sites with substantially less capacity are included in the 12 shortlisted sites.

Site	Size (Ha)	Parking Capacity (4,000 spaces max)	Reason given for discounting
Severn Beach (by M5 / M49 Junction), Bristol	38.9	4,000	Expense of remediation and distance from airport
Avonmouth North West, Bristol	14.8	4,000	Expense of remediation and distance from airport

Site	Size (Ha)	Parking Capacity (4,000 spaces max)	Reason given for discounting
Avonmouth North East, Bristol	5.8	4,000	Expense of remediation/ground levelling and distance from airport
Bristol Water Depot, Bedminster, Bristol	0.8	200	Cost of conversion to car park
Freight Yard, near Parson Street Station, Bristol	1.9	1,520	Access issues for cars
Land at Worle Parkway Railway Station, Worle	1.4	320	Already served by existing bus service from airport, only caters for passengers from Weston-super-Mare, distance from airport.
Disused PH, West Town Road, Backwell	0.6	120	Small size of site
'Davan Caravans', St Georges, WSM	1.2	300	Likely not cost effective due to existing uses of the site
Land near M5 Junction 21, WSM	9	4,000	Possible limited catchment as near Weston-super-Mare
Former quarry in North Somerset (in Green Belt)	8.5	4,000	Expense of remediation and situated in Green Belt
Farmland near Yew Tree Farm (in Green Belt)	3.6	2,880	Greenfield and in the Green Belt
Farmland at Lye Cross Farm A38 (in Green Belt)	1.8	1,440	Greenfield and in the Green Belt

The report further justifies the exclusion of off-site parking from its preferred strategy as cars would likely have to be self-parked, rather than block parked as in the current Silver Zone, which it stated would require more land and increase costs.

Jacobs considers this assessment of the various sites to be overly simplistic and use highly generic reasoning behind rejecting many of the sites. An in-depth assessment of some of the better performing options would provide more confidence in the outcome of the assessment. We also note that a significant number of sites have been discounted because of excessive cost. While we appreciate that BAL wish to provide a low-cost parking option to meet customer needs and that cost a factor in this type of sifting process we believe it has been given too great an influence over the final decision surrounding future parking provision.

During consideration of the BAL application Mead Realisations submitted an application for an off-site parking facility at M5 J21 near to that listed as 'Land near M5 Junction 21, WSM' in the table above. In support its application Mead Realisations analysed the BAL process and have the opinion that it falls short in a number of aspects due to its high level nature, such as whether or not an assessed site currently has bus services operating nearby. This suggests that the same may be the case for other off-site P&R locations considered within the sifting.

We note that the BAL objection to the 'Mead' application at M5 junction 21, as discussed in section 4.1.2 of this report provides further information related to this testing of potential parking options. Chapter 3 of the BAL objection considers the level of demand for such a facility, its potential viability and its deliverability.

In considering demand, the BAL objection estimates that 704 passengers arrive at the airport from the South West daily, although little background information is provided to demonstrate this calculation. Using a car occupancy of 1.85 this equates to a maximum of 394 vehicles per day potentially using the site, although noting this is less than the 428 predicted by the PDAS. BAL note that this is the raw demand which does not consider the propensity for passengers to choose alternative sites based on pricing structure and distance from the terminal, such as Silver Zone parking. On considering demand elasticity BAL consider that the actual demand for a facility at Junction 21 of the M5 will fall to 257

vehicles based upon service frequency comparisons with Silver parking. Elasticity due to pricing structure is not considered.

Section 3.3 of the BAL 'Mead' objection discusses the viability of the proposed site focussing on pricing, distance, unauthorised sites and viability at 12 mppa. If priced in a similar fashion to BAL's current Silver Zone parking, BAL's view is that the facility would be unattractive to passengers. Given the additional transfer time between junction 21 and the airport this appears a valid assumption. Furthermore, BAL consider that the distance between the proposed site and the airport to be a barrier to use. Jacobs agree that given the time critical nature of airport arrival parking at a facility some distance away appears to introduce risk of delays that passengers may be unwilling to accept. BAL consider that the existing unauthorised facilities would also undermine the Junction 21 site as they are closer to the airport. While this may be the case the more regular future enforcement action against these sites will limit their ability to operate and thus their influence will reduce going forward. When considering the viability of the junction 21 site BAL suggest that proposals by Mead are unviable. However, it does not suggest how BAL would operate the site should they be able to do so and whether this would impact upon the viability of the proposals from a sequential test perspective. On considering the deliverability of proposals of a site near M5 junction 21 BAL state that, as Mead Realisations have no experience of operating P&R sites, the presence unresolved issues related to drainage, ecology, and junction improvements and the perceived financial issues the site will not come forward as planned. BAL suggest this may lead to increased use of the unauthorised car parks. As mentioned previously Jacobs believes that increasing enforcement actions against unauthorised sites will reduce their influence on parking in the area, although we recognise the concerns on regard to the sites current unresolved issues et al.

To summarise, the BAL objection to the 'Mead' application at Junction 21 provides enough information to allow Jacobs to infer that the site may not offer the benefits of BALs preferred option of an extension to Silver Zone parking. Jacobs believe it would be helpful to understand if BAL have similarly considered other sites in the sequential test. Jacobs considers that this type of in-depth analysis should accompany the top performing sites in the table above to ensure that opportunities for such facilities are not overlooked. Section 4.1.2 of this report further discusses the 'Mead' application.

We also suggest that the current off-site parking sites are included in the assessment. Clearly the provision at these sites is attractive to customers exemplified by their current use. It would be helpful to understand the measures required, the investment and other implications of formalising these sites. Such an assessment would be in line with current Civil Aviation Authority (CAA) advice in the 2016 Consumer and Markets Group report which encourages "that airport operators consider a form of accreditation for independent parking operators, like that offered by Gatwick Airport. While there is no legal requirement to accredit independent parking operators, doing so would allow for increased competition in the provision of car-parking services for consumers while reducing the risk of passengers experiencing a poor service. It would also allow airport operators to deal with reputational damage from off-site parking providers which operate without planning permission or which provide an inadequate service in terms of, for example, security"

However, it is noted that the investment required to formalise arrangements at these sites via partnering with BAL or run privately by third parties, will likely increase their cost potentially undermining their attractiveness compared with the Airport's own Silver Parking.

### **3.2.3 Sites within the airport site but outside the Green Belt inset**

The report considered two options:

- Providing decked car parking over the existing Silver Zone (2,800 spaces); and
- Using the existing Silver Zone car park extension (C1) on a year-round basis (3,650 spaces).

The former of these was discounted due to construction costs which would require pricing above the low-cost level required. The latter was assessed as an overall neutral effect and taken forward as part of the preferred parking strategy. However, it was noted that this does not contribute to the 3,900 spaces required as it is already in use during peak summer months, it merely enables the airport to cater for peak winter demand. The use of Silver Zone as a year-round facility is discussed further in section 4 of this report.

### 3.2.4 Sites in Green Belt locations contiguous to the airport site

Finally, the report assessed four sites identified by BAL contiguous to the airport site but within the Green Belt.

- Land to the east of the A38;
- Land to the west of the A38;
- Land to the south of the existing Silver Zone car park ('Gruffy Field'); and
- Land to the south of the existing seasonal Silver Zone car park extension (C2).

