LBHA 21 RNAV - INITIAL OPTIONS APPRAISAL - FULL ANALYSIS TABLE

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Group	Impact	Level of Analysis	Option 2A - Do Minimum (Baseline) - VOR/DME Replication from ALKIN (3 Deg)	Option 2AD - VOR/DME Replication direct from OSVEV (3 Deg)
Communities	Noise impact on health and quality of life	Initial Options Appraisal: Qualitative	Option 2A replicates the exiting VOR/DME approach, therefore there will be very little change to tracks flow, meaning that the dispersion of traffic and therefore noise will be relatively similar to todays operation. However, it is acknowledged that any aircraft arriving from the south would require radar vectoring to return to ALKIN, as they do today (prior to the removal of the VOR).	As this option replicates the exiting VOR/DME approach, there should be very little change to tracks flow, meaning that the dispersion of traffic and therefore noise will be relatively similar to today and the baseline scenario. However, it is acknowledged that any aircraft arriving from the south would require radar vectoring to OSVEV, but this is also the case in todays operation. Consequently, this option creates no change in terms of noise impact when compared to the baseline scenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	Like the existing procedure, the majority of local areas overflown are impacted when the aircraft is above 1,000ft. It is acknowledged that parts of Locksbottom and Farnborough are likely to be impacted as the aircraft will be at approximate 1,000 ft around 3 NM from touchdown. This will have the same impact as todays operations. In addition, it is also acknowledged that this will involve the overflight of the Princess Royal University Hospital. Having said that, this is unavoidable to ensure a safe and stable approach is flown following the establishment of the FAF, as per todays operations. Please note, the location of the FAF and associated flight path thereafter will remain the same as it is today.	Like the existing procedure, the majority of local areas overflown are impacted when the aircraft is above 1,000ft. However, it is acknowledged that parts of Locksbottom and Farnborough are likely to be impacted as the aircraft will be at approximate 1,000 ft around 3 NM from touchdown. In addition, it is also acknowledged that this will involve the overflight of the Princess Royal University Hospital. Having said that, this is unavoidable to ensure a safe and stable approach is flown following the establishment of the FAF. Please note, the location of the FAF and associated flight path thereafter will remain the same as it is today and in the baseline scenario. So, when compared to the baseline scenario, this option creates no change in terms of air quality.
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	As per the existing procedure, the majority of aircraft will leave the network at OSVEV and be radar vectored for a PBN approach via ALKIN. This Option does not include a direct link from OSVEV to ALKIN, although aircraft would be effectively flying this anyway while being radar vectored to ALKIN. In terms of emissions, this option will have no additional impact compared to todays operation.	This option includes a more direct routing between OSVEV and ALKIN prior to establishing the FAF. This more direct routing means that aircraft will start to procedure from OSVEV rather than ALKIN, but effectively still fly the same track over the ground when compared to the baseline scenario. As a result, this option has no additional impact on emissions.
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	This option is seen as a more efficient way of managing airspace as aircraft transit from OSVEV to ALKIN and fly this more direct routing onto the FAF. There is no expected impact on capacity and resilience associated with this option.	This option is seen as a more efficient way of managing airspace as aircraft transit from OSVEV to ALKIN and fly this more direct routing onto the FAF. There is no expected impact on capacity and resilience associated with this option.
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	Any aircraft routing from the South or East of LBHA would likely be required to fly over the Kent Downs AONB or Surrey Hills AONB whilst be vectored towards ALKIN. As a result, it is deemed that the impact on the specified AONBs in out of scope of this ACP, as this overflight would occur prior to aircraft being established on this option and under the control of Thames Radar as opposed to LBHA.	Any aircraft routing from the South or East of LBHA would likely be required to fly over the Kent Downs AONB or Surrey Hills AONB whilst be vectored towards OSVEV. As a result, it is deemed that the impact on the specified AONBs in out of scope of this ACP, as this overflight would occur prior to aircraft being established on this option and under the control of Thames Radar as opposed to LBHA.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure.	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure.
General Aviation	Access	Initial Options Appraisal: Qualitative	There is no direct impact on access for general aviation associated with this option. It is also worth noting that this option mimics the situation today, therefore, there is no impact on GA access compared to todays operations.	There is no direct impact on access for general aviation associated with this option. It is also worth noting that this option mimics the situation today, therefore, there is no impact on GA access compared to todays operations.
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	There would be a very limited economic or capacity impact of this option.	There would be a very limited economic or capacity impact of this option.
General Aviation / commercial airlines	Fuel burn	Initial Options Appraisal: Qualitative	As this option is a direct replication of what already exists, there will be no additional impact in terms of fuel burn.	This option includes a more direct routing between OSVEV and ALKIN prior to establishing the FAF. This more direct routing, with an overall track mileage of 15.38 NM, meaning it appears longer than Options 2A and 2B although this is not the case (See Options 2A and B for details).
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	There are no direct training costs associated with this option.	There are no direct training costs associated with this option.
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	There are no anticipated additional costs associated with this option.	There are no anticipated additional costs associated with this option.
Airport / Air navigation service provider	Infrastructure costs	Initial Options Appraisal: Qualitative	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review.	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review.
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	There is no anticipated additional operational costs associated with this option.	There is no anticipated additional operational costs associated with this option.
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	There is no perceived deployment costs associated with this option.	There is no perceived deployment costs associated with this option.
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative	As this proposed option is a replication of the existing VOR/DME approach, the only hazard identified with this option is the lack of radar vectoring between OSVEV and ALKIN, which is currently provided by NATS Thames Radar. However, in the event of a communications failure, this is unavailable, leading to an increase in pilot workload. On the other hand, this can be mitigated through standard loss of communication procedures.	As this proposed option is a replication of the existing VOR/DME approach, there is no perceived additional safety concerns outside the parameters that exist today. There are no specific safety risks associated with this option.
		Summary of Analysis	Option 2A acts as the 'Do Minimum' baseline scenario for this assessment. This option is a replication of the existing procedure and is efficient in terms of fuel burn and emissions. Furthermore, as this option replicates the existing procedure, there is a very minimal impact in terms of noise, tranquillity, biodiversity and air quality compared to todays operations. Option 2A provides a more structured approach for LBHA arrivals when compared to todays operations, following the removal of the VOR. From a safety perspective, mitigations are in place for the failure of communications with Thames Radar as the aircraft is radar vectored from OSVEV to ALKIN to begin the approach.	This option involving both OSVEV and ALKIN provides a more direct routing between the 2 waypoints prior to establishing the FAF. As this option is a replication of the existing approach, there is very little additional impact in terms of noise, air quality, emissions, tranquillity, biodiversity, commercial aviation, general aviation or airport/ANSPs in comparison to existing operations. The added benefit of this option compared to existing procedures is the reduced track mileage between OSVEV and ALKIN, further reducing fuel burn and emissions. From a safety perspective, mitigations are in place for the failure of communications with Thames Radar as the aircraft is radar vectored from OSVEV to ALKIN to begin the approach.

Group	Impact	Option 2B - VOR/DME Replication from ALKIN (3.2 Deg)	Option 2BD - VOR/DME Replication direct from OSVEV (3.2 Deg)
Communities	Noise impact on health and quality of life	As this option replicates the exiting VOR/DME approach, there should be very little change to tracks flow, meaning that the dispersion of traffic and therefore noise will be relatively similar to todays operation and the baseline scenario. However, it is acknowledged that any aircraft arriving from the south would require radar vectoring to ALKIN, but this is the case today and in the baseline scenario. Additionally, this option introduces a slightly steeper (3.2 Deg) approach, which means aircraft will be at a higher altitude for slightly longer, reducing the overall noise footprint compared to current operations and the baseline scenario.	As this option replicates the exiting VOR/DME approach, there should be very little change to tracks flow, meaning that the dispersion of traffic and therefore noise will be relatively similar to todays operations and the baseline scenario. However, it is acknowledged that any aircraft arriving from the south would require radar vectoring to OSVEV, in the same way they do today. Additionally, this option introduces a slightly steeper (3.2 Deg) approach, which means aircraft will be at a higher altitude for slightly longer, reducing the overall noise footprint compared to current operations and the baseline scenario.