Options 1-3 were discounted based on a significant loss of visual amenity and other substantial issues with environmental sensitivity of the locations. Option 4 was progressed as part of the preferred strategy due to low costs, operational benefits due to proximity to the existing Silver Zone and C1 extension and the proposed low-cost nature of the parking. The report anticipated it would provide parking for an additional 2,700 vehicles.

## 3.3 Car Park Phasing

. As part of the current application for 12mppa, Jacobs are aware that NSC have accepted there will be a more immediate need for low cost parking should the expansion occur (year round use of Cogloop 1 [Silver Zone extension] and implementation of Cogloop 2 [Silver Zone extension]) and agreed that a PT mode share of 16%, by the current BAL measure, must be achieved prior to the opening of MSCP3. It should be noted that NSC have agreed that the immediate release of Cogloop 1 and Cogloop 2 are predicated on the early investment by BAL in a series of measures to encourage PT mode shift. Although discussions are ongoing Jacobs understand that these measures have been agreed to consist of:

- Enhanced frequencies of the South West Falcon and South Wales services
- The Weston Super Mare Flyer becomes 24 hours and routes via Worle (includes enhanced waiting and stopping facilities)
- Underwriting of all current 10mppa services and rolling over of all 10mppa conditions
- A new Demand Responsive service is launched to serve Nailsea, Yatton and Clevedon on a 24-month trial
- The Bristol Flyer is converted to Metrobus, with the airport operating as a premium fare zone, together with infrastructure and branding changes.
- A public transport modal share monitoring regime, with the initial target of increasing the modal share by 0.5% per year.
- Increase drop off zone and taxi charges for drop off's outside the terminal and use revenue from this to go into a carbon offset programme

This approach appears acceptable to Jacobs based on the parking studies and reports that have been submitted to date.

Notwithstanding the above discussions regarding phasing NSC have proposed that a mechanism to review the parking provision no sooner than 2021 but no later than 2022 is agreed to ensure that passenger needs are met. This review will allow the re-evaluation of passenger parking habits alongside existing and proposed parking provision to ascertain whether the predicted demand, in terms of quantum and type, is being and will be met. The rationale supporting the review case stems from the currently unknown impacts of enforcement actions against unauthorised sites. It may be the case that successful actions against these providers displace further demand towards the BAL facilities and thus additional spaces beyond those currently predicted are required. BAL predict that 25% of airport related parking occurs at such sites and thus could represent a substantial increase over that currently envisaged. However, it is noted that the displacement of this parking towards BAL facilities assumes that NSC are 100% successful in its enforcement operations.

Jacobs agree this review proposal appears appropriate and that the measure of displaced demand from unauthorised sites will likely play a critical role in assessing parking demand at this stage.

However, we suggest that the review is expanded to consider PT alternatives to ensure the needs of all passengers are considered to ensure those displaced from unauthorised sites have alternative options to private car.

### 3.4 Conclusions

The Parking Strategy document concludes with the following preferred strategy:

- Further MSCP provision to the northside of the airport (MSCP3), in the Green Belt inset providing circa 2,150 spaces;
- The year-round use of the existing seasonal Silver Zone car park extension (C1) which has an existing capacity of 3,650 spaces;
- A further extension to the Silver Zone car park (C2) located to the south of the existing seasonal Silver Zone car park extension, providing circa 2,700 spaces.

The report notes that although this solution provides 4,850 spaces, in excess of the 3,900 required, this would reportedly be used to compensate for loss of spaces associated with ongoing construction activity and then to aid in reducing the share of off-site providers. However, as noted earlier in this report, when the increased shift towards PT is considered, a lower parking demand of 3,200 is predicted. Therefore, the above proposed parking provision should be re-evaluated on this basis and space reductions in specific car parks proposed. Further to this the reduction in spaces per car park should be evidence led as should too many spaces be removed from the Silver Zone extension then an increase in unauthorised parking may occur. Conversely, if insufficient space is provided within the premium MSCP the airport may become less attractive for business travel.

Although it is considered beneficial to reduce the amount of unauthorised off-site parking, Jacobs considers it unlikely that demand for unauthorised off-site parking would be completely eradicated. It remains likely that operators will continue to undercut BALs parking offer on price, without a thorough review of the airports charging policies. This is discussed further in section 4 of this report.

It is also important to assess, should unauthorised private operators be forced out, whether BAL dominance over airport parking facilities is likely to result in reduced value for money for airport passengers. As noted, CAA advice recommends that airport operators enter accreditation schemes with appropriate sites to encourage a diverse offering meeting a variety of customer needs.

While Jacobs believes that further assessment is required regarding potential P&R schemes, such as that proposed by Mead Realisations in Section 4.1.1 of this report, we are aware that NSC Planners have access to additional information which has enabled them to determine the assessment is sound.

Subsequent to the work which supported the planning application BAL have proposed that the Silver Zone extension forms the first phase of parking expansion at the site. They state that this provides the most cost-effective solution to serve the predicted demand for low cost provision. This appears a suitable solution although it should be noted that, although demand is for low cost parking, charges should not be such that the use of PT is undermined. As set out in section 6 of this note the charging structure for BAL parking will likely be a critical factor in balancing the use of PT, the demand for onsite parking and the use of unauthorised off-site facilities.

## 4. Off-site Parking

The BAL Demand Study notes that unauthorised off-site parking has increased from c.3,200 spaces in 2014 to c.4,800 spaces in 2017, primarily due to advertising and undercutting prices of official parking services. These are responsible for significant congestion, air quality and other environmental impacts in local communities. Any further increased demand due to a lack of official airport parking is predicted to cause a significant increase in on-street parking in residential areas and rural streets as a result. However, as noted in this report it appears that although factors such as security and convenience have an impact it is principally price, rather than availability, that is the driving factor behind the use of these unauthorised facilities. We also note that other airports of similar size to Bristol appear not to suffer these issues to such an extent.



A report produced by BAL in 2015 indicated that off-site parking providers accounted for up to 20% of total parking capacity for the airport between 2012 and 2015. Some of the main operators included WCP, Park Farm, Goblin Coombe and Forge, and the majority of these have been operated illegally and subject to various enforcement notices by NSC. BAL proposes that reputational damage to the operators of these facilities due to negative reports in local media is predicted to increase the attractiveness of the airports on-site offer. However, it is unclear whether BAL dominance over the parking market at the airport would ultimately be the best option for passengers. Furthermore, as noted earlier in this report, where suitable sites exist the CAA propose that airport operators enter accreditation schemes with independent parking operators to offer passengers the required variety of parking services.

Also, as pricing appears the determining factor in parking choice, rather than availability at the airport, we suggest that any agreement to parking expansion, including the year round use of Silver Parking, is accompanied by an agreed pricing strategy. This will ensure that the airport proposes a cost-effective offering, reducing the attractiveness of the unauthorised facilities, while also ensuring that, should unauthorised facilities cease to exist, that airport cannot exploit its dominant position. Jacobs are aware that BAL have agreed to provide such an analysis post consent which will also include a review of other travel modes (including PT) to ensure all offerings are suitably competitive. Alongside the drive to shift trips from private car to the pricing review should ensure that the resulting pricing policy will assist in limiting unauthorised parking as much as possible.

#### 4.1.1 Indiscriminate Local Parking

The planning application submitted by BAL has generated responses from residents suggesting that parking demand associated with the airport creates issues in residential streets. An ongoing series of 'Parking Summits' have been undertaken by BAL engaging numerous local stakeholders to determine the extent of the issues and generate potential solutions. The agreed problem statement states:

*Increased parking demand, both on-street and off-street, generated from activity at Bristol Airport, that leads to a significant loss of local amenity or a breach of planning and/or highway regulations.*

The summits have generated an eight-point action plan to identify and mitigate any issues caused to residents by airport associated vehicles. The plan includes actions for BAL, NSC, and further engagement with residents. The plan notes that the measures set out in the Parking Summit Report "form part of the planning application for growth of the airport operations to cater for 12 million passengers per annum (mppa)." Those actions are:

**ACTION 1:** Bristol Airport to include Parking Summit issues and actions within the emerging Airport Surface Access Strategy. The ASAS will continue to focus on promoting and enabling travel to the airport by non-car means, reducing the demand for car parking

**ACTION 2:** Bristol Airport to develop proposals for an Authorised Waiting Area for taxis, combined with a free drop-off and pick-up area, subject to an appropriate location being identified. This action is already complete, and the facility is operational.

**ACTION 3:** Bristol Airport to revise our Code of Conduct for taxis to include off-site operators and to engage with the industry, with support from NSC and other licensing authorities

**ACTION 4:** Consultation with local areas to identify bespoke solutions for on-street parking controls. This will include provision of a new single e-mail address for reporting

**ACTION 5:** Bristol Airport and North Somerset Council to work in partnership where appropriate to deliver on-street parking controls

**ACTION 6:** Bristol Airport to support a dedicated NSC enforcement officer to monitor and enforce both on-street and off-street parking, as part of the planning application package

**ACTION 7:** Development of a joint communications plan, to support the consultation and to provide information on the different types of parking. The comms plan will also include the development of soft measures, such as writing to car owners where appropriate

**ACTION 8:** Bristol Airport and North Somerset Council to include longer-term parking solutions within future planning studies

BAL identify the three key deliverables as

- a. Development of proposals for an Authorised Waiting Area for private hire vehicles combined with an additional drop-off facility at Bristol Airport. This facility would be appropriately charged and time-limited to reduce demand for short-stay waiting off-site.
- b. A contribution [sum to be agreed] towards the cost of implementing Traffic Regulations Orders and other matters relating to the introduction of new on-street parking controls in the local area.
- c. A contribution [sum to be agreed] for the purpose of funding 1FTE NSC parking/enforcement officer for a period of five years.

The engagement of BAL with residents and stakeholder groups to address parking issues in the local area is a first step towards resolving the issues. Jacobs note that the report is a 'live' document and will continue to evolve as the actions within are progressed, thus its more detailed measures are not repeated to avoid repeated iterations of this note also. It is important that measures set out within the report are secured, where appropriate, through planning conditions, the Section 106 agreement or other methods.

The outcomes of this engagement have informed the NSC produced ASAS which in section 4 sets out the measures proposed. It is noted that BAL have agreed to fund the proposals and that NSC will progress the designs and public consultation. Jacobs agree with this methodology.

Given that anecdotal evidence exists that issues faced by residents are, in part, the result of unauthorised parking facilities the measures set out within the parking summit should also act to reduce the proliferation of such offerings.

#### **4.1.2 Proposals by Mead Realisation**

A planning application (ref: 19/P/0704/FUL) by Mead Realisations proposes an off-site car park with shuttle service near Junction 21 of the M5. The proposal comprises:

- 3,000 car parking spaces – with a valet parking service for drop off and pickup and block parking to maximise capacity;
- 3-5 environmentally friendly buses an hour (every 15-20 minutes) in both directions to/from the airport, seating 25 persons;
- Comparable overall journey time to the airport to those parking in the Silver Zone for most key routes.

While clearly related to the airport and its proposed expansion this application is under consideration on its own merits as per planning law. It should be noted that the application's supporting evidence ranks this site more favourably than a similar one considered by BAL.

Given the CAA advice on parking operators BAL could investigate the option of a partnership with Mead Realisations, given that they already own this site and have submitted a planning application. If priced competitively, the site appears to have potential to meet demand from one of the airports new growth regions. The off-site shuttle service nature of the scheme also means it is higher up NSCs proposed modal hierarchy for the ASAS.

There may be other opportunities for similar partnerships or accreditation which could be explored at other sites, which could provide alternatives to BAL dominance without resorting to the various unauthorised sites. Their ownership by third party operators would limit the start-up and operational costs to BAL.



## 5. Drop Off

Jacobs notes that the work to date does not provide any significant analysis of parking drop-off/pick-up or taxi waiting areas at the airport site, including within the vicinity of the proposed expansion areas. North Somerset Council (NSC) has produced a hierarchy of preferred travel modes to the airport which will require consideration as part of the Airport Surface Access Study (ASAS).

1. *Walking, Cycling and Disabled users*
2. *Public Transport*
3. *Electric Vehicle and/or hybrid*
4. *EV taxi*
5. *Car sharing (2+ bays)*
6. *Private Internal Combustion Engine (ICE) vehicles*
7. *ICE Taxi*
8. *ICE Drop off/ lift to the airport (friends and family)*

The NSC hierarchy sets out the Councils view that private taxis and vehicle drop-offs should be the least preferred mode of transport to the airport, given that these both require two two-way trips for pick up and drop off, increasing congestion on roads and air pollution concerns.

A suitable modal hierarchy should be produced by BAL going forwards as part of the ASAS, with emphasis on proposals for reducing the reliance on the least desirable modes and increasing the use of sustainable transport options.

The consideration of drop off, pick up and waiting areas should also focus on the existing use of roads and roadside facilities nearby the airport to determine the quantum of vehicles which are waiting beyond the airport's extents. Anecdotal evidence suggests that taxis and private vehicles will wait beyond the airports' extents prior to passenger pick up creating disruption to the highway and nearby facilities, such as laybys. Clearly any airport policy which charges these vehicles for waiting on site could exacerbate this issue. Jacobs suggests that a full study of the current and proposed drop off and pick up facilities is completed to ensure that, following the expansion to 12mppa, vehicles are not encouraged to wait beyond the confines of the airport to pick up passengers.

This study should also consider the impact of pricing on surrounding local roads. Currently passengers being dropped off or picked up at the airport have a choice between an Express Drop Off car park, adjacent to the terminal, which charges £1 for 10 minutes, or the Short Stay & Pickup car park a 2-3minute walk which charges £1 for up to 20 minutes. The pricing of these locations, particularly the Express Drop Off, increase exponentially over time,

To limit the potential for waiting on local roads nearby, we note that BAL have recently opened a waiting facility for taxis and drop off at Silver Zone. The pricing strategy for the drop off element of this facility should be examined within the ASAS. Jacobs is aware that this has been used as a suitable strategy at other airports, including London Luton Airport.

## 6. Car Park Charging Strategy

The Parking Demand and Strategy documents submitted by BAL as part of the planning application do not sufficiently consider the charging strategy for the airport and whether this could be used to minimise problematic unauthorised parking and ultimately reduce driving and parking at the airport as a modal choice, as required by the NSC modal hierarchy. The work to date indicates that price point is the main driver encouraging the use of unauthorised parking facilities and as such is a critical factor in determining future car park use. Given that BAL predict that a significant portion of passenger growth will come from those in the lower quartile of household incomes, and who are more price sensitive, the overall transport charging strategy will likely be a critical factor in determining mode choice.