Communities	Air Quality	Like the existing procedure, the majority of local areas overflown are impacted when the aircraft is above 1,000ft. However, it is acknowledged that parts of Locksbottom and Farnborough are likely to be impacted as the aircraft will be at approximate 1,000 ft around 3 NM from touchdown. In addition, it is also acknowledged that this will involve the overflight of the Princess Royal University Hospital. Having said that, this is unavoidable to ensure a safe and stable approach is flown following the establishment of the FAF. Please note, the location of the FAF and associated flight path thereafter will remain the same as it is today and in the baseline scenario. So, when compared to the baseline scenario, this option creates no change in terms of air quality.	Like the existing procedure, the majority of local areas overflown are impacted when the aircraft is above 1,000ft. However, it is acknowledged that parts of Locksbottom and Farnborough are likely to be impacted as the aircraft will be at approximate 1,000 ft around 3 NM from touchdown. In addition, it is also acknowledged that this will involve the overflight of the Princess Royal University Hospital. Having said that, this is unavoidable to ensure a safe and stable approach is flown following the establishment of the FAF. Please note, the location of the FAF and associated flight path thereafter will remain the same as it is today and in the baseline scenario. So, when compared to the baseline scenario, this option creates no change in terms of air quality.
Wider Society	Greenhouse Gas impact	As per the existing procedure, the majority of aircraft will leave the network at OSVEV and be radar vectoring for a PBN approach via ALKIN. When compared to the baseline scenario, this means there will be no change to tracks over the ground and therefore emissions will be the same as the baseline scenario.	This option includes a more direct routing between OSVEV and ALKIN prior to establishing the FAF. This more direct routing means that aircraft will start to procedure from OSVEV rather than ALKIN, but effectively still fly the same track over the ground when compared to the baseline scenario. As a result, this option has no additional impact on emissions.
Wider Society	Capacity and resilience	This option is seen as a more efficient way of managing airspace as aircraft transit from OSVEV to ALKIN and fly this more direct routing onto the FAF. There is no expected impact on capacity and resilience associated with this option.	This option is seen as a more efficient way of managing airspace as aircraft leave the network at OSVEV and fly this more direct routing to ALKIN and then onto the FAF. There is no expected impact on capacity and resilience associated with this option.
Wider Society	Tranquillity	Any aircraft routing from the South or East of LBHA would likely be required to fly over the Kent Downs AONB or Surrey Hills AONB whilst be vectored towards ALKIN. As a result, it is deemed that the impact on the specified AONBs in out of scope of this ACP, as this overflight would occur prior to aircraft being established on this option and under the control of Thames Radar as opposed to LBHA.	Any aircraft routing from the South or East of LBHA would likely be required to fly over the Kent Downs AONB or Surrey Hills AONB whilst be vectored towards OSVEV. As a result, it is deemed that the impact on the specified AONBs in out of scope of this ACP, as this overflight would occur prior to aircraft being established on this option and under the control of Thames Radar as opposed to LBHA.
Wider Society	Biodiversity	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure.	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure.
General Aviation	Access	There is no direct impact on access for general aviation associated with this option. It is also worth noting that this option mimics the situation today, therefore, there is no impact on GA access compared to todays operations.	There is no direct impact on access for general aviation associated with this option. It is also worth noting that this option mimics the situation today, therefore, there is no impact on GA access compared to todays operations.
General Aviation / commercial airlines	Economic impact from increased effective capacity	There would be a very limited economic or capacity impact of this option.	There would be a very limited economic or capacity impact of this option.
General Aviation / commercial airlines	Fuel burn	This option has an overall track mileage of 11.72 NM, meaning it appears to be shorter than Options 2A, 2AD and 2BD. However, it must be stressed that aircraft leaving the network at OSVEV would be required to transit between OSVEV and ALKIN (as per Options 2AD and 2BD) prior to establishing on this procedure. Therefore, in terms of track mileage and fuel burn, they effectively cancel each other out.	This option includes a more direct routing between OSVEV and ALKIN prior to establishing the FAF. This more direct routing, with an overall track mileage of 15.08 NM, meaning it appears longer than Options 2A and 2B although this is not the case (See Options 2A and B for details).
Commercial airlines	Training costs	There are no direct training costs associated with this option.	There are no direct training costs associated with this option.
Commercial airlines	Other costs	There are no anticipated additional costs associated with this option.	There are no anticipated additional costs associated with this option.
Airport / Air navigation service provider	Infrastructure costs	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review. Furthermore, despite the adjustment to 3.2 Deg GS (based on CAA acceptance of Heathrow trials), there is no perceived cost associated with increasing the glideslope.	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review. Furthermore, despite the adjustment to 3.2 Deg GS (based on CAA acceptance of Heathrow trials), there is no perceived cost associated with increasing the glideslope.
Airport / Air navigation service provider	Operational costs	There is no anticipated additional operational costs associated with this option.	There is no anticipated additional operational costs associated with this option.
Airport / Air navigation service provider	Deployment costs	There is no perceived deployment costs associated with this option.	There is no perceived deployment costs associated with this option.
Safety Assessment	Safety Assessment	As this proposed option is a replication of the existing VOR/DME approach, the only hazard identified with this option is the lack of radar vectoring between OSVEV and ALKIN, which is currently provided by NATS Thames Radar. However, in the event of a communications failure, this is unavailable, leading to an increase in pilot workload. On the other hand, this can be mitigated through standard loss of communication procedures. In addition, there is no additional risks posed by the adoption of a 3.2 Deg GS, supported by successful trials at London Heathrow.	As this proposed option is a replication of the existing VOR/DME approach, there is no perceived additional safety concerns outside the parameters that exist today. There are no specific safety risks associated with this option, this includes no additional risks posed by the adoption of a 3.2 Deg GS, supported by successful trials at London Heathrow.
	Summary of Analysis	This option laterally mimics the existing procedure and efficient in terms of fuel burn and emissions. Furthermore, as this option replicates the existing procedure, there is a very minimal impact in terms of noise, tranquillity, biodiversity and air quality compared to todays operations. Option 2B also includes a 3.2 Deg glideslope, meaning aircraft are higher for longer, minimising noise impact on local communities, making it more favourable than the baseline scenario. From a safety perspective, mitigations are in place for the failure of communications with Thames Radar as the aircraft is radar vectored from OSVEV to ALKIN to begin the approach.	This option involving both OSVEV and ALKIN provides a more direct routing between the 2 waypoints prior to establishing the FAF. As this option is a replication of the existing approach, there is very little additional impact in terms of air quality, emissions, tranquillity, biodiversity, commercial aviation, general aviation or airport/ANSPs in comparison to the baseline scenario. The added benefit of this option compared to the baseline scenario, is the 3.2 Deg glideslope included, making it more favourable in terms of noise. From a safety perspective, mitigations are in place for the failure of communications with Thames Radar as the aircraft is radar vectored from OSVEV to ALKIN to begin the approach.