It is noted that the driving force behind the preferred parking option submitted is to increase the proportion of low-cost parking, favoured by the leisure travellers who are an increasing growth demographic at the airport. The Strategy does note the potential to suppress demand at the Silver Zone car park during peaks, by increasing price to ensure the capacity is not exceeded. However, this is considered likely to drive more users to unauthorised parking facilities rather than to public transport

due to the premium nature of existing services (such as the Bristol Airport Flyer) and the lack of awareness of the PT options available.

While we note that BAL use a dynamic pricing model to vary the cost of parking with demand insufficient information is available to determine the impacts of current variance on the use of PT or unauthorised off-site parking. Therefore, it is suggested that a review of car park charging is undertaken which should also consider the price point of public transport offerings and the potential influences of one on the other and vice versa. As part of the review of car parking charges, Jacobs believes that further work should be undertaken by BAL and NSC to better address the unauthorised parking in the vicinity of the airport site which undercuts BALs own locations on price. We note that both parties have responsibilities to ensure that these facilities are used properly, formalised and monitored, operate as formal businesses and do not undercut official parking in an unsustainable manner. NSC should act to ensure the unauthorised parking sites have planning permission for their facilities, operate as authorised business, paying appropriate taxes and business rates, and are able to offer users the amenities they expect of such places. Authorised operations will likely find it harder to compete with the airport on price due to having to pay relevant taxes and business rates, potentially making them less attractive to airport passengers. If the unauthorised facilities refuse or be unable to meet the NSC requirements then enforcement action should be taken, it is noted that BAL have offered, as part of the planning submission to fund an officer to undertake this work.

The Charging Strategy should also consider the charging structure for the airport's premium 'Flyer' buses, and any other future non car mode travel options, with the aim of making them more attractive for passengers than a comparable car parking stay. This could either be achieved by a reduction in cost of the existing service (if feasible) or alternatively the introduction of a second tier of non-premium service catering for those on lower incomes.

Jacobs considers further research and monitoring needs to be carried out on how the charging structure for airport parking can be used enable efficient use of BALs existing parking and meet the goals to reduce unauthorised parking and increase PT modal shift.

The completion and approval of such a car park charging study, which should make recommendations on future regimes could likely be covered by a condition on the planning approval for the airport's growth plans.

## **7. EV and Low Emissions Vehicles**

We note that recent communication with BAL propose that the development will include six new charging point spaces for electric vehicles and will monitor customer demand for such facilities. It is unclear whether any demand assessment has been completed to establish whether this provision will meet the current or growth need for such provision. Given the recent increases in the proportion of EVs in the national fleet it would seem prudent to provide charging points in line with these increases in all parking and waiting locations. A review of the proportions of the national fleet should be undertaken prior to the detailed design of each proposed car park extension at the airport to ensure suitable provision. This is particularly critical at car parks which offer block parking due to the need to regularly move vehicles.

We would expect to see further information on the airport's strategy to facilitate and promote the use of these vehicles as required by the NSC modal hierarchy in additional work going forwards. This should include an assessment of potential demand to ensure proper consideration is given to this key future mode.

## **8. Monitoring strategy**

North Somerset Council have proposed a monitoring strategy for the airport to monitor impacts of the proposed future developments and ensure that the Airports Surface Access Study and Travel Plan are updated and implemented as necessary. This is proposed to be put forward as part of a planning condition for the approval of BALs growth plans.

The recommended monitoring strategy includes:

- *Permanent installation of ATC loops, capable of recording volume and classification of all vehicles entering and leaving the Airport operational sites via the public highway. Data to be collected daily in 15min periods across a 24-hour period. Returns shall be made to the highway authority on a monthly basis accompanied with details of monthly air passenger arrivals and departures. Monitoring should commence from approval of planning application and shall be required throughout the period for which permitted use above 10mppa is consented.*
- *If the average annual traffic flow, measured pro rata to passenger numbers (per passenger trip rates) subsequently exceeds the average annual traffic flow measured in the baseline survey by 2.5% or more, then a review of the surface access /travel plan, including a programme for the implementation of any necessary measures identified within the review, should be submitted to the local planning authority for approval within 4 months of the survey. The data used in any such approved review of the surface access / travel plan shall then become the baseline survey data against which subsequent annual survey results must be compared for the purposes of this Condition, and any necessary measures identified in any approved review of the surface access/ travel plan shall be implemented in full accordance with the programme and details included in the most recent approved review document.*

Jacobs agree with the NSC opinion that quarterly and annual monitoring of car parking is necessary to ensure that supply is enough to meet demand, while also ensuring that over supply does not lead to a car borne development. Therefore, we believe the following methods, as set out by NSC should be used

*Annual Monitoring:*

- *The airport shall collect daily occupancy figures for all Long-Stay visitor parking. Data to be reported quarterly and will provide assessment of available capacity, percentage occupancy rates and seasonal demand in relation to air passenger numbers. Number of parking actions (daily) are to be reported for each Short Stay and Drop Off parking provision with data to be provided on a quarterly return basis.*

*Quarterly Monitoring:*

- *In addition to the daily parking occupancy data, the numbers of vehicles arriving and departing at all BAL operated parking locations (including drop off) shall be recorded at 15-minute intervals throughout the 24hr period of QMD's. These data will provide support to parking occupancy data and inform parking demand by time of day. In addition, data will be analysed together with other data sources to inform passenger dwell times.*

Jacobs believe that monitoring related to car parking is necessary to ensure that supply is enough to meet demand, while also ensuring that over supply does not lead to a car borne development. Therefore, we believe a condition like that below should accompany any consent granted.

- *Monitoring of and maintaining records for parking occupancy including length of stay. Data to be collected daily in hourly periods across a 24h period. Returns shall be made to the highway authority on a monthly basis accompanied with details of monthly air passenger arrivals and departures. Monitoring should commence from approval of planning application and shall be required throughout the period for which permitted use above 10mppa is consented.*
- *Should the parking occupancy exceed 95% (or a number to be agreed with BAL) for a complete 7-day period then a review of the surface access /travel plan, including a programme for the implementation of any necessary measures identified within the review should be submitted to the local planning authority for approval within 4 months of the survey. This should prioritise investment and implementation of measures contained within the surface access/travel plan to encourage travel by public transport, thus minimising use of the car park, prior to the release of any additional parking space for airport use.*

Jacobs agrees that a robust monitoring strategy is necessary to ensure ongoing compliance with planning targets, given the airport sites sensitive setting and the public plans to expand in the future beyond the current application.

## **9. Staff Parking**

The Airport Parking Strategy notes that staff parking at the airport has recently been relocated to the Silver Zone parking. There are currently 1000 spaces available for staff parking, however this move (to facilitate the MSCP Phase 1a project) has had a knock-on effect reducing the number of low-cost Silver Zone spaces.

There is no proposed increase in staff car parking in the strategy, and BAL have proposed to adopt a mode share target of “at least 30% staff using non-SOV car travel”. This is proposed to be achieved between 2020 and 2026 although it is unclear whether this applies to all staff or only those employed by BAL itself. NSC has commented that a target of 25% of all staff travel to the airport by public transport should be considered, thus a 30% target of non-single occupancy vehicles travel appears appropriate.

Jacobs would agree that further work needs to be carried out to ensure that modal shift to more sustainable forms of transport is also achieved amongst all employees travelling to and from the airport daily. This should be included in the ASAS and associated Staff Travel Plan and cover all staff with BAL security accreditation to work on site.