Group	Impact	Option 6A - OSVEV to FAF Left (3 Deg)	Option 6B - OSVEV to FAF Left (3.2 Deg)
Communities	Noise impact on health and quality of life	Option 6A is placed solely within existing ILS radar vectoring swathe in todays operation but is displaced from the baseline scenario, towards the beginning of the procedure. Compared to the baseline scenario, there are more people overflown by this option, as Option 6A overflies areas that are more densely populated than the baseline scenario. However, it is worth noting that those individuals overflown by this option are already overflown in todays operation.	Option 6B is placed solely within existing ILS radar vectoring swathe in todays operation but is displaced from the baseline scenario, towards the beginning of the procedure. Compared to the baseline scenario, there are more people overflown by this option, as Option 6B overflies areas that are more densely populated than the baseline scenario. However, it is worth noting that those individuals overflown by this option are already overflown in todays operation. On the other hand, as this option includes a slightly steeper GS angle (3.2 Deg), aircraft will remain higher for longer, minimising the noise impact on communities further away from LBHA.
Communities	Air Quality	Like the existing procedure, the majority of local areas overflown are impacted when the aircraft is above 1,000ft. However, it is acknowledged that parts of Locksbottom and Farnborough are likely to be impacted as the aircraft will be at approximate 1,000 ft around 3 NM from touchdown. In addition, it is also acknowledged that this will involve the overflight of the Princess Royal University Hospital. Having said that, this is unavoidable to ensure a safe and stable approach is flown following the establishment of the FAF. Please note, the location of the FAF and associated flight path thereafter will remain the same as it is today and in the baseline scenario. So, when compared to the baseline scenario, this option creates no change in terms of air quality.	Like the existing procedure, the majority of local areas overflown are impacted when the aircraft is above 1,000ft. However, it is acknowledged that parts of Locksbottom and Farnborough are likely to be impacted as the aircraft will be at approximate 1,000 ft around 3 NM from touchdown. In addition, it is also acknowledged that this will involve the overflight of the Princess Royal University Hospital. Having said that, this is unavoidable to ensure a safe and stable approach is flown following the establishment of the FAF. Please note, the location of the FAF and associated flight path thereafter will remain the same as it is today and in the baseline scenario. So, when compared to the baseline scenario, this option creates no change in terms of air quality.
Wider Society	Greenhouse Gas impact	This option includes a more direct routing between OSVEV and the FAF as it ignores ALKIN. However, the associated track mileage is similar to that of the baseline scenario, even when considering the aircrafts transit from OSVEV.	This option includes a more direct routing between OSVEV and the FAF as it ignores ALKIN. However, the associated track mileage is similar to that of the baseline scenario, even when considering the aircrafts transit from OSVEV.
Wider Society	Capacity and resilience	This option is seen as a more efficient way of managing airspace as aircraft leave the network at OSVEV and fly this more direct routing onto the FAF. There is no expected impact on capacity and resilience associated with this option.	This option is seen as a more efficient way of managing airspace as aircraft leave the network at OSVEV and fly this more direct routing onto the FAF. There is no expected impact on capacity and resilience associated with this option.
Wider Society	Tranquillity	Any aircraft routing from the South or East of LBHA would likely be required to fly over the Kent Downs AONB or Surrey Hills AONB whilst be vectored towards OSVEV. As a result, it is deemed that the impact on the specified AONBs in out of scope of this ACP, as this overflight would occur prior to aircraft being established on this option and under the control of Thames Radar as opposed to LBHA.	Any aircraft routing from the South or East of LBHA would likely be required to fly over the Kent Downs AONB or Surrey Hills AONB whilst be vectored towards OSVEV. As a result, it is deemed that the impact on the specified AONBs in out of scope of this ACP, as this overflight would occur prior to aircraft being established on this option and under the control of Thames Radar as opposed to LBHA.
Wider Society	Biodiversity	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure.	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure.
General Aviation	Access	There is no direct impact on access for general aviation associated with this option.	There is no direct impact on access for general aviation associated with this option.
General Aviation / commercial airlines	Economic impact from increased effective capacity	There would be a very limited economic or capacity impact of this option.	There would be a very limited economic or capacity impact of this option.
General Aviation / commercial airlines	Fuel burn	This option includes a more direct routing between OSVEV and the FAF, avoiding ALKIN. This more direct routing, with an overall track mileage of 13.87, reducing aircraft fuel burn and emissions.	This option includes a more direct routing between OSVEV and the FAF, avoiding ALKIN. This more direct routing, with an overall track mileage of 13.87, reducing aircraft fuel burn and emissions.
Commercial airlines	Training costs	There are no direct training costs associated with this option.	There are no direct training costs associated with this option.
Commercial airlines	Other costs	There are no anticipated additional costs associated with this option.	There are no anticipated additional costs associated with this option.
Airport / Air navigation service provider	Infrastructure costs	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review.	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review. Furthermore, despite the adjustment to 3.2 Deg GS (based on CAA acceptance of Heathrow trials), there is no perceived cost associated with increasing the glideslope.
Airport / Air navigation service provider	Operational costs	There is no anticipated additional operational costs associated with this option.	There is no anticipated additional operational costs associated with this option.
Airport / Air navigation service provider	Deployment costs	There is no perceived deployment costs associated with this option.	There is no perceived deployment costs associated with this option.
Safety Assessment	Safety Assessment	No significant safety implications were identified during the safety assessment. Arriving aircraft will require a deconfliction service to be provided in respect to London City and London Gatwick traffic. An LOA/MOU between LBHA and Kenley airfield will mitigate any potential conflict between LBHA and gliding operations at Kenley. It is acknowledged that this option requires aircraft to enter the London City CTA, although it offers better separation than other options explored but it is still acknowledged that there is a potential of and infringement into the London City CTA/CTR if not managed correctly.	No significant safety implications were identified during the safety assessment. Arriving aircraft will require a deconfliction service to be provided in respect to London City and London Gatwick traffic. An LOA/MOU between LBHA and Kenley airfield will mitigate any potential conflict between LBHA and gliding operations at Kenley. It is acknowledged that this option requires aircraft to enter the London City CTA, although it offers better separation than other options explored but it is still acknowledged that there is a potential of and infringement into the London City CTA/CTR if not managed correctly.
	Summary of Analysis	This option provides a more logical routing between OSVEV and the FAF, avoiding ALKIN. Track mileage, fuel burn and emissions are effectively the same when compared to the baseline scenario. It is worth noting that a more densely populated area will be overflown as a result of this option, however, as it is contained within the current ILS swathe, this area is already overflown by traffic exiting the network at OSVEV. It must also be acknowledged that this procedure is safe, but coordination with London City may be required.	This option provides a more logical routing between OSVEV and the FAF, avoiding ALKIN. Track mileage, fuel burn and emissions are effectively the same when compared to the baseline scenario. It is worth noting that a more densely populated area will be overflown as a result of this option, however, as it is contained within the current ILS swathe, this area is already overflown by traffic exiting the network at OSVEV. It must also be acknowledged that this procedure is safe, but coordination with London City may be required.

Group	Impact	Option 9 - MAP Do Minimum (MAP Baseline)	Option 12 - MAP, similar to proposed RWY 03 IAP
Communities	Noise impact on health and quality of life	As this MAP option mimics the existing MAP from RWY 21 there will be a limited impact in terms of the disruption of aircraft noise. However, due to design regulation constraints, the protection areas will differ to the existing procedure. Furthermore, once the aircraft has reached ALKIN, the holding pattern will be slightly different to the extant procedure which may have a minor impact on noise dispersion. As this option relies on radar vectors from NATS ATCOs it cannot be guaranteed that aircraft would follow the same track along the ground each time.	It is acknowledged that the track over the ground associated with this option is very similar to that in the proposed RWY 03 IAP. However, when compared to the MAP baseline scenario for this ACP, considerably more people are overflown as the track mileage is far greater. In addition, compared to the baseline scenario, this would be new communities overflown.