## **10. Conclusions**

Jacobs agrees that based on the information reviewed, the demand forecasts for the airport appear to be robust and have been subject to sensitivity testing to investigate a range of scenarios. However, it should be noted that we have not been able to review the raw data behind these forecasts and therefore cannot fully verify their robustness.

BALs Parking Strategy for the future expansion appears skewed to demonstrate that the airport's preferred parking solution is the only viable option, however Jacobs note that NSC Planning Officers, which have had access to further information, have accepted the assessment. We note that the objection by BAL to the Mead Realisations proposals at M5 junction 21 provide further detail on the viability or otherwise of this site from the Airport's perspective. It would be helpful to understand if such analyses have been undertaken for other top performing sites in the sequential test providing more detail on why particular sites were excluded. Furthermore, the attempt to maintain public transport modal share at 15%, the same as was proposed as part of the ongoing expansion to 10mppa is insufficiently ambitious. Jacobs believes that a more ambitious target of 17.5% should be used.

The benchmarking exercise against other airports demonstrates that for airports which are of the approximate size of Bristol and larger tend to have higher PT mode shares and thus lower parking per passenger than proposed by BAL. It would appear Bristol airport is at a tipping point in terms of mppa at which significant investment in PT is required to ensure sustainable travel and thus reduce the future parking demand.

Given the airport's plans to continue expansion, Jacobs would suggest investment now in longer term sustainable options with parking provided only for trips that cannot be moved to sustainable modes. These should include well-sited off-site car parks with shuttle services and more robust PT accessibility to the airport, as opposed to solely focusing on the extension of existing onsite facilities within the Green Belt, causing increased congestion on unsuitable roads in the vicinity of the airport.

The M5 J21 proposal by Mead Realisations highlights the potential for the airport to work with third party operators who already own land, which could reduce the burden of risk and cost on BAL whilst providing more sustainable solutions for future growth, focusing on the catchment areas which will deliver growth as identified by BAL. The importance of this partnering and accreditation schemes are recognised by the CAA which recommend the method for offering airport parking services. Whilst we note the importance of reducing passenger's reliance on unauthorised off-site providers, official P&R

schemes have the potential to deliver low cost parking solutions which can compete on price with the unauthorised providers, where the pricing of the airports own on-site parking may not.

NSC have commented that many of the PT improvements to facilitate the 15% share at 10mppa have already been delivered and it is therefore unacceptable to expect these to be enough for future development to 12mppa without further investment. Given the airport's plans to expand beyond 2026, it would be sensible to invest now to increase modal share to 17.5% (as proposed by NSC) and ensure that future airport growth is more sustainable. This could include using money from any permitted car parking expansion onsite to subsidise better bus services from Bristol, Weston-Super-Mare and other nearby railheads, ensuring they are regular and more affordable than at present, whilst investigating Park & Ride sites for areas in the southwest, for which PT is unlikely to become attractive enough to replace private vehicles. The current airport 'flyer' services from Weston-Super-Mare and Bristol should be part of a pricing assessment looking at incentivising PT use, with potential for the introduction of a lower cost non-premium bus service if it is not possible to reduce the cost of the existing 'flyer' services. Furthermore, improvements should be made to longer distance bus and coach services such as those operating between the airport and South Wales and the Taunton/Plymouth corridor.

Jacobs agrees that proposals to link the release of parking provision to public transport funding is appropriate. However, the funding should be carefully targeted to ensure maximum benefit. This may require a study to determine which proposals offer the most opportunity for PT mode shift. A robust monitoring strategy should be implemented, agreed between BAL and the Local Authority, to ensure compliance with agreed targets. There should be the potential for penalties, such as further public transport investment, a fundamental review of the ASAS or removal of spaces if targets are repeatedly missed.

Proposals generated by the ongoing Parking Summits appear suitable and should be secured through the planning process. However, we note that Parking Summit Report identifies that this is an ongoing process which will evolve over time. Section 4 of the NSC ASAS sets out the method for the funding and implementation of these proposals.

Given the likely demand for low cost provision the release of parking spaces should prioritise the year round use of the existing Silver Zone extension (Cogloop 1) Silver Zone extension in the first instance followed by the expansion of Silver Zone known as Cogloop 2. However, the need for both these expansions are predicated on all parking facilities consented at 10mppa being open to the public. Should this not be the case then a shortfall beyond the spaces provided at the Silver Zone sites will exist. Therefore, Jacobs suggest that NSC require all parking consented at 10 mppa is open to the public prior to the opening of any additional facilities consented under the 12 mppa application.

An assessment of the airports pricing strategy will also be important to incentivise efficient use of all available on-site facilities during peak periods. This could also examine whether BAL dominance over airport parking will impact value for money for passengers, should the number of unauthorised sites be reduced.

In the context of this Parking Note the key aspects which Jacobs understand NSC have agreed with BAL are:

- To achieve a PT mode share of 16% by the measure used in the TA prior to the beneficial use of MSCP3
- To achieve a PT mode share of 17.5% by the measure used in the TA in 2026
- Early funding to encourage travel by PT modes to permit a PT mode share of 16% by the measure used in the TA release of the extensions to Silver Zone Parking. Measures to consist of those identified in section 3.3 of this report.
- To provide additional funding for PT modes should the mode share targets agreed though the Travel Planning process not be met.
- To produce a fundamental review of the pricing of all travel modes to ensure the competitiveness of PT modes compared with BAL's parking offerings.

- To undertake actions and provide funding to reduce the level of illegal and indiscriminate parking associated with the airport and reduce the number of unauthorised off site parking offerings. These measures are set out in the ASAS

Jacobs recommends the following key aspects are also agreed prior to any consent to grow to 12 mppa is granted

- That all parking facilities consented at 10 mppa are constructed and open to the public
- That 3,200 additional spaces are required over and above that consented at 10 mppa. A commensurate reduction from 3,900 due to the increased PT mode share target from 15% to 17.5%
- A review of parking facilities alongside passenger demand no sooner than 2021 but no later than 2022 to ensure passenger needs are being met. This review should also consider the PT offering to ensure viable alternative to private car exist.

**Appendix 4:****Highway Engineering Comments****Application 18/P/5118/OUT****October 2019****INTERNAL MEMORANDUM****FROM: D&E HIGHWAYS & TRANSPORT****Date: 28<sup>th</sup> March 2019 updated 13<sup>th</sup> October 2019****Development Control Case Officer: Neil Underhay****Application No: 18/P/1518/OUT****Location:** Bristol Airport North Side Road Felton Wrington BS48 3DP

**Proposal :** Outline planning application (with reserved matters details for some elements included and some elements reserved for subsequent approval) for the development of Bristol Airport to enable a throughput of 12 million terminal passengers in any 12 month calendar period, comprising: 2no. extensions to the terminal building and canopies over the forecourt of the main terminal building; erection of new east walkway and pier with vertical circulation cores and pre-board zones; 5m high acoustic timber fence; construction of a new service yard directly north of the western walkway; erection of a multi-storey car park north west of the terminal building with five levels providing approximately 2,150 spaces and wind turbines atop; enhancement to the internal road system including gyratory road with internal surface car parking and layout changes; enhancements to airside infrastructure including construction of new eastern taxiway link and taxiway widening (and fillets) to the southern edge of Taxiway GOLF; the year-round use of the existing Silver Zone car park extension (Phase 1) with associated permanent (fixed) lighting and CCTV; extension to the Silver Zone car park to provide approximately 2,700 spaces (Phase 2); improvements to the A38; operating within a rolling annualised cap of 4,000 night flights between the hours of 23:30 and 06:00 with no seasonal restrictions; revision to the operation of Stands 38 and 39; and landscaping and associated works.



**Addendum: 11<sup>th</sup> October 2019****Bold text – Bristol Airport Response.*****Italics text – North Somerset Council response.*****1.** Highway Mitigation Measures

Highways has reviewed the proposed improvement scheme to Downside Road/A38 junction and provides further comments below.

**1.1** Road Safety Comments

These comments have been provided to identify potential issues that could occur to all road users following the proposed changes at Downside road. The Road Safety Engineering Team carried out a desktop study of the site and drawing proposals on the 22 January 2019. The Road Safety Engineering Team have assessed the changes based on drawing no. C1124-SK-A38-010 - A38 Junction Improvements, Option 10.

Although the proposals were assessed based on the principles of GG119 and by members qualified to carry out Road Safety Audits, the Road Safety Engineering Team has not carried out an official Road Safety Audit, therefore this report has been produced. Whilst it is recognised that some of these issues could be dealt with at the detailed design stage, a designer's response to these concerns must be provided by the applicant.

**1.2** Accident History:

CrashMap indicates there have been 9 slight accidents and 1 fatal accident in the last 3 years 2015-2017 within the vicinity of the junction improvement scheme.

**1.3** Comments:**1.** Risk of side swipe and merge type accidents

The layout gives priority to vehicles leaving the airport which will result in weaving of vehicles travelling from the A38 to Downside Road. The merge off the roundabout is very short and does not allow much time for vehicles to merge (which is existing), but with the additional lane coming from the airport the merging and weaving will increase. The dedicated exit from the airport could result in squeezing vehicles exiting the roundabout, should there be a give way on the airport exit.

In addition, cyclists travelling along the A38 towards Bristol will end up in lane 2 and must merge into lane 1, crossing the path of faster moving vehicles.

It is required that the arrangement is redesigned so airport traffic must give way to A38 traffic which will reduce the merging and weaving risk of accidents.



**BAL have examined a number of alternative layouts which seek to address the issues raised by NSC. Drawing C1124-SK-A38-010 rev 11.0 indicates a revised design for the A38 / Airport access roundabout. The layout provides two lanes leaving the airport which widen to three at the roundabout. This layout provides sufficient capacity to support BAL's proposals. The new layout retains more of the current boundary planting and keeps the existing pedestrian crossing point on the A38 north arm. – North Somerset Council consider this issue agreed.**

## 2. Risk of pedestrian accidents

There are proposals for a refuge island to be provided to replace the crossing facility lost at the roundabout. Currently use of these facilities is likely to be minimal, however there are proposals for 49 rooms at The Forge hotel and on the old primary school site. (Some are replacing existing rooms). The proposed refuge will become a primary route for pedestrian access to the airport, crossing is slower whilst carrying luggage, which could increase the risk of pedestrian accidents.

It is required that a crossing assessment is carried out to ensure the correct facility and appropriate widths are provided. If this layout is deemed acceptable the pedestrian island on the A38 approach to the airport needs to be a minimum width of 2.00 metres.

**The existing pedestrian crossing point closer to the A38 / Airport Access junction is retained as part of the response to point 1 above. The additional island closer to the Forge is therefore no longer required and has therefore been removed. – North Somerset Council require a crossing assessment to be carried out on the existing crossing point to ensure suitability, and the visibility to the crossings is improved.**





### 3. Risk of 'nose to tail' and 'side junction to main road merge' type collisions.

The proposed right turn lane into School lane will serve both the hotel proposals and current School Lane access. The right turn lane is approx. 40m in length for School Lane, however the access into the proposed hotel is approx. 20-25m from the start of the right turn lane. This will result in harsher braking and the potential for a following vehicle heading to School Lane colliding into the rear of the vehicle turning into the hotel access. There is also a risk of vehicles entering the main road injudiciously across the 5 lanes when turning right.

It is required that the right turn lane is redesigned to consider the 2 access points and that the accesses are left out only to avoid vehicles crossing multiple lanes.

**Examining both applications in detail, it appears the developers have proposed to operate the access points as left in / left out. It is understood from the meeting that NSC will undertake further reviews of these third party access proposals as necessary and will advise what measures the developers will be asked to provide now that the comprehensive airport scheme has been developed. BAL can add these proposals to their plans once they have been agreed and supplied in sufficient detail. In the meantime, the number of gaps within the hatch area have been reduced to one, catering for access into School Lane. – North Somerset Council require that the proposed hatching width is maintained at 2.5m or more to future proof for any right turn proposals.**

### 4. Risk of cyclist accidents

The lane widths through the site vary from 3.0m-3.5m which could cause overtaking vehicles to squeeze cyclists, particularly around the 3.5m width and whilst travelling uphill.

It is required that lane 1 in both directions are widened as much as possible (ideally to 4.25m or above) to keep a consistent approach and take account of slower moving cyclists, particularly uphill. Where widths are not possible 3m running lanes will suffice meaning drivers must make a conscious decision to overtake and will slow until there is an opportunity to do so.

**BAL are not proposing to change the position of the Eastern kerb of the A38 other than the section north of west Lane. There are constraints posed by land ownership and dwellings which prevent further road widening. The removal of the additional traffic island on the A38 between Downside Road and Airport Access (point 2 above) has allowed the hatching between the north and south bound lanes to be reduced. The nearside southbound lane (uphill) has been widened to 3.9m to provide additional width for vehicle to pass cyclists. It should be noted that there is also a shared cycle track over this section of the A38. – North Somerset Council understand the lane widths aren't ideal and are inconsistent, the area that can be improved has been as much as possible.**

#### 5. Risk of side swipe accidents

It is not fully understood how vehicles are expected to access Lilac Cottages and whether they are left in left out only. Vehicles turning left in might swing out wide into lane 2 due to the acute angle which could result in a side swipe/nose to tail with the vehicle overtaking in lane 2. There is also a risk that drivers might turn right in/out in between the islands into the path of another vehicle. There are also no dropped kerbs/tactiles for pedestrians/cyclists crossing the 'bell-mouth'.

It is required that this access is looked at in more detail to fully understand vehicle movements and that track runs are carried out. Dropped kerbs/tactiles should also be provided.

**While additional lanes have been added to the A38 in both directions, access to / from Lilac Cottages remains unchanged from the current situation. – North Somerset Council consider this issue agreed.**

#### 6. Risk of pedestrian accidents

There are not any dropped kerbs/tactiles shown on the new access into the Airport Tavern, this could result in pedestrian trips or fall.

It is required to review the pedestrian flows and installed dropped kerbs and tactile paving at this junction.

**Drop kerbs and tactile paving have been added to the junction layout drawing. To be confirmed as part of the detailed design. – North Somerset Council consider this issue agreed.**

#### 7. Risk of cyclist accidents

Cyclist could ride out into the path of vehicles heading NE on Downside Road where they are told to re-join the carriageway.

It is required to improve the signing and lining in this area to ensure it is clear to cyclists that they do not have priority and they are to give way at this location.