Communities	Air Quality	As this MAP option mimics the existing MAP from RWY 21 there will likely only be a very small impact in terms of local air quality, especially as the areas overflown by aircraft at less than 1,000ft are mainly all farmland to the west of Biggin Hill village. Providing this MAP option would mean that the dispersion of aircraft carrying out a MAP would remain to the west of Biggin Hill village. In addition, it is acknowledged that this option would overfly the eastern portion of the Croydon AQMA. Furthermore, by the time aircraft reach the Croydon AQMA, they will likely be above 1,000 ft having no affect on local air quality (below 1,000ft) as per CAP1616.	As this MAP option mimics the proposed RWY 03 IAP, there will likely only be a very small impact in terms of local air quality, especially as the areas overflown by aircraft at less than 1,000ft are mainly all farmland to the west of Biggin Hill village. On the other hand, due to constraints imposed by surrounding airspace, aircraft on this option would be limited to 2,000ft. Providing this MAP option would mean that the dispersion of aircraft carrying out a MAP would remain to the west of Biggin Hill village. In addition, it is acknowledged that this option would overfly the eastern portion of the Croydon AQMA. Furthermore, by the time aircraft reach the Croydon AQMA, they will likely be above 1,000 ft having no affect on local air quality (below 1,000ft) as per CAP1616. To summaries, when compared to the MAP baseline scenario, Option 12 has no additional impact on air quality.
Wider Society	Greenhouse Gas impact	As this MAP option mimics the existing MAP from RWY 21 there will be a limited impact in terms of CO2 emissions as it is designed to be the most practical MAP solution based on the applicable aircraft performance, airspace design and airspace capacity constraints. Therefore, the CO2 emissions associated with this option would remain very similar to the current MAP and steps have been taken to minimise track mileage to as low as practically possible.	Compared to the MAP baseline scenario, Option 12 is far longer as it routes around Kenley airfield, laterally a long way to the west of LBHA. As a result, this option would involve a significant increase in emissions in comparison to the MAP baseline scenario.
Wider Society	Capacity and resilience	This option has been designed as practical as possible to minimise interaction with the Gatwick CTA within the applicable design constraints, therefore, there are no perceived impacts on capacity and resilience.	This option has been designed as practical as possible to minimise interaction with the Gatwick CTA within the applicable design constraints, therefore, there are no perceived impacts on capacity and resilience.
Wider Society	Tranquillity	Like the existing MAP, this option routes to the west of LBHA avoiding overflying the Kent Downs AONB. Due to the south westerly direction of the runway, aircraft carrying out this MAP would likely fly in the close to the very northerly portion of the Surrey Hills AONB, but not over it. This is unavoidable due to aircraft performance and airspace design constraints. However, by this point, aircraft would likely be between 1,500ft and 2,000ft minimising the impact on this area.	Like the existing MAP, this option routes to the west of LBHA avoiding overflying the Kent Downs AONB. Due to the south westerly direction of the runway, aircraft carrying out this MAP would likely fly in the close to the very northerly portion of the Surrey Hills AONB, but not over it. This is unavoidable due to aircraft performance. However, by this point, aircraft would likely be between 1,500ft and 2,000ft minimising the impact on this area.
Wider Society	Biodiversity	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure. However, it is acknowledged that marginal changes may have a very slight impact in terms of areas overflown below 1,000ft on a MAP, but these adjustments are very small, the same overall tracks will be flown.	In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground based infrastructure. Hence, it is expected that there will be no impact in terms of biodiversity associated with this option because it does not involve the implementation or changing of ground infrastructure. However, it is acknowledged that marginal changes may have a very slight impact in terms of areas overflown below 1,000ft on a MAP, but these adjustments are very small, the same overall tracks will be flown.