**The Northeast bound carriageway has been locally widened and giveaway markings added to the latest drawing. Traffic signs will be added and can be confirmed as part of the detailed design. – North Somerset Council consider this issue agreed.**

## 8. Risk of overtake and side swipe accidents

Due to the busy nature of the A38 and the multiple lanes there is an increased risk of side swipe type accidents caused by vehicles overtaking a bus at the bus stop. It is required to locate the bus stop within a layby to reduce the risk of overtake / side swipe accidents.

**The provision of online bus stops is common place and prevents buses having to wait to re-join the main carriageway. This arrangement is the preference of the bus operators. The provision of a lay-by in this location would also require additional land. – North Somerset Council understand the reasons but still have concern of overtake/side swipe type accidents.**

## 9. Risk of pedestrian and cyclist accidents

The existing shared footway/cycleway is very narrow for shared use which could result in cyclists colliding with pedestrians or riding into the road to avoid pedestrians.

It is required to widen this shared footway/cycleway to a minimum of 2.5m to avoid pedestrian and cyclist conflicts. (This is subject to NSC Area Officer checks on condition and width of the facility)

**The share cycle track to the eastern side of the A38 is an existing facility. It is understood that NSC are looking to remove the existing undergrowth which extended from the common therefore narrowing the footway / cycleway which will maximise its width. It would not be possible to provide any additional width as this would require land from the common, or moving the road further west impacting on additional third party dwellings / land. – North Somerset Council require that the signing and lining is improved to raise awareness that it is a shared facility. See example image:**



## 10. Risk of pedestrian accidents

Pedestrians could be injured whilst trying to cross West Lane due to there being no refuge island or pedestrian phase on the signals.

It is required that a crossing assessment is carried out to ensure the correct facility is provided.

**No pedestrian movements were counted at this junction during the survey period. The revised junction drawing does indicate an implied crossing point with lowered kerbs either side of the junction. To aid users the stop line on West Lane is also pulled further back slightly and realigned. Provisions for pedestrians at this point can be confirmed at the detailed design stage. – North Somerset Council require that the facilities are improved as much as reasonably practical.**

#### 11. Risk of accidents from debris in the road

The traffic island looks to be around 1.0m wide with 3 signal heads on it, if enough clearance is not provided there is a risk that high sided vehicles could hit the signal heads and they fall into the path of a vehicle or motorcycle.

It is required that the island is redesigned so it can accommodate all 3 signal heads whilst providing sufficient clearance from vehicles.

**The latest layout indicates a wider traffic island and the signals separated on to 3 separate posts. The information will be provided as part of the detailed design. – North Somerset Council consider this issue agreed.**

#### 12. Risk of accidents from U-turns

With the banned right turn from West Lane there is a risk that drivers might turn right in/out in between the islands or do a U-turn around the NW island into the path of another vehicle.

It is required that the islands are designed to reduce the risk of vehicles turning right or carrying out U-turns as much as possible.

**Traffic using the A38 is likely to prevent traffic attempting to U turn at this point. The revised drawing shows a slightly extended traffic island further west to provide an increased physical deterrent. – North Somerset Council require that the island is extended as much as reasonably practical.**

#### 13. Risk of overtaking and side swipe type accidents

The merge NE bound looks to be approx. 50m in length which is likely to be under used or encourage aggressive overtaking/merging manoeuvres, which could result in side swipe type accidents.

It is required to increase the length of the merge as much as possible (preferably 100m in length) to give vehicles more time to merge safely. If this is not possible then merge signage should be considered.

**The two-lane section of the A38 extend 67m beyond the stop line with West Lane junction this then tapers back to the main carriageway over a further 50m. The total merge area is therefore longer than 100m. The current proposal indicates the road narrows to 4.5m at 106m from the stop line. The centre of the road is currently hatched so this figure might be able to be slightly increased as part of the detailed design. The requirement for signage can be reviewed at the detailed design stage. – North Somerset Council consider this issue agreed.**

14. If extra traffic will be using the airport roundabout to 'u' turn is there enough capacity, are there any safety issues? A safety audit is required.

**The results of the junction capacity assessment of the roundabout are shown in section 11.2.5 of the Transport Assessment. The results indicate that the junction would operate with sufficient spare capacity at peak periods. – North Somerset Council consider this issue agreed.**

15. Right turn out of Downside appears tight. It is required splay are tracked, or confirmation of tracking should be provided by BAL.

**The junction layout enables access for normal road going vehicles as well as road legal farm equipment. The supporting traffic assessment (TA) indicates the vehicle swept path analysis which has been undertaken. – North Somerset Council require that vehicle tracking is provided for HGVs as there is not a weight restriction on Downside Road.**

16. Tactiles are required across the highway access into the Airport Tavern on the desire line, as well as tactiles across the West Lane bell-mouth on the desire line.

**Point 6 above addresses these observations. – North Somerset Council consider this issue agreed.**

17. Planning has been granted for 2 new developments 16/P/1581/F (School site) 17/P/1245/F (The Forge) these have not been incorporated into the drawings, can the 4th leg of the roundabout be used? (right turns in / out should be a banned movements).

**Point 3 above partially covers this item. The new access arrangements can be added to the proposed layout once suitably approved detailed drawings have been received from NSC. The eastern side of A38 / Airport Access roundabout remains unchanged from existing. – North Somerset Council consider this issue agreed, subject to detailed drawings being received and incorporated.**

## 1.4 General comments

Design Standards to be as per DMRB due to the road being one of North Somerset's principle 'A' roads. There is an existing problem with vehicles parking and blocking the shared footway/ cycleway outside the Forge Motel. This should be enforced to maintain the width using TRO's.

**Enforcement of existing parking offences in this location is currently the responsibility of NSC. However, the measures proposed as part of the wider S106 package would include a contribution towards ensuring dedicated resources for the purpose of enforcement.** – *North Somerset Council consider this issue agreed.*

The two signalised junctions need to be linked together properly to maximise traffic flows using MOVA etc.

**This is the proposed operation, the details of which will be provided as part of detailed design.** – *North Somerset Council consider this issue agreed.*

A yellow box marking would be required on the A38 where traffic enters from Downside Road to ensure NE bound traffic heading towards Bristol is not blocked between light sequences.

**Traffic modelling indicates this road marking is not required. However, it could be added and this can be confirmed as part of the detailed design stage.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

The left only out of West Lane is likely to put additional traffic onto Currells Lane, Newditch Lane or Dial Lane junctions with the A38, potentially creating collisions problems at these sites.

**Changes to the local traffic routes and the impact on adjacent junctions in included within the transport assessment (TA). The traffic flow forecast for 2027 indicates 15 vehicles in the AM peak and 5 in the PM peak would be affected by implementing the banned turn. This level of traffic would not have a material impact upon the operation of adjacent junctions.** – *North Somerset Council understand the increase in traffic is nominal, however it is required that visibility splays, signing, etc is improved to mitigate against the additional vehicles using the two junctions.*

Visibility splays to signal heads are not shown, these need to meet DMRB standards. **There is good visibility provided to all signal heads. A plan will be provided as part of the detailed design pack as the positioning of the signal heads would also form part of the detailed design. Design would be in accordance with DMRB standards.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

- Section 278 required to include ,2 x commuted sums required for the signals,
- Inspection fee 4% of the bond.
- Full Technical approval package required to be approved
- AIP required for the pubs new retaining wall



**These requirements will form part of S278 negotiations.**

## 1.5 Highways & Electrical Comments (Lighting/Signals)

The 'Design and access statement – Part 4 – 6.2.3' refers to the external lighting strategy. To confirm that the ULR should be <2.5% for an E2 environment and not <5% as suggested.

**This point is noted. Lighting issues will be addressed in full as part of the detailed design stage.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

The 'Lighting assessment – Part 1 – 3.3.1' refers to 6m columns, however all the lighting columns on the A38 adjacent to the airport are 10m, with no lighting on Downside Rd, so we seek clarification as to what this is referring to.

**The A38 will continue to have street lighting which will be extended to cover the additional carriageway and footway. The street lighting will be extended along Downside Road to the end of the proposed cycle track. The nature of the lighting will be agreed as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

The 'Lighting assessment – Part 1 – 4.4.1' makes recommendations for additional mitigation. I would propose that the A38 lighting has back shielding implemented to further reduce light spill onto the woodland area.

**Bats have been found to frequent the abandoned quarry alongside Downside Road. Suitable mitigating measures are therefore required and will be agreed as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

The 'Lighting assessment – Part 1 – 4.4.1' again suggests a ULR of <5% when it should <2.5% for a E2 environmental zone.

**This point is noted. Lighting issues will be addressed in full as part of the detailed design stage.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

The 'lighting assessment' indicates that an initial lighting design proposal has been carried out, but the lux contour plans for these have not been included. These will need to be provided to ensure that parameters are met, along with prescribed design levels and mitigation calculations to meet the requirements of ILP GN01:2011 and requirements for bats.

**Plans including location of columns will be provided as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

'Lighting assessment – Part 2 – Appendix D – Plan 09194-HYD-XX-GF-DR-E-9013' gives an indication of the proposed lighting at the Junction of Downside Rd with the A38. It is a requirement that for detailed design that the proposed lighting for Downside Rd is extended further to take in the further lane split and provided adequate lighting on approach to the conflict area. Similar foresight needs to be



given to West Lane and appropriate lighting including on the West lane approach to the proposed traffic signal junction.

**Plans including location of columns will be provided as part of detailed design.**

*– North Somerset Council consider this issue agreed, subject to detailed design stage.*

## 1.6 Traffic Signals – Proposed Improvements

Given the extent of the works proposed to the existing traffic signal junction, is banning the right turn into Downside Rd still the best solution for optimising traffic flows? A number of revisions leading to the proposed design have been carried, what are the alternatives and the benefits/dis-benefits that have led to this being the best solution?

**The Design and Access Statement contained within the TA describes the other options considered as part of the junction improvement scheme development process.**

Need to further understand the decision to ban right turn movements out of West Lane as this will increase traffic on the roundabout at the main entrance of the airport or redistribute traffic to other un-signalised junctions along the A38, which may increase safety concerns etc.

**The effect on the roundabout and other local roads is described and analysed as part of the TA.**

Concerns with ingress/egress from various properties along the A38 adjacent to the traffic signals, waiting areas in hatched areas, right turn movements across multiple lanes, lilac cottages access (space is inadequate as a waiting area).

**This comment is addressed as part of points covered earlier in this document.**

Requirement to further understand the need for traffic signals at the A38/West Lane part of the proposal. The TA indicates that the proposal for the crossing is to allow pedestrians using the bus lane to cross the A38 to West Lane. Given that the numbers of pedestrians would be minimal, it could be argued a refuge island would be sufficient. If this is the case and the right turn out is banned from West Lane with minimal interactions, has a proposal been considered without this node signalised?

**The performance of West Lane is described within the TA.**

Confirmation as to whether the front access to the Airport Tavern will be shut with the new proposed entrance in place.

**The scheme includes the closure of the existing Airport Tavern access from the A38 frontage, with a new access provided from Downside Road.**

The queue for Downside Rd is indicated as 8.3 at its worse approx. 50m of cars which would take it past the new entrance for the Airport Tavern. Without information on the number of users entering the site, some concerns with vehicles turn right into the new entrance impeding the flow of traffic for those turning left into Downside Road from the A38.

**A keep clear marking has been provided on the revised layout drawing.** – *North Somerset Council consider this issue agreed.*

The proposals indicate rough positions of the traffic loops proposed to manage the operation of the traffic through the signals, however nothing indicated for West Lane. Will need to understand what this will look like and how it will be designed given the presence of a cattle grid.

**Traffic signal loops to be developed as part of detailed design. We discussed the ongoing requirement for the cattle grid and NSC agreed to review if it was still required now the A38 has been de-trunked.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

The queue for traffic turning right is indicated as 15.7 approx. 90m of cars. Unsure if this is split across both lanes or the resultant queue for vehicles waiting to turn right. This does raise concerns of traffic backing up into the next node, even more so if a bus as waiting at the bus stop.

**The queue is split and the signal timings will prevent blocking back. The details of which form part of the TA.**

Need to ensure adequate width on West Lane turning left between the kerb and the island is wide enough for larger vehicles to make the movement and to ensure the island is sufficient in size for the proposed traffic signal.

**The vehicle swept path is contained within the TA.**

Stop line detection will need to be installed on many approaches as it is likely some residents joining the A38 will have joined beyond the proposed MOVA loops and would end up stuck if the lights have reverted to all red, with no other demands for those approaches.

**Not all traffic loops are shown at this stage, final layout will be developed as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

If the proposed layout is taken forward consideration should be made for the A38/West Lane junction to operate dual stream, separating the A38 BA to Bristol and its associated crossing from the rest of the staging.

**This will be agreed as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

Consideration should be made as to whether the left turn into Downside Rd and its associated crossing could be separately streamed from the rest of the junction.

**This can be undertaken but slip lane is relatively short so full benefit might not be realised. This will be agreed as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

Confirmation as to whether the Downside Rd right turn movement is also to allow vehicles to enter Lilac Cottages. If they are allowed, then consideration of the road marking and signalisation need to be considered.

**This movement is not permitted as part of the design, in line with the current operation.**

There is no indication of maintenance bay provision for engineers carrying out maintenance of the traffic signals. Presume this will be indicated in the detailed design along with controller positions?

**Location of controller and maintenance bay can be agreed as part of detailed design.** – *North Somerset Council consider this issue agreed, subject to detailed design stage.*

We will need to understand the co-ordination between the two junctions to ensure that they will operate without internal lock up, so ensuring that internal approaches clear effectively each cycle.

**This is covered as part of the Transport Assessment.**

In addition to the improvement scheme identified at Downside Road, North Somerset Council and Bristol City Council has requested BAL provide further information and data on the following locations:

- SBL junction with A370 (BCC)
- Dundry Lane junction with A38

**This is covered as part of the Transport Assessment and separate ongoing discussions.**

Depending on the conclusions of the data provided, further contributions to mitigation and design at these locations may be required. It is not expected the airport would pay for the mitigation works in entirety, rather contribute to feasibility and/or a residual contribution to the scheme based on its proportion of passenger use at these specific locations.

**This is covered as part of the Transport Assessment and separate ongoing discussions.**

From reviewing the responses to the BAL application for 12 mppa, a proportion of residents and stakeholders have requested the scale of the application and expansion warrants providing mass transit post 10 mppa. Although a contribution for this would be merited for feasibility/design, this is to ensure mass transit could be progressed to meet the changing and future requirements of passengers to the airport, it is not envisaged by officers a contribution would be for providing mass transit solution at this stage. Instead we would wish to see this come forward as a residual contribution within the major project S106 contribution within the heads of terms.

**This is covered as part of the Transport Assessment and separate ongoing discussions.**