General Aviation	Access	It is acknowledged that this option requires aircraft to fly within the immediate vicinity of Kenley airfield and may have a very minor impact on gliding operations from this site. It must be highlighted that the expected frequency of the use of this MAP is very low, therefore, in reality the impact is expected to be minimal. A LOA/MOU could be used to mitigate the impact further. It is also worth noting that this option mimics the situation today, therefore, there is no impact on GA access compared to todays operations.	It is acknowledged that this option requires aircraft to fly further away from Kenley airfield and may have a very minor impact on gliding operations in the immediate vicinity of the site. It must be highlighted that the expected frequency of the use of this MAP is very low, therefore, in reality the impact is expected to be minimal. It is acknowledged that this option will have less of an impact on Kenley airfield itself when compared to the MAP baseline scenario, but will have a greater impact on gliding operations that take place further away from Kenley.
General Aviation / commercial airlines	Economic impact from increased effective capacity	There would be a very limited economic impact of this option.	There would be a very limited economic impact of this option.
General Aviation / commercial airlines	Fuel burn	Although this may not be the most direct routing, this option mimics the existing MAP and aims to minimise fuel burn to as low as practically possible based on aircraft performance, airspace design and airspace capacity constraints. Furthermore, this option involves aircraft flying the procedure at 2,000 ft to deconflict with other inbound traffic to Runway 21.	Compared to the MAP baseline scenario, Option 12 is far longer as it routes around Kenley airfield, laterally a long way to the west of LBHA. As a result, this option would involve a significant increase in fuel burn when compared to the MAP baseline scenario.
Commercial airlines	Training costs	There are no direct training costs associated with this option.	There are no direct training costs associated with this option.
Commercial airlines	Other costs	There are no anticipated additional costs associated with this option.	There are no anticipated additional costs associated with this option.
Airport / Air navigation service provider	Infrastructure costs	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review.	The costs associated with RNP approach procedures (supported by GNSS) are very low when compared to conventional approaches, which require ground based navigation aids, therefore, the cost of RNP procedures is lower due to the lack of maintenance and flight inspection. The only costs associated with the RNP approach would be the 5 yearly review.
Airport / Air navigation service provider	Operational costs	There is no anticipated additional operational costs associated with this option.	There is no anticipated additional operational costs associated with this option.
Airport / Air navigation service provider	Deployment costs	There is no perceived deployment costs associated with this option.	There is no perceived deployment costs associated with this option.
Safety Assessment	Safety Assessment	No significant safety implications were identified during the safety assessment. Arriving aircraft will require a deconfliction service to be provided in respect to London City and London Gatwick traffic. An LOA/MOU between LBHA and Kenley airfield will mitigate any potential conflict between LBHA and gliding operations at Kenley. Through Hazard Identification, it is acknowledged that there may be some conflicts with Kenley airfield, furthermore, this option may lead to an increase in pilot workload, which is to be expected in this situation.	Through Hazard Identification, it has been assessed that this option would extend aircraft transit through Class G (uncontrolled) airspace, conflict with other IAP options and conflict with Redhill traffic. Furthermore, this option would have a knock-on effect for traffic at London City Airport and the wider London airspace design. Therefore, overall, this option is deemed to be safe but does increase far more complexities when compared to the MAP baseline scenario.
	Summary of Analysis	Option 9 mimics the existing MAP but also takes into account aircraft performance and airspace design constraints and aims to minimise impact on the Gatwick CTA, however it is acknowledged that aircraft would fly slightly nearer to Kenley airfield than the conventual MAP (Option 8). As an aircraft initially departs LBHA on this MAP, a very limited number of populated areas will be overflown below 1,000ft initially while the remainder of the procedure is based on 2,000ft. Care has been taken to minimise fuel burn and emissions within the defined airspace design constraints.	Option 12 was added following a Stakeholder Focus Group held on 15th April 2021. The option entails laterally mimicking the proposed IAP for RWY 03. However, this means compared to both the existing MAP and the MAP baseline scenario, it is significantly longer, resulting in greater fuel burn and emissions. Additionally, new communities would be overflown (when compared to the existing MAP and the MAP baseline scenario) meaning a greater impact in terms of aircraft noise.